U.S. Army Garrison Alaska

Final Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska

July 2022

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Final
Environmental Impact Statement
Addressing Heat and Electrical Upgrades at
Fort Wainwright, Alaska

July 2022

APPROVED BY:

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Commanding

19 JULY 2022
Date

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FINAL ENVIRONMENTAL IMPACT STATEMENT ADDRESSING HEAT AND ELECTRICAL UPGRADES AT FORT WAINWRIGHT, ALASKA

Lead/Responsible Agency: United States Army Garrison Alaska

Title of the Proposed Action: Heat and Electrical Upgrades at Fort Wainwright, Alaska

Designation: Final Environmental Impact Statement

Prepared by: U.S. Army Garrison (USAG) Alaska

Abstract:

USAG Alaska is proposing to upgrade its coal-fired central heat and power plant (CHPP). The Final Environmental Impact Statement (EIS) analyzed three action alternatives: Alternative 1, Build a New Coal-Fired CHPP; Alternative 2, Build New Dual-Fuel Combustion Turbine Generator CHPP; and Alternative 3, Install Distributed Natural Gas Boilers. The U.S. Army has identified Alternative 3, Install Distributed Natural Gas Boilers, as the preferred alternative. None of the action alternatives would result in significant adverse impacts on environmental resources. Alternatives 2 and 3, however, would have significant localized adverse socioeconomic impacts.

Waiting Period:

The U.S. Army will observe a 30-day waiting period following the publication of the Notice of Availability of this Final EIS in the *Federal Register* before making a final decision.

For Further Information:

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To the Reader:

Thank you for your interest in the U.S. Army Garrison (USAG) Alaska Final Environmental Impact Statement (EIS) Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska.

The U.S. Environmental Protection Agency published an announcement of receipt of the Notice of Availability for the Final EIS in the *Federal Register*. Within the *Federal Register* there is also a Notice of Availability from the U.S. Army, which provides summary information about the Final EIS. The U.S. Army will observe a 30-day waiting period following the *Federal Register* Notice of Availability publication before making a final decision. The Final EIS is available at the Noel Wien Library in Fairbanks, Alaska, the Fort Wainwright Post Library, and the Tri-Valley Community Library in Healy, Alaska, if these facilities are open. Additionally, an electronic copy of the Final EIS is available online at: https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS.

Requests for additional copies of the Final EIS should be forwarded to:

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Executive Summary

Introduction and Background

This Environmental Impact Statement (EIS) addresses the proposal by the U.S. Army Garrison (USAG) Alaska for implementation of heat and electrical generation and distribution upgrades at Fort Wainwright, Alaska. Fort Wainwright is located in the interior of Alaska, adjacent to Fairbanks, and is home to USAG Alaska and units of the 11th Airborne Division, including the 1st Stryker Brigade Combat Team, U.S. Army Aviation units, and Medical Department Activity-Alaska. To support the readiness of these U.S. Department of the Army (Army) forces, USAG Alaska is dependent on reliable heat and power supplied to more than 400 facilities across the 9 million-square-foot installation. The installation generates the majority of its own heat and most of its electricity by burning coal at a central heat and power plant (CHPP) under a utility privatization contract with the System Owner; the remainder of electricity required for the installation is obtained directly from a local utility provider.

The CHPP has been in use since 1955, is one of the oldest operational coal-fired power plants in the United States, and is operating approximately 30 years beyond the average design life of similar facilities (U.S. Army Corps of Engineers [USACE] 2012, 2018; SourceWatch 2019). The installation's steam utilidor distribution system for transferring heat throughout the installation is also operating at or beyond its design life (Guernsey 2015). In the last decade, even after investing more than $70 million in system upgrades, the CHPP and the steam distribution system have experienced several separate near-catastrophic failures, most of which halted the plant's ability to generate electricity or provide steam.

In addition to the existing operational deficiencies, the CHPP has periodically failed to meet state and federal air emissions standards. In January 2018, the Alaska Department of Environmental Conservation (ADEC) issued a notice of violation to the CHPP's System Owner for exceeding statutory carbon monoxide (CO) emission limits. To meet statutory CO limits and comply with the federal emissions standards, the System Owner is now required to operate CHPP boilers at 20 percent reduced capacity.

Summary of Proposed Action

USAG Alaska is proposing to upgrade its heat and electrical generation and distribution capabilities for safety and energy reliability purposes. To sufficiently heat and provide power to installation facilities year-round and ensure sustained operational readiness and mission security into the future, USAG Alaska determined that the Proposed Action would need to generate 1.3 trillion British thermal units (Btu) annually, which is equivalent to an annual average of 45 megawatts of electric capacity to provide the heating needs and an additional 21 megawatts of electricity capacity to provide the electricity needs of the installation. (This document frequently references million British thermal units [MMBtu]. A trillion Btu is equivalent to 1 million MMBtu.)

Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to provide reliable heat and electrical infrastructure for Fort Wainwright that resolves current safety, resiliency, fiscal, and regulatory concerns. The Army's anticipated execution date is contingent upon available funds.

USAG Alaska needs reliable, economically and environmentally efficient, and operationally sustainable heat and electrical infrastructure for the installation. Fort Wainwright's existing coal-fired CHPP and distribution systems are operating at approximately 42 percent efficiency, are beyond their design life, and are nearing the end of their useful lives (Guernsey 2015). Because of the continued reliance upon old technologies for installation heat, Fort Wainwright has one of the highest heating costs of any installation in the Army (USACE 2018). USAG Alaska needs to construct reliable heat and electrical infrastructure on the installation for the following reasons:

- The existing CHPP and distribution systems present a major energy safety and security risk from the potential of a single-point catastrophic failure, which may require evacuation of the installation and severely affect mission readiness.
- Fort Wainwright is mandated by Army and Department of Defense regulations to meet energy efficiency and energy security requirements.
- The installation needs to reduce emissions associated with criteria air pollutants to help meet air quality regulations.
- The installation needs to meet energy security and resilience criteria and maintain backup capacity.

Scope of the Environmental Impact Statement

The EIS evaluates the potential direct, indirect, and cumulative impacts associated with implementing reasonable alternatives of the Proposed Action as well as a No Action Alternative. This EIS has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 *et seq*.); NEPA-implementing regulations issued by the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508); and the Army's NEPA-implementing regulation (32 CFR §§ 651.1–651.53, Environmental Analysis of Army Actions).

USAG Alaska has prepared this Final EIS to inform decision-makers, the public, Alaska Native tribal governments, regulatory agencies, and other interested parties about the potential adverse and beneficial environmental impacts of implementing the Proposed Action. The Draft EIS was filed with the U.S. Environmental Protection Agency (EPA) to announce the availability of the Draft EIS in the *Federal Register.* The Army also published a Notice of Availability (NOA) for the Army that provides summary information about the Draft EIS. Publication of the NOA in the *Federal Register* began the start of a 60-day comment period from October 8, 2020, to December 8, 2020. To allow for additional time for the public to comment, the Army reopened the comment period for an

additional 60 days. An Amended NOA for the Draft EIS was published in the *Federal Register* on December 23, 2020, reopened the public comment period through February 22, 2021.

Alternatives Considered

Through the NEPA process, alternatives for implementing the Proposed Action are developed and analyzed to provide decision makers with options as well as an understanding of how the Proposed Action may affect various resources. Alternatives carried forward for full analysis in the EIS must be reasonable and feasible and meet the purpose of and need for the Proposed Action.

The Army considered a wide range of potential alternatives to upgrade heat and electrical generation capabilities at Fort Wainwright, as detailed in Section 2.3 of the EIS. USAG Alaska developed a screening process to determine which of the total 21 alternatives considered would meet the project's purpose and need. Eighteen of the action alternatives considered failed to meet one or more of the screening criteria; therefore, those action alternatives were not considered viable and were eliminated from detailed analysis in the EIS.

Three action alternatives met all six criteria; therefore, they were considered reasonable and feasible and were carried forward for full analysis in the EIS. The No Action Alternative was also fully analyzed in the EIS in accordance with CEQ regulations (40 CFR § 1502.14). Although the No Action Alternative would not meet the purpose of and need for the Proposed Action, it reflects current conditions and assumes that these status quo conditions would continue into the foreseeable future. The EIS presents detailed information and analyses of the following alternatives:

No Action Alternative. Under the No Action Alternative, USAG Alaska would continue to use the existing heat and electrical infrastructure and would not construct any new infrastructure. To keep the plant operational, USAG Alaska would need to complete major repairs, update technologies, upgrade 27 miles of the steam distribution system with the utilidors, and incorporate Best Available Control Technology (BACT). To meet federal emissions standards, the derated CHPP boilers would continue to operate at 80 percent of their nameplate-rated capacity, which may reduce the existing plant's ability to support future USAG Alaska and 11th Airborne Division missions.

Alternative 1: Build New Coal CHPP. Under Alternative 1, USAG Alaska would construct a new, modern, coal-fired CHPP and upgrade the steam distribution system. USAG Alaska would demolish the old CHPP after operational transition. The location of the new plant would be in the vicinity of the existing plant to maximize continued use of the existing utilidors. Coal would continue to be the fuel source and be stockpiled on the site. Any additional electricity required would be purchased directly from a local utility provider. Among alternatives carried forward for detailed analysis in the EIS, this alternative would have the highest implementation and operations and

maintenance (O&M) costs, and the highest risk for installation-wide loss of heat through distribution (USACE 2018).

Alternative 2: Build New Dual-Fuel Combustion Turbine Generator CHPP. Under Alternative 2, USAG Alaska would replace the existing CHPP with a new, modern, dual-fuel combustion turbine generator CHPP. The system would allow for two online combustion turbine generators (CTGs) to meet summertime peak demands while one is down for maintenance, and two of the heat recovery steam generators to meet peak steam-to-post demands, leaving one for redundancy. The primary fuel for the new plant would be natural gas, with ultra-low-sulfur diesel (ULSD) as the secondary source. As with Alternative 1, USAG Alaska would upgrade the steam distribution system and demolish the old CHPP following operational transition. Under this alternative, USAG Alaska would be required to secure a sustained supply of natural gas and ULSD. USAG Alaska would construct a natural gas supply pipeline between an existing natural gas distribution main and the new CHPP. In accordance with Army Directive 2020-03 (*Installation Energy and Water Resilience Policy*) (Department of Defense [DoD] 2020), USAG Alaska would also construct ULSD fuel storage to maintain a minimum 14-day supply adequate to support facility operations in the event of a substantial energy supply disruption. Among those carried forward for detailed analysis in the EIS, this alternative would enhance fuel source resiliency, be the best environmentally centralized option, and have lower implementation and O&M costs than a coal-fired CHPP (USACE 2018).

Alternative 3: Install Distributed Natural Gas Boilers. Under Alternative 3, USAG Alaska would transition away from a centralized heat and power model by installing multiple high-efficiency natural gas-fired boilers at facilities dispersed across the installation to provide heat, and would purchase all required electricity from a local utility provider. USAG Alaska would demolish the old CHPP once the distributed natural gas boiler system is operational. Portions of the existing steam distribution system would be upgraded as required to accommodate steam and return water distribution to support the distributed boilers and other underground utilities. USAG Alaska would also be required to secure a sustained natural gas supply to support boiler operations across the installation. In the event of a power outage or natural gas interruption to mission-critical buildings, ULSD-reciprocating combustion generators would be used as emergency backup power or heat sources for boilers. To provide installation-wide electricity resiliency, emergency generators would be placed at the electrical substations on the installation for use in the event of a local-power interruption. Among those carried forward for detailed analysis in the EIS, this alternative would have the lowest implementation and O&M costs, an energy usage reduction of up to 46 percent from current baseline, and the advantage of emergency generators already in place in mission-critical facilities (USACE 2018).

Preferred Alternative

The Army has identified Alternative 3 as the preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. The preferred alternative takes into account technical and economic feasibility, environmental and social

issues, and the ability to meet USAG Alaska and 11th Airborne Division mission objectives. This Final EIS addresses and responds to substantive comments received on the Draft EIS and is signed by the USAG Alaska Garrison Commander. The U.S. Army will observe a 30-day waiting period following the Federal Register NOA publication before making a final decision. The final decision and rationale for selection of an alternative will be presented in the Record of Decision for the EIS, which will be signed by the Commanding General, U.S. Army Installation Management Command.

Alternative 3 would provide compatibility with mission readiness and energy security needs because market research indicates there are sufficient quantities of natural gas, which would be the primary fuel (Pentex Alaska LLC 2016). The local natural gas utility has also constructed infrastructure that can store sufficient quantities in the event of a supply disruption. ULSD (backup fuel to mission-critical facilities) is readily available in sufficient quantities, and it is anticipated to have on-installation storage tanks to meet the 14-day storage backup supply (DoD 2020a).

In a distributed system, major components are limited to individual boilers within the distributed model, which minimizes downtime for heat generation and distribution. The distributed model under Alternative 3 would be able to withstand an outage on mission-critical facilities because the risk of an installation-wide failure for critical facilities would be minimal due to redundant heat and power sources. Power would be received from the local grid, and generators located at the on-post substation would be capable of providing backup power to the entire installation. With redundant electrical service, individual facility-level boilers could sustain normal operation. In the event of a single boiler failure, the Army's mission would continue because the rest of the installation would not be affected. With the distributed system, Alternative 3 would eliminate the risk of a single point of failure that could result in a near-catastrophic or catastrophic event.

Using third-party financing (Utility Energy Service Contract/Energy Savings Performance Contract), or a government-owned rate structure, the cost of Alternative 3 would less than the cost of the other alternatives.

Summary of Environmental Consequences

Resource areas analyzed for environmental and socioeconomic impacts include air quality, utilities, hazardous and toxic materials and wastes, socioeconomics, environmental justice, noise, land use, transportation and traffic, human health and safety, geology and soil resources, water resources, cultural resources, and airspace.

All action alternatives would result in short-term, negligible to minor adverse impacts that would be limited to the construction period. Similarly, the No Action Alternative would result in short-term, negligible to minor, adverse impacts during repairs, which would be necessary throughout the operations period. Such temporary impacts, which could include increases in traffic, noise, stormwater runoff and turbidity, soil disturbance, and air emissions, would largely be minimized through standard operating procedures and best management practices (BMPs). Short-term, beneficial impacts, such as temporary

jobs during construction and repair work, would also be expected as a result of any one of the alternatives evaluated.

All three action alternatives would result in long-term, beneficial impacts on the ability for Fort Wainwright to carry out its mission. Such beneficial impacts on mission support would be considered significant under all three action alternatives, whereas the No Action Alternative would continue to put the mission at risk over the long-term and potentially lead to significant, adverse impacts on human health and safety.

All three action alternatives would result in greater long-term, beneficial impacts on air quality over existing conditions than the No Action Alternative. The action alternatives would reduce emission levels for seven or more criteria pollutants whereas only one would be reduced by the No Action Alternative. All three action alternatives would reduce CO emissions considerably compared to existing conditions while the No Action Alternative would continue to operate the existing derated CHPP boilers at up to 80 percent nameplate-rated capacity to avoid exceeding regulatory CO emissions standards. Although Alternative 2 would improve air quality more than Alternative 1, Alternative 3 would result in the greatest long-term, beneficial impacts on air quality by reducing CO and greenhouse gas emissions by almost 90 percent and over 70 percent, respectively.

None of the action alternatives would result in widespread, long-term significant, adverse impacts on environmental resources. Alternative 2 and Alternative 3, however, would result in long-term, significant, localized adverse socioeconomic impacts on the coal mining sector in Healy. Although the reduction of coal sales and mining jobs under Alternative 2 and Alternative 3 would result in long-term, minor to significant, localized adverse economic impacts on children and low-income populations in Healy, the decrease in emissions would result in long-term, minor, beneficial health impacts, especially for children. All three action alternatives would result in adverse impacts on historical properties on Fort Wainwright. Depending on final design, Alternative 3 would likely result in long-term, significant, adverse impacts on historical properties, and impacts would be reduced to less than significant through mitigation required through Section 106 consultation.

In summary, implementation of any one of the alternatives would, to varying degrees, result in both adverse and beneficial impacts on environmental resources. Table ES-1 provides a summary of potential impacts that could occur under each alternative considered.

A cumulative impact analysis was completed to determine whether the combined effects of the Proposed Action in addition to other past, present, and future foreseeable projects in the region could result in a significant impact. This analysis determined that there would be no significant cumulative impacts. The Proposed Action and other identified cumulative projects could result in short-term, minor to moderate, adverse and beneficial, cumulative impacts or less on all resource areas.

Best Management Practices and Mitigation Measures

USAG Alaska is committed to avoiding or mitigating adverse effects to the extent practicable, and has identified measures that would be implemented to avoid, minimize, and/or mitigate impacts on environmental resources. USAG Alaska has incorporated measures to avoid or minimize impacts into the project design and would implement BMPs and construction measures to avoid or further minimize potential impacts.

Table ES-1. Summary of Environmental Impacts

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Air Quality Section 3.2	Short-term, minor, adverse impacts during repairs Long-term (during operations),[a] minor, beneficial impacts: • Reduces 1 criteria pollutant emission level due to implementation of BACT measures	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: • Reduces 5 criteria pollutant emissions levels • Reduces GHG emissions • 20 percent less water vapor	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: • Reduces 4 criteria pollutant emissions levels • Greater decrease for most pollutants than under Alternative 1 • Reduces GHG emissions • 75 percent more water vapor	Short-term, minor, adverse impacts during construction Long-term, moderate, beneficial impacts: • Reduces all criteria pollutant emissions levels • Greatest overall reduction in pollutant emissions of all action alternatives • Greatest reduction in GHG emissions of all action alternatives • 10 percent more water vapor, but dispersed over a larger area
Utilities Section 3.3	Short-term, minor, adverse impacts during repairs No impact on coal consumption or heating efficiency: • 42 percent efficient system Long-term, significant, adverse impacts on Fort Wainwright's mission could occur from continued risk of plant failure No change in long-term impacts on electrical system	Short-term, minor, adverse impacts during construction Long-term, significant, beneficial impacts on heating efficiency: • 53 percent efficient system • Less coal consumption. Long-term, minor, adverse impact on coal consumption and ash disposal operations	Short-term, minor, adverse impacts during construction Long-term, significant, beneficial impacts on heating efficiency • 58 percent efficient system • No coal consumption • Cleaner burning than coal Long-term, moderate, adverse and beneficial impacts on	Short-term, minor, adverse impacts during construction Long-term, significant, beneficial impacts on heating efficiency: • 75 percent efficient system • No coal consumption • Cleaner burning than coal Long-term, moderate, adverse and beneficial impacts on

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
		Long-term, significant, beneficial impacts on mission support Long-term, moderate, beneficial impacts on electrical system	natural gas and ULSD fuel consumption Long-term, significant, beneficial impacts on mission support Long-term, moderate, beneficial impacts on electrical system	natural gas and ULSD fuel consumption Long-term, significant, beneficial impacts on mission support Long-term increased reliance on off-post electricity adds minor risk
Hazardous and Toxic Materials and Wastes Section 3.4	Short-term, minor, adverse impacts during repairs Long-term, minor, adverse impacts from coal waste stream and ongoing repairs	Short-term, minor, adverse impacts from use of hazardous materials, and waste generated during construction Long-term, minor, adverse impacts from coal ash waste stream	Short-term, minor, adverse impacts from use of hazardous materials, and waste generated during construction Long-term, negligible, adverse impacts from new waste stream Long-term, moderate, beneficial impacts from closure/ remediation of on-post coal supply site	Short-term, minor, adverse impacts from use of hazardous materials, and waste generated during construction; potential to disrupt Military Munitions Response Program, Installation Restoration Program, or unexploded ordnance sites during construction Long-term, negligible, adverse impacts from new waste stream Long-term, moderate, beneficial impacts from closure/ remediation of on-post coal supply site

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Socio-economics Section 3.5	Short-term, minor, beneficial impacts during repairs: • Temporary local jobs during ongoing repairs No cost of living impacts Long-term, minor to moderate, adverse impacts on employment and income from operating the derated CHPP boilers at 80 percent of the nameplate-rated capacity	Short-term, minor, beneficial impacts from construction: • 2,700 temporary jobs • $183 million labor income • $287 million business sales No cost of living impacts Long-term, moderate, adverse and beneficial impacts on workforce during operation: • $3.9 million labor income • $20.5 million in business sales • May require fewer direct jobs than the No Action Alternative Long-term, moderate, adverse impact on coal industry sales due to improved system efficiency	Short-term, minor, beneficial impacts from construction: • 1,700 temporary jobs • $121 million labor income • $287 million business sales Long-term, minor to moderate, adverse and beneficial impacts on workforce during operation: • $2.8 million labor income • $13.8 million in business sales • May require fewer direct jobs than the No Action Alternative Long-term, significant, localized adverse impact on coal industry sales due to switch in fuel from coal to natural gas Long-term, minor, beneficial impacts on natural gas sector	Short-term, minor, beneficial impacts from construction: • 500 temporary jobs • $42 million labor income • $103 million business sales Long-term, minor to moderate, adverse and beneficial impacts on workforce during operation: • $1.1 million labor income • $2.4 million in business sales • May require fewer direct jobs than the No Action Alternative Long-term, significant, localized adverse impact on coal industry sales due to switch in fuel from coal to natural gas Long-term, minor, beneficial impact on natural gas and electrical utility sectors

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Environmental Justice Section 3.6	Short-term, minor, adverse impacts during repairs Long-term, minor to moderate, adverse health impacts: coal use and combustion, especially on minority and low-income populations and child populations Long-term, moderate to significant, adverse impacts on mental and physical health for Fort Wainwright population if system fails during winter	Short-term, minor, adverse impacts (noise, traffic) Long-term, minor, beneficial impacts (improved air quality) on minority and low-income populations and child populations Long-term, minor to moderate, adverse economic impacts (fewer direct jobs than the No Action Alternative during operations) on minority populations Long-term, minor to moderate, adverse health impacts: coal use and combustion, similar to No Action Alternative	Short-term, minor, adverse impacts, similar to Alternative 1 Long-term, minor, beneficial health impacts due to reduced emissions on minority and low-income populations and child populations Long-term, minor to moderate, adverse economic impacts (fewer direct jobs than the No Action Alternative during operations) on minority populations Long-term, significant, localized adverse economic impacts low-income populations in Healy from less coal demand	Short-term, minor, adverse impacts, similar to Alternative 1 Long-term, minor, beneficial health impacts due to reduced emissions on minority and low-income populations and child populations Long-term, minor to moderate, adverse economic impacts (fewer direct jobs than the No Action Alternative during operations) on minority populations Long-term, significant, localized adverse economic impacts low-income populations in Healy from less coal demand
Noise Section 3.7	Short-term, minor, adverse impacts during repairs No long-term changes to noise as compared to existing conditions	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: new infrastructure may generate less noise than existing CHPP	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: new infrastructure may generate less noise and rail deliveries of coal would cease	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: new infrastructure may generate less noise and rail deliveries of coal would cease
Land Use Section 3.8	No short- or long-term changes on land use or visual resources	Long-term, minor, beneficial impacts on visual resources from new CHPP	Long-term, minor, beneficial impacts on visual resources, and minor to moderate, adverse impacts from pipeline construction	Long-term, minor, beneficial impacts on visual resources, and minor to moderate, adverse impacts from pipeline construction

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Transportation and Traffic Section 3.9	Short-term, minor, adverse impacts during repairs No long-term changes to existing conditions – coal deliveries by rail and coal ash by truck would continue	Short-term, minor, adverse impacts during construction No long-term changes to existing conditions – coal deliveries by rail and coal ash by truck would continue	Short-term, minor, adverse impacts during construction Long-term, negligible to minor, beneficial impacts, no coal deliveries and less truck traffic Long-term, negligible to minor, adverse impacts from natural gas and ULSD truck delivers	Short-term, minor, adverse impacts during construction Long-term, negligible to minor, beneficial impacts, no coal deliveries and less truck traffic Long-term, negligible to minor, adverse impacts from natural gas and ULSD truck delivery
Human Health and Safety Section 3.10	Short-term, minor, adverse impacts during repairs Long-term, moderate to significant, adverse impacts on health by not reducing risk of outage; perpetuates safety risks Continues coal use	Short-term, minor, adverse impacts during construction Long-term, minor to moderate, beneficial impacts, substantially reduces risk of installation evacuations from outage Continues coal use	Short-term, minor, adverse impacts during construction Long-term, minor to moderate, beneficial impacts, substantially reduces risk of installation evacuations from outage Avoids coal use	Short-term, minor, adverse impacts during construction Long-term, minor to moderate, beneficial impacts, substantially reduces risk of installation evacuations from outage Avoids coal use
Geology and Soil Resources Section 3.11	Short-term, negligible to minor, adverse impacts during repairs	Short-term, negligible to minor, adverse impacts during construction	Short-term, negligible to minor, adverse impacts during construction	Short-term, negligible to minor, adverse impacts during construction
Water Resources Section 3.12	Short-term, negligible to minor, adverse impacts on water quality during repair work No long-term, adverse impacts on water resources	Short-term, negligible to minor, adverse impacts on water quality during construction Long-term, negligible, adverse impacts on groundwater	Short-term, negligible to minor, adverse impacts on water quality during construction Long-term, negligible, adverse impacts on groundwater	Short-term, negligible to minor, adverse impacts on water quality during construction Long-term, negligible, adverse impacts on groundwater

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Cultural Resources Section 3.13	No long-term, adverse impacts on cultural resources	Long-term, minor, adverse impacts on Ladd Field National Historic Landmark (NHL) from utilidor upgrades; would be less than significant with mitigation Long-term, minor, adverse impact on viewshed of distant historic properties No impacts on archaeological resources	Long-term, minor, adverse impacts on Ladd Field NHL from utilidor upgrades; would be less than significant with mitigation Long-term, minor, adverse impact on viewshed of distant historic properties No impacts on archaeological resources	Long-term, significant, adverse impacts on Ladd Field NHL and Ladd Air Force Base Cold War Historic District from construction of facilities near historic resources, and on Ladd Field NHL from utilidor upgrades; would be less than significant with mitigation No impacts on archaeological resources
Airspace Section 3.14	No impact on airspace management	No impact on airspace management	No impact on airspace management	No impact on airspace management

Note:

a. Long-term refers to the operation period (i.e., after initial construction for action alternatives).

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TABLE OF CONTENTS

List of Appendices

List of Figures

LIST OF TABLES

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Acronyms and Abbreviations

2016 GHG Guidance	"Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews'' (*Federal Register*, Vol. 81, No.151, August 5, 2016)
°F	degree Fahrenheit
µg/m^3	micrograms per cubic meter
AAC	Alaska Administrative Code
AAF	Army Airfield
AC	Advisory Circular
ACEP	Alaska Center for Energy and Power
ACM	asbestos-containing material
ACP	Access Control Point
ADCCED	Alaska Department of Commerce, Community, and Economic Development
ADEC	Alaska Department of Environmental Conservation
ADNL	A-weighted day-night sound level
ADNR	Alaska Department of Natural Resources
ADOLWD	Alaska Department of Labor and Workforce Development
ADOT&PF	Alaska Department of Transportation and Public Facilities
ADP	Area Development Plan
AFB	Air Force Base
AFS	Air Force Station
AGDC	Alaska Gasline Development Corporation
AHRS	Alaska Heritage Resources Survey
AIDEA	Alaska Industrial Development and Export Authority
ANC	Alaska Native Corporation
ANCSA	Alaska Native Claims Settlement Act
APDES	Alaska Pollutant Discharge Elimination System
APZ	accident potential zone
AQCR	Air Quality Control Region
AR	Army Regulation
Army	U.S. Department of the Army
ARRC	Alaska Railroad Corporation
AST	aboveground storage tank
BACM	Best Available Control Measures

BACT	Best Available Control Technology
bcf	billion cubic feet
BLM	Bureau of Land Management
BMP	best management practice
Btu	British thermal unit
CAA	Clean Air Act
CDNL	C-weighted day-night sound level
CDP	census-designated place
CEMML	Center for Environmental Management of Military Lands
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CHPP	central heat and power plant
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPSC	Consumer Product Safety Commission
CWA	Clean Water Act
CWHD	Cold War Historic District
dB	decibel
dBA	A-weighted decibel
DERP	Defense Environmental Restoration Program
DHS	distributed heating system
DHHS	U.S. Department of Health and Human Services
DHSEM	Alaska Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management
DLA	Defense Logistics Agency
DLT	Doyon Leadership Training
DNL	day-night sound level
DoD	Department of Defense
DoDI	Department of Defense Instruction
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DSI	Dry Sorbent Injection

EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAI	Fairbanks International Airport
FAST	Fairbanks Area Surface Transportation
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FMATS	Fairbanks Metropolitan Area Transportation System
FNSB	Fairbanks North Star Borough
FNSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FY	fiscal year
GHG	greenhouse gas
GVEA	Golden Valley Electric Association
HRSG	heat recovery steam generator
IEP	Interior Energy Project
IGU	Interior Gas Utility
IRP	Installation Restoration Program
IWG-SCGHG	Interagency Working Group on Social Cost of Greenhouse Gases
kg	kilogram
kg/MMBtu	kilograms per million British thermal units
kWh	kilowatt-hour
lb	pound
lb/hr	pounds per hour
lb/MMBtu	pound per million British thermal units
LBP	lead-based paint
L_{eq}	equivalent sound level
LNG	liquefied natural gas
LQG	Large Quantity Generator
LOS	Level of Service
LUPZ	Land Use Planning Zone
LUST	leaking underground storage tank

MDA	Missile Defense Agency
MEDDAC – AK	Medical Department Activity – Alaska
MFH	military family housing
mgd	million gallons per day
MMBtu	million British thermal units
MMBtu/hr	million British thermal units per hour
MMRP	Military Munitions Response Program
MMT	million metric tons
mph	miles per hour
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
MW	megawatt
MWe	megawatts electric
MW/hr	megawatts per hour
MWh	megawatt-hours
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NNSR	Nonattainment New Source Review
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NO_X	nitrous oxide
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
O_3	ozone
O&M	operations and maintenance
ORL	Owner Requested Limit
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PA	Programmatic Agreement

PACAF AOR	Pacific Air Forces Area of Responsibility
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
pga	peak ground acceleration
PFAS	perfluoroalkyl and polyfluoroalkyl substances
P.L.	Public Law
PM	particulate matter
$PM_{2.5}$	particulate matter smaller than 2.5 microns in diameter
PM_{10}	particulate matter smaller than 10 microns in diameter
POL	petroleum, oil, and lubricants
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
ppmvd	parts per million by volume, dry
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PSR	Physicians for Social Responsibility
PTE	potential to emit
RCRA	Resource Conservation and Recovery Act
REPI	Readiness and Environmental Protection Integration
ROD	Record of Decision
ROI	region of influence
RPMP	Real Property Management Plan
SCC	social cost of carbon
SC-CH_4	social cost of methane
SC-CO_2	social cost of carbon dioxide
SC-N_2O	social cost of nitrous oxide
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOP	standard operating procedure
SPCC	Spill Prevention, Control, and Countermeasure
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
tpy	tons per year

TRB	Transportation Research Board
TRI	Toxic Release Inventory
TRS	Tontechnik-Rechner-SengPiel Audio
TSCA	Toxic Substances Control Act
UAS	Unmanned Aircraft System
UESC	Utility Energy Service Contract
UFC	Unified Facilities Criteria
ULSD	ultra-low-sulfur diesel
UPC	utility privatization contract
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USAG	U.S. Army Garrison
USARAK	U.S. Army Alaska
U.S.C.	United States Code
USCB	U.S. Census Bureau
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance
VOC	volatile organic compound
WRCC	Western Regional Climate Center

1. Purpose of and Need for the Action

1.1 Introduction

This Environmental Impact Statement (EIS) is being prepared to address the proposal by the U.S. Army Garrison (USAG) Alaska to upgrade the on-post heat and electrical generation and distribution capabilities at Fort Wainwright, Alaska. Fort Wainwright's mission is to integrate resources and deliver installation services to enable the readiness of the U.S. Department of the Army (Army) forces in Alaska while enhancing the quality of life for Soldiers, families, and the on-post community. The Soldiers, Families, and Civilian personnel who make up the Fort Wainwright population are reliant upon a coal-fired central heat and power plant (CHPP) and a heat distribution system to generate and supply heat and power to more than 400 facilities across the installation. This heat and power system, operating beyond its design life, is becoming exponentially more expensive to operate, and faces a significant overhaul to operate reliably and meet environmental quality standards.

USAG Alaska bears the responsibility to provide reliable, economically efficient, and operationally sustainable heat and electrical generation and distribution capabilities at Fort Wainwright. In accordance with Army Directive 2020-03 (*Installation Energy and Water Resilience Policy*) (Department of Defense [DoD], 2020a), the Army will prioritize energy and water security requirements to ensure available, reliable, and quality power and water to continuously sustain critical missions and will also continue to evaluate the feasibility of incorporating renewable energy resources into the energy portfolio of Fort Wainwright. These efforts will include coordinating vulnerability and risk assessments of potential energy and water resource disruptions and implementing adequate response to mitigate identified risks. The Army will reduce risk to critical missions by being capable of providing necessary energy and water for a minimum of 14 days. The Army will improve resilience at installations, including planning for restoration of degraded energy and water systems and reducing risks of future disruptions by addressing the following attributes: (1) ensured access to resource supply by having redundant and diverse sources of supply, including renewable energy, that meet evolving mission requirements during normal and emergency response operations; (2) reliable infrastructure condition capable of onsite energy and water storage along with flexible and redundant distribution networks; and (3) effective system operations with trained personnel who conduct required system planning, operations, and sustainment activities for energy and water security.

In 2008, USAG Alaska entered into a 50-year utility privatization contract (UPC) with a local utility provider authorized by the Defense Reform Initiative Directive (10 United States Code [U.S.C.] § 2688) that allows the DoD to transfer utility assets to any municipal, private, regional, district, or cooperative utility company or to any other entity. Under the UPC, the installation generates all heating requirements at the CHPP and most of its own electricity; the remainder of the required electricity is purchased under a separate power purchase contract from the local electric utility located off-post. Since 2008, the System Owner, under the UPC, has made improvements to the CHPP, the

electrical distribution system, and portions of the steam delivery pipeline; however, the old infrastructure is operationally inefficient, creating high utility costs and emission exceedances. Continued reliance upon the existing system would present critical risks to Fort Wainwright's operations and to mission sustainability into the future.

Because the existing CHPP and its heat distribution system is operating beyond its design life and presents a risk to Fort Wainwright's mission, USAG Alaska is evaluating alternative on-post heat and electricity generation and distribution capabilities. Although the CHPP is operated under the UPC, the Army is the landowner and would be paying for construction of a replacement electricity and heat generating alternative to sustain its needs into the future. Therefore, USAG Alaska is responsible for the development of this EIS in compliance with the National Environmental Policy Act (NEPA).

This EIS is being prepared in accordance with NEPA of 1969, as amended (42 U.S.C. § 4321 et seq.); NEPA-implementing regulations issued by the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508); and the Army's NEPA-implementing regulation (32 CFR Part 651, Environmental Analysis of Army Actions). The Notice of Intent (NOI) for this EIS was published in the *Federal Register* on July 22, 2019, which is prior to the September 2020 effective date of CEQ's update to its NEPA implementing regulations; therefore, this EIS adheres to the 1978 version, as amended, of CEQ's NEPA implementing regulations.

1.1.1 Project Location

Fort Wainwright is in Interior Alaska and is located in the Fairbanks North Star Borough (FNSB), north of the Alaska Range in the Tanana River Valley (see Figure 1.1-1). The installation is on the eastern edge of the urbanized portions of the City of Fairbanks, the largest city (population of approximately 31,644) in the FNSB. It is home to USAG Alaska and units of the 11th Airborne Division. Situated at 65 degrees north latitude, the installation has a subarctic climate. The installation includes the Main Post (approximately 15,536 acres) and several training areas outside the Main Post. The CHPP is located on the Main Post. The Main Post consists of five planning districts: the North Post, South Post, West Post, and Ladd Airfield districts are within the Main Cantonment Area, and the Chena North district is north of the Main Cantonment Area (Figure 1.1-2).

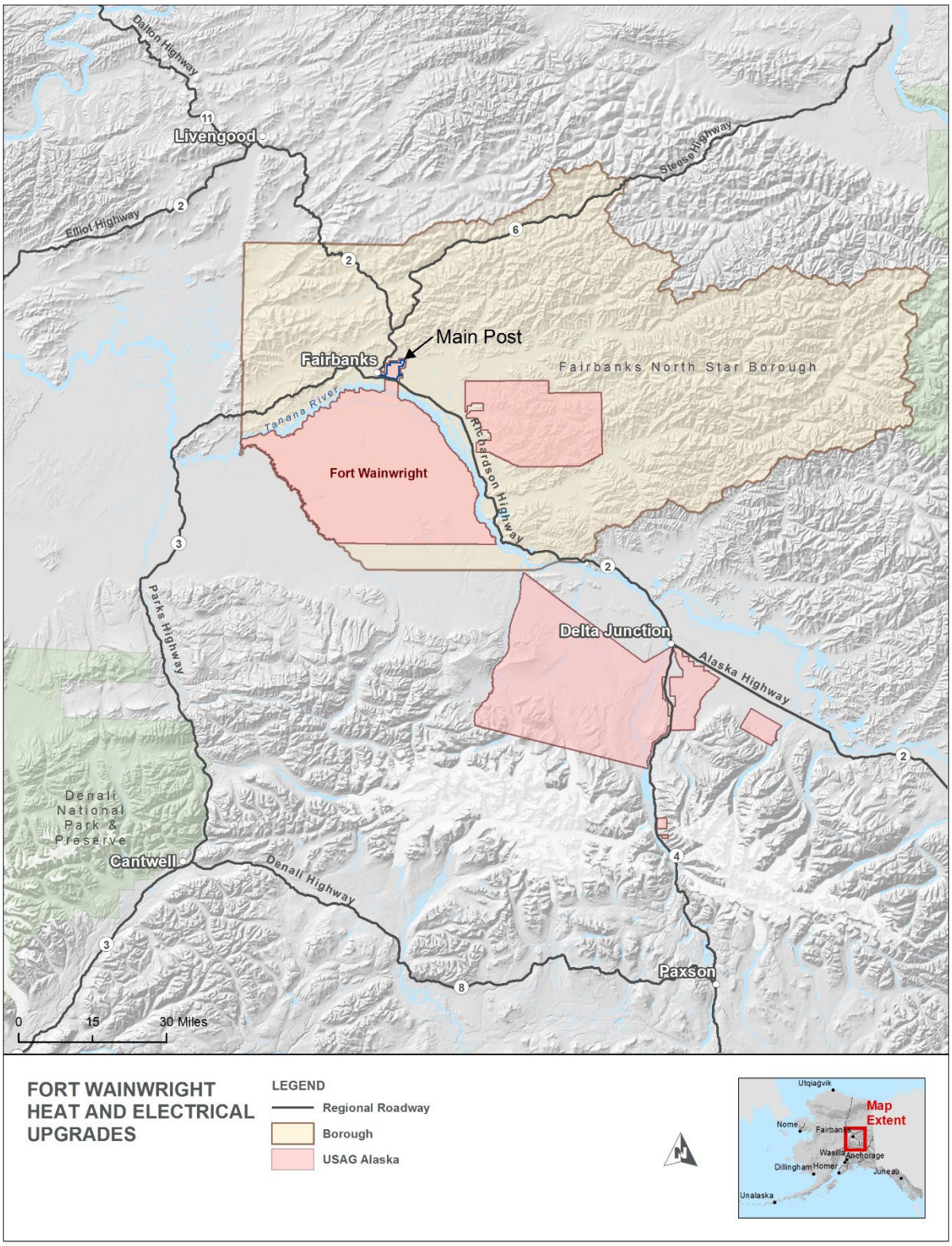


Figure 1.1-1. Project Location

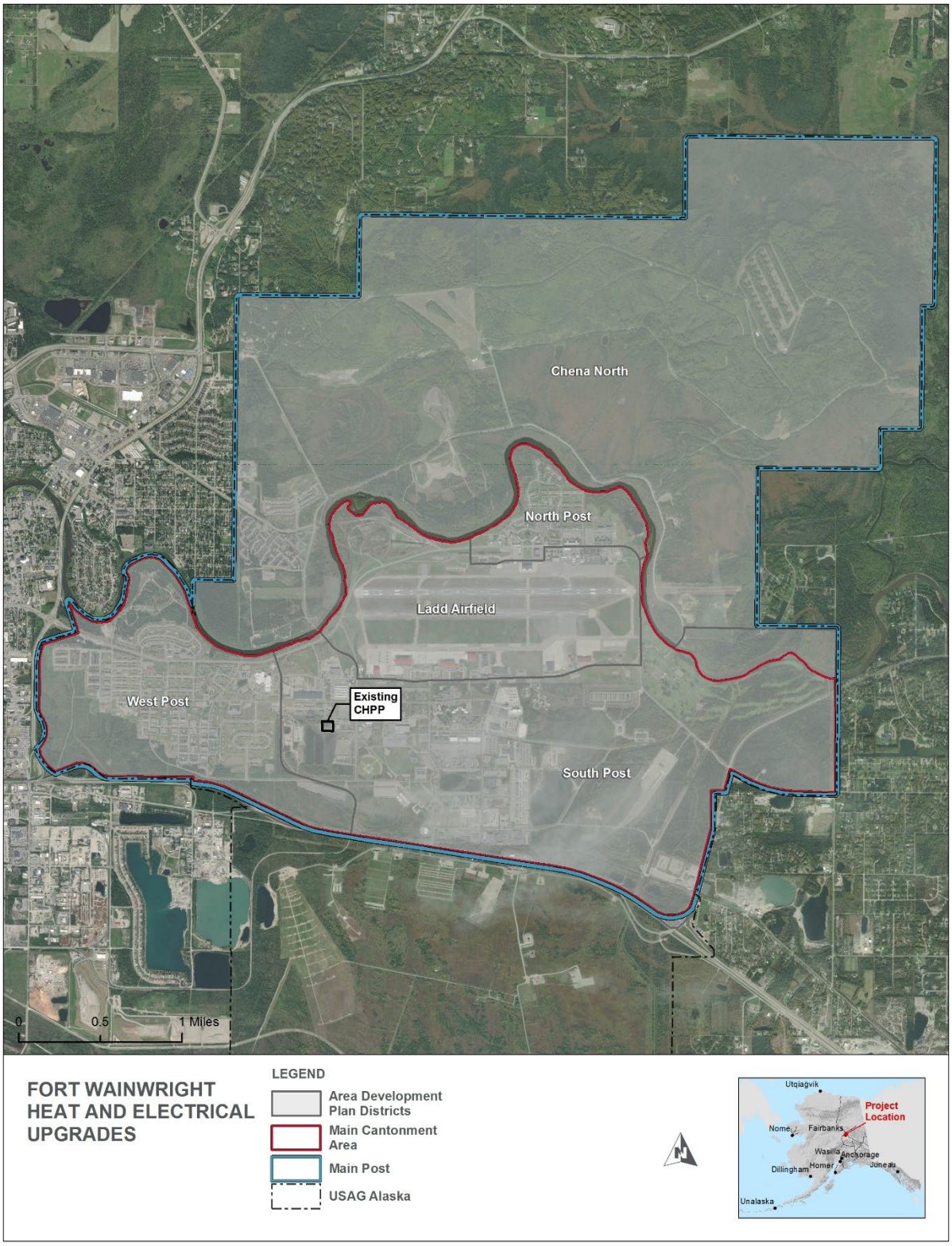


Figure 1.1-2. Fort Wainwright Main Post

1.1.2 Background Information

The CHPP at Fort Wainwright, completed by the U.S. Army Corps of Engineers (USACE) in 1955, is one of the oldest operational coal-fired power plants in the United States, and is operating approximately 30 years beyond the average design life of similar facilities (USACE 2018, SourceWatch 2019). The current configuration of the CHPP is six coal-fired 150,000-pounds-per-hour (lb/hr) steam boilers and three extraction-type condensing steam turbines rated at 5 megawatts (MW) each and a single back-pressure turbine rated at 4 MW. The CHPP produces all heat needed by the installation and up to 19 MW of electricity. The installation has a peak electricity demand of 21 MW per hour (MW/hr) and an average annual heat demand of 45 MW/hr (Stringham 2019). Any additional electricity required by Fort Wainwright is purchased directly by USAG Alaska from an off-post utility provider. Steam produced by the power plant's coal-fired boilers is routed through pipes in a series of underground tunnels called utilidors and is used to heat the installation's buildings. More than half of the 30 miles of utilidor piping has not been replaced within the last 30 years (Black & Veatch 2018). The electricity produced at the CHPP is distributed through a series of overhead distribution lines, underground distribution circuits, street lighting circuits, and airfield lighting cables. Current utility costs associated with heating and supplying electricity across the installation are approximately $58 million per year (including purchased fuel/utilities and UPC costs) and are expected to rise exponentially over the next 40 years (USACE 2018).

Starting in 2008, all utilities (heat, electricity, water, and wastewater) at Fort Wainwright were privatized under a 50-year UPC that is managed by a System Owner. The System Owner is 50 percent owned by a regional Alaska Native Corporation (ANC) established under the Alaska Native Claims Settlement Act (ANCSA) of 1971. Depending on the alternative selected, the System Owner, and therefore the ANC, may experience some impact on capital investment (and profit) and operations and maintenance (O&M) of the existing systems.

The UPC at Fort Wainwright is a regulated, tariff-based contract under which the contractor makes an agreed-upon rate of return (referred to as "interest" in common language) by investing money in the utility infrastructure. The O&M cost is a pass-through cost; whatever it costs to maintain the system, the government reimburses the System Owner with no additional profit or markup on O&M.

Three recent studies assessed life cycle costs and operational requirements for various heat and energy generation alternatives to facilitate identification of economically and operationally viable options for Fort Wainwright: *Business Case Analysis: Heat and Electricity Alternatives for Fort Wainwright, Alaska* (Guernsey 2015); *Energy Master Plan, Fort Wainwright, Alaska* (Black & Veatch 2018); and *Life-Cycle Cost Analysis for Heat and Electric Power Alternatives for Fort Wainwright, Alaska* (USACE 2018). The studies also identified concerns with the condition of some major components of Fort Wainwright's existing CHPP and heat distribution system. The energy performance of the heat distribution system was evaluated and found to be underperforming compared to systems of similar size and age; and reportedly about 60 percent of the heat energy generated at the plant is lost through process conversion losses before reaching its

intended facilities (Guernsey 2015). Because of the CHPP's operational inefficiencies, Fort Wainwright has one of the highest utility costs per square foot for Army installations in the United States (USACE 2018). The high utility costs are only expected to increase due to projected costs associated with maintenance of the facility and utilidor system.

The three studies further indicate that continued reliance upon the existing system presents substantial risk to life-safety and mission readiness. Given the subarctic climate within which the CHPP must operate, technological endurance and capacity to function adequately in the extreme cold are critical. A winter-time loss of the CHPP's ability to generate heat and power would be considered a catastrophic event that would require immediate actions to evacuate the installation. A near-catastrophic failure is an unexpected malfunction or failure of a critical primary equipment or infrastructure. The system has to rely on the backup equipment or infrastructure to provide continued heat and electricity to the installation, thereby potentially affecting the USAG Alaska's mission and readiness capabilities. Within the last decade, the CHPP has experienced near-catastrophic critical failures, including a rupture in a steam main serving the entire North Post in 2014 and two separate control system malfunctions in 2012, each at four of the plant's six boilers (Guernsey 2015). These failures each resulted in halting the CHPP's ability to generate electricity and provide steam to the primary utilidor supporting the North Post area of the installation, and each required several weeks for full repair (Guernsey 2015, USACE 2018). In addition, eight unexpected installation-wide outages due to maintenance, repair, or operational challenges associated with the aging infrastructure occurred in 2017, and on October 14, 2018, a coal dust fire occurred in the south coal tower to which five local fire departments responded (USACE 2018). The CHPP suffered damage, and workarounds were used to continue plant operations and accommodate the required facility repairs. In 2022 three separate control system malfunctions occurred at the CHPP and resulted in a loss of electricity and power generation capacity for the installation.

The CHPP has periodically failed to meet state and federal air emissions standards. The Alaska Department of Environmental Conservation (ADEC) issued a January 2018 notice of violation to the CHPP's System Owner for exceeding statutory carbon monoxide (CO) emission limits. To meet the statutory CO limits and comply with the federal emissions standards, the System Owner is now required to operate CHPP boilers at 20 percent reduced capacity. The nameplate-rated capacity of each boiler is 150,000 lb/hr of steam production. To be compliant with air quality regulatory requirements, the boilers have been derated to produce a maximum of 120,000 lb/hr of steam. During normal operations the boilers typically produce approximately 75,000 lb/hr of steam, which is approximately 50 percent of the nameplate-rated capacity. Operating the boilers at a lower load compromises the efficiency of the boiler.

Operating the CHPP at a less-than-optimal level of efficiency only furthers the existing fiscal and operational constraints on the USAG Alaska mission. Furthermore, the U.S. Environmental Protection Agency (EPA) has designated the FNSB, which includes Fort Wainwright, as a serious nonattainment area for particulate matter (PM) smaller than 2.5 microns in diameter ($PM_{2.5}$). To meet statutory limits for $PM_{2.5}$, USAG Alaska is required to implement Best Available Control Technology (BACT) at the heat and power plant

(ADEC 2019a). Implementation of BACT would place fiscal burden on USAG Alaska at costs approximated between $22 million and $235 million to bring the 65-year old CHPP into compliance with the Clean Air Act (CAA) (ADEC 2019a, Agrawal 2020).

Continuing to rely on and maintain the existing CHPP and distribution system has shown to be uneconomical, undependable, and a threat to environmental air quality that presents substantial risks to the USAG Alaska and 11th Airborne Division missions and weakens the resilience of the installation.

1.2 Purpose and Need for Action

The purpose of the Proposed Action is to provide reliable heat and electrical infrastructure for the installation that resolves current safety, resiliency, fiscal, and regulatory concerns. The Army's anticipated execution date is contingent on availability of funds.

As noted in Section 1.1.2, continued reliance on Fort Wainwright's existing coal-fired CHPP and distribution systems poses risks to safety, is not fiscally sustainable, and has periodically failed to meet air emissions standards. The existing CHPP and distribution system are operating beyond their design life, which has resulted in the following: one of the highest utility costs to the Army (USACE 2018); near-critical failures in the last 10 years; reduced operational capacity of boilers to meet statutory CO emission limits; and jeopardy of Fort Wainwright's mission. USAG Alaska needs to construct reliable heat and electrical infrastructure that would achieve the following:

- Reduce the overall utility costs by having a system that runs more efficiently and has lower O&M costs
- Minimize the risk of a single-point catastrophic failure that may require evacuating the installation and may severely affect mission readiness
- Increase energy efficiency
- Be compliant with emissions standards
- Conform to energy security standards in accordance with Army Directive 2020-03

1.3 Scope of the Environmental Impact Statement

USAG Alaska has prepared this EIS to evaluate the potential direct, indirect, and cumulative impacts associated with implementation of the Proposed Action and No Action Alternative. To understand the environmental consequences of the decision to be made, the EIS evaluates the environmental impacts of the alternatives.

1.3.1 Regulatory Framework

Army installations are guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental compliance, including natural and cultural resources management and planning. Pulling from the list within 32 CFR § 651.14(e), the below statutes and EOs

apply to the Proposed Action and No Action Alternative. The EIS addresses these requirements in one place so the decision-maker has a concise and comprehensive view of the major environmental issues and understands the interrelationships and potential conflicts among the environmental resource areas. Regulatory requirements applicable for each resource area addressed in this EIS are further described in Chapter 3.

Major statutes and EOs that apply to the Proposed Action are as follows:

- Archaeological Resources Protection Act of 1979 (16 U.S.C. §§ 470aa–470mm)
- Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668–668c)
- CAA (42 U.S.C. §§ 7401–7671q)
- Clean Water Act (CWA), Sections 401, 402, and 404 (33 U.S.C. §§ 1251–1387)
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. § 9601)
- Endangered Species Act (16 U.S.C. §§ 1531–1544)
- EO 11514 as amended by EO 11991, Protection and Enhancement of Environmental Quality
- EO 11593, Protection and Enhancement of the Cultural Environment
- EO 11988, Floodplain Protection
- EO 11990, Protection of Wetlands
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12580, Superfund Implementation
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis
- EO 14008, Tackling the Climate Crisis at Home and Abroad
- EO 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability
- Migratory Bird Treaty Act (16 U.S.C. §§ 703–712)
- National Historic Preservation Act of 1966 (54 U.S.C. § 300101)
- Pollution Prevention Act of 1990 (42 U.S.C. §§ 13101–13109)
- Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. § 6901)

- Sikes Act and Sikes Act Improvement Act (16 U.S.C. §§ 670a–6700), Conservation Programs on Government Lands
- Toxic Substances Control Act (TSCA; 15 U.S.C. §§ 2601–2629)

1.3.2 Organization of this EIS

The EIS is organized into six chapters and appendices. Chapter 1 contains the purpose, need, scope, and public involvement efforts for the Proposed Action. Chapter 2 contains a detailed description of the Proposed Action and the alternatives considered, including the identification of the preferred alternative. Chapter 3 describes the existing conditions of the affected environment and identifies the environmental impacts of implementing all reasonable action alternatives and the No Action Alternative. Chapter 3 also summarizes the cumulative impacts associated with past, present, and reasonably foreseeable future actions when combined with the Proposed Action and alternatives. Chapter 4 provides the names of those persons who prepared the EIS. Chapter 5 identifies the local, state, and federal agencies, tribal governments, and other interested parties that requested to be included in the stakeholder distribution list for project-related information. Chapter 6 lists the references used to support the analysis. Chapter 7 provides a glossary of terms, and Chapter 8 provides an index for this document. Appendices provide additional information, as referenced throughout this EIS.

1.4 Decision to be Made

The USAG Alaska Garrison Commander has signed the Final EIS. The preferred alternative, Alternative 3, Install Distributed Natural Gas Boilers, takes into account technical and economic feasibility, environmental and social issues, and the ability to meet USAG Alaska and 11th Airborne Division mission objectives. The U.S. Army will observe a 30-day waiting period following the *Federal Register* Notice of Availability for the Final EIS publication before making a final decision. The final decision and rationale for selection of an alternative will be presented in the ROD, which will be signed by the Commanding General U.S. Army Installation Management Command.

As a result of the EIS process, the Army plans to select one of the alternatives analyzed in this EIS, enabling a decision informed by knowledge of anticipated environmental and socioeconomic impacts, and the public's concerns. With the selection of an alternative, which will be documented in a Record of Decision (ROD), the Army decision-maker will also identify mitigations to be pursued to reduce the environmental impacts of the selected alternative.

1.5 Public Involvement

The Army invites public participation in the NEPA process. The perspectives, needs, interests, and data provided by interested persons promote open communication and enable better decision-making. All agencies, organizations, and members of the public that have a potential interest in the Proposed Action are urged to participate in the

decision-making process. Information on the status of the process is available on the USAG Alaska NEPA website at:
https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS.

1.5.1 Scoping

Scoping is a formal process to help the Army determine the scope of analysis needed in the EIS. In accordance with 32 CFR Part 651, the Army published an NOI to prepare an EIS in the *Federal Register* on July 22, 2019 (*Federal Register*, Vol. 84, No. 140). The NOI initiated the scoping period (July 22, 2019, to August 21, 2019) during which members of the public, including federal, state, and local agencies, affected federally recognized tribes, and other interested persons, were invited to comment on the proposed scope and content of the EIS. As part of the scoping process, USAG Alaska held a public scoping meeting and an agency scoping meeting. The Army also published a series of notices in the *Fairbanks Daily News-Miner.* Digital advertisements were placed on the State of Alaska Online Public Notice website, USAG Alaska Fort Wainwright Facebook page, Directorate of Public Works Environmental Division Facebook page, and What's Up Listserv. These announcements were intended to inform the local community of the Army's intent to prepare an EIS and to hold a public scoping meeting to discuss the proposed project and solicit public comments for consideration in the development of alternatives and subsequent efforts for impacts analysis. On July 23, 2019, USAG Alaska mailed letters to tribal organizations to invite them to attend the August 8, 2019, public scoping meeting. For information on Tribal Coordination, see Section 1.5.2. The public scoping meeting, which took place in Fairbanks, Alaska, on August 8, 2019, at the Carlson Center Pioneer Room, was attended by 45 individuals. USAG Alaska also held an agency scoping meeting on August 7, 2019, in Fairbanks and sent scoping invitation letters to local, state, and federal agencies and other interested parties to solicit participation. An example of each scoping letter is provided in Appendix A.

A total of 42 individuals and agencies provided comments to USAG Alaska during the scoping period. Comments were received via the project's public email address at usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil, on comment forms, and in letters via email or regular mail. A court reporter at the scoping meetings also recorded verbal comments. See Appendix B for scoping comments.

The primary topics expressed in the scoping comments received are as follows:

Socioeconomics: Comments expressed uncertainty about the future of a local coal provider, which is a major economic contributor in the local area, if the energy source considered is something other than coal. Some commenters were concerned about the availability and affordability of natural gas. There were also concerns about the economic impact the project would have on Interior Alaska.

Environmental Effects: Comments were expressed regarding air quality, carbon dioxide (CO_2) emissions, water pollution, climate change, and Fairbanks' designation as a nonattainment area. Other environmental-related comments were about the project's

cumulative effects. Comments were expressed that the NOI was incorrect in stating that the current system is failing to meet air emissions standards.

Proposed Alternatives: Overall, comments regarding the proposed alternatives were split between a preference for coal, gas, or alternative energy. Coal supporters argued for easy access and low costs. Gas supporters argued for cleaner energy and increased demand for gas, which would result in further development of gas infrastructure. Alternative energy supporters expressed primarily a desire for cleaner energy generation.

Additional Alternatives: A need for additional alternatives was expressed. Possible alternatives mentioned included coal gasification, river turbines, use of two smaller coal-fired CHPPs, incineration of recycled paper and cardboard and a methane capture facility.

1.5.2 Tribal Coordination

The Army has coordinated with tribal governments, various federal, state, and local agencies, and other interested parties throughout the NEPA process. On July 23, 2019, USAG Alaska mailed letters to tribal organizations to invite them to attend the August 8, 2019, public scoping meeting and to offer the opportunity for a Tribe-specific scoping meeting or government-to-government consultation. The Army initiated Alaska Native tribal consultation under Section 106 of the National Historic Preservation Act (NHPA) (Appendix A). Because a preferred alternative had not yet been selected, Section 106 consultation was limited to initiation of consultation (Cook 2019).

Doyon, Limited, a for-profit regional ANC that was established under ANCSA, requested consultation with the Army in a letter dated February 28, 2020. Doyon, Limited holds 50 percent ownership interest in the current utility privatization contractor. In response to this request, a consultative meeting was held on May 7, 2020, between the USAG Alaska Garrison Commander and Doyon, Limited leadership to address topics of concern. A follow-up letter was received from Doyon, Limited on May 15, 2020, summarizing the points of discussion from the May 7 meeting. Subsequent to this, a consultation was held on January 22, 2021, between the USAG Alaska Garrison Commander and Doyon, Limited. During a consultative meeting between USAG Alaska and Doyon, Limited held on February 4, 2021, the Army requested shareholder economic data in support of the analysis (USAG Alaska 2021a). On February 4, 2022, the Army requested additional information regarding the social and economic impacts on Doyon, Limited and its shareholders from the proposed action (Schutt 2022). The data that were provided by Doyon, Limited during the Draft EIS comment periods, and in response to the Army's additional request, are presented in this EIS in Section 3.5.1.3.

1.5.3 Draft EIS Public Comment Period

The Draft EIS was filed with EPA, which announced the availability of the EIS, and the Army also published a Notice of Availability (NOA) in the *Federal Register* on October 9, 2020 (see Appendix C). Publication of the NOA in the *Federal Register* initiated a 60-day comment period (through December 8, 2020) for the Draft EIS, an additional 15 days

longer than the minimum required comment period. Methods similar to those used during the scoping period were also used to notify the public, agencies, and interested organizations of the public review period for the Draft EIS, including publication of the NOA in local newspapers and a mailing of the Draft EIS to potentially interested parties who were not accessing the document from the Internet. The Draft EIS was made available for public review at the Noel Wien Library in Fairbanks, Alaska, at the Fort Wainwright Library, and at the Tri-Valley Community Library in Healy, Alaska. Additionally, an electronic copy of the Draft EIS was made available online at: https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS. A web-based online open house and telephonic public forum was held on November 9, 2020, during the 60-day review period to provide an opportunity for the public, Alaska Native tribal governments and organizations, and regulatory agencies to present comments and information. Upon request, source documents were also provided for review along with the Draft EIS during the comment period.

As part of the public comment period, USAG Alaska held an agency meeting on November 6, 2020, and a public meeting on November 9, 2020. These meetings were held virtually because of COVID-19 safety concerns. USAG Alaska sent NOA letters to local, state, and federal agencies and other interested parties to solicit participation. An example of each letter is provided in Appendix D. A notice advertising the public meeting was published in the local newspaper, the *Fairbanks Daily News-Miner,* on October 9, 2020. Newspaper advertisements were also published in the *Alaska Post* on October 16, 23, and 30, and on November 6, 2020. Additional notices of the public meeting were posted on the project website on October 9, 2020, and digital advertisements were placed on the Noel Wien Library website, as well as a series of postings on the USAG Alaska Fort Wainwright Facebook page (October 9, October 30, November 4, and November 8, 2020).

To allow for additional time for the public to comment as well because of the receipt of substantive comments on the Draft EIS, the Army reopened the comment period for an additional 60 days. An Amended NOA for the Draft EIS was published in the *Federal Register* on December 23, 2020 (Appendix C). The publication of the Amended NOA reopened the public comment period from December 23, 2020, to February 22, 2021.

A total of 107 individuals and agencies provided comments to USAG Alaska during the public comment periods. Comments were received via the project's public email address at usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil, through the project website, on comment forms, and in letters via email or regular mail. A court reporter at the public and agency meetings also recorded verbal comments. USAG Alaska considered all comments on the Draft EIS received during the comment period prior to determining which alternative would be the Army's preferred alternative. The Final EIS addresses and responds to substantive comments received on the Draft EIS. All comments received during the 60-day public review period for the Draft EIS with Army responses are included as Appendix E in this Final EIS.

2. Description of the Proposed Action and Alternatives

2.1 Introduction

USAG Alaska considered a wide range of potential alternatives for heating and powering the installation, based on the heat and electricity studies discussed in Section 1.1.2 and input gathered during the scoping period. USAG Alaska developed screening criteria to evaluate the viability of each alternative and determine whether it would meet the purpose and need of the Proposed Action. Through this process, the Army identified which alternatives were considered reasonable and legally viable for meeting the purpose and need of the Proposed Action. This chapter describes the Proposed Action and identifies 16 action alternatives considered, screening criteria used to evaluate the viability of the alternatives, and outcome of the viability analysis. It identifies the alternatives that failed to meet the screening criteria and were eliminated from further consideration, and describes in detail the alternatives carried forward for full analysis in this EIS. The Army has identified Alternative 3 as the preferred alternative. Comments received on the Draft EIS were considered prior to selecting a preferred alternative.

2.2 Proposed Action

The Proposed Action is to upgrade USAG Alaska's heat and electrical generation capabilities to resolve current safety, resiliency, fiscal, and regulatory concerns. The Army's anticipated execution date is contingent on availability of funds. To adequately heat and provide power to installation facilities year-round and ensure sustained operational readiness and mission security into the future, USAG Alaska determined that the Proposed Action would need to generate an annual average of 45 MW of heat energy and 19 MW of electrical capacity and be able to meet federal and state environmental regulations, including air quality standards for the region, as stated in Section 1.2.

2.3 Screening Criteria, Alternatives Considered, and Results of Viability Analysis

2.3.1 Screening Criteria

USAG Alaska developed the following screening criteria against which each alternative was compared to determine whether it would satisfy the project's purpose and need, as presented in Section 1.2. An alternative was considered non-viable and reasonably eliminated from detailed consideration in the EIS if it failed to satisfy any one of the following screening criteria. An alternative was considered viable if it met all six screening criteria. Viable options were carried forward for full analysis in the EIS. The list of potential alternatives considered and results of the viability analysis are provided in Section 2.3.2.

Addresses Current Cost Constraints (Screening Criterion 1): The action must directly address the current constraints in operation and cost of maintenance of the

existing CHPP and distribution system. This criterion includes realizing efficiencies where possible.

Provides Compatibility with Mission and Energy Security Needs (Screening Criterion 2): In accordance with Army Directive 2020-03 (DoD 2020a), which supersedes Army Directive 2017-07 (DoD 2017a), the action must be compatible with the current and future mission, critical mission, and energy security needs by ensuring access to a sustainable resource supply, improving infrastructure condition, and promoting robust system operations. The action would also include measures implemented to deter anti-terrorism threats and measures to support the Army's climate resiliency goals. Additionally, the alternative must have the strength and ability to recover quickly and maintain heat and power to critical infrastructure resulting from man-made or natural events while sustaining the ongoing mission and training activities. The action would allow critical missions to be capable of withstanding extended utility outage for a duration set by the installation or a minimum of 14 days.

Achieves Cost Efficiency with Funding Mechanism (Screening Criterion 3): In accordance with Army policy guidance, evaluations to determine the most cost-effective method for delivering utilities to facilities must be considered and the most cost-effective option must be identified. Army policy guidance states that the maximum life cycle of a CHPP is typically 40 years (USACE 2012). The action must be cost-efficient based on a 40-year life cycle cost. It must also have a reasonably foreseeable funding source, or a mechanism for obtaining applicable and timely funding to pay for the life of the project (including O&M, construction and/or demolition, fuel, and health and safety upgrades).

Uses Adequate Technology for Subarctic Environment (Screening Criterion 4): The action must use technology that is mature enough to reduce uncertainty about its operation and fuel source availability in a subarctic environment.

Minimizes Environmental Impacts (Screening Criterion 5): The action must minimize environmental impacts and be able to meet federal and state regulatory requirements, including air quality thresholds.

Provides On-Installation Location with Minimized Disruption to Mission (Screening Criterion 6): Heat generation and critical mission power generation must be located on Fort Wainwright for energy security purposes and must not interfere with ongoing mission and training activities. The action must have regional and backup infrastructure and/or fuel sources so that in an event of a break or malfunction, the heat and power can continue to be provided without interruption.

2.3.2 Alternatives Considered

The Army screened a total of 21 alternatives for viability, plus the No Action Alternative. Eleven of the alternatives were based on those identified in the Guernsey (2015), Black & Veatch (2018), and USACE (2018) studies (described in Section 1.1.2). Further, the viability analysis uses the conservative assumptions described in those studies, along with those in a USACE study on long-range energy options for the Greater Fairbanks

military complex (USACE 2005) and a 2009 study that assessed renewable energy opportunities at Fort Wainwright (U.S. Department of Energy [DOE] 2009) for how each heat and electricity generating alternative would be constructed, operated, and maintained. The following action alternatives were developed based on heat and electrical studies conducted at Fort Wainwright:

- Alternative 1: Build New Coal CHPP
- Alternative 2: Build New Dual-Fuel Combustion Turbine Generator (CTG) CHPP
- Alternative 3: Install Distributed Natural Gas Boilers
- Alternative 4: Build New Oil-Fired CHPP
- Alternative 5: Upgrade Existing CHPP and Convert to Gas or Oil Fuel
- Alternative 6: Upgrade Existing CHPP to Heat Only and Convert to Gas or Oil Fuel
- Alternative 7: Upgrade Existing CHPP and Convert to Biomass Fuel
- Alternative 8: Install Nuclear Power Generation
- Alternative 9: Install Wind Power Generation
- Alternative 10: Install Solar Power Generation
- Alternative 11: Provide Heat from Local Utility Provider

During the scoping period, stakeholders identified additional alternatives for the Army's consideration. USAG Alaska screened the following alternatives identified by stakeholders:

- Alternative 12: Build a Coal Gasification Plant that Would Convert Coal to Syngas (a mixture of coal with water and oxygen) to Generate Energy
- Alternative 13: Build a Methane Capture Facility that Would Convert Methane Collected from Landfills and Other Sources to Energy
- Alternative 14: Build In-water Current Turbines in Local Rivers to Generate Electricity
- Alternative 15: Build Two Separate On-installation CHPPs
- Alternative 16: Pelletize and Incinerate Recycled Paper and Cardboard to Generate Energy

During the public comment period for the Draft EIS, stakeholders identified the following additional alternatives, which were also screened for viability:

- Alternative 17: Build a New Propane-Fired CHPP
- Alternative 18: Build a New Dual-Fuel Coal and Biomass CHPP
- Alternative 19: Provide a Diverse Renewable Energy Portfolio
- Alternative 20: No Action Plus Backup
- Alternative 21: Install Geothermal Heat Generation

2.3.3 Results of Viability Analysis

Table 2.3-1 demonstrates the application of the screening criteria for each alternative. Within the table, viability analysis alternatives are listed in the first column and each screening criterion is listed across the columns to the right. Each row provides a color-coded summary of information for the associated alternative listed in the first column. White indicates that the alternative meets the screening criterion in the column header; gray indicates that it does not. Text within each cell briefly describes how a criterion is or is not met by the associated alternative, along with the letter Y if the alternative meets the criterion, or the letter N if it does not.

Table 2.3-1. Matrix of Considered Alternatives Evaluated with the Screening Criteria

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
No Action Alternative	N – Continuing with the existing CHPP does not address current cost constraints because it would have ongoing upgrade and repair and replacement costs.	Y – Coal can be stockpiled to meet energy security needs in accordance with Army policy.	N – Based on a 40-year life cycle cost analysis, continuing with existing CHPP is not cost-efficient.	Y – Though not optimal, the existing CHPP uses adequate technology to meet subarctic climate conditions.	N – Continuing to use the existing CHPP would not minimize the current environmental impacts. Y – The existing CHPP would be maintained to comply with federal and state environmental regulations.	N – Although the CHPP is currently located on Fort Wainwright, because it is becoming increasingly unreliable, it poses a threat to training activities and interferes with the ongoing mission and quality of life. A viable system must support the mission and ongoing training on the installation.
Alternative 1 Build New Coal CHPP	Y – Demolition of the existing CHPP and construction and operation of a modern coal plant would eliminate existing repair and maintenance costs.	Y – Power and heat generation via the new plant and supplemental purchase of electricity through a local utility provider would support mission requirements into the future. The onsite coal stockpile would meet the 14-day supply requirement for energy security.	Y – Operation of a modern plant with an upgraded distribution system would realize cost savings through increased energy efficiency and reduced repair and maintenance costs.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Construction and operation of modern heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would remain operational until the new plant is online. The new plant would generate the required 45 MW of heat energy annually and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 2 Build New Dual-Fuel Combustion Turbine Generator CHPP	Y – Demolition of the existing CHPP and construction and operation of a modern dual-fuel plant would eliminate existing repair and maintenance costs. Y – The cost of coal ash disposal would be eliminated.	Y – Power and heat generation via the new plant and supplemental purchase of electricity through a local utility provider would support mission requirements, including climate resiliency, into the future. Y – Storage of fuel in the vicinity would meet the 14-day supply requirement for energy security.	Y – Operation of a modern plant with an upgraded distribution system would realize cost savings through energy efficiency and reduced repair and maintenance costs.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Construction and operation of modern heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would remain operational until the new plant is online. Y – The new plant would generate the required 45 MW of heat energy and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints **1**	**Provides Compatibility with Mission and Energy Security Needs** **2**	**Achieves Cost Efficiency with Funding Mechanism** **3**	**Uses Adequate Technology for Subarctic Environment** **4**	**Minimizes Environmental Impacts** **5**	**Provides On-Installation Location with Minimized Disruption to Mission** **6**
Alternative 3 Install Distributed Natural Gas Boilers	Y – Demolition of the existing CHPP and installation of distributed boilers would eliminate existing repair and maintenance costs. Y – The cost of coal ash disposal would be eliminated.	Y – Heat generation via the distributed boilers and all electrical power purchased through a local utility provider would support mission requirements, including climate resiliency, into the future. Y – Storage of an emergency backup generator fuel source onsite and natural gas in the vicinity would meet the 14-day supply requirement for energy security.	Y – Operation of modern boilers would realize cost savings through energy efficiency, and repair and maintenance costs associated with CHPP would be eliminated.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Installation and operation of a modern heat generation system would comply with federal and state environmental regulations.	Y – The existing CHPP would be operational until the new system is online. Y – New boilers combined would generate the required 45 MW of heat energy annually. Y – Reliable power from a local utility provider would ensure provision of 19 MW of electrical capacity for mission requirements into the future. Backup electric generators at a substation would provide 100 percent of the installation's electricity requirements from onsite generation in the event of a grid outage. Energy security requirements are met with heat generation systems and critical mission power generators at electrical substations located on Fort Wainwright.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 4 Build New Oil-Fired CHPP	N – The cost to construct and operate a new CHPP would not be reasonable or feasible based on a life cycle cost analysis (DOE 2009).	Y – Power and heat generation via the new plant and supplemental purchase of electricity through a local utility provider would support mission requirements, including climate resiliency, into the future. Y – A fuel oil stockpile in the vicinity would meet the 14-day supply requirement for energy security.	N – Based upon a life cycle analysis, the new CHPP would not be reasonable or feasible (DOE 2009). Also, the system would not have a foreseeable funding source.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Construction and operation of modern heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would be operational until the new plant is online. Y – The new plant would generate the required 45 MW of heat energy annually and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.
Alternative 5 Upgrade Existing CHPP and Convert to Gas or Oil Fuel	N – Natural gas would be required for operation of an upgraded plant and utilidor system. The cost to use gas to produce steam and then electricity would not be reasonable or feasible (DOE 2009). N – The conversion process from coal to fuel oil or gas is expensive.	Y – Power and heat generation via the upgraded system and supplemental purchase of electricity through a local utility provider would support mission requirement, including climate resiliency, into the future. Y – A fuel stockpile in the vicinity would meet the 14-day supply requirement for energy security.	N – Based on a 40-year life cycle cost analysis, continuing with the existing CHPP, even if upgraded, would not be cost-efficient. Also, the CHPP upgrade would not have a foreseeable funding source.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Operation of upgraded heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would be operational until upgrades are online. Y – The upgraded plant would generate the required 45 MW of heat energy annually and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 6 Upgrade Existing CHPP to Heat Only and Convert to Gas or Oil Fuel	N – Continued maintenance and repair costs, following an upgrade with a minimum 40 percent heat efficiency in the plant and utilidors, would not be reasonable or feasible (DOE 2009).	Y – Heat generation via the upgraded system and purchase of all electricity through a local utility provider would support mission requirements, including climate resiliency, into the future. Y – A fuel stockpile in the vicinity would meet the 14-day supply requirement for energy security.	N –Based on a 40-year life cycle cost analysis, continuing with the existing CHPP, even if upgraded, would not be cost-efficient.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Operation of upgraded heat system would comply with federal and state environmental regulations.	Y – The existing CHPP would be operational until upgrades are online. The upgraded plant would generate the required 45 MW of heat energy annually. Y – Reliable power from a local utility provider would ensure provision of 19 MW of electrical capacity for mission requirements into the future.
Alternative 7 Upgrade Existing CHPP and Convert to Biomass Fuel	N – The cost for an upgraded and converted CHPP would not be reasonable or feasible because the fuel source is expensive and insufficient in local supply, and because there is no regional infrastructure to support a biomass powered system (DOE 2009).	N –Stockpiling of a biomass fuel source would be difficult because of insufficient readily available and affordable quantities in the region.	Y – The CHPP upgrade would have a foreseeable funding source. N – The upgraded and converted CHPP would require prohibitively expensive fuel source.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Operation of upgraded heat and electrical generation systems would comply with federal and state environmental regulations.	Y – Existing CHPP would be operational until upgrades are online. Upgraded plant would generate the required 45 MW of heat energy annually. Y – Reliable power from a local utility provider would ensure provision of 19 MW electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 8 Install Nuclear Power Generation	Y – Demolition of the existing CHPP and distribution system would remove associated repair and maintenance costs. N – The cost of installing centralized electric steam boilers or upgrading electric feeders and installing building level electric boilers would not be reasonable or feasible (DOE 2009).	Y – Installation of nuclear power generation would support mission requirements, including climate resiliency, into the future.	N – Nuclear power generation would not have foreseeable funding source. N – Because of the long licensing process, lack of availability of similar-capacity operating units within the United States, and costs, nuclear power generation is not projected to be commercially viable for 10 to 20 years.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Operation of upgraded heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would be operational until upgrades are online. The new plant would generate the required 45 MW of heat energy annually and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future. N – Currently there are no known operating nuclear power generation in the United States that are similar capacity and a primary source of heat and electricity.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 9 Install Wind Power Generation	Y – Demolition of the existing CHPP and distribution system would remove associated repair and maintenance costs. Y – Wind power generation would use a renewable energy source to self-generate electricity into the future. N – Regional infrastructure to support required scale of power generation and transmission is lacking. Also, installing centralized electric steam boilers or upgrading electric feeders and installing building level electric boilers would not be reasonable or feasible (DOE 2009).	N – The source supply of suitable wind energy would be limited in the Alaska interior region and would not have capacity to support the USAG Alaska mission requirements, including climate resiliency, into the future. N – Siting and development of a new wind farm to support the installation would be infeasible (USACE 2005).	N – Wind power generation would not have a foreseeable funding source. N – Investment to meet full installation heat and power requirements would be cost prohibitive. N – Installation of wind power generation would require construction and operation of large wind farm that could adequately supply electricity to the installation and retrofit of all facilities to electrical heating.	Y – The use of technology would be appropriate for subarctic conditions.	Y – The environmentally sustainable option would use renewable energy source to self-generate electrical needs into the future. Y – Next to no air emissions would result compared with air emissions from existing CHPP.	N – Wind power generation would not be located on the installation. Wind is not a viable resource at Fort Wainwright. The nearest location on Army land with adequate wind for power generation is about 100 miles away, located in Donnelly Training Area. Installing wind turbines in Donnelly Training Area is incompatible with the Army training mission. Additionally, the Army will have to rely on the transmission line owned by private companies to transmit the electricity produced by the wind turbines.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 10 Install Solar Power Generation	Y – Demolition of the existing CHPP and distribution system would remove associated repair and maintenance costs. Y – The renewable energy source would be used to self-generate electricity into the future. N –Regional infrastructure to support this power alternative is lacking, and solar power would be unavailable and insufficient to support power needs during winter months. Solar power generation also would require investment in supplemental energy technology that would not be reasonable or feasible (USACE 2005, DOE 2009).	N – Solar power generation would offer no immediate potential without substantial change in technology. N – Solar power generation would not provide sufficient electricity during winter months (USACE 2005).	N – Solar power generation would not have a foreseeable funding source. N – Investment to meet full installation heat and power requirements would not be reasonable or feasible. N – Solar power generation would offer no immediate potential without substantial change in technology (USACE 2005). N – Installation of solar power generation would require construction and operation of large solar farm that could adequately supply electricity to the installation and retrofit of all facilities to electrical heating.	N – Solar power generation would offer no immediate potential without substantial change in technology.	Y – The environmentally sustainable option would use renewable energy source to self-generate electrical needs into the future. Y – Air emissions would be substantially reduced compared with air emissions from existing CHPP.	N – Installation of solar power generation would require large land parcels for solar array. N – Solar power generation would be available only on-installation in areas used for military training, which is a priority.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 11 Provide Heat from a Local Utility Provider	Y – Demolition of the existing CHPP and distribution system would remove associated repair and maintenance costs. N –The cost of installing centralized electric steam boilers or upgrading electric feeders and installing building level electric boilers would not be reasonable or feasible.	N – Energy security would be compromised because heat generation via electricity through a local utility provider is among the least economically favorable options.	N – Heat from the local utility provider would not have a foreseeable funding source. N –The cost to retrofit all facilities to electrical heating and upgrade to the installation's electrical infrastructure to meet demand would not be reasonable or feasible.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Reliance on the electrical generation system would comply with appropriate federal and state regulations.	N – The existing CHPP would be operational until conversion is complete. The system would generate the required 45 MW of heat energy annually. N – Reliable power from a local utility provider would ensure provision of 19 MW of electrical capacity for mission requirements into the future, but require retrofit and upgrade to installation's electrical infrastructure.
Alternative 12 Build a Coal Gasification Plant	Y – Demolition of the existing CHPP and construction and operation of a modern coal gasification plant would eliminate existing repair and maintenance costs.	Y – Power and heat generation via the new plant and supplemental purchase of electricity would support mission requirements, including climate resiliency, into the future. Y – Storage of fuel in the vicinity would meet the 14-day supply requirement for energy security.	Y – Operation of a modern plant with an upgraded distribution system would realize cost savings through energy efficiency and reduced repair and maintenance costs.	N – The use of technology is still in the testing phases for subarctic conditions.	Y – Construction and operation of modern heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would remain operational until the new plant is online. Y –The new plant would generate the required 45 MW of heat energy and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 13 Build a Methane Capture Facility	N – The methane capture facility would require a fuel source, regional infrastructure is lacking, and local or regional supply is insufficient (DOE 2009).	N – Stockpiling of the fuel source would be difficult because of insufficient regional resources.	N – The CHPP would not have a foreseeable funding source.	N – The use of technology has not been proven for use in subarctic conditions.	Y – Operation of heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would be operational until upgrades are online. The upgraded plant would generate the required 45 MW of heat energy annually. Y – Reliable power from a local utility provider would ensure provision of 19 MW of electrical capacity for mission requirements into the future.
Alternative 14 Build River Turbines	N – The river turbines would be prohibitively expensive to construct and operate at the scale required.	N – The river turbines would not provide a secure energy source.	N – The CHPP would not have a foreseeable funding source.	N – The use of technology has not been proven for use in subarctic conditions.	Y – Installation and operation of the system would comply with federal and state environmental regulations.	N – Power generation would not be located on the installation. Water turbines are not a viable resource because the technology is not available at the scale needed to support the Army's mission at Fort Wainwright. .

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 15 Build Two CHPPs	N – The cost of constructing and operating two CHPPs would not be reasonable or feasible.	Y – Installation of two CHPPs would support mission requirements, including climate resiliency, into the future.	N – The cost to construct and operate two CHPPs would not recognize any cost savings.	Y – The use of technology would be appropriate for subarctic conditions.	Y – Installation and operation of the system would comply with federal and state environmental regulations	Y –The existing CHPP would remain operational until the new plant is online. Y –The new plant would generate the required 45 MW of heat energy and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.
Alternative 16 Incinerate Pelletized Recycled Paper and Cardboard	N –The cost to construct and operate an incineration facility that would generate the required power would not be reasonable or feasible.	N – The addition of incineration would not provide a secure energy source.	N – The cost to construct and operate an incineration facility would not recognize cost savings compared with the existing system. The CHPP would not have a foreseeable funding source.	N – The use of technology at the scale required has not been proven for use in subarctic conditions.	Y – Installation and operation the system would comply with federal and state environmental regulations	Y –The existing CHPP would remain operational until the new plant is online. Y –The new plant would generate the required 45 MW of heat energy annually and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 17 Build a New Propane-Fired CHPP	N – The cost to construct and operate a new propane-fueled CHPP would require a significantly more expensive fuel source that would not be reasonable or feasible.	N – Propane storage as a primary fuel source within the vicinity has land requirements (approximated 300 acres) that are incompatible with the Army mission. Y – Power and heat generation via the new plant and supplemental purchase of electricity through a local utility provider would support energy and mission requirements, including climate resiliency, into the future.	N – The new CHPP would require a significantly more expensive fuel source and the system would not have a foreseeable funding source.	N – Although the use of propane would be appropriate for subarctic conditions to the needed scale, there is no known propane-fired CHPP or regional propane infrastructure located in subarctic conditions and the Army cannot rely on unproven technologies (DoD 2020b).	Y – Construction and operation of modern heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would be operational until the new plant is online. Y – The new plant would generate the required 45 MW of heat energy annually and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 18 Build New Dual-Fuel Coal and Biomass CHPP	N – Biomass would be required for operation of an upgraded plant. Coupling the cost of biomass fuel at approximately three times the expense of coal with the fact that the capability to burn two different solid fuels is technologically complicated further adding to the cost constraints, this would not be reasonable or feasible (DOE 2009). N - The amount of biomass that can be sustainably harvested will provide 2 MW of energy which is less than 5% of the total demand at the installation.	Y – Power and heat generation via the new plant and supplemental purchase of electricity through a local utility provider would support mission requirements, including climate resiliency, into the future. The onsite coal and biomass stockpile would meet the 14-day supply requirement for energy security.	Y – Operation of a modern plant with an upgraded distribution system would realize cost savings through increased energy efficiency and reduced repair and maintenance costs.	N – The use of this technology is not proven in the subarctic conditions and the Army cannot rely on unproven technologies (DoD 2020b).	Y – Construction and operation of modern heat and electrical generation systems would comply with federal and state environmental regulations.	Y – The existing CHPP would remain operational until the new plant is online. The new plant would generate the required 45 MW of heat energy annually and ensure reliable provision of 19 MW of electrical capacity for mission requirements into the future.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 19 Develop Diverse Renewable Energy Portfolio	N – The cost to construct and operate the system would require a significant amount of capital investment that would not be reasonable or feasible.	N – The new system would require a significant amount of land which is incompatible with the installation's mission.	N – The cost to construct and operate such a system would not be reasonable or feasible. Also, the new system would not have a foreseeable funding source.	N – Although individual technologies are used in the subarctic environment, a combination of a multitude of technologies, in the needed quantity, has not been tested in the subarctic condition. The Army cannot rely on unproven technologies (DoD 2020b).	Y – Operation of upgraded heat system would comply with federal and state environmental regulations.	N – Wind is not a viable resource at Fort Wainwright. The location where wind is a resource would be incompatible with the Army's mission.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints **1**	**Provides Compatibility with Mission and Energy Security Needs** **2**	**Achieves Cost Efficiency with Funding Mechanism** **3**	**Uses Adequate Technology for Subarctic Environment** **4**	**Minimizes Environmental Impacts** **5**	**Provides On-Installation Location with Minimized Disruption to Mission** **6**
Alternative 20 No Action Plus Backup	N – Continuing with the existing CHPP does not address current cost constraints because it would have ongoing upgrade and repair and replacement costs. N – Funding construction and operation of an additional fuel oil-fired heat plant on the installation to serve as an alternative to the existing plant during failure would not be cost-efficient.	Y – Coal can be stockpiled to meet energy security needs in accordance with Army policy. Y- Fuel oil could be stored on site to meet security needs.	N – Based on a 40-year life cycle cost analysis, continuing with the existing CHPP is not cost-efficient. Adding the cost to construct and operate a redundant heat plant to serve as an alternative during existing CHPP outages would not be operationally or economically efficient.	Y – Though not optimal, the existing CHPP uses adequate technology to meet subarctic climate conditions. Y – The backup heat plant would be designed with adequate technology for the climate, and would have capacity to prevent facilities from freezing during outages at the main plant (Guernsey 2015).	N – Continuing to use the existing CHPP would not minimize the current environmental impacts. Y – The existing CHPP and backup fuel oil-fired plant would be maintained to comply with federal and state environmental regulations.	N – Although the CHPP is currently located on Fort Wainwright, because it is becoming increasingly unreliable, it poses a threat to training activities and interferes with the ongoing mission and quality of life. A viable system must support the mission and ongoing training on the installation. N – In the event of a CHPP failure that exceeds the backup heat plant's capacity, the ongoing mission and training would not be supported. Army policy requires backup for mission-critical facilities only.

Viability Analysis Alternative	Screening Criteria					
	Addresses Current Cost Constraints 1	**Provides Compatibility with Mission and Energy Security Needs** 2	**Achieves Cost Efficiency with Funding Mechanism** 3	**Uses Adequate Technology for Subarctic Environment** 4	**Minimizes Environmental Impacts** 5	**Provides On-Installation Location with Minimized Disruption to Mission** 6
Alternative 21 Install Geothermal Heat Generation	N – The cost to construct and operate a centralized geothermal heat system would require a significant amount of capital investment that would not be reasonable or feasible. Facility level upgrades would be cost prohibitive due to the conversion to radiant systems, or due to increased electric systems if radiant is not utilized. Non-radiant heat pump and geothermal systems are very inefficient and require additional electric power to boost fluid temperatures.	N – Power and heat generation via the new plant and supplemental purchase of electricity through a local utility provider would not support mission requirements, including climate resiliency, into the future. A backup steam plant or building level boilers at mission-critical buildings would be required to meet the energy resiliency requirements.	N – The cost to construct and operate such a system would not be reasonable or feasible. The new system would not have a foreseeable or reasonable funding source due to the complexities of this alternative as outlined in the other screening criteria.	N – Although the technology to install facility-level geothermal heat is used in the subarctic environment, a centralized geothermal heat plant capable of producing electricity and steam has not been tested in subarctic conditions. The Army cannot rely on unproven technologies (DoD 2020b).	Y – Operation of an upgraded heat system would comply with federal and state environmental regulations.	N – Past study has concluded that utility-grade geothermal electricity production does not exist at Fort Wainwright (DOE 2009). Installing a hot water distribution system to support geothermal heat generation is not practical. Since a centralized geothermal heat plant has not been tested in subarctic conditions it does not meet current or future mission and energy security needs

Sources: Unless otherwise specified, rationale supporting determinations of viability is from USACE 2018

Notes: MW – megawatt; "Y" – stands for Yes and indicates that the alternative meets the screening criterion, and gray shading with "N" – stands for No and indicates that the alternative does not meet the criterion.

Of the 21 action alternatives considered, 18 alternatives failed to meet one or more of the screening criteria and therefore were not considered viable. These alternatives, which were eliminated from detailed analysis, are described in Section 2.4. The three action alternatives that met all six criteria, and therefore were considered reasonable, were carried forward for full analysis. The three reasonable action alternatives, along with the No Action Alternative, are described in Section 2.5.

2.4 Alternatives Considered but Eliminated from Further Consideration

The following alternatives were eliminated from further consideration because they did not meet one or more of the screening criteria defined in Section 2.3.1. Unless otherwise specified, information on the listed alternatives to support the viability determinations is from USACE (2018).

- **Alternative 4: Build New Oil-Fired CHPP.** Under this alternative, a new CHPP would be constructed and the existing CHPP would be demolished. The fuel source for producing both heat and electricity would be solely ultra-low-sulfur diesel (ULSD) fuel oil. USAG Alaska would purchase a sustained supply of oil and install an onsite fuel storage tank for emergencies. The elimination of burning coal would reduce ash disposal costs and a new CHPP would increase energy efficiency. Because the cost of ULSD fuel oil is on average three times the cost of coal, generating power and heat under this model would not be reasonable or feasible. This alternative does not meet Screening Criteria 1 and 3, and has been eliminated from further consideration in this EIS.
- **Alternative 5: Upgrade Existing CHPP and Convert to Gas or Oil Fuel.** Under this alternative, USAG Alaska would upgrade the existing CHPP and distribution system to enable use of natural gas or oil as the primary fuel source instead of coal. USAG Alaska would purchase a sustained supply of gas or oil and install an onsite fuel storage tank for emergencies. Renovation of the existing plant would include removal of asbestos and polychlorinated biphenyls (PCBs). New pipelines to transport fuel to the plant would be constructed. The existing plant would be updated and retrofitted with modern technologies and system connections to accommodate an inflow and use of the new fuel source. Additionally, the emissions stacks would have to be updated to incorporate use of modern air quality scrubbers to meet air quality standards. The costs for maintenance and repair of the existing plant would continue despite the upgrades. The low efficiency of heat lost during generation and distribution would also continue. In addition, the cost to generate power using oil as the primary fuel source would not be reasonable or feasible. Therefore, this alternative does not meet Screening Criteria 1 and 3, and has been eliminated from further consideration in this EIS.
- **Alternative 6: Upgrade Existing CHPP to Heat Only and Convert to Gas or Oil Fuel.** Under this alternative, USAG Alaska would upgrade and convert the existing CHPP to a heat plant and would purchase electricity for Fort Wainwright from a local utility provider. The costs to upgrade and operate the facility under this

alternative, which is otherwise similar to Alternative 5, would not be reasonable or feasible, does not meet Screening Criteria 1 and 3, and has been eliminated from further consideration in this EIS.

- **Alternative 7: Upgrade Existing CHPP and Convert to Biomass Fuel.** Under this alternative, the CHPP would be converted from a coal-fired plant to a biomass fuel combustion plant. As with the other upgrade alternatives described above, renovation of the existing plant would include removal of asbestos and PCBs. Under this alternative, USAG Alaska would be required to purchase a sustained supply of biomass fuel to meet the heat and energy needs of the installation. Biomass resources, regional infrastructure, and suppliers in the Alaskan interior have been found to be scarce and insufficient to meet power requirements of the installation (DOE 2009). Because of this, the cost of biomass is on average three times the cost of coal, making the ability to stockpile biomass fuel at the scale required unreasonable and infeasible. Additionally, the technology required to operate a biomass fueled system has not been proven within the subarctic climate. Because biomass fuel availability and technology is not reliable or cost effective, this alternative does not meet Screening Criteria 1, 2, and 3 and has been eliminated from further consideration in this EIS.
- **Alternative 8: Install Nuclear Power Generation.** Under this alternative, USAG Alaska would construct and operate a small, modular, prototype nuclear reactor to generate power. Conversion of the power to heat at a capacity that would be usable by facilities on the installation would require substantial overhaul of much of the installation's electrical distribution system. Additionally, every facility would be converted from steam infrastructure to use of an electrical heat supply. Generating power and heat under this alternative would also present substantial technological limitations at the scale required. There are currently no known commercially available options at this capacity for nuclear power in the United States. Technology for using small-scale nuclear energy is still in developmental phases and is not anticipated to be viable for another 10 to 20 years (USACE 2018). The nuclear plant proposed at Eielson Air Force Base (AFB) is not in operation yet and will be a pilot project. Additionally, the nuclear reactor at Eielson AFB will be a supplemental source of electricity to the existing power plant. Even if the technology was more readily available, the costs to construct and operate such a system would not be reasonable or feasible, and the sequential processes for site permitting, design certification, construction (estimated at up to 10 years), and licensing processes (estimated at a minimum 6 years based on the timeline for relicensing per the World Nuclear Association [WNA] 2019 would be prohibitively time-intensive to meet USAG Alaska's need to have a reliable, operational facility. As explained in Section 1.2, the Army's anticipated execution date for an online facility is contingent on availability of funding. Therefore, this alternative does not meet Screening Criteria 1 and 3 and has been eliminated from further consideration in this EIS.
- **Alternative 9: Install Wind Power Generation.** Under this alternative, the existing CHPP would be demolished upon completion of a wind power project that would provide all the energy required to heat and power the installation. Wind

energy infrastructure in the Fort Wainwright region, however, is not sufficient to support a major wind energy project (DOE 2009). Additionally, installing centralized electric boilers or upgrading electric feeders and installing building-level electric boilers to support this alternative would not be reasonable or feasible. For these reasons, this alternative does not meet Screening Criteria 1, 2, 3, and 6 and has been eliminated from further consideration in this EIS.

- **Alternative 10: Install Solar Power Generation.** Under this alternative, heat and power for the installation would be generated from a solar energy system. The existing CHPP would be demolished upon completion of the solar project. This alternative would require construction and operation of a solar energy system sufficient to produce adequate electricity to all of Fort Wainwright and would require retrofit of all facilities to electric heating. In Alaska's combined extreme cold weather and solar ecliptic range, which preclude sufficient energy collection in winter, conversion to a solar energy system poses risks to energy security. Due to current technological limitations, solar power would not be available during various times throughout the year (e.g., winter when power and heat demands are high) (USACE 2005). To supplement the lack of solar power, Fort Wainwright would also have to construct a battery bank from which to draw power. For reference, the Golden Valley Electric Association (GVEA) owns and operates a battery bank in Fairbanks, which occupies approximately 50,000 square feet of space (GVEA 2021, RESPEC Company Ltd 2021). The GVEA battery bank has the capacity to supply approximately 25 MW of power over a draw duration of 15 minutes, or approximately 40 MW of power for a lesser duration of time (GVEA 2021). The energy needs of Fort Wainwright would require a battery bank that has the capacity to store and supply a sustained 60 MW of power for a minimum draw period of 2 months. A battery bank that could supply Fort Wainwright's power demand would require a facility and supporting infrastructure approximately 36,000 times larger than GVEA's battery bank. This would require large tracts of land, and if on-post, the only large areas of land that could support this level of solar panels required are those used for military training activities. In addition, regional infrastructure to support the construction and operation of this type of facility on the required scale does not exist and would be incompatible with Fort Wainwright's mission (USACE 2005, DOE 2009). For these reasons, this alternative does not meet Screening Criteria 2, 3, 4, and 6 and has been eliminated from further consideration in this EIS.
- **Alternative 11: Provide Heat from a Local Utility Provider.** Under this alternative, decentralized electrical heat would replace the CHPP. The existing CHPP would be demolished once installation facilities have been retrofitted with electric heating units. All electricity would be purchased from a local utility provider, a source that is highly reliable and now more affordable than self-generated electricity (USACE 2018), but a distributed electric resistance heating solution is among the least economically favorable options and therefore an insecure long-term solution (Guernsey 2015). Because of transmission losses, electric heat is more expensive than heat produced from combustion appliances such as natural gas or oil boilers. Additionally, the costs to retrofit and decentralize

the electric heat sources would not be reasonable or feasible and, therefore, would not meet Screening Criterion 1. This alternative does not meet Screening Criterion 2 because of its inability to provide adequate energy security, does not meet Screening Criteria 3 and 6 because of cost inefficiencies, and has been eliminated from further consideration in this EIS.

- **Alternatives 12 through 16**: **Additional Alternatives Identified During Scoping**. Alternatives identified during the EIS scoping process included a coal gasification plant, methane capture facility, in-water current turbines, two separate CHPPs on the installation, and incineration of recycled paper to generate energy. Consideration of each of these alternatives against the screening criteria presented in Section 2.3 determined that none would meet all six criteria. Limitations of the suggested alternatives included methods that would not provide a stable and proven technology suitable for a subarctic climate, be economically viable, use a reliable fuel source, or meet more than a fraction of the installation's electricity demand. Therefore, these alternatives were eliminated from further consideration in this EIS.
- **Alternatives 17 through 21: Additional Alternatives Identified during the Draft EIS Public Review Period.** Alternatives identified during the Draft EIS comment period included a new propane-fired CHPP, new dual-fuel coal and biomass-fueled CHPP, use of a diverse portfolio of renewable energy sources to power and heat the installation, no action plus backup. and installation of geothermal heat generation. Brief discussions on the viability of these alternatives follow.
    - **Alternative 17**: **Build New Propane-Fired CHPP.** Under this alternative, a new CHPP would be constructed and the existing CHPP would be demolished. The fuel source for producing both heat and electricity would be solely propane fuel. USAG Alaska would purchase a sustained supply of propane and install onsite propane storage tanks. Although the elimination of burning coal would reduce ash disposal costs and a new CHPP would increase energy efficiency, generating power and heat under this model would be significantly more expensive because the cost of propane delivered to Fort Wainwright is on average nine times the cost of coal and three times the cost of natural gas. Additionally, the propane infrastructure and quantity of propane required to meet the heat and electricity demand for Fort Wainwright is not currently available in the interior of Alaska. Propane burns at lower British thermal units (Btu) than natural gas and ULSD, necessitating a higher quantity to be burned to meet energy needs, resulting in higher commodity and storage requirement costs. The increased amount of propane fuel required would necessitate multiple deliveries, resulting in increased emissions as well as potential increased risk for accidental spills and human health and safety concerns. Also, in accordance with DoD guidelines (DoD 2020b), the Army cannot rely on a pilot project or a developing technology as the primary source of heat and power generation and distribution. Therefore, this alternative would be significantly more expensive, does not meet Screening Criteria 1 through 4, and has been eliminated from further consideration in this EIS.

- **Alternative 18: Build New Dual-Fuel Coal and Biomass CHPP.** Under this alternative, a new CHPP would be constructed and the existing CHPP would be demolished. The fuel sources for producing both heat and electricity would be coal along with biomass. USAG Alaska would purchase a sustained supply of coal and biomass. Although the reduction in the amount of coal burn would reduce ash disposal costs and a new CHPP would increase energy efficiency, generating power and heat under this model would be technically more challenging and comparatively more expensive because of the high costs required to construct and install boilers, integrate the system into the infrastructure construct, and obtain a reliable and sustained biomass delivery and fuel storage (Whitney et al. 2017, Alaska Center for Energy and Power [ACEP] 2019). When shipping costs are factored, biomass systems are not as economical; biomass delivered to Fort Wainwright is on average three times the cost of coal (ACEP 2019, USACE 2018). Additionally, the biomass production infrastructure in Alaska is limited. This technology is not proven within the subarctic and has only been implemented as a pilot project within Alaska. In accordance with DoD guidelines, the Army cannot rely on a pilot project or a developing technology as the primary source of heat and power generation and distribution (DoD 2020b). In addition, this alternative would be comparatively more expensive, does not meet Screening Criteria 1 and 4, and has been eliminated from further consideration in this EIS.
- **Alternative 19: Develop Diverse Renewable Energy Portfolio.** Under this alternative, the existing CHPP would be demolished, and the heat and electricity for the installation would be provided by multiple renewable energy sources: solar photovoltaics, wind energy, and biomass. USAG Alaska would purchase a sustained amount of biomass to meet the necessary demand. The biomass boilers and the solar photovoltaic system along with battery storage would be installed within the installation boundaries, and the wind turbines would be installed at a location where wind is a viable resource outside the Main Post. Although this alternative would eliminate the use of coal and would provide all the energy from renewable energy sources, it would be incompatible with the installation's mission due to the scarcity of available land near the cantonment area and with various training and readiness requirements as explained above.

  Because no one renewable energy source could fully meet Fort Wainwright's heat and electric demand alone, as specified in the project purpose and need, this alternative would require a combined renewable energy integrated system. Biomass can be sustainably used to generate up to 2 MW, requiring the remaining renewable energy sources (i.e., wind and solar) to generate the remaining 62 MW.

  There is no viable wind resource on or near the Fort Wainwright cantonment area (USACE 2003). Although there are wind resources at the Black Rapids Training Center and Donnelly Training Areas, and these locations are part of USAG Alaska, both areas are more than 100 miles from the main installation. Furthermore, the regional infrastructure to transfer electricity generated by wind

in the stated training areas does not exist. Constructing and operating a wind turbine farm would be incompatible with Fort Wainwright's mission and would not be feasible.

Reliance on solar power generation would be infeasible for the reasons identified for Alternative 10. The technology, available land area, and regional infrastructure to support the construction and operation of this type of facility on the required scale does not exist, making such a facility incompatible with Fort Wainwright's mission. In accordance with DoD guidelines (DoD 2020b), the Army cannot rely on a pilot project or a developing technology as the primary source of heat and power generation and distribution. Additionally, this alternative would require upgrading the electrical infrastructure at the installation, which is beyond the purpose and need of the EIS, and more expensive because of the large amount of battery storage required and the cost of producing and distributing power from solar photovoltaic, wind, and biomass sources. Therefore, costs and means for implementing this alternative would be unreasonable and infeasible (USACE 2018).

No configuration of these renewable energy sources in a portfolio would meet the Army's power demand at Fort Wainwright. This alternative would be economically unreasonable and is incompatible with the Army's mission. Additionally, it would rely on unproven technology as proposed in subarctic conditions and on the required scale. Therefore, this alternative does not meet Screening Criteria 1, 2, 3, 4, and 6, and has been eliminated from further consideration in this EIS.

- **Alternative 20: No Action Plus Backup.** This alternative would augment the No Action Alternative (to continue operation of the existing CHPP) with construction and operation of an additional fuel oil-fired backup heat plant on the north side of Fort Wainwright to mitigate plant and/or steam outage risk (Guernsey 2015). The backup plant would be designed to supply steam into the main steam distribution system. The backup plant would be designed with enough capacity to prevent buildings and the distribution system from freezing in an event of an outage at the main CHPP. The addition of a satellite boiler plant would be intended to provide major component-level redundancy that supports heat energy security and fuel diversity. Like the No Action Alternative, continued reliance on the existing old plant, controls, and heat distribution system would result in operational and cost inefficiencies, life-safety hazards, and risks to mission sustainability at Fort Wainwright. The existing system operates at about 42 percent efficiency because about 60 percent of fuel energy is lost by the time coal energy is converted to either usable steam energy or useful electricity (Guernsey 2015). To keep the existing CHPP operational, USAG Alaska would need to make major repairs and upgrade plant parts and technologies, upgrade approximately 27 miles of old utilidor pipeline, incorporate BACT (Dry Sorbent Injection [DSI] for which implementation costs are estimated at $22 million with a life cycle cost of $235 million [Agrawal 2020]), and continue to operate the derated CHPP boilers at 80 percent of their nameplate-rated capacity to meet air quality emissions

regulations and standards. Adding the cost to construct and operate a redundant system that would be used during times when the existing CHPP fails or experiences outages would not be operationally or economically efficient. In the event of a CHPP failure that exceeds the backup plant's capacity to support operations, the installation and mission would not be sufficiently supported. Therefore, this alternative does not meet Screening Criteria 1, 3, 5, and 6, and has been eliminated from further consideration in this EIS.

- **Alternative 21: Install Geothermal Heat Generation.** Under this alternative, the existing CHPP would be demolished upon completion of a centralized geothermal heat and electricity generation that would provide all the energy required to heat and power the installation. Centralized geothermal energy resources and infrastructure (i.e., hot water system) in the Fort Wainwright region, however, are not sufficient to support a major geothermal energy project (DOE 2009). Alternatively, a centralized geothermal heat-only plant would just produce hot water. Presently, the heat distribution for Fort Wainwright is through a steam distribution system. In addition, the energy content of steam is about 15 times the energy content of the hot water. The pipe size required to transfer the same amount of energy through a hot water system would be about 15 times larger. Therefore, converting the entire steam distribution system to a hot water distribution system would not be a practical and viable solution. Additionally, installing building-level geothermal heat pumps and electrical distribution system at each facility on the installation to support this alternative would require upgrading the entire electrical distribution infrastructure and would not be reasonable or feasible. For these reasons, this alternative does not meet Screening Criteria 1, 2, 3, 4, and 6, and has been eliminated from further consideration in this EIS.

2.5 Alternatives Carried Forward for Analysis

This section presents the range of alternatives carried forward for detailed analysis in this EIS. Although a No Action Alternative would not meet the purpose of and need for the Proposed Action, this alternative provides a baseline comparison for the Proposed Action and alternatives, in accordance with 40 CFR Part 1502. As demonstrated in Table 2.3-1, Alternatives 1, 2, and 3 meet all screening criteria and are each assumed to be able to provide a modern, reliable, operational facility. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations. The Army's execution date is contingent on availability of funding.

2.5.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. USAG Alaska would continue to use the existing CHPP and utilidor system described in Section 1.1.2 and would not construct any new facilities. Continued reliance on this old plant, controls, and heat distribution system would result in operational and cost inefficiencies, life-safety hazards, and risks to mission sustainability at Fort Wainwright. The existing system operates at about 42 percent efficiency because about 60 percent of fuel energy is lost by the time coal energy is converted to either usable steam energy or useful electricity (Guernsey 2015). To keep the plant operational, USAG Alaska would need to make major repairs and upgrade plant parts and technologies, upgrade approximately 27 miles of old utilidor pipeline, incorporate cost-intensive BACT (implementation costs estimated between $22 million and $235 million [Agrawal 2020]), and continue to operate the derated CHPP boilers at 80 percent of their nameplate-rated capacity to meet air quality emissions regulations and standards. Under the No Action Alternative, the System Owner contractor would continue to invest money in the infrastructure as originally proposed in the contract. This capital investment would allow the System Owner contractor to earn interest on its investment, which is the profit it expected when the contract was executed in 2008.

Continuing to operate the existing CHPP at reduced capacity would diminish the existing plant's ability to support the USAG Alaska and 11th Airborne Division missions.

Figure 2.5-1 illustrates the No Action Alternative.

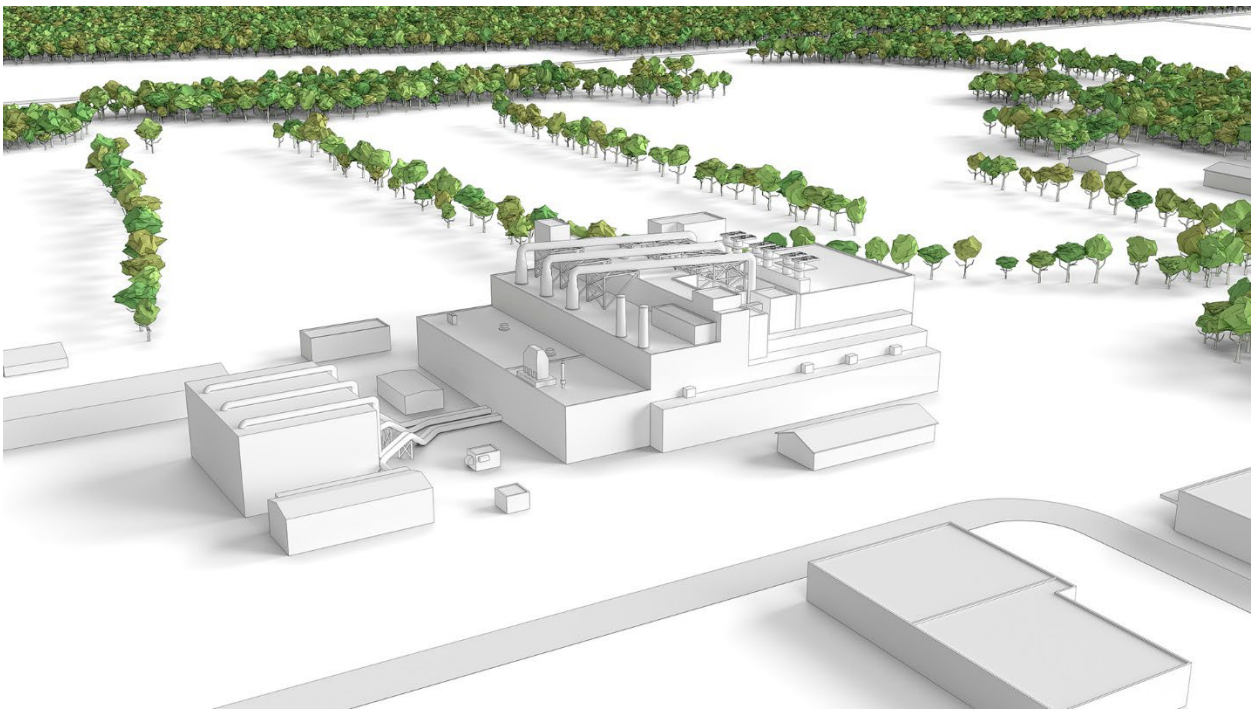


Figure 2.5-1. No Action Alternative

2.5.2 Alternative 1: Build a New Coal CHPP

Alternative 1 would involve construction of a new, modern, coal-fired CHPP and upgrades to the steam distribution system to replace the existing coal-fired CHPP. The Army's anticipated execution date is contingent on availability of funding. This alternative would ensure sustained operations and minimized impacts on USAG Alaska's mission. USAG Alaska would continue to operate the existing plant until construction of the new CHPP and until supporting infrastructure is completed and facilities are online. USAG Alaska would demolish the old CHPP following operational transition. The location of the new plant would be in the vicinity of the existing plant to maximize continued use of the existing utilidors, which would be renovated and connected to the upgraded steam distribution system.

Coal would continue to be the fuel source and would be stockpiled onsite. Coal ash would continue to be disposed of at the permitted landfill located at Fort Wainwright. Operation of the new CHPP as a cogeneration plant would continue to generate electricity and heat simultaneously into the future. The new plant would be capable of producing 45 MW of heat energy. Any additional electricity requirements would be purchased directly from a local utility provider. Through the use of modern technology adequate for operation in subarctic conditions, the new system would be assumed to be capable of meeting federal and state environmental regulations and meeting air quality standards for the region. Based on the heat and electricity studies described in Section 1.1.2**,** among the alternatives carried forward for detailed analysis in the EIS, this alternative was projected to have the highest implementation and O&M costs and the highest risk for installation-wide loss of heat through distribution (USACE 2018).

Figure 2.5-2 illustrates the Alternative 1 concept. Figure 2.5-3 shows the CHPP location proposed under Alternatives 1 and 2.

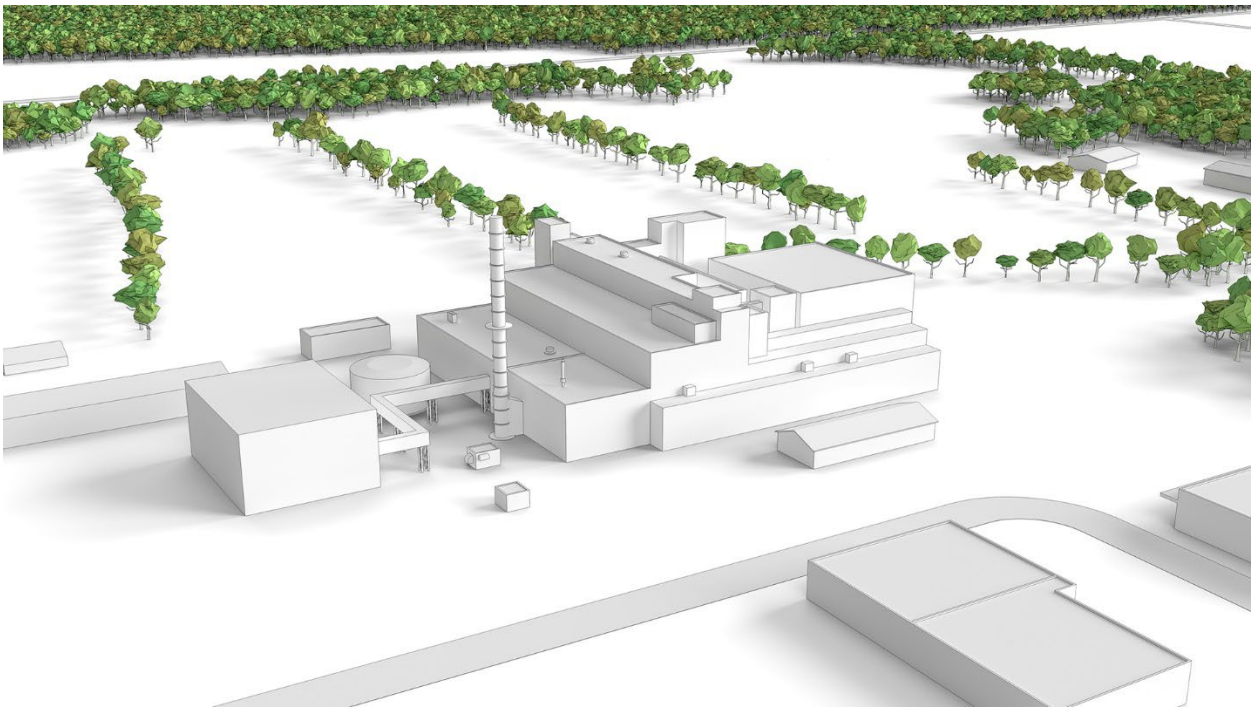


Figure 2.5-2. Alternative 1 Concept

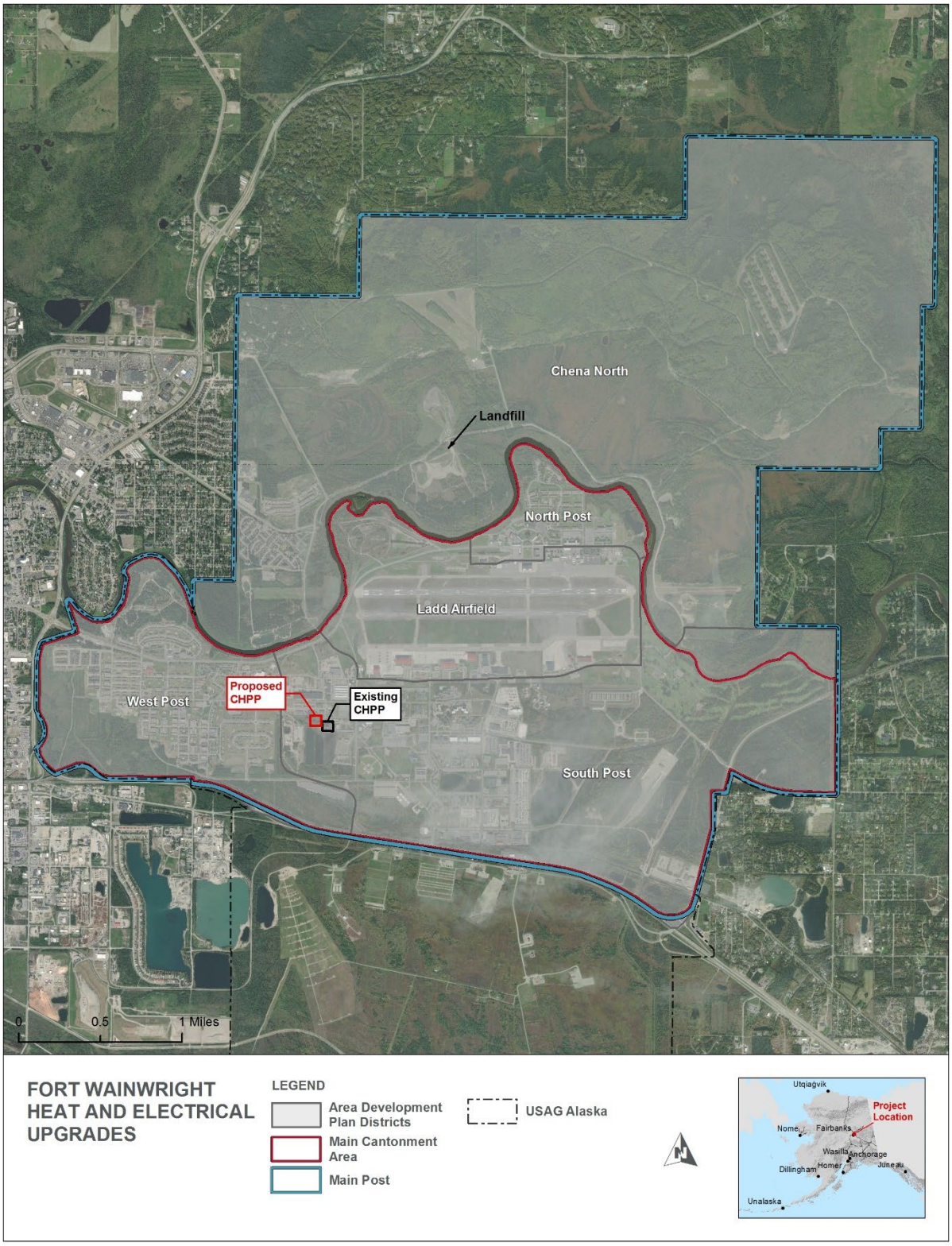


Figure 2.5-3. Proposed CHPP Location for Alternatives 1 and 2

2.5.3 Alternative 2: Build New Dual-Fuel Combustion Turbine Generator CHPP

Alternative 2 would involve replacement of the existing CHPP with a new, modern, dual-fuel combustion turbine generator CHPP. A combustion turbine generator would convert natural gas or other liquid fuels to mechanical energy. The system would use three 7-MW gas turbine generators, with three supplemental, duct-fired, heat recovery steam generators (HRSGs) that have a capacity of 200 kilo-pounds per hour (Guernsey 2015, USACE 2018). This configuration allows for two online combustion turbine generators to meet peak demands while one is down for maintenance and two of the HRSGs to meet peak steam-to-post demands, leaving one for redundancy. The primary fuel for the new plant would be natural gas, with ULSD as the secondary source. As described for Alternative 1, USAG Alaska would continue operation of the existing plant until construction of the new CHPP and supporting infrastructure is completed and facilities are online to ensure sustained training and minimized impacts on the USAG mission.

The new plant would be capable of producing 45 MW of heat energy and would operate as a cogeneration plant in which the plant operates to follow the electricity load, and any additional electricity would be purchased directly from a local utility provider. The new CHPP would be located near the existing CHPP and the upgraded steam distribution system. Under this alternative, USAG Alaska would be required to secure a sustained supply of natural gas and ULSD. It has been demonstrated that the availability of natural gas in Alaska is sufficient to meet the installation's demand (Pentex Alaska LLC 2016). There are existing piping infrastructure and fuel storage tanks available for natural gas in both Fairbanks and North Pole (Interior Gas Utility [IGU] 2021). Natural gas and ULSD would be sourced from a utility provider, natural gas would be supplied by a pipeline to the installation, and ULSD would be stored in aboveground tanks located on the installation. Additionally, in accordance with Army Directive 2020-03 (DoD 2020a), this alternative would ensure the provision of fuel storage to maintain a minimum 14-day supply adequate to support facility operations in the event of a substantial energy supply disruption. Through the use of modern technology adequate for operation in subarctic conditions, the new system would be assumed capable of meeting federal and state environmental regulations and meeting air quality standards for the region. Based on the heat and electricity studies described in Section 1.1.2, among the alternatives carried forward for detailed analysis in the EIS, this alternative was determined to have enhanced fuel source resiliency and lower implementation and O&M costs than a coal-fired CHPP, and to be the least environmentally impactful centralized heat and power option (USACE 2018). Upon the development of a plant design for this alternative, further environmental coordination, permitting, and consultation would occur and include analysis of emissions unit data. The need for additional environmental impact analysis would be assessed at that time.

Figure 2.5-4 illustrates the Alternative 2 concept.

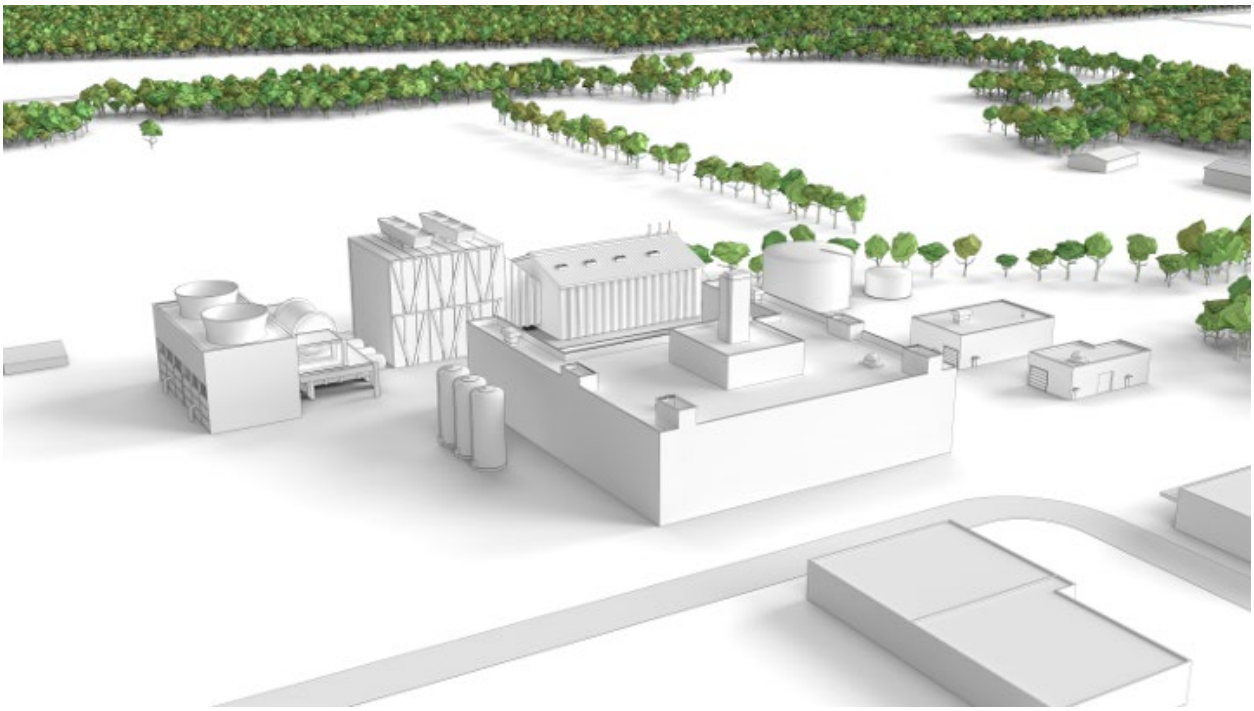


Figure 2.5-4. Alternative 2 Concept

2.5.4 Alternative 3: Install Distributed Natural Gas Boilers

Under Alternative 3, USAG Alaska would transition away from reliance upon a centralized heat and power model. Instead, USAG Alaska would install multiple high-efficiency natural gas-fired boilers that would be dispersed at facilities across the installation to provide heat, and would purchase all required electricity from a local utility provider (Guernsey 2015, USACE 2018). As described for Alternatives 1 and 2, USAG Alaska would continue operation of the existing plant until installation of the new natural gas boilers and construction of the supporting infrastructure is completed and facilities are online, to ensure minimal impacts on the USAG Alaska mission. USAG Alaska would demolish the existing CHPP once construction of the distributed natural gas boiler system is complete. The life cycle cost analysis presented in the USACE 2018 study models Alternative 3 with third party financing cost such as Energy Savings Performance Contract (ESPC) or Utility Energy Service Contract (UESC).

The existing steam distribution system would be upgraded as required to accommodate steam and return water distribution to support the boilers and other underground utilities such as water and sewer pipes. As described for Alternative 2, USAG Alaska would also purchase a sustained supply of natural gas to support boiler operations across the installation. As described for Alternative 2, the natural gas supply in Alaska is sufficient to meet the installation's demand (Pentex Alaska LLC 2016). Both natural gas and ULSD would be sourced from a utility provider, natural gas would be supplied by a pipeline to the installation, and ULSD would be stored in aboveground tanks located on the installation. In the event of a power outage or natural gas interruption to mission-critical buildings, ULSD-reciprocating internal combustion generators would be used as emergency backup power or heat sources for boilers. To provide installation-wide electricity resiliency, generators would be placed at electrical substations in the event of a local utility-provided power interruption. Through the use of modern technology adequate for operation in subarctic conditions, the new system would meet federal and state environmental regulations and meet air quality standards for the region. The operational carbon footprint of this alternative was assessed in Section 4.2 of the Guernsey (2015) study. If this alternative is selected, the carbon footprint would be refined based on the design parameters and during the Title V permitting process. Based on the heat and electricity studies described in Section 1.1.2, among the alternatives carried forward for detailed analysis in the EIS, this alternative resulted in the lowest implementation and O&M costs, the highest increase in energy efficiency, and the advantage of emergency generators already in place in mission-critical facilities (USACE 2018). Upon the development of a design, further environmental coordination, permitting, and consultation would occur. The need for additional environmental impact analysis would be assessed at that time.

Figure 2.5-5 illustrates an Alternative 3 concept. The proposed project area for Alternative 3 is shown in Figure 2.5-6.

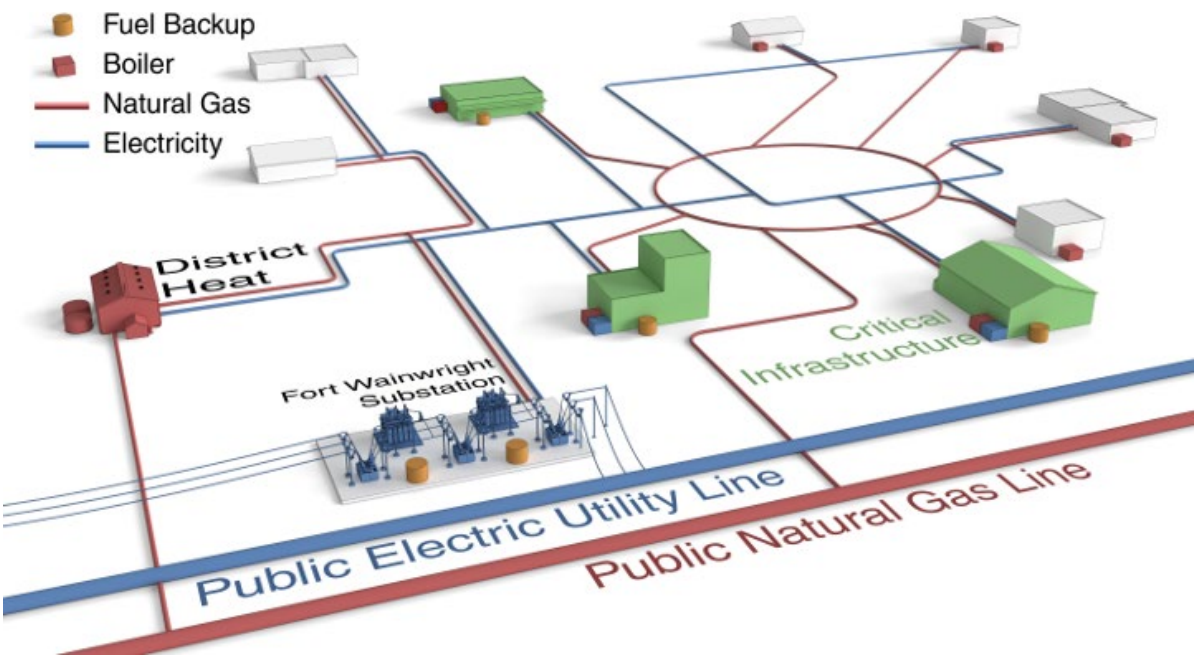


Figure 2.5-5. Alternative 3 Concept

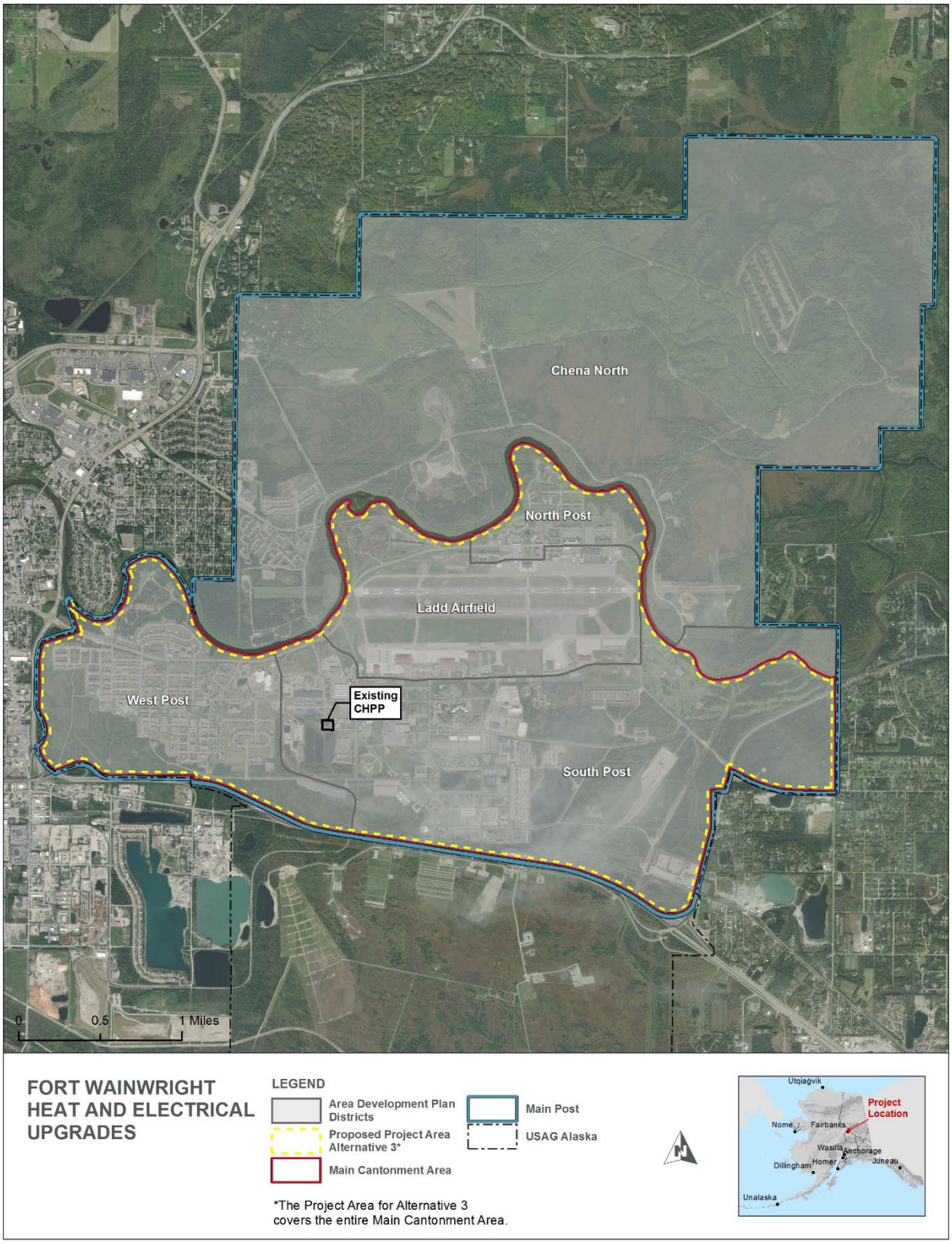


Figure 2.5-6. Proposed Project Area, Alternative 3

2.5.5 Identification of the Preferred Alternative

CEQ's implementing regulations instruct EIS preparers to "identify the agency's preferred alternative, if one or more exists in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference" (40 CFR 1502.14(c)). The Army's preferred alternative is to implement Alternative 3 as described in Section 2.5.4. USAG Alaska would install multiple, decentralized, high-efficiency natural gas fired boilers that would be dispersed at facilities across the installation to provide heat, and would purchase all required electricity from a local utility provider. USAG Alaska would continue operation of the existing plant until installation of the new natural gas boilers and construction of the supporting infrastructure is completed and facilities are online. The existing CHPP would be demolished once construction of the distributed natural gas boiler system is complete. Upon the development of a design for Alternative 3, further environmental coordination, permitting, and consultation would occur. The need for additional environmental impact analysis would be assessed at that time.

Alternative 3 would provide compatibility with mission readiness and energy security needs because market research indicates there are sufficient quantities of natural gas, which would be the primary fuel (Pentex Alaska LLC 2016). The local natural gas utility has also constructed infrastructure that can store sufficient quantities in the event of a supply disruption. ULSD (backup fuel to mission-critical facilities) is readily available in sufficient quantities, and it is anticipated to have on-installation storage tanks to meet the 14-day storage backup supply (DoD 2020a).

The decentralized nature of Alternative 3 would meet physical security requirements and provide backup heat and power for mission-critical facilities. The new infrastructure would not be reliant on generation and distribution systems operating beyond their life cycles, would generate and distribute heat at a significantly higher efficiency (as opposed to the No-Action Alternative's 42 percent efficiency), and would have repair and maintenance parts that are readily available. The new system would be compatible with mission and energy security needs by readily supporting an expanding mission due to infrastructure flexibilities. As new facilities are required, distribution lines and boilers could be accommodated into the design without affecting heat and power generation and distribution capabilities.

In a distributed system, major components are limited to individual boilers within the distributed model, which minimizes downtime for heat generation and distribution. The distributed model under Alternative 3 would be able to withstand an outage on mission-critical facilities because the risk of an installation-wide failure for critical facilities would be minimal due to redundant heat and power sources. Power would be received from the local grid, and generators located at the on-post substation would be capable of providing backup power to the entire installation. Energy security requirements would be met with heat generation systems and critical mission power generators at electrical substations located on Fort Wainwright. With redundant electrical service, individual facility level boilers could sustain normal operation. In the event of a single boiler failure, the Army's mission would continue because the rest of the installation would not be affected. With

the distributed system, Alternative 3 would eliminate the risk of a single point of failure that could result in a near-catastrophic or catastrophic event.

This alternative is aligned with Army guidance on the evaluation of district and islanded/decentralized utility options with life-cycle cost analysis (USACE 2012) for identifying the most cost-effective life cycle option for delivering utilities to facilities, and is the most cost-efficient alternative under either rate structure. With the use of third-party financing (UESC or ESPC), the cost of Alternative 3 would be approximately 60 percent less expensive than execution of Alternative 1, and would be approximately 49 percent less expensive than Alternative 2 or the No Action Alternative under a UPC rate structure. Under the government-owned rate structure, Alternative 3 would be approximately 44 percent less expensive than Alternative 1, and approximately 35 percent less expensive than Alternative 2 (USACE 2018).

Alternative 3 would result in the greatest reduction of air emissions and reduced long-term, adverse impacts on air quality compared with all other alternatives, but would result in significant adverse socioeconomic and environmental justice impacts in the community of Healy.

3. Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the affected environment of Fort Wainwright and the surrounding area, as well as the direct, indirect, and cumulative environmental impacts associated with each alternative. The affected environment consists of areas and the resources within those areas that may experience environmental effects resulting from implementing the alternatives described in Chapter 2. A region of influence (ROI) is described for each resource area examined in this analysis. The ROI varies among resource areas and defines the geographic extent of potential effects from the alternatives on the important elements of that resource. Immediately following the Affected Environment section for each resource is the presentation of the Environmental Consequences section, which describes the environmental impacts associated with each alternative. Alternatives are discussed in the following order of listing, with the three action alternatives all including the demolition and removal of the existing CHPP:

- No Action Alternative, in which the Proposed Action would not be implemented
- Alternative 1, Build a New Coal CHPP, which would involve construction of a new, modern, coal-fired CHPP, and upgrades to the steam distribution system
- Alternative 2, Build New Dual-Fuel Combustion Turbine Generator CHPP, which would consist of replacing the existing CHPP with a new, modern, dual-fuel combustion turbine generator CHPP with HRSGs and upgrades to the steam distribution system
- Alternative 3, Install Distributed Natural Gas Boilers, which would consist of installing multiple high-efficiency natural gas-fired boilers at facilities across the installation to provide heat and purchasing of all required electricity from a local utility provider and upgrades to the steam distribution system (to a lesser extent than required for Alternatives 1 and 2)

The Environmental Consequences section for each resource topic also identifies mitigation measures to reduce or eliminate the impacts of an alternative on a resource, and a summary is provided in Section 3.16. The cumulative impacts of the alternatives with other past, present, and reasonably foreseeable future actions within the ROI for each resource area are discussed in Section 3.16. As required by 40 CFR § 1502.16, this chapter also describes, in Section 3.16, a summary of environmental impacts from the Proposed Action and alternatives, adverse environmental effects that cannot be avoided, compatibility with land use plans, irreversible or irretrievable commitments of resources, and the relationship between short-term uses of the environment and long-term productivity.

3.1.1 Impacts Analysis

Analysis of the environmental consequences of the Proposed Action focuses on those areas of concern identified during scoping as well as environmental consequences that

are inherent to the Proposed Action. Direct effects are those caused by the action and that occur at the same time and place, whereas indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable (40 CFR § 1508.8). For example, impacts from the demolition of the existing CHPP at Fort Wainwright would be a direct effect associated with Alternatives 1, 2, and 3, and an increase in local spending by construction workers hired to perform the demolition would be an indirect effect. Impacts are characterized as beneficial or adverse and short term or long term. Beneficial impacts are those that would result in a positive change in the condition or appearance of the resource or a change that would move the resource toward a desired condition. Adverse impacts are those that would result in a negative change to the appearance or condition of the resource. Short-term impacts are those that would be temporary and associated with the demolition/construction phase but would no longer occur once demolition/construction is completed or shortly thereafter. Long-term impacts are those that would be permanent or would persist for the operational life of the project.

Impact Characterizations. Qualitative terms used to assess the anticipated impacts associated with each alternative are generally defined as presented below. These terms are further adapted to address the unique characteristics of each resource category carried forward for analysis in this chapter. Impacts are characterized with respect to intensity, ranging from no impacts to significant impacts, and whether the impacts would be adverse or beneficial.

- **None** – No measurable impacts are expected to occur.
- **Negligible** – Barely perceptible impacts are expected to occur.
- **Minor** – Measurable impacts on a resource are expected, but would be slight and may not be perceptible to an observer.
- **Moderate** – Noticeable impacts expected to have a measurable effect on the resource but would be less than significant.
- **Significant** – Impacts would be obvious and would have serious consequences on the resource that would be readily noticed by an observer.
- **Adverse** – Impacts would reduce the quality of the resource/issue.
- **Beneficial** – Impacts would improve the resource/issue

Significant Impacts. The significance of an impact is determined by the intensity and the context of the impact. Intensity refers to the severity or extent of an impact (i.e., none, negligible, minor, moderate, or significant) and context relates to the environmental circumstances at the location of the impact. Significance criteria were developed in consideration of CEQ's guidance for determining significance (40 CFR § 1508.27). For this analysis, the first four qualitative impact categories (none, negligible, minor, and moderate) are considered not significant. The "none, negligible, minor, and moderate" qualitative impact categories could be a result of avoidance, minimization, or mitigation of adverse impacts. The significance criteria are described for each resource area at the beginning of each Environmental Consequences section. The terms *impact* and *effect* are interchangeable.

Avoidance, Minimization, and Mitigation Measures. USAG Alaska is committed to avoiding or mitigating adverse effects to the extent practical. Mitigation measures can include the following (40 CFR § 1508.20):

- Avoiding the impact altogether by not taking a certain action or parts of an action
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing or providing substitute resources or environments

USAG Alaska would implement the following types of measures to avoid, minimize, and/or mitigate adverse impacts on environmental resources:

- *Design measures* – Project design components incorporated into the design of action alternatives with the goal of avoiding or minimizing anticipated less-than-significant impacts on environmental resources. Design measures for each resource area discussed below identify the avoidance and minimization measures that would be incorporated into the project design to avoid or reduce impacts on environmental resources within the proposed project area.
- *Construction measures* – Avoidance and minimization measures that would be incorporated before, during, and after construction to reduce anticipated less-than-significant impacts that would result from constructing an action alternative.
- *Best management practices (BMPs)* – Practices or protocols that are intended to maintain compliance with regulatory standards and, when implemented, are proven to reduce impacts on a resource. BMPs that would be implemented as part of an action alternative are listed under design and construction measures, as appropriate.
- *Mitigation measures* – Where specified, these measures would be implemented to reduce anticipated significant impacts (in accordance with NEPA) and/or to offset or compensate for unavoidable adverse impacts on a resource.

A summary of potential measures for each resource area is presented in Section 3.16.

3.1.2 Resource Areas Carried Forward for Analysis

In consideration of the anticipated effects associated with the proposed alternatives, the following resource areas were carried forward for detailed analysis in this EIS:

- Air Quality
- Utilities
- Hazardous and Toxic Materials and Wastes
- Socioeconomics
- Environmental Justice
- Noise
- Land Use
- Transportation and Traffic
- Human Health and Safety
- Geology and Soil Resources
- Water Resources
- Cultural Resources
- Airspace

3.1.3 Resource Areas Dismissed from Further Analysis

After considering information gathered during the internal and public scoping processes, factors used to evaluate the context and intensity of the potential impacts, and the anticipated impacts associated with the proposed alternatives, it was determined that electromagnetic spectrum and biological resources would not experience a measurable impact as a result of the alternatives contained in this analysis.

The electromagnetic spectrum is the span of all electromagnetic radiation and consists of many sub-ranges, such as visible light, ultraviolet light, radio waves, and infrared waves, which are important to a wide variety of devices such as radio and cellular communications, radar, navigation systems, data transfer systems, and other important applications. The construction of a new CHPP or distributed heating system (DHS) at Fort Wainwright would be required to use commercially available technologies that are licensed and regulated by the Federal Communication Commission and National Telecommunications and Information Administration. Therefore, an impact on the electromagnetic spectrum would be avoided.

Biological resources generally refers to native and non-native plant and animal species and the habitats used by those species. There are currently no federally listed threatened or endangered plant or animal species known or expected to occur on Fort Wainwright lands (U.S. Fish and Wildlife Service [USFWS] 2019; USAG Fort Wainwright 2013b, 2019). The Fort Wainwright Main Post supports a variety of wetland types (USAG Fort Wainwright 2013b), but no impacts on wetlands are expected. The construction of a new CHPP or DHS at Fort Wainwright would require some vegetation be cleared; however, most vegetation within these areas has already been disturbed. To the extent practical, the Army would avoid stockpiling large mounds of fill gravel or dirt that would attract

nesting bank swallows, and would avoid siting ground-disturbing activities in high functioning habitats, such as riparian areas or those containing rare or sensitive plant or animal species. The Army would also incorporate design features that deter nesting birds. If required, land clearing activities would be avoided during the migratory bird nesting period, which is generally May 1 through July 15 at the proposed site. Riparian and wetland buffers would be employed to avoid disturbances along wetlands and fish-bearing streams. Project-related construction would incorporate invasive species monitoring and a treatment plan, adherence to BMPs such as washing of vehicles, equipment and training of construction crews on invasive species controls, and selection of reseeding materials. Although some birds and other wildlife may use affected habitats, the Army would maintain compliance with appropriate regulations to avoid impacts. Therefore, potential adverse impacts on wildlife, wetlands, and vegetation would be negligible at most. No species listed under the Endangered Species Act (ESA) or designated critical habitat occur within the project area. Therefore, the project would have no effect on listed species or critical habitat, and no further action regarding ESA-listed species is required.

3.2 Air Quality

3.2.1 Affected Environment

The ROI for air quality resources is the Northern Alaska Intrastate Air Quality Control Region (AQCR).

3.2.1.1 Definition of Resource

Air pollution is the presence in the outdoor atmosphere of one or more contaminants (e.g., dust, fumes, gas, mist, odor, smoke, or vapor) in quantities and of characteristics and duration such as to be injurious to human, plant, or animal life or to property, or to interfere unreasonably with the comfortable enjoyment of life and property (Alaska Statute 46.03.900[2]). Air quality as a resource incorporates several components that describe the levels of overall air pollution within a region, sources of air emissions, and regulations governing air emissions. The National Ambient Air Quality Standards (NAAQS), local ambient air quality, and the air quality requirements for stationary sources in the Fairbanks area are discussed below.

3.2.1.2 Environmental Laws, Regulations, and Executive Orders

The EPA Region 10 and ADEC regulate air quality in Alaska. The CAA (42 U.S.C. §§ 7401–7671q), as amended, gives EPA the responsibility to establish the primary and secondary NAAQS (40 CFR Part 50) that set acceptable concentration levels for six criteria pollutants: PM (i.e., PM smaller than 10 microns in diameter [PM_{10}] and $PM_{2.5}$), sulfur dioxide (SO_2), CO, nitrogen dioxide (NO_2), ozone (O_3), and lead. Short-term standards (i.e., 1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, and long-term standards (i.e., annual averages) have been established for pollutants contributing to chronic health effects. Each state has the

authority to adopt standards stricter than those established under the federal program. The State of Alaska accepts the federal standards, with the following additions:

- ADEC's current rules contain EPA's previous 24-hour SO_2 standard of 0.14 parts per million (ppm) (365 micrograms per cubic meter [µg/m^3]).
- ADEC's current rules contain EPA's previous annual SO_2 standard of 0.03 ppm (80 µg/m^3).
- ADEC has an 8-hour ammonia standard of 2.1 milligrams per cubic meter.

Federal regulations designate geographic areas that have concentrations of a criteria pollutant that exceed the NAAQS as a *nonattainment* area for that pollutant. Federal regulations designate areas with pollutant levels below the NAAQS as *attainment* areas. *Maintenance* areas are areas that have previously been designated nonattainment and have been redesignated to attainment for a probationary period through implementation of maintenance plans. According to the severity of the pollution problem, nonattainment areas for O_3 can be categorized as marginal, moderate, serious, severe, or extreme. PM_{10} and $PM_{2.5}$ nonattainment areas are designated as either moderate or serious. Nonattainment areas for all other criteria pollutants have no classification level. Fairbanks is within the FNSB portion of the Northern Alaska Interstate AQCR, or AQCR 09 (40 CFR § 81.246). EPA has designated the FNSB portion of AQCR 09 as the following (40 CFR § 81.302):

- Serious nonattainment for the $PM_{2.5}$ NAAQS
- Maintenance for the CO NAAQS
- Attainment for all other criteria pollutants

Figure 3.2-1 shows the FNSB CO maintenance area and the serious nonattainment area for $PM_{2.5}$.

Since 1990, Alaska has developed a core of air quality regulations that have been approved by the EPA. These approvals signified the development of the general requirements of the Alaska State Implementation Plan (SIP) for attaining the NAAQS. The Alaska program for regulation of air emissions affects industrial sources, commercial facilities, and residential development activities. Regulation occurs primarily through a process of reviewing engineering documents and other technical information, applying emissions standards and regulations in the issuance of permits, performing field inspections, and assisting industries in determining their compliance status with applicable requirements.

The CAA [at 42 U.S.C. § 7472(a)] defines mandatory Class I federal areas as certain national parks, wilderness areas, national memorial parks, and international parks that were in existence as of August 1977. Four Class I areas are located in the State of Alaska, with Denali National Park and Preserve being the closest. The closest point on the boundary of the Denali National Park and Preserve Class I area is located approximately 78 miles (126 kilometers) south-southwest of Fort Wainwright Main Post (Figure 3.2-2).

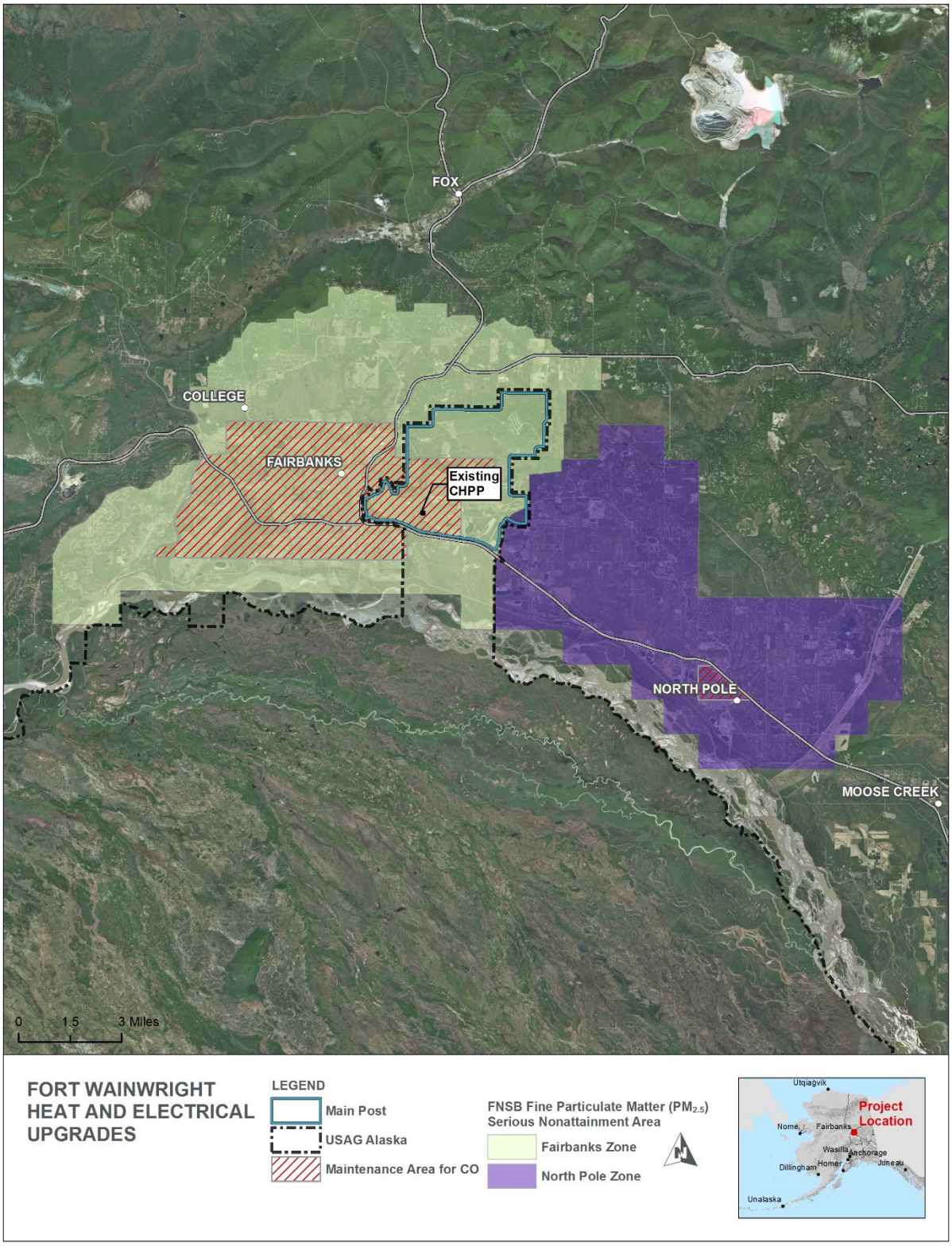


Figure 3.2-1. FNSB CO Maintenance and $PM_{2.5}$ Serious Nonattainment Areas

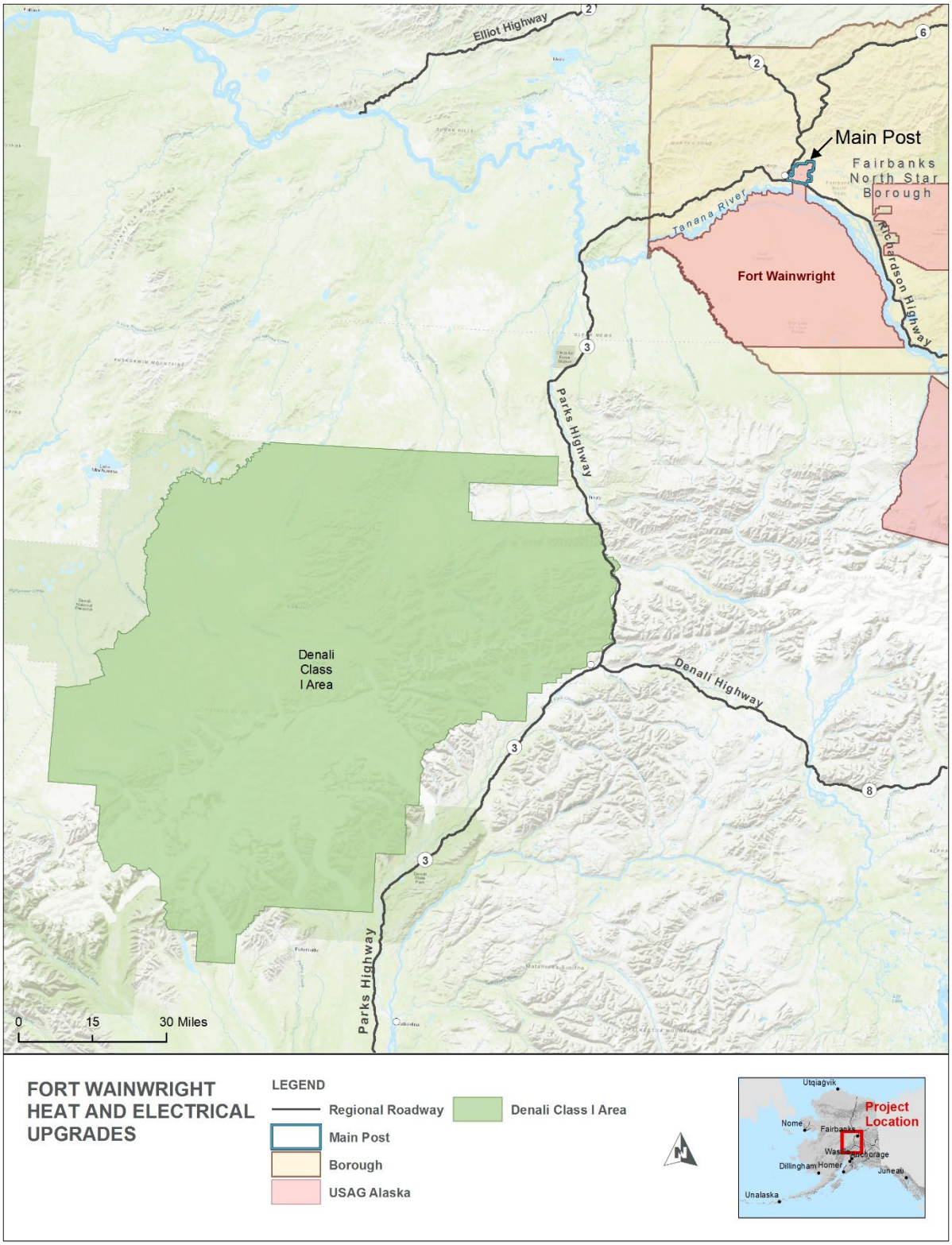


Figure 3.2-2. Class I Area near Fort Wainwright

EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (January 20, 2021), and EO 14008, Tackling the Climate Crisis at Home and Abroad (January 27, 2021), require federal agencies to capture the costs of greenhouse gas (GHG) emissions as accurately as possible, including taking global damages into account. The EOs provide national objectives to improve public health and protect the environment; ensure access to clean air and water; limit exposure to dangerous chemicals and pesticides; hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; reduce GHG emissions; bolster resilience to the impacts of climate change; restore national treasures and monuments; and prioritize both environmental justice and employment. The EOs direct federal agencies to review, and take action to address, federal regulations and other actions that conflict with these national objectives.

CEQ has issued NEPA guidance on GHGs. On August 1, 2016, CEQ released final guidance for federal agencies on how to consider the impacts of their actions on global climate change in their NEPA reviews titled ''Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews'' (*Federal Register*, Vol. 81, No.151, August 5, 2016) (2016 GHG Guidance). The 2016 GHG Guidance recommends that agencies consider both the potential impacts of a proposed action on climate change (e.g., rising sea levels, extreme weather, drought, and wildfires), as indicated by its estimated GHG emissions, and the effects of climate change on the proposed action. CEQ issued a draft revision of the 2016 GHG Guidance in June 2019 (''Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions,'' [*Federal Register*, Vol. 84, No. 123, June 26, 2019]). EO 13990 directs CEQ to rescind this draft guidance and to revise and update the 2016 GHG Guidance. The draft guidance was subsequently rescinded (*Federal Register* Vol. 86, No. 32, February 19, 2021).

The 2016 GHG Guidance recommends that agencies identify and consider alternatives that mitigate GHG emissions. It also counsels agencies to consider alternatives that would make the action and affected communities more resilient to the effects of a changing climate. Lastly, it reminds agencies to use existing information and science when assessing proposed actions. EO 13990 further clarifies aspects not contained in the 2016 GHG Guidance. The 2016 GHG Guidance does not require monetizing costs and benefits in a NEPA analysis. It indicates that when an agency determines that a monetized assessment of the impacts of GHG emissions or a monetary cost-benefit analysis is appropriate and relevant to the choice among different alternatives being considered, such analysis may be incorporated by reference or appended to the NEPA document as an aid in evaluating the environmental consequences. EO 13990 further requires an examination of the impact of GHG on climate change, including an analysis of the social cost of GHG. The EO states, “It is essential that agencies capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account. Doing so facilitates sound decision-making, recognizes the breadth of climate impacts, and supports the international leadership of the United States on climate issues.”

Although DoD continues to develop its department guidance for considering GHG and climate change under NEPA, this EIS complies with the 2016 GHG Guidance and subsequent EO 13990 requirements. Thus, it follows the basic procedure of considering the potential incremental change in CO_2 emissions that would result from a proposed action and alternatives compared to a no action alternative for the same timeframe, and discusses the context for interpreting and understanding the potential changes. For a NEPA evaluation, this consideration could be qualitative (e.g., explanatory text) and include quantitative data (e.g., calculations of estimated project missions).

Consistent with EO 14008, EO 13990, and the 2016 GHG Guidance, this EIS examines GHGs as a category of air emissions. It also examines potential future climate scenarios to determine whether elements of the proposed action would be affected by climate change. Potential climate stressors of climate change include more frequent and intense heat waves, increased damages from floods and major storm events, changes in precipitation patterns, damage from thawing permafrost and sea ice, reduced availability of freshwater during dry seasons, and harm to water resources, agriculture, wildlife, and ecosystems. Climate shifts could influence operational decisions to generate more or less heat or power in the cold and warm seasons, but such changes would not appreciably affect how efficiently the facility operates or result in system failures. These potential stressors apply similarly to the No Action Alternative and to each action alternative.

This EIS does not attempt to measure the actual incremental impacts of GHG emissions from the proposed action, because there is a lack of consensus on how to measure such impacts. Global and regional climate models have substantial variation in output, and do not have the ability to measure the actual incremental impacts of a specific project on the environment. The social cost of carbon dioxide (SC-CO_2), social cost of nitrous oxide (SC-N_2O), and social cost of methane (SC-CH_4) are estimates of the monetized damages associated with incremental increases in GHG emissions. The following social cost values (emissions year 2020, discount rate 3 percent) were used in this NEPA review (Interagency Working Group on Social Cost of Greenhouse Gases [IWG-SCGHG] 2021):

- SC-CO_2 – $51 per metric ton of CO_2
- SC-CH_4 – $1,500 per metric ton of CH_4
- SC-N_2O – $18,000 per metric ton of N_2O.

The use of these social cost estimates was challenged in a Louisiana federal district court in *Louisiana v. Biden*, Case N. 2-21:CV-01074 (Climate Change Litigation Databases, 2022). The court found, in a February 2022 opinion, that the requirement to use social cost of carbon estimates exceeded the executive's authority, that the estimates were not the subject of proper rulemaking, and that use of the estimates lacked Congressional authority, among other issues. The court found that the plaintiff had alleged sufficient grounds to show that it would have a strong likelihood of success on the merits of the case. Based on this and other considerations, the court enjoined federal agencies from adopting or relying on "any Social Cost of Greenhouse Gas estimates based on global effects or that otherwise fails (sic) to comply with applicable law." The 5th Circuit Court

of appeals vacated the lower court injunction in March 2022, but the underlying litigation will continue before the federal district court.

In this EIS, the social cost figures listed above are being used to produce a relative social cost estimate by which the various alternatives can be compared. The estimates are not being used to show the actual monetary cost of emissions, which may be refined through further research and rulemaking. Therefore, this EIS uses the social cost estimates for this limited purpose.

When considering GHG emissions and their significance, appropriate tools and methodologies for quantifying GHG emissions and comparing GHG quantities across alternative scenarios should be used.

Regional Haze – Second Implementation Period. As of August 2021, ADEC is developing revisions to the SIP to address the second implementation period of EPA's Regional Haze Rule. EPA published guidance for states in a memorandum (EPA 2019a). The methodology that ADEC will use to determine the existing stationary sources that will be included in the revised SIP has not been finalized, but a preliminary evaluation has been conducted (ADEC 2021a).

At this time, neither EPA nor ADEC has specified how or if future new sources will be evaluated for regional haze impacts. One simple evaluation surrogate metric that can be used is the Q/d method, which divides emissions in tons per year (tpy) by the distance to the affected Class I area in kilometers. In EPA's 2014 Federal Implementation Plan (FIP) for Regional Haze, sources with a Q/d value of 10 or greater would be further evaluated (*Federal Register*, Vol. 79, No. 170).

The direct and precursor pollutants that can impair visibility include SO_2, NO_x, fine and coarse PM, volatile organic compounds (VOCs), and ammonia. For the purposes of this analysis, the Q/d evaluation for each action alternative is based on the sum of all these direct and precursor pollutants.

Conformity

The 1990 amendments to the CAA require federal agencies to ensure that their actions conform to the SIP in a nonattainment area. The EPA has developed two distinctive sets of conformity regulations: one for transportation projects and one for non-transportation projects.

Transportation Conformity. Transportation conformity is required to ensure that federal funding and approval given to highway and transit projects are consistent with the attainment of air quality standards. The Proposed Action is not a highway or transit project and, therefore, is not subject to transportation conformity requirements.

General Conformity. Non-transportation projects are governed by general conformity regulations (40 CFR Parts 51 and 93), which are described in the final rule Determining Conformity of General Federal Actions to State or Federal Implementation Plans (published in the *Federal Register* on November 30, 1993). The General Conformity Rule

requirements became effective January 31, 1994, and were updated effective March 24, 2010. Under Section 176(c) of the CAA, the General Conformity Rule became applicable 1 year after the $PM_{2.5}$ nonattainment designation became effective. Alaska has adopted the federal conformity regulations by reference (18 Alaska Administrative Code [AAC] 50.700–50.735).

The Proposed Action is governed by General Conformity rules because of its location within a $PM_{2.5}$ nonattainment area and a CO maintenance area. Therefore, a general conformity applicability assessment is required with respect to the $PM_{2.5}$ and CO NAAQS.

The General Conformity Rule specifies threshold emissions levels by pollutant to determine the applicability of conformity requirements for a project. As stated in 40 CFR § 93.153(b), "… a conformity determination is required for each criteria pollutant or precursor where the total of non-exempt direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a federal action would equal or exceed any of the …" listed rates. For an area in serious nonattainment for the $PM_{2.5}$ NAAQS, the applicability criterion is 70 tpy for $PM_{2.5}$ (as well as individually for nitrous oxide [NO_x], SO_2, VOCs, and ammonia as precursors). For an action in a maintenance area, the applicability criteria is 100 tpy for the applicable pollutant. As such, the $PM_{2.5}$ emissions (and each of the precursor pollutant emissions) are individually compared to the 70-tpy threshold and CO emissions are compared to the 100-tpy threshold. This evaluation was performed for both the non-exempt direct and indirect emissions occurring during the construction phase and the non-exempt direct and indirect emissions occurring during the operational phase.

None of the non-exempt direct emissions associated with the No Action Alternative or any of the action alternatives are subject to General Conformity. Emissions generated by operation of the on-site energy production equipment (i.e., the CHPP or the distributed natural gas boilers) would be subject to ADEC's Prevention of Significant Deterioration (PSD)/New Source Review (NSR) permitting and, therefore, are exempt from General Conformity, in accordance with 40 CFR § 93.153(d)(1).

Indirect emissions associated with the No Action Alternative and each Proposed Action would occur from mobile sources associated with each alternative. Emissions from additional electricity (beyond that currently supplied by local utilities) used but not produced at Fort Wainwright are not considered indirect emissions because Fort Wainwright cannot practically control those emissions and does not have continuing program responsibility for any actions taken by those utilities.

Indirect emissions for mobile sources under proposed Alternative 1 are expected to be the same as for the No Action Alternative. Alternatives 2 and 3 would result in a reduction in emissions because of the elimination of trains delivering coal and an increase in emissions from trucks delivering fuel oil (used only for backup purposes in each alternative) and liquefied natural gas (LNG) to the storage tank located in Fairbanks. The reduction in emissions resulting from the elimination of trains delivering coal is anticipated to be greater than the increase resulting from the infrequent delivery of the fuel oil and the routine delivery of LNG to Fairbanks. Therefore, indirect emissions from mobile

source operations would be equal to or less than the No Action Alternative and will not be quantified or further discussed.

Air Quality Construction Permitting

ADEC implements programs for permitting the construction and operation of new or modified stationary sources of air emissions in Alaska that emit regulated pollutants. Depending on the type and size of the emissions units and levels of regulated pollutants emitted, ADEC determines the applicable emission standards and associated requirements for inclusion in the issued construction permit.

The air quality permitting process begins with the application for a construction permit. Each proposed alternative would require a permit to construct in one form or another. ADEC can issue four types of air quality construction permits for the construction and temporary operation of new emissions sources that are potentially applicable to each proposed alternative:

- Major New or Modified Source Construction Permit in Nonattainment Area (Nonattainment New Source Review [NNSR])
- PSD permit in Attainment (and maintenance) Area
- Minor source permit
- Owner Requested Limit (ORL) Permit.

Major New Source Review

NNSR and PSD permits are both part of ADEC's major NSR program. Thresholds that determine the type of construction permit that might be required depend on both the quantity and type of emissions. PSD review and permitting is required for sources emitting 100 tpy of any regulated pollutant for any of 28 named PSD source categories. One named source category is fossil fuel boilers that singly or in combination have a total heat input of more than 250 million British thermal units per hour (MMBtu/hr). For all other sources not in the 28 named source categories, PSD review is required if the source emits 250 tpy or more of any regulated pollutant. On the basis of its current equipment type (fossil fuel boilers that in combination total more than 250 MMBtu/hr of heat input) and potential to emit (PTE), Fort Wainwright is an existing major source for major NSR (both PSD and NNSR) permitting purposes (ADEC 2015a). Thresholds requiring either an NNSR or a PSD permit for a modification to an existing major source in the Fairbanks area are outlined in Table 3.2-1.

Table 3.2-1. Major Modification Thresholds of Criteria Pollutants in Fairbanks

Pollutant	Major Modification at an Existing NSR Major Source (tpy)	
	PSD	NNSR
NO_x	40	40 ($PM_{2.5}$ precursor)
CO	100	NA
SO_2	40	40 ($PM_{2.5}$ precursor)
PM	25	NA
PM_{10}	15	NA
$PM_{2.5}$	NA	10
VOC	40	NA

Note:
NA – not applicable

Major New or Modified Source Construction Permits in Nonattainment Areas (NNSR permits) are required for any major new sources or major modifications to existing sources intended to be constructed in an area designated as nonattainment. The PSD program protects the air quality in attainment areas (including areas designated as maintenance). PSD regulations impose limits on the amount of pollutants that major sources may emit. The PSD permitting process would apply to all pollutants for which the area is in attainment (with the exception of $PM_{2.5}$).

Currently, when undergoing a physical or operational change, a source determines major NSR applicability through a two-step analysis, performed separately for each NSR pollutant. First, an applicant determines whether the increased emissions from a particular proposed project alone are above the applicable NNSR and/or PSD thresholds. If the emissions increase is below the threshold, an NSR permit would not be required for that pollutant. If the emissions increase is above the threshold, the applicant then determines through a procedure called “netting” whether the net emissions of the project plus all contemporaneous increases and decreases in the previous 5 years at the source are above the thresholds. If this determination results in an increase that is lower than the threshold, an NSR permit for that pollutant would not be required.

NSR permits are legal documents that specify what construction is allowed; emissions limits that must not be exceeded; reporting, recordkeeping, and monitoring requirements; and often how the source can be operated. The NSR permitting process typically takes 12 to 18 months. Specifically, typical requirements for an NSR permit can include the following:

- PSD
    - BACT review for criteria pollutants

  - Predictive dispersion modeling of emissions from proposed and existing sources, to estimate ambient concentration impacts
  - Additional impacts analysis
  - Assessment of impacts on nearby Class I areas
- NNSR
  - Determining the lowest Achievable Emission Rate review for qualifying nonattainment pollutants (i.e., NO_x, SO_2, and potentially VOCs [as $PM_{2.5}$ precursors] and direct $PM_{2.5}$)
  - Acquiring emissions offsets at a one to three or greater ratio for all contemporaneous emission increases that have occurred or are expected to occur
- PSD and NNSR
  - A public involvement process
  - EPA review of the draft permit.

Minor Source Preconstruction Permitting

Minor source and ORL permits are part of ADEC's minor source permitting program. Minor source permitting applies to facilities that do not have potential emissions that are above major source thresholds, but that trigger the requirement to have a minor source permit. ORL permits are typically used to limit otherwise major potential emissions to levels below major source permitting thresholds to minimize the permitting and compliance burden for facilities or projects that have actual emissions that would be below the major source thresholds.

Air Quality Operation Permit

Title V of the CAA requires states to establish an air operating permit program. The requirements of Title V are outlined in the federal regulations in 40 CFR Part 70 and in the ADEC regulations at 18 AAC 50.326. The permits required by these regulations are often referred to as Title V or Part 70 permits. Based on its PTE, Fort Wainwright is subject to the Title V permitting requirements.

Two Title V permits have been issued to stationary sources of emissions at Fort Wainwright. Permit No. AQ0236TVP04 (ADEC 2020), issued June 11, 2020, covers the emission units and activities that are not part of the CHPP operated by the System Owner. This permit includes small diesel boilers, generators, fire pumps, a landfill, restoration activities, and aerospace activities. These emission units are not anticipated to be affected by the proposed project.

The second Title V permit, Permit No. AQ1121TVP02 (ADEC 2015b), issued to the System Owner on January 30, 2015, covers the emission units and activities referred to as the Privatized Emission Units. Alternative 3 would affect some of these emission units (either decommission/modification or replacement to accommodate Natural Gas as fuel).

This permit includes the CHPP coal-fired boilers and associated coal handling and storage, generators, and fire pumps. The CHPP boilers and associated coal handling and storage are subjects of this EIS and the generators and fire pumps covered by the permit are not anticipated to be affected by the Proposed Action. Table 3.2-2 summarizes the 2017 emissions from permitted sources at the Fort Wainwright stationary source.

Table 3.2-2. 2020 Average Emissions from Permitted Sources at the Fort Wainwright Stationary Source

Permit	Permitted Source (tpy)								
	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	Lead	CO_2e	Water
UPC Permit									
CHPP	525	121	188	72.7	67.6	5.21	0.04	338,347	63,057
Non-CHPP	0.50	0.07	0.21	0.02	0.02	0.03	--	--	--
Non-UPC Permit	3.5	0.86	3.71	0.28	0.28	5.20	--	3,500	--
Total	529	122	509	73.0	67.9	10.4	0.04	341,847	--

Sources: ADEC 2020a; EPA 1996a, 1996b; USAG Fort Wainwright 2021a, 2021b, 2021c

As noted in Section 1.1.2, the nameplate rated capacity of each boiler is 150,000 lb/hr of steam production. To be compliant with applicable regulatory requirements, the boilers have been derated to produce a maximum of 120,000 lb/hr of steam. During normal operations, the boilers typically produce approximately 75,000 lb/hr of steam, which is about 50 percent of the nameplate-rated capacity. Operating the boilers at a lower load compromises the efficiency of the boiler.

3.2.1.3 Regional Climate

FNSB is located in Interior Alaska and is far removed from the moderating influence of Alaskan coastal waters. As a result, the area has a continental climate that is characterized by large daily and annual temperature ranges, low humidity, and relatively light and irregular precipitation compared to the climate of coastal southern Alaskan communities. Because of its low elevation, the Fairbanks area experiences extreme cold in the winter and relatively high (for Alaska) summertime temperatures.

The average annual water equivalent precipitation reported at Fairbanks International Airport (FAI) during the period between December 1, 1929, and June 9, 2016, was 10.53 inches. Average annual snowfall during the period was 65.2 inches. The average annual minimum temperature is 16.9 degrees Fahrenheit (°F) and the average annual maximum temperature is 36.9°F. The coldest month is January, with an average minimum temperature of -19.0°F during the period, while July is the warmest month, with an average maximum temperature of 72.3°F (Western Regional Climate Center [WRCC], 2019a). Extremes in temperature are documented to range from the low of -56°F during

the winter months and as high as 94°F in the summer months during the period (WRCC, 2019b).

Temperature inversions are frequent in the winter. These inversions typically occur under clear skies, light winds, and extremely low surface temperatures. Wintertime inversions over Fairbanks, in combination with the region's low-lying terrain, result in periods of stagnant air during which air pollutants, especially from low level sources such as vehicles and woodstoves, are trapped within the inversion, limiting their vertical dispersion. In addition, light winds during inversions tends to limit horizontal transport and dispersion. Consequently, Fairbanks experiences periods of diminished air quality during the winter. The conditions that occur during these inversion incidents also contribute to the formation of ice fog in the Fairbanks area.

In addition to trapping pollutants emitted from low level sources, the inversions also limit the vertical dispersion of pollutants emitted from stacks such as those associated with the CHPP. The amount of rise of the exhaust prior to leveling out because of the inversion depends on the height of the release, as well as the exhaust exit velocity and temperature. In general, colder, slower exhaust streams released at lower heights will level off at a lower altitude than hotter, faster exhaust streams released at higher heights. Also, exhaust plumes released from stacks near each other tend to merge quicker than those released from distance separated stacks.

Prevailing airflow is from the north, and this is accentuated during the colder months. Annual average wind speed is very light, at less than 5 miles per hour (mph). Cold air drainage flows (i.e., terrain following) are common during the winter months. Surface winds change to a predominantly southwesterly flow during summer months.

During summer, Fairbanks occasionally experiences smoky periods caused by wildfires in the surrounding region. The smoky periods range from less than a day to several weeks, with the period duration and severity depending on the characteristics and locations of the wildfires, as well as on prevailing winds and precipitation. Smoke increases levels of particulate matter, CO, and O_3 precursors such as NO_x and VOCs that can severely affect air quality.

3.2.1.4 Current Condition

Existing ambient air quality conditions near Fort Wainwright can be estimated from measurements conducted at air quality monitoring stations in and around the Fairbanks area. The most recent available data from EPA for monitoring stations nearest Fort Wainwright are summarized in Table 3.2-3.

Table 3.2-3. AAQS Local Ambient Air Quality Monitoring Design Values

Pollutant, (Monitor Location), Averaging Period (Unit)	Primary NAAQS[a]	Secondary NAAQS[a]	Design Value
CO (Site ID 020900034, 809 Pioneer Road, Fairbanks, AK)			
1 Hour (ppm)	35[b]	None	3.4[c]
8 Hours (ppm)	9[b]	None	2.1[d]
Lead (No lead monitor is sited in Alaska)			
3-Month Rolling Average (µg/m^3)[e]	0.15	0.15	-- [f]
NO_2 (Site ID 020900034, 809 Pioneer Road, Fairbanks, AK)			
1 Hour (ppb) [g]	100	100	55[h]
Annual Arithmetic Mean (ppb)[e]	53	53	13.42[i]
O_3 (Site ID 020900034, 809 Pioneer Road, Fairbanks, AK)			
8 Hours (ppm)[j]	0.070	0.070	0.045[h]
$PM_{2.5}$ (Site ID 020900034, 809 Pioneer Road, Fairbanks, AK)			
24 Hours (µg/m^3)[k]	35	35	29[h]
Annual Mean (µg/m^3)[l]	12.0	15.0	8.1[h]
PM_{10} (Site ID 020900034, 809 Pioneer Road, Fairbanks, AK)			
24 Hours (µg/m^3)[m]	150	150	85[h]
SO_2 (Site ID 020900034, 809 Pioneer Road, Fairbanks, AK)			
1 Hour (ppb)[n]	75	None	34[h]
3 Hours (ppm)[b]	None	0.5	0.037[c]

Notes:

ppb – parts per billion

a. Source: 40 CFR §§ 50.1–50.19 (as summarized by EPA at NAAQS Table (EPA 2021a) and 18 AAC 50.010.

b. Not to be exceeded more than once per year.

c. Maximum second high value from the most recent 3 years (2018-2020) of monitoring values available as of August 2021 (EPA 2021b).

d. Maximum high second high value from the most recent 3 years of monitoring values obtained from the State of Alaska 2020 Ambient Air Quality Network Assessment (ADEC 2020b).

e. Not to be exceeded.

f. According to ADEC 2020b, no ambient lead monitoring is conducted anywhere in the State of Alaska.

g. The 3-year average of the 98th percentile of 1-hour daily maximum concentrations over each year must not exceed the standard.

h. Source: ADEC 2020b.

i. Maximum value from the most recent 3 years (2016-2018) of complete monitoring values available as of August 2021 (EPA 2021b).

j. The 3-year average of the fourth highest daily maximum 8-hour average concentration over each year must not exceed the standard.

k. The 3-year average of the 98th percentile of 24-hour concentrations must not exceed the standard.

l. The 3-year average of the annual mean concentration must not exceed the standard.
m. Not to be exceeded more than once per year on average over 3 years.
n. The 3-year average of the 99th percentile of 1-hour daily maximum concentrations must not exceed the standard.

The EPA approved parts of the SIP submitted by the State of Alaska to address CAA requirements for the 2006 24-hour $PM_{2.5}$ NAAQS in the FNSB $PM_{2.5}$ nonattainment area. Currently, the EPA has not proposed action on the BACT requirements for point sources. EPA's rule is currently pending (*Federal Register*, Vol. 86, No. 183, September 24, 2021).

The CAA, as amended in 1990, mandates that state agencies adopt SIPs that target the elimination or reduction of the severity and number of violations of the NAAQS. SIPs set forth policies to expeditiously achieve and maintain attainment of the NAAQS. The portion of the Fairbanks area in which Fort Wainwright is located was designated as a $PM_{2.5}$ moderate nonattainment area in December 2009. Because the Fairbanks area was a moderate nonattainment area for the $PM_{2.5}$ NAAQS, the State of Alaska was required to develop a SIP that outlines the actions to be taken to achieve the $PM_{2.5}$ NAAQS. This plan was submitted to EPA in December 2014 with an attainment date, set by the requirements of the , of December 31, 2015. This attainment date was not obtainable or practical for the levels of $PM_{2.5}$ recorded for the locations. On April 28, 2017, EPA reclassified the area from moderate to serious for the 2006 24-hour $PM_{2.5}$ NAAQS because the standard had not been attained by the December 31, 2015, deadline. This reclassification triggered the requirement to develop, submit, obtain EPA approval for, and implement a SIP to ensure attainment of the standard by December 31, 2019. ADEC adopted the SIP on November 19, 2019, which became effective January 8, 2020. ADEC transmitted the SIP amendments to EPA on December 15, 2020, for review and approval. As of August 2021, EPA has not taken action on the plan.

The current EPA-approved regional air quality plan is the "Fairbanks North Star Borough (FNSB) Fine Particulate Matter (PM2.5) Moderate Area Attainment Plan," in Volume II, Section III.D.5, of the *Alaska Air Quality Control Plan* (ADEC 2017). ADEC compiled a regional emissions inventory and set regional emissions budgets within this plan.

3.2.2 Environmental Consequences

3.2.2.1 Significance Criteria

An impact on air quality would be considered significant if the Army action were to result in any of the following:

- An increase in emissions relative to the regulatory thresholds for the pollutants identified in Table 3.2-1
- Interference with achieving NAAQS, as outlined in Table 3.2-3

3.2.2.2 No Action Alternative

Under the No Action Alternative, operation of the existing CHPP would continue. Based on ADEC documentation, the CHPP's coal-fired boilers will be required to install BACT to control SO_2 emissions to 0.12 pound per million British thermal units (lb/MMBtu) or less by October 1, 2023. As directed by ADEC, the System Owner has proposed to install a DSI system to meet the BACT requirements (ADEC 2019a). ADEC's proposed BACT is pending a proposed rule by the EPA.

The actual SO_2 emissions listed in Table 3.2-2 for the CHPP are based on a coal sulfur content of 0.11 percent, which corresponds to 0.26 lb/MMBtu. Based on this information, BACT limitations would result in future anticipated CHPP emissions that are 54 percent lower than current emissions level, and all other pollutant emissions would be unchanged from current levels.

ADEC has indicated that the existing CHPP has been identified as a stationary source that will be reviewed on a case-by-case basis for regional haze implementation purposes (ADEC 2021b). As of August 2021, the level of this review has not been determined.

Because no increase in emissions would result under the No Action Alternative, the impact on air quality would not be significant. The CHPP would continue to operate at reduced capacity (see Section 2.5.1) to comply with CO emission standards.

The social costs of GHG emissions associated with the No Action Alternative are summarized in Table 3.2-4.

Table 3.2-4. Social Costs of GHG Emissions, No Action Alternative

GHG	Emissions (metric tons per year)	Cost Factor ($/metric ton)	Annual Cost ($/year)
CO_2	304,586.7	51	15,533,922
CH_4	34.48	1,500	51,720
N_2O	5.015	18,000	90,270
Total			15,675,912

Source: USAG Fort Wainwright 2021b.

3.2.2.3 Alternative 1 (Build a New Coal CHPP)

Under Alternative 1, short-term, minor adverse, and long-term, minor, beneficial impacts would occur as a result of the demolition of the existing CHPP and construction of a new coal-fired CHPP. Criteria pollutants and GHG would be released from vehicles and equipment during the construction activities associated with Alternative 1. Because these would be short term and localized in nature and impact, they are not anticipated to affect the air quality in the Fairbanks area significantly. Further, most construction emissions would occur during the warmer seasons, whereas the $PM_{2.5}$ nonattainment problem in Fairbanks is primarily a wintertime issue.

USAG Alaska does not currently have sufficient design or construction sequencing detail for use in calculating the construction emissions anticipated for Alternative 1. Therefore, construction-related emissions were estimated based on the *Stationing and Training of Increased Aviation Assets within U.S. Army Alaska Environmental Impact Statement* (U.S. Army Alaska [USARAK] 2009). This information was deemed appropriate for use as explained below.

- Construction of the new CHPP and demolition of the old CHPP would consist of the following general activities:
    - Building demolition and disposal of material removal
    - Site preparation and associated fugitive dust
    - Building construction and material delivery
    - Construction worker commute to and from the site
- Construction of the new CHPP and demolition of the old CHPP would consist of multiyear construction schedules.
- Based on Alternative 1 and the current CHPP being both active for a period of time as a contingency measure, both footprints are considered. The footprint of Fort Wainwright's existing CHPP is approximately 7 acres and the footprint of the Alternative 1 facility is expected to be similar in size or smaller. The analysis presented in USARAK 2009 was based on construction and site development occurring on 18 acres of land during each year of the project.

Based on this comparison of the two projects, the USARAK construction emissions are considered a conservatively high estimate of the emissions that would be generated during the construction of Alternative 1, which are summarized in Table 3.2-5.

Table 3.2-5. Anticipated Construction Emissions, Alternative 1

Anticipated Construction Emissions (tpy)				
CO	**NO_x**	**SO_2**	**$PM_{2.5}$**	**VOC**
20.3	17.6	0.32	5.4	2.1

Localized impacts from equipment emissions and fugitive dust generated by construction activities may occur, but dust abatement measures would be implemented as BMPs to minimize dust problems. The abatement measures include, but are not limited to the following:

- As available, use of newer model construction equipment to minimize engine emissions
- Water exposed disturbed areas and material storage piles as needed to minimize wind-generated dust
- Water and/or sweep facility roads as needed to remove material tracked onto roadways and minimize dust emissions from vehicle movement
- Cover trucks hauling wind-erodible materials

A Construction Emissions Control Plan would be developed and implemented. The plan would include detailed control measures implemented to minimize the generation of fugitive dust during construction.

Short-term and long-term, minor, beneficial impacts could occur as a result of the replacement of the existing CHPP with a new coal-fired CHPP and purchases of additional electricity from a local utility provider.

The type of air quality construction permitting required for Alternative 1 depends on the quantity of emissions and timing of the shutdown of the existing CHPP. Operating emissions for the new CHPP of Alternative 1 were calculated based on anticipated fuel usage, together with emission factor information obtained from the recently permitted, new, coal-fired boiler installed and operating at the University of Alaska Fairbanks Campus; from 40 CFR Part 98, Subpart C, Tables C-1 and C-2; and from EPA's AP-42, Section 1.1 (EPA 1998a), and ADEC's SO_2 BACT determination for the existing CHPP. The detailed emission calculations for the new CHPP of Alternative 1 are presented in Table 3.2-6. Currently the EPA's proposed rule on the BACT Serious Nonattainment Area planning requirements, including the issue of appropriate regulation of SO_2 emissions from point sources, is pending. The EPA intends to address control analysis of Alaska's best available control measures (BACM) and BACT, and any supplemental BACT control submissions, in a separate action.

Table 3.2-6. New Coal CHPP Emissions Estimate

Pollutant	Emission Factor			Emissions (tpy)[g]
	Number	Units	Note	
PM	0.030	lb/MMBtu	[a]	36.5
PM_{10}	0.012	lb/MMBtu	[a]	14.6
$PM_{2.5}$	0.012	lb/MMBtu	[a]	14.6
NO_x	0.20	lb/MMBtu	[a]	243
SO_2	0.120	lb/MMBtu	[a]	146
CO	0.133	lb/MMBtu	[b]	161
VOC	0.050	lb/ton	[a]	4.03
CO_2e	--	--	[c]	262,341
CO_2	97.17	kg/MMBtu	[d]	260,327
CH_4	0.011	kg/MMBtu	[d]	29.47
N_2O	0.0016	kg/MMBtu	[d]	4.29
Lead	4.2E-04	lb/ton	[e]	0.034
Water	40.2	lb/MMBtu	[f]	48,818
Sum of Regional Haze Precursors				407.5

Notes:

a. ADEC 2017

b. Calculated based on the 40 CFR Part 63, Subpart DDDDD, limit of 130 ppm at 3% O2, the Ideal Gas Law, and 40 CFR Part 60, Appendix A-7, Method 19.

c. Corresponds to the sum of the individual GHG emissions times the following global warming potentials obtained from 40 CFR Part 98, Table A-1:
   - CO_2: 1
   - CH_4: 25
   - N_2O: 298

d. 40 CFR Part 08, Subpart C, Tables C-1 and C-2

e. EPA 1998a

f. See Appendix F

g. Calculated using the listed emission factors and an anticipated coal usage of 161,147 tons per year, corresponding to 2,430,424 MMBtu/year (USACE 2018).

The annual operational emissions associated with Alternative 1 are summarized in Table 3.2-7, along with those for the No Action Alternative and the other action alternatives for comparison. Table 3.2-7 also identifies the change in emissions (net effect) anticipated as a result of operating the new CHPP and decommissioning the existing CHPP, as proposed under Alternative 1.

Table 3.2-7. Operational Emissions Comparison, Alternative 1

	Emissions (tpy)								
	CO	**NO_x**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**Lead**	**CO_2e**	**Water**
No Action Alternative	121	525	188	72.7	67.6	5.21	0.04	338,347	63,057
Alternative 1	161	243	146	14.6	14.6	4.03	0.03	262,341	48,818
Net Effect (Alternative 1 vs No Action Alternative)	40	-282	-42	-58.1	-53.0	-1.18	-0.01	-76,006	-14,239

Historically, CO emissions from the existing CHPP were significantly higher than current emissions. As discussed in Section 2.5.1, the existing boilers are required to operate at or below 80 percent of their nameplate-rated capacity in order to meet the applicable CO emissions standard. This is reflected in the value shown for the No Action Alternative in Table 3.2-7, which is based on stack testing performed in 2020. The CO concentration values from the 2020 stack testing ranged from 80.1 ppm by volume, dry (ppmvd) at 3 percent O_2 to 107.6 ppmvd at 3 percent O_2. The CO emissions associated with Alternative 1 were calculated based on the regulatory limit that will apply to the boilers (maximum concentration of 160 ppmvd at 3 percent O_2), which resulted in estimated emissions that are greater than those for the No Action Alternative. Actual CO emissions for Alternative 1 are anticipated to be lower than the regulatory limit, as well as equal to or lower than those measured in the 2020 stack testing of the existing boilers. It is not possible to further refine the actual emissions estimates for Alternative 1 at this time.

As part of any action alternative, the existing CHPP would be removed from service and no longer emit air pollutants to the atmosphere. With the exception of SO_2, the amount of these anticipated decreases would be based on their actual emissions, as was summarized in Table 3.2-2. The amount of the SO_2 decrease associated with removal of the existing CHPP was estimated using the SO_2 BACT limit of 0.12 lb/MMBtu discussed previously and the actual 2020 coal usage and heat content information of 3,139,312 MMBtu/year (USAG Fort Wainwright 2021a). This SO_2 decrease results in an anticipated future SO_2 emissions decrease of 188 tpy and would be associated with removal of the existing CHPP. The anticipated future decrease in water vapor emissions, based on the same annual heat input and an emission factor of 40.2 lb/MMBtu (see Appendix F), would be 63,057 tpy.

Because the net emissions from Alternative 1 would be less than the threshold values listed in Table 3.2-1, the impacts of Alternative 1 on air quality would not be significant. Alternative 1 would reduce emission levels for all criteria pollutants (except CO), resulting in an overall long-term, beneficial impact from operation of the new CHPP. Further, Alternative 1 would reduce carbon dioxide equivalent (CO_2e) emissions by about 22 percent, compared to the No Action Alternative.

Operational emissions would be minimized by implementing the following BMPs:

- Routine maintenance and tuning of combustion equipment
- Routine training of equipment operators and maintenance personnel
- Following equipment manufacturer recommended procedures for minimizing emissions.

Operation of the existing CHPP and the Alternative 1 new CHPP would overlap for a short time during equipment startup, shakedown, and performance verification. This overlap is expected to be of short duration and the new equipment would typically be operated at less than maximum capacity during this period.

As discussed previously, the permitted emissions during operation are exempt and no increase in non-exempt emissions would occur. The emissions associated with the construction of Alternative 1 presented in Table 3.2-5 indicate that emissions of $PM_{2.5}$ and all precursors and CO are less than the applicable General Conformity thresholds. Therefore, the requirements of General Conformity are not triggered for Alternative 1.

The existing CHPP's contribution to current adverse conditions has already been determined and addressed in ADEC's SIP for the serious $PM_{2.5}$ nonattainment area. Further, ADEC's air quality construction permitting requirements require that any action alternative demonstrate modeled compliance with all NAAQS and does not contribute significantly (as defined by ADEC air quality rules) to the current adverse conditions. Therefore, de minimis threshold and NAAQS would be met through ADEC permitting rules.

For Alternative 1, the regional haze implementation Q/d value would be approximately 3, which is below the identified threshold of 10.

Alternative 1 would emit approximately 20 percent less water than the No Action Alternative (on an annual basis), and would be expected to have a similar stack exhaust height. Therefore, Alternative 1 would not be expected to adversely affect ice fog formation characteristics.

The social costs of GHG emissions associated with Alternative 1 are summarized in Table 3.2-8.

Table 3.2-8. Social Costs of GHG Emissions, Alternative 1

GHG	Emissions (metric tons per year)	Cost Factor ($/metric ton)	Annual Cost ($/year)
CO_2	236,164.7	51	12,044,400
CH_4	26.73	1,500	40,095
N_2O	3.89	18,000	70,020
Total			12,454,515

3.2.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

The same approach used for estimating construction emissions for Alternative 1 was used to estimate construction emissions for Alternative 2. Therefore, similar short-term, adverse impact could occur as a result of the demolition of the existing CHPP and construction of a new natural gas-fired CHPP.

Long-term, minor, beneficial impacts could occur as a result of the replacement of the existing CHPP with a new dual-fuel combustion turbine generator CHPP and the purchase of additional electricity from a local utility provider.

The type of air quality construction permitting that would be required for Alternative 2 depends on the quantity of emissions and timing of the shutdown of the existing CHPP. Operating emissions for the new natural gas-fired (with fuel oil backup) CHPP of Alternative 2 were calculated based on anticipated fuel usage and emission factor information obtained from numerous recent similar projects. The detailed emission calculations for the new CHPP of Alternative 2 are presented in Table 3.2-9.

A Construction Emissions Control Plan would be developed and implemented for Alternative 2. The plan would include detailed control measures implemented to minimize the generation of fugitive dust during construction.

The annual operational emissions associated with Alternative 2 are summarized in Table 3.2-10. This table also identifies the change in emissions (net effect) anticipated as a result of operating the new, dual-fuel combustion CHPP and decommissioning the existing CHPP, as proposed under Alternative 2.

Operational emissions would be minimized by implementing the following BMPs:

- Routine maintenance and tuning of combustion equipment
- Routine training of equipment operators and maintenance personnel
- Following equipment manufacturer recommended procedures for minimizing emissions

Because the net emissions from Alternative 2 would be less than the threshold values listed in Table 3.2-1, the impacts of Alternative 2 on air quality would not be significant. Alternative 2 would reduce emission levels for all criteria pollutants (except CO and VOCs), resulting in an overall long-term, beneficial impact from operation of the new CHPP. Further, Alternative 2 would reduce GHG emissions by about 54 percent compared to the No Action Alternative.

Operation of the existing CHPP and the Alternative 2 new natural gas-fired CHPP would overlap for a short period of time during equipment startup, shakedown, and performance verification. This overlap is expected to be of short duration, and the new equipment would typically be operated at less than maximum capacity during this period.

Table 3.2-9. New Natural Gas CHPP Emissions Estimate

Pollutant	Natural Gas				Fuel Oil				Total Emissions (tpy) [l]
	Emission Factor		Note	Emissions (tpy) [l]	Emission Factor		Note	Emissions (tpy)	
	Number	Units			Number	Units			
PM	0.010	lb/MMBtu	[a]	12.4	0.039	lb/MMBtu	[a]	2.56	15.0
PM_{10}	0.010	lb/MMBtu	[a]	12.4	0.039	lb/MMBtu	[a]	2.56	15.0
$PM_{2.5}$	0.010	lb/MMBtu	[a]	12.4	0.039	lb/MMBtu	[a]	2.56	15.0
NO_x									
Warm Weather	0.0921	lb/MMBtu	[b]	87.1	0.2726	lb/MMBtu	[b]	13.6	212
Cold Weather	0.3537	lb/MMBtu	[c]	105.9	0.3537	lb/MMBtu	[c]	5.58	
SO_2	0.0034	lb/MMBtu	[d]	4.23	0.0015	lb/MMBtu	[d, e]	0.10	4.33
CO									
Warm Weather	0.056	lb/MMBtu	[f]	53.0	0.056	lb/MMBtu	[f]	2.79	162
Cold Weather	0.336	lb/MMBtu	[g]	100.7	0.336	lb/MMBtu	[g]	5.30	
VOC									
Warm Weather	0.018	lb/MMBtu	[h]	17.4	0.018	lb/MMBtu	[h]	0.92	29.9
Cold Weather	0.037	lb/MMBtu	[i]	11.03	0.037	lb/MMBtu	[i]	0.58	
CO_2e			[j]				[j]	10,720	156,487
CO_2	53.06	kg/MMBtu	[k]	145,617	73.96	kg/MMBtu	[k]	10,683	156,300
CH_4	0.001	kg/MMBtu	[k]	2.74	0.003	kg/MMBtu	[k]	0.43	3.18
N_2O	0.0001	kg/MMBtu	[k]	0.27	0.0006	kg/MMBtu	[k]	0.09	0.36
Lead					1.4E-05	lb/MMBtu	[d]	0.0009	0.0009
Water	88.8	lb/MMBtu	[m]	110,483	52.8	lb/MMBtu	[m]	3,458	113,941
								Regional Haze Pollutants Total	261.4

Notes:

a. Anticipated vendor guarantee (based on proprietary vendor information, which include filterable and condensable particulate matter

b. Calculated based on the limits of 40 CFR Part 60, Subpart KKKK, for turbines >50 MMBtu/hr and ≤850 MMBtu/hr and operating at ambient temperatures greater than or equal to 0°F, the Ideal Gas Law, and 40 CFR Part 60, Appendix A-7, Method 19

c. Calculated based on the limit of 40 CFR Part 60, Subpart KKKK, for turbines >30 MMBtu/hr and operating at ambient temperatures less than 0 °F, the Ideal Gas Law, and 40 CFR Part 60, Appendix A-7, Method 19

d. AP-42 emission factors from EPA 2000

e. Reflects the use of fuel oil with a sulfur content of 15 ppm

f. Calculated based on the anticipated vendor guarantee (based on proprietary vendor information) of 25 ppm at 15% O2 for both natural gas and fuel oil when operating at ambient temperatures greater than or equal to 0°F, the Ideal Gas Law, and 40 CFR Part 60, Appendix A-7, Method 19

g. Calculated based on the anticipated vendor guarantee (based on proprietary vendor information) of 150 ppm at 15% O2 for both natural gas and fuel oil when operating at ambient temperatures less than 0°F, the Ideal Gas Law, and 40 CFR Part 60, Appendix A-7, Method 19

h. Calculated based on the anticipated vendor guarantee (based on proprietary vendor information) of 5 ppm at 15% O2 (as propane) for both natural gas and fuel oil when operating at ambient temperatures greater than or equal to 0°F, the Ideal Gas Law, and 40 CFR Part 60, Appendix A-7, Method 19

i. Calculated based on the anticipated vendor guarantee (based on proprietary vendor information) of 10 ppm at 15% O2 (as propane) for both natural gas and fuel oil when operating at ambient temperatures less than 0°F, the Ideal Gas Law, and 40 CFR Part 60, Appendix A-7, Method 19

j. Corresponds to the sum of the individual GHG emissions times the following global warming potentials obtained from 40 CFR Part 98, Table A-1:
   - CO_2: 1
   - CH_4: 25
   - N_2O: 298

k. 40 CFR Part 08, Subpart C, Tables C-1 and C-2

l. Calculated using the listed emission factors and the following operational information (USACE 2018):
   - Total heat input: 2,620,699 MMBtu/year (USACE 2018)
   - Heat input, natural gas: 95% of total (assumed)
   - Heat input, fuel oil: 5% of total (assumed)
   - Warm weather (≥0°F) operation: 76% (NOAA 2019)
   - Cold weather (<0°F) operation: 24% (NOAA 2019)

m. See Appendix F

Table 3.2-10. Operational Emissions Comparison, Alternative 2

	Emissions (tpy)								
	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	VOC	Lead	CO_2e	Water
No Action Alternative	121	525	188	72.7	67.6	5.21	0.04	338,347	63,057
Alternative 2	162	212	4.33	15.0	15.0	29.9	0.0009	156,487	113,941
Net Effect (Alternative 2 vs No Action Alternative)	41	-313	-184	-57.7	-52.6	24.7	-0.04	-181,860	50,884

As discussed previously, the permitted emissions during operation are exempt and no increase in non-exempt emissions would occur. The emissions associated with the construction of Alternative 2 presented in Table 3.2-5 indicated that emissions of $PM_{2.5}$ and all precursors of CO are less than the General Conformity thresholds. Therefore, the requirements of General Conformity are not triggered for Alternative 2.

Historically, CO emissions from the existing CHPP were significantly higher than current emissions. As discussed in Section 2.5.1, the existing boilers are required to operate at or below 80 percent of their nameplate-rated capacity in order to meet the applicable CO emissions standard. This is reflected in the value shown for the No Action Alternative in Table 3.2-7, which is based on stack testing performed in 2020. VOC emissions for the No Action Alternative were estimated using an EPA default emission factor. The CO and VOC emissions associated with Alternative 2 were calculated based on anticipated vendor guarantees, which resulted in estimated emissions that are greater than those for the No Action Alternative. In general, CO and VOC are formed during the incomplete combustion of fuel in the combustion process. For the most part, the combustion efficiency of coal boilers is not dependent on the ambient temperature because combustion air is preheated prior to introduction into the combustion zone. The levels of CO and VOC generated by combustion turbines increase as the ambient temperature lowers because combustion becomes more inefficient with lowering temperatures. This is reflected in the fact that EPA has implemented higher emission standards for new turbines operating at temperatures below 0°F than the standards that apply when a turbine is operating above that temperature. Actual CO and VOC emissions for Alternative 2 are anticipated to be lower than the anticipated vendor guarantees and may be equal to or lower than the value shown for the No Action Alternative. It is not possible to further refine the actual emissions estimates for Alternative 2 at this time.

For Alternative 2, the regional haze implementation Q/d value would be approximately 2 (i.e., 261.4 tpy/126 kilometers), which is below the identified threshold of 10.

Alternative 2 would emit approximately 75 percent more water than the No Action Alternative (on an annual basis) and would be expected to have a similar stack

exhaust height. A 2018 report (Weatherly et al. 2018) provided results of modeling ice fog formation for a number of possible alternatives. One conclusion of the analysis is that for tall stacks, the increase in ice fog density is approximately linear with the amount of vapor produced. Therefore, Alternative 2 would be expected to increase ice fog density during a trigger event; however, it may also cause an ice fog event that would not otherwise occur under the No Action Alternative.

The social costs of GHG emissions associated with Alternative 2 are summarized in Table 3.2-11.

Table 3.2-11. Social Costs of GHG Emissions, Alternative 2

GHG	Emissions (metric tons per year)			Cost Factor ($/metric ton)	Annual Cost ($/year)
	Natural Gas	Fuel Oil	Total		
CO_2	132,101.5	9,691.5	141,793	51	7,231,443
CH_4	2.49	0.39	2.88	1,500	4,320
N_2O	0.245	0.082	0.327	18,000	5,886
Total					7,241,649

3.2.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

The same approach for estimating construction emissions for Alternative 1 was used to estimate construction emissions for Alternative 3. Therefore, similar short-term, minor adverse impacts could occur as a result of the demolition of the existing CHPP and construction of the distributed natural gas boilers.

Long-term, moderate, beneficial impacts could occur as a result of the replacement of the existing CHPP with distributed natural gas boilers and the purchase of additional electricity from a local utility provider.

A Construction Emissions Control Plan would be developed and implemented for Alternative 2. The plan would include detailed control measures implemented to minimize the generation of fugitive dust during construction.

The type of air quality construction permitting that would be required for Alternative 3 depends on the quantity of emissions and timing of the shutdown of the existing CHPP. Operating emissions for the distributed natural gas boilers of Alternative 3 were calculated based on anticipated fuel usage and emission factor information obtained from EPA emission factors documentation. The detailed emission calculations for the new distributed boilers of Alternative 3 are presented in Table 3.2-12. Alternative 3 would include the intermittent use of No. 2 fuel oil at select critical locations for use in the event of an interruption in natural gas supply. The occurrence

of these events is unknown and unpredictable, and emissions would be similar to those associated with normal operation of the boilers on natural gas. Because the amount of this infrequent use of No. 2 fuel oil cannot be predicted and the associated emissions would not change the conclusions of this analysis, they are not quantified or discussed further.

Table 3.2-12. New Distributed Natural Gas Boilers Emissions Estimate

Pollutant	Emission Factor		Note	Emissions (tpy)[d]
	Number	Units		
PM	0.0093	lb/MMBtu	[a]	7.24
PM_{10}	0.0093	lb/MMBtu	[a]	7.24
$PM_{2.5}$	0.0093	lb/MMBtu	[a]	7.24
NO_x	0.0980	lb/MMBtu	[a]	76.2
SO_2	0.0006	lb/MMBtu	[a]	0.46
CO	0.082	lb/MMBtu	[a]	64.0
VOC	0.0054	lb/MMBtu	[a]	4.19
CO_2e	--	--	[b]	91,067
CO_2	53.06	kg/MMBtu	[c]	90,973
CH_4	0.001	kg/MMBtu	[c]	1.71
N_2O	0.0001	kg/MMBtu	[c]	0.17
Lead	4.90E-07	lb/MMBtu	[a]	0.0004
Sum of Regional Haze Precursors				88.1

Notes:

a. EPA 1998b

b. Corresponds to the sum of the individual GHG emissions times the following global warming potentials obtained from 40 CFR Part 98, Table A-1:
   - CO_2: 1
   - CH_4: 25
   - N_2O: 298

c. 40 CFR Part 98, Tables C-1 and C-2

d. Calculated using the listed emission factors and an anticipated natural gas heat input of 1,555,389 MMBtu/year (USACE 2018)

The annual operational emissions associated with Alternative 3 are summarized in Table 3.2-13. This table also identifies the change in emissions (net effect) anticipated as a result of operating the new, distributed gas boilers and decommissioning the existing CHPP, as proposed under Alternative 3.

Table 3.2-13. Operation Emissions Comparison, Alternative 3

	Emissions (tpy)								
	CO	**NO_x**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**Lead**	**CO_2e**	**Water**
No Action Alternative	121	525	188	72.7	67.6	5.21	0.04	338,347	63,057
Alternative 3	64.0	76.2	0.46	7.24	7.24	4.19	0.0004	91,067	69,023
Net Effect (Alternative 3 vs No Action Alternative)	-57	-449	-188	-65.5	-60.4	-1.02	-0.04	-247,280	5,966

Because the net emissions from Alternative 3 would reduce pollutant emissions and would be less than the threshold values listed in Table 3.2-1, the impacts of Alternative 3 on air quality would not be significant. Alternative 3 would reduce emission levels for all eight criteria pollutants and, for some, the reductions would be substantial. Alternative 3 would reduce greenhouse gas emissions by approximately 73 percent, compared to the No Action Alternative. Operation of the distributed gas boilers and decommissioning the existing CHPP, as proposed under Alternative 3, would result in long-term, moderate, beneficial impacts on air quality.

Operational emissions would be minimized by implementing the following BMPs:

- Routine maintenance and tuning of combustion equipment
- Routine training of equipment operators and maintenance personnel
- Following equipment manufacturer recommended procedures for minimizing emissions.

Operation of the existing CHPP and the distributed natural gas boilers would overlap for a short period of time during equipment startup, shakedown, and performance verification of each phase of the distributed boiler installation. This overlap is expected to be of short duration, and the new equipment would typically be operated at less than maximum capacity during this period. Transition from the CHPP to distributed boilers would also be longer than in Alternatives 1 and 2 while the separate boilers come online.

As discussed previously, the permitted emissions during operation are exempt and no increase in non-exempt emissions would occur. The emissions associated with the construction of Alternative 3 presented in Table 3.2-5 indicate that emissions of $PM_{2.5}$

and all precursors and CO are less than the General Conformity thresholds. Therefore, the requirements of General Conformity are not triggered for Alternative 3.

For Alternative 3, the regional haze implementation Q/d value would be approximately 1 (i.e., 88.1 tpy/126 kilometers), which is below the identified threshold of 10.

Alternative 3 would emit approximately 10 percent more water than the No Action Alternative (on an annual basis), but would be expected to have lower stack exhaust heights. Weatherly et al. 2018 provided results of modeling ice fog formation for a number of possible alternatives, including both the existing CHPP and a distributed boiler (with low stack heights) scenario. The model results indicated ice fog densities associated with the existing CHPP of nearly 50,000 m^{-3} ice particle density. For the distributed boiler scenario (with the boilers spread over a 5-kilometer by 5-kilometer area), the model results indicated ice fog densities of 100,000 m^{-3} ice particle density; however, that modeling assumed that water vapor emissions from the distributed boilers were eight times those of the existing CHPP. As discussed above, the anticipated water vapor emissions for Alternative 3 are approximately 10 percent higher than those of the No Action Alternative. Adjusting the model results for the anticipated difference in water vapor emissions results in ice fog densities of 13,750 m^{-3}. Therefore, Alternative 3 would be expected to reduce ice fog density during trigger events and could potentially allow avoidance of an event that would otherwise occur under the No Action Alternative.

The social costs of GHG emissions associated with Alternative 3 are summarized in Table 3.2-14.

Table 3.2-14. Social Costs of GHG Emissions, Alternative 3

GHG	Emissions (metric tons per year)			Cost Factor ($/metric ton)	Annual Cost ($/year)
	Distributed Boiler System	Purchased Utility Electricity	Total		
CO_2	82,529.3	113,820.8	196,350.1	51	10,013,855
CH_4	1.55	12.88	14.43	1,500	21,645
N_2O	0.154	1.88	2.03	18,000	36,540
Total					10,072,040

3.2.2.6 Comparison of Alternatives

A summary of pollutant emissions and the social cost of GHG emissions for the evaluated alternatives is presented in Table 3.2-15. Table 3.2-16 provides a comparison of the pollutant emissions and the social cost of GHG emissions for each action alternative to the No Action Alternative.

Table 3.2-15. Summary of Operational Emissions and Social Cost of GHG

Alternative	Emissions (tpy)								Social Cost ($/year)
	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	VOC	Lead	Water	
No Action Alternative	121	525	188	72.7	67.6	5.21	0.04	63,057	15,675,912
Alternative 1	161	243	146	14.6	14.6	4.03	0.03	48,818	12,454,515
Alternative 2	162	212	4.33	15.0	15.0	29.9	0.0009	113,941	7,241,649
Alternative 3	64.0	76.2	0.46	7.24	7.24	4.19	0.0004	69,023	10,072,040

Table 3.2-16. Comparison of Operational Emissions and Social Cost of GHG of Each Alternative Relative to the No Action Alternative

Alternative	Emissions (tpy)								Social Cost ($/year)
	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	VOC	Lead	Water	
Alternative 1	40	-282	-42	-58.1	-53.0	-1.18	-0.01	-14,239	-3,221,397
Alternative 2	41	-313	-184	-57.7	-52.6	24.7	-0.04	50,884	-8,434,263
Alternative 3	-57	-449	-188	-65.5	-61.4	-1.02	-0.04	5,966	-5,603,872

Historically, CO emissions from the existing CHPP were significantly higher than current emissions. As discussed in Section 2.5.1, the existing boilers are required to operate at or below 80 percent of their nameplate-rated capacity in order to meet the applicable CO emissions standard. This is reflected in the value shown for the No Action Alternative in Table 3.2-7, which is based on stack testing performed in 2020. The CO concentration values from the 2020 stack testing ranged from 80.1 ppmvd at 3 percent O_2 to 107.6 ppmvd at 3 percent O_2. The CO emissions associated with Alternative 1 were calculated based on the regulatory limit that will apply to the boilers (maximum concentration of 160 ppmvd at 3 percent O_2), which resulted in estimated emissions that are greater than those for the No Action Alternative. Actual CO emissions for Alternative 1 are anticipated to be lower than the regulatory limit, as well as equal to or lower than those measured in the 2020 stack testing of the existing boilers. It is not possible to further refine the actual emissions estimates for Alternative 1 at this time.

VOC emissions for the No Action Alternative were estimated using an EPA default emission factor. The CO and VOC emissions associated with Alternative 2 were calculated based on anticipated vendor guarantees, which resulted in estimated emissions that are greater than those for the No Action Alternative. In general, CO and VOC are formed during the incomplete combustion of fuel in the combustion process. For the most part, the combustion efficiency of coal boilers (Alternative 1) is not dependent on the ambient temperature because combustion air is preheated prior

to introduction into the combustion zone. The levels of CO and VOC generated by combustion turbines (Alternative 2) increase as the ambient temperature lowers because combustion becomes more inefficient with lowering temperatures. This is reflected in the fact that EPA has implemented higher emission standards for new turbines operating at temperatures below 0°F than the standards that apply when a turbine is operating above that temperature. Actual CO emissions for Alternative 2 are anticipated to be lower than the anticipated vendor guarantees, and may be equal to or lower than the value shown for the No Action Alternative. It is not possible to further refine the actual emissions estimates for Alternative 2 at this time.

3.3 Utilities

3.3.1 Affected Environment

The ROI for utilities is the Fort Wainwright Main Cantonment Area, which encompasses the area in which utilities may be affected. The locations of utilities are considered sensitive and are not disclosed in this EIS.

3.3.1.1 Definition of Resource

Utilities are a type of man-made infrastructure that enable communities to function by providing for basic needs such as energy, heat, clean drinking water, and liquid and solid waste disposal. The availability of utilities and their capacities to support growth are generally regarded as essential to the economic growth of an area. The utilities potentially affected by the Proposed Action and its alternatives are the CHPP, steam distribution system, and utilidors on Fort Wainwright; electricity, natural gas, liquid fuels, and water supply to Fort Wainwright and the Fairbanks region; and wastewater and solid waste management.

3.3.1.2 Environmental Laws, Regulations, and Executive Orders

There are no specific regulations for managing or evaluating impacts on utilities. Environmental laws applicable to utilities are already discussed in more applicable resource areas, such as Section 3.2.1.2 on Air Quality. Energy use and conservation are integral components of many utility services. CEQ NEPA regulations at Sections 1502.16(e) and (f) require that federal agencies consider energy and natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures in NEPA documents. Other regulations such as the Energy Independence and Security Act (42 U.S.C. § 17001 et seq.), Energy Policy Act (42 U.S.C. § 13201 et seq.), and EO 13834 require federal agencies to take actions to move the country toward energy independence and security by promoting energy efficiency, renewable energy sources, and energy performance standards. These regulations are considered and addressed where appropriate in the utilities analysis. Utility and infrastructure capacities are analyzed in this section. No applicable laws associated with utility distribution have been identified.

3.3.1.3 Current Condition

USAG Alaska has privatized many utility systems on Fort Wainwright, including the CHPP; the steam distribution system that encompasses the utilidors; and electric, water, and wastewater systems. Through a 50-year lease under a UPC, the System Owner is the operator of these utility systems on Fort Wainwright and is responsible for service expansions, repairs, and day-to-day management (USAG Fort Wainwright 2017a).

Starting in 2008, all utilities (heat, electricity, water, and wastewater) at Fort Wainwright were privatized under a 50-year UPC that is managed by a System Owner. The System Owner is 50 percent owned by a regional ANC established under the ANCSA of 1971. Depending on the alternative selected, the System Owner, and therefore the ANC, may experience some impact on capital investment (and profit) and on O&M of the existing systems.

The UPC at Fort Wainwright is a regulated, tariff-based contract under which the contractor makes an agreed-upon rate of return (referred to as “interest” in common language) by investing money in the utility infrastructure. The O&M cost is a pass-through cost; whatever it costs to maintain the system, the government reimburses the System Owner with no additional profit or markup on O&M.

Heating Infrastructure

Fort Wainwright’s CHPP generates all heat and the majority of the electricity needed for the installation. Operation of the CHPP began in 1955. The CHPP is one of the oldest operational coal-fired power plants in the United States. The plant uses six identical coal-fired Wickes stoker boilers that deliver 150,000 lb/hr of superheated steam with a capacity of 450 pounds per square inch gauge (psig). The CHPP has a design life of 40 years, consistent with Army policy guidance that states the maximum life cycle of a CHPP is typically 40 years (USACE 2012). Repairs have been performed on the boilers as needed; however, after more than 65 years of consistent operation, each boiler is nearing the end of its service life and requires substantial investment to sustain operation. The CHPP building is also in poor condition, with signs of structural issues and a sagging roof that indicates the need for a roof replacement, and requires substantial investment to maintain structural integrity (Black & Veatch 2018). As explained in Section 1.1.2, technological endurance and capacity to function adequately in the extreme cold are critical, given the subarctic climate within which the CHPP must operate. A winter-time loss of the CHPP’s ability to generate heat and power would be considered a catastrophic event that would require immediate actions to evacuate the installation. A near-catastrophic failure is an unexpected malfunction or failure of a critical primary equipment or infrastructure. In such circumstances, the system has to rely on the backup equipment or infrastructure to provide continued heat and electricity to the installation, thereby potentially affecting the USAG Alaska’s mission and readiness capabilities. For every outage/near-catastrophic event, including the recent ones, either there was an outage

or the system relied on the backup equipment or infrastructure to provide continued heat and electricity.

A Washington Post article published on June 13, 2014, identified the Fort Wainwright CHPP as the third-oldest coal-fired heat and power plant in the nation (Mufson 2014). The first- and second-oldest plants mentioned in the article have since been decommissioned. The building envelope that houses the CHPP boilers and the steam turbines has received little to no upgrade since its construction. Recent condition assessments show many components of the Fort Wainwright CHPP system to be beyond their expected design lives. Because of having no alternative distributed heat source, the CHPP presents a single point of failure. If the CHPP loses its capacity to send steam to the installation, the resulting impact could catastrophically affect the installation and its mission. Records indicate the installation has approximately 77 miles of steam and condensate pipe, with 24 percent of the pipe installed in the 1950s. A recent condition assessment indicated an average 30 percent wall thickness loss for the 1.6 miles of condensate pipe installed in 1972 (Doyon Utilities 2018a). As the pipe thickness reduces, the risk of pipe rupture increases. In all likelihood, the pipes older than 1972 have a higher loss of wall thickness, thus presenting a higher risk of failure. One such near-catastrophic failure happened in 2014 when the main steam line serving the entire North Post ruptured while turning on the steam supply at the start of fall season. The outage resulted in the evacuation of several buildings while temporary repairs were performed on the section of the line.

Additionally, advances in technology have rendered some of the equipment in the CHPP obsolete. The System Owner identified the lack of alternative heat source as its highest priority risk at Fort Wainwright. The System Owner proposed installing an alternative heat source in every annual capital plan since 2015. If the CHPP loses capacity to send at least 300,000 lb/hr of steam into the heat distribution system during the sub-arctic winter months, the installation may suffer significant to catastrophic damage. The System Owner and the USACE have provided analytical analysis of options. The System Owner anticipates needing to keep the CHPP operational for at least 10 years to provide time to select and implement an option (Doyon Utilities 2018b, 2019).

Since taking over the ownership in 2007, the System Owner has implemented more than $70 million of capital projects in the CHPP and the distribution system. Since 2018 alone, the total capital investments have been $22 million. Most of the projects are required for continuous operation of the system. Despite these capital investments, the system continues to experience issues and near-catastrophic outages. The following are a few near-catastrophic outages at Fort Wainwright since 2018:

- On January 4, 2018, a control system malfunction at the CHPP resulted in a loss of electricity to more than 50 percent of the installation (Doyon Utilities 2018c). Although the outage was significant in nature, the duration of outage was short enough (less than 2 hours) to avoid freezing of any major water pipes.

- On October 14, 2018, a fire was experienced in the south coal tower conveyor dust collection system. Grinding sparks from work being done on conveyor M-8 made their way into the conveyor dust collection system, resulting in coal dust igniting in the duct work as well as the main dust collector itself. Heat and power were on, but the CHPP was operating on the backup system. The Fort Wainwright Fire Department, as well as four outside fire department crews, responded (Doyon Utilities 2018d).
- On December 21, 2018, the CHPP experienced a frequency drop due to a GVEA power interruption. The CHPP disconnected from GVEA, as designed, but the control system malfunctioned, causing a cascading effect, which resulted in a total CHPP and installation-wide power and heat outage that lasted for about 3 hours (Doyon Utilities 2018e).
- On December 29, 2018, Turbine 4 experienced a main lube oil pump failure. The loss of lube oil pressure caused the turbine to trip off-line (Doyon Utilities 2018e). This event resulted in a loss of 33 percent of electrical generation capacity for the USAG Alaska for an extended period of time in peak winter. A loss of another turbine would have resulted in a loss of heat to a major section of the installation and potentially a partial evacuation of the installation.
- On January 4, 2020, Turbine 4 tripped due to an electrical failure of its V-1 solenoids (Doyon Utilities 2020). This event resulted in a loss of 33 percent of electrical generation capacity at Fort Wainwright for about 4 hours in peak winter. A loss of another turbine would have resulted in a loss of heat to a major section of the installation.
- In January 2020, a near-catastrophic failure happened when the CHPP lost a critical piece of coal-handling equipment. CHPP employees ensured boiler operation was not compromised during this time of increased heat demand (Doyon Utilities 2020).
- On January 22, 2022, a control system malfunction at the CHPP resulted in a loss of electricity to more than 30 percent of the installation.
- On February 17, 2022, a control system malfunction at the CHPP resulted in a loss of electricity to more than 20 percent of the installation.
- On March 22, 2022, a control system malfunction at the CHPP resulted in a 60% loss of power generation capacity at the Fort Wainwright CHPP.

To minimize the impact to the mission from ongoing outages, starting in March 2019, USAG Alaska allowed the System Owner to import more electricity from the utility outside the installation. In addition, USAG Alaska approved a project to repair a non-working turbine that provided additional electrical and heat redundancy to the aging infrastructure at the CHPP. These actions increased the utility cost for USAG Alaska but minimized the negative impact on the mission from outages.

The number of emergency projects and “corrective” work orders at the CHPP in

response to the near-catastrophic failures has increased in the recent past (USAG Alaska 2021b). An increase in emergency projects and corrective work orders is also an indication of equipment potentially about to fail. In most cases, the modern control technologies are not compatible with the more than 65-year-old original plant equipment, which makes it complicated to integrate them with the existing system. The difficulty of integrating technologies further substantially increases the cost and probability of equipment malfunction and outages (ScienceDirect 2022).

Subbituminous coal is combusted in the CHPP. The coal is obtained from a local coal mine in Healy, Alaska, and delivered by train to Fort Wainwright (Black & Veatch 2018). A 90-day supply of coal is typically kept on the installation (USACE 2007). Approximately 220,000 tons of coal is burned each year (USAG Fort Wainwright 2017a). The mine is projected to have sufficient reserves for sustained use of coal for a minimum of 50 years. Coal ash is a byproduct of the combustion process (see Solid Waste Management below). Steam generated from the CHPP is distributed in 24- and 16-inch mains that run to each building with heating systems on the installation at 80 psig and 325°F. As the steam cools, it condenses into liquid water that is returned to the CHPP in condensation lines. Most of the steam distribution system was constructed in the early 1950s; many upgrades and additions have occurred over the years (Black & Veatch 2018).

Most steam and condensate mains are installed inside a concrete tunnel network, or utilidor, connecting the various buildings. Many distribution lines for other utilities, including potable and fire water distribution, wastewater collection (i.e., sewer), hot water supply and return, glycol supply and return, and low-voltage electrical and communication systems, are collocated within the utilidors. The utilidors range in size from 18 inches by 18 inches to 108 inches by 84 inches and are buried at varying depths. The utilidors require substantial maintenance and are subject to flooding because of the high water table on the installation. There are 28.6 linear miles of steam mains and 23.3 linear miles of condensate lines in utilidors. Although heat loss in the steam distribution system is substantial (25 percent of heat generated), the system does ensure that smaller water and sewer lines do not freeze (USACE 2018). An additional 5.9 linear miles of steam mains and 6.4 linear miles of condensate lines are direct buried without use of utilidors (Black & Veatch 2018).

The CHPP and its associated infrastructure are vital components of Fort Wainwright's ability to heat buildings, generate electricity, and function in a subarctic climate. A catastrophic service failure could jeopardize the ability to sustain the military mission on Fort Wainwright. Fort Wainwright has only four emergency backup boilers on the installation: three at Bassett Hospital and one at Building 5007. These backup boilers are liquid fueled. No other facilities have backup heating (ADEC 2014, ADEC 2015b).

Electricity

The majority of the electricity used on Fort Wainwright is generated by the CHPP. The CHPP can produce a maximum of 21 MW/hr of electricity when all four turbines are in operation, which meets the peak electrical demand of Fort Wainwright. The local

electrical utility provider supplies a contingency service. Emergency electricity generators are installed in mission-critical facilities across the installation to sustain operations during outages of electricity sourced from both the CHPP and the local service provider. These generators have capacities ranging from 10 to 2,500 kilowatts (USAG Fort Wainwright 2017a, ADEC 2014, ADEC 2015b).

Fort Wainwright's electric distribution system consists of eight circuits that originate from a 12.47-kilovolt switchgear within the CHPP. The switchgear also provides a 12.47-kilovolt interconnection to the local electricity provider supply lines. Electricity is distributed to buildings on Fort Wainwright through 81.5 linear miles of overhead primary and secondary distribution lines and 4.8 linear miles of underground distribution circuits. In addition, approximately 920 pole-type transformers and 115 pad-mount transformers are located throughout the installation (USAG Fort Wainwright 2017a).

Natural Gas

Natural gas used in the Fairbanks region is produced and liquefied at facilities in Cook Inlet and transported by truck to the gas provider for storage. The gas is then regasified and distributed through natural gas mains to customers. The local gas provider completed construction of a new 5.25-million-gallon LNG storage tank in Fairbanks and is performing other system upgrades so that new customers can soon be serviced with natural gas (Ellis 2019). The Alaska Railroad Corporation (ARRC) is permitted to bring natural gas by rail to the Fairbanks region. Natural gas is currently only used in the Siku Basin Housing Area on the Fort Wainwright Main Post.

Liquid Fuels

The installation does not rely on liquid fuels (e.g., heating oil, diesel, ULSD) for everyday building heating and electric generation purposes; however, bulk deliveries of liquid fuels are made to Fort Wainwright for use in automobile and aircraft fueling, emergency electricity generators, emergency fire pump engines, and four emergency backup boilers (ADEC 2014, ADEC 2015b). Approximately two-thirds of Alaska's liquid fuels supply is sourced from five in-state refineries in Prudhoe Bay, Fairbanks, Nikiski, and Valdez. The balance is met through seasonal bulk imports from Washington, California, and international sources to Anchorage. Regionally, liquid fuels are delivered to Fairbanks by rail or truck for storage. Local suppliers truck the liquid fuels to Fort Wainwright through contracts managed by the Defense Logistics Agency (DLA). Alaska consumes approximately 33,400 barrels of liquid fuels per day on average (Black & Veatch 2018).

Water

Fort Wainwright obtains all potable and non-potable water from nine groundwater wells located on the installation. Two of these wells are the primary and two others are the secondary water supply wells for the water treatment plant. Three fire protection wells and two CHPP backup wells provide water during a fire emergency

and backup supply for the CHPP. The installation does not currently have an interconnection to any local water service provider (USAG Fort Wainwright 2017a).

The two primary groundwater wells can produce up to 4.9 million gallons per day (mgd), which is substantially greater than the highest average daily potable water demand of 2.7 mgd. With all nine groundwater wells, the overall combined water supply is 9.3 mgd (USAG Fort Wainwright 2017a).

The installation's water treatment plant was originally constructed in 1953. Since that date, the plant has been upgraded to an inline filtration that uses potassium permanganate as a pre-oxidant to aid in iron and manganese removal. Finished water is stored onsite in one of several onsite clear wells or storage tanks. The plant includes treatment equipment, pumps, and a 1.3 million-gallon storage capacity. It is capable of treating 3.5 mgd (USAG Fort Wainwright 2017a). There are 36.7 miles of potable water distribution pipe on Fort Wainwright, of which 30.4 miles are within the utilidors and 6.3 miles are direct buried. The steam distribution system heats the utilidors to prevent freezing the utilidor-located water pipes. The direct buried water pipes are also at depths sufficient to prevent freezing (Doyon Utilities 2016).

Wastewater

Wastewater produced on Fort Wainwright is collected and transported through lift stations, force mains, and gravity piping off-post to a local utility provider for disposal. There are 29 lift stations and 24.2 miles of sanitary sewer lines on Fort Wainwright. Approximately 69 percent of these wastewater lines are within a utilidor and do not freeze because they are below ground and heat travels through the high water flow. The remainder of these lines are direct buried at a depth and diameter sufficient to prevent freezing. The installation produces 2.0 mgd of wastewater during the peak season. The design capacity of the installation's wastewater lines is between 2.0 and 2.5 mgd (USAG Fort Wainwright 2017a).

Solid Waste Management

Solid waste is any garbage, refuse, sludge, or other discarded materials resulting from industrial, commercial, institutional, and residential activity. Most activities performed on Fort Wainwright produce solid waste such as paper, cardboard, steel and aluminum cans, plastic and glass beverage bottles, plastics, packaging materials, scrap metal, textiles, pallets, batteries, tires, food, coal ash, and construction and demolition wastes. The installation is responsible to report all solid waste diversion and requires repurposing when applicable for reuse. Construction and demolition contractors are responsible for the disposal of all solid wastes generated through their activities at certified landfills off-post. All waste diversion must be reported (Army 2015a).

The majority of the everyday waste produced on Fort Wainwright is collected by contractors and taken to the FNSB South Cushman Landfill (solid waste facility). This landfill opened in 1963 and has an estimated closure date of 2070 (FNSB 2021). For

fiscal year (FY) 2014, the installation disposed of approximately 2,340 tons of solid waste into the municipal landfill (Army 2015a). This landfill is permitted by the ADEC until January 14, 2025 (permit number: SWRDD003-25) (Buteyn 2022).

USAG Alaska operates an on-post landfill, which was used until 2000 for the disposal of all solid waste generated on the installation. It is now used only for less than 10 cubic yards per project of friable asbestos waste, and coal ash from the CHPP. The amount of solid waste disposed of at this certified landfill annually dropped to less than 4,000 tons in FY 2013 (Army 2015a). The installation's landfill is permitted by the ADEC (permit number: SW1A003-21) and is currently under administrative continuance (Lehner 2021).

Coal ash is a byproduct of the coal combustion process in the CHPP. The coal ash is collected by a vacuum system from the bottom of the boilers and inside the baghouse and is temporarily stored in two silos before being transported by truck to the installation's landfill (USACE 2007). The trucks dump the ash into piles within dedicated coal ash disposal areas of the landfill (ADEC 2019c).

3.3.2 Environmental Consequences

3.3.2.1 Significance Criteria

A significant impact on utilities could result if the Army action were to result in either of the following:

- Result in energy demands that exceed capacity of existing infrastructure or the generating capacity of a specific utility
- Cause frequent or long-term impairment of utility service to local communities.

3.3.2.2 No Action Alternative

USAG Alaska would not upgrade the heat and electrical generation and distribution infrastructure. The existing CHPP would remain in service even though it is one of the oldest operational coal-fired power plants in the United States. Maintenance would continue to be performed, as needed; however, the plant would continue to deteriorate, and potentially result in a catastrophic heat and/or electrical failure. Such inaction could jeopardize the sustainment of the military mission on Fort Wainwright and is a long-term, significant, adverse effect. Short-term, minor impacts would be expected during maintenance activities.

Starting in 2008, all utilities (heat, electricity, water, and wastewater) at Fort Wainwright were privatized under a 50-year UPC that is managed by a System Owner. The System Owner is 50 percent owned by a regional ANC established under the ANCSA of 1971. Depending on the alternative selected, the System Owner, and therefore the ANC, may experience some impact on capital investment (and profit) and on O&M of the existing systems.

The UPC at Fort Wainwright is a regulated, tariff-based contract under which the contractor makes an agreed-upon rate of return (referred to as "interest" in common language) by investing money in the utility infrastructure. The O&M cost is a pass-through cost; whatever it costs to maintain the system, the government reimburses the System Owner with no additional profit or markup on O&M.

No changes to the installation's demand for coal would occur. Under existing conditions, about 60 percent of fuel energy is lost by the time coal energy is converted to either usable steam energy or useful electricity (Guernsey 2015, USACE 2018). The existing CHPP has an overall system efficiency (amount of fuel energy converted to heat or electricity) of about 42 percent (USACE 2018). Although the implementation of BACT would improve operations, the CHPP would continue to operate at reduced capacity as described in Section 2.5.1. A local coal provider has sufficient reserves to maintain current operations at the CHPP for a minimum of 50 years. No changes to the installation's demand for electricity would occur. The majority of electricity needed for the installation would continue to be produced at the CHPP and the remainder would continue to be purchased from the local electric provider. The local electric provider would continue to provide a contingency power supply should the CHPP be unable to generate electricity. Fort Wainwright would continue to not require natural gas, and liquid fuels would continue to be delivered to the installation for their current purposes (i.e., automobile and aircraft fueling, emergency electricity generators, emergency fire pump engines, and four backup boilers in two mission-critical buildings) with no change in demand. No changes to water, wastewater, and solid waste disposal services would occur. Coal ash from the CHPP would continue to be disposed of in the installation's Permitted Class 1 unlined landfill with no change to the amount of ash produced.

3.3.2.3 Alternative 1 (Build a New Coal CHPP)

UPC

Under Alternative 1, although not explicitly required in the UPC, the contract does require that the utility privatization contractor operates any central plant, such as a new, modern, coal-fired CHPP. In this scenario, the System Owner would invest substantially more money in the utility system than in its original proposal. Therefore, the System Owner's net profit would be substantially higher than originally projected in 2007 (Guernsey 2015, USACE 2018). Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations. Any further discussion regarding the continuation of the UPC is speculative because of the contracting process and obligations of the Federal Acquisition Regulations managed by the DLA.

Heating Infrastructure

Long-term, significant, beneficial impacts on Fort Wainwright's CHPP, steam distribution system, and utilidors would occur. USAG Alaska would continue to operate an onsite, coal-fired CHPP to generate steam heat and electricity; however,

the existing CHPP would be retired, demolished, and replaced with an entirely new, coal-fired CHPP. The boilers of the existing CHPP would be deactivated and replaced with new boilers of similar heat capacity.

Coal would continue to be used as the fuel source for the new CHPP. A minor reduction in the demand for coal would be possible because the new CHPP would be more efficient and could require less fuel (about 30 percent less coal) than the existing CHPP (USACE 2018). The new CHPP would have an overall system efficiency of about 53 percent (compared to 42 percent); about 47 percent of fuel energy would be lost before being converted to heat or electricity (USACE 2018). A local coal provider would continue to supply Fort Wainwright with coal, and coal would continue to be transported by rail to the installation. At minimum, a 14-day supply of coal would be stored on the installation; however, the actual supply of coal would likely be similar to current practices, which is typically a 90-day supply.

A new CHPP would require substantial investment to upgrade the steam distribution system within the utilidors. Fort Wainwright's upgraded steam and condensate mains would continue to distribute steam heat to the buildings on the installation. Repairs to other mains, particularly those within older utilidors, would be performed as needed. Brief, local heat interruptions may occur during non-peak periods (e.g., summer) when these repairs are made.

Construction contractors would be informed of utility locations prior to any ground-disturbing activities that would result in unintended utility disruptions or human safety hazards. All construction activity would be conducted in accordance with federal and state safety guidelines. Any permits required for excavation and trenching would be obtained before construction activities begin.

Overall, the replacement of the aging, inefficient CHPP with a new, modern, efficient CHPP would improve the reliability of the building heating infrastructure on Fort Wainwright and lessen the potential for a service failure. Given the subarctic climate of the Fairbanks region, the installation's building heating infrastructure is crucial to the sustainment of the military mission on Fort Wainwright.

Electricity

Short-term, negligible, adverse impacts and long-term, moderate, beneficial impacts on Fort Wainwright's electrical infrastructure would occur. The short-term impacts would result from a slight increase in the demand for electricity for construction purposes during construction of the new CHPP and demolition of the existing CHPP. Construction of the new CHPP would last for approximately two to three construction seasons, and the installation's electrical demand would return to preconstruction levels at the conclusion of construction. No long-term changes to the overall demand for electricity on the installation would occur.

The long-term impacts would result from improved reliability of electric generation for Fort Wainwright and lessened potential for a service failure. Fort Wainwright would

generate the majority of the electricity it needs using the new CHPP. The balance of the electrical demand would continue to be purchased from the local electric provider. The local electric provider would continue to provide a contingency power supply should the CHPP be unable to generate electricity. The installation's existing electric distribution system would remain in service, and the only appreciable service expansions needed would be to move existing circuits and switchgear from the existing CHPP to the new CHPP. No major power outages would be anticipated. The emergency electricity generators installed in mission-critical facilities across the installation would remain so that mission operations would be sustained during potential outages of electricity from both CHPP and local service provider sources.

Natural Gas

Natural gas would still be used in the Siku Basin Housing Area on the Fort Wainwright Main Post. No additional natural gas sources would be required because the new CHPP would be coal-fired.

Liquid Fuels

Short-term, negligible, adverse impacts on liquid fuels would occur. Contractors would obtain and use liquid fuels, mainly ULSD and gasoline, for the vehicles and equipment needed to construct the new CHPP and demolish the existing CHPP. The amount of liquid fuels used each day for construction would be negligible in comparison to that used in the Fairbanks region, and there is ample supply available to meet this temporary (i.e., one or two construction seasons) increase in liquid fuel demand.

No long-term impacts on liquid fuels would occur. The new CHPP would be coal-fired; therefore, no long-term change in the demand for liquid fuels, including ULSD, would occur. No changes would occur to the amounts of liquid fuels delivered for automobile and aircraft fueling, emergency electricity generators, emergency fire pump engines, and four backup boilers in two mission-critical buildings.

Water

Short-term, negligible, adverse impacts on Fort Wainwright's water infrastructure would occur. These impacts would result from a slight increase in the demand for water during construction of the new CHPP and demolition of the existing CHPP. This increase in water demand would be temporary (i.e., two to three construction seasons) and within the available capacity of Fort Wainwright's water system. The installation's long-term demand for water for potable and fire protection purposes would not change, and overall CHPP water use would likely go down by 5 to 10 percent because the existing CHPP's cooling system using would no longer require as much water. The decrease in water demand would result in long-term, minor, beneficial impacts. Fort Wainwright's existing water distribution system would remain in service. Because the utilidors would continue to be heated using the steam distribution system, the water distribution pipes would not freeze. No water service interruptions would be anticipated.

Wastewater

Short-term, negligible, adverse impacts on Fort Wainwright's wastewater infrastructure would occur. These impacts would result from a slight increase in the amount of wastewater generated during construction of the new CHPP and demolition of the existing CHPP. This increase in wastewater generation would be temporary (i.e., one or two construction seasons) and within the available capacity of Fort Wainwright's wastewater system. In the long-term, the volume of wastewater transported for disposal would not change. Fort Wainwright's existing wastewater system would remain in service. Because the utilidors would continue to be heated using the steam distribution system, the wastewater lines would not freeze. No wastewater service interruptions would be anticipated.

Solid Waste Management

Short-term, minor, adverse impacts on solid waste management would occur. These impacts would result from the construction and demolition waste produced during construction of the new CHPP and demolition of the existing CHPP. Contractors would be responsible for the disposal of most construction and demolition waste in landfills off-post. If more than 10 cubic yards of asbestos waste was produced from the demolition of the existing CHPP or upgrades to the steam and condensate mains, it would be disposed in a certified off-post landfill. Less than 10 cubic yards could be disposed of in the on-post landfill. Construction would last for approximately one or two construction seasons. No construction and demolition waste would be produced following the conclusion of construction.

No new long-term impacts on solid waste management would occur. The new CHPP would produce coal ash similar to the existing CHPP. A minor reduction in the amount of coal ash produced would be possible because the new CHPP would be more efficient and could consume less coal than the existing CHPP. The coal ash generated by the CHPP would continue to be disposed of in the installation's Permitted Class 1 unlined landfill. It is possible the installation's landfill could reach capacity in the future. If the landfill were to reach capacity, under the UPC, the System Owner would be responsible for coal ash disposal off the installation or pursuing coal ash recycling opportunities for diverting from the landfill waste stream.

3.3.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

UPC

Under Alternative 2, although not explicitly required in the UPC, the contract does require that the utility privatization contractor operates any central plant, such as a new, modern, dual-fuel combustion turbine generator CHPP. In this scenario, the System Owner would invest more money in the utility system than in its original proposal. Therefore, its net profit would be much higher than originally projected in 2007 (Guernsey 2015, USACE 2018). USAG Alaska would demolish the old CHPP

following new construction. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations. Any further discussion regarding the continuation of the UPC is speculative because of the contracting process and obligations of the Federal Acquisition Regulations managed by the DLA.

Heating Infrastructure

Similar to Alternative 1, long-term, significant, beneficial impacts on Fort Wainwright's CHPP, steam distribution system, and utilidors would occur. USAG Alaska would continue to operate an onsite CHPP to generate steam heat and electricity; however, the existing, coal-fired CHPP would be retired, demolished, and replaced with an entirely new, dual-fuel combustion turbine generator CHPP. The boilers of the existing CHPP would be deactivated. The new CHPP would use three 7-MW gas turbines and three supplemental duct-fired HRSGs.

The new CHPP would be more efficient than the existing system (58 percent overall efficiency compared to 42 percent [USACE 2018]). The primary fuel source for the new CHPP would be natural gas, and ULSD would be the secondary fuel source (see subsections below for impacts on these fuel sources). Once the existing CHPP is retired, the installation's demand for coal would conclude, and no further rail deliveries of coal would be necessary.

Similar to Alternative 1, substantial investments would be necessary to upgrade the steam distribution system within the utilidors. Fort Wainwright's upgraded steam and condensate mains would continue to distribute steam heat to buildings on the installation. Repairs to other mains, particularly those within older utilidors, would be performed as needed. Brief, local heat interruptions may occur during non-peak periods (i.e., summer) when these repairs are made.

Overall, the replacement of the aging, inefficient CHPP with a new, modern, efficient CHPP would improve the reliability of the building heating infrastructure on Fort Wainwright and lessen the potential for a service failure. Given the subarctic climate of the Fairbanks region, the installation's building heating infrastructure is crucial to the sustainment of the military mission on Fort Wainwright.

Electricity

Short-term, negligible, adverse impacts and long-term, moderate, beneficial impacts on Fort Wainwright's electrical infrastructure would be identical to those for Alternative 1.

Natural Gas

Long-term, moderate, adverse and beneficial impacts on natural gas production, delivery, and distribution would occur because the dual-fuel CHPP would use natural gas as its primary fuel source. USAG Alaska would execute a contract to supply the installation with uninterrupted natural gas service. Because natural gas is only used

in the Siku Basin Housing Area on the Fort Wainwright Main Post, a natural gas supply pipeline would need to be constructed between the existing natural gas distribution main and the new CHPP.

Alaska has sufficient availability of natural gas to meet the CHPP's demand; however, operation of the dual-fired CHPP would substantially increase the regional demand for natural gas, which would constitute a long-term, moderate, adverse impact because only limited natural gas storage and distribution infrastructure is available in the Fairbanks region. The ARRC is permitted to bring natural gas by rail to the Fairbanks region. In addition to the increased demand placed on the production and liquefaction facilities at Cook Inlet, the number of LNG truck deliveries to the Fairbanks region would increase. It is anticipated that a 14-day supply of LNG would be contracted for and stored locally off the post. The local natural gas provider might also need to construct additional LNG storage capability and regasification infrastructure to support the increased demand from the CHPP. On-post storage of gaseous natural gas or LNG and regasification would not occur. Given the history and reliability of natural gas and its infrastructure as a fuel source, the risk for potential accidents would be low.

ULSD would be used as the secondary fuel source for the CHPP and to sustain heat and electric generation operations should a natural gas service failure occur. It is possible that natural gas service would not be available for Fort Wainwright when the CHPP is commissioned. In this event, ULSD would be used as the only fuel source until natural gas service is available. The expansion of natural gas storage and distribution infrastructure in the Fairbanks region is a long-term, moderate, beneficial impact because it would improve the condition and extent of the natural gas delivery infrastructure and possibly allow additional new customers to connect to this fuel source. Construction of the natural gas supply pipeline to Fort Wainwright would be coordinated with existing utilities to ensure placement does not conflict with existing utility services.

Liquid Fuels

Short-term, negligible, adverse impacts on liquid fuels would be identical to those for Alternative 1 as contractors obtain and use liquid fuels for their construction equipment.

Long-term, minor to moderate, adverse impacts on liquid fuels would occur. USAG Alaska (by way of DLA) would contract with a local provider to supply sufficient ULSD to sustain operation of the dual-fuel CHPP and maintain a minimum of a 14-day supply. Although natural gas would be the primary fuel source for the CHPP and ULSD would be used should a natural gas service failure occur, ULSD could be used exclusively, if needed. ULSD might be used exclusively should natural gas service not be available for Fort Wainwright when the CHPP is commissioned.

Operation of the new CHPP exclusively using ULSD would require approximately 20 million gallons per year, which is equal to approximately 1,300 barrels per day. By

comparison, this is approximately 3.9 percent of Alaska's current liquid fuel demand (Black & Veatch 2018). This increase in the state's liquid fuel demand would constitute a long-term, minor to moderate, adverse impact because Alaska has sufficient in-state refining and import infrastructure to meet such an increase but additional ULSD storage capacity may need to be constructed in the Fairbanks region so that local suppliers can meet the increased delivery demand. Sufficient ULSD storage capacity would be constructed on Fort Wainwright to sustain at least 14 days of uninterrupted operations. An increase in the number of rail or truck deliveries of ULSD to the Fairbanks region may occur, and an increase in the number of truck deliveries of ULSD to Fort Wainwright would occur.

No changes would occur to the amounts of liquid fuels delivered for automobile and aircraft fueling, emergency electricity generators, emergency fire pump engines, and four backup boilers in two mission-critical buildings.

Water

Short-term, negligible, adverse impacts on Fort Wainwright's water infrastructure from construction of the new CHPP, extension of natural gas service to the new CHPP, and demolition of the existing CHPP would be identical to those for Alternative 1. The installation's long-term demand for water for potable and fire protection purposes would not change, and overall CHPP water use would decline, resulting in long-term, moderate, beneficial impacts.

Wastewater

Short-term, negligible, adverse impacts on Fort Wainwright's wastewater infrastructure from construction of the new CHPP, extension of natural gas service to the new CHPP, and demolition of the existing CHPP would be identical to those for Alternative 1. In the long-term, the volume of wastewater transported for disposal would not change.

Solid Waste Management

Short-term, minor, adverse impacts on solid waste management from construction of the new CHPP, extension of natural gas service to the new CHPP, and demolition of the existing CHPP would be identical to those for Alternative 1.

Long-term, moderate, beneficial impacts on solid waste management would occur. Operation of the new CHPP would not produce coal ash as solid waste because it would burn natural gas and liquid fuels rather than coal. As a result, USAG Alaska would no longer need to dispose of coal ash in a landfill.

3.3.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

UPC

The installation of individual boilers may be executed by the System Owner, through a UESC or by competitive bid. Under Alternative 3, the System Owner would still invest more money in the utility system than under the original UPC awarded in 2007, whether it installs the distributed boilers or not. The capital investment would be even larger if the System Owner does install the distributed boilers. Therefore, the System Owner's net profit would still be more with or without this project than was originally projected in 2007 (Guernsey 2015, USACE 2018). Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations. Any further discussion regarding the continuation of the UPC is speculative because of the contracting process and obligations of the Federal Acquisition Regulations managed by the DLA.

Heating Infrastructure

Unlike Alternatives 1 and 2, Fort Wainwright would gradually transition from a CHPP that generates steam heat and electricity for the installation to distributed natural gas boilers that would be located in various buildings across the installation to produce heat. Electricity would be purchased from a local electric provider. The transition would take several years to complete, and buildings would be gradually removed from the steam distribution system and connected to the boilers. Once all buildings have been removed from the steam distribution system, the existing, coal-fired CHPP would be retired and demolished. The installation's demand for coal would conclude, and no further rail deliveries of coal would be necessary.

Some of Fort Wainwright's existing steam and condensate mains—especially those within utilidors that house water distribution and wastewater collection pipes—would remain in service even though these steam mains would no longer be connected to buildings. These steam mains provide vital heat to the utilidors to prevent the water distribution and wastewater collection mains from freezing, and methods would be installed to continue to avoid freeze-up. Repairs to some mains, particular those within older utilidors, would continue to be performed as needed. Brief, local heat interruptions may occur during non-peak periods (e.g., summer) when these repairs are made.

The new natural gas boilers would be substantially more efficient than the existing system (75 percent efficiency compared to 42 percent [USACE 2018). Approximately 25 percent of the fuel energy would be lost prior to producing heat under Alternative 3 (USACE 2018). Overall, the replacement of the aging, inefficient CHPP with new, modern, efficient distributed natural gas boilers would improve the reliability of the building heating infrastructure on Fort Wainwright and avoid the potential of an installation-wide service failure from a central heat source. This would be a long-term, significant, beneficial impact. Given the subarctic climate of the Fairbanks region, the

installation's building heating infrastructure is crucial to the sustainment of the military mission on Fort Wainwright.

Electricity

Like Alternatives 1 and 2, short-term, negligible, adverse impacts on Fort Wainwright's electrical infrastructure would occur from a slight increase in the demand for electricity for construction purposes during installation of the distributed boilers, construction of the new building space to house the boilers, extension of natural gas service to and on the installation, and demolition of the existing CHPP. Compared to Alternatives 1 and 2, construction would occur at many more buildings on the installation and for a longer period. As a result, the installation's electrical demand may be slightly elevated for several construction seasons before returning to preconstruction levels. No long-term changes to the overall demand for electricity on the installation would occur.

Following the deactivation of the CHPP, USAG Alaska would purchase all electrical power for the installation from a local electric service provider. The installation already has the necessary circuits from the local provider to supply the installation with 21 MW of peak electrical demand; however, these circuits would need to be relocated from the existing CHPP to a new building. The installation's existing electric distribution system would remain in service, and no service expansions would occur. No power outages would be anticipated.

Use of a local electric service provider rather than the existing CHPP would improve the reliability of electric service and lessen the potential for a service failure on Fort Wainwright because the installation would no longer be dependent on older electric generation infrastructure but would rely on newer infrastructure that services the entire Fairbanks region. Two 10-MW ULSD fuel backup generators at the installation's main substation could provide backup power to the entire installation should a regional service disruption occur. USAG Alaska would also install additional emergency electricity generators in mission-critical buildings as required so that mission operations would be sustained during electrical outages. These emergency generators would be fueled with ULSD, and the installation would have sufficient fuel storage capacity to operate them for at least 14 days.

Natural Gas

Like Alternative 2, long-term, moderate, adverse and beneficial impacts on natural gas production, delivery, and distribution would occur. USAG Alaska would contract with a local utility provider to supply the installation with uninterrupted natural gas service because the distributed boilers would use natural gas as their fuel source and natural gas is currently only used in limited quantities at the Siku Basin Housing Area on the Fort Wainwright Main Post. A natural gas supply pipeline would be constructed between an existing off-post natural gas distribution main and a central point on the installation and an installation-wide natural gas distribution network would be constructed from the central point to each boiler. On-post storage of gaseous natural gas or LNG and regasification would not occur.

The demand for natural gas using the distributed natural gas boilers would be similar to that from the dual-fuel CHPP under Alternative 2 (Black & Veatch 2018). Alaska has sufficient availability of natural gas to meet this demand; however, increased demand would be placed on the production and liquefaction facilities at Cook Inlet and the number of LNG truck deliveries to the Fairbanks region would increase. The natural gas storage and distribution infrastructure in the Fairbanks region may need to be expanded by constructing additional LNG storage capability and regasification infrastructure to support the increased demand from the distributed boilers. Additionally, the ARRC is permitted to bring natural gas by rail to the Fairbanks region. The expansion of natural gas storage and distribution infrastructure in the Fairbanks region is a long-term, moderate, beneficial impact because it would improve the condition and extent of the natural gas delivery infrastructure and possibly allow additional new customers to connect to this fuel source. Construction of the natural gas supply pipelines to and on Fort Wainwright would be coordinated with existing utilities to ensure placement does not conflict with existing utility services.

Liquid Fuels

Like Alternatives 1 and 2, short-term, negligible, adverse impacts on liquid fuels would occur as contractors obtain and use these liquid fuels for their construction equipment. Compared to Alternatives 1 and 2, construction would occur at many more buildings on the installation and for a longer period; however, the amount of liquid fuels used each day for construction would remain negligible in comparison to that used in the Fairbanks region, and there is ample supply available to meet this temporary (i.e., several construction seasons) increase in liquid fuel demand.

Long-term, minor, adverse impacts on liquid fuels would occur. Although the distributed natural gas boilers would generally not have dual-fuel capability, USAG Alaska would install ULSD-fueled reciprocating internal combustion engines to provide emergency electricity and heat for the boilers so that operations would be sustained during an electricity or natural gas outage. Mission-critical facilities would have dual-fuel boilers. USAG Alaska (by way of the DLA) would contract with a local provider to supply the installation with sufficient ULSD to operate these boilers for at least 14 days.

A slight increase in the state's demand for ULSD would occur from operating the boilers. Alaska has sufficient in-state refining and import infrastructure to meet such an increase. Additional ULSD storage capacity may need to be constructed in the Fairbanks region so that local suppliers can meet the increased delivery demand. Sufficient ULSD storage capacity would be constructed on Fort Wainwright to sustain the engines for at least 14 days of uninterrupted operations. An increase in the number of rail or truck deliveries of ULSD to the Fairbanks region may occur, and an increase in the number of truck deliveries of ULSD to Fort Wainwright would occur. The ULSD storage volume and delivery frequency requirements would be far less than those for Alternative 2.

No changes would occur to the amounts of liquid fuels already delivered to the installation for automobile and aircraft fueling, emergency electricity generators, emergency fire pump engines, and four backup boilers in two mission-critical buildings.

Water

Like Alternatives 1 and 2, short-term, negligible, adverse impacts on Fort Wainwright's water infrastructure would occur from a slight increase in the demand for water for construction purposes during installation of the distributed boilers, construction of the new building space to house the boilers, extension of natural gas service to and on the installation, and demolition of the existing CHPP. Compared to Alternatives 1 and 2, construction would occur at many more buildings on the installation and for a longer period. As a result, the installation's water demand may be slightly elevated for several construction seasons before returning to preconstruction levels; however, the increase demand for water would remain within the available capacity of Fort Wainwright's water system. The installation's long-term demand for water for potable and fire protection purposes would decrease because the CHPP would no longer be in operation, resulting in long-term, moderate, beneficial impacts.

Fort Wainwright's existing water distribution system would remain in service. USAG Alaska would design and implement freeze protection provisions (i.e., heat traces that would wrap around the lines [Guernsey 2015]) to ensure that existing water and wastewater pipelines within the utilidors do not freeze. No water service interruptions would be anticipated.

Wastewater

Like Alternatives 1 and 2, short-term, negligible, adverse impacts on Fort Wainwright's wastewater infrastructure would occur from a slight increase in the amount of wastewater generated for construction purposes during installation of the distributed boilers, construction of the new building space to house the boilers, extension of natural gas service to and on the installation, and demolition of the existing CHPP. Compared to Alternatives 1 and 2, construction would occur at many more buildings on the installation and for a longer period. As a result, the installation's wastewater volume may be slightly elevated for several construction seasons before returning to preconstruction levels; however, the increase wastewater volume would remain within the available capacity of Fort Wainwright's wastewater system. The amount of wastewater generated on the installation would decrease over the long-term, however, given that less water would be used for CHPP system cooling and released into wastewater once the CHPP is no longer operating. Therefore, Alternative 3 would result in a long-term, moderate, beneficial impact on production and waste over the long-term.

Fort Wainwright's existing wastewater collection system would remain in service. Because more than two-thirds of the installation's wastewater collection system is located within the utilidors and currently relies on heat from the steam distribution

system to prevent freezing, USAG Alaska would design and implement freeze protection (i.e., heat traces that wrap around the water lines [Guernsey 2015]) to ensure that existing water and wastewater pipelines do not freeze. No wastewater service interruptions would be anticipated.

Solid Waste Management

Similar short-term, minor, adverse impacts on solid waste management as for Alternatives 1 and 2 would occur from installation of the distributed boilers, construction of the new building space to house the boilers, extension of natural gas service to the new CHPP, and demolition of the existing CHPP. Compared to Alternatives 1 and 2, construction would occur at many more buildings on the installation and for a longer period. As a result, the amount of construction and demolition waste would be greater, and construction and demolition waste would be produced for several construction seasons.

Long-term, moderate, beneficial impacts on solid waste management would be identical to those for Alternative 2 would occur because the distributed boilers would not produce coal ash as solid waste.

3.4 Hazardous and Toxic Materials and Wastes

3.4.1 Affected Environment

The potential impacts hazardous materials and hazardous waste can have on human health and the environment largely depend on their types, quantities, toxicities, and associated management practices. The ROI for the Proposed Action includes the Main Cantonment Area.

3.4.1.1 Definition of Resource

Hazardous Materials

Hazardous and toxic materials or substances are those that pose a risk to human health or the environment. Hazardous materials are defined by 49 CFR § 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR § 172.101), and materials that meet the defining criteria for hazard classes and divisions" in 49 CFR Part 173.

Hazardous Waste

Hazardous wastes are defined by the RCRA at 42 U.S.C. § 6903(5), as amended by the Hazardous and Solid Waste Amendments, as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment

when improperly treated, stored, transported, or disposed of, or otherwise managed." Examples of hazardous waste present on Fort Wainwright may include solvents, antifreeze, deicing fluids, petroleum products such as oils, hydraulic oils, grease, and fuels, as well as paints and batteries.

Hazardous wastes may not be limited to chemical products, and can also include items such as pressurized cylinders and medical/biohazards.

Underground Storage Tanks and Aboveground Storage Tanks

Underground storage tanks (USTs) and aboveground storage tanks (ASTs) are used to store large quantities of hazardous liquids, such as petroleum, oils, and lubricants (POL). The Leaking Underground Storage Tank Trust Fund addresses petroleum releases from federally regulated USTs.

Asbestos-Containing Material (ACM)

Asbestos is a naturally occurring fibrous mineral, and the most common types of asbestos are chrysotile (white) and amosite (brown/off-white). Because it is fire-resistant, resists many chemicals, and is an excellent insulator, asbestos was added to a variety of building materials and other products and was routinely used in buildings constructed before 1980. Disturbing ACMs can release tiny fibers into the air. People who breathe asbestos fibers over many years can develop asbestos-related diseases, including asbestosis, lung cancer, and mesothelioma. Some of these diseases can be serious or fatal (Agency for Toxic Substances and Disease Registry [ATSDR 2016]). Because of these health dangers, the EPA and other agencies have implemented laws and regulations to protect people from asbestos exposure. The EPA has established that any material containing more than 1 percent asbestos by weight is considered an ACM. ACMs are generally found in building materials such as floor tiles, mastic, roofing materials, pipe wrap, and wall plaster.

ACM and ACM abatement are regulated by the EPA and the Occupational Safety and Health Administration (OSHA). Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the CAA, which established the National Emission Standards for Hazardous Air Pollutants (NESHAP). Under NESHAP, the owner of a structure must, before demolition or renovation of buildings with ACM, provide notice to the regulator with CAA authority (either the EPA or its state counterpart). The NESHAP regulations (40 CFR Part 61) address the demolition or renovation of buildings with ACM. OSHA Standard 1910-1001 addresses protection of workers working around asbestos; OSHA Standard 1910-1101 addresses workers that actively remove ACM. The Asbestos Hazard Emergency Response Act, Public Law (P.L.) 99-519, and P.L. 101-637 address worker protection for employees who work around or remediate ACM. The 2007 USAG Fort Wainwright Asbestos Management Plan (USAG Fort Wainwright 2007a) provides additional guidance for ACM management, abatement, and removal in accordance with Army Regulation (AR) 200-1, NESHAP, and Army regulations. ACMs are also regulated by the TSCA.

Radon

Radon is a naturally occurring odorless and colorless radioactive gas found in soils and rocks that can lead to the development of lung cancer. Radon tends to accumulate in enclosed spaces, usually those that are below ground and poorly ventilated (e.g., basements). EPA established a guidance radon level of 4 picocuries per liter (pCi/L) in indoor air for residences, and radon levels above this amount are considered a health risk to occupants.

Lead-Based Paint (LBP)

Human exposure to lead has been determined by agencies such as the OSHA and EPA to pose an adverse health risk. Sources of exposure to lead are dust, soils, paint, and many surface coatings. LBP was used as coatings and finishes before the hazards associated with lead accumulation in children were identified. In 1973, the Consumer Product Safety Commission (CPSC) established a maximum lead content in paint of 0.5 percent by weight in a dry film of newly applied paint. The use of LBP declined after 1978 when the CPSC lowered the allowable lead content in paint to 0.06 percent by weight from its 1973 level of 0.5 percent. This change was made under the Consumer Safety Act of 1977, P.L. 101-608, as implemented by 16 CFR Part 1303.

Each installation must develop and implement a management plan for identifying LBP, risk assessment, worker safety, worker training and certification, and identification, evaluation, management, and abatement of LBP hazards in accordance with AR 420- 70, *Facilities Engineering, Building and Structures*. The 2007 USAG Fort Wainwright Lead Based Paint Management Plan (USAG Fort Wainwright 2007b) provides guidance for LBP removal for Fort Wainwright and requires that LBP removal be conducted in accordance with applicable TSCA, OSHA, and Army regulations. Activities such as sanding, scraping, manual demolitions, abrasive blasting, cutting, torching, or welding of LBP are trigger tasks that can result in significant worker and community exposures; therefore, all demolition or renovation projects are subject to the requirements of this plan.

Polychlorinated Biphenyls (PCBs)

PCBs are a group of man-made organic chemicals that persist in the environment and were widely used in building materials (e.g., caulk) and electrical products before 1979. The EPA classifies PCBs as a probable human carcinogen, and PCBs have been demonstrated to cause a variety of other serious adverse health effects. Although PCBs are no longer produced in the United States, human exposure can still occur (EPA 2020). Structures constructed prior to 1979 potentially include PCB-containing building materials. Construction materials such as paints, caulking, and mastics and other adhesives, as well as ceiling tiles, acoustic boards, fireproofing materials, high-intensity discharge lamp ballast capacitors, and the capacitors of fluorescent light ballasts sometimes contain PCBs. Such PCB-containing materials can also contaminate adjacent wood or masonry surfaces.

The disposal of PCBs is regulated under the federal TSCA (15 U.S.C. § 2601 et seq., as implemented by 40 CFR Part 761), which banned the manufacture and distribution of PCBs, with the exception of PCBs used in enclosed systems. By federal definition, PCB equipment contains 500 ppm PCBs or more; PCB-contaminated equipment contains PCB concentrations equal to or greater than 50 ppm, but less than 500 ppm; and PCB items contain from 5 to 49 ppm PCBs. TSCA regulates, and the EPA enforces, the removal and disposal of all sources of PCBs containing 50 ppm or more; the regulations are more stringent for PCB equipment than for PCB-contaminated equipment.

Unexploded Ordnances (UXOs)

UXOs are explosive weapons, including bombs, shells, grenades, land mines, naval mines, cluster munition, and other ordnance, that did not explode when they were employed and have never been detonated.

Petroleum, Oil, and Lubricants (POL)

Petroleum products include crude oil or any derivative thereof, such as gasoline, diesel, or propane. They are considered hazardous materials because they present health hazards to users in the event of incidental releases or extended exposure to their vapors.

Hazardous Substances Regulated by the Emergency Planning and Community Right-to-Know Act (EPCRA)

EPCRA establishes requirements for federal, state, and local governments; Indian tribes; and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The four major provisions of EPCRA include emergency planning, emergency release notification, hazardous chemical storage reporting requirements, and toxics release inventory.

Hazardous Substances Regulated by the Resource Conservation and Recovery Act (RCRA)

The USAG Alaska must manage its hazardous materials and wastes in accordance with the RCRA, as amended by the Hazardous and Solid Waste Amendments to comply with federal regulations. In accordance with the RCRA, Fort Wainwright is registered with the EPA under the facility identification number AK6210022426. The USAG Alaska must also comply with military regulations, state regulations, and employee safety standards for hazardous materials and wastes.

Hazardous Substances Regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA guides federal response to releases or threatened releases of hazardous substances that may endanger public health or the environment and directs establishment of reporting quantities for all hazardous substances. CERCLA Section

101(14) includes toxic materials as defined by other statutes; additional hazardous substances are defined under CERCLA 102(a); and individual hazardous compounds are listed at 40 CFR § 302.4.

3.4.1.2 Environmental Laws, Regulations, and Executive Orders

Hazardous materials and wastes are defined and regulated at the federal and state levels and by the Army. AAC, Title 18, Environmental Conservation, contains the criteria for management, generation, transport, and disposal of hazardous materials and waste. AR 200-1 implements federal, state, and local environmental laws and DoD policies for preserving, protecting, conserving, and restoring the quality of the environment. Developed in accordance with AR 200-1, the USAG Regulation 200-1 pamphlet provides guidance for the management of hazardous materials/regulated waste by both military and civilian personnel at all USAG Alaska facilities, including Fort Wainwright (USAG Fort Wainwright 2013a). The Army, EPA, and the State of Alaska signed a Federal Facility Agreement for Fort Wainwright in 1998, which was amended in 2007. This agreement outlines the process for investigation and removal or remediation of environmental contaminants that may pose a threat to human health or the environment but does not define institutional controls or land use controls. Institutional controls (administrative mechanisms), if necessary, are placed on a contaminated site as part of the selected remedy in a ROD for a site. Until institutional controls specific for Operable Units (OUs) are developed for any CERCLA-contaminated sites, policy memoranda and standard operating procedures (SOPs) are used to apply land use restrictions; these are not enforceable regulatory documents. Specifically, institutional controls (e.g., limitations on the location and depth of excavations, water use, property transfer agreement restrictions, etc.) are designed to supplement active contaminant reduction and remediation actions, as appropriate, for short-term and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants and safeguard human health and safety and environmental resources.

Control programs in place at Fort Wainwright include the RCRA, CERCLA, Defense Environmental Restoration Account, Defense Environmental Restoration Program (DERP), Installation Restoration Program (IRP), and Military Munitions Response Program (MMRP). These programs, along with any current EOs, are the basis for the storage, handling, and maintenance of hazardous wastes, as well as the directives for funding and restoration of previously contaminated sites.

The 2018 USAG Fort Wainwright Spill Prevention, Control, and Countermeasure (SPCC) Plan, in accordance with the Oil Pollution Act, documents facility information, petroleum storage information, calculates potential for future spills, and outlines procedures for preventing and managing hazardous spills that may occur at the installation (DLA Energy 2018).

Contaminated and potentially contaminated sites are regulated by CERCLA. CERCLA, as amended by the Superfund Amendments and Reauthorization Act, oversees long- and short-term remediation actions for contaminated or potentially

contaminated sites by requiring investigation, assessment, and development of remediation programs to contain contamination. The State of Alaska also oversees the DoD CERCLA sites through implementation of ADEC regulatory responsibilities of oversight on contaminated site cleanup work to ensure that sites are cleaned up to meet state standards and to protect human health, safety, welfare, and the environment.

The DERP was established to provide for the cleanup of active military installations and formerly used defense sites throughout the United States and its territories. The two restoration programs under the DERP are the IRP and the MMRP. The IRP addresses removal and remediation actions at contaminated sites, and the MMRP addresses nonoperational military ranges and other sites suspected or known to contain UXO, discarded military munitions, or munitions constituents. Each site is investigated and appropriate remedial actions are taken under the supervision of applicable federal and state regulatory programs. When no further remedial action is necessary for a given site, the site is closed and it no longer represents a threat to human health.

Additionally, Fort Wainwright maintains its Environmental Management System, which outlines practices for sustainable acquisition and building, repurposing when applicable, recycling programs, and energy and water conservation.

3.4.1.3 Current Condition

The Army began its investigation of contaminated areas at Fort Wainwright in 1989. The EPA listed Fort Wainwright as a site on the National Priorities List in 1990. The National Priorities List specifies national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The Army signed a Federal Facilities Agreement with the EPA and the State of Alaska in 1992 to address contamination. In 2002, USAG Alaska completed construction of all systems necessary for site cleanup (USAG Fort Wainwright 2013a). The Army continues to perform investigations and active remediation and groundwater monitoring, enforce land use controls, conduct inspections, and consider possible additional cleanup options.

There are 53 IRP sites at Fort Wainwright. At these sites, the primary contaminants of concern include metals, pesticides, POL, PCBs, semivolatile organic compounds, and VOCs in the installation's groundwater and soil (USAG Fort Wainwright 2016, 2020).

Groundwater in the Fort Wainwright area has relatively high, naturally occurring levels of metals, especially iron and arsenic. In addition, groundwater contamination from historical Army-related industrial activities exists in the Main Post area and is commonly associated with leaking underground storage tanks (LUSTs), chemicals storage facilities, and chemicals dump areas. Groundwater contamination is generally localized, and there is no indication of deep groundwater pollution. Intensive

monitoring and remediation of the areas of contaminated groundwater are being implemented through projects under CERCLA (USAG Fort Wainwright 2013a).

USAG Alaska actively manages use of hazardous materials and generation of hazardous waste through the development and implementation of plans to eliminate or reduce products that pose environmental risk. Any project that involves excavation or movement of soils must include field screening for petroleum products (plus any other identified contaminants). Soils exhibiting readings less than 20 ppm are considered clean and may be reused on site or disposed of in accordance with the scope of work for the specific project (USAG Fort Wainwright 2013a).

In the area immediately surrounding the existing CHPP, there are four active remediation sites: (1) Fort Wainwright Building 3562 PX Gas Station USTs 177, 179, and 180, CC-FTWW-086; (2) Fort Wainwright (2P) Building 3570, Former PX Gas FTWW-101; (3) Fort Wainwright Building 3564, Diesel Electric Generation Plant FTWW-099; (4) Fort Wainwright Doyon Clear Well Repair Project. Active remedial systems have been decommissioned at a fifth site, the Fort Wainwright (OU-4) FTWW-011, Coal Storage Yard. Land use restrictions remain for soil disturbance and use of groundwater in the OU-4 area.

Hazardous Materials

The three turn-in facilities for hazardous wastes and materials include the Hazardous Materials Control Center at Building 3030, DLA – Disposition Services at Fairbanks Environmental Branch, and the Hazardous Waste Management Contractor at Building 3489. The Logistics Readiness Center manages the Hazardous Materials Control Center and is also responsible for monitoring the use of hazardous materials. The DLA – Disposition Services is responsible for determining hazardous material sale or reuse and disposing of hazardous waste off the installation. The Hazardous Waste Management Contractor is responsible for providing hazardous waste identification labels for each hazardous materials accumulation container and establishing a pickup of contracted waste with the Defense Reutilization Marketing Office (USAG Fort Wainwright 2016).

SOPs are currently used at Fort Wainwright, both by installation personnel and third-party contractors, to minimize and prevent adverse impacts on human health and the environment by the use, handling, and storage of hazardous materials. Use and handling of hazardous materials may occur during construction projects, remediation of existing known contaminant sources, general management, and control and storage of new and spent materials. In general, hazardous materials are handled in accordance with all applicable local and state laws governing the proper use, handling, and disposal of such materials (USAG Fort Wainwright 2017a).

Hazardous Waste

Fort Wainwright is a permitted Large Quantity Generator (LQG) of Hazardous Waste. LQGs generate 1,000 kilograms (kg) per month or more of hazardous waste or more

than 1 kg per month of acutely hazardous waste. Waste streams include wastes from the motor pool, hospital, hangars, and power plant, such as used rifle bore patches/wadding, used batteries, used solvents, contaminated or excess fuels, used antifreeze, used oil, spill cleanup materials, and contaminated soil. These wastes are accumulated temporarily at the generating facilities in accumulation points, such as hazardous waste satellite accumulation areas or hazardous waste accumulation sites. Appropriate Army personnel transport accumulated hazardous wastes off the installation. Medical and biohazard wastes are handled separately by the hospital. The installation power plant also manages its own hazardous waste streams (USAG Fort Wainwright 2017a).

The installation also utilizes third-party consultants as hazardous waste management services contractors, who are responsible for management of hazardous waste accumulation facilities and the identification, consolidation, packaging, and transportation of hazardous wastes in support of installation missions (USAG Fort Wainwright 2017a).

Fort Wainwright has one Class I landfill, which is authorized to accept municipal solid wastes, inert waste, sewage solids, regulated ACM, non-regulated ACM, and coal ash. ADEC completed a compliance visit to the landfill in October 2018, and the landfill received a score of 96 out of 100, indicating that the landfill scored highly with regard to ADEC standards (ADEC 2018b). A portion of the landfill (which is part of OU-4) no longer accepts any wastes and was closed, capped in (September 1997), and is monitored for a variety of contaminants, including chlorinated solvents that exist at concentrations above remedial cleanup goals. Groundwater downgradient from the closed portion is sampled for mercury and arsenic, which are contamination constituents in coal ash. In the most recent verified results from 2018, mercury was reported below ADEC cleanup levels. Arsenic was detected as exceeding cleanup levels for specific events above the background well concentration, but below the upper confidence level that is determined by the historical values identified in the background well, and appears to be the result of naturally occurring mineral deposits in the area (USACE 2019, USAG Alaska 2020c). In the active portion of the landfill arsenic concentrations are very low or are not detected and are below the Landfill Groundwater Protection Standard. Mercury concentrations were not detected in groundwater samples (USAG Alaska 2020a).

Historical records indicate that the older area of the landfill contains chemicals contributing to on-post groundwater contamination. A plume of contamination has been identified, does not extend off-post, and has not migrated as noted in monitoring results. A ROD for OU-4 identifies a selected remediation remedy that includes the capping of the older, inactive portion of the landfill to prevent water penetration (rainwater and snowmelt), natural attenuation with monitoring/evaluation of the groundwater, and institutional controls (ADEC 1996). Groundwater downgradient is and will remain closely monitored to assess the natural attenuation progress. If natural attenuation is not progressing as expected, a significant reduction in leachate occurs, or if significant contamination is persistent, a groundwater treatment system would be implemented (USACE 2019).

Underground Storage Tanks and Aboveground Storage Tanks

There are 58 ASTs on the Main Cantonment Area, ranging in size from a 560-gallon AST used to contain diesel fuel to 40,000-gallon ASTs used to store JP-8. The majority of ASTs have associated secondary containment/diversion structures (DLA Energy 2018).

Also on the Main Cantonment Area, there are 36 USTs ranging in size from 500-gallon USTs used to store heating oil, diesel, and unleaded regular motor fuel to 30,000-gallon USTs used to store heating oil, JP-8, and unleaded regular motor fuel. There are no permanently closed USTs on Fort Wainwright (DLA Energy 2018).

Currently five LUST sites and 60 non-LUST contaminated sites are listed for Fort Wainwright in the ADEC contaminated sites database with an open designation, denoting that some form of remediation or environmental monitoring is currently in progress. These sites include a wide range of contaminant sources affecting soil and groundwater on the Main Post. In addition to the open sites, six LUST sites and 12 non-LUST contaminated sites are listed as cleanup complete with institutional controls, indicating that the site may require further cleanup efforts if specific criteria are met, and 37 LUST sites and 44 non-LUST contaminated sites that have been given a cleanup complete designation, indicating that remediation has been completed to satisfactory levels and no further remedial activities are warranted (ADEC 2019d).

Asbestos

EPA issued a ban on asbestos in 1989 with a phase out-rule in 1991. Because of the construction date of many structures on Fort Wainwright, however, it is possible for ACM to be present on interior and exterior surfaces. Demolition or renovation of buildings with ACM has a potential for releasing asbestos fibers into the air. The current practice is to manage or abate ACM in active facilities and abate any ACM that has been identified as a hazard to human health, following regulatory requirements and before facility demolition or renovation. Removal of ACM occurs when there is a potential for asbestos fiber release that would affect human health or the environment (USAG Fort Wainwright 2017a).

According to the installation's Asbestos Management Plan, any ACM is handled in accordance with applicable EPA and OSHA regulations by a licensed contractor. In accordance with the requirements, USAG Alaska provides a written "Notification of Demolition and Renovation" to the EPA Region 10 Asbestos Coordinator 10 working days before beginning any work on an asbestos project (USAG Fort Wainwright 2007a).

Radon

According to the EPA Radon Zone Map, Fort Wainwright is in Radon Zone 2, which is a moderate zone with a range of 2 to 4 pCi/L in indoor air. EPA has a radon

guidance level of 4 pCi/L in indoor air for residences; however, no standards have been established for nonresidential structures (EPA 2019b).

Lead-Based Paint

DoD implemented a ban of LBP use in 1978. Because of the construction date of some structures on Fort Wainwright (prior to 1978), it is possible for LBP to be present on interior and exterior surfaces. Typically, the Army does not actively pursue removal of LBP. Instead, it is managed in place and removed as necessary (USAG Fort Wainwright 2017a).

Polychlorinated Biphenyls

Structures constructed before 1979 potentially include PCB-containing building materials in the electrical systems. PCBs are not known to be present in transformers at Fort Wainwright, and have not been identified during investigations in the vicinity of the existing CHPP. PCBs may be present in ballast units of older fluorescent light fixtures. Although not defined as PCB equipment or PCB-contaminated equipment, these ballasts could leak or spill and result in a release of PCBs (USAG Fort Wainwright 2017a).

Unexploded Ordnances

UXOs may be encountered throughout the installation. Upon identification, UXOs must be reported immediately to Range Control (Alaska Ranges Range Control undated, Buzby 2019).

Several MMRP sites on Fort Wainwright in the Main Cantonment Area have been investigated and remediated, as appropriate. The primary contaminants of concern at these sites included munitions and explosives of concern and munitions constituents in the groundwater and soil on the installation. None of the sites are active, and investigations and remedial actions (where applicable) are complete or required no further action (TLI Solutions 2009, USAG Fort Wainwright 2016; USAG Fort Wainwright 2019c, 2020a).

Petroleum, Oil, and Lubricants

The primary activities associated with POL at Fort Wainwright include the receipt, storage, and transfer of oil for rotary-wing and fixed-wing aircraft fueling, maintenance activities, ground vehicle fueling, and heating. POL is stored within USTs, ASTs, oil-water separators, oil-filled operational equipment, mobile/portable tanks, oil drum storage, and animal fat and vegetable oil containers (DLA Energy 2018).

Hazardous Substances Regulated by the Emergency Planning and Community Right-to-Know Act

Fort Wainwright is a Toxic Release Inventory (TRI) reporting facility. A TRI, the reporting mechanism for long-term releases from industrial activities, is prepared by

the Army each year. For the most recent TRI report available for the Main Cantonment Area (2017), Fort Wainwright reports on aluminum (flume or dust), barium compounds, chromium compounds (except chromite ore mined in the Transvaal region), copper, dioxin and dioxin-like compounds, hydrochloric acid (1995 and after "acid aerosols" only), hydrogen fluoride, lead, lead compounds, manganese compounds, mercury, mercury compounds, nitroglycerin, sulfuric acid (1994 and after "acid aerosols" only), and vanadium compounds (EPA 2019c).

3.4.2 Environmental Consequences

3.4.2.1 Significance Criteria

A significant impact on or from hazardous materials and wastes would result if the Army action were to result in any of the following:

- Substantially increase the amounts of hazardous materials or wastes used, generated, or procured beyond current management procedures, permits, and capacities
- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation
- Create substantial restrictions on the use of property currently not managed under the Cleanup Program due to hazardous waste, materials, or site remediation
- Disturb or create contaminated sites resulting in substantial negative impacts on human health or the environment
- Make it substantially more difficult or costly to remediate existing contaminated sites

3.4.2.2 No Action Alternative

Short-term, minor, adverse impacts could occur as a result of the No Action Alternative. Hazardous waste would temporarily increase from repair- and upgrade-related activities. Any hazardous waste generated would be handled according to the protocol outlined in the Fort Wainwright *Hazardous Material and Waste Management Plan* (USARAK and USAG Fort Wainwright 2013).

ACMs could be released from older building materials that may be removed or altered during necessary improvements to the CHPP and associated structures. LBP could

be present in materials that would be removed or demolished during improvement activities. PCBs could be disturbed during demolition-related activities.

Long-term, negligible, beneficial impacts could occur as a result of the removal and the proper disposal of any ACMs, LBP, and PCBs encountered during renovation of the CHPP. Ongoing operations of the existing CHPP would continue to use coal. Inadvertent remnant hot materials could remain in coal ash, and the risk of coal dust fires or explosions would continue. Risk would continue to be minimized through BMPs such as ensuring a well-maintained coal ash collection system. Under the No Action Alternative, coal ash would continue to be disposed at the Class 1 landfill at Fort Wainwright. The landfill can continue to accept coal ash for approximately 12 years before reaching capacity. At that time, the landfill would be closed in accordance with the landfill closure plan. A new landfill or anticipated application that allows coal ash disposal beyond the remaining life of the landfill would then be required. As noted in Section 3.3.2.2, if the landfill were to reach capacity, under the UPC, the System Owner would be responsible for coal ash disposal off the installation or pursuing coal ash recycling opportunities for diverting from the landfill waste stream.

3.4.2.3 Alternative 1 (Build a New Coal CHPP)

Short-term, minor, adverse impacts could occur as a result of Alternative 1. Hazardous and solid waste generation would temporarily increase due to construction and demolition activities. Any hazardous waste generated would be handled according to the protocol outlined in Fort Wainwright *Hazardous Material and Waste Management Plan* (USARAK and USAG Fort Wainwright 2013). Adherence to that plan and the USAG Fort Wainwright SPCC Plan (DLA Energy 2018) would minimize potential impacts resulting from hazardous materials and wastes production or management during construction and demolition activities associated with Alternative 1. Further groundwater and soil contamination would be avoided through implementation of the *Hazardous Material and Waste Management Plan*, the SPCC Plan, and applicable regulations.

ACMs could be released from older building materials that may be removed or altered during CHPP demolition. During demolition, buildings would be sprayed with water to avoid or minimize airborne ACM. ACMs would be disposed of or managed through abatement in accordance with applicable regulations and the USAG Fort Wainwright Asbestos Management Plan, minimizing potential impacts. LBP could be present in materials that would be removed or demolished during demolition. Management of LBP in accordance with applicable regulations and the USAG Fort Wainwright LBP Management Plan would reduce potential impacts.

PCBs could be disturbed during demolition-related activities. PCBs may be present in light ballasts, paint, and other existing CHPP building materials, which would be disposed of in accordance with state and federal regulations, including TSCA disposal requirements. Construction-related activities could also disturb previously unknown PCB-contaminated soils, if any, in the vicinity of the existing CHPP. USAG Alaska

would implement sampling analysis and work plans as required before any ground disturbance to identify and address any current or historical contamination.

Enough coal would continue to be stored on the site in an amount sufficient to supply power for a minimum of a 14 days. A coal ash waste stream exists for the existing CHPP. Because Alternative 1 would build a new coal CHPP near the existing plant, a similar waste stream would continue to be used, although less coal and, therefore, less coal ash would be generated from a more efficient CHPP. Due to the use of modern industrial standards and up-to-date fire and life safety requirements, the risk of fires or explosions in inadvertent remnant hot materials in coal ash at the new plant would be less than current conditions. Risk would continue to be minimized through BMPs such as ensuring a well-maintained coal ash collection system. At the landfill, procedures would continue to be followed to ensure coal ash would not become airborne. Although the possibility for arsenic and mercury contamination could occur from unlined coal ash deposits, the Army would continue to monitor groundwater quality and collect samples annually from groundwater wells to minimize the potential for human health impacts (see Section 3.10.2.3). The landfill can continue to accept ash for approximately 12 years before reaching capacity. At that time, the landfill would be closed in accordance with the landfill closure plan. A new landfill or anticipated application that allows coal ash disposal beyond the remaining life of the landfill would then be required. If the landfill were to reach capacity, under the UPC, the System Owner would be responsible for coal ash disposal off the installation or pursuing coal ash recycling opportunities for diverting from the landfill waste stream. See Section 3.3.2.3 for additional discussion on coal ash management.

Soil disturbance could increase radon levels at the site, but levels would be unlikely to surpass the EPA's 4 pCi/L threshold.

Because construction of the new Coal CHPP would be in the same general location as the previous plant, UXO is not expected to be encountered. The existing and proposed CHPP locations do not coincide with any MMRP sites.

Construction of the new CHPP has the potential to disturb existing CERCLA OUs at Fort Wainwright or sites not previously known to be contaminated, as well as ongoing operation and maintenance of remedial actions and institutional controls in the vicinity of the existing CHPP. To minimize adverse impacts, USAG Alaska would avoid siting and construction in known contaminated areas; appropriately implement work plans, sampling analysis, site characterization, and any necessary remediation following protocols before any demolition or ground disturbance to identify and address contamination concerns; screen for potential contaminants using appropriate tools and laboratory analysis as appropriate; and develop detailed plans for worker protection, surface runoff prevention, and contaminated soil disposal in the case of encountering known or unknown contaminated soils during construction. Upon the development of a new CHPP design, further environmental coordination, permitting, and consultation would occur. The need for additional environmental impact analysis would be assessed at that time.

Long-term, negligible, beneficial impacts could occur as a result of the removal and the proper disposal of any ACMs, LBP, and PCBs during demolition of the existing CHPP.

3.4.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Impacts on hazardous materials and wastes would be similar to those described for Alternative 1; however, a new waste stream would be created from the products of the combustion of natural gas and ULSD, if applicable, resulting in long-term, negligible, adverse impacts. Generation of hazardous waste would be managed and groundwater and soil contamination would be avoided or minimized through implementation of the installation's *Hazardous Material and Waste Management Plan* (USARAK and USAG Fort Wainwright 2013), the SPCC Plan, and applicable regulations. The waste stream would not be handled as hazardous waste in accordance with EPA's ruling that Fossil Fuel Combustion Wastes are excluded from hazardous waste regulations under Subtitle C of RCRA (EPA 2019d). With the elimination of coal use at the CHPP, the coal stockpile near the CHPP would be closed and treated in accordance with CERCLA and ADEC regulations, resulting in moderate, beneficial impacts.

Shipment of natural gas to the installation would occur via freight train or truck, or via a pipeline from Fairbanks. Potential short-term impacts could occur from the unlikely risk of leakage during transportation, which would be addressed accordingly in compliance with remediation regulations. Long-term, negligible, adverse impacts could be expected as a result of potential construction of a natural gas pipeline from a proposed off-post location to the installation (IGU 2019). Any risk of long-term groundwater contamination from pipeline leaks would be minimized through implementation of design specifications and BMPs. Construction of the new CHPP has the potential to disturb existing CERCLA OUs at Fort Wainwright or sites not previously known to be contaminated, as well as the ongoing operation and maintenance of remedial actions and institutional controls in the vicinity of the existing CHPP. To minimize adverse impacts, known contaminated sites would be avoided, to the extent possible, during transportation of natural gas or construction of a natural gas pipeline to the installation. If known contaminated sites cannot be avoided along the potential natural gas pipeline route, remediation efforts would be conducted in accordance with the applicable CERCLA, ADEC, and RCRA regulations to minimize further contamination. USAG Alaska would also appropriately implement work plans, sampling analysis, site characterization, and any necessary remediation following protocols before any demolition or ground disturbance to identify and address contamination concerns; and would develop detailed plans for worker protection, surface runoff prevention, and contaminated soil disposal in the case of encountering known or unknown contaminated soils during construction. Upon the development of a design, further environmental coordination, permitting, and consultation would occur. The need for additional environmental impact analysis would be assessed at that time.

An increase in POL on the installation would occur as a result of the storage and use of ULSD as a secondary fuel source for the new CHPP. Additional USTs and ASTs would be added to maintain ULSD storage for a minimum of 14 days.

3.4.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Impacts on hazardous materials and waste would be similar to those described for Alternative 2; however, the only new waste streams would be created from the products of the combustion of natural gas. Generation of hazardous waste would be managed and groundwater and soil contamination would be avoided through implementation of the installation's *Hazardous Material and Waste Management Plan* (USARAK and USAG Fort Wainwright 2013), the SPCC Plan, and applicable regulations.

During construction of the distributed natural gas boilers at major facilities across the Main Cantonment Area, UXO could be of concern; however, any impacts would be minimized through implementation of typical UXO handling procedures. Construction of the new CHPP has the potential to disturb existing CERCLA OUs at Fort Wainwright or sites not previously known to be contaminated, as well as the ongoing operation and maintenance of remedial actions and institutional controls on the installation in the vicinity of the existing CHPP. To minimize potential for adverse effects, construction would avoid known contaminated sites because ground disturbance in contaminated areas could further release pollutants and disrupt remedial processes.

Before construction of the new distributed natural gas boilers, USAG Alaska would appropriately implement sampling and analysis work plans and conduct site characterizations to identify and address contamination concerns. USAG Alaska would also develop detailed plans for worker protection, surface runoff prevention, and contaminated soil disposal in the case of encountering known or unknown contaminated soils during construction. To maintain compliance, the USAG Fort Wainwright Remedial Project Manager would be consulted to follow the protocol designated by the institutional and land use controls in place at the installation before ground disturbance. Upon the development of a design, further environmental coordination, permitting, and consultation would occur. The need for additional environmental impact analysis would be assessed at that time.

3.5 Socioeconomics

3.5.1 Affected Environment

The ROI for the assessment of potential impacts covers the areas where the direct and secondary effects of the activities associated with the proposed project alternatives would likely occur and where most consequences for local and regional jurisdictions would be expected.

For socioeconomics, those areas are where the following would occur:

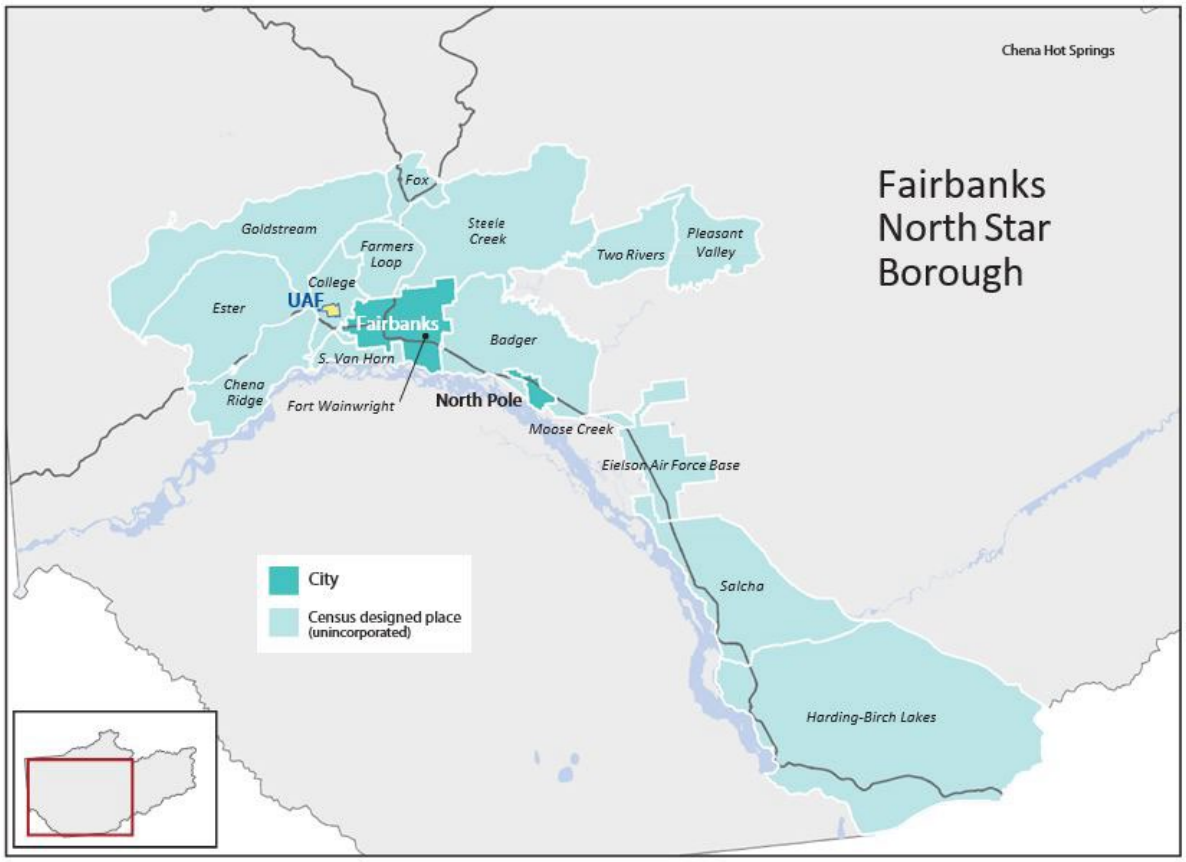
- Construction or the facility upgrades
- Locations of the fuel, transportation, and other potentially affected service providers and service operators
- Possible effects on residents from changes in utility rate costs

3.5.1.1 Definition of Resource

Socioeconomics pertains to the social and economic conditions of the human environment. For this analysis, the indicators of socioeconomic conditions include population, employment, unemployment rate, income, cost of living, and housing availability. Current data on these indicators for the affected environment would provide the baseline information on the socioeconomic well-being of the local areas/region upon which potential effects of the proposed project alternatives are compared.

The proposed heat and electrical generation and distribution facility upgrades would occur within Fort Wainwright, located in the FNSB. The borough is the cultural and commercial center of the Interior Region as well as a hub for villages located hundreds of miles outside the region (Alaska Department of Labor and Workforce Development [ADOLWD] 2018).

Figure 3.5-1 shows the different communities within the borough, including the City of Fairbanks and Fort Wainwright.



Source: ADOLWD 2018

Figure 3.5-1. FNSB Region

The City of Fairbanks, on the western boundary of Fort Wainwright, is the largest city in the borough, and it is where the natural gas provider and the electric utility that services the region are located. The City of Fairbanks is the economic, medical, educational, and cultural center of Interior Alaska.

Other areas outside the FNSB region that are anticipated to be affected by the proposed project alternatives include Healy (a census-designated place [CDP] in the Denali Borough) where a local coal provider that supplies coal to Fort Wainwright is located, Point MacKenzie (a CDP in the Matanuska-Susitna Borough) where the only currently operating LNG facility in Alaska is located, and Nikiski and Valdez, which have ULSD production refineries. The delivery mode and route for transporting the alternative fuels for the alternatives would also affect traffic volumes in the communities along the transportation route; these impacts are discussed in Section 3.9, Transportation and Traffic.

3.5.1.2 Environmental Laws, Regulations, and Executive Orders

There are no specific regulations for managing or evaluating socioeconomic impacts. Generally, social and economic sustainability is considered an important factor in federal decisions. Not only does socioeconomics cover characteristics that can

directly affect citizens in an affected area, but the capacities of the community structures and the local economy are connected through taxation, services, and quality of life, and with the military mission. Enhancing military capabilities can stimulate a local economy, but related activities may affect certain industries and qualities of an area that indirectly affect the economy.

3.5.1.3 Current Condition

Population

With an estimated population of 97,121, FNSB is the third most populated region in Alaska, based on the 2018 population estimates of the different boroughs and census areas in the state. The Municipality of Anchorage is the most populated region with 295,365 residents, followed by the Matanuska-Susitna Borough with 105,743 residents (ADOLWD 2019a).

Table 3.5-1 shows the population in the potentially affected areas from 2010 to 2018. The FNSB population has declined slightly since 2010 (a decline of 460), but in the intermediate years, year-over-year change in population has been up and down with an increase of as many as 2,398 people from 2011 to 2012 and a decline of as many as 1,280 residents from 2013 to 2014. The City of Fairbanks on the other hand, has experienced a slight overall increase in population from 2010 to 2018 (an increase of 133 residents) with similar increases and decreases in the intervening years.

The majority of the borough residents live in unincorporated areas (also called CDPs). Only the cities of Fairbanks and North Pole are incorporated.

Table 3.5-1. Population Estimates in the ROI, 2010 to 2018

Borough/City/CDP	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fairbanks North Star Borough	97,581	98,247	100,645	100,038	98,758	98,730	98,999	97,855	97,121
Badger CDP	19,482	19,888	19,951	19,491	19,172	19,125	19,336	19,016	18,910
Chena Ridge CDP	5,791	6,051	6,151	6,232	6,178	6,206	6,367	6,278	6,272
College CDP	12,964	13,353	13,412	13,246	13,145	13,017	12,835	12,386	12,157
Eielson AFB CDP	2,647	2,682	3,144	2,944	2,604	2,867	2,918	2,958	2,706
Ester CDP	2,422	2,530	2,625	2,602	2,553	2,526	2,498	2,464	2,431
Fairbanks City	31,535	30,622	31,996	32,230	31,870	32,120	31,961	31,902	31,668
Farmers Loop CDP	4,853	4,963	5,001	4,969	4,978	4,847	4,828	4,794	4,865
Fox CDP	417	458	439	460	430	425	435	434	410
Goldstream CDP	3,557	3,644	3,718	3,667	3,713	3,709	3,667	3,655	3,625
Harding-Birch Lakes CDP	299	299	299	354	328	313	317	327	338
Moose Creek CDP	747	735	729	669	633	619	651	639	666
North Pole City	2,117	2,099	2,158	2,214	2,207	2,144	2,147	2,125	2,101
Pleasant Valley CDP	725	741	743	717	746	697	703	685	713
Salcha CDP	1,095	1,094	1,112	1,053	1,061	1,053	1,028	1,020	1,019
South Van Horn CDP	558	576	564	569	564	516	568	553	555
Steele Creek CDP	6,662	6,749	6,819	6,829	6,870	6,800	7,007	6,891	6,886
Two Rivers CDP	719	726	722	706	663	693	692	653	663
Denali Borough	1,826	1,835	1,846	1,780	1,777	1,775	1,871	1,834	1,825
Healy CDP	1,021	1,047	1,078	1,071	1,106	1,087	1,067	1,074	1,057
Kenai Peninsula Borough	55,400	56,490	56,599	56,875	57,395	57,672	58,038	58,110	58,471
Nikiski CDP	4,493	4,636	4,623	4,607	4,703	4,564	4,621	4,615	4,563
Matanuska-Susitna Borough	88,995	91,652	93,601	95,864	98,143	99,961	102,624	104,388	105,743
Point MacKenzie CDP	529	609	557	1,526	2,025	1,922	1,760	1,991	1,965
Valdez-Cordova Census Area	9,639	9,828	9,936	9,809	9,594	9,525	9,497	9,397	9,451
Valdez City	3,976	4,032	4,131	4,094	4,042	4,009	3,939	3,942	3,903

Source: ADOLWD 2019a

Table 3.5-2 shows the military population at Fort Wainwright. In FY 2018, the total military population at Fort Wainwright ranged from 13,579 to 14,151.

Table 3.5-2. FY 2018 Quarterly Military Population, Fort Wainwright

FY months	Military Active Duty Personnel	Military Dependents	Total
Oct.–Dec.	7,160	6,986	14,146
Jan.–March	7,212	6,939	14,151
April–June	7,199	6,893	14,092
July–Sept.	7,052	6,527	13,579

Source: FNSB 2018a

Healy, Alaska, an unincorporated CDP located about 80 miles southwest of Fairbanks and FNSB, is the most populated community within the Denali Borough. Besides Healy, there are only four other CDPs in the borough. In 2018, 58 percent of the borough's population lived in Healy, which is located on a 2.5-mile spur road off the George Parks Highway, just north of the entrance to the Denali National Park and Preserve (Alaska Department of Commerce, Community, and Economic Development [ADCCED] 2019).

Point MacKenzie, Alaska, is an unincorporated CDP located between the south shore of Knik Arm of Cook Inlet and the Little Susitna River in the Matanuska-Susitna Borough. It lies on Point MacKenzie Road, south of Big Lake, about 15 miles southwest of Wasilla. In 2018, the community had a population of 1,965. There is a deep draft port in the area. The existing LNG facility that provides natural gas to the Fairbanks region is located in Point MacKenzie. Point MacKenzie is about 335 road miles south of Fairbanks.

Nikiski, Alaska, is located on the Kenai Peninsula, 9 miles north of the City of Kenai, off the Sterling Highway (ADCCED 2019). Nikiski has grown from when it was homesteaded in 1940 to a community with about 4,563 residents in 2018. The community has grown with discovery of oil on the Kenai Peninsula in 1957. The state's largest oil refinery is located in Nikiski. Nikiski is about 530 road miles south of Fairbanks.

The City of Valdez is in the Valdez-Cordova Census Area. Valdez is located on the north shore of Port Valdez, 305 road miles east of Anchorage and 364 road miles south of Fairbanks. It is the southern terminus of the trans-Alaska oil pipeline and the only other refinery in the state besides Nikiski that can supply heating fuel (ULSD) for domestic consumption. The city's population in 2018 was about 3,900.

Employment

Table 3.5-3 shows the number and percent of workers by sector for each of the areas in the ROI. The values in the table represent jobs by place of residence (as opposed to place of work) or the number of jobs by sector that are held by residents of the region/community, regardless of where the jobs are located. The estimates are for the year 2016, the most recent data available for employment by place of residence.

Table 3.5-3. Employment by Sector by Place of Residence in the Potentially Affected Areas, 2016

Industry or Sector	FNSB		Fairbanks		Healy		Point MacKenzie		Nikiski		City of Valdez	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Natural Resources and Mining	1,794	5	398	4	111	14	6	7	97	20	281	15
Construction	2,779	8	591	6	74	10	13	15	42	9	138	8
Manufacturing	703	2	147	2	1	0	1	1			106	6
Trade, Transportation, and Utilities	7,976	22	2,410	24	121	16	19	11	78	16	358	20
Information	504	1	183	2	7	1	1	1	4	1	17	1
Financial Activities	1,283	4	424	4	11	1	1	1	9	2	57	3
Professional and Business Services	2,920	8	837	8	55	7	2	2	22	5	112	6
Educational and Health Services	5,187	14	1,616	16	37	5	15	17	23	5	234	13
Leisure and Hospitality	4,135	11	1,516	15	189	24	6	7	119	25	150	8
State Government	4,629	13	834	8	39	5	8	9	14	3	65	4
Local Government	3,410	9	758	8	123	16	10	11	67	14	239	13
Other	961	3	279	3	7	1	5	6	7	2	82	5

Source: ADOLWD 2019b

At the regional level, the local and state government sector (8,039) and the trade, transportation, and utilities sector (7,976) employ the highest numbers of FNSB residents. The military is also an important employer and economic driver in the region. Both Fort Wainwright and Eielson AFB also support many civilian jobs. In 2017, it was estimated that 8,487 active-duty personnel were employed in the region, which is not reflected in the table (ADOLWD 2018).

More recent estimates of employment by place of work include workers from outside the FNSB. In 2018, 37,957 wage and salary jobs were reported in the region, of which 10,489 were in civilian federal, state, and local governments (including tribal governments and public schools) (ADOLWD 2018).

At the local level, the largest share of private-sector jobs in the City of Fairbanks was in the trade, transportation, and utilities sector, followed by the education and health services and the leisure and hospitality sectors. The government sector employed 16 percent of the workers who reside in Fairbanks.

Healy is originally a coal-mining town that has also evolved into a more economically diverse community. The only operating coal mine in the state is located in Healy. Tourism also benefits the local economy during summer months. In 2016, 24 percent of the resident workers were employed in the leisure and hospitality sector, the highest share among the various sectors, followed by government (21 percent); trade, transportation, and utilities sector (16 percent); and the natural resources and mining sector (14 percent).

Unemployment Rate

Data on unemployment rates are only available at the regional level. In 2018, the FNSB unemployment rate was 5.8 percent, which was lower than the statewide average of 6.6 percent, and lower than the unemployment rates in other regions with comparable population and economic conditions (i.e., Matanuska-Susitna Borough and Kenai Peninsula Borough), but higher compared to the Municipality of Anchorage (see Table 3.5-4).

Table 3.5-4. Comparison of Unemployment Rates, Selected Alaska Regions, 2018

Region	Annual Average Unemployment Rate (%)
Alaska	6.6
Fairbanks North Star Borough	5.8
Denali Borough	7.8
Valdez-Cordova Census Area	7.8
Kenai Peninsula Borough	7.7
Matanuska-Susitna Borough	7.6
Municipality of Anchorage	5.5

Source: ADOLWD 2019c

The Denali Borough's unemployment rate was 7.8 percent, which was comparable to the unemployment rates in the Valdez-Cordova census area and the Kenai Peninsula Borough.

Income

The most recent available data on wages (by place of residence) at the local level is for year 2016. Table 3.5-5 shows total wages earned by residents of the areas in the ROI. The total amount of wages earned by FNSB residents in 2016 was the highest among the regions in the ROI. Wages of residents of the City of Fairbanks only accounted for 3 percent of the total wages in the region. In contrast, Healy residents' total wages accounted for 65 percent of the total regional wages earned in 2016.

Table 3.5-5. Total Wages Earned by Residents in the Affected Environment, 2016

Region or Local Area	Amount ($)	Percent of Region
Fairbanks North Star Borough	13,094,184,783	
City Fairbanks	372,585,302	3
Denali Borough	35,101,203	
Healy	22,938,924	65
Matanuska-Susitna Borough	1,767,833,106	
Point MacKenzie	4,140,996	<1
Kenai Peninsula Borough	992,785,526	
Nikiski	82,695,168	8
Valdez-Cordova Census Area	184,403,147	
City of Valdez	103,964,348	56

Source: ADOLWD 2019b

More recent data (year 2018) on annual average monthly wages by industry and by place of work are available at the regional or borough level; Table 3.5-6 shows data for the FNSB and the Denali Borough.

Table 3.5-6. Annual Average Monthly Wage ($) by Sector in Fairbanks North Star Borough (FNSB) and Denali Borough, 2018

Industry or Sector	FNSB	Denali Borough
Natural Resources and Mining	7,172	--
Construction	7,246	4,448
Trade, Transportation, and Utilities	3,583	3,960
Information	4,731	--
Financial Activities	4,338	--
Professional and Business Services	4,674	--
Educational and Health Services	4,434	2,265
Leisure & Hospitality	1,794	2,655
Other Services	2,881	--
Government	4,949	4,836

Source: ADOLWD 2020

In the FNSB, the construction industry paid the highest average wage in 2018, followed by the natural resources and mining sector. It is also worth noting in this study that the average monthly wage in the FNSB in the utilities sector, which is not shown in the table but is included in the trade, transportation, and utilities sector, was

among the highest in the region ($8,137). In the Denali Borough, highest wages were recorded in the government and construction sectors; however, because of data confidentiality rules by ADOLWD, wages in other sectors such as mining were not reported. Statewide, mining wages were the highest in the state, with an annual average monthly wage of $11,570, or $138,840 annually, in 2018 (ADOLWD 2020).

Mining jobs are important to the local economy at Healy, a community of about 1,080 permanent residents. The jobs at the coal mine are among the highest paying jobs in the community. Total wages paid by the coal mine in 2016 amounted to $12.1 million; 109 workers were employed by the mine that year; and the average annual wage paid was more than double the 2016 statewide average for all workers ($53,000), the FNSB ($50,500), and the Denali Borough ($44,500) (McDowell Group 2018). Most other wages in the Denali Borough are in relatively lower-paying, seasonal, service-sector jobs, primarily in leisure and hospitality. As shown in Table 3.5-3, jobs in the natural resources and mining sector, accounted for 14 percent of the total jobs held by residents of Healy.

Housing

FNSB is expected to be the most likely affected area with respect to housing because construction and operation under the Proposed Action would occur in this region. Housing in other areas in the ROI are not expected to be affected. End-of-quarter housing availability indicators for 2018 in the FNSB region are shown in Table 3.5-7.

Table 3.5-7. Housing Indicators in FNSB, 2018

Month	Apartment/Multi-Plex Vacancy Rates (%)	Total Rental Housing Units Available
March	13	492
June	12	482
September	13	487
December	18	634

Source: FNSB 2018a

Cost of Living

Local housing and land costs are relatively low in Fairbanks compared to those in Anchorage and Juneau, but utilities are generally more expensive. Because households spend about 10 percent of their income on utilities, that disparity drives up considerably the overall cost of living in Fairbanks, according to a Council for Community and Economic Research study of urban areas that includes Anchorage, Fairbanks, Juneau, and Kodiak. Given an index value of 100 as the average for U.S. cities included in the study, the cost of living in Fairbanks is 132.6 in 2017, nearly on par with Juneau (133.2) and above the cost in Anchorage (128.2) (ADOLWD 2018).

The 2017 Fairbanks utilities index was more than double that of the national average, at 217.9, while the Anchorage utility index was at 103.6. The Fairbanks area relies heavily on oil and has limited natural gas-based heating systems, and Anchorage has access to more affordable natural gas for heat. The Fairbanks region's cold climate also results in higher heating costs (ADOLWD 2018).

The State of Alaska's Interior Energy Project (IEP), which is being advanced by the Alaska Industrial Development and Export Authority (AIDEA), was envisioned to find a solution to high energy costs and poor air quality in the region. The IEP provides the financial tools needed to specifically bring natural gas to Interior Alaskans. The legislation passed in 2013 authorizes AIDEA to provide the financing package to partner with the private sector to bring affordable, clean-burning natural gas to Interior Alaska (AIDEA 2019).

Economic Sectors

This subsection briefly describes the economic sectors and businesses that would likely be affected by the proposed project alternatives. These sectors and businesses include the utility at Fort Wainwright, the electric utility in Fairbanks, the natural gas utility in Fairbanks, the coal mine in Healy, and the ARRC.

Fort Wainwright UPC System Owner, FNSB. The most directly affected business would be the System Owner, which owns, operates, and maintains the CHPP itself and the utilidors. The System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, Doyon, Limited, that was established under ANCSA. As reported by Doyon, Limited, Table 3.5-8 shows the revenues Doyon, Limited received from the System Owner that are attributable to CHPP or DHS revenue (Schutt 2022).

Table 3.5-8. Doyon, Limited Revenue from the CHPP or DHS

Year	Doyon, Limited Revenue from the CHPP or DHS
2019	$3,808,800
2020	$3,064,250
2021	$2,974,720
Source: Doyon, Limited 2022	

Doyon, Limited shares its profits from investments in various businesses such as oilfield services, government contracting, tourism, and land ownership (Obed 2021) through dividend distributions and other benefits that promote the health, education, and welfare of its shareholders and preserve the heritage and culture of Alaska Natives. Although Doyon, Limited cannot quantify the percentage of its trust or foundation funds because of the CHPP UPC (Schutt 2022), any action taken that affects the income of Doyon, Limited directly affects shareholder dividends and other benefits to the greater Alaska Native population provided by Doyon, Limited

(Christiansen 2020, Obed 2021). A summary of other benefits provided to the greater Alaska Native population (herein referred to as beneficiaries) by the Doyon, Limited's Doyon Settlement Trust, as provided to the Army during public comment, is listed below (see Appendix E for public comments submitted on the Draft EIS). Note that the summary of other benefits is composed of what was provided to the Army and may not be inclusive.

- Distributions totaling $26 million in FY 2019 to the Doyon Settlement Trust to Doyon, Limited shareholders.
- Distributions totaling $2 million in FY 2019 to the greater Alaska Native community.
    - Donations provided to 170 recipients in support of non-profit agencies, tribal and village councils, schools, and cultural events.
    - Grants to approximately 1,300 shareholders and community members in 12 rural communities in efforts to reduce drug and alcohol abuse.
    - Grants to 16 recipients to conduct culture and language camps, traditional survival camps, fiddle classes, and other community events.
    - More than $2 million provided to the Doyon Foundation, an independent philanthropic foundation serving ANC shareholders and their children, by providing educational scholarships and supporting cultural initiatives.

The following list provides further information about programs that receive support from Doyon, Limited revenue (Schutt 2022):

- General Fund: Doyon's General Fund provides donations targeted at programs and activities that support Doyon's mission, including enhancing the social and economic well-being of shareholders. There were approximately 120 recipients in FY 2021, and beneficiaries broadly include non-profit agencies, tribal councils, schools, and cultural events. The total amount distributed in FY 2021 was $481,650.
- Daaga' Awards: In FY 2021, Doyon awarded grants from Daaga' to entities to assist their respective communities in reducing drug and alcohol abuse, and in conducting culture and language camps, traditional survival camps, fiddle classes, and community events. Doyon's FY 2021 contribution of $45,725, affected an estimated 1,300 shareholders and community members in 12 rural communities.
- Alaska Native Language Revitalization: In FY 2021, Doyon donated $200,000 to the Doyon Foundation specifically to preserve and promote Alaska Native language. In 2021, $65,000 of the funding was awarded to 13 organizations to support a language revitalization project across the Doyon region.
- Hunt Fish Task Force: In March 2013, the Fishing and Hunting Task Force was established to direct state and regional advocacy efforts to protect Alaska Native hunting and fishing rights central to the Alaska Native traditional way of

life and Alaska Native well-being. In FY 2021, a $50,000 contribution from the General Fund was directed to the Hunt Fish Task Force.

- Dialogue with Doyon Meetings: Doyon meetings designed to connect with shareholders in urban and rural areas who are unable to attend Doyon, Limited's annual March meeting are held in four villages in the Doyon region each year; in addition to meetings in Anchorage and the Pacific Northwest. Estimated attendance during FY 2020 was approximately 300 shareholders and the total cost for FY 2019 was $20,000. Village trips were postponed in FY 2021 due to COVID-19.
- Back to School Fair: In 2021 Doyon contributed $5,000 to fund the distribution of 180 backpacks and school supplies in two villages.
- Potlatch Fund: The Doyon Settlement Trust provides funding for the Doyon Potlatch Fund, which was established to uphold and maintain Alaska Native cultural traditions by helping the families of deceased shareholders with potlatch expenses. Distributions from the potlatch fund are determined by the original shareholder's number of shares, ranging up to $2,000 to each family. In FY 2020 there were 207 notifications of shareholder deaths, and $403,000 was paid out from the Doyon Settlement Trust.
- Funeral Programs Support: Doyon prints up to 150 funeral programs (per shareholder) for the families of shareholders who have passed away. Additionally, family members are able to share obituaries of Doyon shareholders at www.doyon.com at no cost.
- Doyon Shareholder Intern Program: This program introduces interns to Doyon companies, including the System Owner, and provides an opportunity for these interns to obtain practical work experience, establish work history, and secure potential employment following graduation. In 2021, 19 applicants applied for internship positions and three shareholders participated in this program, which had a total budget of $30,000. (The program was severely constrained in FY 2021 due to COVID-19.) From 2011 through 2020, Doyon hired 72 interns through Doyon's internship program.
- Doyon Leadership Training (DLT): DLT is a 10-month intensive leadership training program specifically focused on providing business and professional development training. DLT is open to all Doyon shareholders. The cost of this program in FY 2020 was $90,000. Because of COVID-19, Doyon, Limited did not offer a DLT in 2021.
- Employee Training and Development: Doyon, Limited contributed approximately $46,000 to employee training and development, which includes offering access to Doyon, Limited's online learning management system that provides training to shareholders in the areas of compliance, human resources, safety, supervisory skills, customer service, and communications, among others.

The System Owner holds a 50-year UPC for Fort Wainwright, which was granted in 2008. In addition to the CHPP, the System Owner also operates and maintains the heat distribution system and utilidors, electrical distribution system, water distribution system and treatment, and wastewater collection system. The UPC at Fort Wainwright is a regulated, tariff-based contract under which the System Owner makes an agreed upon rate of return (referred to as "interest"' in common language) by investing money in the utility infrastructure. The O&M cost is a pass-through cost; whatever it costs to maintain the system, the government reimburses the System Owner with no additional profit or markup on O&M. There are 45 O&M employees at the CHPP; the average annual fully burdened cost per staff to the Army is $149,000 (Black & Veatch 2018). As a result of a shareholder outreach program managed by Doyon, Limited to facilitate shareholder hiring by providing entry-level jobs and training and through an intern program at its companies, 18 (more than one-third) of the employees involved in the operation of the CHPP are shareholders; and the average annual wage for shareholders employed at the CHPP was higher than the average annual wage across all jobs in the FNSB (Obed 2021, Schutt 2022). Utility costs associated with heating and supplying electricity across the installation are approximately $58 million per year and are expected to increase significantly over the next 40 years due to the age of the CHPP (USACE 2018).

In addition, the System Owner annually contributes approximately $5.6 million to the North Star Borough in property tax payments for all System Owner property located on Fort Wainwright (Obed 2021).

Local Electric Utility in Fairbanks, FNSB. The local electric utility in the region provides power to about 100,000 Interior residents in Fairbanks, Delta Junction, Nenana, Healy, and Cantwell, including Interior residents who live along the 48-mile Steese Highway, 11-mile Elliot Highway, and 26-mile Chena Hot Springs Road. The utility employed 267 full-time workers in 2018 (GVEA 2019). The utility operates and maintains 3,261 miles of transmission and distribution lines, 35 substations, and 9 generating facilities. The system is interconnected with Fort Wainwright, Eielson AFB, Fort Greely, the University of Alaska Fairbanks, and all electric utilities in the Alaska Railbelt, which extends from Homer to Fairbanks.

Two interties provide 70 MW of additional capacity from the Anchorage area, augmenting its 296-MW generation capacity: the 97-mile, 230-kilovolt transmission line between Healy and Fairbanks, and the Alaska Intertie, which serves most Railbelt communities. The Alaska Intertie line extends between Willow and Healy along the Parks Highway corridor. Through the Alaska Intertie, the electric utility is connected to other electricity utility providers in the Railbelt.

The utility has nine generating facilities and maintains a diverse fuel/energy source mix of oil, coal, natural gas, hydroelectric power, and wind (GVEA 2019). Total generation capacity of the utility is 381.5 MW. Peak load in 2018 was 196.6 MW. The annual sales of the utility in 2018 amounted to 1.2 billion kilowatt-hours (kWh). The utility has the capacity to support Fort Wainwright's electricity requirements.

Natural Gas Utility in Fairbanks, FNSB. Fairbanks has a public natural gas utility that provides piped natural gas (primarily for heating) to more than 1,000 residential and commercial customers. Currently, the utility has 15 employees in Fairbanks and 9 employees in Point Mackenzie. The utility purchases natural gas from the Cook Inlet area, and the gas is condensed into LNG at the liquefaction facility in Point MacKenzie. Then the LNG is transported to Fairbanks by truck, where it is temporarily stored in tanks before distribution to customers.

The natural gas distribution system in Fairbanks is in the process of expansion, a project that is part of the IEP. The expansion project could accommodate demand from Fort Wainwright, which is in its service area. The utility plans to expand and develop the distribution system to serve approximately 8,800 customers in the FSNB.

The expansion plan also requires expansion of the current LNG facilities, buildout of the distribution system in phases, and investment in additional LNG storage in the service areas, specifically including the following (AIDEA 2019):

- Upgrading the existing liquefaction plant in Point MacKenzie (LNG facility)
- Building a new LNG plant, and expanding the capacities to produce approximately 7.5 billion cubic feet (bcf) per year
- Purchasing LNG high-capacity trailers and related equipment to transport LNG from the LNG facility to the FNSB service area
- Adding 5.2 million gallons of LNG storage tanks in Fairbanks and 150,000 gallons of LNG storage tanks in North Pole
- Building out the natural gas distribution systems to deliver approximately 5.5 bcf per year in phases

Coal Mine in Healy, Denali Borough. The coal mine in Healy provides the fuel for the existing CHPP. Located 115 miles south of Fairbanks, the mine is adjacent to the Parks Highway and Alaska Railroad. The mine is the state's only operating coal extraction facility, producing approximately 1.3 million tons of coal annually. Currently, all coal produced by the mine is used in Interior Alaska to generate heat and electricity. Entities with power plants that buy and use coal from this mine include the local electric utility in Fairbanks, University of Alaska Fairbanks, Aurora Energy LLC, Fort Wainwright, and Eielson AFB.

The coal mine in Healy currently supports about 100 employees year-round. More than 80 percent of the workers are based in Healy, and the rest are based in Usibelli offices in Fairbanks and Palmer. The coal mine is an important economic driver in the Denali Borough because it is the largest, year-round, private-sector employer in the region, and it provides economic stability in an area that typically has high seasonal employment fluctuations. The employment and wage impacts on the coal mine go beyond the direct jobs at the mine. Employment and wage impacts generated by the mine include indirect impacts (the jobs and income supported by the mine's spending on the wide variety of goods and services that are required to operate the mine and

move coal to customers), as well as the induced impacts (the jobs and income created as a result of coal mine employees spending their wages in the local and regional economies). Furthermore, the company provides funds for capital projects throughout the region and supports more than 100 non-profit organizations statewide. The coal mine's foundation grants funds for various programs focused on education, health and social services, arts, and youth activities, and it also matches employee donations to various charitable organizations. In the past, the company has provided capital funding for several facilities at the University Alaska Fairbanks and the Greater Fairbanks Community Hospital Foundation's Surgery Center (Simon 2021).

Alaska Railroad Corporation. ARRC provides freight service to Fort Wainwright for munitions, household goods, and fuel. Trains make 25 total round trips per week carrying freight to Fort Wainwright, including four round trips to supply coal to the CHPP. The track to the installation also connects with the Fairbanks industrial spur line.

Coal trains operate between Healy and Fairbanks, 111 miles one way (ARRC 2019). Petroleum trains also operate between Fairbanks and Anchorage, 356 miles one-way. ARRC is exploring opportunities to rail LNG to the Fairbanks region using designated containers that could be placed on appropriate flatbed rail cars. It is possible that delivery by rail would be cheaper in the future and reduce additional truck traffic on the highway.

In 2018, ARRC employed 547 year-round and 138 seasonal workers statewide (ARRC 2019).

3.5.2 Environmental Consequences

3.5.2.1 Significance Criteria

An impact on socioeconomics would be considered significant if the Army action were to result in substantial changes on any of these socioeconomic indicators:

- Population levels
- Employment levels
- Business sale volumes
- Cost of living
- Income levels

3.5.2.2 No Action Alternative

Long-term, minor to moderate, adverse impacts during continued operations of the CHPP and temporary beneficial impacts during implementation of repairs and upgrades would be expected under the No Action Alternative. The existing CHPP and utilidor system would continue to be used, and no new facilities would be constructed. Certain actions would have to be done to keep the plant operational, including repairing/upgrading plant parts and technologies, upgrading approximately 27 miles

of utilidor pipeline, implementing BACT, and continuing to operate the CHPP boilers at the derated capacity (to bring plant emissions into compliance with air quality regulations and standards; see Section 2.5.1). Section 2.5.1 (No Action Alternative description) also provides information on costs associated with the implementation of BACT.

The System Owner would continue to invest money in the infrastructure as originally proposed in the UPC, while operational costs would continue to rise as discussed in Section 1.1.2. This capital investment would allow the System Owner to earn interest on its investment, which is the profit expected when the contract was originally signed in 2007. Continuing to operate the CHPP at reduced capacity could also potentially result in direct employment and income effects at the Fort Wainwright utility, and cause indirect effects on the businesses that supply coal and other goods and services to the utility, including the coal mine in Healy and the ARRC, which transports coal from Healy to the Fort Wainwright facility. Although there would be no substantial demolition or construction activities under the No Action Alternative, the repairs and upgrades noted above would result in temporary changes in employment and income in Fairbanks. Temporary jobs would be created to implement the repairs and upgrades to the CHPP and the utilidor system. Employment for O&M of the CHPP and utilidor system would be similar to current levels.

The No Action Alternative would not result in changes to the current population levels, housing conditions, or cost of living in the ROI.

3.5.2.3 Alternative 1 (Build a New Coal CHPP)

Construction Phase

Short-term, minor, beneficial impacts on socioeconomics would be expected during construction. Alternative 1 would involve construction of a new coal-fired CHPP and upgrades to the steam distribution system to replace the existing coal-fired CHPP. The existing CHPP would continue to operate until the new CHPP comes online and demolition of the old facility would occur following the operational transition.

Construction and demolition activities under Alternative 1 would be temporary and short term in nature. The Army's anticipated execution date would be contingent on availability of funding. Spending associated with demolition and construction activities would create a short-term stimulus in the FNSB region, particularly in Fairbanks, where most of the construction and other construction-related service providers are based. The estimated total spending during the construction phase is approximately $687 million (USACE 2018); this estimate includes $647 million for initial construction required to implement Alternative 1 and $40 million for demolition activities.

To quantify the employment and income effects resulting from this spending, an economic input-output model called IMPLAN was used. IMPLAN is a common tool used for estimating direct, indirect, and induced economic effects of a project. The economic effects for this analysis were measured at the regional level (FNSB). The

methods and assumptions used to conduct this analysis are further described in Appendix G.

Construction and demolition activities under Alternative 1 are estimated to generate approximately 2,700 direct, indirect, and induced jobs (includes both part-time and full-time jobs) and $183 million in labor income in the FNSB region during the construction phase.

Temporary workers would come from the borough labor pool and likely also temporarily relocate from elsewhere in Alaska or other states. This temporary relocation could result in minor changes in population and housing. There are no expected changes to the cost of living in the region. Total business sales associated with construction and demolition activities in the region are projected to amount to $287 million during the construction phase.

Operations Phase

Long-term, moderate, adverse and beneficial impacts on socioeconomics would be expected during operations under Alternative 1. Operation of the new CHPP as a cogeneration plant would continue to generate electricity and heat simultaneously into the future. It is assumed that the new plant would be capable of producing 45 MW of average heat energy annually and would operate as a cogeneration plant, in which the plant operates to follow the electricity load. Coal would continue to be the fuel source and would be stockpiled on the site; coal ash would continue to be disposed of at a landfill at Fort Wainwright or ash could potentially be disposed of in the lined landfill operated by FNSB, if FNSB agreed to accept it. The new plant would be capable of producing all the heating requirements and most of the electricity requirements at the installation. Any additional electricity requirements would be purchased directly from a local utility provider.

Annual spending on non-fuel O&M of the new central plant, distribution system, and building mechanical rooms is estimated to amount to $16.1 million. This annual O&M spending is projected to support 44 jobs (direct, indirect, and induced); generate $3.9 million in labor income; and generate $20.5 million in direct, indirect, and induced business sales in the Fairbanks region, as determined using the IMPLAN model.

The new and more efficient CHPP is expected to require less maintenance than the older existing facility; therefore, Alternative 1 would likely require fewer workers for O&M than the No Action Alternative. The IMPLAN model projects that the estimated level of annual O&M spending of the new CHPP would require 16 direct jobs; the model estimates direct employment based on national average workforce requirements for utilities given the level of annual O&M spending, but it is not specific to a utility like the CHPP. With a CHPP that would run 24 hours a day, 7 days a week, the number of workers required could be higher than the model projected. As described above, the existing CHPP currently supports 45 jobs.

Coal would continue to be the primary fuel for the new CHPP; however, the new and more efficient facility would require less coal than the existing facility. It is estimated that the new facility would require 161,147 tons of coal, or a 30 percent reduction from the coal consumption at the existing CHPP (USACE 2018). This decrease in coal consumption would reduce the business sales volume at the coal mine by about 12 percent. The reduced demand could in turn result in job and income losses in Healy, but it is uncertain how many of the 115 jobs at the mine would be affected by the reduction in the business sales volume.

Under Alternative 1, approximately 36 million kWh (36,000 megawatt-hours [MWh]) of electricity would be generated annually at the plant (only enough to satisfy the thermal loads). Additional electricity is expected to be purchased from the local electric utility in Fairbanks above and beyond that generated by the new cogeneration plant to meet Fort Wainwright's demand. It is estimated that approximately 66 million kWh (66,000 MWh) would be purchased from the local utility annually (USACE 2018). This volume represents a 5 percent increase in business volume of the utility. The increase is not expected to result in changes in employment and income in Fairbanks.

Under Alternative 1, no changes in population levels in the ROI are expected. There could be slight changes in the cost of utilities among the residents at Fort Wainwright because the new plant is expected to be more cost-efficient and utility fuel costs are expected to be lower.

As noted in Section 2.5.2, it is possible that the Army would utilize the existing UPC to construct a new, modern, coal-fired CHPP. In this scenario, the System Owner would invest substantially more money in the utility system, which would generate interest, resulting in a benefit to the System Owner. Therefore, the System Owner's net profit would be higher than originally projected in 2007 (Guernsey 2015, USACE 2018). Because the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, Doyon, Limited, any action taken that affects the income of Doyon, Limited is anticipated to affect the segment of the Alaska Native population that is a shareholder or beneficiary. Any further discussion regarding the effects of this alternative on the economic well-being of Doyon, Limited's shareholders (including its subsidiaries and beneficiaries) is speculative because of the UPC contracting processes of the System Owner and obligations of the Federal Acquisition Regulations managed by the DLA. During a consultative meeting between USAG Alaska and Doyon, Limited held on February 4, 2021, the Army requested shareholder economic data in support of the analysis (USAG Alaska 2021a). On February 4, 2022, the Army requested additional information regarding the social and economic impacts on Doyon, Limited and its shareholders from the proposed action (Schutt 2022). The data that were provided by Doyon, Limited during the Draft EIS comment periods, and in response to the Army's additional request, are presented in this EIS in Section 3.5.1.3. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations and would ensure that adherence to applicable property tax laws would be maintained. These contractual agreements are confidential and outside the scope of this analysis.

3.5.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Construction Phase

Short-term, minor, beneficial impacts on socioeconomics would be expected during construction. Alternative 2 would involve demolition of the existing CHPP and construction of a new dual-fuel combustion turbine generator CHPP. Similar to Alternative 1, the existing CHPP would continue to operate until the new CHPP comes online. Demolition of the old facility would occur following the operational transition.

The total estimated spending during the construction phase is $363 million (USACE 2018); this estimate includes $323 million for initial construction required to implement Alternative 1 and $40 million for demolition activities. Construction activities would generate short-term and temporary employment and income effects at the local (Fairbanks) and regional level (FNSB). It is estimated that construction and demolition activities would generate approximately 1,700 total direct, indirect, and induced jobs and generate $121 million in labor income. Total business sales in the region is expected to amount to $287 million during the construction phase. The Army may utilize the existing UPC to construct a new, modern, dual-fuel combustion turbine generator CHPP, which would result in similar benefits to the System Owner as described in Alternative 1.

Temporary workers would come from the borough labor pool and likely also temporarily relocate from elsewhere in Alaska or other states. The duration of construction and demolition work would not be long enough to result in any permanent changes to the local and regional socioeconomic conditions. No permanent changes to population, availability of housing, and cost-of-living are expected during the construction phase.

Operations Phase

Long-term, minor to locally significant, adverse and beneficial impacts on socioeconomics would be expected during operations under Alternative 2. It is assumed that the new plant would be capable of producing 45 MW of heat energy and would operate as a cogeneration plant, in which the plant operates to follow the electricity load; any additional electricity would be purchased from the local electric utility.

Non-fuel O&M of the new CHPP is estimated to cost $8.4 million annually. O&M activities are projected to support 28 direct, indirect, and induced jobs; generate $2.8 million in labor income; and generate $13.8 million in direct, indirect, and induced business sales in the FNSB region.

The new CHPP under Alternative 2 would likely require fewer workers for O&M than for the existing CHPP. The estimated level of annual O&M spending of the new CHPP is projected to require about 10 jobs. As previously noted, this estimate was determined using the IMPLAN model which estimates employment based on national

average data on workforce requirements for utilities per million dollars of spending on annual O&M, and it is not specific to a utility like the proposed CHPP. With a CHPP that would run 24 hours a day, 7 days a week, the number of workers required could be higher than the model projected. As described above, the existing CHPP currently supports 45 jobs.

As noted in Section 2.5.1, under Alternative 2, USAG Alaska would be required to secure a sustained supply of natural gas and ULSD, and the availability of natural gas in Alaska is sufficient to meet the installation's demand. It is assumed that natural gas would be supplied by the local gas utility provider via a pipeline to the installation, and ULSD would be sourced from existing refineries in the state, transported, and stored in ASTs located on the installation. The primary fuel for the new plant would be natural gas, and the secondary fuel would be ULSD.

The change in fuel source and delivery under Alternative 2 would increase business sales volume in the natural gas utility sector in the City of Fairbanks (in the FNSB).

The annual building heating load under Alternative 2 would require approximately 2,620,699 thousand cubic feet of natural gas (USACE 2018). This additional volume would require expansion of the pipeline distribution system in Fairbanks. It is assumed that the additional load would be accommodated by the proposed expansion consistent with the IEP.

In addition, long-term, moderate, beneficial impacts would result (increase in business sales) to the natural gas extraction sector in Cook Inlet, the LNG facility in Point MacKenzie, and truck transportation services (from Point MacKenzie to Fairbanks). The additional demand for LNG under Alternative 2 would amount to 32 million gallons of LNG per year. Expansion of the LNG facility and additional trucks and trailers would be required to meet this load. As noted above, expansion of the LNG facility is part of the IEP expansion plan.

In the long run, natural gas could also be transported via rail and could increase business volumes of the ARRC, which eventually may offset the decline in business volume associated with transporting coal from Healy to Fairbanks.

The switch in fuel from coal to natural gas for heating would result in a substantial reduction in coal sales from the coal mine in Healy. Therefore Alternative 2 would decrease the business sales volume of the coal mining sector in Healy, resulting in long-term, significant localized impacts.

The existing CHPP requires approximately 222,000 tons of coal per year. The coal mine in Healy produces 1.3 million tons of coal per year, supplying coal to power plants and facilities in the Alaskan interior. As a result of converting to natural gas under Alternative 2, the coal mine would lose approximately 18 percent of its annual sales. It is expected that this loss in sales would result in reduction in employment and income in Healy and the region (Denali Borough); however, it is uncertain exactly how many jobs would be affected. The coal mine currently has a workforce of

approximately 115 year-round employees. About 85 percent of its workforce is based in Healy, and these mining jobs are the highest paying jobs in the region. As noted above, it is difficult to project exactly how many jobs would be affected, but an 18 percent reduction in sales could result in a substantial reduction in workforce requirements at the mine and loss of labor income in the region, resulting in significant localized impacts. Downstream effects of the reduction in the business volume of the coal mine would also occur. In 2016, 422 Alaska businesses provided goods and services to and from the coal mine; these businesses, such as ARRC, would also experience a reduction in business. It was estimated that in 2016, between 15 and 20 ARRC employees were directly or indirectly tied to the movement of coal throughout Alaska (McDowell Group 2018).

Furthermore, there would be induced effects on businesses that provide goods and services to the mine workers and their families. A resulting reduction in labor income in the community would result in a reduction in business sales in stores, restaurants, recreational facilities, and personal services sectors.

In addition, under Alternative 2, demand would increase for ULSD, the backup fuel for the heating systems and emergency backup electricity generators at the installation.

A 14-day supply of backup ULSD fuel amounting to about 732,000 gallons would be required under Alternative 2. The 14-day supply of ULSD for this alternative was determined by using the total annual fuel requirements (2,620,699 MMBtu) noted in the USACE 2018 study and the heat content of ULSD (137,380 Btu per gallon). This increase in demand would have beneficial impacts on the refinery sector in the Kenai Peninsula Borough (Nikiski refinery) and in Valdez. Delivery of ULSD from these refineries would affect the truck transportation sector and/or ARRC. Truck and rail transportation sectors have adequate capacity to meet the ULSD requirements. The beneficial impacts on the business volumes, employment, and income of these sectors are expected to be minor and would not result in permanent changes in population, housing, and cost of living in the areas where the refineries are located.

Under Alternative 2, no substantial changes in population are expected in the ROI. However, changes in cost of living in the ROI associated with the cost of utilities could result. It is anticipated that the additional demand for natural gas would benefit the Fairbanks region by creating economies of scale in the proposed expansion of the natural gas distribution system in Fairbanks, thereby lowering the cost of natural gas and heating in the region. At least in the near-term, however, fuel costs at Fort Wainwright would increase because coal costs less than natural gas and ULSD, but the increased fuel costs would be offset by reduced capital costs under this alternative. A power plant that uses fuel other than coal would likely substantially increase fuel costs for the installation's Residential Communities Initiative housing privatization program (USACE 2018).

As noted in Section 2.5.3, under Alternative 2, although not explicitly required in the UPC, the Army could possibly utilize the existing UPC to construct the new dual-fuel combustion turbine generator CHPP. In this scenario, the System Owner would invest

more money in the utility system than in its original proposal and its net profit would be much higher than originally projected in 2007 (Guernsey 2015, USACE 2018). Because the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, Doyon, Limited, any action taken that affects the income of Doyon, Limited is anticipated to affect the segment of the Alaska Native population that is a shareholder or beneficiary. Any further discussion regarding the effects of this alternative on the economic well-being of Doyon, Limited's shareholders (including its subsidiaries and beneficiaries) is speculative because of the UPC contracting processes of the System Owner and obligations of the Federal Acquisition Regulations managed by the DLA. During a consultative meeting between USAG Alaska and Doyon, Limited held on February 4, 2021, the Army requested shareholder economic data from Doyon, Limited in support of the analysis (USAG Alaska 2021a). On February 4, 2022, the Army requested additional information regarding the social and economic impacts on Doyon, Limited and its shareholders from the proposed action (Schutt 2022). The data that were provided by Doyon, Limited during the Draft EIS comment periods, and in response to the Army's additional request, are presented in this EIS in Section 3.5.1.3. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations and would ensure that adherence to applicable property tax laws would be maintained. These contractual agreements are confidential and outside the scope of this analysis.

3.5.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Construction Phase

Short-term, minor, beneficial impacts on socioeconomics would be expected during construction under Alternative 3. The existing CHPP would be demolished and replaced with a decentralized system. Multiple high-efficiency natural gas-fired boilers would be installed at facilities across the installation to provide heat.

Construction and demolition activities for Alternative 3 are estimated to cost $117 million, including $61.5 million for installation of new facilities and demolition of the existing heat exchangers, $40 million for the demolition of the existing CHPP, and $13.2 million for 6 MW in standby generators for mission-critical facilities; there would be additional costs for 20 MW of backup to support other facilities (USACE 2018).

The construction and demolition activities would result in short-term, minor, beneficial impacts on employment, income, and sales in the construction and other support sectors in the Fairbanks region during the construction period. The projected total direct, indirect, and induced effects in the FNSB during the entire construction and demolition phase include 500 jobs (average part-time and full-time), $42.2 million in labor income, and $103 million in total business sales. The installation of individual boilers may be executed under the UPC by the System Owner, through a UESC, or by competitive bid. If Alternative 3 is executed, resulting benefits to the System Owner would be similar to those described in Alternatives 1 and 2.

The job estimates are by place of work; these jobs can be held by workers from outside the FNSB region. Temporary relocation of workers could occur during the construction phase, but no permanent or long-term effects on housing, cost of living, and population associated with the construction and demolition activities are projected.

Operations Phase

Long-term, minor to locally significant, adverse and beneficial impacts on socioeconomics would be expected during the operations phase under Alternative 3. Because the existing CHPP would be demolished, the annual O&M expenses for the central plant facilities would be eliminated. Annual non-fuel O&M costs under this alternative were estimated to amount to $1.6 million. Annual costs would include O&M of the boilers, the distribution system (water and wastewater), and the mechanical room (for the boilers). The natural gas distribution system would be owned by the gas utility, and O&M costs for the pipeline system would be included in the natural gas rates (USACE 2018).

The projected annual direct, indirect, and induced effects in the FNSB associated with the non-fuel O&M of the new facilities include 10 jobs (average part-time and full-time), $1.1 million in labor income, and $2.4 million in total business sales. Under Alternative 3, the System Owner would still invest more money in the utility system as compared to the original UPC awarded in 2007, whether it installs the distributed boilers or not. The capital investment would be even larger if the System Owner does install the distributed boilers. Therefore, the System Owner's net profit would still be more with or without this project than it was originally projected in 2007 (Guernsey 2015, USACE 2018). The portion of the UPC covering the ownership and operation of the CHPP and its distribution system would not continue because a central CHPP would no longer be involved. A new UPC for this utility would be open to competition or the government may decide to retain the ownership of the new system and operate it in-house or via a separate contract. While the System Owner could compete for that contract and might be awarded that contract, this is not known. Because the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, Doyon, Limited, any action taken that affects the income of Doyon, Limited is anticipated to affect the segment of the Alaska Native population that is a shareholder or beneficiary of Doyon, Limited. The possibility that the System Owner would not continue as the UPC contractor is greater under Alternative 3, than under Alternatives 1 and 2. This possibility cannot be quantified or predicted, but it means that under Alternative 3; therefore, there is a greater possibility that the support the System Owner provides to Doyon, Limited would be reduced; and this would mean that payments to shareholders would be reduced, and that grants and other programs would be reduced relative to Alternatives 1 and 2. Any further discussion regarding the effects of this alternative on the economic well-being of Doyon, Limited's shareholders (including its subsidiaries and beneficiaries) is speculative because of the UPC contracting processes of the System Owner and obligations of the Federal Acquisition Regulations managed by the DLA. Anticipating the potential revenue losses from the System Owner to Doyon, Limited would be speculative because the UPC is a

regulated, tariff-based contract with a rate that is subject to change (as opposed to a foreseeable fixed-price contract); and because the Army cannot anticipate how the System Owner or Doyon, Limited would allocate profits through the life of the remaining contract to 2058 (i.e., profits could [1] be passed to shareholders, [2] reinvested to build equity, or [3] a combination of both).

During a consultative meeting between USAG Alaska and Doyon, Limited held on February 4, 2021, the Army requested shareholder economic data the in support of the analysis (USAG Alaska 2021a). On February 4, 2022, the Army requested additional information regarding the social and economic impacts on Doyon, Limited and its shareholders from the proposed action (Schutt 2022). The data that were provided by Doyon, Limited during the Draft EIS comment periods, and in response to the Army's additional request, are presented in this EIS in Section 3.5.1.3. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations and would ensure that adherence to applicable property tax laws would be maintained. These contractual agreements are confidential and outside the scope of this analysis. Property tax would be influenced by design and ownership structure.

Under Alternative 3, all electricity requirements would be purchased from the local electric utility provider in Fairbanks. The annual electric load, which was calculated as the average of the most recent 3 years of the current utility, would be about 102,000 MWh (USACE 2018). This electric load represents the installation's foundational electric load (excludes the historical station service load and the exported power). The annual electricity requirements for the installation would represent approximately a 9 percent increase in the annual sales of the local electric utility provider. The local electric utility has enough capacity to absorb the additional load; in addition to its own 381-MW generation capacity, an additional 70 MW could be wheeled from electric utilities in the Anchorage area through the Fairbanks-Anchorage Intertie. Given its diverse fuel/energy source mix of oil, coal, natural gas, hydroelectric power, and wind, the local electric utility would most likely satisfy Fort Wainwright's electrical load through the use of the energy source that is least expensive at that time. It is anticipated that, given the current capacity, the employment and income effects on the local electric sector would be marginal.

Similar to Alternative 2, a sustained supply of natural gas to support boiler operations across the installation would be purchased from the local natural gas provider and delivered by pipeline to the installation. In addition, ULSD, which would be used for backup fuel, would be stored in ASTs located on the installation. ULSD-reciprocating internal combustion generators would be used as emergency backup power or heat sources for boilers.

The change in fuel source and delivery under Alternative 3 would result in a change in business sales in the ROI for fuel providers and the coal mining sector. Business sales at the coal mine in Healy (Denali Borough) would decline, and business sales volume in the natural gas utility sector in the City of Fairbanks (FNSB) would increase.

Significant localized impacts at the coal mine in Healy would be similar those discussed under Alternative 2.

The annual building heating load under Alternative 3 would require approximately 1,555,389 thousand cubic feet of natural gas (USACE 2018). This additional volume would require expansion of the pipeline distribution system in Fairbanks. It is assumed that the additional load would be accommodated by the proposed expansion consistent with the IEP.

In addition, moderate beneficial impacts (increase in business sales) on the natural gas extraction sector in Cook Inlet, the LNG facility in Point MacKenzie, and truck transportation services (from Point MacKenzie to Fairbanks) would also result. The additional demand for LNG under Alternative 3 would amount to 19 million gallons of LNG per year. Expansion of the LNG facility and additional trucks and trailers would be required to meet this load. As noted above, expansion of the LNG facility is part of the IEP expansion plan.

In the long term, natural gas could also be transported by rail and could increase ARRC business volumes and eventually offset the decline in business volume associated with transporting coal from Healy to Fairbanks.

In addition, demand for ULSD, the backup fuel for the heating systems and emergency backup electricity generators at the installation, would increase.

A 14-day supply of backup ULSD fuel amounting to about 326,000 gallons would be required under Alternative 3. This increase in demand would have beneficial impacts on the refinery and transportation sectors similar to those discussed for Alternative 2. The beneficial impacts on the business volumes, employment, and income of these sectors are expected to be minor and would not result in permanent changes in population, housing, and cost-of-living in the areas where the refineries are located.

Under Alternative 3, no substantial changes in population are expected in the ROI; however, there could be changes in cost of living in the ROI associated with the fuel cost changes, similar to those discussed under Alternative 2.

3.6 Environmental Justice

3.6.1 Affected Environment

The ROI for the assessment of potential disproportionate impacts on minority and low-income populations and children's environmental health and safety is defined as the geographic areas within the FNSB and Denali Borough described below.

Within the FNSB, the ROI includes the CHPP project site and areas in the immediate vicinity, as well as the potential routes that truck traffic related to project construction would use. The five census tracts that are located within proximity to or encompass this portion of the ROI are shown in Figure 3.6-1. The Fort Wainwright Main Post, together with the Tanana Flats Training Area, are located in FNSB Census Tract 11.

The installation's Main Cantonment Area lies within Fairbanks city limits. Census Tract 1 encompasses downtown Fairbanks; Census Tract 3 encompasses south Fairbanks; Census Tract 10 encompasses FAI and South Van Horn; and Census Tract 14 encompasses Badger West (Alaska Department of Transportation and Public Facilities [ADOT&PF] 2019a).

In addition, because FNSB covers a broad area, several small communities surrounding Fort Wainwright are included in the ROI to achieve a more accurate representation of potentially affected minority and low-income populations. Given that human health and safety effects associated with changes in air quality are potential effects of the Proposed Action, communities within the FNSB CO maintenance area and the serious nonattainment area for $PM_{2.5}$ (see Figure 3.2-1). The three communities within these areas are shown in Figure 3.6-1.

Within the Denali Borough, the ROI includes the community of Healy. The potential employment effects of potential changes in production at the coal mine in Healy would be concentrated in this community, where most of the mine employees live.

3.6.1.1 Definition of Resource

The definition of minority as defined by the CEQ guidelines is Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and multi race that includes one of these races; and Hispanic or Latino. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above stated thresholds (CEQ 1997a). Low-income populations are identified in this analysis by using the statistical poverty threshold of the U.S. Census Bureau (USCB), which is based on income and family size.

For the purposes of this environmental justice analysis, children are defined as people 17 years of age and under.

EO 12898 also requires that federal agencies analyze the environmental effects, including human health, economic, and social effects, of federal actions on tribal populations. None of the communities in the ROI are associated with federally recognized tribes. Consultation with tribes is discussed in Section 3.13, Cultural Resources.

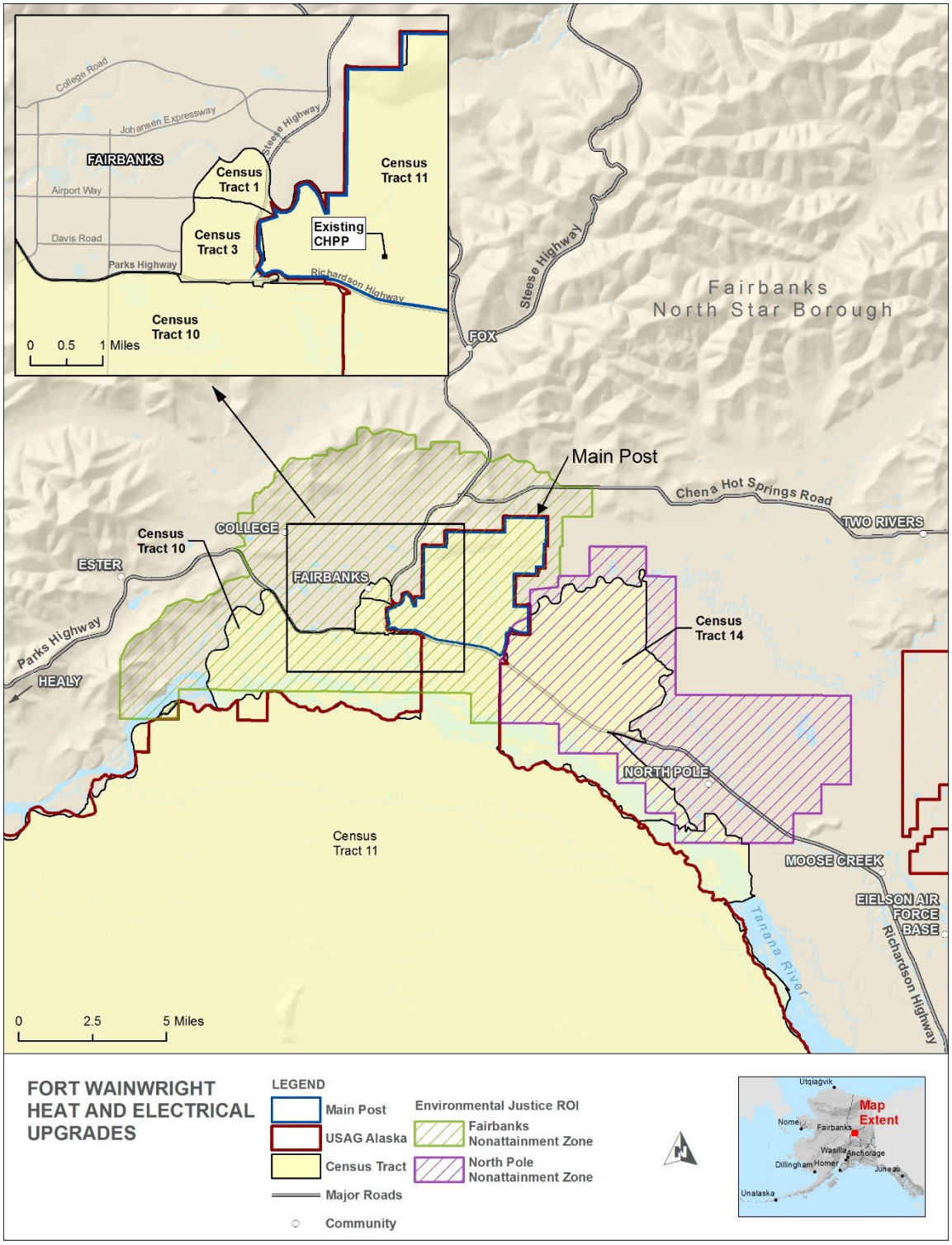


Figure 3.6-1. Geographic Areas in the Environmental Justice ROI

3.6.1.2 Environmental Laws, Regulations, and Executive Orders

Minority and Low-Income Populations

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, pertains to environmental justice issues and relates to various socioeconomic groups and the disproportionate effects that could be imposed on them. This EO requires that the actions of federal agencies substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was enacted to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in EO 12898.

Children's Environmental Health and Safety

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, states that each federal agency "(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." Specifically, the EO requires an evaluation about whether a proposed action would have disproportionate environmental health and safety effects on children.

3.6.1.3 Current Condition

Following 1997 CEQ guidelines for environmental justice analyses, this analysis identified a census tract or community within the ROI as an area of potential environmental justice concern if (1) the minority population exceeds 50 percent or (2) the minority or low-income population percentage is meaningfully greater than the minority or low-income population percentage in a reference population. For the purposes of this analysis, the reference population is the population of Alaska. The decision threshold when there is a "meaningfully greater" percentage of minority or low-income individuals than in the reference population is based on the following equation:

> (minority or low-income population in ROI census tract or community/total population in ROI census tract or community)
>
> divided by
>
> (minority or low-income population in reference area/total population in reference area)

If the equation results in a number greater than one, a greater proportion of minority or low-income individuals resides in the ROI census tract or community than in Alaska as a whole.

Table 3.6-1 presents race, ethnicity, and poverty data for the ROI. For the purposes of comparison, all information in the table is based on 2017 American Community Survey 5-year estimates (USCB 2019). Areas of potential environmental justice concerns in the ROI, together with the minority and low-income metric upon which the area identifications were based, are shaded in gray in the table.

As shown in Table 3.6-1, USCB data identified two FNSB census tracts in the ROI that met the criteria as areas of potential environmental justice concern based on minority or low-income metrics: Census Tracts 1 and 3. Census Tract 11, which encompasses Fort Wainwright, and the FNSB as a whole did not have minority populations that were greater than 50 percent of the population and did not have minority population percentages meaningfully greater than the minority population percentage of 34.7 percent for the State of Alaska nor did they have a low-income population percentages meaningfully greater than the low-income population percentage of 10.2 percent for the State of Alaska.

The System Owner parent ANC, Doyon, Limited, identified that Census Tract 3 has the highest percentage of Alaska Natives and American Indians among the Census Tracts within the ROI, a total minority population that is almost 20 percentage points higher than Alaska's total minority populations, and a percentage of individuals living in poverty that is close to nine percentage points higher than Alaska's corresponding percentage. According to Doyon, Limited, a majority of its shareholders working at the CHPP live outside of the ROI; two shareholders live within Census Tract 3 (Schutt 2022).

Among the nine FNSB communities in the ROI, two met the criteria as areas of potential environmental justice concern based on minority and/or low-income metrics: Fairbanks and Fox. The USCB data did not identify Healy, where most of the coal mine employees live, as an area of potential environmental justice concern based on minority or low-income metrics. The Denali Borough as a whole, however, had a low-income population percentage meaningfully greater than the percentage for Alaska.

Healy is the home of Alaska's only operating coal mine, and the mine directly or indirectly accounts for many of the jobs in the community. Although Healy is primarily a coal-mining town, tourism also greatly affects the economy during summer months (see Section 3.5, Socioeconomics). The community had a population of 1,057 in 2018. The minority proportion of the population is 21 percent, and the low-income proportion is 8 percent (see Table 3.6-1). In comparison, 35 percent of the population of the State of Alaska as a whole identify themselves as minority group members, and 10 percent live below the poverty threshold.

Table 3.6-1. Race, Ethnicity, and Poverty Data for Geographic Areas in the ROI

Location	Total Population	White[a] (%)	Black or African American[b] (%)	Alaska Native and American Indian[b] (%)	Native Hawaiian and Other Pacific Islander[b] (%)	Asian[b] (%)	Some Other Race (%)	Hispanic or Latino[c] (%)	Total Minority[d] (%)	Individuals Living in Poverty[e] (%)
Alaska	738,565	65.3	3.2	14.2	1.2	6.2	1.4	6.8	34.7	10.2
Fairbanks North Star Borough	100,031	76.2	4.2	6.8	0.5	3.1	1.0	7.7	23.8	7.7
Census Tract 1	1,330	73.4	2.1	14.4	0.0	2.2	0.0	6.5	26.6	15.4
Census Tract 3	4,087	47.8	11.8	17.0	0.1	6.6	0.4	5.9	52.2	18.9
Census Tract 10	1,633	81.0	1.2	7.7	1.0	0.0	0.0	0.6	19.0	6.2
Census Tract 11[f]	9,219	70.1	12.0	1.1	1.1	4.6	2.3	18.2	29.9	6.7
Census Tract 14	6,842	83.6	2.2	3.3	0.0	1.3	0.4	5.2	16.4	6.9
College	14,362	71.1	5.1	7.5	0.4	5.1	0.2	5.1	28.9	5.4
Fairbanks	31,853	65.3	8.3	8.7	1.3	5.0	1.9	11.9	34.7	11.9
North Pole	2,319	78.8	8.5	2.9	0.0	4.2	0.3	1.0	21.2	8.6
Denali Borough	2,303	83.0	0.2	2.2	0.0	4.7	0.2	0.7	17.0	15.5
Healy	1,098	79.4	0.0	1.1	0.0	8.0	0.0	0.0	20.6	7.8

Notes:

Source: USCB 2019

a. Alone, non-Hispanic or Latino.
b. Alone or in combination with one or more other races.
c. Of any race.
d. Total minority – 100 percent minus “White, non-Hispanic or Latino.”
e. Population for low-income population identification differs from total population.
f. Census Tract 11 encompasses Fort Wainwright.

Several facilities on the Fort Wainwright Main Post are sensitive receptors (i.e., schools, a daycare facility, a fitness center, and a recreation center) in which a large number of children may gather at some point during an average week; however, only one of these facilities—the Physical Fitness Center, located near the intersection of Oak Avenue and Meridian Road—is located within 200 feet of the project site. Aside from this facility, three other facilities—the Outdoor Recreation Center, located near the intersection of Glass Drive and Gaffney Road; the Child Development Center I, located near the intersection of 600th Street and Gaffney Road; and the Child Development Center II, located near the intersection of 600th Street and Spruce Street—are close to the route that traffic related to project construction would take to get to and from the project site. In addition to these facilities, children reside with their families in on-post housing, use sidewalks, and possibly recreate within 200 to 300 feet of the proposed construction traffic routes. Off-post, no facilities that host a large number of children during an average week are known to be located within 200 to 300 feet of the proposed project construction routes, but some children may reside in off-post homes or use sidewalks and recreation areas that are located within this distance of the routes.

3.6.2 Environmental Consequences

3.6.2.1 Significance Criteria

An impact on environmental justice would be considered significant if the Army action were to result in either of the following:

- Disproportionate high and adverse economic, social, or health impacts on minority or low-income populations
- Substantially disproportionate environmental health or safety risks to children

As directed by EO 12898, the analysis considers the following factors when determining whether effects are disproportionately high and adverse:

- Whether there is or would be an impact on the natural or physical environment that significantly (as defined by NEPA) and adversely affects a minority, low-income, or tribal population. Such effects may include ecological, cultural, human health, economic, or social impacts on minority, or low-income communities when those impacts are interrelated to impacts on the natural or physical environment.
- Whether environmental effects are significant (as defined by NEPA) and are or may have an adverse impact on minority, low-income, or tribal populations that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group.
- Whether the environmental effects occur or would occur in a minority or low-income population affected by cumulative or multiple adverse exposures from environmental hazards.

With respect to the Proposed Action, the primary factors that may result in disproportionately high and adverse effects on minority and low-income populations

include changes in socioeconomic (e.g., income, housing, employment) and human health and safety resources. Potential changes to these resources under each alternative are discussed in detail in Section 3.5, Socioeconomics, and Section 3.10, Human Health and Safety, respectively.

3.6.2.2 No Action Alternative

Under the No Action Alternative, long-term, minor to moderate, adverse impacts on environmental justice populations would be expected. USAG Alaska would continue to use the existing CHPP and utilidor system. Although CHPP emissions are within air quality thresholds, the emissions from coal combustion at the CHPP would continue to be a potential source of health problems for the populations of Fairbanks and surrounding communities within the FNSB CO maintenance area and the serious nonattainment area for $PM_{2.5}$ (see Figure 3.6-1). As shown in Table 3.6-1, some census tracts and communities in these areas contain concentrations of minority and/or low-income populations. The adverse health impacts on minority or low-income populations resulting from air pollution would likely be somewhat greater than those experienced by non-minority or non-low-income members of the general population who also reside in the affected areas. Although minority or low-income populations would not be expected to experience higher exposures to the environmental hazards, these population groups tend to be more burdened with adverse health conditions that either have environmental triggers or affect similar physiological systems as environmental hazards, such as cardiovascular disease, preterm birth, low birth weight, and asthma (EPA 2016). These pre-existing disease and adverse health conditions can increase susceptibility to the effects of exposure to environmental hazards. For example, American Indian/Alaska Natives are at greater risk of serious health effects from particle air pollution because of the relatively high prevalence rate of asthma, cardiovascular disease, and diabetes in this ethnic group (American Lung Association [ALA] 2018, U.S. Department of Health and Human Services [DHHS] 2019). Evidence shows that people who have low incomes also may face higher risk from air pollution (ALA 2018). To the extent that CHPP operation contributes to air pollution in the Fairbanks area, the No Action Alternative could have a disproportionately high and adverse impact on the health of minority and low-income populations in the area.

Under the No Action Alternative, short-term, minor adverse impacts on traffic may occur as a result of the utilidor upgrades and replacements (see Section 3.9, Transportation and Traffic). As described in Section 3.10, Human Health and Safety, the repairs and upgrades would be completed under SOPs designed to protect human health and safety; therefore, no minority or low-income populations would incur disproportionate effects. This capital investment would allow the System Owner to earn interest on its investment, which is the profit expected when the contract was originally signed in 2007.

The CHPP and utilidor infrastructure are well beyond their life expectancies, and to the extent that failures result in loss of heat and power in the winter, the No Action Alternative could have moderate to significant adverse impacts on both the mental and physical health of Fort Wainwright residents as stated in Section 3.10, Human Health and Safety).

These impacts would not affect minority or low-income residents of Fort Wainwright any more than non-minority or non-low-income residents.

Under the No Action Alternative, minor and temporary increases in employment and income would be expected as a result of the plant repairs and upgrades noted above. See Section 3.5, Socioeconomics. These socioeconomic benefits would accrue to minority and low-income populations in the ROI as well as the general population. Employment for O&M of the CHPP and utilidor system would be similar to current levels. A large share of these O&M employment benefits would accrue to Alaska Natives. As described in Section 3.5, Socioeconomics, more than one-third of the employees involved in the operation of the CHPP are shareholders of the ANC that holds a 50 percent ownership in the System Owner.

Adverse impacts on air result in environmental health and safety risks that could especially affect children. Some physiological and behavioral traits of children render them more susceptible and vulnerable than adults to health risks associated with environmental hazards (EPA 2008). Children may be more highly exposed to contaminants because they generally eat more food, drink more water, and have higher inhalation rates relative to their size. Also, children's normal activities, such as putting their hands in their mouths or playing on the ground, can result in higher exposures to contaminants as compared with adults. Children may be more vulnerable to the toxic effects of contaminants because their bodies and systems are not fully developed and more easily harmed. To the extent that CHPP operation contributes to air pollution in the Fairbanks area, the No Action Alternative could have minor to moderate adverse impacts on the health of children in the area.

3.6.2.3 Alternative 1 (Build a New Coal CHPP)

Under Alternative 1, long-term, minor to moderate, adverse and beneficial impacts on environmental justice and child populations would be expected. Although coal would be retained as the primary fuel, modern technology for minimizing emissions would be expected to reduce emissions that contribute to health problems from those under the No Action Alternative. Given that environmental justice populations tend to be more burdened with adverse health conditions that can increase susceptibility to the harmful effects of air pollution, the beneficial health impacts of reducing emissions may be greater than those experienced by non-minority or non-low-income members of the general population who reside in the affected area.

It is not anticipated that traffic related to construction and demolition activities occurring under Alternative 1 could have a disproportionately high and adverse impact on the health and safety of minority or low-income populations. Although it is expected that trucks hauling construction materials and demolition debris would have a short-term, minor impact on traffic volume on the haul route roads, the roads to be traveled are separated from residences by trees, berms, landscaping buffers, or fencing for most of their length, and these routes are currently heavily travelled by trucks.

Employment opportunities related to construction and demolition activities would be short term. Temporary workers would come from the FNSB labor pool and/or would temporarily relocate from elsewhere in Alaska or the contiguous United States (see Section 3.5, Socioeconomics). The beneficial impacts of new employment opportunities on minority and low-income populations would be similar to those experienced by non-minority or non-low-income members of the general population. It is not anticipated that the duration of construction and demolition work would be long enough to induce any permanent changes to regional demographics or housing.

As described in Section 3.5, Socioeconomics, the new CHPP under Alternative 1 is expected to require less maintenance than the existing facility; therefore, Alternative 1 would likely require fewer workers for O&M than for the No Action Alternative. Given that more than one-third of the employees involved in the operation of the CHPP are shareholders of the ANC that holds a 50 percent ownership in the System Owner, the reduction in employment at the CHPP under Alternative 1 could have an adverse economic impact on Alaska Natives. Section 3.5, Socioeconomics, also notes that the System Owner's net profit under Alternative 1 would be higher than originally projected in 2007. Because the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, Doyon, Limited, any action taken that affects the income of the ANC is anticipated to affect the segment of the Alaska Native population that is also a shareholder of the specific ANC. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations and would ensure that adherence to applicable property tax laws would be maintained. These contractual agreements are confidential and outside the scope of this analysis.

The reduction in coal power plant emissions and resulting improvement in air quality expected to occur under Alternative 1 would have a beneficial impact on environmental populations and on children's health. During the project construction and demolition phase, construction and demolition contractors would be required to erect temporary project safety fencing around the entire perimeter of the project site. Consequently, it is anticipated that onsite construction and demolition activities would not pose harm to children on the Main Post.

Four on-post facilities—the Physical Fitness Center, Outdoor Recreation Center, Child Development Center I, and Child Development Center II—are locations where a large number of children may gather at some point during an average week and are located adjacent to potential routes that truck traffic related to project construction and demolition would use. Although it is anticipated that trucks involved in project construction and demolition activities would have a short-term, minor impact on traffic volume on existing roads in and off the installation, these roads are already heavily travelled by trucks. Truck operators would be expected to comply with all laws and regulations that govern the transportation of demolition and hazardous material debris and to follow posted speed limits and other roadway safety measures. As a result, it is anticipated that traffic related to construction and demolition activities would not pose harm to children on or off the installation.

3.6.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Under Alternative 2, long-term, minor to locally significant, adverse and beneficial impacts on environmental justice and child populations would be expected. The replacement of the existing CHPP with a natural gas-fired power plant would result in health and safety benefits for minority and low-income populations. Because natural gas facilities generate fewer emissions than state-of-the-art coal-fired facilities, air emissions would be expected to be somewhat cleaner than those under Alternative 1 as well as the No Action Alternative (see Section 3.10, Human Health and Safety). Consequently, the beneficial impacts to the health of environmental justice populations under Alternative 2 would be greater than under Alternative 1 and the No Action Alternative.

As described in Section 3.5, Socioeconomics, the new CHPP under Alternative 2 would likely require fewer workers for O&M than for the existing CHPP. Given that more than one-third of the employees involved in the operation of the existing CHPP are shareholders of the ANC that holds a 50 percent ownership in the System Owner, the reduction in employment under Alternative 2 could have an adverse economic impact on Alaska Natives. Section 3.5, Socioeconomics, also notes that under Alternative 2 the System Owner would invest more money in the utility system than in its original proposal and its net profit would be much higher than originally projected in 2007. Because the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, any action taken that affects the income of the ANC is anticipated to affect the segment of the Alaska Native population that is also a shareholder of the specific ANC. Regardless of the alternative selected and in consideration of the UPC, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.

As described in Section 3.5, Socioeconomics, switching the fuel for the CHPP from coal to natural gas would result in a significant sales decrease at the coal mine in Healy, which, in turn, would result in a substantial reduction in employment and income in the community. As shown in Table 3.6-1, minority and low-income populations account for lower proportions of the total Healy population than they do for the State of Alaska population as a whole. Moreover, a reduction in jobs at the coal mine would have an adverse economic effect on the inhabitants of Healy, regardless of their racial/ethnic background. Consequently, the adverse economic impacts of mine job losses on Healy's minority population would be expected to be similar to those experienced by the general population of the community. If the loss of high-paying jobs at the mine results in displacement of low-paid workers in other parts of the local economy, such as the retail and service sector, Healy's low-income households could experience disproportionately high and therefore significant localized adverse economic effects because, as with low-income households across the country, they have fewer financial resources to cope with job losses and a general economic downturn in the community.

The reduction in coal power plant emissions and resulting improvement in air quality expected to occur under Alternative 2 would have a beneficial impact on children's health.

3.6.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Under Alternative 3, long-term, minor to locally significant, adverse and beneficial impacts on environmental justice and child populations would be expected. Similar to Alternative 2, the replacement of the existing CHPP with distributed boilers would result in health and safety benefits for minority and low-income populations. Because natural gas facilities generate fewer emissions than state-of-the-art coal-fired facilities, air emissions would be expected to be somewhat cleaner than those under Alternative 1 as well as the No Action Alternative (see Section 3.10, Human Health and Safety). Consequently, the beneficial impacts on the health of environmental justice populations under Alternative 3 would be greater than under Alternative 1 and the No Action Alternative. The potential adverse health and safety impacts of construction and demolition activities occurring under Alternative 3 would be the same as discussed for Alternatives 1 and 2.

As described in Section 3.5, Socioeconomics, the decentralized heat and power facilities under Alternative 3 would likely require fewer workers for O&M than the for existing CHPP. Given that more than one-third of the employees involved in the operation of the existing CHPP are shareholders of the ANC that holds a 50 percent ownership in the System Owner, the reduction in employment under Alternative 3 could have an adverse economic impact on Alaska Natives. Section 3.5, Socioeconomics, also notes that under Alternative 3, the System Owner's net profit would be more than it was originally projected in 2007. Because the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, any action taken that affects the income of the ANC is anticipated to affect the segment of the Alaska Native population that is also a shareholder of the specific ANC. Regardless of the alternative selected and in consideration of the UPC, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.

As described in Section 3.5, Socioeconomics, the transition of USAG Alaska to a decentralized heat and power model would result in a significant sales decrease at the coal mine in Healy, which, in turn, would result in a substantial reduction in employment and income in the community. As under Alternative 2, Healy's low-income households could likely experience disproportionately high and therefore significant localized adverse economic effects because, as with low-income households across the country, they have fewer financial resources to cope with job losses and a general economic downturn in the community.

3.7 Noise

3.7.1 Affected Environment

The ROI for noise is defined as the area surrounding the existing CHPP and any area adjacent to proposed construction and operation activities. This area is essentially the Fort Wainwright Main Cantonment Area.

3.7.1.1 Definition of Resource

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, can be steady or impulsive, and can involve a number of sources and frequencies. Human responses to similar noise events are influenced by many factors, including the type of noise, the type of activity during which the noise occurs, the distance between the noise source and the receptor, the time of day, and noise sensitivity of the individual.

Sound intensity is quantified using decibels (dBs), a measure of sound pressure level. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. In some instances, A-weighting may be applied to the dB to approximate a frequency response expressing the perception of sound by the human ear and deemphasizing the higher and lower frequencies that the human ear does not perceive well. The unit for this type of measurement is an A-weighted decibel (dBA). Sounds encountered in daily life, their approximate noise levels, and the average human responses are provided in Table 3.7-1.

Table 3.7-1. Common Sounds

Noise Level (dB)	Common Sound	Average Human Response
10	Leaves rustling, calm breathing	Negligible
30	Soft whisper	Very quiet
50	Quiet urban daytime	Quiet
60	Normal conversation	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock	Annoying
90-100	Heavy truck, city traffic, or gasoline lawnmower	Very annoying
110	Impact pile driver	Strained vocal effort
120	Jet take-off at 200 feet or auto horn at 3 feet	Maximum vocal effort
140	Carrier deck jet operation	Very loud
150	Jet engine at 160 feet	Painfully loud

Sources: EPA 1971, EPA 1981

Equivalent sound level (L_{eq}) and day-night sound level (DNL) are other metrics that have been developed to describe noise. L_{eq} is the average sound level in dB of a given event or period of time. DNL is the average sound energy in a 24-hour period with a penalty of 10 dB added to nighttime (10 p.m. to 7 a.m.) levels. DNL is a useful descriptor for aircraft noise because it: (1) averages ongoing yet intermittent noise, and (2) measures total

energy over a 24-hour period. Similar to A-weighting applied to dBs, A-weighting may also be applied to DNL, and is known as A-weighted day-night sound level (ADNL). Military impulsive sounds (e.g., explosions, artillery blasts) can be felt as well as heard and use C-weighting, in which the low-frequency components of these sounds are not de-emphasized to the same extent as in A-weighting. This metric is known as C-weighted day-night level (CDNL). DNL provides a measure of the overall acoustical environment, but it does not directly represent the sound level at any given time.

The range of audible sound levels for humans is considered to be zero to 130 dBA. It is widely acknowledged that most humans can just barely perceive a noise level change of 3 dBA and that the threshold for perception of a noise level change is 5 dBA. A noise level that increases by 10 dBA is typically perceived as being twice as loud as what was previously heard, and a noise level that decreases by 10 dBA is perceived as being half as loud. Atmospheric conditions such as wind, temperature gradients, and humidity can change how sound propagates over larger distances and can affect the level of sound received at a given location. Ground surfaces can also affect sound propagation; for example, sound traveling over an acoustically absorptive surface such as grass will weaken at a greater rate than if the sound was traveling over pavement or ice. Barriers such as buildings and topography that block the line of sight between a noise source and receptor can also weaken the propagation of a sound (USAG Fort Wainwright 2017b).

3.7.1.2 Environmental Laws, Regulations, and Executive Orders

The following environmental laws, regulations, and EOs are relevant for an evaluation of noise in the current condition and environmental consequences:

- *AR 200-1 (Environmental Protection and Enhancement).* Major program goals include control operational noise to protect the health and welfare of people on- and off-post, reduce community annoyance from operational noise to the extent feasible, and actively engage local communities in land use planning in areas subject to high levels of operational noise and in areas with a high potential for noise complaints. The regulation also defines noise limits for Noise Zones I, II, and III, and provides thresholds for the risk of noise complaints. See Section 3.7.1.3 for more information on Army noise policy and program requirements in AR 200-1.
- *42 U.S.C. § 4901 et seq. (Noise Control Act of 1972).* The Noise Control Act established a national policy to promote an environment free from noise that jeopardizes human health and welfare. It serves to establish a means for effective coordination of federal research and activities in noise control; authorizes the establishment of federal noise emission standards; provides information to the public respecting noise emissions; and directs federal agencies to comply with applicable federal, state, and local noise control regulations.
- *29 CFR § 910.95 (Occupational Noise Exposure)*. OSHA established standards that regulate occupational noise exposure. The minimum requirement states that constant noise exposure for workers must not exceed 90 dBA during an 8-hour period. The highest allowable sound level to which workers can be constantly

> exposed is 115 dBA, and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure to 140 dBA. If noise levels exceed these standards, employers are required to provide personal protective equipment (PPE) to reduce sound levels to acceptable limits.

The City of Fairbanks does not have a specific noise ordinance that sets quantitative noise standards; however, construction noise is addressed qualitatively under *Fairbanks General Code*, Chapter 46, Article II, Section 46.42(a)(3) (Disturbing the Peace):

> A person commits the offense of disturbing the peace if he: (3) Between the hours of 11:00 p.m. and 7:00 a.m., operates or uses a pile driver, pneumatic hammer, bulldozer, road grader, loader, power shovel, derrick, backhoe, power saw, manual hammer, motorcycle, snow machine, or other instrument, appliance or vehicle which generate loud sounds, after having been informed by another that such operation or use is disturbing the peace and privacy of others.

3.7.1.3 Current Condition

Noise sources around the Fort Wainwright Main Post are mainly associated with neighborhood vehicular traffic along major arterial roadways, large and small caliber weapon firing from the live-fire training ranges south of the Main Post, and aircraft from Ladd Airfield (USAG Fort Wainwright 2017a).

The primary noise sources from live-fire training areas include various small firearms, such as pistols and rifles, and large-caliber weapons, such as grenades and other artillery. Small arms, demolition, and large-caliber weapons training occurs throughout the small arms complex, south of the Main Post, and can produce impulsive noise pressures up to 130 dB (USAG Fort Wainwright 2017b). The main aircraft noise sources at the installation are helicopters, such as UH-60 Blackhawks, AH-64 Apache, and CH-47 Chinooks, from the U.S. Army Aviation units; the MQ-IC Gray Eagle unmanned aerial system; and during the summer months, the Bureau of Land Management (BLM) Alaska Fire Service aircraft that are based at Fort Wainwright. Large transient aircraft such as C-5s and C-17s use the airfield infrequently. Generally, aircraft activity occurs Monday through Friday between 8:00 a.m. and 11:30 p.m. and can produce short-term sound pressure levels up to 105 dB (USAG Fort Wainwright 2017a).

Sensitive noise receptors are facilities or land use areas that are the most sensitive to noise and include residences, schools, churches, hospitals, and community facilities. Within Fort Wainwright, the closest noise-sensitive receptors to the current coal-fired CHPP include a military family housing (MFH) area approximately 0.3 mile west, the Bassett Army Community Hospital 0.4 mile northwest, the Fort Wainwright Army Education Center approximately 0.6 mile west, the Kamish Soldier Centered Medical Home about 0.6 mile southeast, and an outdoor sporting/recreation area 0.25 mile southeast of the power plant. The nearest sensitive receptor outside of Fort Wainwright is a residential neighborhood adjacent to the northwest installation perimeter, approximately 1.1 miles from the current coal-fired CHPP.

Although components of the current coal-fired CHPP, such as fans, boilers, transformers, condensers, and generators, are noisy from the inside, noise from operation of the CHPP is not noticeable outside the building. Generally, noise from the current coal-fired CHPP is contained within the building footprint and cannot be detected by noise-sensitive receptors or within the off-post community. Regular coal delivery by rail increases the noise level to some degree, but incompatible noise levels do not occur.

Noise Zones

Noise Zones are represented by areas on a map bounded by noise contours, which represent equal levels of noise exposure as determined by noise models. The Army utilizes Noise Zones as a means of relating diverse sounds to one another; for example, the distant frequent rumbling of a helicopter and the intermittent and loud pops caused by a single small-arms firing event. Table 3.7-2 provides a general overview of the Army Noise Zones, in accordance with AR 200-1. The Land Use Planning Zone (LUPZ) is a subdivision of Noise Zone I and represents noise 5 dB lower than Noise Zone II. Generally, noise-sensitive land uses such as residential neighborhoods and community facilities are compatible within LUPZs, but are not compatible with Noise Zones I or II, and are not acceptable within Noise Zone III. These guidelines are only applicable to aircraft and large- and small-caliber weapon firing activities and are primarily focused on preventing noise-sensitive uses in areas that may be subject to substantial levels of military-generated noise. The existing coal-fired CHPP and adjacent sensitive noise receptors, including the MFH area immediately west of the site and the recreation area to the southeast, are within Noise Zone II for the small-arms range complex, which undergoes a peak noise level of 87 to 104 dB. Additionally, under unfavorable weather conditions, the CHPP and noise-sensitive receptors, including the MFH area to the west, the recreation area and the Kamish Soldier Centered Medical Home to the southeast, and the Bassett Army Community Hospital, are within Noise Zone II, and can experience noticeable sound pressure from 115 to 130 dB because of demolition and large-caliber weapons training activities (USAG Fort Wainwright 2017b).

Table 3.7-2. Noise Zone Descriptions and Limits

Noise Zone	General Description	Noise Limits (dB)		
		Aviation (ADNL)	Impulsive (CDNL)	Small Arms (dB Peak[a])
LUPZ	Noise-sensitive land uses are generally acceptable.	60-65	57-62	N/A
I	An area of moderate to minimal noise exposure.	<65	<62	<87
II	Considered an area of significant noise exposure.	65-75	62-70	87-104
III	Considered an area of severe noise exposure.	>75	>70	>104

Notes:

Sources: AR-200-1, USAG Fort Wainwright 2017b.

a. dB Peak is a single-event sound level without frequency weighting.

Construction Noise

Construction can cause an increase in sound that is well above ambient levels. A variety of sounds are emitted from loaders, trucks, saws, and other construction equipment. Noise levels associated with common types of construction equipment are listed in Table 3.7-3. Construction typically exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and by up to 35 dBA in a quiet suburban area. Construction noise is short term because it only results when construction activities are occurring.

Risk of Noise Complaints

Fort Wainwright receives occasional noise complaints each year from the surrounding community. Most documented complaints are inquiries about noise sources and when noise is expected to cease. Fort Wainwright staff has found that advanced public notice of training schedules decreases the number of calls to the Public Affairs Office, the department responsible for managing noise complaints (USAG Fort Wainwright 2017a). Average noise levels may be the best tool for land use planning and predicting noise complaints, but they may not adequately assess the community's likelihood of submitting a formal complaint. Human perceptibility of noise is subjective and, in many instances, Noise Zones do not indicate possibility for a complaint; however, it is generally understood that noise complaints can be attributed to a specific event rather than average annual noise levels (USAG Fort Wainwright 2017a, 2017b).

Table 3.7-3. Average Noise Levels for Common Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)	Predicted Noise Level at 500 feet (dBA)	Predicted Noise Level at 1,000 feet (dBA)
Clearing and Grading			
Grader	80-93	60-73	54-67
Truck	83-94	63-74	57-68
Excavation			
Backhoe	72-93	52-73	46-67
Jackhammer and rock drill	81-98	61-78	55-72
Construction			
Concrete mixer	74-88	54-68	48-62
Welding generator	71-82	51-62	45-56
Pile driver	91-105	71-85	65-78
Crane	75-87	55-67	49-61
Paver	86-88	66-68	60-62
Demolition			
Dozer/tractor/front loader	75-80	55-60	49-54

Sources: AR-200-1, Tontechnik-Rechner-SengPiel Audio (TRS) undated, USAG Fort Wainwright 2017a

AR 200-1 provides thresholds for noise complaint risks. Single event noise limits in Table 3.7-4 correspond to areas of low to high risk of noise complaints. The magnitude of the complaint risk depends on the frequency of the noise, the time of day, atmospheric conditions, and noise sensitivity of the individual. People in an area experiencing peak sound pressure levels between 115 and 130 dB may describe events as noticeable or distinct. At this noise level, there is a moderate risk of receiving complaints. Peak sound pressure levels above 130 dB are generally objectionable, and are often described as very loud and startling; these levels correlate with a high risk of noise complaints (USAG Fort Wainwright 2017b).

Table 3.7-4. Thresholds for Noise Complaint Risks

Risk of Noise Complaints by Level of Noise	Description	Noise Level (dB)
Low	May be audible	<115
Moderate	Noticeable, distinct	115-130
High	Very loud, may startle	130-140
Severe	Risk of physiological damage to unprotected human ears and structural damage claims	>140

Source: AR 200-1

3.7.2 Environmental Consequences

This section discusses noise from construction and operations, potential changes to land use compatibility from noise, and the potential for human annoyance from noise.

3.7.2.1 Significance Criteria

An impact on noise would be considered significant if the Army action were to result in any of the following:

- Violate any federal, state, or local noise regulation
- Substantially increase areas that are incompatible with noise-sensitive receptors
- Cause an increase in quantity or severity of noise complaints
- Result in noise that would negatively affect the health of the community
- Result in noise that would negatively affect the structural integrity of a building

3.7.2.2 No Action Alternative

Under the No Action Alternative, the existing coal-fired CHPP would continue to operate. There would be minor construction activities relating to plant and utilidor repairs and upgrades; however, because it is assumed that the repairs and upgrades would not require large construction equipment, no noise impacts would occur.

3.7.2.3 Alternative 1 (Build a New Coal CHPP)

Implementation of Alternative 1 would result in short-term, minor, adverse impacts on noise because of construction and demolition activities. Long-term, negligible, adverse impacts would occur from the operation of the new CHPP; however, long-term, minor, beneficial impacts may occur if the supporting infrastructure within the new coal-fired CHPP generates less noise than the comparable infrastructure within the current coal-fired CHPP.

Construction Noise

Under Alternative 1, the majority of construction and demolition activities would occur at the current and proposed CHPP sites, which is adjacent to the existing CHPP, and additional construction activities would occur throughout the steam distribution system. All activity would be contained within the installation boundary. Heavy equipment such as those items identified in Table 3.7-3 would be used and would cause short-term increased noise levels. Individual pieces of heavy equipment typically generate 75 to 95 dBA at a distance of 50 feet. Noise levels at the upper end of this range would be associated with equipment such as pile drivers and would be limited to intermittent spurts.

Several pieces of heavy equipment would likely be used simultaneously during construction and demolition activities. Table 3.7-5 presents typical additive noise levels (dBA Leq) for the main phases of construction and demolition. In general, the addition of a piece of equipment with identical noise levels to another piece of equipment would add approximately 3 dB to the overall noise environment (TRS undated). Additive noise associated with multiple pieces of construction equipment operating simultaneously would increase the overall noise environment by a few dB over the noisiest equipment, depending on the noise levels (EPA 1971, TRS undated).

Table 3.7-5. Additive Noise Levels Associated with Construction

Construction Phase	L_{eq} (dBA at 50 feet)	L_{eq} (dBA at 250 feet)	L_{eq} (dBA at 500 feet)	L_{eq} (dBA at 1,000 feet)
Ground clearing	86	72	66	60
Excavation and grading	91	77	71	65
Foundation	80	66	60	54
Structural	84	70	64	58
Finishing	91	77	71	65

Sources: EPA 1971, TRS undated.

Note: Construction equipment equipped with noise control devices (e.g., mufflers) and use of sound barriers would be expected to result in lower noise levels than shown in this table.

All construction and demolition activities associated with Alternative 1 would be conducted in the context of an active military installation, where aircraft, large- and small-caliber weapons firing, vehicular activity, and other types of noise are typical and part of the ambient noise environment. The closest noise-sensitive receptors to the CHPP site are the Bassett Army Community Hospital 0.4 mile northwest, an MFH area approximately 0.3 mile (1,584 feet) west and an outdoor recreation facility 0.25 mile (1,320 feet) southeast. There are no noise-sensitive receptors within 1,000 feet of the existing and proposed coal-fired CHPP sites, where demolition and construction would occur; however, noise-sensitive receptors may be present near areas where the utilidor system renovations and upgrades would occur. At 1,000 feet, most construction noise would be expected to be at or below 60 dBA; at 500 feet, construction noise would be

around 65 dBA; and at 50 feet, construction noise would be near 85 dBA. The closest noise-sensitive receptors located beyond the installation boundary include residential areas approximately 1 mile northwest of the proposed CHPP site. Noise at this distance would be approximately 30 to 40 dBA, consistent with normal ambient levels; therefore, impacts on noise beyond the installation boundary would not occur. Given the temporary nature of proposed construction and demolition activities, and the existing noise environment, short-term adverse impacts on noise would be minor.

Although construction-related noise impacts would be minor, the following BMPs would be performed to further reduce any noise effects:

- Heavy equipment use would primarily occur during normal weekday business hours, typically from 8 a.m. to 6 p.m.
- All heavy construction equipment would include noise abatement components such as mufflers, engine enclosures, engine vibration isolators, or other sound dampening supplements.
- Heavy equipment mufflers would be properly maintained and in good working order.
- Personnel, particularly equipment operators, would use adequate PPE to limit exposure and ensure compliance with federal health and safety regulations.
- All idling equipment would be turned off when not in use.
- Good relationships with the community would be maintained and notices would be published/distributed before noisy operations occur. The community would be provided with frequent updates about when and where construction actions occur.

Operational Noise

New operational noise would be limited to noises generated by the new coal-fired CHPP. Operational noise related to coal delivery and railroad activity would remain unchanged. The completed power plant could emit sound from several sources, including boilers, condensers, steam turbine generators, cooling-towers, transformers, and other equipment; some of which would be within acoustic enclosures that dampen noise. These noise levels would be similar to those emitted by the existing coal-fired CHPP, which are indistinguishable outside the building. Consequently, operational noise resulting from the new coal-fired CHPP would be present within the building, and operational personnel would use appropriate PPE to dampen perceptible sound; therefore, long-term, adverse impacts on noise would not result.

3.7.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Implementation of Alternative 2 would result in short-term, minor, adverse impacts on noise because of construction and demolition activities. Long-term, negligible, adverse impacts would occur from the operation of the new dual-fuel CHPP; however, long-term, minor, beneficial impacts may occur if the supporting infrastructure within the new

dual-fuel CHPP generates less noise than the comparable infrastructure within the current coal-fired CHPP.

Construction Noise

Under Alternative 2, construction and demolition activities would occur at the new dual-fuel CHPP site, which is adjacent to the existing CHPP, and at the natural gas pipeline construction areas. Construction of the natural gas pipeline could occur at any location within Fort Wainwright in addition to the City of Fairbanks. Impacts resulting from construction and demolition activities at the CHPP site would be similar to those described under Alternative 1, with additional short-term, minor, adverse impacts on noise that would occur at pipeline construction areas. Pipeline construction activities would involve the use of heavy construction equipment, such as the items identified in Table 3.7-3; however, adverse impacts on noise would be short-term and minor, and all efforts to avoid noise impacts would be maximized.

The closest noise-sensitive receptors to the CHPP site are the Bassett Army Community Hospital 0.4 mile northwest, an MFH area 0.3 mile west, and an outdoor recreation facility 0.25 mile southeast. The closest off-base noise sensitive receptor is a residential area 1 mile northwest of the CHPP site. As stated in Section 3.7.2.3, no noise-sensitive receptors are within 1,000 feet of the CHPP site; however, noise-sensitive receptors may be present near utilidor renovation areas or pipeline construction areas. To prevent possible impacts on noise at sensitive receptors on- and off-installation, the BMPs identified in Section 3.7.2.3 as well as the following additional BMPs would be implemented:

- A construction noise monitoring program would be implemented to limit sound or limit the number of equipment that can be operated at one time.
- Noisier construction activities would be planned to occur during times that would least affect noise-sensitive receptors.
- Uniform noise levels would be maintained and impulsive noises would be avoided.

Operational Noise

Under Alternative 2, new operational noise would be limited to noises generated by the new dual-fuel CHPP, which could propagate from several sources, including boilers, condensers, steam turbine generators, cooling-towers, and transformers. Because regular coal deliveries by rail would cease, a minor decrease in noise generated by rail deliveries would occur. Operational noise levels would be similar to those emitted by the existing coal-fired CHPP, which are indistinguishable outside the building. Consequently, operational noise would only be detectable within the proposed CHPP, and operational personnel would use appropriate PPE to dampen perceptible sound; therefore, long-term, adverse impacts on noise would not result.

3.7.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Implementation of Alternative 3 would result in short-term, minor, adverse impacts on noise because of construction and demolition activities. Long-term, negligible, adverse impacts could occur from the operation of the new distributed boilers; however, long-term, minor, beneficial impacts may occur if the new distributed boilers generate less noise than the infrastructure within the current coal-fired CHPP.

Construction Noise

Construction and demolition activities would occur within and outside the installation boundary under Alternative 3. Demolition activities would be contained within the area of the current coal-fired CHPP, and resulting short-term, minor, adverse impacts on noise would be identical to those described for demolition activities under Alternative 1. The construction for the distributed boilers could occur at any location throughout the Fort Wainwright Main Post. Construction of the natural gas pipeline could also occur at any location within Fort Wainwright in addition to the City of Fairbanks. To prevent impacts on noise from construction at noise-sensitive receptors, such as the Bassett Army Community Hospital and the MFH areas, and noise impacts on the community outside the installation boundary, BMPs identified under Alternatives 1 and 2 in Sections 3.7.2.3 and 3.7.2.4 would be implemented during the construction and demolition period.

Operational Noise

Operational noise would be limited to noises generated by the new distributed natural gas boilers and emergency generators under Alternative 3. Because regular coal deliveries by rail would cease, a minor decrease in noise generated by rail deliveries would occur. Additionally, because of the distributed system, the noise generated from the current, centralized system would cease and could result in long-term, minor, beneficial impacts on noise at receptors adjacent to the existing CHPP site. It is assumed that the distributed boiler system would produce less noise than a centralized system; therefore, beneficial impacts on noise would occur; however, proximity of the boilers to noise-sensitive receptors could cause an adverse impact. Because of the anticipated noise reductions, it is likely that long-term negligible impacts on noise at Fort Wainwright would occur.

3.8 Land Use

This section discusses land use within and adjacent to Fort Wainwright and, specifically, the site of the existing coal-fired CHPP and Proposed Action. Non-historic viewsheds that are not discussed in Section 3.11 are also discussed.

The ROI for land use includes the Fort Wainwright Main Post and a potential corridor for a natural gas pipeline from the City of Fairbanks to on-post. Fort Wainwright is located in central Alaska, approximately 120 miles south of the Arctic Circle, in the Tanana River Valley. The Main Post is approximately 15,536 acres and comprises a majority of the eastern half of the City of Fairbanks. The Main Post is generally bordered on the west by

the City of Fairbanks and on the north and east by unincorporated areas of FNSB (USAG Fort Wainwright 2017b).

3.8.1 Affected Environment

3.8.1.1 Definition of Resource

The term "land use" refers to real property classifications that indicate natural conditions or human activity. Natural conditions of property can be described or categorized as unimproved, undeveloped, preservation, or conservation areas. Human land use categories include residential, commercial, industrial, agricultural, institutional, and recreational. In many cases, land use descriptions are codified in installation master planning and local zoning laws. The two main objectives of land use planning are to ensure appropriate growth and compatible uses among adjacent property parcels. In applicable cases, the location(s) and extent of the Proposed Action need to be evaluated for the potential impacts on a project site and adjacent land uses, including relevant land use or zoning requirements. Other factors to consider include existing land use at the project site, types of land uses on adjacent properties and their proximity to the Proposed Action, the duration of a proposed activity, and proposed permanent uses.

A variety of land use planning tools can be used by local governments and Fort Wainwright to help guide the management of compatible land use in and around military installations (USAG Fort Wainwright 2017b):

- *Zoning.* The most common method of land use control in off-installation areas is zoning, or the partitioning of areas into sections reserved for different purposes. This method designates the uses permitted in each parcel of land and normally consists of a zoning ordinance that delineates the various use districts and a zoning map based on the land use element of the community's comprehensive general plan.
- *Easements.* An easement is a legal right to use or enter onto an owner's real property for a specific limited purpose. Easements can be an effective and permanent form of land use control; in many cases, an easement is better than zoning when trying to resolve an installation's compatibility issues. Easements are permanent (with the title held by the purchaser until sold or released), work equally well within different jurisdictions, are enforceable through civil courts, and often may be acquired.
- *Deed Restrictions and Covenants*. A deed is a document conveying ownership of land from one party to another, and covenants can be added to the deed to specify restrictions on the use of the land. These covenants are in addition to the restrictions already imposed by the current zoning of the property and, in many instances, may supersede zoning by prohibiting specified uses that would otherwise be allowed. Covenants remain in effect for the specified length of the covenant (usually 20 to 30 years), regardless of how often the land is resold. The installation must already own or must acquire the property in order to impose a covenant. When reselling the property, the installation specifies which uses are

permitted on the land, thereby preventing incompatible uses (such as residential housing) for as long as the covenant remains in effect (USAG Fort Wainwright 2017b).

Visual resources include buildings, sites, traditional cultural properties, and other features. A viewshed is the geographical area that is visible from a specific location and includes all surrounding points in the line-of-sight with that location. Visual resources and viewsheds can be natural or man-made landscape features that are visually important or have unique characteristics. Objects that obscure or block landscape features or structures that may not be cohesive with the surrounding landscape can affect the integrity of the visual resource or viewshed.

3.8.1.2 Environmental Laws, Regulations, and Executive Orders

The following list identifies federal statutes, and DoD directives and instructions that provide guidance on land use considerations.

- *Department of Defense Instruction (DoDI) 4165.57 (Air Installations Compatible Use Zones)* ensures long-term compatible land use on and in the vicinity of installations by encouraging state and local governments to adopt legislation and compatible land use regulations into their land use planning and control processes. Compatible land use is achieved by participating with communities and other eligible entities to protect land through restrictive use and conservation easements and by implementing minimum necessary acquisition of real property interests to ensure the operational integrity of the installation. The program allows the Army to contribute funds to a partner's purchase of easements or properties from willing landowners to preserve buffer zones and limit incompatible development in the vicinity of military installations (DoD 2018a).
- *DoDI 4715.24 [The Readiness and Environmental Protection Integration (REPI) Program and Encroachment Management]* establishes policy, assigns responsibilities, and provides procedures for executing the REPI Program in coordination with other encroachment management tools and programs to protect military installations, ranges, and their associated facilities and range infrastructure and airspace from incompatible development and other encroachment threats. The REPI Program is a key tool for combating encroachment that can limit or restrict military training, testing, and operations. The program protects military missions by addressing regulatory restrictions and land use conflicts that inhibit military activities (DoD 2016a).
- *DoDI 4165.70 (Real Property Management)* implements policy under EO 13327 (Federal Real Property Asset Management) to promote the efficient and economical use of federal real property assets and require military agencies to recognize the importance of real property resources through increased management attention, establishment of clear goals and objectives, improved policies, and appropriate levels of accountability (DoD 2018b).

3.8.1.3 Current Condition

Land Use

On-Installation Land Use. Fort Wainwright includes the categories described below (USAG Fort Wainwright 2017a):

- *Airfield:* The airfield land use category encompasses all airfield operations, including runways, taxiways, airfield support facilities, and testing facilities; aviation refueling; and maintenance.
- *Community:* The community land use category allows religious, family support, personnel, professional, medical, commercial, housing, and recreational services.
- *Industrial:* The industrial land use category is designated for production, maintenance, depot, storage facilities, and activities that generate heavy traffic and pollution.
- *Professional/Institutional:* The professional/institutional land use category is designated for non-tactical operations, including military schools, installation headquarters, major commands, and non-industrial research and development.
- *Ranges and training:* This land use category includes areas used for training purposes, weapons demonstration, qualification ranges, combat training, live-fire training, bivouac sites, and maneuver sites.
- *Residential.* The residential land use category includes family and unaccompanied housing.
- *Troop:* The troop land use category includes operational facilities for force readiness, support troop operations for deployable units, and circulation of Soldiers between designated facilities.

Existing land uses at the Fort Wainwright Main Post are identified in Figure 3.8-1. The existing CHPP site is contained within an industrial land use area, which is adjacent to community areas to the north, east, and south and a residential area to the west.

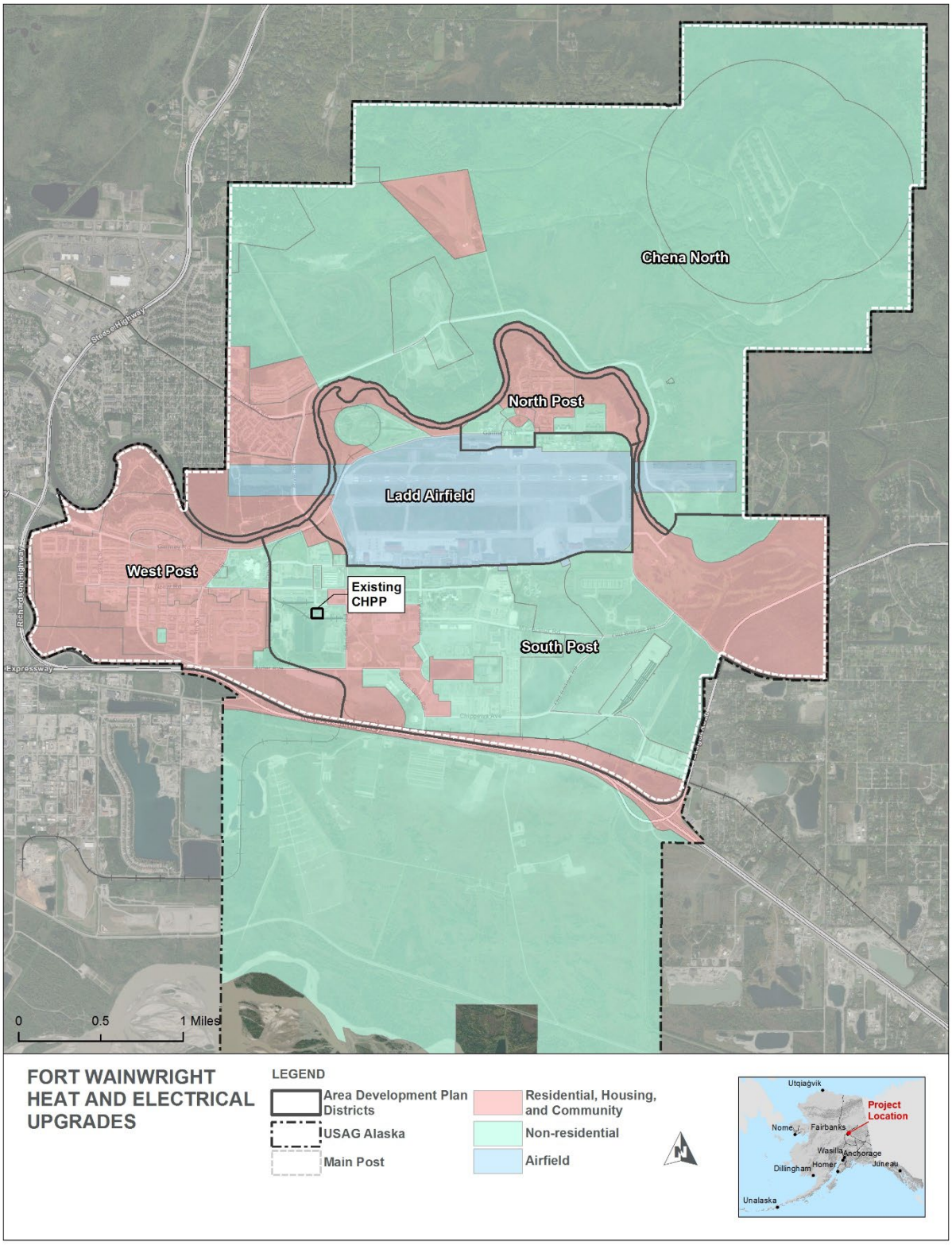


Figure 3.8-1. Existing Land Use on Fort Wainwright Main Post

Off-Installation Land Use. The area of FNSB immediately adjacent to the Main Post includes residential, recreational, commercial, industrial, and institutional land use categories. FNSB has designated zoning districts and implements zoning regulations (FNSB Code of Ordinances, Title 18, Zoning) to implement the FNSB comprehensive plan and designate land use controls. FNSB also administers zoning policy within the City of Fairbanks.

The FNSB comprehensive plan identifies four borough area designations (Outskirt, Perimeter, Rural, and Urban) that are further divided into land categories (FNSB 2019a). The Fort Wainwright Main Post is surrounded by Urban Area to the west and southeast, Perimeter Area to the north and east, and Outskirt Area to the northeast and south. Urban Areas consist of areas that are served or can be served with community water and sewer, and contain the most intensive residential, commercial, and industrial development. The Urban Area west of the Main Post also includes Urban Preferred Commercial and Light Industrial areas, the Perimeter Areas to the north and east include Preferred Residential Land, and the Outskirt Areas to the northeast and south include Reserve Areas (FNSB 2005).

Zoning districts of FNSB surrounding the Fort Wainwright Main Post include residential, recreational, and business to the northwest; residential, commercial, and light industrial to the west; general use and general commercial to the southwest; general use, residential, and heavy industrial to the south and east; and agriculture, residential, and recreational to the north (FNSB 2019b). Portions of the general use, residential, and heavy industrial zoning districts to the south and east of the Main Post are also within the military noise overlay zone; a designation applied to certain existing zoning districts to ensure the health and safety of the public by imposing additional regulations on land use development. Current residential and recreation land uses around Fort Wainwright are compatible with Main Post land uses because they are adjacent to open space and family housing of similar density (USAG Fort Wainwright 2017a).

REPI Program. Fort Wainwright currently utilizes the REPI Program to preserve compatible land uses of properties in and near the installation which helps to avoid noise and land restrictions and improve the resiliency of the mission. Fort Wainwright is currently supporting a project to preserve 569 acres to provide buffer area along the eastern boundary of the Small Arms Complex that will provide noise protection, enhance sensitive wetlands, and provide ecological corridors for wetland species (DoD 2017b).

Real Property Management

The Fort Wainwright Real Property Management Plan (RPMP) provides guidance for future physical development at the installation (USAG Fort Wainwright 2017a). The RPMP was developed using a collaborative approach to identify and consider site limitations and benefits, provide a community that maximizes mission readiness and environmental stewardship, and ensures that Fort Wainwright provides modern and efficient facilities to accommodate multiple functions and uses while considering relationships to adjacent facilities and land uses. To achieve the goals of the RPMP,

current and proposed land uses must consider a variety of factors, including the environment, noise, geography, and community safety (USAG Fort Wainwright 2017a).

In accordance with the RPMP, the Fort Wainwright Main Post is organized into five districts based on geographical features, land use patterns, building types, and transportation networks. Each district implements an Area Development Plan (ADP) that guides the adaption of the planning goals and principles of the RPMP. These districts—North Post, West Post, South Post, Ladd Airfield, and Chena North—are identified in Figure 3.8-1. The existing CHPP site is contained within an industrial land use area, located within South Post. The Proposed Action within the installation may occur in the South Post or throughout the entire Main Post.

The North Post and the Ladd Airfield contain the Ladd Field National Historic Landmark (NHL). The North Post Area also includes housing units, professional/institutional facilities like the railway switching yard and warehouse area, and community infrastructure, including trails and parks. The Ladd Airfield Planning District is made up of runways, hangars, and other aviation support facilities, as well as the headquarters for the Alaska Fire Service (USAG Fort Wainwright 2017a).

The West Post primarily contains residential areas and facilities to support family and community living. It consists of mostly housing, small-scale commercial facilities, schools, and recreation areas. Additionally, the Bassett Army Hospital medical complex is located within the district and is heavily trafficked (USAG Fort Wainwright 2017a).

The South Post is an industrial area separated from the West Post by a small buffer zone. It includes the following (USAG Fort Wainwright 2017a):

- Current coal-fired CHPP and storage, supply, and maintenance facilities in the western portion
- Maintenance, supply, and storage facilities; administration; operations; a sports/fitness complex; Post Exchange; commissary; golf course; and other community and recreation facilities in the central and eastern portions

Chena North is largely rural and undeveloped and contains community, industrial, ranges and training, and residential land use designations. The district is primarily used for range and maneuver/bivouac training, but also supports community services, recreational activities, and residential uses (USAG Fort Wainwright 2017a).

Easements

Through easements and agreements, Fort Wainwright has created a non-DoD, partner-owned buffer of properties, some of which are adjacent to or near the installation. Although Fort Wainwright owns the land, the easement partner is responsible for maintaining the land according to compatible use and development guidelines.

Viewsheds Not Addressed Under Cultural Resources

The natural visual character of the Tanana River Valley includes rolling terrain with dense forests. The *Fort Wainwright Real Property Vision Plan* identifies the current coal-fired CHPP as a "blight" at Fort Wainwright (USACE 2013). In accordance with the vision plan, blights are defined as visual or functional negatives that hinder day-to-day operations of quality-of-life. Vegetated buffers, outdoor open space, recreational trails, and parks are examples of the aesthetic, functional, or operational positives that should be preserved in the long-term planning effort. Fort Wainwright has proposed to add more aesthetic positives to enhance the viewshed, particularly near industrialized infrastructure (USACE 2013).

3.8.2 Environmental Consequences

Effects on land use are assessed by evaluating an action's consistency and criteria with existing land use plans, zoning, or policies; an action's alteration of the viability of existing land use; the degree to which an action precludes continued use or occupation of an area; and the degree to which an action conflicts with established planning criteria to ensure the safety and protection of human life and property.

3.8.2.1 Significance Criteria

An impact on land use would be considered significant if the Army action were to result in any of the following:

- Incompatibility with existing Fort Wainwright or FNSB land use designations
- Major conflicts with Army land use plans, policies, or regulations
- Substantial land use conflict with off-post land use
- Site alteration that substantially obstructs viewsheds or the scale or degree of change appears to be a disharmonious modification of the overall view.

3.8.2.2 No Action Alternative

Under the No Action Alternative, Fort Wainwright would not replace the current heat and power generation system. Existing land uses would continue in their current states, and there would be no impacts on land use. Additionally, the current coal-fired CHPP would continue to be considered a blight by the Fort Wainwright community.

3.8.2.3 Alternative 1 (Build a New Coal CHPP)

Alternative 1 would have no adverse impacts on land use. Long-term, minor, beneficial impacts on visual resources and viewsheds may occur following the demolition of the current coal-fired CHPP and construction of a new plant. Construction staging/laydown areas, materials and equipment storage areas, and demolition activities would be located within an industrial land use area. To avoid any land use conflicts, construction would be

confined to the project site, which is adjacent to the current coal-fired CHPP. No construction activities would occur outside of the installation boundary.

The new CHPP would be constructed in an industrial land use area adjacent to the existing CHPP, which is a continuation of existing uses. Although the new CHPP would be sited in an area that is adjacent to community and residential uses, it would be a continuation of an existing use and would be set back from these areas; therefore, it would be compatible with existing land uses. The new CHPP would not preclude the viability of any existing or future land uses or the continued occupation of the area by incompatible uses. The design and siting of the proposed CHPP would meet all anti-terrorism/force protection requirements and would decrease the current risk to life-safety and mission readiness of the existing CHPP. Therefore, Alternative 1 would not conflict with any land use plans, policies, easements, or zoning designations that govern land uses within Fort Wainwright. Operations would not conflict or change existing land uses and would therefore have no long-term adverse impacts on land use.

The existing CHPP would be demolished following the completion of the new coal-fired CHPP and there would be some opportunity to improve the viewshed considered a blight by the Fort Wainwright community, resulting in a long-term, minor, beneficial impact. Some positive aesthetic features that could be incorporated include parks, vegetated corridors, outdoor open space, and recreational components.

3.8.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Long-term, minor to moderate adverse impacts as well as minor beneficial impacts on land use could occur as a result of Alternative 2. Short-term, adverse impacts on land use would not occur at Fort Wainwright because construction would not conflict with existing land uses, as described under Alternative 1.

Short-term, negligible to minor, adverse impacts on land use within FNSB could occur depending on the location of the new natural gas pipeline from the Fairbanks natural gas utility to the new Fort Wainwright dual-fuel CHPP; type of pipeline construction method; construction staging/laydown areas; and materials and equipment storage areas. It is anticipated that the pipeline would be placed within a zoning district designated for general use or industrial use by FNSB and may be within an existing utility easement or right-of-way. Assuming the natural gas pipeline would be underground, short-term, minor adverse impacts would occur to Fort Wainwright land use during the construction period because of temporary land use incompatibilities. Temporary land use incompatibilities would occur if the industrial nature of the natural gas pipeline construction were to interfere with other zoning districts such as residential, recreational, or community; access to certain areas were temporarily blocked by construction activity; or construction produced short-term annoyances such as noise, traffic, or air emissions.

Long-term, minor to moderate, adverse impacts on land use at Fort Wainwright and FNSB would be anticipated if property needs to be acquired as a result of pipeline construction. To construct a pipeline, the natural gas utility may need to acquire easements from off-installation private landowners and from Fort Wainwright and/or a right-of-way may

need to be created. New pipeline corridors from the utility in Fairbanks to the Fort Wainwright CHPP site would be established before construction of the natural gas pipeline. Private landowners would be provided financial compensation for providing the right to construct the pipeline on their properties and for future access to the properties to conduct maintenance and repairs. Land use restrictions on property within the easement and/or right-of-way would prevent the future development of the area. To avoid any land use conflicts, efforts would be made to site and construct all pipeline infrastructure in areas that would be compatible with surrounding land uses.

Long-term, minor, beneficial impacts on visual resources and viewsheds may occur following the demolition of the current coal-fired CHPP and removal of the large coal pile. There would be opportunities to develop other industrial land uses in the area that would be cleared by demolition and removal activities. Trains would no longer use the rail spur adjacent to the existing CHPP to deliver coal, resulting in an overall reduction of train trips through the installation. There would be opportunities to improve the viewshed by placing positive aesthetic features such as trees or other landscape components at the vacant site.

3.8.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Short-term, minor, adverse impacts on land use would occur under Alternative 3 from construction of the distributed boilers throughout the installation and would be influenced by the location of each boiler. Because the natural gas boilers are distributed throughout the installation, construction of the heating system and related infrastructure could conflict with existing land uses. Additionally, a distributed boiler system would be more compact than a centralized system; therefore, the likelihood of the new infrastructure being incompatible with existing land uses would be greatly reduced.

Minor impacts on land use as a result of natural gas pipeline construction would be identical to those discussed under Alternative 2. Impacts on land use as a result of demolition of the existing CHPP, coal pile, and related infrastructure would be identical to those discussed under Alternative 1.

Although the new distributed boilers may be sited in areas that are adjacent to community and residential uses, it is anticipated that new distributed boilers would not impact or interfere with adjacent land uses. The new boilers would not preclude the viability of any existing or future land uses or the continued occupation of the area by incompatible uses. The design and siting of the boilers would meet all anti-terrorism/force protection requirements and would decrease the current risk to life-safety and mission readiness of the existing CHPP. Therefore, Alternative 1 would not conflict with any land use plans, policies, easements, or zoning designations that govern land uses within Fort Wainwright.

Operation of the distributed boilers would not conflict with or change existing land uses and therefore would have no long-term adverse impacts on land use. Following the completion of construction of the new boilers and demolition of the current coal-fired CHPP, there would be opportunities to improve the viewshed considered a blight by the Fort Wainwright community, which could include adding positive aesthetic features to the

area such as trees or other landscape components, resulting in long-term, minor, beneficial impacts.

3.9 Transportation and Traffic

3.9.1 Affected Environment

The ROI for transportation and traffic includes transportation infrastructure throughout the Fort Wainwright Main Post, the area immediately surrounding Fort Wainwright, the regional area of Interior Alaska, and transportation corridors to southern Alaska. The transportation and traffic system includes regional and local roadways, rail lines, and air transportation facilities. The local transportation network at Fort Wainwright is made up of primary, secondary, and residential roads with limited pedestrian and bicycle facilities, vehicle access control points/gates, and parking areas. Pedestrian and bicycle facilities, public transportation systems, and air transportation are not discussed in this section because these components would not be affected by the Proposed Action.

3.9.1.1 Definition of Resource

Transportation and traffic refer to roadway, street, and rail systems, and the movement of vehicles on transportation networks. For the purposes of the Proposed Action, transportation and traffic are described in terms of on- and off-installation road networks, railroad, traffic volumes and congestion, and proximity to the proposed project area.

3.9.1.2 Environmental Laws, Regulations, and Executive Orders

There are no specific federal, state, or DoD regulations for managing or evaluating impacts on transportation and traffic. Maintaining the existing roadway and traffic conditions are usually important factors in federal decisions. Transportation safety should also be maintained during the implementation of a proposed action. The U.S. Department of Transportation (DOT) issues regulations and laws regarding driver safety, vehicle requirements, and rules of the road that should be adhered to at all times.

3.9.1.3 Current Condition

Roadways

Regional roadways beyond Fairbanks and Fort Wainwright that connect with the greater Alaska region to Fort Wainwright and other major cities include George Parks Highway, also known as Parks Highway, Richardson Highway, and Steese Highway, also known as Steese Expressway (Figure 3.9-1). George Parks Highway is one of the most important arterial roads for transportation within Alaska and connects Fairbanks to the principal urban areas of southern Alaska, including Anchorage, approximately 360 miles south, and the Matanuska-Susitna Valley, approximately 250 miles south. Richardson Highway connects Fairbanks to Valdez, a port community 368 miles southeast of Fairbanks. Steese Highway extends 161 miles to the north of Fairbanks to the community of Circle.

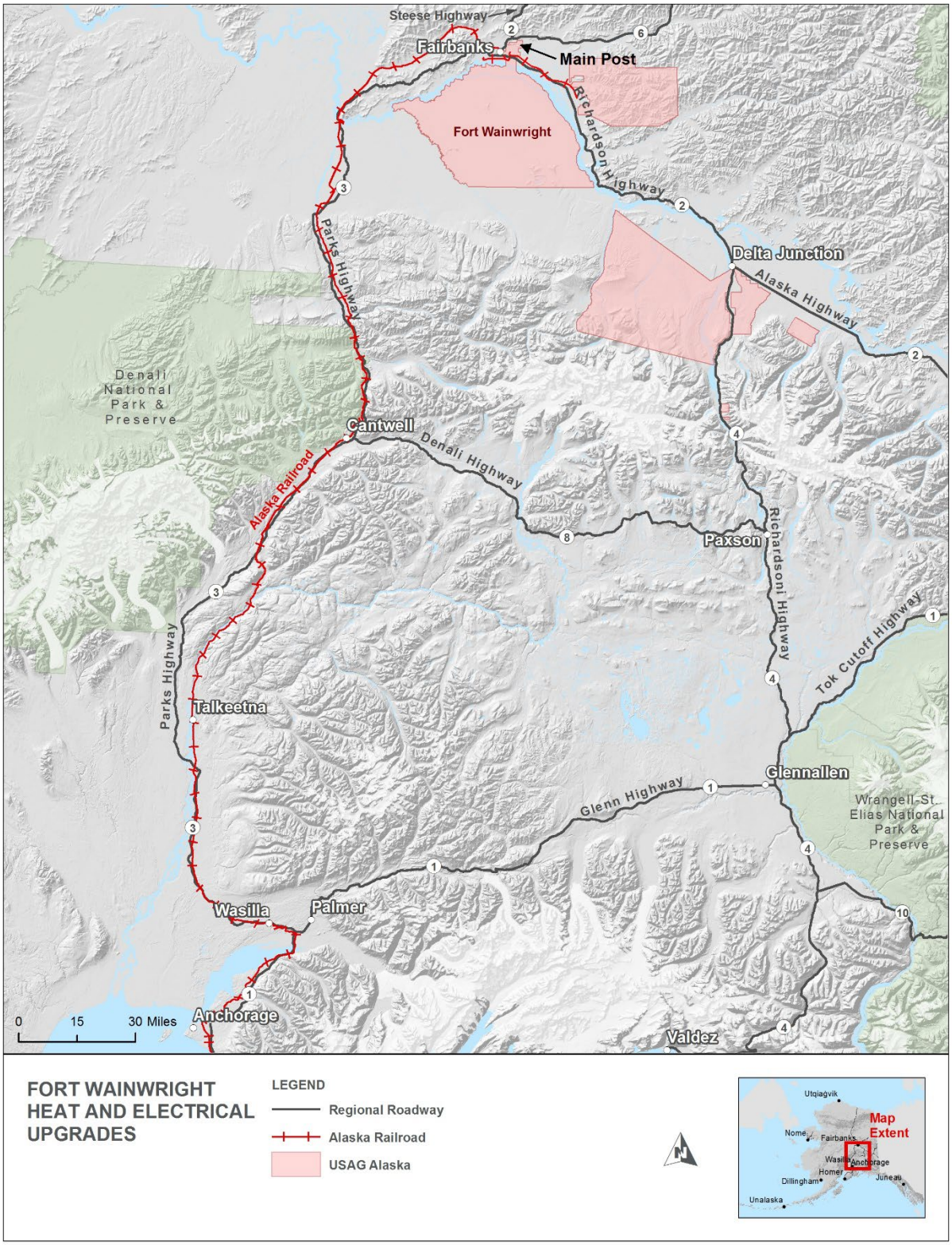


Figure 3.9-1. Fort Wainwright Regional Roadways and Railways

The installation can be accessed by Steese Highway on the western perimeter; Richardson Highway, which bisects the installation dividing the Main Post from the southern portion of the installation; and Robert Mitchell Expressway (Figure 3.9-2). Airport Way is the primary east-west arterial road in Fairbanks, which turns into Gaffney Road and connects with the Main Gate at the western perimeter of the installation. Airport Way also connects Fort Wainwright to FAI on the western side of Fairbanks, the George Parks Highway, and Roberts Mitchell Expressway. College Road and the Johansen Expressway provide major east-west access to the Main Gate and connect Fort Wainwright with the northern part of Fairbanks. Fort Wainwright can also be accessed using West Trainor Gate Road, which intersects Steese Highway east-west, and Trainor Gate at the northwest perimeter of the installation. At the eastern perimeter of the installation, Holmes Road intersects Badger Road and feeds into Montgomery Road where Badger Gate is located (Figure 3.9-2).

Fort Wainwright contains approximately 30 miles of paved roads and 10 miles of gravel/clay/unpaved roads. While unpaved roads serve facilities such as ammunitions storage areas, landfills, and training areas, the roads surrounding the existing CHPP are paved and in good condition (USAG Fort Wainwright 2017a, USAG Fort Wainwright 2013a). The primary roadways that support the majority of installation traffic are Gaffney Road, Montgomery Road, Old Badger Road, Chippewa Avenue, South Gate Road, and Alder Avenue running in the east-west direction and Ketcham Road, Meridian Road, River Road, and Trainor Gate Road, running in the north-south direction. Secondary roadways support local installation traffic and facilitate transportation between adjacent facilities (USACE 2013).

Gaffney Road is the main on-installation arterial roadway that extends from the Main Gate to and nearly bisects the Main Post toward the eastern perimeter. Gaffney Road is a four-lane roadway from the Main Gate to just north of Ladd Army Airfield (AAF), where it continues as a two-lane roadway towards Badger Gate and the eastern installation perimeter. The remaining roadways at Fort Wainwright consist primarily of two-lane roads with either adjacent paved shoulders or sidewalks. Posted speeds at Fort Wainwright range from 20 mph to 35 mph.

The transportation network immediately surrounding the existing CHPP consists of Meridian Road to the east, Alder Avenue to the south, Neely Road to the north, and the Alaska Railroad to the west. The site can be accessed directly by using Oak Avenue, which approaches the CHPP from the east. An all-way stop control exists at the intersection of Meridian Road and Neely Road, and a two-way stop control exists at the intersection of Meridian Road and Alder Avenue. Meridian Road is a two-lane roadway with designated left-turn lanes and merge lanes for incoming right-turning traffic.

Figure 3.9-2. Fort Wainwright On-Installation Roadways

Rail Transportation

The rail line at Fort Wainwright is owned and operated by ARRC. The railroad provides both freight and seasonal passenger train services between Anchorage and Fairbanks, and also connects with Eielson AFB, which is the northern terminus of the railroad, approximately 20 miles southeast of Fort Wainwright (Figure 3.9-1). Most northbound freight to Alaska arrives by sea at either the port of Anchorage or the port of Whittier and is transferred to the railroad. The Alaska Railroad's southern terminus is Seward, which is approximately 80 miles south of Anchorage and the location of the nearest port with intermodal capability (USKH Inc. [USKH] 2009).

The Alaska Railroad main line serving Fairbanks and Fort Wainwright crosses the city north of the Chena River and enters the installation parallel to Trainor Gate Road at Trainor Gate. Approximately 5.2 miles of rail line are located on the installation. Primarily used to transport freight and coal, the Alaska Railroad rail line runs in a north-south direction west of the existing CHPP and includes spur track, or track that diverges from the main line, to the CHPP coal off-loading area. The existing coal-fired CHPP at Fort Wainwright receives coal from a coal mine in Healy, an approximately 115-mile trip by rail. Trains that transport coal to supply the existing CHPP at Fort Wainwright make four round trips per week from Healy, contributing to the 25 total weekly rail round trips for both freight and coal transport for the Alaska Railroad (USAG Fort Wainwright 2017a).

Traffic

The regional roadways used to access Fort Wainwright are primarily Robert Mitchell Expressway, Richardson Highway, Steese Highway, and Badger Road. Traffic levels on these roadways are generally moderate; however, heavier traffic during peak hours and the summer tourist season can cause congestion at major intersections, including Steese Highway/Richardson Highway and Gaffney Road/Airport Way. The Main Gate is located on Gaffney Road. Peak traffic hours for Fort Wainwright and the surrounding Fairbanks region are typically 7:00 a.m. to 8:00 a.m. and 4:30 p.m. to 5:30 p.m. (USKH 2009, USAG Fort Wainwright 2013a).

The Fort Wainwright *Six-Year Transportation Plan Update* was completed in 2009 to provide projected 2015 traffic conditions, including an analysis of 2009 roadway conditions, peak hour traffic, and safety conditions (USKH 2009). As part of the study in November 2005 and October 2007, traffic counts were conducted between 6:30 a.m. and 8:30 a.m. and between 3:30 p.m. and 5:30 p.m. to capture morning and evening peak traffic for each intersection. Traffic volume forecasts for 2015 were developed at 25 key intersections using the 2005 and 2007 traffic count data as part of the Fort Wainwright *Six-Year Transportation Plan Update*.

Inbound and outbound Fort Wainwright traffic uses three main Access Control Points (ACPs): Main Gate, Trainor Gate, and Badger Gate. Peak hour traffic volumes for these gates, based on counts from October 2007, are listed in Table 3.9-1. Traffic counts were conducted between 6:30 a.m. and 8:30 a.m. and between 3:30 p.m. and 5:30 p.m. to capture morning and evening peak traffic for each intersection. Trainor Gate, in particular,

experiences more traffic-related congestion because it consists of a single-lane configuration and can be affected when railroad activity temporarily stops traffic flow (USKH 2009).

Table 3.9-1. Peak Hour Volumes for Fort Wainwright Access Control Points

Access Control Point	AM Peak Hour Volume (number of vehicles) 6:30 a.m. – 8:30 a.m.	PM Peak Hour Volume (number of vehicles) 3:30 a.m. – 5:30 a.m.
Main Gate	1,308	1,382
Trainor Gate	508	545
Badger Gate	331	430

Source: USKH 2009.

The highest traffic volumes recorded on the installation were on Gaffney Road west of Meridian Road, where volumes ranged from 1,000 to 1,700 vehicles during the p.m. peak hour. The roadways surrounding the current coal-fired CHPP, namely, Montgomery Road, Neely Road, Santiago Avenue, and Meridian Road, carry more than 400 vehicles during the a.m. and p.m. peak hours, and the remaining roadways that were studied carry fewer than 400 vehicles during those peak hours. Additionally, peak-hour traffic volumes on Gaffney Road, Meridian Road, Neely Road, and 9th Street were higher in the evening than in the morning (USKH 2009).

The traffic volumes for these roadways were studied as part of the *Six-Year Transportation Plan Update*. Peak traffic volumes for Meridian Road were highest in the evening with a peak of 200 to 400 vehicles. The projected 2015 volume for Meridian Road was 400 to 800 vehicles at peak p.m. traffic times. Meridian Road intersects Neely Road northeast of the existing CHPP. Higher traffic volumes were reported on Neely Road in the evening, with 400 to 800 vehicles at the peak evening hour. The projected Neely Road/Meridian Road intersection traffic volumes from the study are summarized in Table 3.9-2. Alder Avenue surrounding the existing coal-fired CHPP to the south is a two-lane secondary roadway that is not affected by adverse traffic conditions.

Table 3.9-2. Traffic Volumes for Select On-Installation Intersections

Intersection	2008 Volume		2015 Forecasted Volume		Percent Change	
	Peak a.m.	Peak p.m.	Peak a.m.	Peak p.m.	Peak a.m.	Peak p.m.
Neely Road and Meridian Road	842	1,031	955	1,158	13	12
Gaffney Road at 599th Street	1,384	1,438	1,853	1,760	34	22
Gaffney Road at 10th Street	879	116	1,141	1,376	30	23
Gaffney Road at River/Meridian Road	693	835	1,161	1,143	67	37
Montgomery Road at Meridian Road	1,221	1,391	1,689	1,604	38	15
Montgomery Road at Santiago Avenue	693	757	1,106	1,088	60	44

Sources: USKH 2009.

Level of Congestion

Traffic congestion is characterized by slower speeds, longer trip times, and increased vehicular queuing (queue referring to the number of stopped vehicles in a lane behind the stop line). When roadway demand is high enough to reach or exceed roadway capacity, the speed of traffic decreases and results in congestion.

To estimate the capacity of existing roadway infrastructure to accommodate traffic demand, a traffic analysis was conducted as part of the *Six-Year Traffic Transportation Plan Update* (USKH 2009). Operations of roadway segments and intersections are expressed in terms of Level of Service (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. LOS A to F were used to categorize primary on-installation intersections at peak traffic hours. The LOS range from LOS A, best operating conditions, through LOS F, worst operating conditions. LOS E identifies “at-capacity” operations while LOS F identifies over-capacity volumes that result in stop-and-go conditions (Transportation Research Board [TRB] 2000). Table 3.9-3 presents the criteria for each LOS designation and associated delay factors.

The LOS for six key intersections at Fort Wainwright were determined in the 2005–2007 traffic study for the *Six-Year Traffic Transportation Plan Update* and results are summarized in Table 3.9-4. The study includes weekday peak-hour data only.

Table 3.9-3. LOS Designations

LOS	Description	Average Signalized Control Delay (seconds/vehicle)	Average Unsignalized Control Delay (seconds/vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤10.0	≤10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1–20.0	10.1–15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1–35.0	15.1–25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C[a] ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1–55.0	25.1–35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C[a] ratios. Individual cycle failures are frequent occurrences.	55.1–80.0	35.1–50.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0	>50.0

Notes:

Sources: USKH 2009, USAG Fort Wainwright 2017a, TRB 2000

a. V/C – Volume-Demand-to-Capacity

Table 3.9-4. Intersection Analysis and LOS Designation

Intersection	2008 Volume				2015 Forecasted Volume			
	Peak Hour, a.m.		Peak Hour, p.m.		Peak Hour, a.m.		Peak Hour, p.m.	
	Average. Control Delay per Vehicle (seconds)	LOS	Average. Control Delay per Vehicle (seconds)	LOS	Average. Control Delay per Vehicle (seconds)	LOS	Average. Control Delay per Vehicle (seconds	LOS
Neely Road and Meridian Road	19.4	C	25.0	C	25.3	D	82.8	F
Gaffney Road at 599th Street	45.9	E	24.2	C	315.7	F	68.1	F
Gaffney Road at 10th Street	22.9	C	27.4	D	45.3	E	102.8	F
Gaffney Road at River/Meridian Road	8.4	A	11.6	B	17.3	B	27.2	C
Montgomery Road at Meridian Road	11.9	B	12.7	B	105.8	F	82.9	F
Montgomery Road at Santiago Avenue	23.4	C	23.1	C	343.6	F	306.9	F

Source: USKH 2009

According to the 2015 forecasted traffic volumes, the weekday peak-hour traffic greatly affects Gaffney Road at 599th Street, the intersection just east of the Main Gate, and Montgomery Road at Santiago Avenue, the intersection used to gain access to the majority of Fort Wainwright facilities. Additionally, the intersection at Gaffney Road and 10th Street, also used to access Fort Wainwright facilities, and Neely Road at Meridian Road, at the corner of the existing CHPP, operate at LOS F during p.m. peak times. Twenty other intersections were also studied and operate at LOS C or better during both a.m. and p.m. peak times (USKH 2009).

3.9.2 Environmental Consequences

3.9.2.1 Significance Criteria

An impact would be considered significant for transportation and traffic if an Army action were to result in any of the following:

- Cause substantial changes in traffic flow patterns

- Introduce substantial levels of construction traffic on local roads
- Substantially degrade roadways within the ROI
- Causes unacceptable delays in deliveries by rail

3.9.2.2 No Action Alternative

Under the No Action Alternative, traffic and rail patterns would continue in their current state, and there would be no impacts on existing on- and off- installation traffic levels or transportation networks from construction of a new power supply system. Short-term, minor, adverse impacts may occur as a result of the utilidor upgrades and replacements; in which case, construction vehicle traffic as well as roadway interruptions would occur when working on or adjacent to roadways. Short-term, minor, adverse impacts on roads would occur if the roads need to be either fully or partially closed to complete the utilidor replacements, which would cause delays and possible detours. The existing CHPP would require continued delivery of coal via the Alaska Railroad from a local coal mine in Healy. Rail transportation volumes at Fort Wainwright and in the surrounding region would remain unchanged.

3.9.2.3 Alternative 1 (Build a New Coal CHPP)

Alternative 1 would not include construction or modification of any roads or transportation networks. Impacts that may occur from the Proposed Action would primarily be a result of increased traffic volume and not a result of roadway construction or reconfiguration.

Short-term, minor, adverse impacts on transportation and traffic systems at Fort Wainwright would be expected as a result of Alternative 1. Temporary impacts on traffic would occur during the demolition and construction of the existing and proposed coal-fired CHPPs resulting from the introduction of traffic from construction vehicles and construction worker commuting and from the potential road closure due to utilidor renovation that could result in congestion and delays at ACPs and on-installation roadways.

Four general transportation routes could be taken by construction vehicles to access the CHPP site (Figure 3.9-3). Route 1 would require construction traffic to access the installation using the Main Gate on Gaffney Road, turn right onto 10th Street, and then left onto Neely Road where Oak Road, an access road for the CHPP site is located. Route 2 would require construction traffic to use Trainor Gate at the northwest perimeter of the installation, follow River Road which merges with Meridian Road, and access the CHPP site using Oak Avenue. Route 3 would require construction traffic to access the installation using Badger Gate, and to travel west through the installation using Old Badger Road, MacArthur Avenue, and Oak Avenue to access the CHPP site.

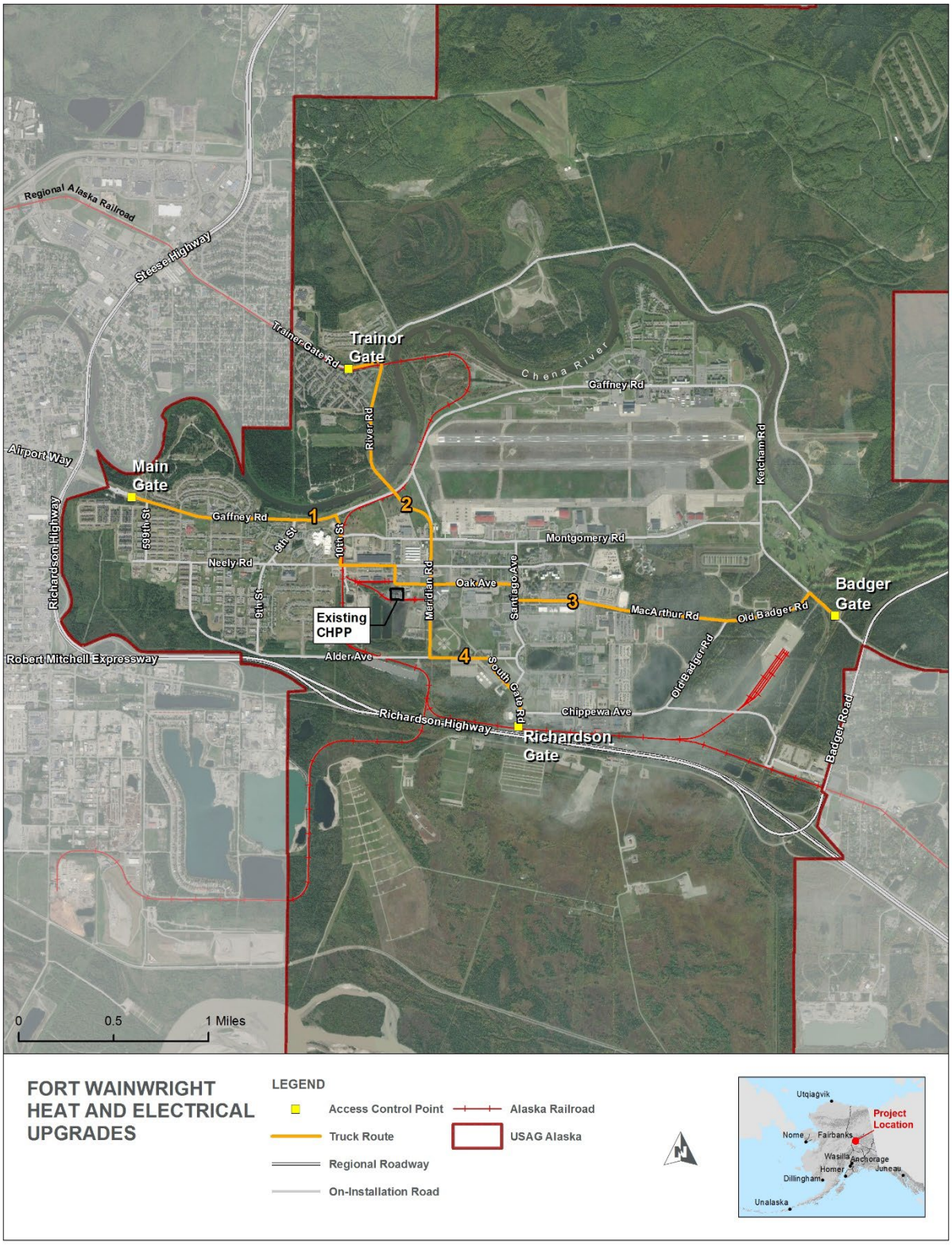


Figure 3.9-3. Fort Wainwright Construction Traffic Travel Routes

Construction traffic using Route 4 would access the installation using Richardson Gate, and travel to the CHPP site via South Gate Road, Alder Avenue, and Meridian Road. Estimated travel distances and times for each route are included in Table 3.9-5. Route 3 is the longest route within the installation that construction traffic would take and, therefore, would require the most travel time. Although Route 4 represents the shortest travel distance within the installation, it requires the use of Richardson Gate, which is closed to all traffic except for special traffic requests.

Table 3.9-5. Possible Construction Traffic Travel Routes

Route	Access Control Point	Distance[a] (miles)	Travel Time[b] (minutes)
1	Main Gate	1.75	4.20
2	Trainor Gate	1.68	4.03
3	Badger Gate	2.50	6.00
4	Richardson Gate[c]	1.31	3.14

Notes:

a. Distance from the ACP to proposed CHPP site.

b. Travel times were estimated for a 25-mph posted speed and do not consider traffic-related delays.

c. Richardson Gate is closed to all traffic and is only opened for special traffic requests.

Temporary impacts on traffic flow would occur as part of the construction and demolition processes for Alternative 1. Possibility of increased traffic congestion as a result of construction-related traffic would be highest during peak travel times from 7:00 a.m. to 8:00 a.m. and from 4:30 p.m. to 5:30 p.m. All construction traffic would be localized to the CHPP site and utilidor renovation areas. Additionally, construction Route 1 uses two intersections that were identified to have an LOS F: Gaffney Road and 599th Street, and Gaffney Road and 10th Street. Additional vehicles at these intersections have the potential to increase traffic volume and congestion. The level of impact would depend on the construction vehicle routes, frequency of travel, peak times for construction vehicle activity, and length of the construction period. Most construction workers would park on the site during construction activities, and the vehicles would use the ACPs outside of peak hours if practicable, which would limit adverse impacts. Temporary impacts on transportation and traffic as a result of utilidor renovations depends on location, duration, and proximity to roadways and rail lines. If utilidor renovations occur in or adjacent to roadways, there could be impacts from to the presence of construction traffic and the possibility of partial road closure.

The anticipated increase in traffic to and from the installation and on installation roadways from construction worker commutes, construction vehicle travel, hauling of construction and demolition debris, and delivery of construction materials is not expected to adversely affect off-installation local and regional roadways and rail lines because the increase in traffic compared to existing traffic volumes would be negligible. In the case of construction near transportation infrastructure or renovation of utilidor segments that cross a throughway, the regular flow of traffic would be maintained to the greatest extent possible and degradation of roadways and rail lines would be avoided. Fort Wainwright would

minimize interference with non-construction traffic on roads selected for hauling materials to and from the CHPP site and would provide any and all BMPs, including flaggers, notifications, and temporary detours to reduce any short-term impacts that may occur.

Long-term adverse impacts as a result of Alternative 1 would not be anticipated. Following the completion of construction and demolition activities, the newly constructed coal-fired CHPP would not generate additional traffic volumes that would decrease the LOS on roadways within Fort Wainwright. Coal would continue to be delivered via rail from a local coal mine in Healy, and no additional freight deliveries by rail would be anticipated to support the new coal-fired CHPP operation; therefore, no reduction in traffic flow would occur.

3.9.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Alternative 2 would not include construction or modification of any roads or transportation networks. Impacts that may occur from the Proposed Action would primarily be a result of increased traffic volume and not a result of roadway construction or reconfiguration.

Short-term, minor, adverse impacts, and long-term, negligible to minor, adverse impacts on transportation and traffic systems at Fort Wainwright would be expected as a result of Alternative 2. Temporary impacts on traffic would occur during the construction and demolition period for the existing coal-fired CHPP and proposed dual-fuel CHPP; during construction for the natural gas pipeline; and during renovation of the utilidor system. Long-term impacts would occur from delivery of natural gas and ULSD.

Short-term impacts from construction and demolition activities would be identical to those discussed for Alternative 1. Additionally, as described for Alternative 1, construction vehicle traffic would use the four general transportation routes identified in Figure 3.9-3. Travel distances and times for each route are included in Table 3.9-5.

Long-term, negligible to minor, adverse impacts on regional transportation as a result of Alternative 2 would occur following the completion of the new dual-fuel CHPP. Operation of the new plant would require delivery of LNG by truck to a 5.25-million-gallon tank in Fairbanks managed by a gas provider, which would result in long-term, minor impacts on traffic volumes in and around the city of Fairbanks, particularly near the gas provider facility (IGU 2019). LNG would then be re-gasified in Fairbanks and delivered to Fort Wainwright via gas pipeline, which would have negligible long-term effects on transportation and traffic. ULSD, the secondary fuel source, would be delivered periodically to Fort Wainwright by truck. The transportation routes for delivery vehicles would be analogous to those used for construction traffic, with Route 1 and utilization of the Main Gate being the preferred route. Long-term, minor impacts related to traffic flow could occur because of an increase in delivery vehicles at ACPs, contributing to congestion; and would depend on the fuel delivery schedule, frequency of deliveries, and delivery route. Trucks would no longer be used to transport coal ash from the CHPP to the landfill at Fort Wainwright, however. Delivery of coal by rail would no longer be needed at the new CHPP, which would cause a decrease in rail traffic. The current number of weekly freight deliveries by rail would decrease 16 percent from 25 to 21

deliveries, a difference that may have a negligible to minor benefit for road traffic at Fort Wainwright because temporary traffic flow stops at railroad crossings would occur less frequently. Over the long-term, however, LNG shipments to Fairbanks could occur by rail, which would increase rail deliveries. The deliveries under this scenario could likely increase rail traffic into Fairbanks back to current conditions, resulting in negligible or lower impacts.

3.9.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Alternative 3 would not include construction or modification of any roads or transportation networks. Impacts that may occur from the Proposed Action would primarily be a result of increased traffic volume and not a result of roadway construction or reconfiguration.

Short-term, minor, adverse impacts and long-term, minor to moderate, adverse impacts on transportation and traffic systems at Fort Wainwright would be expected as a result of Alternative 3. Temporary impacts on traffic would occur during the construction period for the new natural gas boilers and natural gas pipeline; renovation of the steam distribution system; and demolition of the existing coal-fired CHPP.

Because the installation of multiple high-efficiency natural gas boilers would be dispersed at facilities across the installation, construction transportation routes would vary. It is assumed that all incoming and outgoing construction vehicles would use all four ACPs to access the proposed construction sites.

Short-term impacts from construction and demolition activities would be identical to those discussed for Alternative 1. Additionally, vehicle transportation related to demolition activities at the existing coal-fired CHPP would use the four general transportation routes described for Alternative 1 and identified in Figure 3.9-3. Travel distances and times for each route are included in Table 3.9-5. Long-term, negligible to minor, adverse impacts on transportation and traffic systems at Fort Wainwright are anticipated to occur as a result of continued natural gas and ULSD supply operations. These impacts would be identical to those discussed for Alternative 2.

3.10 Human Health and Safety

The ROI for human health and safety for the proposed project is the Main Cantonment Area, including utility corridors served by heat or electricity from the existing CHPP.

3.10.1 Affected Environment

3.10.1.1 Definition of Resource

Human health and safety considers those facets of military activities and materials that potentially pose a risk to the health, safety, and well-being of the public, military personnel, civilian employees, and dependents. Aspects of military activities and construction activities that can present risk to human health and safety include vehicle operation, occupational and construction safety hazards, and handling and management of hazardous materials and hazardous waste.

3.10.1.2 Environmental Laws, Regulations, and Executive Orders

USAG Alaska has implemented a comprehensive program to eliminate, avoid, or reduce the associated risks to its workers and the public (USAG Fort Wainwright 2019). USAG Alaska's health and safety program operates in compliance with the following regulations and guidance documents:

- Occupational Safety and Health Act of 1970 (29 U.S.C. §§ 651-678) and implementing regulations at 29 CFR Part 1910, Occupational Safety and Health Standards, and 29 CFR Part 1926, Safety and Health Regulations for Construction)
- AR 40-5, Preventive Medicine
- AR 75-15, Policy for Explosive Ordnance Disposal
- AR 200-1, Environmental Protection and Enhancement
- AR 385-10, Safety Program
- AR 385-64, Army Explosives Safety Program
- *Risk Management*, Army Training Publication ATP 5-19 (Army 2014)
- Hearing Conservation Program, Pamphlet 40-501 (Army 2015b)
- The Army Industrial Hygiene Program, Pamphlet 40-503 (Army 2013)
- DoD Directive 4715.11, Environmental and Explosives Safety Management on DoD Active and Inactive Ranges within the United States
- DoD Directive 6055.9–STD, DoD Ammunition and Explosives Safety Standards

These regulations and guidance documents have directed the development of SOPs, which all installation users are required to follow.

3.10.1.3 Current Condition

Health

The Fort Wainwright Main Cantonment Area supports military training missions, airfield operations, and industrial and commercial land uses, as well as residential communities. As such, it contains the same range of human health and public health issues of any developed community, including livelihood, human health issues, and safety and injury issues. One key military mission based at Fort Wainwright is the Medical Department Activity – Alaska (MEDDAC – AK), which operates Bassett Army Community Hospital. MEDDAC – AK, through the hospital and outlying clinics, serves all Army personnel in Alaska plus Fairbanks-area Air Force beneficiaries, Army family members, and retirees from all branches of service. The hospital is located on Neely Road 0.4 mile northwest of the existing CHPP. Kamish Soldier Centered Medical Home, about 0.6 mile southeast from the CHPP, provides primary care for Soldiers and their dependents. Both facilities depend on the CHPP for heat and for standard electrical power needs.

Within 0.5 mile of the CHPP are housing units and garden plots to the west, and ballfields, a post office, a fitness center, and commercial outlets to the east. Such indoor and outdoor public use areas are receptors for emissions generated at the CHPP.

The storage and handling of fuels and combustion byproducts are a potential health and safety risk. Releases of coal dust from transporting coal trains through the western portion of the Main Post, unloading train cars, storing coal, and transferring coal to the CHPP for burning are controlled through enclosed handling systems at the CHPP, including conveyers, ventilation, and air filtration, to protect public health. Coal ash and similar byproducts of coal combustion are collected in silos and loaded into trucks in an enclosed area for transport to the Fort Wainwright landfill. Coal ash contains metals, such as arsenic, that can be toxic if sufficiently concentrated and ingested or inhaled. These metals can have adverse effects on human health, such as increased cancer risk and nervous system impacts and other problems from lung disease to birth defects (Physicians for Social Responsibility [PSR] 2010a). CHPP coal ash has been disposed of two to three times per week for many years in the unlined Fort Wainwright landfill, and no known contamination issues have been identified from coal ash disposal (USACE 2019). Disposal of ash in other unlined facilities in the United States has led to contamination of groundwater in some cases (PSR 2010b). The landfill is operating in accordance with the state-issued solid waste disposal permit. A closed portion of the landfill has known contamination, and groundwater monitoring wells are in place to ensure there are no human health impacts.

Fairbanks in general does not meet all air quality standards. Fairbanks, including Fort Wainwright, is within a nonattainment area for $PM_{2.5}$, which can cause respiratory and heart health problems (Dellinger et al. 2008). The emissions from coal combustion contribute to the $PM_{2.5}$ load in the nonattainment area. See Section 3.2, Air Quality, for details.

Fort Wainwright in general, including the Main Cantonment Area where people live and work, is classified as a Superfund site for hazardous wastes in soils (USAG Fort Wainwright 2017a). Exposure to such wastes is a recognized health hazard. Fort Wainwright waste management sites are operated to avoid exposure by the general public and, when needed, to ensure work in such areas is done to minimize health hazards to workers, in compliance with OSHA and military directives. See Section 3.4, Hazardous and Toxic Materials and Wastes, for further information. The landfill at Fort Wainwright is a Class I municipal solid waste landfill that is permitted by ADEC to accept municipal solid waste on a case-by-case basis and routinely accepts inert waste and coal ash from the CHPP.

In addition, Fort Wainwright has residual amounts of ACMs, LBP, and PCBs in older buildings and in construction and industrial materials and equipment. ACM that become friable or easily dry and then are susceptible to crumbling and releasing airborne fibers were banned in 1991; LBP was banned in 1978; and PCBs are required to be in an enclosed system because of adverse health effects of these substances. ACM occurs as heat-proof insulation and possibly as sound proofing in the CHPP and utilidors. LBP

could occur in any paint applied before 1978 and is likely present in the CHPP. PCBs may occur in light fixtures but are not known to occur in electrical transformers.

Safety

The USAG Alaska's program to eliminate, avoid, or reduce safety risks for its workers and the public includes the following basic components:

- Complying with all applicable federal and state laws and regulations addressing health, safety, and risk management
- Developing local regulations and detailed SOPs, which further implement these laws and regulations and focus on unique risk factors and mission requirements within lands of Fort Wainwright
- Establishing a local installation safety office that has the proper resources and authority to effectively implement the USAG Alaska's health and safety program and that is properly integrated with other USAG Alaska and local civilian safety and emergency response organizations
- Providing effective, mission-focused training and guidance to all USAG Alaska personnel
- Encouraging proactive employee participation in safety and health programs and charging leaders at all levels with the responsibility for planning and conducting mission activities in a safe manner (USAG Fort Wainwright 2019)

The storage and handling of fuels is a potential health and safety risk. The 2018 coal dust fire at the CHPP, discussed in Section 1.1.2, is indicative of one type of risk. Fort Wainwright also transports, stores, and handles large quantities of automobile and aircraft fuel and ordnance that presents an explosion and fire risk. Contact with some toxic materials also can cause injury or illness.

The area around the existing CHPP is a designated Safety Danger Zone.

3.10.2 Environmental Consequences

3.10.2.1 Significance Criteria

A significant adverse impact on human health and safety would result if an Army action were to result in either of the following:

- Violate applicable regulations and policies designed to protect human health and safety
- Be anticipated to have a substantial risk of causing imminent or chronic human health and safety problems

3.10.2.2 No Action Alternative

The No Action Alternative could have moderate to significant adverse impacts on mental and physical human health, because it would continue to rely on aging infrastructure and not reduce the risk of loss of heat and power on the installation. Heat and power loss in the winter could result in extended periods of below zero temperatures that not only present a risk to the human body but can rupture pipes and damage infrastructure that people depend on for day-to-day living. To prevent physical health problems associated with loss of heat and power in a subarctic environment, it is likely Fort Wainwright would be evacuated on short notice under such a scenario. Base evacuations, especially during the winter, pose a health and safety risk to the Fort Wainwright population and workforce, including people with adverse health conditions and patients at the hospital. Such evacuations could have moderate, stress-related adverse impacts on mental health by disrupting work and family routines and military mission. Although the scenario is not highly likely to occur, the CHPP and utilidor infrastructure is well beyond its expected life and has presented failures to the extent that the potential is no longer considered a reasonable risk.

To continue operating the existing plant and comply with regulatory standards, USAG Alaska would need to repair and upgrade plant parts and technologies, upgrade approximately 27 miles of aging pipelines within the utilidors, incorporate substantial BACTs, and continue operating the derated CHPP boilers at reduced capacity. This work would be completed under SOPs designed to protect human health and safety. Despite health and safety regulations, such construction and maintenance would include risks to workers and the general public. The utilidors contain asbestos that likely would require at least partial abatement to renovate the utilidors. Workers could be exposed to asbestos and other hazardous materials during renovation; however, following all applicable rules and SOPs for these hazards would substantially minimize risks.

3.10.2.3 Alternative 1 (Build a New Coal CHPP)

Long-term, minor to moderate, adverse and beneficial impacts on health and safety would occur under Alternative 1. This alternative would substantially reduce the risk of heat and power loss and the resulting base evacuation, and would substantially reduce the health and safety risks of such an evacuation in winter to the Fort Wainwright population and workforce, including patients at the hospital. Alternative 1 would have a long-term beneficial impact on human health and safety by providing greater reliability against loss of heat and power.

All construction would be conducted in accordance with relevant regulations established by USAG Alaska, OSHA, and other federal and state agencies. Construction sites would be accessible only to workers and authorized personnel, which would minimize risks to workers and passers-by. Design and construction of new habitable facilities at Fort Wainwright would comply with requirements set forth in Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings (DoD 2018c). Temporary health and safety risks from construction of Alternative 1 would be managed through adherence to applicable OSHA regulations and Governmental Safety Requirements

(DoD 2019a). Alternative 1 would retain coal as the primary fuel, and modern technology for minimizing emissions would be expected to reduce emissions that contribute to health problems, compared to existing conditions and the No Action alternative (see Section 3.2, Air Quality and Section 3.6, Environmental Justice). Alternative 1 would be expected to meet air quality standards without having to reduce the heating capacity of the plant. Coal ash would continue to be generated, loaded, transported, and disposed of at the Class I municipal solid waste landfill located on Fort Wainwright. If the on-post landfill were to reach capacity in the near future, the landfill would be closed and covered, and coal ash would then be disposed of at another location such as an approved landfill in Fairbanks. Alternative 1 would employ the same coal ash handling and disposal process currently used under existing operations. The Army would continue to monitor groundwater quality to minimize the potential for human health impacts. Because of greater efficiency of the new CHPP, less ash would be anticipated to be produced than at the existing CHPP, which would extend landfill capacity.

3.10.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Alternative 2 would retain the concept of a central heating and power plant but change the fuel from coal to natural gas and/or ULSD fuel. It is anticipated that the new plant would meet all air quality standards. Because natural gas facilities have lower emissions than even state-of-the-art coal-fired facilities, air emissions would be expected to be lower than those under Alternative 1 or the No Action Alternative (see Section 3.2, Air Quality).

In general, health and safety benefits of removing the existing CHPP would be the same as those discussed for Alternative 1. Most adverse impacts also would be the same as discussed for Alternative 1. With implementation of SOPs, the impacts are expected to be minor. Alternative 2 would avoid health risks associated with loading, transport, and disposal of coal ash indicated under Alternative 1.

Alternative 2 would involve running a new natural gas pipeline from a commercial LNG storage and distribution system in Fairbanks to Fort Wainwright and the location of the new CHPP. It also would involve new storage tanks for a minimum of a 14-day supply of ULSD fuel at the installation. Such tanks, which are expected to have a total volume of tens of thousands of gallons, would be required to have containment and/or double-wall construction to prevent and contain spills to the natural environment. The tanks would be located adjacent to the CHPP and would be vented. The installation of new natural gas pipelines and utility piping systems associated with the new CHPP would follow all applicable national and local building codes, which would minimize the risk of gas system explosions and fires that could otherwise pose a risk to human health and safety at the CHPP and nearby structures. BMPs would minimize odor or health issues in nearby public use areas (the hospital and homes are located within about 1,500 feet; baseball diamonds within about 2,000 feet).

3.10.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Alternative 3 would remove the concept of a CHPP, replacing it with a large number of individual smaller boilers at individual facilities. These boilers would be designed to run normally on natural gas and would use a combination of steam and heated glycol/water for heat. In the event of a power outage or natural gas interruption to mission-critical buildings, ULSD-reciprocating internal combustion generators would be used as emergency backup power or heat sources for boilers. Coal would no longer be imported to Fort Wainwright.

In general, health and safety benefits would be the same as those discussed above for Alternative 1. It is anticipated that the new boilers would meet all air quality standards. Because natural gas facilities generate fewer emissions than even state-of-the-art coal-fired facilities, air emissions would be expected to be cleaner than those under Alternative 1 (see Section 3.2, Air Quality).

Most adverse effects also would be the same as discussed under Alternative 1. With implementation of SOPs, the impacts are expected to be minor. Alternative 3 would avoid health risks associated with loading, transport, and disposal of coal ash that was indicated under Alternative 1.

Alternative 3 would involve running a new gas main from a commercial LNG storage and distribution system in Fairbanks to Fort Wainwright, and a new gas distribution system throughout the Main Cantonment Area. The existing CHPP likely would be demolished, and the coal storage and handling facilities would be removed.

Because multiple buildings are considered mission critical for military missions, the distributed gas boilers at many buildings would be dual-fuel boilers and would have their own dedicated fuel tanks. Additionally, a backup power supply would be provided by generators and a 14-day supply of ULSD fuel would be located within the installation boundary on Fort Wainwright.

3.11 Geology and Soil Resources

3.11.1 Affected Environment

The ROI for geology and soil resources is the Fort Wainwright Main Cantonment Area, with further focus on the existing utilidors, the existing coal storage area, and the area at and west of the existing CHPP, which is the area for any planned new central heating and power plant.

3.11.1.1 Definition of Resource

Geology and soil resources include the surface and subsurface materials of the earth. Within a given physiographic province, these resources typically are described in terms of topography, soils, geology, minerals, and paleontology, where applicable.

Regional topography is influenced by many factors, including human activity, seismic activity of the underlying geological material, climatic conditions, and erosion. Information describing topography typically encompasses surface elevations, slope, and physiographic features (i.e., mountains, ravines, and depressions).

Site-specific geological resources typically consist of surface and subsurface materials and their inherent properties. Principal factors influencing the ability of geological resources to support structural development are the seismic conditions (i.e., potential for subsurface shifting, faulting, or crustal disturbance), topography, and soil stability. Soils are the unconsolidated materials overlying bedrock or other parent material. They develop from weathering processes on mineral and organic materials and are typically described in terms of their landscape position, slope, and physical and chemical characteristics. Soil types differ in structure, elasticity, strength, shrink-swell potential, drainage characteristics, and erosion potential, which can affect their ability to support certain applications or uses. In appropriate cases, soil properties must be examined for compatibility with particular construction activities or types of land use.

3.11.1.2 Environmental Laws, Regulations, and Executive Orders

The primary rules affecting soils are related to the Farmland Protection Policy Act (FPPA) of 1981, and its implementing regulations, 7 CFR Part 658. Prime and unique farmland is protected under the FPPA. The intent of the FPPA is to minimize the extent that federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. There are no prime or unique farmlands in the Main Cantonment Area. No other laws or regulations concerning geology and soils have been identified that are relevant to the proposed project.

3.11.1.3 Current Condition

The developed area of Fort Wainwright is bounded roughly on the north by the Chena River and on the south by the Tanana River. The Main Cantonment Area is chiefly a flat lowland area at about 400 feet elevation between these rivers. Consequently, the primary surficial geology is floodplain alluvium and is mapped as 1 to 20 feet of alluvial silt (Pewe et al. 1966).

Minerals management goals and objectives from the *Integrated Natural Resource Management Plan: USAG Fort Wainwright*; (USAG Fort Wainwright 2013b, p. B-42) are listed below:

- Manage the mineral resources on Fort Wainwright lands in the best interest of the public within the framework of the military mission
- Provide the military with a source of saleable construction materials for military construction purposes

Bedrock Geology

Bedrock is generally not present at the surface in the Fort Wainwright Main Cantonment Area. Across the Chena River, east of Ladd AAF, relatively small outcrops of intrusive rocks and still smaller outcrops of Birch Creek schist are found. Farther north are similar small outcrops of Birch Creek schist and areas of extrusive igneous rocks (basalt) at the surface (Pewe et al. 1966).

Seismicity

Earthquakes present a risk of damage to structures in most of Alaska. The Alaska *State Hazard Mitigation Plan* (Alaska Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management [DHSEM] 2018) notes that damaging earthquakes can affect the Fairbanks area. An example is the 7.9 magnitude Denali Earthquake of November 3, 2002, which was centered 84 miles south of Fairbanks and lasted for 3 minutes (Denali National Park 2019). The *State Hazard Mitigation Plan* quotes the Alaska Earthquake Center of the University of Alaska, indicating that three earthquakes with a magnitude greater than 7 magnitude have occurred within 50 miles of Fairbanks since the early 1900s.

Earthquake hazard is typically described in terms of peak ground acceleration (pga), which is expressed as a percentage of the acceleration due to gravity (percent g). The *State Hazard Mitigation Plan* indicates that in Fairbanks, the pga that has a 2 percent chance of being exceeded in 50 years (or 0.04 percent chance in any given year) is 34 to 53 percent g. This pga corresponds to shaking that is perceived as very strong to severe, and may cause moderate to moderate/heavy damage. Smaller (i.e., lower magnitude) earthquakes have less severe ground shaking and are more common, whereas higher magnitude earthquakes have more severe earth shaking and are uncommon. Although strong earthquakes may not occur often in the Fairbanks area, they pose a risk of moderate to heavy damage.

The *State Hazard Mitigation Plan* categorizes major earthquake hazards as follows (DHSEM 2018):

- Strong ground motion
- Surface rupture
- Subsidence and uplift
- Earthquake-related ground failure
- Seiche (waves or “slosh” in a confined waterbody)
- Tsunami (ocean wave)

Seiche and tsunami do not pose a risk at Fort Wainwright. The other earthquake hazards, however, may be applicable in the Fort Wainwright area and can lead to structure damage. Ground failure includes landslides and a process called liquefaction, in which saturated soils lose their structure and behave like a liquid. Liquefaction can lead to lateral spreading, which is the lateral movement of ground on and within a zone of

liquefied soil. Soils most prone to liquefaction are poorly graded (i.e., have a uniform grain size) and non-cohesive (e.g., sands).

Economically Viable Minerals

Federal lands were withdrawn from general purposes for USAG Alaska lands and therefore are not open to the staking of hard rock or placer mining claims and are not open for mineral leasing (such as oil and gas leasing). Saleable materials, such as gravel for construction, have not been made commercially available since the lands were withdrawn for military purposes in the 1950s.

Fuels proposed for use to generate heat and electrical power at Fort Wainwright are fossil resources. ULSD and natural gas, which are considered as potential fuels for the proposed project, are refined products that can be purchased through distributors. ULSD in Alaska comes partly from a refinery in Kenai, which refines North Slope crude oil, and partly from refineries outside the state. Natural gas is produced and sold commercially from Cook Inlet near Anchorage. Gas produced on the North Slope is re-injected into the ground to maintain pressure as an aid in extracting oil. No gas pipeline connects the North Slope gas to markets. Coal used currently at Fort Wainwright comes from a local coal provider located in Healy, about 125 road or rail miles southwest of Fort Wainwright. According to the mine's website, the mine has operated since 1943, produces 1.2 million to 2.0 million tons of coal per year, and serves six Interior Alaska power plants (Usibelli Coal Mine 2019). It produces subbituminous coal from a coal lease area of approximately 35,000 acres and has total surface reserves of approximately 450 million tons. It is the only operating coal mine in the state.

Soil Series and Properties

Greater Fairbanks is considered an area of discontinuous permafrost (perennially frozen soils). Permafrost occurs in multiple soil types at depths ranging from less than 1.6 feet to 66 feet to the upper surface of the perennially frozen area, and occurs to depths of about 165 feet. Thawed areas are deepest beneath swales and former stream channels and beneath constructed areas, such as roads, pipelines, buildings, and areas cleared of vegetation. The soil pattern can be complex, with frozen and non-frozen areas intermixed and groundwater both above and below frozen soils. Southward sloping sediments and bedrock, such as at Birch Hill north of the study area, are generally not permanently frozen (Lawson et al. 1998).

As reported in soil survey data from the Natural Resources Conservation Service (NRCS), an 8,000-acre rectangle consisting mostly of the Main Cantonment Area[1] includes 25 soil

[1] A soils map of the general study area was produced from the NRCS online mapping tool. The mapped area extended from the northernmost bends of the Chena River to the firing ranges south of the Richardson Highway and from the Main Post gate area on the west side of Fort Wainwright to the Badger Road area east of the installation. This rectangular area encompasses nearly 8,000 acres.

map units. The developed cantonment area primarily consists of four soil map units (NRCS 2019):

1. **Urban land.** This classification appears almost everywhere that has been developed with streets, the airfield, buildings, and utilities, including the area of the existing CHPP and coal mound and the areas north and east of the CHPP.
2. **Salchaket-Typic Cryorthents complex.** This unit consists of alluvium (silt, sand, and gravel deposits from water). These soils occur in the central developed area south of the airfield (and more than 1,200 feet east of the CHPP) and have been built upon. A large band of these soils also occurs immediately south of the coal mound and its adjacent pond as well as east and west of the coal mound. Some of these soils have been developed for housing (west of the coal mound) and ballfields (east of the coal mound).
3. **Tanana mucky silt loam.** These soils consist of alluvium and/or loess (deposits from wind) over alluvium in terraces. Soils with this classification occur south of the CHPP beyond the band of soil unit No. 2 above and in other mostly small pockets.
4. **Mosquito mucky peat.** This unit consists of organic material over alluvium and is found in depressions where ponding is frequent. Soils with this classification occur south of the CHPP beyond the band of soil unit No. 2 above and in other medium-sized pockets.

These soils are generally flat, with slopes of 1 to 2 percent and small areas with slopes of 5 to 15 percent. The flooding frequency classification for the non-urban soils is “rare”; urban land soils are not rated for flooding. Table 3.11-1 lists some properties relevant to construction for these soils.

Table 3.11-1. Selected Soil Properties

Property	Urban land	Salchaket-Typic Cryorthents Complex	Tanana Mucky Silt Loam	Mosquito Mucky Peat
Drainage class	Not classified	Well drained	Poorly drained	Very poorly drained
Frost action	Not rated	Moderate	High	High
Percent silt	Not rated	18.4%	35.4%	30%
Percent clay	Not rated	5.5%	7.5%	5%
Depth to permafrost	Not rated	>6 feet 7 inches	2 feet 1 inch	2 feet
Depth to bedrock	>6 feet 7 inches	>6 feet 7 inches	>6 feet 7 inches	>6 feet 7 inches
Erosion factor	Not rated	0.43	0.43	0.37

Shaking of saturated soils prone to liquefaction (see Section 3.11.1.3) may cause loss of load-bearing capacity, settlement, and damage to infrastructure.

An Alaska Division of Geological & Geophysical Surveys report on the potential for earthquake-induced liquefaction in the Fairbanks area (Combellick 1984) states:

> A preliminary determination of liquefaction susceptibilities of deposits in the area … indicates that saturated sediments in and near the active river channels of the Tanana, Chena, and Nenana River flood plains are highly likely to liquefy during strong shaking. The liquefaction susceptibility of Holocene abandoned flood-plain deposits ranges from moderate to high, depending on the relative quantity of gravel.

The report maps the Main Cantonment Area primarily as having moderate liquefaction susceptibility, with pockets of low susceptibility and narrow bands of very high susceptibility along rivers.

Soil Erosion Potential

According to the NRCS, Erosion Factor (K) indicates the susceptibility of a soil to sheet and rill erosion by water. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Overall values of K range from 0.02 to 0.69. The NRCS ratings for soils in the study area indicate an intermediate susceptibility to erosion (see Table 3.11-1).

Some urban land likely consists partly of reworked and compacted local soils and partly of imported compacted foundation materials. Additionally, some may be reworked but uncompacted local soils. In general, uncompacted reworked soils are likely to be more susceptible to erosion.

3.11.2 Environmental Consequences

3.11.2.1 Significance Criteria

A significant impact on geology and soil resources could result if the Army action were to result in any of the following:

- Violate best engineering practices and policies designed to maintain soils and permafrost and prevent erosion
- Cause substantial problems for soils as a stable foundation for buildings and utilities or as a resource for plant growth and aesthetics
- Result in unacceptable risk of soil loss to the air (wind) or water, subsidence, or failure
- Induce dust in violation of air quality standards or increase turbidity over natural levels in waterbodies as a result of water erosion and runoff that would violate water quality standards

3.11.2.2 No Action Alternative

The No Action Alternative would not result in any substantive impacts on geology and soils. Maintenance work on the existing CHPP, utilidors, and other heat and power utility systems would occur and could include excavation and work in site soils, but these work activities would be similar to any ongoing maintenance that occurs today or that would occur under any alternative and would principally be in soils already disturbed for construction in the past. The risk of damage from an earthquake would be relatively high because of the aged infrastructure and the centralized nature of the existing system. Earthquake damage to the CHPP could affect all heated and powered buildings on Fort Wainwright, even if most buildings were otherwise not damaged.

3.11.2.3 Alternative 1 (Build a New Coal CHPP)

Alternative 1 would have short-term, negligible to minor, adverse impacts on geology and soils. Soils in the vicinity and within the footprint of the proposed new CHPP under Alternative 1 have been previously disturbed for construction. Any new impacts on soils likely would be limited. Impacts from potential disturbance of contaminated soils during demolition and construction activities are addressed under Section 3.4, Hazardous and Toxic Materials and Waste.

In general, some alluvial soil types at Fort Wainwright could be less than ideal as foundation material for new facilities. Soils may exhibit characteristics that could put the new heat and power facilities at risk, including risks from earthquake and soil liquefaction. Even previously disturbed, engineered, or compacted soils used in construction would be subject to seismic risk. Some soils could be considered susceptible to erosion, primarily during construction activities. If pockets of permafrost were physically disturbed or if their thermal regimes were changed by construction, thawing permafrost could lead to soil and foundation instability. Standard design and engineering practices would include a soils analysis of the areas to be built upon and best-practice engineering to ensure minimum risk to the constructed facilities. With a central heating system, Alternative 1 would pose somewhat greater risk of a heat outage across Fort Wainwright from earthquake damage than for a dispersed system, because damage to a single site could affect all heated buildings.

Coal would be the source of heat and power generation under Alternative 1. Theoretically, Fort Wainwright could purchase coal in an open market from anywhere. As a practical matter, the only producing coal mine in Alaska is relatively nearby in Healy. The mine has reserves to last the life of the proposed new CHPP.

Impacts on soils, including sedimentation and erosion, would be reduced to negligible by implementing BMPs and SOPs. An erosion and sediment control plan would be developed before construction to help minimize soil erosion. Earthquake risk would be mitigated by following standard engineering practices in evaluating foundation soils and incorporating seismic design. Adherence to these practices would not remove the risk of damage to structures but would minimize the risk to acceptable levels.

3.11.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Alternative 2 and its relationship to site soils would be similar to that for Alternative 1. With a central heating system, Alternative 2 would also present somewhat greater risk of a heat outage across Fort Wainwright from earthquake damage than for a dispersed system. In addition, the single supply line for natural gas could be at risk of rupture in a large earthquake and could result in heat loss fired by gas. This alternative would include a backup diesel fuel source at the new CHPP.

Natural gas would be provided by a natural gas distribution system in Fairbanks to Fort Wainwright, and a new gas distribution system throughout the Main Cantonment Area. Potential short-term impacts could occur from soil disturbance during pipeline construction.

Natural gas and ULSD fuel would be the source of heat and power generation under Alternative 2. Fort Wainwright would purchase these fuels in an open market, and the fuels could come from Alaska reserves or could be imported to Alaska from refineries in other states. The source could change over time.

Impacts would be reduced by using the same SOPs and BMPs identified under Alternative 1.

3.11.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Alternative 3 and its relationship to site soils would be similar to that for Alternative 1. The decentralized nature of Alternative 3 would not involve construction of a large, new central facility near the existing CHPP. Instead, boilers likely would be housed within existing structures; new additions to existing structures; or new, smaller, and dispersed heating-plant buildings that would heat a handful of nearby buildings. This alternative would serve to disperse the risk of heat outage across the Fort Wainwright Main Cantonment Area that could occur from earthquake damage to a central heating plant. Instead, individual buildings could be without heat following an earthquake, while others would be likely to continue operating. The single supply line for natural gas could be at risk of rupture in a large earthquake and could result in loss of heat fired by gas. This alternative would include backup heating systems with their own fuel supplies.

Natural gas would be the source of heat under Alternative 3. Fort Wainwright would purchase natural gas and electricity in an open market, and the gas could come from Alaska reserves or could be imported to Alaska from refineries in other states. The source of gas could change over time. Mitigation would be the same as described under Alternative 1.

3.12 Water Resources

3.12.1 Affected Environment

The water resources described in this section includes surface water features (e.g., lakes, streams, rivers), groundwater, floodplains, and storm water specific to the Fort Wainwright area. The ROI for water resources is the Fort Wainwright Main Cantonment Area. The subsections below focus on water resources in the Fort Wainwright Main Post and Main Cantonment Area, but in some cases, descriptions extend to areas beyond the Main Post to provide additional context.

3.12.1.1 Definition of Resource

Surface Water

Surface waters include rivers and streams (i.e., flowing waters), lakes, reservoirs, ponds, and wetlands. The USACE defines wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR § 328.3[b]). Surface water supplies the majority of Alaska's combined water needs for industry, agriculture, mining, fish processing, and public water use (Alaska Department of Natural Resources [ADNR] 2019. Surface waters and their ecosystems support plant and wildlife species, including Pacific salmon, and are important to the economic, recreational, and human health of a community or locale (DoD 2009).

Groundwater

The term “groundwater” refers to water below the ground’s surface that is contained in the spaces and cracks of rocks and/or unconsolidated materials, such as sand or gravel. Surface water and groundwater are intimately linked to one another within the hydrologic cycle. Groundwater aquifers are replenished by rain and snowmelt that seep down into the ground and infiltrate cracks and crevices of soils and/or rocks below ground. Groundwater typically moves relatively slowly and may eventually recharge surface water, such as streams and lakes. Groundwater is often described in terms of depth from the ground surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations (DoD 2009).

Groundwater is an essential natural resource used for drinking, irrigation, recreation, and industrial purposes. Groundwater helps to regulate atmospheric, hydrological, and nutrient cycles and serves other ecologically important roles. Organisms in groundwater help clean up contaminants and may play an important role in maintaining the health of surface waters (U.S. Forest Service [USFS] 2019). Groundwater resources are used for most domestic needs throughout Alaska and for bottled water export, and support many industrial operations (ADNR 2019a).

Floodplains

Floodplains are areas of low-lying ground adjacent to rivers or stream channels, formed mainly of river sediments that may normally be dry but become inundated with water during flood events. A floodplain extends from the edges of a stream or riverbank to the outer edges of a valley, providing a broad area to disperse and temporarily store floodwaters. Floodplains are dynamic ecosystems that perform several functions critical to the ecology of a stream or river (Federal Emergency Management Agency [FEMA] et al. 2002). Floodplains naturally convey and store flood waters and moderate floods by reducing flood peaks, peak velocities, and the potential for erosion. Floodplains recharge groundwater, cycle nutrients, maintain and improve water quality, and support plant and animal biodiversity.

Flooding can result from snowmelt in years with high snowfall and accumulation of snow water equivalent in the catchment in late spring, ice jams during breakup, or excessive rainfall during summer. Local topography, the frequency of precipitation events, and the size of the watershed above the floodplain influence the risk of flood potential. FEMA is responsible for determining flood elevations and floodplain boundaries to evaluate flood potential.

Storm Water

Fort Wainwright's storm sewer system conveys storm water runoff throughout the installation and is regulated as a Municipal Separate Storm Sewer System (MS4) under ADEC Permit AKS055859 (ADEC 2016). Storm water discharges are generated by runoff from land and impervious areas (e.g., paved streets, parking lots, and rooftops) immediately during and after rainfall and snowmelt events. Storm water discharges often contain pollutants in quantities that could adversely affect water quality. As storm water flows over land and impervious surfaces, it accumulates debris, sediment, chemicals, and other pollutants that could adversely affect water quality if untreated. Storm water runoff can be a pollution source for surface waters. Most storm water discharges are considered point sources and require coverage under a National Pollutant Discharge Elimination System permit, which in Alaska is now referred to as the Alaska Pollutant Discharge Elimination System (APDES) permit.

In Alaska, the Bureau of the Census recognizes Fairbanks as an urbanized area. As such, the Army was required to obtain an MS4 permit and operate under a Storm Water Management Plan (SWMP). ADEC issued Permit AKS055859 for Fort Wainwright in September 2016 (ADEC 2016). The Army developed an SWMP for Fort Wainwright to satisfy MS4 permit requirements in December 2016 (Center for Environmental Management of Military Lands [CEMML] 2016). Storm water discharges covered by other permits, including industrial activities covered under the Multi-Sector General Permit (MSGP) or construction activities addressed under ADEC's Alaska Construction General Permit, are also required to comply with the installation's MS4 Permit. Storm water discharges for MSGP activity at the existing CHPP are permitted under an MSGP permit (Permit AKR06AE33) issued to the CHPP's System Owner in August 2016 by ADEC (CEMML 2016).

3.12.1.2 Environmental Laws, Regulations, and Executive Orders

The CWA establishes the basic structure for protecting waters of the United States and regulating quality standards for surface and groundwater. The CWA requires that each state develop a program to monitor the quality of its waters and prepare a report describing the status of its water quality. Section 305(b) of the CWA requires that the quality of all waterbodies be characterized and Section 303(d) requires that states list any waterbodies that do not meet water quality standards (known as polluted or impaired waters) and establish Total Maximum Daily Loads (TMDLs) for the source causing the impairment. A TMDL is the maximum amount of a substance that can be assimilated by a waterbody without causing impairment. There are no Impaired Waters or TMDLs on Fort Wainwright.

Section 404 of the CWA requires authorization from the USACE for the discharge of dredge or fill material into waters of the United States, including wetlands. The USACE can provide such authorization through issuance of individual, nationwide, and/or regional general Section 404 permits. Section 401 of the CWA provides states with the legal authority to review an application or project that requires a federal license or permit (e.g., Section 404 permit from USACE) that might result in a discharge into a water of the United States. Under Section 401 of the CWA, ADEC is responsible for reviewing projects that involve a discharge into a water of the United States and require federal approval. In Alaska, such activities also require receipt of a Section 401 Water Quality Certificate of Reasonable Assurance or a waiver from ADEC. By agreement between USACE and ADEC, an application for a Nationwide Section 404 Permit may also serve as an application for an ADEC 401 Certification. ADEC has the authority to review and approve, condition, waive, or deny a 401 Certification under Section 401.

ADEC and ADNR are the primary state agencies largely responsible for administering Alaska's environmental laws, regulations, and environmental permits related to water quality and quantity, wetlands, water withdrawal, discharges, storm water, and water and sewage treatment. The Water Management Section of the ADNR Division of Mining, Land and Water oversees the management and appropriation of Alaska's surface water and groundwater. In Alaska's Constitution, water was declared a public resource belonging to the people of the state to be managed by the state for maximum benefit to the public (ADNR 2019a). All surface and subsurface waters on all lands in Alaska are reserved to the people for common use and are subject to appropriation in accordance with the Alaska Water Use Act (ADNR 2019a).

In 2009, ADEC became the APDES permitting authority for Alaska. ADEC's Storm Water Program, which is intended to reduce or eliminate pollutants in storm water, manages discharge criteria to water for compliance with Section 402 of the CWA. The ADNR Water Resources Section is responsible for adjudicating water rights, providing technical hydrologic support, and ensuring dam safety in Alaska. The mission of the ADNR Division of Mining, Land and Water is to provide appropriate use and management of Alaska's state-owned land and water, with a maximum use that is consistent with the public interest.

Fort Wainwright's storm sewer system is regulated as a small MS4. Regulated small MS4s are defined as small MS4s located in "urbanized areas" as defined by the Bureau of the Census, and those small MS4s located outside of urbanized areas that are designated by APDES permitting authority. All construction projects smaller than 1 acre but larger than 5,000 square feet are required to develop an Erosion and Sediment Control Plan (Fisher 2017).

FEMA is responsible for determining flood elevations and floodplain boundaries to evaluate flood potential and distributing Flood Insurance Rate Maps that identify the locations of special flood hazard areas. Federal regulations governing development in a 100-year floodplain are set forth in 44 CFR Part 60, which enables FEMA to require municipalities that participate in the National Flood Insurance Program to adopt certain flood hazard reduction standards for construction and development within floodplains. FEMA defines the 100-year floodplain as the area that has a 1 percent chance of inundation by a flood event in a given year. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

EO 11988, Floodplain Management, requires federal agencies to reduce the risk of flood loss; restore and preserve the natural and beneficial values served by floodplains; and minimize the impacts of floods on human safety, health, and welfare. The FNSB Title 15 ordinance describes construction requirements for new development occurring in flood hazard areas as mapped and defined by FEMA. A building and construction permit from the FNSB is required to build structures in the regulated floodway (USAG Fort Wainwright 2019).

3.12.1.3 Current Condition

Surface Water

The Fort Wainwright Main Post occupies portions of both the Chena River watershed and the Tanana Flats watershed within the Tanana River basin. The Chena River watershed has a total area of 2,115 square miles with elevations that range from 5,280 feet at its highest point to 420 feet where it joins the Tanana River (Vuyovich and Daly 2012). The Tanana Flats watershed drains an area of about 4,470 square miles (Figure 3.12-1). The Tanana River is glacial in origin, whereas the Chena River is a non-glacial river system. Both watersheds are underlain by discontinuous permafrost (Vuyovich and Daly 2012, CEMML 2004).

Major streams near the Main Post include the Chena and Tanana rivers (Figure 3.12-2). The Chena River generally flows west through the northern portion of the Main Post. The Tanana River flows west/northwest along the southern edge of the Main Post, just north of the Tanana River Flats Training Areas on Fort Wainwright. Terrain is gently sloping in this area; the Tanana River flows along the northern edge of the Tanana-Kuskokwim lowland (USAG Fort Wainwright 2013b). The Main Post area also encompasses multiple lakes, ponds, wetlands, and small tributary streams.

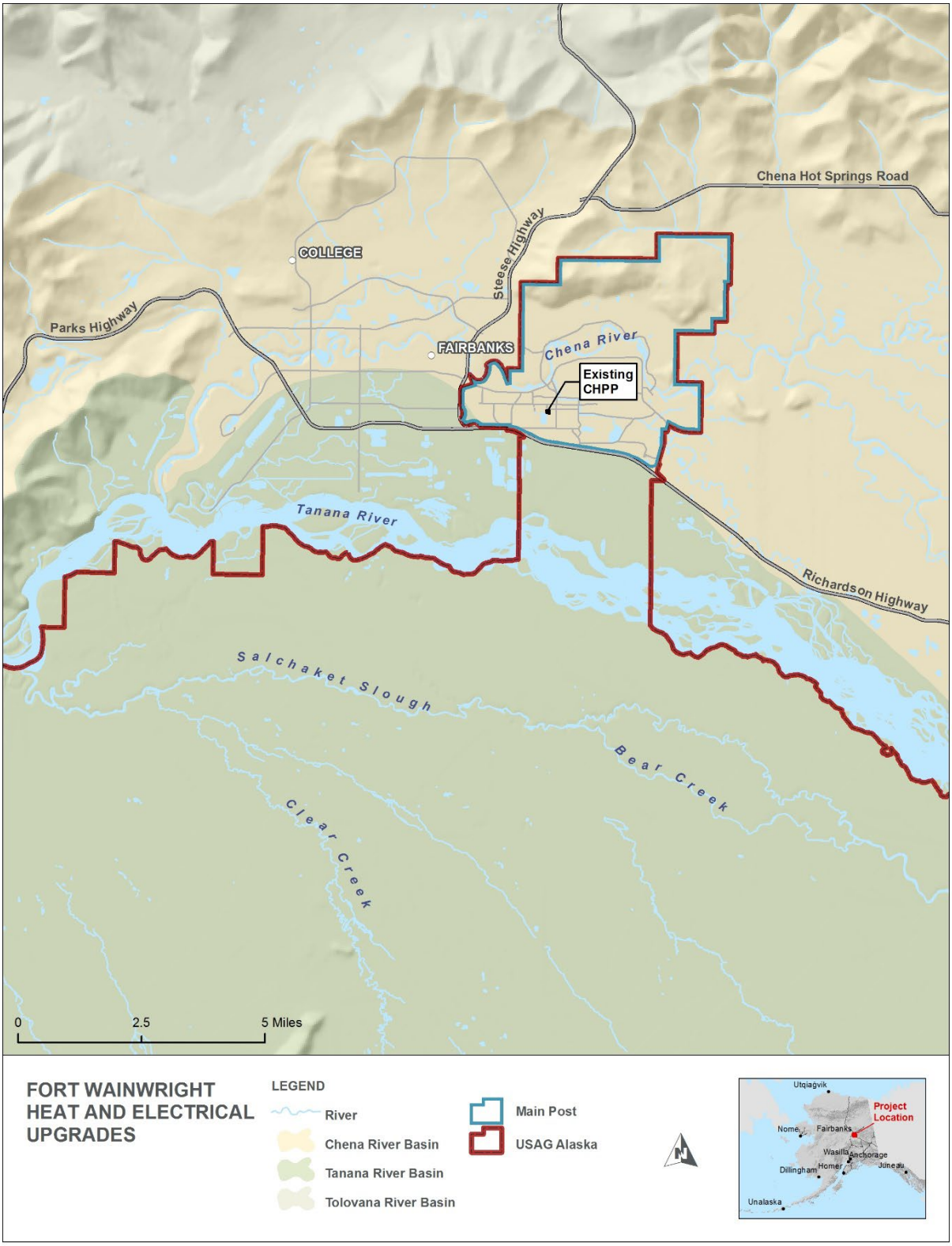


Figure 3.12-1. Surface Water Drainages in the Vicinity of Fort Wainwright

Figure 3.12-2. Surface Water Features on Fort Wainwright

The water feature located nearest to the CHPP is a large pond located directly south and nearly adjacent to the CHPP. The pond, which once functioned as a cooling pond during CHPP operations, was removed from service and replaced by an air-cooled condensing system. In addition to the cooling pond, a small pond is located approximately 1,000 feet west of the CHPP and is a part of the installation's wastewater treatment system. Monterey Lake, approximately 0.75 mile southeast of the CHPP, is a 7.5-acre lake that contains stocked populations of rainbow trout and Chinook salmon.

Water resources are largely influenced by climate as well as topography. Fairbanks is characterized by moderately warm, moist summers and cold, dry winters (Vuyovich and Daly 2012; USAG Fort Wainwright 2017a, 2019). Average temperatures range from 75°F in summer to below -33°F in winter (USAG Fort Wainwright 2019). Temperatures drop below freezing in the fall and snowfall normally accumulates in early October through April or May (Vuyovich and Daly 2012). Snowfall makes up about 35 to 40 percent of the total annual precipitation, which on average ranges from about 10 to 20 inches (Vuyovich and Daly 2012, USAG Fort Wainwright 2019). The heaviest precipitation normally falls as rain in July and August (Vuyovich and Daly 2012).

The Chena River has several designated uses under Section 303 of the CWA. The Chena River, from the Chena Slough to the confluence with the Tanana River and therefore within the Main Post, has been classified by the State of Alaska as Class A (suitable for agriculture, aquaculture, and industrial), Class B (suitable for water recreation), and Class C (suitable for growth and propagation of fish, shellfish, other aquatic life, and wildlife). According to the RPMP for Fort Wainwright, the overall quality of surface water throughout Fort Wainwright is generally good (USAG Fort Wainwright 2017a). The Chena River, which receives both sheet (surface) and point (outfall) flow from the Main Post, had been listed as impaired (polluted) for petroleum hydrocarbons, oil and grease, turbidity, and sediment, beginning in the 1990s. Army-related industrial activity has contributed to surface and groundwater pollution (USAG Fort Wainwright 2013b, 2017a). The Army has implemented measures to improve water quality; for example, LUSTs have been removed and petroleum products and other chemicals are now stored in ASTs surrounded by containment berms (USAG Fort Wainwright 2013b, 2017).

As a result of multiple cleanup and stream restoration efforts in Fairbanks and throughout the installation, water quality has improved and ADEC removed the Chena River from Alaska's CWA Section 303(d) list (EPA 2019e). The Chena Slough, which is located upstream of the Main Post, was previously listed as impaired but is now meeting Section 303(d) objectives (ADEC 2018c). Noyes Slough, which is a side channel of the Chena River located less than a mile downstream from Fort Wainwright, continues to be listed as impaired for petroleum hydrocarbons, oil, and grease (ADEC 2019e).

Groundwater

Groundwater is one of Fort Wainwright's most valuable natural resources and is the source for drinking water on the installation (USAG Fort Wainwright 2017a). The Main Post, as well as most of Fairbanks, is located on an alluvial plain between the Chena and

Tanana rivers that is underlain by a relatively shallow, unconfined sand and gravel aquifer (Glass et al. 1996, USAG Fort Wainwright 2017a). The Tanana Basin alluvial aquifer is the main aquifer that provides approximately 95 percent of all drinking water for Fort Wainwright, Fairbanks, and surrounding areas (EPA 1997, Doyon Utilities 2013). Groundwater is typically encountered about 5 and 10 feet below ground surface (Glass et al. 1996), although levels fluctuate seasonally by several feet and are highly influenced by the Tanana and Chena rivers (USAG Fort Wainwright 2017a). Groundwater levels are highest in late spring and early summer and drop in the fall and winter with the lowest levels just before the spring melt (USAG Fort Wainwright 2019).

The gradient of the Tanana River is steeper than that of the Chena River in the Fort Wainwright area. Groundwater typically flows northwest from the Tanana River into the Chena River in the Main Post (Glass et al. 1996). Groundwater gradients reverse when the Chena River reaches high stage conditions, and water flows into the aquifer. When the stage drops in the Chena River, groundwater gradients resume normal trends and flow back toward the Chena River (Wegner 1997).

There are localized areas of shallow groundwater contamination from industrial and military activities (USAG Fort Wainwright 2019). Figure 3.12-3 displays plumes of known contamination. Leaking USTs, old chemical storage facilities, and the past practice of dumping chemicals have contributed to groundwater contamination on Fort Wainwright (USAG Fort Wainwright 2017a). Pollution is generally localized, and there is no indication of deep groundwater pollution. The Army has taken measures to improve water quality and minimize the potential for groundwater contamination after pollution was recognized, by removing USTs and properly storing all POL in aboveground tanks surrounded by containment berms (USAG Fort Wainwright 2017a).

Fort Wainwright's drinking water is supplied by groundwater. Groundwater quality is generally considered good in the Fort Wainwright area, with the exception of naturally occurring metals (USAG Fort Wainwright 2013b, 2017a). Naturally occurring metals that influence groundwater quality include iron, arsenic, and antimony (USAG Fort Wainwright 2017a, 2019a). Arsenic and antimony were previously found to exceed primary drinking water standards in groundwater, and iron levels have been found to exceed secondary drinking water standards (U.S. Geological Survey 2001 as cited in USAG Fort Wainwright 2019). Water quality was reported to meet or exceed state and federal drinking water standards and required minimal treatment before distribution. Drinking water contaminated with perfluoroalkyl and polyfluoroalkyl substances (PFAS) has been identified in Fairbanks, likely as a result of aqueous firefighting foams (Deglin 2017). PFAS levels in the Fort Wainwright water system are currently well below EPA thresholds (USAG Fort Wainwright 2019b).

For the area within the Main Post, three subsurface water use authorizations have been issued: one water right permit (LAS31230) for Fort Wainwright's community water system and two certificates (LAS13099 and LAS19870) for wells located along the Richardson Highway for the ADOT&PF (ADNR 2019b).

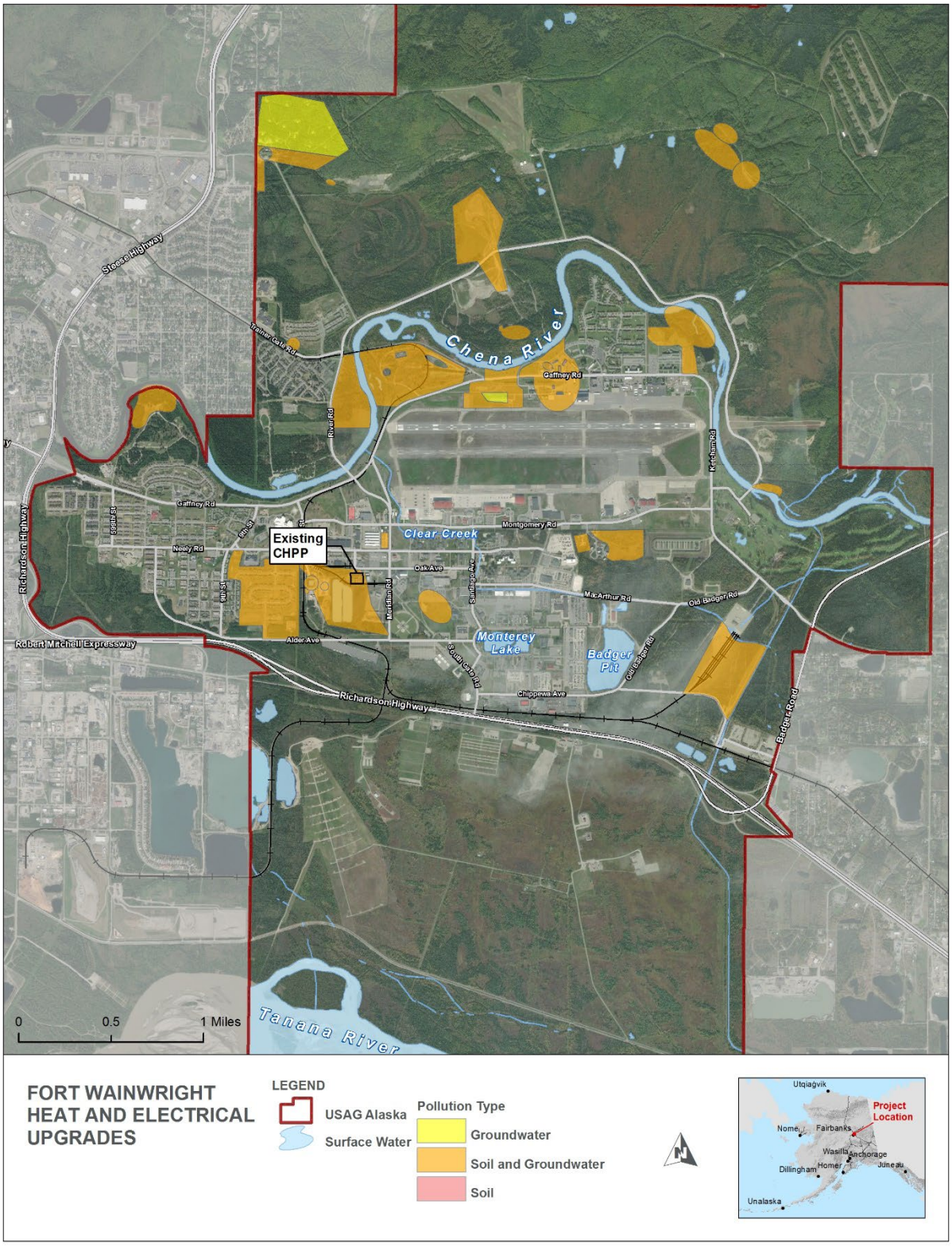


Figure 3.12-3. Known Contamination of Soil and Groundwater

Floodplains

Flood flows on the Chena River are regulated by the Chena River Lakes Flood Control Project, which is located about 17 miles east of Fairbanks and operated by the USACE. The Flood Control Project consists of the Moose Creek Dam on the Chena River, Moose Creek Floodway, Tanana River Levee, and an interior drainage network between the Chena and Tanana rivers (USACE 2017a).

Fort Wainwright is located within a recognized Flood Hazard Area (Figure 3.12-4), although a large portion of the installation, including the existing CHPP, is protected from anticipated 100-year flood events from the Chena River Lakes Flood Control Project (USAG Fort Wainwright 2017a). The last 100-year flood event on Fort Wainwright was recorded in 1967 and is what prompted the Chena River Lakes Flood Control System (USAG Fort Wainwright 2017a). FEMA identifies the Chena and Tanana rivers and directly adjacent lands as Regulatory Floodways, Zone AE (Floodway). FEMA identifies most of the Main Post as being within a Flood Hazard Area, Zone X (area with reduced flood risk due to levee). Additionally, FEMA identifies two small streams within the Main Post as Zone A, which means that these areas are subject to flooding but no base flood elevations were available. Many drainage ditches associated with the storm water system discharge directly to the Chena River in the vicinity of the airfield. High-water events in this area have the potential to backlog the drainage system with water, impeding water flow and overloading localized areas (USAG Fort Wainwright 2017a).

Storm Water

Storm water captured in and around the CHPP is conveyed throughout the installation primarily through ditching, swales, and/or open channel flow. Closed conduit conveyance systems are used in the airfield and North Post areas and at culverted road crossings (USAG Fort Wainwright 2017a). Discharges from the Installation are regulated under ADEC Permit AKS055859 (ADEC 2016). The Fort Wainwright storm water system includes multiple outfall points along the Chena River, Badger Pit, and retention areas throughout the base (Figure 3.12-5). The SWMP for the Fort Wainwright small MS4 provides a detailed description of the storm water system, along with each outfall, on the cantonment (CEMML 2016).

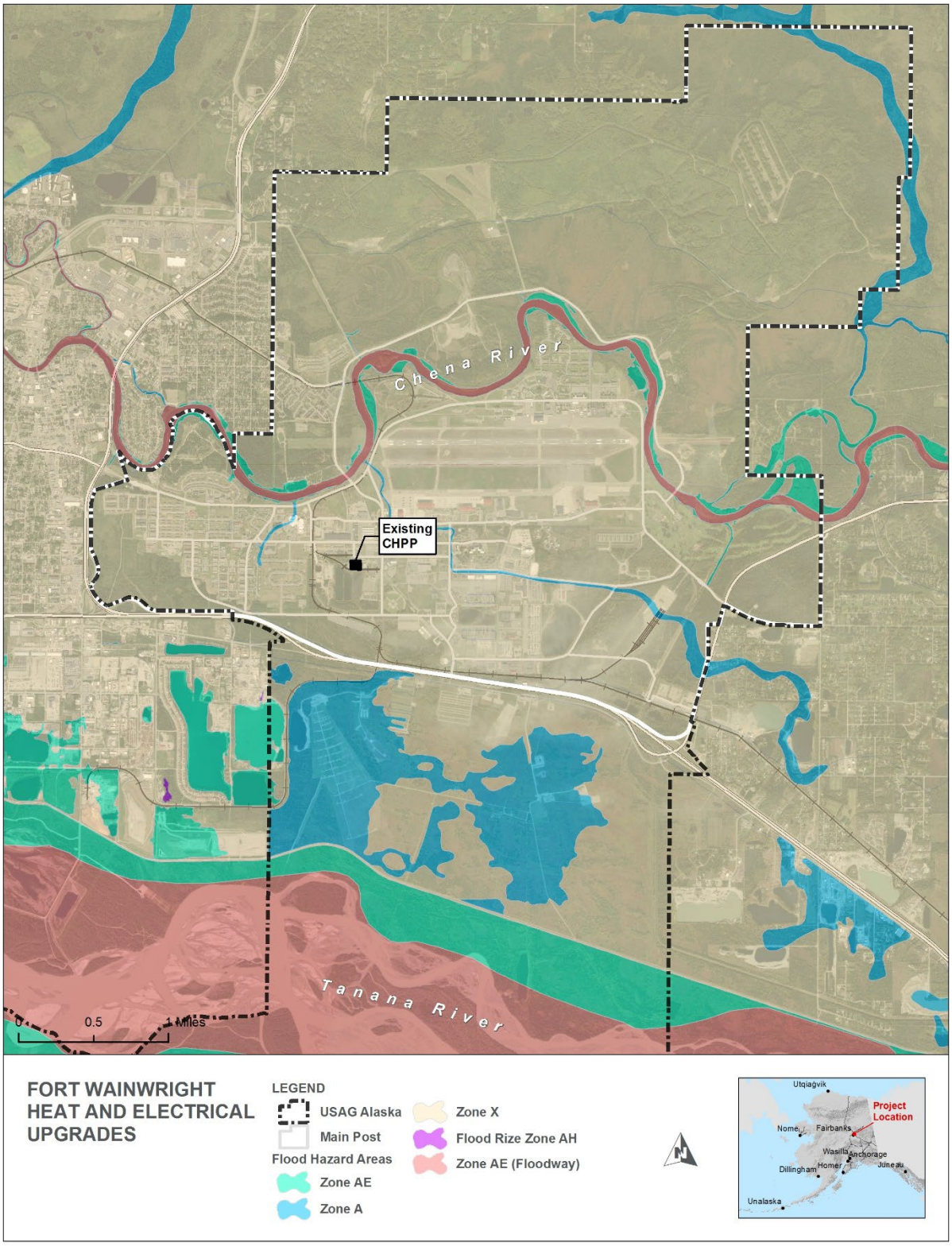


Figure 3.12-4. Fort Wainwright Flood Hazard Areas

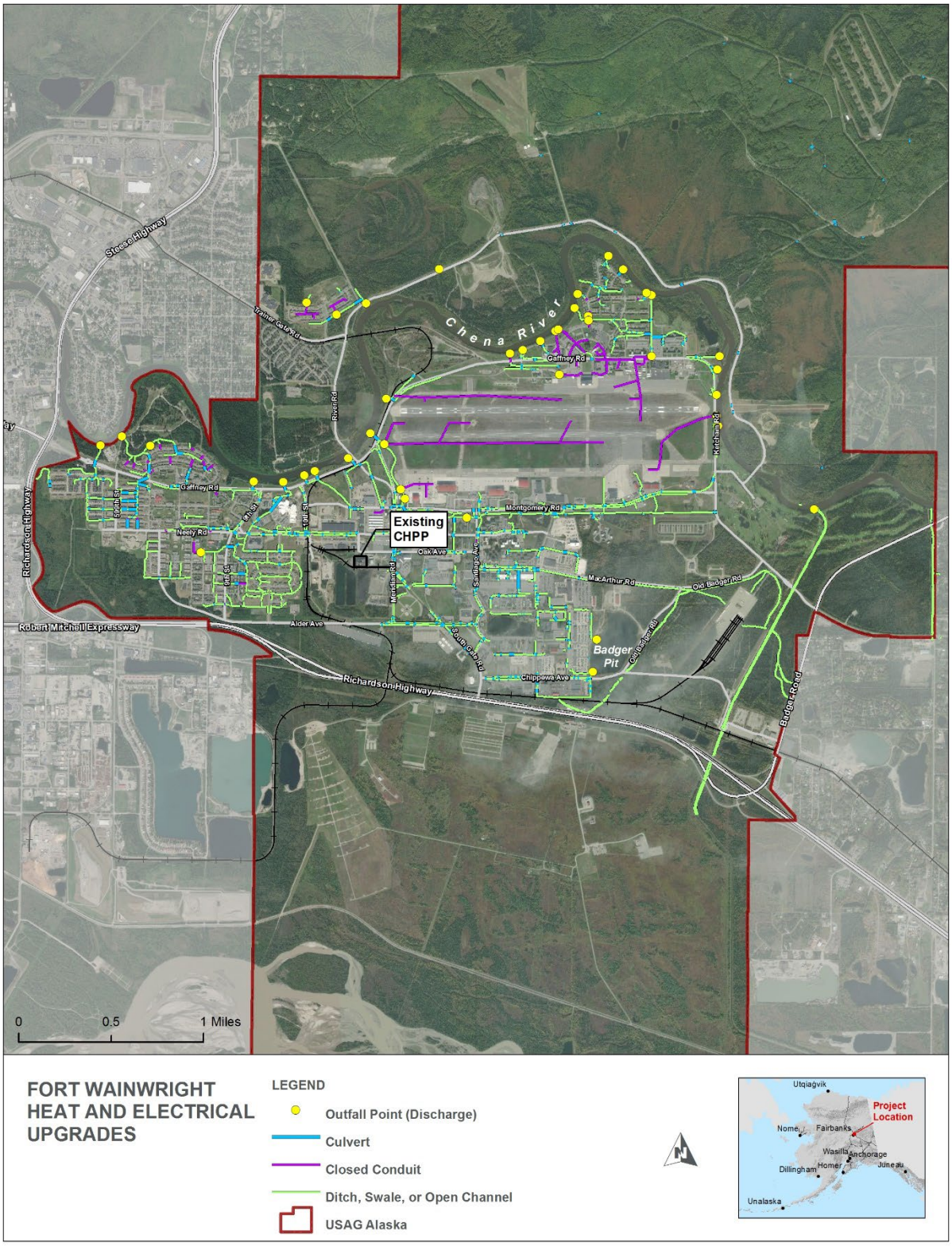


Figure 3.12-5. Fort Wainwright Storm Water Outfalls

Aside from a small amount of sediment capture in retention basins, storm water is not treated before discharge into the Chena River or Badger Pit. Chena River stage has a substantial impact on infiltration capacity of nearby soils as well as water levels and conveyance capacities of connected storm water channels. A recent study concluded that areas in and adjacent to the airfield and old installation areas are not adequate for storm water retention and conveyance because of age and structural condition of the network; insufficient capacity makes these areas vulnerable to flooding during peak rainfall events (Warner College of Natural Resources 2013 as cited in USAG Fort Wainwright 2017a). Because of water retention and conveyance capacity concerns in these areas, it is important to protect the storm water system during new construction, maintenance activities, and ongoing upgrades at Fort Wainwright. Further, protection of the storm water system is an important component to consider during the installation of new construction and associated load on the storm water system (USAG Fort Wainwright 2017a).

In October 2017, the Army completed a storm water survey of every inlet, catch basin, and outfall at the installation. The Army monitors storm water runoff from each outfall quarterly to determine whether the outfalls comply with applicable regulations and prepares annual reports to convey results (USAG Fort Wainwright 2019b). Consistent with conditions in the MS4 permit, the Fort Wainwright SWMP provides for minimum control measures for storm water runoff control and post-construction storm water drainage systems at construction sites in the urbanized area of Fort Wainwright (CEMML 2016). Project-specific Storm Water Pollution Prevention Plans (SWPPPs) are required to address additional concerns and mitigation considerations for individual construction projects, which must be reviewed by the MS4 manager along with stormwater conveyance designs before the start of ground-disturbing activities.

3.12.2 Environmental Consequences

3.12.2.1 Significance Criteria

A significant adverse impact on water resources would result if an Army action were to result in any of the following:

- Alter the existing pattern of a surface water or groundwater flow or drainage in a manner that would substantially inhibit the currently viable uses of the water within or outside the region
- Degrade the quality of surface water and/or groundwater in a manner that would substantially reduce the existing or potential beneficial uses of the water
- Violate any water quality standard, safe drinking water standard, or waste discharge requirement

3.12.2.2 No Action Alternative

The No Action Alternative would not result in significant impacts on water resources. Maintenance work on the existing CHPP, utilidors, and other heat and power utility

systems would occur as needed. Maintenance could include excavation and other ground-disturbing work that may influence surface water runoff, similar to ongoing maintenance that periodically occurs or that would occur under any one of the action alternatives described in the subsections below. Such activity could influence surface water runoff and water quality by temporarily increasing sediment loads during and immediately after ground-disturbing activities. Although ground-disturbing activities would principally occur in areas previously disturbed for past construction, activities could potentially release previously contaminated soils into the environment, if such contamination is encountered. Adverse impacts resulting from maintenance-related activities that may be necessary under the No Action Alternative could be largely minimized through measures set forth by permitting requirements.

The No Action Alternative would not be expected to adversely affect the quality or quantity of water resources, including surface water, groundwater, floodplains, and storm water conditions, as long as maintenance activities adhere to local, state, and federal regulatory requirements. Fort Wainwright's SWMP describes the minimum control measures necessary for construction site storm water runoff control and post-construction storm water drainage systems in the urbanized area of Fort Wainwright (CEMML 2016).

3.12.2.3 Alternative 1 (Build a New Coal CHPP)

Short- and long-term, negligible to minor, adverse impacts would be expected on water resources. Alternative 1 would involve constructing a new coal CHPP, upgrading or constructing portions of a new associated steam distribution system throughout the installation, and demolishing the existing power plant. Ground-disturbing activities, such as excavating and grading, could result in the release of construction-generated sediments into the storm water conveyance system. Storm water runoff, which is not treated before discharge, could become contaminated with construction-related chemicals, such as fuels, oils, and/or solvents if not properly contained. In the event of a spill of fuel or other hazardous materials, minor adverse impacts on water resources could occur if not remediated appropriately.

As surface flow increases during and immediately after storm events, the potential risk for adverse impacts on surface water quality, such as higher sediment loads and potential distribution of contaminants, increases. As described in Section 3.4, Hazardous and Toxic Materials and Wastes, disturbing soils for new construction and repair of utilidors could result in remediation of some previously contaminated areas. If contaminated soils were inadvertently exposed, captured by surface water runoff, and not properly treated, impacts on water resources could range from minor to significant, especially because storm water runoff is not treated before discharge.

Construction of Alternative 1 would require acquisition of a project-specific SWPPP and adherence to the existing SWMP to minimize potential adverse impacts on water resources. Construction activities throughout the installation must comply with APDES storm water permitting requirements for construction. When construction activities occur within the boundaries of the Fort Wainwright MS4, the installation is required to ensure

that construction and post-construction measures for erosion and sediment control BMPs are met.

Construction and operations of Alternative 1 could result in an increase in impervious surface over existing conditions, primarily caused by construction of a new power plant building. An increase of impervious surfaces also decreases land that is available for groundwater recharge. The amount of increased impervious surfaces that could result from the proposed project, however, is not anticipated to have more than minor impacts on groundwater availability. The creation of impervious surfaces has the potential to decrease the quality of storm water while increasing the quantity and flow of storm water, particularly during and immediately after storm events. An increase in the quantity and velocity of storm water into the existing storm water system may affect its ability to adequately convey flows. If flows increased substantially, flooding could result. Because construction would require obtaining permits and adhering to local, state, and federal storm water regulations, significant impacts could be avoided. Storm water BMPs and the existing SWMP would largely attenuate potential long-term adverse impacts that Alternative 1 could have on water quality and quantity. The existing SWMP describes the minimum control measures necessary for storm water runoff control on a construction site and post-construction storm water drainage systems in the urbanized area of Fort Wainwright (CEMML 2016).

3.12.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Alternative 2 would involve constructing a new CHPP with a natural gas and fuel oil turbine generator and associated steam distribution system throughout the installation and demolishing the existing power plant. Additionally, the coal storage area would be closed and treated in accordance with state and federal regulations (e.g., CERCLA and ADEC). Natural gas and ULSD, if applicable, would be delivered to the installation, instead of coal.

Potential impacts on water resources would be similar to those described under Alternative 1. In addition, shipment of natural gas to the installation under this alternative would occur by freight train, truck, or a pipeline from Fairbanks. Potential short-term impacts on water resources could occur during pipeline construction activities, and appropriate BMPs such as use of silt fences would be followed. A low risk of a spill could affect water resources and would be addressed as described in Section 3.4. BMPs would be the same as described under Alternative 1. Although some discharges required for Alternative 2 may not be covered under the existing MSGP, the Army would obtain and follow stipulations of other necessary permits, where required.

3.12.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Alternative 3 would involve installing multiple natural gas-fired boilers throughout the installation, instead of constructing a new, centralized power plant. The new boilers would likely be housed within existing structures; new additions to existing structures; or new, smaller, and dispersed heating-plant buildings that would heat a handful of nearby

buildings. Like the other two build alternatives, Alternative 3 would upgrade the existing steam distribution system as required and demolish the existing power plant. Similar to Alternative 2, the coal storage area would be closed and treated in accordance with state and federal regulations and natural gas would be used at the installation instead of coal. Potential impacts on water resources would be similar to those described under Alternative 2. BMPs would be the same as described under Alternative 1. Although some discharges required for Alternative 3 may not be covered under the existing MSGP, the Army would obtain and follow stipulations of other necessary permits, where required.

3.13 Cultural Resources

3.13.1 Affected Environment

This section describes cultural resources located within the Fort Wainwright Main Cantonment Area, which primarily consist of World War II and Cold War era buildings, some of which are historic properties. The ROI for cultural resources is the Fort Wainwright Main Cantonment Area, which is the area where direct or indirect effects would likely occur. Impacts on cultural resources beyond this area are not anticipated. The primary resource that could be affected is Ladd Field NHL, designated for the significant role the location played in the United States' war effort during World War II and cold weather testing. This section also characterizes the cultural and historical context of the area.

3.13.1.1 Definition of Resource

Cultural resources commonly refers to physical material items associated with past human activities. Historic properties are defined under the NHPA (54 U.S.C § 300308) as, "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places (NRHP)," and also includes places such as traditional cultural properties, cultural landscapes, sacred sites, ethnographic landscapes, and vernacular landscapes (Page et al. 1998). This analysis focuses on verifiable remains, material evidence, and specific locations that are reported in the NRHP; the Alaska Heritage Resources Survey (AHRS), maintained by the ADNR Office of History and Archaeology; and cultural resources data maintained by Fort Wainwright.

The cultural resources study area for potential effects to cultural resources has been defined as the Main Cantonment Area south of the Chena River and north of the Richardson Highway (Figure 3.13-1). The existing power plant and power plant alternatives are centrally located in the Main Cantonment Area. This portion of the Main Cantonment Area contains historic properties that may be subject to direct and indirect impacts as a result of the heat and electrical upgrade alternatives.

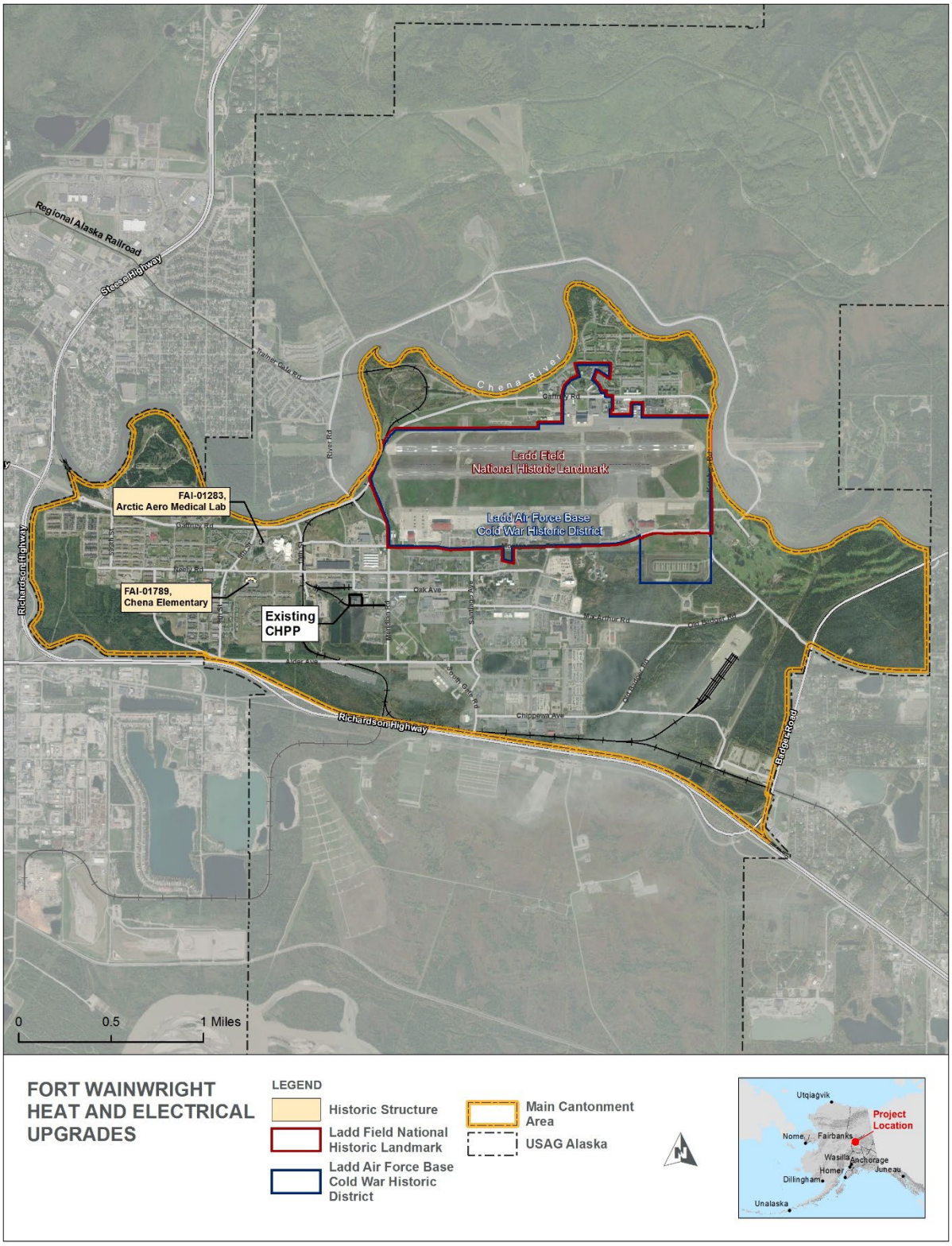


Figure 3.13-1. Historic Properties

3.13.1.2 Environmental Laws, Regulations, and Executive Orders

CEQ NEPA regulations at 40 CFR § 1502.15 and § 1502.16 require descriptions of known historic and cultural resources that may be affected by proposed federal project actions and alternatives, as well as attention to the effects to historic or cultural resources resulting from such actions and each alternative. Title 40 CFR § 1508.27(8) requires agencies to account for the degree to which "the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, or may cause loss or destruction of significant scientific, cultural, or historical resources."

Similarly, the NHPA requires agencies to account for the effects of their undertakings on historic properties, which are defined in Section 3.13.1.1. Under Section 110 of the NHPA, agencies must also "to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm" to any NHL that may be directly and adversely affected by an undertaking. Special considerations regarding NHLs are described in the implementing regulations of the NHPA at 36 CFR § 800.10.

Army installations are required to follow AR 200-1 regarding cultural resources management. AR 200-1 describes requirements under multiple laws pertaining to cultural resources, and designates the Garrison Commander as the agency official responsible for compliance with Section 106 of the NHPA. USAG Alaska also maintains a Programmatic Agreement (PA) under Section 106 of the NHPA with the State Historic Preservation Officer (SHPO) regarding the operation, maintenance, and development of the Army installation. The PA identifies select Army activities that qualify for streamlined review under Section 106 (Army 2016a).

3.13.1.3 Current Condition

Interior Alaska is archaeologically important at a regional level for the development of Native American cultures dating to more than 14,000 years ago. At a continental scale, Alaska is significant for its role as the entry point of the initial human colonization of the New World. The prehistoric cultural history of Fort Wainwright mirrors that of other portions of central Alaska, and has been presented in detail in the Fort Wainwright *Integrated Cultural Resources Management Plan* (USAG Alaska 2020b) and in other sources (e.g., Potter 2008, Holmes 2008, Holmes et al. 1996). Previous archaeological surveys have not resulted in the identification of archaeological sites in the study area, which was previously disturbed by the construction of the military installation before the passage of cultural resource laws mandating protections for archaeological resources. A synopsis of the regional prehistoric chronology of Interior Alaska is provided in Table 3.13-1.

Table 3.13-1. Prehistoric Chronology of Interior Alaska

Cultural Tradition/Age	Environment/Subsistence	Artifacts/Tools
Late Glacial Period Diuktai Complex 14,000–13,000 years ago	Relatively warm and wet conditions with vegetation composed of ferns, mesic graminoid meadows, xeric-steppe, steppe-tundra, and herb tundra. Fauna consisting of bison, wapiti, and small, extinct species such as mammoth, horse, and bison (Zazula et al. 2007). Land bridge connects Siberia and Alaska.	Bifacial, willow-leaf bifaces, microblades, wedge-shaped microblade cores. Sites include Broken Mammoth CZ4, Mead CZ5, and Upward Sun River (Holmes 2008, Potter 2011).
Late Pleistocene to Early Holocene 13,000–11,500 years ago Nenana Complex	Younger Dryas Climactic event, characterized by cool and dry conditions. Vegetation dominated by shrub tundra. Greater proportion of small game, birds, and fish on landscape, although large mammals remained abundant (Björck 2007, Bigelow and Edwards 2001, Potter 2011).	Bifaces, planar scrapers, end scrapers, and triangular or tear-drop Chindadn points (Powers and Hoffecker 1989). Sites include Mead CZ3, Broken Mammoth CZ3, Upward Sun River Component 2, Swan Point CZ3.
Early Holocene 11,500–6,000 years ago Denali Complex	Associated with Holocene Thermal Maximum, associated with warm and dry conditions and warmer than modern summers and cooler than modern winters. Shrub-birch and willow are major component of vegetation communities (Abbott et al. 2000, Bigelow 2013). Trees increase habitat and open woodlands develop.	Wedge-shaped microblade cores, burins, bifacial knives, end scrapers, and lanceolate projectile points. Gerstle River Component 1, Upward Sun River CZ3 and CZ4.

Cultural Tradition/Age	Environment/Subsistence	Artifacts/Tools
Middle Holocene Northern Archaic Tradition 5,000–2,000 years ago	Development of modern boreal forests, increasing moisture, decreasing summer temperatures (Bigelow 1997).	Side notched points, large choppers, lanceolate points, end scrapers, notched pebbles, crescent-shaped bifaces, and microblade and burin technology. Broken Mammoth CZ1b and CZ1a, Mead CZ1a, and Swan Point CZ1a and CZ1b (Holmes et al. 1996).
Late Holocene Athabascan tradition 2,000 years ago - present	Completed transition to modern vegetation communities. Little Ice Age (900–200 calibrated years before the present) affects floral and faunal communities in Interior Alaska. Extinction of bison, increasing abundance of moose (Potter 2008).	Storage features, toolkit focused on use of salmon along rivers, use of bow and arrow, decline in formal chipped stone technologies (Potter 2008).

Note:
CZ – cultural zone

The historic period in the study area begins during the Fur Trade, when Russian missionaries and traders set up posts along the Yukon and Copper rivers, hundreds of miles from the location of Fort Wainwright. These expeditions were the harbingers of European and Euroamerican contact with the indigenous people of Interior Alaska. As with the prehistoric cultural history described above, the historic period of Fairbanks has been described extensively before (e.g., Neely 2001, 2003; Hollinger 2001). Historic resources that predate the establishment of Ladd Field in 1939 are not represented in the Main Cantonment Area (USAG Alaska 2020b).

The military history of Fort Wainwright began in the 1930s, when members of Congress and the military became concerned with the lack of air defense in Alaska. Eventually this interest resulted in approval for the construction of a cold-weather testing facility in Fairbanks. Construction of Ladd Field began in 1939, the same year that Germany invaded Poland beginning World War II. Following the start of World War II, Ladd Field continued to function as a cold-weather testing station until the Japanese targeted the Aleutian Islands, leading to a temporary cessation of the testing program as troops mobilized to other bases in Alaska to defend the Territory of Alaska from Japanese aggression. In 1942, Ladd Field gained additional significance as a transfer station along the Alaska-Siberia route of the Lend-Lease Program, in which the U.S. government lent

aircraft to the Soviet Union to support the war effort against Germany. In total, 7,926 aircraft were transferred to the Soviets from Fort Wainwright (Price 2004).

The United States entered into the Cold War with the Soviet Union soon after World War II. Because of its location near eastern territories of the Soviet Union, and its importance along trans-polar air routes, Alaska became a focal point for strategic operations. In 1947, the Air Force became a separate branch of the military, and Ladd Field became an important focal point for Air Force Cold War operations. Ladd Field "served as a northern hub for Air Force activities in Alaska" and was "centrally involved in Cold War missions of the Alaskan Command and in the transient missions of other military units, including the Strategic Air Command". From 1947 to 1961, the airfield operated as Ladd AFB and missions consisted of strategic aerial reconnaissance, air defense, search and rescue, and research, including cold weather, arctic aeromedical laboratory, and ice station testing (Price and Sackett 2001). In 1961, the airfield was transferred to the Army and renamed Fort Jonathan Wainwright. A synopsis of the historical chronology of the study area is provided in Table 3.13-2.

Table 3.13-2. Historic Themes Related to Fort Wainwright and the Fairbanks Region

Time Frame	Historic Theme	Synopsis
1810s–1880s	Fur trade	Russians traders set up trade posts at Nulato on the Yukon River, and at Taral on the Copper River during the 1810s. The British established Fort Yukon in 1847. These posts, located in areas peripheral to the study area, resulted in the introduction of the fur trade and new material culture to indigenous people in central Alaska. In the 1860s contact became more regular between Athabascans and Euro-American traders. In the 1880s Americans established additional posts on the Yukon at Tanana, Belle Island, and Fort Yukon.

Time Frame	Historic Theme	Synopsis
1880s–1920s	Historic gold rush and mining	In the 1880s, gold discoveries occurred in the Klondike region of Canada, causing an influx of prospectors. In late 1890s, significant gold deposits were identified along the Tanana River. In 1902, Felix Pedro discovered gold near Fairbanks, leading to the establishment of Fairbanks at the site of a Barnett's trading post. During the 1910s, gold production waned due to depletion of shallow prospects accessible to small-scale prospectors.
Early 20th Century	Homesteading	Agricultural homesteads were established on portions of the Fort Wainwright Main Cantonment, providing Fairbanks with agricultural goods. These homesteads are later absorbed by construction of Ladd Field and Fort Wainwright.
1900–1940s	Transportation	Use of historic trails such as the Valdez-Fairbanks trail increased and roadhouses were established to support access by dogsled, horse, and foot travel. Alaska Railroad was completed in 1923. Alaska Highway was constructed in 1942.
1939–1945	Establishment of Ladd Field and American Entry to World War II	1939, Ladd Field was constructed for use as experimental cold weather testing station for Army aircraft. Starting in 1942, Ladd Field served as a focal point in the Lend-Lease Program, supplying more than 7,900 aircraft to the Soviet Union to support the war effort in the European theater. By 1945, Ladd Field had expanded dramatically to support wartime efforts.

Time Frame	Historic Theme	Synopsis
1947–1990	Cold War	Cold War began in 1947 when the United States adopted the Truman Doctrine of Soviet Containment. 1947, Ladd Field was redesignated as Ladd AFB. Ladd AFB served as Northern Sector Command, supporting air defense and strategic reconnaissance of the Soviet Union. The base continued to support arctic research activities. 1961, Army took command of Ladd AFB and renamed it Fort Jonathan Wainwright. Ladd AAF is the name of the military airfield located at Fort Jonathan Wainwright. 1991, the Cold War ended with the collapse of the Soviet Union.

Source: USAG Alaska 2020b.

The subsections that follow describe current conditions related to historical buildings and structures, archaeological resources, and traditional cultural properties at Fort Wainwright and summarize the Army's consultation with SHPO and Alaska Native tribes.

Historic Buildings and Structures

Ladd Field National Historic Landmark. In 1985, Ladd Field was designated as an NHL for its national historic significance during World War II in the Pacific for the period 1939–1945. The NHL is also significant under the themes of Expanding Science and Technology, for its role in cold-weather testing; under the theme of Shaping the Political Landscape, as the center of operations in the Alaska Theater of War; and under the theme of the Changing Role of the United States in the World, as the hub of the Alaska-Soviet Lend-Lease Program, in which the United States transferred 7,926 military aircraft to the Soviet Union to aid in the European theater during World War II (Cook and Woster 2018).

The 1985 NHL nomination included 24 World War II age buildings. In 2018, the NHL was re-evaluated because of airfield changes resulting from accidental destruction or demolition of structures since the original nomination. Although the re-evaluation has yet to be approved, it proposes reduction of the NHL boundary, removal of demolished buildings, and addition of structures outside of the period of significance. Under the 2018 nomination, the Ladd Field NHL (FAI-00236) contains 19 contributing World War II buildings; two runways; a utilidor system; the north taxiway; and a parade ground. Changes documented in the re-evaluation resulted in the loss of integrity south of the airfield. The NHL is located in the north-central portion of the Main Cantonment and covers an area of 1,127 acres (Figure 3.13-1). All structures located within the boundary of the NHL continue to be used in present day operations of Fort Wainwright.

Ladd AFB Cold War Historic District (CWHD). The Ladd AFB CWHD (FAI-01288) covers much of the same spatial extent as the Ladd Field NHL. It is located in the northern-central portion of the Main Cantonment Area, and shares the majority of its boundary with the World War II NHL. The CWHD includes additional buildings south of the NHL and extends an additional half-mile to the south (Figure 3.13-1). In total, 36 buildings and structures were found to be contributing to the CWHD as a result of building evaluations conducted in 2010 (Bittner 2010). Several buildings within the CWHD are also contributing resources to the NHL, but have gained additional significance under historic themes relevant to the Cold War following the end of World War II. Buildings within the CWHD served numerous purposes necessary to the operations of the base during the Cold War, and include building types such as troop housing buildings, a chapel, a garage, officers and commander's quarters, non-commissioned officers quarters, warehouses, communications facilities, headquarters, airfield operations, ordnance storage, hangars, and ammunition bunkers (USAG Alaska 2020b). Similar to the NHL, the boundary of the CWHD contains various modern structures and other buildings that do not contribute to its historic significance. The CWHD originally included 68 contributing resources under documentation submitted in 2001 but was re-evaluated in 2010 because of changes at the base resulting from current military operations. The 2010 re-evaluation resulted in the removal of 32 buildings from the district and a reduction in the boundary area (Bittner 2010).

Additional Historic Properties and Historic-Age Structures. The AHRS database contains hundreds of additional documented resources beyond the boundary of the NHL and CWHD in the Main Cantonment Area. Although historic in age, these structures do not meet the eligibility criteria for listing in the NRHP either individually or as contributing elements to a historic district. Two exceptions are AHRS sites FAI-01283, the Arctic Aeromedical Laboratory Building, and FAI-01789, Chena Elementary.

Site FAI-01283, the Arctic Aeromedical Laboratory Building, is a two-story concrete structure constructed in 1955. The building was determined to be eligible for inclusion in the NRHP in 2001 as significant for its association with the Cold War on national and local levels. The structure is eligible individually and as a contributing building within the Ladd AFB CWHD (FAI-01288). Character-defining features of the building include "overall size and massing, the fenestration pattern, the minimal decorative features including the pilasters, string course and the vertical fixed windows and its bilateral symmetry" (Meeks 2011). Site FAI-01789 is Chena Elementary, a structure determined to be eligible for inclusion in the NRHP under Criterion C (architecture), at a state level, with a period of significance of 1964 (Bittner 2010).

Site FAI-01279, Building 3595, CHPP, is the existing power plant at Fort Wainwright. The building was previously determined to be eligible for the NRHP as a contributing element of the Ladd AFB CWHD (FAI-01288). A combination of building modifications and a structure fire with subsequent repairs led to a later determination that the power plant no longer contains integrity necessary to be eligible for the NRHP. The SHPO concurred with this finding in 2010 (Bittner 2010).

Archeological Resources

The entire Main Cantonment Area has been surveyed for archaeological resources and has been extensively disturbed by the construction of the military installation. No previously recorded prehistoric archaeological sites have been recorded within the Main Cantonment Area. The archaeological sites closest to the Main Cantonment Area are located in the Main Post north of the Chena River, and include AHRS sites FAI-00199 (3,280 feet to the north), FAI-00200 (300 feet to the north), and FAI-00040 (1 mile to the northeast). Site FAI-00040 is an NRHP-eligible site that consists of large buried lithic scatter including obsidian, and is located north of Sage Hill Road. Site FAI-00199 consists of a notched point and two flakes in a gully east of the Birch Hill Ski Area. Site FAI-00200 is a notched projectile point collected from the north bank of the Chena River by an area resident in late 1979 that was plotted based on the description given by the individual. Numerous subsequent attempts to locate these sites have been unsuccessful; therefore, both sites have been determined to not be eligible for the NRHP (Esdale et al. 2014).

Traditional Cultural Properties

No traditional cultural properties have been identified to date at Fort Wainwright (USAG Alaska 2020b).

SHPO Consultation

Fort Wainwright initiated consultation with the ADNR regarding the proposed project through the EIS process. The SHPO expressed concern about the possibility of impacts on the Ladd Field NHL resulting from Alternative 3 (Install Distributed Natural Gas Boilers).

Fort Wainwright has also initiated consultation with the SHPO under the NHPA. Because of the range of alternatives and lack of an identified preferred alternative, Section 106 consultation was limited to initiation of consultation (Cook 2019). Upon the development of a design for the selected alternative, consultation would resume.

Alaska Native Tribal Consultation

Fort Wainwright has initiated consultation with Alaska Native tribal entities concerning the proposed project. Fort Wainwright mailed letters to tribal entities on July 23, 2019, informing them about the August 7 and August 8 agency and public scoping meetings held in Fairbanks, respectively. Tribal entities contacted regarding the project include Healy Lake Village, Northway Village, Native Village of Tanacross, Native Village of Tetlin, Nenana Native Association, Tanana Chiefs Conference, and Village Dot Lake. No comments were received from tribal entities about impacts on cultural resources during scoping.

Fort Wainwright provided letters to tribal entities about the possibility for government-to-government consultation for the proposed project. Fort Wainwright mailed letters offering government-to-government consultation to Healy Lake Village, Northway Village, Native

Village of Tanacross, Native Village of Tetlin, Nenana Native Association, and Village of Dot Lake. No responses were received from contacted Tribes.

Alaska Native tribal consultation was initiated under Section 106 of the NHPA. Because of the range of alternatives and lack of an identified preferred alternative, Section 106 consultation was limited to initiation of consultation (Cook 2019). Alaska Native tribal consultation will continue for the duration of the proposed project.

3.13.2 Environmental Consequences

Because the Main Cantonment Area consists of a built environment dating to the establishment of Ladd Field, it is appropriate to evaluate impacts on cultural resources under the Section 106 rubric for evaluating adverse effects to historic properties. Under Section 106, a historic property is a resource that has been determined to be eligible for listing in the NRHP. For a property to qualify for listing on the NRHP, it must meet one of the National Register Criteria for Evaluation, by both being associated with a significant historic context and retaining integrity of features necessary to convey its significance (National Park Service [NPS] 1997).

The significance of a cultural resource is evaluated in respect to the four NRHP eligibility criteria, as defined by 36 CFR § 60.4: A, B, C, and D. Under Criterion A, a property must be associated with an event or a pattern of events. Under Criterion B, a property must be associated with the life of an individual who is "demonstrably important within a local, state, or national" context (NPS 1997). Under Criterion C, a property is significant for "physical design or construction, including such elements as architecture, landscape architecture, engineering, and artwork" (NPS 1997). Under Criterion D, a property must contain important information that can contribute to the understanding of human history or prehistory.

An adverse effect on a historic property occurs when an undertaking "may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR §800.5(a)[1]).

Cultural resources analyses performed under Section 106 generally define both a direct and an indirect area of potential effects to assess the possibility of adverse effects on historic properties. In consideration of Section 106, this analysis considers an area of direct impacts on be the project footprint associated with the design alternatives. The area of direct impacts contains the full extent of ground disturbance. An area of indirect impacts is also defined, and includes the remainder of the cultural resources study area described above. Indirect effects on cultural resources, as defined in 36 CFR Part 800, include the "introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's setting that contribute to its historic significance" (36 CFR § 900.5(2)[v]).

3.13.2.1 Significance Criteria

A significant adverse impact on cultural resources would result if the Army action were to result in any of the following:

- Cause adverse effects on a historic property listed or eligible for listing on the NRHP, unless mitigated through an agreement with SHPO or ACHP
- Create conditions which would stop the traditional use of sacred or ceremonial sites or resources, in the absence of Section 106 consultation
- Violate compliance with NAGPRA or result in irretrievable or irreversible damage to burials (particularly unmarked or poorly marked cemeteries)

3.13.2.2 No Action Alternative

Under the No Action Alternative, neither a CHPP (coal or natural gas) nor a decentralized system of natural gas boilers would be constructed. Because the underlying baseline conditions would not change, no long-term, adverse impacts on cultural resources would occur.

3.13.2.3 Alternative 1 (Build a New Coal CHPP)

Long-term, minor, adverse effects on cultural resources would be expected. Under Alternative 1, a new coal CHPP would be constructed and the existing CHPP would be demolished. Decommissioning the existing CHPP would not affect cultural resources. Although the existing CHPP structure is more than 50 years old, it has previously been determined to not be eligible for the NRHP, and therefore is not a historic property as defined in Section 106 of the NHPA.

Construction of a new CHPP has the potential to modify the visual setting of historic properties at Fort Wainwright, which could change its overall character. To account for the possibility of visual effects on cultural resources, a viewshed analysis was conducted by incorporating digital terrain models and three-dimensional building renderings in AutoCAD software. Based on a stack height of 120 feet and a new CHPP building height of 60 feet, Figure 3.13-2 depicts areas from which these new structures could be visible within the Main Cantonment Area and identifies locations of historical structures, Ladd Field NHL, and the Ladd AFB CWHD. Both the new CHPP building and smokestacks would be visible from Chena Elementary (FAI-01789) and from within the boundaries of the Ladd Field NHL (FAI-00236) and the Ladd AFB CWHD (FAI-01288). A 120-foot stack would also be visible from the Arctic Aeromedical Laboratory (FAI-01283).

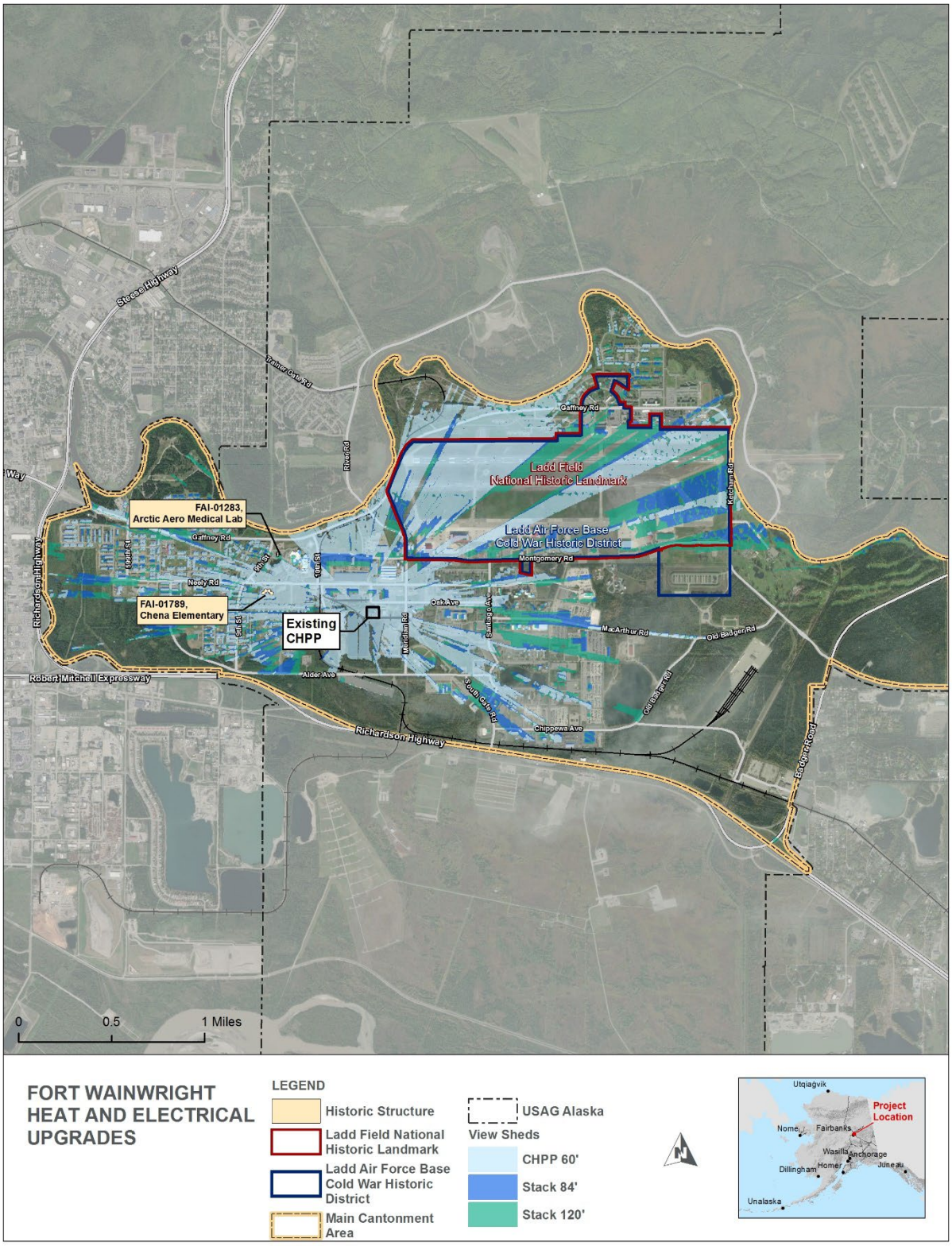


Figure 3.13-2. Historic Viewshed Analysis

The effect on the visual setting would depend on the final design of the CHPP structure and stack height. If the CHPP design were to modify the existing viewshed of historic properties, impacts would be minor. Numerous modern buildings exist in the setting of previously identified historic resources at Fort Wainwright. The construction of an additional structure visible at a considerable distance from historic properties would not result in an overall change to the setting or result in a significant impact on cultural resources.

Alternative 1 would modify the North Post Utilidor System (FAI-01242), which is a contributing resource to the Ladd Field NHL. The degree of impact associated with modifications to Fort Wainwright's historic utilidors would depend on final design specifications. Modifications to the utilidor system would require mitigation to maintain compliance under Section 106 of the NHPA. Alternative 1 would result in adverse impacts, but such impacts might be less than significant following mitigation under Section 106. Modifications to the utilidor system would be consistent with the guidance provided in *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (NPS 2017) and *FWA Aviation Stationing Mitigation: Design Guidelines for Ladd Field World War II National Historic Landmark, Fort Wainwright, Alaska*, developed in accordance with the PA among Fort Wainwright, the SHPO, and the Advisory Council on Historic Preservation (Design Alaska 2012).

Because the area where the new CHPP would potentially be constructed has previously been surveyed for archaeological and architectural resources, no impacts on either of these types of cultural resources are anticipated. No traditional cultural properties or other resources of known significance to Alaska Native Tribes are known within the Main Cantonment Area.

3.13.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Impacts resulting from the construction and operation of Alternative 2 would be the same as those described for Alternative 1.

3.13.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Long-term, significant, adverse effects on cultural resources would be expected, although impacts would be reduced with mitigation. Under Alternative 3, decentralized natural gas boilers would be constructed and electricity would be purchased from a local provider. New structures would be constructed at multiple locations on Fort Wainwright, including locations within the Ladd Field NHL and Ladd AFB CWHD. The existing North Post Utilidor System (FAI-01242) would continue to be used to the extent practicable.

Construction of new structures within the Ladd Field NHL and Ladd AFB CWHD would adversely affect the integrity of setting, feeling, and/or association of historic structures as a result of Alternative 3 and would therefore require mitigation. Potential impacts on historic structures could include modifications to the interior or exterior of contributing

structures within the NHL or CWHD that directly affect their character-defining features. Modifications to non-contributing structures or the construction of new buildings within the boundaries of the NHL and CWHD also carries the potential for indirect impacts resulting from changes to historic viewsheds. A viewshed analysis to evaluate the potential visual effects was not conducted for Alternative 3 because the potential locations of new facilities have not been determined. More detailed information about the final design of Alternative 3 would be required to make a full assessment. Based on the information available, Alternative 3 would result in significant adverse effects on historic properties but with mitigation, such impacts would be reduced to less than significant.

Although the North Post Utilidor System (FAI-01242) would continue to be used to the extent practicable, changes to the system could result in significant impacts on the resource because of changes in function and context. The extent of changes to the utilidor system would depend on the scope of changes in the final design. Impacts on this NRHP-eligible historic property could include a loss of integrity of setting, feeling, and association. Mitigation under Section 106 of the NHPA would be required. Through time, disused portions of the property could also be altered by loss of integrity of materials and workmanship as the property falls into disrepair. Modifications to the utilidor system would be consistent with the guidance described for Alternative 1.

Because the Main Cantonment Area has previously been surveyed for archaeological resources, no impacts on archaeological resources would be anticipated where the new structures may be located. No traditional cultural properties or other resources of known significance to Alaska Native Tribes are known within the Main Cantonment Area.

3.14 Airspace

3.14.1 Affected Environment

The ROI for airspace is the Fort Wainwright Main Cantonment Area.

3.14.1.1 Definition of Resource

Airspace Management

The airspace environment is described in terms of its principal attributes, namely controlled and uncontrolled airspace and Special Use Airspace. Controlled airspace is a generic term that encompasses the different classifications of airspace and defines dimensions within which air traffic control service is provided to flights under instrument meteorological conditions and visual meteorological conditions. The Proposed Action includes construction of structures that could present potential flight obstructions near the ground surface, but does not involve any substantial alteration to existing airspace or aircraft operations in the ROI. Therefore, airspace conditions and management unrelated to airspace obstructions and aircraft safety are not discussed further in this EIS.

Aircraft Safety

Obstructions to flights, which include towers and power transmission lines, represent safety concerns for aircrews, especially those engaged in low-altitude flight training. Airfields have areas immediately surrounding runways where development actions may be restricted or prohibited altogether to eliminate potential obstructions that would affect safe approach to or departure from a runway. Such areas include accident potential zones (APZs), where aircraft mishaps are most likely to occur; clear zones, which are adjacent to the ends of the runway where obstructions are strictly prohibited; and imaginary surfaces along and overlying the runway and airfield, where presence of structures is restricted to enable safe landing and departure of aircraft.

3.14.1.2 Environmental Laws, Regulations, and Executive Orders

To ensure safe and unobstructed flying conditions at and around airports, the Federal Aviation Administration (FAA) requires establishment and maintenance of obstruction-free areas (i.e., APZs, clear zones, and imaginary airspace surfaces) immediately near airfields, particularly along and at the ends of runways, in Federal Aviation Regulation, Part 77 (14 CFR Part 77), Safe, Efficient Use, and Preservation of the Navigable Airspace, and FAA Advisory Circular (AC) 50/5300-13A, Airport Design (FAA 2019). Additionally, where existence or development of structures is permitted, or where tall structures may extend into the navigable airspace, guidance on specifications for obstruction marking and lighting can be found in FAA AC 150/5345-43J, Specification for Obstruction Lighting Equipment (FAA 2019); FAA AC 70/7460-1L, Obstruction Marking and Lighting (FAA 2019); and Military Specification MIL-L-6273, Light, Navigational, Beacon, Obstacle or Code, Type G-1. Obstruction marking and/or lighting on tall structures is a standard practice followed to prevent collisions during low-visibility conditions.

3.14.1.3 Current Condition

Ladd AAF on Fort Wainwright has one active runway, several ancillary taxiways, and hangars. Airfield clear zones exist adjacent to the east and west ends of the runways at Ladd AAF. APZs extend beyond the east and west ends of the runways upward into the approach surface in the airspace. The airfield imaginary surfaces continue to extend upward into the airspace to encircle the area directly overlying Ladd AAF (USACE 2013). The existing CHPP is located approximately 1,800 feet southwest of the airfield in the South Post district (refer to Section 3.8, Land Use), and includes existing smokestacks that are approximately 84 feet in height.

3.14.2 Environmental Consequences

3.14.2.1 Significance Criteria

An impact on airspace safety would be considered significant if the Army action were to result in either of the following:

- Violate FAA regulations that affect aviation safety
- Obstruct or infringe safe military, private, or commercial flight activity

3.14.2.2 No Action Alternative

With continued use of the existing CHPP plant, no changes to the existing airspace would be expected. The existing CHPP smokestacks do not interfere with clear zones and APZs associated with the airfield. Therefore, no new impacts on airspace management would occur.

3.14.2.3 Alternative 1 (Build a New Coal CHPP)

No impacts on airspace management would occur as a result of implementation of Alternative 1. To estimate the potential for obstructions, an assumed 84-foot smokestack height was input into FAA's Notice Criteria Tool (FAA 2020). Construction and operation of the CHPP under Alternative 1 would not result in obstruction of the clear zones or APZs near the airfield to have an effect on air traffic. Because the installation's existing CHPP already has smokestacks, and the new stacks would be constructed to an equivalent height and similarly equipped with aircraft warning lights (in accordance with FAA AC 150/5345-43J [FAA 2019]), no appreciable change in existing flight hazards would be expected. In accordance with 14 CFR § 77.9, because the new CHPP would be constructed in proximity to an FAA-regulated navigable facility (Ladd AAF), notice would still be filed with the FAA at least 45 days before construction starts.

3.14.2.4 Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)

Impacts on airspace management as a result of Alternative 2 would be similar to those described for Alternative 1.

3.14.2.5 Alternative 3 (Install Distributed Natural Gas Boilers)

Impacts on airspace management as a result of Alternative 3 would be similar to, but less than, those described for Alternative 1 because the smokestacks associated with Alternative 3 would be shorter. Stacks for distributed boilers would either be lower than the floors of the overhead airspace zones or sited to avoid obstructing the zones.

3.15 Cumulative Effects

In addition to identifying the direct and indirect environmental impacts of their actions, federal agencies are required by the CEQ NEPA regulations to address cumulative impacts related to their proposals. A cumulative impact is defined in the CEQ regulations (40 CFR § 1508.7) as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." This section describes the process used to identify potential cumulative impacts related to the Proposed Action at Fort Wainwright and discusses those impacts for each of the resources addressed earlier in this chapter in Sections 3.2 through 3.14.

3.15.1 Approach for Assessing Cumulative Effects

Guidance used for preparing the cumulative effects analysis includes the following:

- CEQ's NEPA implementing regulations (40 CFR §§ 1500–1508)
- Environmental Analysis of Army Actions (32 CFR Part 651)
- *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ 1997b)
- Memorandum: Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005)
- *NEPA Analysis Guidance Manual* (U.S. Army Environmental Command [AEC] 2007)

The cumulative effects analysis process outlined by CEQ includes identifying significant cumulative effects issues, establishing the relevant geographic and temporal (time frame) extent of the cumulative effects analysis, identifying other actions affecting the resources of concern, establishing the cause-and-effect relationship between the Proposed Action and the cumulative impacts, determining the magnitude and significance of the cumulative effects, and identifying ways in which the proposal of the federal agency might be modified to avoid, minimize, or mitigate significant cumulative impacts.

Issues to be addressed in this cumulative effects analysis were determined based on the identification of resources that would be directly or indirectly affected by the alternatives considered for implementing the Proposed Action. These resources, discussed earlier in this chapter, were identified based on information received during internal and public scoping or through the analysis of direct and indirect effects that have the potential to combine with other past, present, or reasonably foreseeable future actions to produce a larger impact. If the analysis demonstrated there would be no direct or indirect impact on a resource, it was not included in the cumulative effects analysis because the Proposed Action would not add to the cumulative impact.

3.15.2 Geographic Scope

The geographic scope, or ROI, for the cumulative impacts analysis was determined by establishing the area where projects are likely to incur impacts and interact, and by identifying the geographic areas covered by each affected resource. These geographic areas include Fort Wainwright and communities within the broader FNSB region. Other areas outside the FNSB region that could be affected by the Proposed Action are Healy (in the Denali Borough), where the coal mine is located; Point MacKenzie (in the Matanuska-Susitna Borough), the location of the only currently operating LNG facility in Alaska; and Nikiski and Valdez, where ULSD production refineries are located.

The temporal scope addressed for this analysis includes past, present, and reasonably foreseeable (future) periods of time. The time period for the past and future impact analyses varies by resource, depending on the timeframe for which data on historical or forecasted projects are available, and is approximately 10 years into the future, based on the current forecast for development projects in the ROI.

3.15.3 Identification of Past, Present, and Reasonably Foreseeable Future Actions

CEQ regulations specify that cumulative effects analyses encompass past, present, and reasonably foreseeable future actions. Actions considered in this cumulative effects analysis are identified in Table 3.15-1. As a practical matter, the impacts of past actions are already reflected in the Affected Environment section discussions for each resource area. Nevertheless, several past actions have occurred that could contribute to cumulative effects and whose impacts are not reflected in the baseline described in the Affected Environment section of each resource area. As a result, these additional past actions are included in the cumulative effects analysis and are identified in Table 3.15-1. Present and reasonably foreseeable future actions are considered to be those that currently exist or are under construction, are the subject of an existing plan or proposal, or have identified funding.

Table 3.15-1. Past, Present, and Reasonably Foreseeable Projects within the Cumulative Effects Analysis Area

Project Title	Proponent	Location	Timeframe	Project Description
On-Installation Projects				
Past Actions				
Disposition of Hangars 2 and 3	USAG Fort Wainwright	Fort Wainwright, Alaska	Past 2013–2016	This project involved demolition of two historic World War II-era hangars at Fort Wainwright. An EIS addressing this project also looked at other disposition options and a No Action Alternative. Both buildings have been found to be unsafe for occupancy and have no remaining military purpose. The hangars were contributing resources within the Ladd Field NHL and Ladd AFB CWHD. All other impacts would be less than significant. Mitigation measures were implemented to minimize adverse impacts on cultural resources (USAG Fort Wainwright 2013a).
Present and Future Actions				
Fort Wainwright Area Development Planning Projects	USAG Fort Wainwright	Fort Wainwright Alaska	Present Future 2017–2042	Fort Wainwright's 2016 ADPs for the Chena District, North Post District, South Post District, Ladd Airfield District, and the West Post District identified 40 short-range (0–5 year) projects that would demolish aged facilities and infrastructure, construct and renovate several facilities, and implement many roadway improvements across the installation (USACE 2015, 2016a, 2016b, 2016c, 2017b). Mid-range (6–15 years) and long-range (16–25 years) plans in these installation areas would implement up to 98 additional construction, demolition, and transportation improvement projects. At full build-out (estimated by 2042), these short-, mid-, and long-range plans would demolish approximately 10 million square feet of developed area, and construct approximately 4 million square feet of new facilities and improved roads, and pedestrian improvements across the installation. The *Real Property Master Plan Programmatic Environmental Assessment* (EA) addressed the less than significant environmental impacts anticipated from implementation of these plans; the Finding of No Significant Impact (FNSI) was signed in May 2017 (USAG Fort Wainwright 2017a).

Project Title	Proponent	Location	Timeframe	Project Description
Stationing the Gray Eagle Unmanned Aircraft System (UAS)	USAG Fort Wainwright	Fort Wainwright, Alaska	Present Recent Past	This project expanded infrastructure and facilities to support the stationing and operation of the Gray Eagle UAS at Fort Wainwright, Alaska (USAG Fort Wainwright 2015). This project was implemented to provide the necessary airfield and support facilities for the 25th Aviation Regiment Company D to operate the Gray Eagle UAS in Interior Alaska within existing restricted airspace. An EA addressed the action, and the FNSI was signed in 2015.
Child Development Center III	USAG Fort Wainwright	Fort Wainwright, Alaska	Future	This project would construct a large Child Development Center, with capacity for up to 336 children and with a 4,000-square-foot adjacent outdoor play area at Fort Wainwright (USAG Fort Wainwright 2020b, 2020c). The Child Development Center would include space for food service, laundry, waiting and reception, administrative spaces, storage, and restrooms. Supporting infrastructure would include connection to existing underground utilities, exterior lighting, paving, erosion control measures, information systems (phone and internet connections), site improvements, antiterrorism/force protection (AT/FP), and fire protection. Facilities would be designed to a minimum life of 40 years in accordance with DoD's Unified Facilities Criteria (UFC 1-200-02), including energy efficiencies, building envelope, and integrated building system performance. This project underwent a NEPA review in April 2020, which was documented in a Preconstruction Environmental Survey Record of Environmental Consideration and determined to qualify for 32 CFR Part 651, Appendix B - Categorical Exclusion (c)(1).
Off-Installation Projects				
Past Actions				
New Mission Beddown and Construction at Clear Air Force Station (AFS)	U.S. Air Force (USAF), Clear AFS	Clear AFS, Alaska	Past 2013–2016	This project implemented new mission requirements and upgraded the Early Warning Radar and associated facilities at the Solid State Phased-Array Radar System at Clear AFS (Missile Defense Agency [MDA], 2012). An EA that addressed the project was prepared in 2012. The projects were implemented from FY 13 through FY 16.

Project Title	Proponent	Location	Timeframe	Project Description
Present and Future Actions				
Fairbanks International Airport Master Plan	FAI	FAI	Present Future 2019 and beyond	This plan is a comprehensive study of the FAI that compares existing and forecasted aviation demand with existing conditions and facilities to identify the need for future development (ADOT&PF 2019b). The plan describes near-, mid- and, long-term development plans and identifies the triggers necessary to begin those projects. This framework cost-effectively guides airport development while also considering potential environmental, airspace use, and socioeconomic impacts.
Fairbanks Area Rail Line Relocation Project	ARRC	ARRC Eielson Branch, North Pole, Alaska	Present Future Phase I: 2013–2015 Phases II and III: to be determined	This three-phased-project proposes phased construction of several rail crossings across the FNSB to reduce roadway crossings of the railroad tracks, reduce traffic conflicts, and decrease travel times through the region. Phase I, planned to start construction in 2013, would realign the existing Eielson Branch of the rail line along a southwest route between Moose Creek and Richardson Highway at Milepost 9. Phases II and III would add rail lines from Richardson Highway Milepost 9 to 3-Mile Gate near Fort Wainwright, and from 3-Mile Gate to beyond Chena, respectively. An EA addressing the impacts from this project was completed in 2012, and the FNSI was signed in 2013. Between 2018 and 2021, the project progressed from the initial planning and design stages to development and publication of the *Draft Fairbanks Area Road/Rail Crossing Reduction/Realignment Plan* (ADOT&PF and FMATS 2019, ADOT&PF and Fairbanks Area Surface Transportation [FAST] 2021, FAST 2021). The final plan, which will identify and projects to be completed over a 10-year timeframe, is anticipated in August 2021. Construction timeframes for those efforts are not yet determined.

Project Title	Proponent	Location	Timeframe	Project Description
Alaska LNG Pipeline	Alaska Gasline Development Corporation (AGDC)	Various, Alaska	Future Estimated construction: 2021–2029 Estimated operation: 2030–2060	AGDC submitted an application to the Federal Energy Regulatory Commission (FERC) requesting approval of the construction and operation of an LNG pipeline and liquefaction facility pursuant to Section 3 of the Natural Gas Act and Part 153 of the Commission's regulations. Specifically, AGDC is seeking authorization to construct and operate a new gas treatment plant; a 1-mile, 60-inch Prudhoe Bay Unit gas transmission line; a 63-mile, 32-inch Point Thomson Unit gas transmission line; an 807-mile, 42-inch natural gas pipeline (mainline pipeline) and associated aboveground facilities; and a 20 million-metric-ton-per-year liquefaction facility near Cook Inlet in Alaska. The anticipated construction timeline for this project would be the 8 years following the publication date for the signed ROD. The project would have an annual average inlet design capacity of up to 3.7 billion standard cubic feet per day and a 3.9 billion standard cubic feet per day peak capacity. AGDC states that the project would have a nominal design life of 30 years. FERC prepared an EIS that disclosed project details and anticipated significant adverse impacts on permafrost, biological resources, air quality, and noise; less than significant impacts on housing and environmental justice communities; and beneficial impacts on state and local economies. The EIS identified BMPs, avoidance, and minimization measures that would be implemented to reduce impacts on resources (FERC 2020). In July 2021, DOE published an NOI to prepare a Supplemental EIS to analyze impacts of the project on the North Slope, including an updated analysis of air quality impacts (DOE 2021).
Fairbanks North-Star Borough Regional Growth Plan	FNSB	Fairbanks, Alaska	Present Future 2018 and beyond	An FNSB planning document provides the foundation for future growth coupled with responsible stewardship of major attributes of the community (FNSB 2018b). It provides the framework for citizens and officials to make decisions related to land use, and to form the basis for ordinances and programs to guide land use and development. The document is also a guide for responding to change in the community. It details the vision that will guide FNSB through the next few decades. Goals, strategies, and actions are provided to implement the vision. Near future development in FNSB is focused on substantial expansions in housing and infrastructure to accommodate the F-35 beddown at Eielson AFB.

Project Title	Proponent	Location	Timeframe	Project Description
Northern Region Transportation Improvement Projects	ADOT&PF and FAST Planning (formerly FMATS)	Fairbanks, Alaska	Present Future 2019–2030	ADOT&PF identified 146 transportation improvement projects in and around the Fairbanks community; of those, 20 short-term projects were scheduled for construction during 2020 (ADOT&PF 2019c, ADOT&PF 2020). Projects range from upgrading signage to reconstruction of roads and culverts, and include repaving roadways, road construction, upgraded signalization, development of pedestrian and bicycle paths, bus stops, bus stop shelters, sidewalks, facility reconstruction or replacement of roads and bridges, intersection improvements, and upgrades for improved security controls. In 2021, 107 projects were reported in various stages of effort; approximately 50percent of the projects are being constructed, 42 percent are still in design, and 8 percent are in planning (ADOT&PF 2021).
BLM Resource Management Plans for Fortymile, Steese, Draanjik, and the White Mountains	BLM	BLM-managed lands at Fortymile, Steese, Draanjik, and the White Mountains, Alaska	Present Future 2017 and beyond	In 2016, BLM proposed implementation of a Proposed Resource Management Plan (that would provide a framework for the future management direction and appropriate use of the Eastern Interior Planning Area, located in Interior Alaska. The document contains both land use planning decisions and implementation decisions to guide BLM management of the four planning subunits: Fortymile, Steese, Upper Black River (Draanjik), and the White Mountains. An EIS was prepared for this action in July 2016 (BLM 2016). BLM approved the plans and issued RODs for the planning areas in January 2017 (BLM 2017).

Project Title	Proponent	Location	Timeframe	Project Description
F-35A Beddown at Eielson AFB	USAF	Eielson AFB, Alaska	Present Future 2019 and beyond	The USAF proposes to beddown operational F-35A aircraft squadrons (Ops #2) in the Pacific Air Forces Area of Responsibility (PACAF AOR), arriving at this decision through a deliberative process. The proposed action would base up to 54 F-35A aircraft (or 48 Primary Assigned Aircraft and 6 Backup Aircraft Inventory) within the PACAF AOR, specifically at Eielson AFB. The proposal also includes approximately 3,300 additional military and civilian personnel and construction and/or modification of facilities for aircraft maintenance and operation. The beddown was projected to bring more than 2,600 jobs in the area. An EIS was prepared to address impacts anticipated from the project in 2016. The ROD was signed in April 2016. USAF prepared a supplemental EIS and ROD in 2017 to address changes in facility and infrastructure improvements required on the installation to prepare for the F-35 beddown (*Federal Register*, Vol. 83, No. 1611). Initial construction in the Fairbanks area to support the F-35 beddown at Eielson AFB began in 2017 and by April 2020, 28 of the planned 41 development projects were completed. The first aircraft arrived in April 2020; the remainder are anticipated by December 2021 when the program will be fully operational (McCullough 2020).
Modular Nuclear Microreactor at Eielson AFB	USAF	Eielson AFB, Alaska	Present Future 2027 and beyond	The USAF selected Eielson AFB to pilot its first nuclear microreactor. This project was initiated in response to the FY 2019 National Defense Authorization Act requirement to identify potential locations to site, construct, and operate a microreactor by the end of 2027. The microreactor will be licensed by the U.S. Nuclear Regulatory Commission and commercially owned and operated (SAF/IEE Installation Energy 2021). Eielson AFB is currently sustained by its own coal power plant, which can produce up to 25 megawatts electric (MWe) but typically runs at 13-15 MWe, using up to 800 tonnes of coal every day (World Nuclear News 2021). The installation also keeps 90 days of supply on site and needs a facility to thaw the coal. The base is independent but does have a connection to the grid, which is useful for frequency control. The planned microreactor would supplement this with 1-5 MWe of nuclear power (World Nuclear News 2021).

3.15.4 Cumulative Effects under the Proposed Action

3.15.4.1 Air Quality

No significant cumulative impacts on air quality would be expected from implementation of the Proposed Action concurrently with the other identified cumulative projects within the ROI. The Proposed Action and other identified cumulative projects would result in cumulative, short-term, minor, air emissions from construction vehicles, equipment, vehicle transport of materials and workers to and from the various development sites, and the demolition and construction activities that would be conducted for each project. These impacts would be limited to the individual project sites, would result in minor amounts of criteria pollutants and GHG being released from vehicles and equipment during the construction activities associated with Alternative 1. Because these impacts would be short term and localized in nature, they are not anticipated to significantly affect the air quality in the Fairbanks area. Further, most construction emissions would occur during the warmer seasons, whereas the $PM_{2.5}$ nonattainment status in Fairbanks is primarily a wintertime issue. Design and construction measures would be implemented to reduce air emissions impacts during construction for the planned projects considered in this analysis.

Operation of the Proposed Action would result in an overall, cumulative, beneficial reduction in operational air emissions in the region through replacement of the existing CHPP and other aged facilities and technologies with modern, resource-efficient buildings and operating systems.

3.15.4.2 Utilities

If constructed and operated concurrently with the other identified on- and off-installation cumulative projects, the Proposed Action would contribute to cumulative, short-term, minor, adverse impacts on utilities from temporary disruptions to service as new facilities and infrastructure were incorporated and became operational. On Fort Wainwright, the Proposed Action and ADPs would cumulatively result in long-term, moderate, beneficial impacts on utilities and infrastructure from removal of aged facilities and construction and operation of modern, resource efficient buildings and systems.

Depending on the alternative selected to implement the Proposed Action, the project could contribute negligible to minor, adverse impacts on electricity, liquid fuels, water, wastewater, and solid waste management, including disposal of coal ash. If one of the natural gas-fueled action alternatives is selected to implement the Proposed Action, the project would contribute with other cumulative projects (e.g., Alaska LNG pipeline project, Fairbanks comprehensive development actions, Eielson AFB nuclear microreactor project, and FNSB regional growth) to long-term expansion of the natural gas utility in the Interior Alaska region and the state.

3.15.4.3 Hazardous and Toxic Materials and Wastes

The Proposed Action and other identified cumulative development actions (ADP-related demolitions and construction projects) on the installation would result in cumulative, short-term, minor, adverse impacts from generation of ACM, LBP, and PCB-contaminated materials and construction debris. Additionally, construction for the Proposed Action and other identified on-installation cumulative projects could contribute to short- and long-term, minor, adverse impacts from disturbance of contaminated soils and increased potential for impacts on groundwater. Avoidance and minimization measures would be implemented to reduce potential for these effects.

If a natural gas-fueled action alternative is selected to implement the Proposed Action, the project would contribute with other natural gas utility expansion actions in the region to the increased potential for cumulative, short- and long-term, minor, and adverse impacts associated with fuel spills and low-probability pipeline leaks. Design measures would be incorporated to avoid or minimize the potential for such effects. Although a natural gas-fueled alternative would contribute to cumulative, long-term, beneficial impacts from removal and treatment of the on-installation coal yard, such an alternative would contribute to cumulative, long-term, minor, adverse impacts from generation of a new hazardous waste stream composed of the natural gas and ULSD combustion products.

3.15.4.4 Socioeconomics

Cumulatively, the Proposed Action and other cumulative projects would result in short-and long-term, negligible, adverse impacts and short- and long-term, negligible to minor, beneficial impacts on socioeconomics in and around Fairbanks. During construction, the Proposed Action and other cumulative projects would contribute to minor, beneficial impacts on the local economy from the purchase of materials, goods, and services, and to increased employment and taxes associated with construction. Depending on the alternative selected for implementation of the Proposed Action, construction of the new heating system could contribute to cumulative, moderate, increases in temporary construction-related jobs in the region. Worker relocations to support the various cumulative projects, including the Proposed Action, would result in temporary, minor, adverse impacts on population and housing. Any employment and construction spending associated with the Proposed Action and other cumulative projects would provide taxable income to the local and state governments. Local businesses would be expected to benefit from spending by construction personnel associated with these development actions.

If a non-coal-fueled alternative is selected for implementation, the Proposed Action could cumulatively contribute to long-term, moderate, and adverse impacts on coal-related business revenues and jobs in the region, especially in Healy, where coal is mined and transported coal for the existing CHPP on the installation. Additionally, the transition from coal to natural gas for such a selection would contribute to cumulative, near-term, minor adverse impacts on residential communities from utility rate changes.

3.15.4.5 Environmental Justice

Construction of the Proposed Action would contribute to short-term, cumulative, minor, and adverse impacts on local communities including environmental justice and child populations within the ROI. These impacts would include increased noise, construction vehicle and equipment emissions, increased traffic levels, and presence of construction work sites and associated hazards. Measures would be implemented to dampen construction noise and air emissions during construction activities, reduce construction traffic during peak driving times, and safeguard the public from active work sites. Cumulative short-term (temporary), minor to moderate, beneficial cumulative impacts from construction-related employment opportunities would be expected.

If Alternative 1 (new coal-fueled CHPP) is selected to implement the Proposed Action, operation of the resulting facility would contribute long-term, disproportionately high and adverse health impacts (e.g., emissions from coal combustion and from continued operation of the coal ash handling and disposal system) to the cumulative impacts on environmental justice communities in the ROI. Considered cumulatively, operation of additional aircraft, vehicles, heating of additional homes, buildings, and facilities associated with the beddown of the F-35 aircraft at Eielson AFB, and overall population growth in the Fairbanks region would also contribute to increased air emissions. It is possible that regional measures proposed to reduce and control air emissions (e.g., home and facility heating advancements, transition in fuel usage to natural gas, and transportation upgrades to minimize idling and delays on roadways) would help to offset some of these impacts.

If Alternative 2 (dual-fueled natural gas/ULSD CHPP) or Alternative 3 (distributed natural gas boiler system) is selected to implement the Proposed Action, operation of the resulting facility would contribute long-term, locally disproportionately high and adverse economic impacts from the ceased requirement for and purchase of coal from a local coal provider, which would likely result in job losses in low-income positions providing services in Healy.

Cumulative, long-term, minor, beneficial health and economic impacts on environmental justice populations would also be anticipated from the Proposed Action and other identified cumulative projects from operation of modern, technologically-advanced, and resource-efficient facilities; expanded and upgraded utilities and infrastructure; residential, commercial, and transportation growth and improvements; and increased job opportunities.

3.15.4.6 Noise

Cumulatively, construction activities for the Proposed Action and the other identified on- and off-installation cumulative projects would produce elevated noise levels from construction vehicles transporting workers and materials to and from work sites and from operation of construction equipment at the various development phases for each project. Noise impacts would be greatest where concurrent construction actions are being conducted in close locations. These impacts could be minor to moderate and adverse,

but would be temporary, lasting only the duration of overlap of the different construction activities. It is possible that if the Proposed Action and other identified cumulative projects are constructed in the same areas, noise from construction vehicles and operation of equipment associated with these projects may be audible to nearby noise-sensitive receptors (residences and recreation areas) on and off the installation. Construction noise abatement measures (e.g., use of muffler systems and appropriately spacing noise-generating equipment away from noise-sensitive receptors) would further minimize such short-term noise impacts. Community notifications and ensuring construction plans and specifications are in accordance with local ordinances would also minimize these noise impacts.

If one of the action alternatives is selected for implementation, operation of the new heating system for the Proposed Action would not be expected to contribute greater than negligible, long-term adverse impacts on the ambient sound environment.

3.15.4.7 Land Use

The Proposed Action and other identified cumulative projects would result in cumulative, short-term, minor, adverse impacts on land use on Fort Wainwright and the surrounding communities in FNSB from increased traffic, increased noise, temporarily increased commute times, detours, delayed access to facilities, and temporarily changed viewsheds from the presence of construction equipment and activities.

If a natural gas-fueled alternative is selected to implement the Proposed Action, short-term on-post land use incompatibilities (delayed access, increased construction noise, reduced air quality) during construction of the underground pipeline would result if routed through non-industrial areas (e.g., natural or residential areas). These impacts would be minor and would contribute to cumulative, short-term, minor to moderate, adverse impacts on land use during the construction efforts required for other on- and off-installation cumulative development projects.

Operation of a new coal-fueled CHPP would not contribute to long-term cumulative impacts on land use because the new plant would be located immediately adjacent to the existing CHPP in the industrial area; this siting would be considered a continuation of existing land use.

Operation of a new dual-fueled natural-gas/ULSD CHPP (Alternative 2) or a distributed natural gas boiler facility (Alternative 3) would result in long-term, minor to moderate, adverse impacts on land use at Fort Wainwright and FNSB from utility right-of-way property acquisitions or easements and use of corridors for proposed pipelines, if needed. Long-term, minor, beneficial impacts on visual resources and viewsheds from removal of the existing CHPP and the coal stockpile and from restoration of the area to a more visually aesthetic area. These changes would also include the cessation of rail deliveries of coal. Consequently, cumulative impacts from the Proposed Action and other identified on- and off-installation cumulative development projects (Fort Wainwright ADPs and regional growth anticipated in the FNSB and Fairbanks plans) would result in cumulative, long-term, minor to moderate, beneficial impacts on land use from removal of aged

facilities and infrastructure, optimized development and land use efficiency, and improved capacities to support the ongoing USAG missions.

3.15.4.8 Transportation and Traffic

The Proposed Action, Fort Wainwright ADPs, transportation improvement projects planned by ADOT&PF and Fairbanks Area Surface Transportation (FAST) Planning, and other identified cumulative development and regional growth actions would contribute to cumulative short-term, moderate, adverse impacts on transportation from the presence of construction actions on and along roadways. These temporary impacts would be minimized by positioning flaggers at construction sites, maintaining open lanes where possible, maintaining construction parking and storage of project-related materials at the project site, and ensuring the construction commutes to and from the work sites avoid peak commuting, entry, and exit times onto the installation.

Long-term, operation of the Proposed Action would not contribute to cumulative impacts on traffic and transportation.

3.15.4.9 Human Health and Safety

Construction activities associated with the Proposed Action and other cumulative development and infrastructure projects would have localized, short-term, adverse impacts on health and safety resulting from a heightened risk of traffic, presence of multiple work zones across the installation and throughout the surrounding communities, and daily operations-related incidents. Localized, cumulative, long-term, minor to moderate, beneficial impacts on health and safety resulting from facility modernization would be associated with the Proposed Action and other cumulative projects.

The Proposed Action (under Alternative 1) would contribute long-term, minor to moderate, adverse impacts on health and safety from ongoing coal plant emissions and use of the coal ash handling facility. If Alternative 2 or Alternative 3 were selected to implement the Proposed Action, potential contribution to cumulative adverse impacts (e.g., low-probability leaks or spills) would be reduced through implementation of design and construction measures and BMPs. With implementation of installation SOPs and adherence to existing safety standards for pipeline operation, the anticipated cumulative impacts would be minor.

Implementing ADPs and any one of the alternatives of the Proposed Action would result in cumulative, long-term, minor to moderate, beneficial impacts on health and safety on the installation. Replacing aged facilities and infrastructure with modern, technologically-advanced facilities and systems would substantially reduce the risks of an installation-wide winter evacuation. Together, the on-installation cumulative projects would also contribute to beneficial impacts by providing greater reliability against loss of heat and power. Operation of the Proposed Action would not contribute to off-installation cumulative impacts on health and safety.

3.15.4.10 Geology and Soil Resources

The Proposed Action and other identified cumulative development projects would result in cumulative, short-term, minor, adverse impacts (soil compaction and erosion) from construction activities (grading, scrubbing, and site preparation). If constructed concurrently and near contaminated sites, the Proposed Action and Fort Wainwright ADP projects could disturb contaminated soils, resulting in cumulative, minor, adverse impacts on soil resources on the installation. Optimized facility siting to avoid development in contaminated areas and implementation of construction measures to avoid contaminated sites would minimize potential for such impacts.

Long-term, operation of the Proposed Action would not be expected to contribute to cumulative impacts on geology or soil resources.

3.15.4.11 Water Resources

The Proposed Action and other identified cumulative projects would result in short- and long-term minor adverse impacts on surface waters and water quality from increased impervious surface area and potential to disturb contaminated soils, increased storm water runoff, and sedimentation. Optimized project siting to avoid contaminated areas and development and adherence to the installation's stormwater management policies and SWPPPs of each project would be expected to reduce potential for these impacts.

The Proposed Action (under Alternatives 2 or 3) would also contribute added long-term risk for a low-probability fuel transport accident or pipeline leak or spill that would affect water resources. Adherence to existing fuel transport regulations and requirements and implementation of design measures for natural gas pipelines would minimize the potential for these impacts to occur, and would therefore minimize potential for contribution to cumulative impacts on water resources.

3.15.4.12 Cultural Resources

The Proposed Action would not contribute to cumulative impacts on archeological resources. The Proposed Action would be unlikely to contribute to any cumulative off-installation impacts on cultural or historical resources.

Under the Proposed Action and ADP-related development actions on Fort Wainwright, depending on where new infrastructure would be constructed, modification or discontinued use of the utilidor system could contribute to minor to significant cumulative adverse impacts on historic properties (e.g., Ladd Field NHL, Ladd AFB CWHD) and contributing resources, which would be addressed by mitigation identified through the Section 106 process.

3.15.4.13 Airspace Management

The Proposed Action would not contribute to cumulative impacts on airspace management.

3.16 Summary of Environmental Impacts and Avoidance and Minimization Measures

A summary of potential impacts from the construction, operation, maintenance, and emergency repairs associated with the proposed CHPP project and the No Action Alternative are presented in the following resource area discussions and summarized in Table 3.16-1. The full impact analysis, along with proposed avoidance and minimization measures and BMPs to avoid or reduce potential impacts on resources, is presented in the individual resource and cumulative impacts analyses in Chapter 3.

3.16.1 Unavoidable Adverse Impacts

The environmental analysis of the alternatives provided in Sections 3.2 through 3.14 includes the avoidance or minimization of potential adverse effects on natural, cultural, and environmental resources; however, all adverse impacts may not be completely avoided and/or minimized.

Unavoidable adverse impacts would result from implementation of the Proposed Action. Unavoidable adverse impacts during construction include increases in water turbidity; disturbance of sediments; noise from construction; localized habitat degradation; soil disturbance and erosion; stormwater runoff into surface water; and increased traffic, air emissions, and noise associated with construction vehicles and activities. Once operational, the Proposed Action could generate unavoidable adverse impacts similar to those occurring during construction, although to a lesser extent. These impacts would also likely be confined to the immediate area of disturbance. Adverse impacts would be minimized to the extent possible through implementation of the avoidance and minimization measures identified in Section 3.16.2.

Table 3.16-1. Summary of Environmental Impacts

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Air Quality Section 3.2	Short-term, minor, adverse impacts during repairs Long-term (during operations),[a] minor, beneficial impacts: • Reduces 1 criteria pollutant emission level due to implementation of BACT measures	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: • Reduces 5 criteria pollutant emissions levels • Reduces GHG emissions • 20 percent less water vapor	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: • Reduces 4 criteria pollutant emissions levels • Greater decrease for most pollutants than under Alternative 1 • Reduces GHG emissions • 75 percent more water vapor	Short-term, minor, adverse impacts during construction Long-term, moderate, beneficial impacts: • Reduces all criteria pollutant emissions levels • Greatest overall reduction in pollutant emissions of all action alternatives • Greatest reduction in GHG emissions of all action alternatives • 10 percent more water vapor, but dispersed over a larger area
Utilities Section 3.3	Short-term, minor, adverse impacts during repairs No impact on coal consumption or heating efficiency: • 42 percent efficient system Long-term, significant, adverse impacts on Fort Wainwright's mission could occur from continued risk of plant failure No change in long-term impacts on electrical system	Short-term, minor, adverse impacts during construction Long-term, significant, beneficial impacts on heating efficiency: • 53 percent efficient system • Less coal consumption Long-term, minor, adverse impact on coal consumption and ash disposal operations Long-term, significant, beneficial impacts on mission support	Short-term, minor, adverse impacts during construction Long-term, significant, beneficial impacts on heating efficiency • 58 percent efficient system • No coal consumption • Cleaner burning than coal Long-term, moderate, adverse and beneficial impacts on natural gas and ULSD fuel consumption	Short-term, minor, adverse impacts during construction Long-term, significant, beneficial impacts on heating efficiency: • 75 percent efficient system • No coal consumption • Cleaner burning than coal Long-term, moderate, adverse and beneficial impacts on natural gas and ULSD fuel consumption

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
		Long-term, moderate, beneficial impacts on electrical system	Long-term, significant, beneficial impacts on mission support Long-term, moderate, beneficial impacts on electrical system	Long-term, significant, beneficial impacts on mission support Long-term increased reliance on off-post electricity adds minor risk
Hazardous and Toxic Materials and Wastes Section 3.4	Short-term, minor, adverse impacts during repairs Long-term, minor, adverse impacts from coal waste stream and ongoing repairs	Short-term, minor, adverse impacts from use of hazardous materials, and waste generated during construction Long-term, minor, adverse impacts from coal ash waste stream	Short-term, minor, adverse impacts from use of hazardous materials, and waste generated during construction Long-term, negligible, adverse impacts from new waste stream Long-term, moderate, beneficial impacts from closure/remediation of on-post coal supply site	Short-term, minor, adverse impacts from use of hazardous materials, and waste generated during construction; potential to disrupt MMRP, IRP, or UXO sites during construction Long-term, negligible, adverse impacts from new waste stream Long-term, moderate, beneficial impacts from closure/remediation of on-post coal supply site
Socio-economics Section 3.5	Short-term, minor, beneficial impacts during repairs: • Temporary local jobs during ongoing repairs No cost of living impacts Long-term, minor to moderate, adverse impacts on employment and income from operating the derated boilers up to 80 percent of their nameplate-rated capacity.	Short-term, minor, beneficial impacts from construction: • 2,700 temporary jobs • $183 million labor income • $287 million business sales No cost of living impacts Long-term, moderate, adverse and beneficial impacts on workforce during operation: • $3.9 million labor income • $20.5 million in business sales	Short-term, minor, beneficial impacts from construction: • 1,700 temporary jobs • $121 million labor income • $287 million business sales Long-term, minor to moderate, adverse and beneficial impacts on workforce during operation: • $2.8 million labor income • $13.8 million in business sales	Short-term, minor, beneficial impacts from construction: • 500 temporary jobs • $42 million labor income • $103 million business sales Long-term, minor to moderate, adverse and beneficial impacts on workforce during operation: • $1.1 million labor income • $2.4 million in business sales

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
		• May require fewer direct jobs than the No Action Alternative Long-term, moderate, adverse impact on coal industry sales due to improved system efficiency	• May require fewer direct jobs than the No Action Alternative Long-term, significant, localized adverse impact on coal industry sales due to switch in fuel from coal to natural gas Long-term, minor, beneficial impacts on natural gas sector	• May require fewer direct jobs than the No Action Alternative Long-term, significant, localized adverse impact on coal industry sales due to switch in fuel from coal to natural gas Long-term, minor, beneficial impact on natural gas and electrical utility sectors
Environmental Justice Section 3.6	Short-term, minor, adverse impacts during repairs Long-term, minor to moderate, adverse health impacts: coal use and combustion, especially on minority and low-income populations and child populations Long-term, moderate to significant, adverse impacts on mental and physical health for Fort Wainwright population if system fails during winter	Short-term, minor, adverse impacts (noise, traffic) Long-term, minor, beneficial impacts (improved air quality) on minority and low-income populations and child populations Long-term, minor to moderate, adverse economic impacts (fewer direct jobs than the No Action Alternative during operations) on minority populations Long-term, minor to moderate, adverse health impacts: coal use and combustion, similar to No Action Alternative	Short-term, minor, adverse impacts, similar to Alternative 1 Long-term, minor, beneficial health impacts due to reduced emissions on minority and low-income populations and child populations Long-term, minor to moderate, adverse economic impacts (fewer direct jobs than the No Action Alternative during operations) on minority populations Long-term, significant, localized adverse economic impacts low-income populations in Healy from less coal demand	Short-term, minor, adverse impacts, similar to Alternative 1 Long-term, minor, beneficial health impacts due to reduced emissions on minority and low-income populations and child populations Long-term, minor to moderate, adverse economic impacts (fewer direct jobs than the No Action Alternative during operations) on minority populations Long-term, significant, localized adverse economic impacts low-income populations in Healy from less coal demand
Noise Section 3.7	Short-term, minor, adverse impacts during repairs No long-term changes to noise as compared to existing conditions	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: new infrastructure may generate less noise than existing CHPP	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: new infrastructure may generate less noise and rail deliveries of coal would cease	Short-term, minor, adverse impacts during construction Long-term, minor, beneficial impacts: new infrastructure may generate less noise and rail deliveries of coal would cease

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Land Use Section 3.8	No short- or long-term changes on land use or visual resources	Long-term, minor, beneficial impacts on visual resources from new CHPP	Long-term, minor, beneficial impacts on visual resources, and minor to moderate, adverse impacts from pipeline construction	Long-term, minor, beneficial impacts on visual resources, and minor to moderate adverse impacts from pipeline construction
Transportation and Traffic Section 3.9	Short-term, minor, adverse impacts during repairs No long-term changes to existing conditions – coal deliveries by rail and coal ash by truck would continue	Short-term, minor, adverse impacts during construction No long-term changes to existing conditions – coal deliveries by rail and coal ash by truck would continue	Short-term, minor, adverse impacts during construction Long-term, negligible to minor, beneficial impacts, no coal deliveries and less truck traffic Long-term, negligible to minor, adverse impacts from natural gas and ULSD truck delivers	Short-term, minor, adverse impacts during construction Long-term, negligible to minor, beneficial impacts, no coal deliveries and less truck traffic Long-term, negligible to minor, adverse impacts from natural gas and ULSD truck delivery
Human Health and Safety Section 3.10	Short-term, minor, adverse impacts during repairs Long-term, moderate to significant, adverse impacts on health by not reducing risk of outage; perpetuates safety risks Continues coal use	Short-term, minor, adverse impacts during construction Long-term, minor to moderate, beneficial impacts, substantially reduces risk of installation evacuations from outage Continues coal use	Short-term, minor, adverse impacts during construction Long-term, minor to moderate, beneficial impacts, substantially reduces risk of installation evacuations from outage Avoids coal use	Short-term, minor, adverse impacts during construction Long-term, minor to moderate, beneficial impacts, substantially reduces risk of installation evacuations from outage Avoids coal use
Geology and Soil Resources Section 3.11	Short-term, negligible to minor, adverse impacts during repairs	Short-term, negligible to minor, adverse impacts during construction	Short-term, negligible to minor, adverse impacts during construction	Short-term, negligible to minor, adverse impacts during construction
Water Resources Section 3.12	Short-term, negligible to minor, adverse impacts on water quality during repair work No long-term, adverse impacts on water resources	Short-term, negligible to minor, adverse impacts on water quality during construction Long-term, negligible, adverse impacts on groundwater	Short-term, negligible to minor, adverse impacts on water quality during construction Long-term, negligible, adverse impacts on groundwater	Short-term, negligible to minor, adverse impacts on water quality during construction Long-term, negligible, adverse impacts on groundwater

Resource Area EIS Section	**No Action Alternative**	**Alternative 1 (Build a New Coal CHPP)**	**Alternative 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP)**	**Alternative 3 (Install Distributed Natural Gas Boilers)**
Cultural Resources Section 3.13	No long-term, adverse impacts on cultural resources	Long-term, minor, adverse impacts on Ladd Field NHL from utilidor upgrades; would be less than significant with mitigation Long-term, minor, adverse impact on viewshed of distant historic properties No impacts on archaeological resources	Long-term, minor, adverse impacts on Ladd Field NHL from utilidor upgrades; would be less than significant with mitigation Long-term, minor, adverse impact on viewshed of distant historic properties No impacts on archaeological resources	Long-term, significant, adverse impacts on Ladd Field NHL and Ladd AFB CWHD from construction of facilities near historic resources, and on Ladd Field NHL from utilidor upgrades; would be less than significant with mitigation No impacts on archaeological resources
Airspace Section 3.14	No impact on airspace management	No impact on airspace management	No impact on airspace management	No impact on airspace management

Note:

a Long-term refers to the operation period (i.e., after initial construction for action alternatives).

3.16.2 Avoidance and Minimization Measures

The following subsections list potential avoidance and minimization measures identified for each resource area from consideration of existing information, environmental regulations, resource conditions, and anticipated impacts from implementing the proposed project (see Sections 3.2 through 3.14). Avoidance, minimization, and mitigation measures are subject to change based on the development of a design for the preferred alternative. Further environmental coordination, permitting, and consultation would occur during the design phase, and the need for additional environmental impact analysis would be assessed at that time.

3.16.2.1 Air Quality

Design and Construction Measures

- A Construction Emissions Control Plan would be developed and implemented. The plan would include detailed control measures implemented to minimize the generation of fugitive dust during construction.
- As available, newer model construction equipment would be used to minimize engine emissions.
- Exposed disturbed areas and material storage piles would be watered as needed to minimize wind generated dust.
- Facility roads would be watered and/or swept as needed to remove material tracked onto roadways and to minimize dust emissions from vehicle movement.
- Trucks hauling wind-erodible materials would be covered.

BMPs

- Compliance with all requirements of the ADEC-issued air permit would be maintained.
- Routine maintenance and tuning of combustion equipment would be provided.
- Routine training of equipment operators and maintenance personnel would be conducted.
- Equipment manufacturer recommended procedures for minimizing emissions would be followed.

3.16.2.2 Utilities

Design and Construction Measures

- For construction and operation of a coal-fired CHPP (Alternative 1):
    - At minimum, a 14-day supply of coal would be stored on the installation; however, the actual supply of coal would likely be similar to current practice, which is typically a 90-day supply.
    - Emergency electricity generators would be installed in mission-critical facilities across the installation so that mission operations would be sustained during potential outages of electricity from both CHPP and local service provider sources.
- For construction and operation of a natural gas pipeline (Alternatives 2 and 3):
    - Construction of the natural gas supply pipeline to Fort Wainwright would be coordinated with existing utilities to ensure placement does not conflict with existing utility services.
    - Alaska has sufficient availability of natural gas to meet the CHPP's demand; however, limited natural gas storage and distribution infrastructure are available in the Fairbanks region. ULSD would be used if a natural gas service failure occurred. ULSD could be used exclusively, if needed. ULSD might be used exclusively if natural gas service if not available for Fort Wainwright when the CHPP is commissioned.
    - Two 10-MW ULSD fuel backup generators at the installation's main substation to provide backup power to the entire installation would also be installed.
    - Sufficient ULSD storage capacity would be constructed on Fort Wainwright to sustain at least 14 days of uninterrupted operations.
- Emergency electricity generators would be installed in mission-critical facilities across the installation so that mission operations would be sustained during potential outages of electricity.
- Inform contractor(s) of utility locations before ground-disturbing activities to minimize the potential for utility disruptions and/or human safety hazards.
- Mission-critical facilities would have dual-fuel boilers.

3.16.2.3 Hazardous and Toxic Materials and Wastes

Design and Construction Measures

- A Project-specific Construction Spill Control and Waste Management Plan would be developed and adhered to during construction and an SPCC Plan would be developed and adhered to during operation to minimize potential impacts associated with an inadvertent spill or leak of fuel or other hazardous material. Key

aspects of these plans include monitoring storage and refueling activities, provisions for secondary containment around bulk storage of hazardous materials, and the immediate response and cleanup if a spill or leak occurs.

- Construction workers would handle and dispose of any ACM, LBP, and PCBs in accordance with existing regulations.
- For construction actions occurring near remedial sites, USAG Alaska would implement sampling analysis, site characterization, and work plans as required before any ground disturbance to identify and address any current or historical contamination, screen for potential contaminants using appropriate tools and laboratory analysis as appropriate; and develop detailed plans for worker protection, surface runoff prevention, and contaminated soil disposal in the case of encountering known or unknown contaminated soils during construction. Remedial actions would continue in accordance with CERCLA regulations for these active sites.
- If pipeline construction is required (Alternatives 2 and 3):
    - Road or rail transport of natural gas to the installation would be conducted in accordance with DOT safety guidelines for the transport and handling of hazardous materials.
    - Risk of long-term groundwater contamination from pipeline leaks would be minimized through implementation of design specifications and BMPs.
    - Construction of a natural gas pipeline would be completed in accordance with existing safety standards, and the unlikely risk of leakage or a fuel spill would be handled in accordance with the SPCC Plan.
- Known contaminated sites would be avoided, to the extent possible, during transportation of natural gas or construction of a natural gas pipeline to the installation. If known contaminated sites could not be avoided along the potential natural gas pipeline route, remediation efforts would be conducted in accordance with the applicable CERCLA, ADEC, and RCRA regulations to minimize further contamination.

3.16.2.4 Socioeconomics

Construction Measure

- To the extent practicable, the construction workforce and required construction materials would be locally sourced.

3.16.2.5 Environmental Justice

BMPs

- Applicable BMPs and measures for other resource areas such as air quality, noise, and human health and safety would help reduce impacts on environmental justice populations.
- The public would be notified when project construction is expected to begin.

3.16.2.6 Noise

Construction and Operation Measures and BMPs

- Heavy equipment use would primarily occur during normal weekday business hours, typically from 8 a.m. to 6 p.m.
- All heavy construction equipment would include noise abatement components such as mufflers, engine enclosures, engine vibration isolators, and other sound dampening supplements.
- Heavy equipment mufflers would be properly maintained and in good working order.
- Personnel, particularly equipment operators, would use adequate PPE to limit exposure and ensure compliance with federal health and safety regulations.
- All idling equipment would be turned off when not in use.
- Good relationships with the community would be maintained and notices would be published/distributed before noisy operations occur.
- The community would be provided with frequent updates about when and where construction actions occur.

3.16.2.7 Land Use

Design and Construction Measures

- Design and siting of a new heating facility would meet all anti-terrorism/force protection requirements and would decrease the current risk to life-safety and mission readiness.
- To avoid any land use conflicts, efforts would be made to site and construct all facility-related infrastructure in areas that would be compatible with surrounding land uses.
- Construction staging/laydown areas, materials and equipment storage areas, and demolition activities would be located within an industrial land use area, and would be confined to the project site to the extent practicable.

- If required, pipeline construction (under Alternatives 2 and 3) off the installation would be located within a zoning district designated for general use or industrial use by FNSB and possibly within an existing utility easement or right-of-way.
- If new right-of-way must be acquired or created, landowners would be provided financial compensation for providing the right to construct the pipeline on their properties and for future access to the properties to conduct maintenance and repairs.
- Land use restrictions on property within the easement and/or right-of-way would prevent the future development of the area.

3.16.2.8 Transportation and Traffic

Design and Construction Measures

- Project-related construction and utilidor upgrades would avoid work activities along or near roadways and rail lines to the extent possible.
- Construction workers would park on the site during construction activities, and the vehicles would use the ACPs outside of peak hours, to the extent practicable, to limit adverse impacts on traffic.
- Construction crews would minimize interference with non-construction traffic on roads selected for hauling materials to and from construction sites by the following:
    - Flaggers would be provided to guide traffic along the roadways near where construction activities are occurring.
    - Public notifications of construction actions that may affect traffic levels, temporary detours, or temporary road closures would be provided.

3.16.2.9 Human Health and Safety

Design and Construction Measures

- Design and construction of new habitable facilities at Fort Wainwright would comply with requirements set forth in UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings (DoD 2018c).
- All construction would be conducted in accordance with relevant regulations established by the USAG Alaska, Governmental Safety Requirements (Unified Facilities Guide Specifications, 01 35 26 [DoD 2019a]), OSHA, and other federal and state agencies.
- For Alternative 1, the modern coal-powered CHPP, coal ash would continue to be generated, loaded, transported, and disposed of at the Class I municipal solid waste landfill on Fort Wainwright.
- For Alternatives 2 and 3, transportation and pipeline distribution of natural gas would be managed in coordination with the local utility and in compliance with DOT Pipeline and Hazardous Materials Safety pipeline standards (49 CFR Part 192,

Transportation of Natural and Other Gas by Pipeline – Minimum Federal Safety Standards.)

BMPs

- Construction sites would be accessible only to workers and authorized personnel, which would minimize risks to workers and passers-by.

3.16.2.10 Geology and Soils

Design Measure

- Earthquake risk would be mitigated by following standard engineering practices in evaluating foundation soils and incorporating seismic design.

BMPs

- The construction team would develop and adhere to a project-specific erosion and sediment control plan to minimize soil erosion.
- USAG Alaska would continue adherence to Fort Wainwright's existing SOPs for sediment and erosion control.

3.16.2.11 Water Resources

Design and Construction Measures

- Construction activities throughout the installation would comply with APDES storm water permitting requirements for construction.
- For construction activities occurring within the boundaries of the Fort Wainwright MS4, the installation would adhere to the requirement to ensure that construction and post-construction measures for erosion and sediment control BMPs are met.

BMPs

- The construction team would develop a project-specific SWPPP and adhere to Fort Wainwright's existing SWMP, which describes the minimum control measures necessary for storm water runoff control on a construction site and post-construction storm water drainage systems in the urbanized area of Fort Wainwright.

3.16.2.12 Cultural Resources

Design and Construction Measures

- All construction would be consistent with the guidance in two publications: *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic*

Buildings (NPS 2017) *and FWA Aviation Stationing Mitigation: Design Guidelines for Ladd Field World War II National Historic Landmark, Fort Wainwright, Alaska* (Design Alaska 2012)

- Construction would be completed in coordination with Fort Wainwright's *Integrated Cultural Resources Management Plan* (USAG Alaska 2020b) and in accordance with specifications identified through the NHPA Section 106 consultation process.

3.16.2.13 Airspace Management

BMPs

- In accordance with FAA AC 150/5345-43J, Specification for Obstruction Lighting Equipment (FAA 2019), any potential flight obstructions or hazards created by tall structures would be equipped with aircraft warning lights and/or other appropriate aids to navigation.
- Fort Wainwright would continue to implement its standard aircraft de-icing program to reduce the potential for flight hazards associated with ice fog in the area.

3.17 Compatibility with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

The Proposed Action would be a replacement of land use on the installation for the existing heating and electrical infrastructure (i.e., the CHPP) that would not result in changed land use designations or land use incompatibilities. The proposed project would be constructed and operated consistently with existing land use plans, policies, and controls as discussed in Section 3.8 and would not result in an intensification of land use in the surrounding areas. The long-term beneficial effects of constructing and operating the proposed heating and electrical infrastructure would support the Army's ongoing mission at Fort Wainwright as well as the Army's and DoD's long-term sustainability goals.

3.18 Relationship between Short-term Uses and Long-term Productivity

In accordance with NEPA (42 U.S.C. § 4321 Section 102[2][C][iv]), this section identifies the relationship between local short-term uses of the human environment and the maintenance and enhancement of long-term productivity. Balancing the local short-term uses of the human environment with the maintenance and enhancement of long-term productivity (the natural environment) is an important consideration in determining project feasibility. This section discusses the short- and long-term effects, including benefits and losses that could be expected under the Proposed Action. Short-term uses of the biophysical components of the human environment include impacts, usually related to construction activities that occur during a period of less than five years. Long-term uses of the human environment include those impacts that occur during a period of more than five years, including permanent resource loss.

Sections 3.2 through 3.14 identify potential short-term, adverse impacts on the natural environment as a result of construction activities (between 2 and 3 years, depending on the selected alternative) of the proposed facility and supporting infrastructure. These adverse impacts include soil disturbance, erosion, and stormwater runoff into surface water and increased traffic, air emissions, and noise. Short-term employment and purchases of goods and services generated by the project could create a short-term, beneficial increase in the local economy that would end once construction is completed. These kinds of short-term impacts would persist only during occasional maintenance activities (e.g., vegetation management) and facility repair and upgrade activities. Adverse impacts would be minimized through implementation of avoidance, minimization, and mitigation measures identified for each alternative under each resource discussion in Sections 3.2 through 3.14.

Potential for long-term adverse impacts of the project include continued reliance upon non-renewable fuel sources, continued impacts on air quality from air emissions, potential for impacts on stormwater management from added impervious surfaces that would contribute to runoff and erosion, and continued landfill disposal of wastes on the installation.

The Proposed Action would be expected to promote long-term productivity by providing a modern, economical, and reliable heating system that would sufficiently support the installation and security forces based at Fort Wainwright.

3.19 Irreversible and Irretrievable Commitments of Resources

The environmental analysis of the alternatives includes the avoidance, minimization, or other mitigation of potential adverse effects on natural, cultural, and environmental resources; however, all adverse impacts may not be completely avoided and/or mitigated.

Irreversible and irretrievable commitments of resources refer to impacts on or losses of resources that cannot be reversed or recovered, even after an activity has ended. Irreversible commitment applies primarily to nonrenewable resources, such as minerals or cultural resources, and to those resources that are renewable only over long time spans, such as soil productivity. It could also apply to the loss of an experience as an indirect effect of a “permanent” change in the nature or character of the land. An irretrievable commitment of resources refers to the loss of production or value of resources and represents lost opportunities for the period when the resource cannot be used. For example, the development of a vegetated area is an irretrievable action, but the action is not irreversible. If the area is returned to vegetation, it is possible to resume production.

The following paragraphs describes the irreversible and irretrievable commitments of resources for the three action alternatives; these impacts would be permanent. The No Action Alternative would be a continuation of the existing conditions described in the Affected Environment discussions throughout Chapter 3.

The Proposed Action would require consumption of fossil fuel and use of labor as well as construction materials such as steel, cement, aggregate, and bituminous materials. The use of energy, labor, and raw materials is largely irreversible and irretrievable, with the exception of items that could be salvaged during demolition, repurposed, removed at the end of the facility's design life, and/or recycled.

Materials. Material resources irretrievably used for the Proposed Action would include copper, lead, steel, concrete, and other materials. These materials are not in such short supply that implementation of the Proposed Action would limit other unrelated construction activities. The irretrievable use of these material resources would not be significant.

Energy. Energy resources used for the Proposed Action would be irretrievably lost. During construction, gasoline and diesel fuel would be used for the operation of vehicles and equipment. During the long-term, operation of the selected heating system, intermittent maintenance, and repair activities would also require gasoline and diesel fuel. Because the system that would be installed, under any of the action alternatives, would be technologically advanced from the existing CHPP, and operation of the new facility would replace the former CHPP for existing heat and electrical demand, the new plant would not be expected to place a significant demand on availability of energy resources in the region. Therefore, limited impacts would be expected from the consumption of energy.

Landfill Space. The potential disposal of excavated soils as required in a landfill would be an irretrievable, adverse impact. There are numerous rubble landfills and construction and demolition processing facilities that could manage the waste generated. Any waste generated by the Proposed Action that is disposed of in a landfill would be considered an irretrievable loss of that landfill space.

Human Resources. The use of human resources for construction is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work. The use of human resources, however, represents employment opportunities and is considered beneficial.

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4. Lists of Preparers and Contributors

4.1 Preparers

Table 4.1-1 lists the individuals responsible for preparing this EIS and their areas of technical expertise.

Table 4.1-1. List of Preparers

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Table 4.2-1 lists additional individuals who contributed to the EIS.

Table 4.2-1. List of Contributors

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6. References

Abbott et al. 2000 — Abbott, M.B., B.P. Finney, M.E. Edwards, and K.R. Kelts. 2000. "Lake-Level Reconstruction and Paleohydrology of Birch Lake, Central Alaska, Based on Seismic Reflection Profiles and Core Transects." *Quaternary Research* 53(2): 154–166.

ACEP 2019 — Alaska Center for Energy and Power (ACEP). 2019. Biomass Technology Briefing. Available online <https://acep.uaf.edu/media/252143/Biomass_TechReport.pdf>. Accessed August 5, 2021.

ADCCED 2019 — Alaska Department of Commerce, Community, and Economic Development (ADCCED), Division of Community and Regional Affairs. 2019. Alaska Community Database Online. Available online <https://dcra-cdo-dcced.opendata.arcgis.com>. Accessed December 11. 2019.

ADEC 1996 — Alaska Department of Environmental Conservation (ADEC). 1996. *Record of Decision for Operable Unit 4, Fort Wainwright, Fairbanks, Alaska.* August 1996. Available online < https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Download?documentID=46695&fileName=1129_Record%20of%20Decision%20OU4%20dated%20August%201996.PDF>. Accessed August 15, 2021.

ADEC 2014 — ADEC. 2014. Department of Environmental Conservation Air Quality Operating Permit. Permit No. AQ0236TVP03. Issued to U.S. Army Garrison Fort Wainwright. September 19, 2014.

ADEC 2015a — ADEC. 2015. Statement of Basis of the Terms and Conditions for Permit No. AQ1121TVP02. January 30, 2015.

ADEC 2015b — ADEC. 2015. Department of Environmental Conservation Air Quality Operating Permit No. AQ1121TVP02. Issued to Doyon Utilities, LLC. January 30, 2015.

ADEC 2016 — ADEC. 2016. Alaska Pollutant Discharge Elimination System Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems Final Permit, Permit Number AKS055859 for Fort Wainwright Alaska.

ADEC 2017 — ADEC. 2017. *Alaska Air Quality Control Plan.* Volume II, Section III.D.5, Fairbanks North Star Borough (FNSB) Fine Particulate Matter ($PM_{2.5}$) Moderate Area Attainment Plan. Adopted December 24, 2014, amended December 8, 2017.

ADEC 2018a ADEC. 2018. *2018 Annual Air Quality Monitoring Network Plan*. June 2018. Available online <https://dec.alaska.gov/air/air-monitoring/monitoring-plans/>. Accessed December 18, 2019.

ADEC 2018b ADEC. 2018. *Class I/II MSWLF Inspection Checklist*. October 9, 2018.

ADEC 2018c ADEC. 2018. *State of Alaska 2014/2016 Final Integrated Water Quality Monitoring and Assessment Report*. November 2, 2018. Available online <https://dec.alaska.gov/water/water-quality/integrated-report/>. Accessed December 12, 2019.

ADEC 2019a ADEC. 2019. *Best Available Control Technology Determination for Fort Wainwright US Army Garrison and Doyon Utilities.* May 10, 2019.

ADEC 2019c ADEC. 2019. Fort Wainwright Landfill. Solid Waste Information Management System (SWIMS). Available online <https://dec.alaska.gov/Applications/EH/SWIMS/ModFacility.aspx?SiteId=97>. Accessed November 5, 2019.

ADEC 2019d ADEC. 2019. Underground Storage Tank Database. Available online <https://dec.alaska.gov/Applications/SPAR/PublicUST/USTSearch/>. Accessed September 18, 2019.

ADEC 2019e ADEC. 2019. ArcGIS Alaska DEC Impaired Waters Map Viewer. Available online <http://arcg.is/1n0DPS>. Accessed October 14, 2019.

ADEC 2020a ADEC. 2020. Point Source Emission Inventory. Year: 2020; Organization: Doyon Utilities, LLC; Stationary Source: Fort Wainwright (Privatized Emission Units). Available online <https://dec.alaska.gov/Applications/Air/airtoolsweb/PointSourceEmissionInventory>. Accessed August 12, 2021.

ADEC 2020b ADEC. 2020. *2020 Ambient Air Quality Network Assessment*. Prepared by ADEC Air Quality Division. July 1, 2020.

ADEC 2021a ADEC. 2021. Four Factor Analysis and Facilities List, Preliminary Draft. January 19, 2021. Available online <https://dec.alaska.gov/media/22233/four-factor-methodology-final.pdf>. Accessed August 12, 2021.

ADEC 2021b	ADEC. 2021. Draft List of Sources for Further Review, Preliminary Draft. January 19, 2021. Available online <https://dec.alaska.gov/media/22234/facilities-list.pdf>. Accessed August 12, 2021.
AEC 2007	U.S. Army Environmental Command (AEC). 2007. *NEPA Analysis Guidance Manual*. May 2007.
ADNR 2019a	Alaska Department of Natural Resources (ADNR). 2019. Surface Water. Division of Mining, Land and Water, website. Available online <http://dnr.alaska.gov/mlw/water/hydro/components/surface-water.cfm>. Accessed December 11, 2019.
ADNR 2019b	ADNR, Division of Mining, Land, and Water. 2019. Water Resources Home webpage. Available online <http://dnr.alaska.gov/mlw/water/>. Accessed December 11, 2019.
ADOLWD 2018	Alaska Department of Labor and Workforce Development (ADOLWD). 2018. "Fairbanks North Star, Economy and the People at the Heart of Alaska's Interior." *Alaska Economic Trends* 38:4. April 2018.
ADOLWD 2019a	ADOLWD. 2019. Alaska Population Estimates. Available online <http://live.laborstats.alaska.gov/pop/index.cfm>. Accessed December 11. 2019.
ADOLWD 2019b	ADOLWD. 2019. Alaska Local and Regional Information. Available online <http://live.laborstats.alaska.gov/alari/>. Accessed December 11. 2019.
ADOLWD 2019c	ADOLWD. 2019. Labor Force Data: Unemployment. Available online <http://live.laborstats.alaska.gov/labforce/>. Accessed December 11. 2019.
ADOLWD 2020	ADOLWD. 2020. Revised Annual Employment and Wages, January - December 2018. Available online <http://live.laborstats.alaska.gov/qcew/ee18.pdf>. Accessed March 16, 2020.
ADOT&PF 2019a	Alaska Department of Transportation and Public Facilities (ADOT&PF). 2019. Fairbanks North Star Borough. All Census Tracts. 2010 Census. Available online <http://akdoltest.ayera.net/cen/maps/censustracts/ct090.pdf>. Accessed September 13, 2019.
ADOT&PF 2019b	ADOT&PF. 2019. *Fairbanks International Airport Eastside Master Plan*. Prepared by DOWL. August 2019.

ADOT&PF 2019c	ADOT&PF. 2019. Status of Statewide Projects: Projects in Fairbanks, Alaska. Available online <http://dot.alaska.gov/projects-status/>. Accessed November 12, 2019.
ADOT&PF 2020	ADOT&PF. 2020. Northern Region Projects Construction Map (2020). April 9, 2020. Available online <https://dot.alaska.gov/nreg/projects/files/2020-nreg-projects.pdf>. Accessed August 13, 2021.
ADOT&PF 2021	ADOT&PF. 2021. Northern Status of Active Statewide Projects (Northeast Region: Fairbanks). Available online <https://dot.alaska.gov/projects-status/>. Accessed August 13, 2021.
ADOT&PF and FAST 2021	ADOT&PF and Fairbanks Area Surface Transportation (FAST). 2021. *Draft Fairbanks Area Road/Rail Crossing Reduction/Realignment Plan*. May 2021. Available online <https://static1.squarespace.com/static/5de6d218b30945256df4761a/t/60a83aa89c566c58979aaf8d/1621637808707/2+Public+Draft+Documentation+Report+20210521.pdf>. Accessed August 13, 2021.
ADOT&PF and FMATS 2019	ADOT&PF and Fairbanks Metropolitan Area Transportation System (FMATS). 2019. Memorandum: Recommend Approval of FMATS TIP Admin Mod 6. Approved January 2, 2019. Available online <http://www.dot.state.ak.us/stwdplng/cip/stip/incorporations/assets/FMATS_01022019.pdf>. Accessed December 18, 2019.
Agrawal 2020	Agrawal, Ashish. 2020. Life Cycle Cost Impact of Implementing Best Available Control Technology (BACT) at the Fort Wainwright Power Plant. Memorandum to Jennifer Meyer, Department of Public Works, Ft. Wainwright, Alaska, from Ashish Agrawal, Guernsey. February 4, 2020.
AIDEA 2019	Alaska Industrial Development and Export Authority (AIDEA). 2019. Interior Energy Project. Available online <http://www.interiorenergyproject.com/>. Accessed December 11. 2019.
ALA 2018	American Lung Association (ALA). 2018. *State of the Air 2018*.
Alaska Range Control Undated	Alaska Range Control. Undated. *UXO Range Safety Brief*.
Army 2013	U.S. Department of the Army (Army). 2013. The Army Industrial Hygiene Program. Pamphlet 40-503. April 2, 2013

Army 2014 — Army. 2014. *Risk Management*. Army Training Publication ATP 5-19. April 2014.

Army 2015a — Army. 2015. *Integrated Solid Waste Management Plan, FWA.* Prepared by Public Health Command. February 2, 2015.

Army 2015b — Army. 2015. Army Hearing Program. Pamphlet 40-501. January 8, 2015.

Army 2015c — Army. 2015. *Energy Security & Sustainability (ES^2) Strategy*. March 3, 2015. Available online <https://www.army.mil/e2/c/downloads/394128.pdf>. Accessed September 13, 2019.

Army 2016a — Army. 2016. Programmatic Agreement Between the United States Department of the Army and the Alaska State Historic Preservation Officer Regarding the Operation, Maintenance, and Development of the Army Installation at Fort Wainwright and Associated Training Areas. Garrison Fort Wainwright, Fairbanks.

Army 2016b — Army. 2016. *Department of the Army Facilities Standardization Program.*

ARRC 2019 — Alaska Railroad Corporation (ARRC). 2019. Corporate webpage. Available online <https://www.alaskarailroad.com/corporate>. Accessed December 11. 2019.

ATSDR 2016 — Agency for Toxic Substances and Disease Registry (ATSDR). 2016. Asbestos and Your Health. November 3, 2016. Available online <https://www.atsdr.cdc.gov/asbestos/health_effects_asbestos.html>. Accessed March 20, 2020.

Bigelow 1997 — Bigelow, N.H. 1997. Late Quaternary Vegetation and Lake Level Changes in Central Alaska. PhD Dissertation.

Bigelow 2013 — Bigelow, N.H. 2013. "Pollen Records, Late Pleistocene, Northern North America." In *Encyclopedia of Quaternary Science,* edited by S.A. Elias. 2nd edition. Pp. 2633–2648.

Bigelow and Edwards 2001 — Bigelow, N.H., and M.E. Edwards. 2001. "A 14,000 yr Paleoenvironmental Record from Windmill Lake, Central Alaska: Late-glacial and Holocene Vegetation in the Alaska Range." *Quaternary Science Reviews* 20(1-3): 203– 215.

Bittner 2010 — Bittner, Judith. 2010. Letter from Judith Bittner (Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage) to Michael Meeks about Fort Wainwright Main Cantonment Survey. July 7, 2010.

Björck 2007	Björck, S. 2007. "Paleoclimate Reconstruction: Younger Dryas Oscillation, Global Evidence." In *Encyclopedia of Quaternary Science*, edited by S.A. Elias. 1st edition. Pp. 1985–1993.
Black & Veatch 2018	Black & Veatch Corporation. 2018. *Energy Master Plan, Fort Wainwright Doyon Utilities, LLC, P4104, Heat and Power Analysis, Fort Wainwright Garrison, Alaska.* Black & Veatch File No. 40.1100. Prepared for Doyon Utilities, LLC, Fairbanks, Alaska. July 20, 2018.
BLM 2016	Bureau of Land Management (BLM). 2016. *Eastern Interior Proposed Resource Management Plan and Final Environmental Impact Statement.* July 2016. Available online <https://eplanning.blm.gov/epl-front-office/projects/lup/1100/98933/119853/EI_PRMP_all_FINAL_web.pdf>. Accessed December 18, 2019.
BLM 2017	BLM. 2017. DOI-BLM-AK-F020-2008-001-RPM-EIS (Eastern Interior Resource Management Plan and Environmental Impact Statement): Approved RMPs and Records of Decisions. January 3, 2017. Available online <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=10151>. Accessed December 18, 2019.
Buteyn 2022	Buteyn, Douglas J., Northern/Southeastern Regional Program Manager, ADEC. 2022. Letter to Bob Jordan, Solid Waste Manager, Fairbanks North Star Borough, South Cushman Landfill. File No. 100.15.002. May 9, 2022.
Buzby 2019	Buzby, J. 2019. Telephone communication between Joshua Buzby (V CIV U.S. Army Alaska) and Abbey Humphreys-Rowe (HDR). October 3, 2019.
Carlson et al. 2008	Carlson, Matthew L., Irina V. Lapina, Michael Shephard, Jeffery S. Conn, Roseann Densmore, Page Spencer, Jeff Heys, Julie Riley, and Jamie Nielsen. 2008. *Invasiveness Ranking System for Non-Native Plants of Alaska.*
CEMML 2004	Center for Environmental Management of Military Lands (CEMML). 2004. *Transformation of U.S. Army Alaska Final Environmental Impact Statement*. Volume 1. Prepared for the United States Army Alaska, Department of the Army. Available online <https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa/environmental-impact-statements/eis-transformation-us-army-alaska>. Accessed December 11, 2019.

CEMML 2016 — Center for Environmental Management of Military Lands (CEMML). 2016. *Municipal Separate Storm Water Sewer System (MS4) Storm Water Management Plan, U.S. Army Garrison Fort Wainwright, Alaska.* December 2016. Available online <https://home.army.mil/wainwright/application/files/7715/1311/7905/Fort_Wainwright_MS4_Final_Dec_2016.pdf>. Accessed December 11, 2019.

CEQ 1997a — Council on Environmental Quality (CEQ). 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act.* December 10, 1997.

CEQ 1997b — CEQ. 1997. *Considering Cumulative Effects under the National Environmental Policy Act*. January 1997. Available online <https://ceq.doe.gov/publications/cumulative_effects.html>. Accessed December 19, 2019.

CEQ 2005 — CEQ. 2005. Memorandum: Guidance on the Consideration of Past Actions in Cumulative Effects Analysis. June 24, 2005.

Christiansen 2020 — Christiansen, Michele. 2020. Email to Laura Sample (NEPA Program Manager, Directorate of Public Works, Fort Wainwright). Subject: MTNT's Comments on the Draft EIS Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska. November 6, 2020.

Climate Change Litigation Databases 2022 — Climate Change Litigation Databases. 2022. Louisiana v. Biden. Docket Number 21A658. Available online <http://climatecasechart.com/case/louisiana-v-biden/>. Accessed June 20, 2022.

Combellick 1984 — Combellick, R.A. 1984. *Potential for Earthquake-Induced Liquefaction in the Fairbanks-Nenana Area, Alaska.* Report of Investigations 84-5. Prepared by Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, Fairbanks. Available online <http://dggs.alaska.gov/pubs/id/2364>. Accessed December 2, 2019.

Cook 2019 — Cook, Elizabeth. 2019. Telephone communication between Elizabeth Cook (Cultural Resource Manager/Native Liaison, U.S. Army Garrison Fort Wainwright, Department of Public Works, Environmental Division) and Sean Teeter (Cultural Resources Specialist, HDR). October 10, 2019.

Cook and Woster 2018 — Cook, Elizabeth, and Casey Woster. 2018. *Re-evaluation of Ladd Field National Historic Landmark.* Prepared by U.S. Army Garrison Alaska, Fort Wainwright.

Deglin 2017 — Deglin, Sandrine. 2017. "Per- and Polyfluoroalkyl Substances in Three Alaska Communities." *State of Alaska Epidemiology Bulletin* No. 25. October 4, 2017. Available online <http://www.epi.alaska.gov/bulletins/docs/b2017_25.pdf>. Accessed December 11, 2019.

Dellinger et al. 2008 — Dellinger, Barry, Antonio D'Alessio, Andrea D'Anna, Anna Ciajolo, Brian Gullett, Heather Henry, Mel Keener, JoAnn Lighty, Slawomir Lomnicki, Donald Lucas, Günter Oberdörster, Demetrio Pitea, William Suk, Adel Sarofim, Kirk R. Smith, Tobias Stoeger, Paige Tolbert, Ron Wyzga, and Ralf Zimmermann. 2008. "Report: Combustion Byproducts and Their Health Effects: Summary of the 10th International Congress." *Environment and Engineering Science.* Proceedings of the 10th International Congress on Combustion Byproducts and their Health Effects. October 2008. Available online <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2963595/>. Accessed December 2, 2019.

Denali National Park 2019 — Denali National Park. 2019. Denali Fault: 7.9 Earthquake Hits! Webpage. Available online <https://denalinationalparkalaska.weebly.com/denali-earthquake.html>. Accessed September 13, 2019.

Design Alaska 2012 — Design Alaska. 2012. *FWA Aviation Stationing Mitigation: Design Guidelines for Ladd Field World War II National Historic Landmark, Fort Wainwright, Alaska.* Final Report. Prepared for Fort Wainwright Cultural Resources.

DHHS 2019 — U.S. Department of Health & Human Services, Office of Minority Health. 2019. Available online <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=62>. Accessed December 4, 2019.

DHSEM 2018 — Alaska Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHSEM). 2018. *State Hazard Mitigation Plan*. Available online <https://ready.alaska.gov/Plans/SHMP>. Accessed December 2, 2019.

DLA Energy 2018 — Defense Logistics Agency (DLA) Energy. 2018. *Spill Prevention, Control, and Countermeasure Plan, Fort Wainwright, Alaska.* January 2018.

DoD 2009 — Department of Defense (DoD). 2009. *Record of Decision for the Utilities Upgrade Project at Fort George G. Meade, Maryland.*

DoD 2013 — DoD. 2013. Department of Defense Sustainable Buildings Policy. November 10, 2013. Available online <https://www.wbdg.org/FFC/DOD/dod_sustainable_buildings_policy.pdf>. Accessed September 13. 2019.

DoD 2016a — DoD. 2016. DoD Instruction 4715.24: The Readiness and Environmental Protection Integration (REPI) Program and Encroachment Management. November 9, 2016. Available online <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/471524_dodi_2016.pdf>. Accessed October 7, 2019.

DoD 2016b — DoD. 2016. Department of Defense Instruction 4170.11: Installation Energy Management with Change 1. 16 March 16, 2016. Available online <https://www.acq.osd.mil/eie/Downloads/IE/DODI%204170.11%20-%20Change%201%20Effective%20March%2016%202016%20FINAL.pdf>. Accessed October 15, 2019.

DoD 2016c — DoD. 2016. Department of Defense Strategic Sustainability Performance Plan Fiscal Year (FY) 2016. September 7, 2016. Available online https://www.denix.osd.mil/sustainability/dod-sspp/unassigned/department-of-defense-strategic-sustainability-performance-plan-fy-2016/. Accessed September 13, 2019.

DoD 2017a — DoD. 2017. Army Directive 2017-07 (Installation Energy and Water Security Policy). February 23, 2017. Available online <https://www.asaie.army.mil/Public/ES/doc/Army_Directive_2017-07.pdf>. Accessed October 29, 2019.

DoD 2017b — DoD. 2017. Readiness and Environmental Protection Integration (REPI) Program Project Profile; US Army: Fort Wainwright, Alaska. September 30, 2017. Available online <https://www.repi.mil/Portals/44/Documents/Current%20Year%20Fact%20Sheets/FortWainwright.pdf>. Accessed October 8, 2019.

DoD 2018a — DoD. 2018. DoD Instruction 4165.57: Air Installations Compatible Use Zones (AICUZ). August 31, 2018. Available online <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/416557p.pdf?ver=2019-04-15-094510-673>. Accessed October 7, 2019.

DoD 2018b — DoD. 2018. DoD Instruction 4165.70: Real Property Management. August 31, 2018. Available online <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/416570p.pdf?ver=2018-09-19-073246-187>. Accessed November 72019.

DoD 2018c — DoD. 2018. Unified Facilities Criteria 4-010-01, DoD Minimum Antiterrorism Standards for Buildings. December 12, 2018. Available online <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-4-010-01>. Accessed December 2, 2019.

DoD 2018d — DoD. 2018. *2018 Sustainability Report and Implementation Plan*. Available online https://www.sustainability.gov/pdfs/dod-2018-sustainability-plan.pdf. Accessed September 13, 2019.

DoD 2019a — DoD. 2019. Unified Facilities Guide Specifications. Section 01 35 26, Governmental Safety Requirements. August 2019. Available online <https://www.wbdg.org/FFC/DOD/UFGS/UFGS%2001%2035%2026.pdf>. Accessed December 2, 2019.

DoD 2019b — DoD. 2019. Unified Facilities Criteria 1-200-02: High Performance and Sustainable Building Requirements, with Change 04. October 1, 2019. Available online <https://www.wbdg.org/FFC/DOD/UFC/ufc_1_200_02_2016_c4.pdf>. Accessed October 15, 2019.

DoD 2020a — DoD. 2020. Army Directive 2020-03 (Installation Energy and Water Resilience Policy). March 31, 2020. Available online <https://www.asaie.army.mil/Public/ES/doc/ARN21644_AD2020-03_Web_Final.pdf>. Accessed August 5, 2021.

DoD 2020b — DoD. 2020. *DoD Annual Energy Management and Resilience Report (AEMRR), Fiscal Year 2019*.

DOE 2009 — U.S. Department of Energy (DOE). 2009. *Renewable Energy Opportunities at Fort Wainwright and Fort Greely, Alaska.* Document PNLL 18892. Prepared by Pacific Northwest National Laboratory operated by Battelle for DOE under Contract DE-AC05-76RL01830.

DOE 2021 — DOE. 2021. *DOE/EIS-0512-S1: Supplemental Environmental Impact Statement Alaska LNG Project*. July 2, 2021. Available online <https://www.energy.gov/nepa/doeeis-0512-s1-supplemental-environmental-impact-statement-alaska-lng-project>. Accessed August 12, 2021.

Doyon Utilities 2013 — Doyon Utilities. 2013. *Drinking Water Quality, Fort Wainwright Alaska.* Fifth Annual Water Quality Report. June 2013.

Doyon Utilities 2016	Doyon Utilities. 2016. Fort Wainwright Utilities. Webpage. Available online: <http://www.doyonutilities.com/about/fort-wainwright-utilities>. Accessed September 12, 2019.
Doyon Utilities 2018a	Doyon Utilities. 2018. Annual Capital Upgrades, Renewals and Replacements Plan. Fort Wainwright, Alaska. Contract Years 10, 11, 12, 13 & 14. Contract No. SP0600-07-C-8263. January 19, 2018.
Doyon Utilities 2018b	Doyon Utilities. 2018. Annual Capital Upgrades, Renewals and Replacements Plan. Fort Wainwright, Alaska. Contract Years 11, 12, 13, 14 & 15. Contract No. SP0600-07-C-8263. November 1, 2018.
Doyon Utilities 2018c	Doyon Utilities. 2018. Monthly Operations Report. Fort Wainwright, Alaska. January 2018.
Doyon Utilities 2018d	Doyon Utilities. 2018. Monthly Operations Report. Fort Wainwright, Alaska. October 2018.
Doyon Utilities 2018e	Doyon Utilities. 2018. Monthly Operations Report. Fort Wainwright, Alaska. December 2018.
Doyon Utilities 2019	Doyon Utilities. 2019. Annual Capital Upgrades, Renewals and Replacements Plan. Fort Wainwright, Alaska. Contract Years 12, 13, 14, 15 & 16. Contract No. SP0600-07-C-8263. November 1, 2019.
Doyon Utilities 2020	Doyon Utilities. 2020. Monthly Operations Report. Fort Wainwright, Alaska. January 2020.
Ellis 2019	Ellis, Tim. 2019. “Fairbanks Utility Says New Natural Gas Storage Tank Will Support System Expansion.” News report for PBS channel KUAC 9. October 10, 2019. Available online <https://www.alaskapublic.org/2019/10/10/fairbanks-utility-says-new-natural-gas-storage-tank-will-support-system-expansion/>. Accessed October 14, 2019.
EPA 1971	U.S. Environmental Protection Agency (EPA). Dec. 31, 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. Publication NTID300.1.
EPA 1981	EPA. 1981. Noise and Its Measurement. January 1981. Available online <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=93000Q53.txt>. Accessed 17 October 2019.

EPA 1996a — EPA. 1996. *AP-42: Compilation of Air Pollutant Emission Factors.* Volume I, Stationary Point and Area Sources; Chapter 3, Stationary Internal Combustion Sources; Section 3.3, Gasoline And Diesel Industrial Engines. October 1996.

EPA 1996b — EPA. 1996. *AP-42: Compilation of Air Pollutant Emission Factors.* Volume I, Stationary Point and Area Sources; Chapter 3, Stationary Internal Combustion Sources; Section 3.4, Large Stationary Diesel and All Stationary Dual-fuel Engines. October 1996.

EPA 1997 — EPA. 1997. *Record of Decision for Operable Unit 1, Fort Wainwright, Fairbanks, Alaska.* June 1997. Available online <https://semspub.epa.gov/work/10/1063719.pdf>. Accessed December 11, 2019.

EPA 1998a — EPA. 1998. *AP-42: Compilation of Air Pollutant Emission Factors.* Volume I, Stationary Point and Area Sources; Chapter 1, External Combustion Sources; Section 1.1, Bituminous and Subbituminous Coal Combustion. January 1995, updated September 1998.

EPA 1998b — EPA. 1998. *AP-42*: *Compilation of Air Pollutant Emission Factors*. Volume I, Stationary Point and Area Sources; Chapter 1, External Combustion Sources; Section 1.4, Natural Gas Combustion. January 1995, updated July 1998.

EPA 2000 — EPA. 2000. *AP-42*: *Compilation of Air Pollutant Emission Factors.* Volume I, Stationary Point and Area Sources; Chapter 3, Stationary Internal Combustion Sources; Section 3.1, Stationary Gas Turbines. January 1995, updated April 2000.

EPA 2008 — EPA. 2008. *Child-Specific Exposure Factors Handbook*.

EPA 2009 — EPA. 2009. *Recover Your Resources: Reduce, Reuse, and Recycle Construction and Demolition Materials at Land Revitalization Projects*. October 2009. Available online <https://www.epa.gov/sites/production/files/2015-09/documents/cdbrochure.pdf>. Accessed 4 October 4, 2019.

EPA 2016 — EPA. 2016. *Technical Guidance for Assessing Environmental Justice in Regulatory Analysis*.

EPA 2019a — EPA. 2019. Guidance on Regional Haze State Implementation Plans for the Second Implementation Period. Memorandum from Peter Tsirigotis, Director, to Regional Air Division Directors, Regions 1 – 10. August 20, 2019. Available online <https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf>. Accessed April 7, 2020.

EPA 2019b — EPA. 2019. EPA Map of Radon Zones including State Radon Information and Contacts. Available online <https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information#radonmap>. Accessed September 4, 2019.

EPA 2019c — EPA. 2019. *Facility Profile Report*. Available online <https://iaspub.epa.gov/triexplorer/release_fac_profile?TRI=99703SDPRT1060G&TRILIB=TRIQ1&FLD=&FLD=RELLBY&FLD=TSFDSP&OFFDISPD=&OTHDISPD=&ONDISPD=&OTHOFFD=&YEAR=2017>. Accessed 9 October 9, 2019.

EPA 2019d — EPA. 2019. Special Wastes. Available online <https://www.epa.gov/hw/special-wastes>. Accessed October 9, 2019.

EPA 2019e — EPA. 2019. Fort Wainwright Superfund Site Profile. Available online <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=1001146>. Accessed September 20, 2019.

EPA 2020 — EPA. 2020. Learn about Polychlorinated Biphenyls (PCBs). Available online <https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs>. Accessed March 30, 2020.

EPA 2021a — EPA. 2021. NAAQS Table. Available online <https://www.epa.gov/criteria-air-pollutants/naaqs-table>. Accessed August 12, 2021.

EPA 2021b — EPA. 2021. Outdoor Air Quality Data: Monitor Values Report. Available online <https://www.epa.gov/outdoor-air-quality-data/monitor-values-report>. Accessed August 12, 2021.

Esdale et al. 2014 — Esdale, Julie A., Kate S. Yeske, Heather D. Hardy, Whitney E. McLaren, Josh Lynch, and Laura Sample. 2014. *Determinations of Eligibility for Nineteen Sites on Fort Wainwright and its Training Lands, 2013.* Prepared by Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

FAA 2019 — Federal Aviation Administration (FAA). 2019. Advisory Circulars. Available online <https://www.faa.gov/regulations_policies/advisory_circulars/>. Accessed December 5, 2019.

FAA 2020 — FAA. 2020. FAA Notice Criteria Tool. Available online <https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm>. Accessed March 6, 2020.

FAST 2021 — Fairbanks Area Surface Transportation (FAST) Planning. 2021. Public Draft Fairbanks Road Rail Plan (Report, Appendices, Timeline). Available online <https://fbxings.com/draft-plan>. Accessed August 13, 2021.

FEMA et al. 2002 — Federal Emergency Management Agency (FEMA); National Oceanic and Atmospheric Administration; U.S. Fish and Wildlife Service; U.S. Environmental Protection Agency; U.S. Army Corps of Engineers; National Park Service, Rivers, Trails, and Conservation Assistance Program; and Natural Resource Conservation Service. 2002. *The Natural & Beneficial Functions of Floodplains.* A Report for Congress by the Task Force on the Natural and Beneficial Functions of Floodplains. June 2002. Available online <https://www.hud.gov/sites/documents/DOC_14217.PDF>. Accessed December 11, 2019.

FERC 2020 — Federal Energy Regulatory Commission (FERC). 2020. *Final Environmental Impact Statement Alaska LNG Project*. March 2020. Available online <https://www.ferc.gov/industries-data/natural-gas/final-environmental-impact-statement-0>. Accessed August 12, 2021.

Fisher 2017 — Fisher, S.N. 2017. Memorandum: US Army Garrison Fort Wainwright, Alaska's (USGA-FWA) Municipal Separate Storm Sewer System Permit (MS4) Requirements (Garrison Policy #35). September 25, 2017.

FNSB 2005 — Fairbanks North Star Borough (FNSB). 2005. *FNSB Regional Comprehensive Plan.* September 2005. Available online <http://www.co.fairbanks.ak.us/cp/Documents/CompPlan_2005-0913_FullyAdoptedDocument.pdf>. Accessed November 7, 2019.

FNSB 2018a — FNSB, Community Planning Department. 2018. *Community Research Quarterly, A Socio-Economic Review* XLI:4. Winter 2018.

FNSB 2018b — FNSB. 2018. *Fairbanks North-Star Borough Eielson Air Force Base Regional Growth Plan*. Prepared for FNSB Regional Commission by Agnew::Beck Consulting. Available online: <http://www.eafbregionalgrowth.com>. Accessed December 13, 2019.

FNSB 2019a — FNSB. 2019. FNSB Regional Comprehensive Plan Map. Available online <https://gisportal.fnsb.us/enterprise/apps/webappviewer/index.html?id=a36c13d5ccb644db93ab5018fb5fe7f4>. Accessed November 6, 2019.

FNSB 2019b — FNSB. 2019. Fairbanks North Star Borough Zoning Identifier GIS Map. Available online <https://gisportal.fnsb.us/enterprise/apps/webappviewer/index.html?id=8b49f3ccf21a4c76a46023d6b073d1fa&extent=-16474244.1998%2C9543787.8125%2C-16400864.6526%2C9577076.1383%2C102100>. Accessed October 14, 2019.

FNSB 2021 — FNSB, Department of Public Works, Solid Waste Division. 2021. *FY21 Year End Report.* September 29, 2021. Available online <https://www.fnsb.gov/DocumentCenter/View/8298/2021-Fiscal-Year-Annual-Report-Solid-Waste-Division>. Accessed June 23, 2022.

Fort Meade 2017 — Fort Meade. 2017. *Environmental Impact Statement for the East Campus Integration Program, Fort Meade, Maryland.* March 2017

Fort Wainwright 2019 — Fort Wainwright. 2019. Housing and Relocation Information: Gate Hours, Map and Status. Available online <https://www.fortwainwrighthousing.com/gates>. Accessed September 9, 2019.

Glass et al. 1996 — Glass, R.L., M.R. Lily, and D.F. Meyer. 1996. *Ground-Water Levels in an Alluvial Plain Between Tanana and Chena Rivers Near Fairbanks, Alaska, 1986–93.* Water-Resources Investigations Report 96-4060. Prepared by the U.S. Geological Survey in cooperation with the Fairbanks North Star Borough.

Guernsey 2015 — Guernsey, Inc. 2015. *Business Case Analysis: Heat and Electricity Alternatives for Fort Wainwright, Alaska.* Prepared for U.S. Army Garrison Alaska. August 2015.

GVEA 2019 — Golden Valley Electric Association (GVEA). 2019. GVEA: A Glance Back at 2018. Available online <http://gvea.com/images/AtAGlance/At_Glance_04-2019.pdf>. Accessed December 11. 2019.

GVEA 2021 — GVEA. 2021. Battery Energy Storage System (BESS). Available online <https://www.gvea.com/battery-system/>. Accessed August 6, 2021.

Hollinger 2001 — Hollinger, Kristy. 2001. *Homesteads on Fort Richardson, Alaska.* Prepared by Center for Ecological Management of Military Lands, Colorado State University, Fort Collins.

Holmes 2008 — Holmes, Charles E. 2008. "The Taiga Period: Holocene Archaeology of the Northern Boreal Forrest, Alaska." *Alaska Journal of Anthropology* 6:69-81.

Holmes et al. 1996 — Holmes, C.E., R. VanderHoek, and T.E. Dilley. 1996. "Swan Point." In *American Beginnings: The Prehistory and Paleoecology of Beringia*, edited by F.H. West. Pp. 319–322.

IGU 2019 — Interior Gas Utility (IGU). 2019. *IGU Finalizing Fairbanks Large Storage Tank and Breaking Ground in North Pole: Expanding the Energy Horizons for the Fairbanks North Star Borough.* October 8, 2019. Available online <http://www.interiorgas.com/wp-content/uploads/IGU-Press-Release-tank-North-Pole-10.07.19-final.pdf>. Accessed 14 October 14, 2019.

IGU 2021 — IGU. 2021. Fairbanks & North Pole Service Maps. Available online <https://www.interiorgas.com/service-map/>. Accessed August 13, 2021.

IWG-SCGHG 2021 — Interagency Working Group on Social Cost of Greenhouse Gases (IWG-SCGHG). 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide; Interim Estimates under EO 13990. February 2021.

Lawson et al. 1998 — Lawson, Daniel E., Steven A. Arcone, Allan J. Delaney, Jodie D. Strasser, Jeffrey C. Strasser, Christopher R. Williams, and Tommie J. Hall. 1998. *Geological and Geophysical Investigations of the Hydrogeology of Fort Wainwright, Alaska*. Part II: North-Central Cantonment Area. Report 98-6. Prepared by the U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory. August 1998. Available online <https://apps.dtic.mil/dtic/tr/fulltext/u2/a355283.pdf>. Accessed September 26, 2019.

Lehner 2021 — Lehner, Neil, Environmental Program Specialist/Solid Waste Program, ADEC. 2021. Letter to Tim A. Sponseller, USAG Fort Wainwright. File No. 108.15.001. September 1, 2021. Available online <https://dec.alaska.gov/Applications/EH/SWIMS/AuthPermit.aspx?siteId=97&ID=2441>. Accessed June 20, 2022.

McCullough 2020 — McCullough, Amy. 2020. "Eielson Receives PACAF's First Two F-35s." *Air Force Magazine*. April 21, 2020. Available online <https://www.airforcemag.com/eielson-receives-pacafs-first-two-f-35s/>. Accessed August 13, 2021.

McDowell Group 2018 — McDowell Group. 2018. *Energy and Economic Impacts of Coal in Interior Alaska*. Prepared for Usibelli Coal Mine. July 2018.

MDA 2012 — Missile Defense Agency (MDA). 2012. *Environmental Assessment Addressing New Mission Beddown and Construction, Clear Air Force Station (AFS), Alaska*. August 2012. Available online <Environmental Assessment: New Mission Beddown and Construction, Clear Air Force Station (AFS), Alaska>. Accessed December 18, 2019.

Meeks 2011 — Meeks, Michael T. 2011. Renovation of Building 4070, DPW-10133-OJ, Fort Wainwright. Letter report. Prepared by U.S. Army Garrison Fort Wainwright.

Mufson 2014 — Mufson, Steven. 2014. "Vintage U.S. Coal-Fired Power Plants Now an 'Aging Fleet of Clunkers'." *The Washington Post*. June 13, 2014. Available online <https://www.washingtonpost.com/business/economy/a-dilemma-with-aging-coal-plants-retire-them-or-restore-them/2014/06/13/8914780a-f00a-11e3-914c-1fbd0614e2d4_story.html>. Accessed June 22, 2022.

Neely 2001 — Neely, Ronald J. Burr, Jr. 2001. *Early Mining History: Fort Wainwright and Fort Greely, Alaska*. CEMML TPS 01-3. Prepared by Center for Ecological Management of Military Lands, Colorado State University, Fort Collins. March 2001.

Neely 2003 — Neely, Ronald J. Burr, Jr. 2003. *Early Transportation Routes. Fort Wainwright, Alaska*. CEMML TPS 02-10. Prepared by Center for Environmental Management of Military Lands, Colorado State University, Fort Collins. March 2003.

NOAA 2019 — National Oceanic and Atmospheric Administration (NOAA), National Centers for Environmental Information. 2019. Available online <https://www.ncei.noaa.gov/metadata/geoportal/rest/metadata/item/gov.noaa.ncdc:C00824/html>. Accessed November 20, 2019.

NPS 1997 — National Park Service (NPS). 1997. "How to Apply the National Register Criteria for Evaluation." Bulletin 15.

NPS 2017 — NPS. 2017. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.* Prepared by the U.S. Department of the Interior, National Park Service, Washington D.C.

NRCS 2019 — U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2019. Custom Soil Resource Report for Greater Fairbanks Area, Alaska. Produced from the NRCS website mapping tool. September 3, 2019.

Obed 2021	Obed, Sarah E. 2021. Email to Laura Sample (NEPA Program Manager, Directorate of Public Works, Fort Wainwright). Subject: Doyon Limited Final Comments on the DEIS Addressing Heat and Electrical Upgrades at Fort Wainwright. February 22, 2021.
Page et al. 1998	Page, Robert T., Cathy A. Gilbert, and Susan Dolan. 1998. *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.* Prepared by Park Historic Structures and Cultural Landscapes Program, Cultural Resource Stewardship and Partnerships, U.S. Department of the Interior, National Park Service, Washington, DC.
Pentex Alaska LLC 2016	Pentex Alaska LLC. 2016. Fort Wainwright Natural Gas Request for Information. November 3, 2016
Pewe et al. 1966	Pewe, T.I., Clyde Wahraftig, and F.R. Weber. 1966. Geologic Map of the Fairbanks Quadrangle, Alaska. USGS Numbered Series IMAP 455. Available online <https://ngmdb.usgs.gov/Prodesc/proddesc_1313.htm>. Accessed September 6, 2019.
Potter 2008	Potter, Ben A. 2008. "A First Approximation of Holocene Inter-Assemblage Variability in Central Alaska." *Arctic Anthropology* 45(2): 89–113.
Potter 2011	Potter, Ben A. 2011. "Late Pleistocene and Early Holocene Assemblage Variability in Central Alaska." In *From the Yenisei to the Yukon: Interpreting Lithic Assemblage Variability in Late Pleistocene/Early Holocene Beringia,* edited by T. Goebel and I. Buvit. Pp. 215–233.
Powers and Hoffecker 1989	Powers, William R., and John F. Hoffecker. 1989. "Late Pleistocene Settlement in the Nenana Valley, Central Alaska." *American Antiquity* 54:263-287.
Price 2004	Price, Kathy. 2004. *The World War II Heritage of Ladd Field, Fairbanks, Alaska.* Prepared by Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.
Price and Sackett 2001	Price, Kathy, and Russel Sackett. 2001. *Northern Defenders: Cold War Context of Ladd Air Force Base Fairbanks, Alaska 1947–1961*. Prepared by Center for Environmental Management of Military Lands, Colorado State University, Fort Collins.

PSR 2010a	Physicians for Social Responsibility (PSR). 2010. Coal Ash Toxics: Damaging to Human Health. Fact sheet. August 6, 2010. Available online <https://www.psr.org/blog/resource/coal-ash-toxics-damaging-to-human-health/>. Accessed September 27, 2019.
PSR 2010b	Physicians for Social Responsibility (PSR). 2010. Coal Ash: Hazardous to Human Health. Fact sheet. July 28, 2010. Available online <https://www.psr.org/blog/resource/coal-ash-hazardous-to-human-health/>. Accessed September 27, 2019.
RESPEC Company LLC 2021	RESPEC Company LLC. 2021. RESPEC Project: Battery Energy Storage System (BESS). Available online <https://www.respec.com/project/battery-energy-storage-system-bess/>. Accessed August 13, 2021.
SAF/IEE Installation Energy 2021	SAF/IEE Installation Energy. 2021. "Eielson AFB Announced as Site for Air Force Micro-Reactor Pilot." October 15, 2021. Available online <https://www.eielson.af.mil/News/Articles/Article/ 2812077/ eielson-afb-announced-as-site-for-air-force-micro-reactor-pilot>. Accessed June 15, 2022.
ScienceDirect 2022	ScienceDirect. ScienceDirect. 2022. Web page: Corrective Maintenance. Available online <https://www.sciencedirect.com/topics/engineering/corrective-maintenance>. Accessed June 20, 2022.
Schutt 2022	Schutt, Aaron M., President and CEO, Doyon, Limited. 2022. Letter from Aaron Schutt to Nathan S. Surrey, Colonel, U.S. Army. March 7, 2022.
Simon 2021	Simon, Lorali, VP External Affairs, Usibelli Coal Mine. Email to Laura Sample (NEPA Program Manager, Directorate of Public Works, Fort Wainwright). Subject: UCM Comments on FWA DEIS. February 21, 2021.
Stringham 2019	Stringham, Steve. 2019. Email to Paul McLarnon (HDR) regarding information from Steve Stringham (U.S. Army Garrison, Public Works Department) on CHPP heat and electricity demand via Laura Sample (NEPA Program Manager, Directorate of Public Works, Fort Wainwright). October 29, 2019.
SourceWatch 2019	SourceWatch. 2019. Fort Wainwright Power Plant. Available online <https://www.sourcewatch.org/index.php/Fort_Wainwright_Power_Plant>. Accessed February 11, 2019.

TLI Solutions 2009	TLI Solutions. 2009. *Site Inspection Report, Fort Wainwright, AK.* Figure 8-4, Fort Wainwright MR Sites Recommendations. June 2009.
TRB 2000	Transportation Research Board (TRB). 2000. *Highway Capacity Manual*.
TRS Undated	Tontechnik-Rechner-SengPiel Audio (TRS). Undated. Damping of Sound Level (decibel dB) vs. Distance. Available online <http://www.sengpielaudio.com/calculator-distance.htm>. Accessed October 15, 2019.
USACE 2005	U.S. Army Corps of Engineers (USACE). 2005. *Joint Long-Range Energy Study for Greater Fairbanks Military Complex*. February 2005. Available online <https://apps.dtic.mil/sti/pdfs/ADA579750.pdf>. Accessed August 5, 2021.
USACE 2007	USACE. 2007. *Preventative Maintenance and Reliability Study for the Central Heating and Power Plant at Fort Wainwright, Alaska*. September 2007.
USACE 2012	USACE. 2012. Technical Memorandum: District and Islanded/Decentralized Heating Systems Selection Evaluation of with Life-Cycle Cost Analysis Guidance. December 18, 2012.
USACE 2013	USACE, Sacramento District. 2013. *Fort Wainwright Real Property Vision Plan*. 2013.
USACE 2015	USACE. 2015*. FWA North Post District Area Development Plan (ADP)*. Prepared by Michael Baker Jr., Inc. – AECOM J.V. February 2015.
USACE 2016a	USACE. 2016. *FWA South Post District Area Development Plan.* Prepared by Michael Baker Jr., Inc. – AECOM J.V. June 2016.
USACE 2016b	USACE. 2016. *FWA Chena North District Area Development Plan (ADP)*. Prepared by Michael Baker Jr., Inc. – AECOM J.V. December 21, 2016.
USACE 2016c	USACE. 2016. *FWA Ladd Airfield District Area Development Plan (ADP)*. Prepared by Michael Baker Jr., Inc. – AECOM J.V. December 21, 2016.

USACE 2017a — USACE. 2017. *Chena River Lakes Flood Control Project and Tanana River Levee, Alaska, Conditions of Improvements*. CWIS No. 072738, 072854. December 31, 2017. Available online <https://www.poa.usace.army.mil/Portals/34/docs/operations/EFC/2017ChenaTananaLeveeOverview.pdf?ver=2018-12-31-111741-237>. Accessed December 11, 2019.

USACE 2017b — USACE. 2017. *FWA West Post District Area Development Plan (ADP)*. Prepared by Michael Baker Jr., Inc. – AECOM J.V. January 13, 2017.

USACE 2018 — USACE. 2018. *Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK.* Prepared by Engineering and Support Center, Huntsville, for Directorate of Public Works, Utility Privatization, Fort Wainwright. December 2018.

USACE 2019 — USACE. 2019. *Final 2018 Annual Sampling Report, Groundwater Monitoring and Data Analysis at the Landfill Source Area, Operable Unit 4, U.S. Army Garrison Alaska.* Prepared by Fairbanks Environmental Services. Prepared for USACE, Alaska District. July 2019.

USAG Alaska 2020a — U.S. Army Garrison Alaska (USAG Alaska). 2020. *July 2019 Groundwater Sampling Report, U.S. Army Garrison Alaska Landfill, Fort Wainwright, Alaska.* Prepared by Brice Engineering, LLC. April 2020.

USAG Alaska 2020b — USAG Alaska. 2020. *Integrated Cultural Resources Management Plan for U.S. Army Garrison Alaska, 2020-2025.* March 9, 2020.

USAG Alaska 2020c — USAG Alaska. 2020. *Preliminary Draft 2019 Monitoring Report, Operable Unit 4, U.S. Army Garrison Alaska.* Prepared by Fairbanks Environmental Services. April 2020.

USAG Alaska 2021a — USAG Alaska. 2021. Notes from the Meeting with Doyon, Limited, February 4 2021 at 1:00-2:00 pm.

USAG Alaska 2021b — USAG Alaska. 2021. *Summary of CHPP Work Order.* Prepared by the Directorate of Public Works, Operations & Maintenance Division. September 2021.

USAG Fort Wainwright 2007a — USAG Fort Wainwright, Alaska. 2007. *Asbestos Management Plan, Fort Wainwright, Alaska*. November 7, 2007.

USAG Fort Wainwright 2007b — USAG Fort Wainwright, Alaska. 2007. *Fort Wainwright Lead-Based Paint (LBP) Management Plan*. October 29, 2007.

USAG Fort Wainwright 2011 — USAG Fort Wainwright, Alaska. 2011. *Draft Army Installation Design Guide.* November 2011.

USAG Fort Wainwright 2013a — USAG Fort Wainwright, Alaska. 2013. *Draft Environmental Impact Statement for Disposition of Hangars 2 and 3, Fort Wainwright, Alaska.* May 2013.

USAG Fort Wainwright 2013b — USAG Fort Wainwright, Alaska. 2013. *Integrated Natural Resource Management Plan: USAG Fort Wainwright.* Update. June 2013.

USAG Fort Wainwright 2015 — USAG Fort Wainwright, Alaska. 2015. *Environmental Assessment: Infrastructure and Operational Support for the 25th Aviation Regiment Company D Unmanned Aircraft System.*

USAG Fort Wainwright 2016 — USAG Fort Wainwright. 2016. *FY 2016 Fort Wainwright Army Defense Restoration Program Installation Action Plan*. October 13, 2016.

USAG Fort Wainwright 2017a — USAG Fort Wainwright, Alaska. 2017. *Real Property Master Plan Programmatic Environmental Assessment.* May 19, 2017.

USAG Fort Wainwright 2017b — USAG Fort Wainwright, Alaska. 2017. *Installation Compatible Use Zone Study.* December 2017.

USAG Fort Wainwright 2017c — USAG Fort Wainwright, Alaska. 2017. Environmental Management webpage. November 1, 2017. Available online <https://home.army.mil/wainwright/index.php/fort-wainwright/my-fort-wainwright/services/public-works/environmental/environmental-management>. Accessed December 2, 2019.

USAG Fort Wainwright 2019a — USAG Fort Wainwright, Alaska. 2019. *Fort Wainwright Bailey Bridge Replacement Environmental Assessment*. July 2019. Available online <https://home.army.mil/wainwright/application/files/7315/6821/3937/Bailey_Bridge_ReplacementFNSIandEA_20190823.pdf>. Accessed December 11, 2019.

USAG Fort Wainwright 2019b — USAG Fort Wainwright, Alaska. 2019. *Annual Water Quality Report, June 2019, Fort Wainwright, Alaska*. Prepared by Doyon Utilities for USAG Fort Wainwright.

USAG Fort Wainwright 2019c	USAG Fort Wainwright, Alaska. 2019. *Final Record of Decision (ROD) Defense Environmental Response Program Training Area 101 (HQAESV 02871.108), Training Area 105 (HQAES 02871.1079), Arctic Survival Area (HQAES 02871.1082) Fort Wainwright, Alaska*. October 2019.
USAG Fort Wainwright 2020a	USAG Fort Wainwright, Alaska. 2020. *Fort Wainwright Army Cleanup Program*. Working Document. January 27, 2020.
USAG Fort Wainwright 2020b	USAG Fort Wainwright, Alaska. 2020. *Preconstruction Environmental Survey: PN 61526 Large Child Development Center*. April 2020.
USAG Fort Wainwright 2020c	USAG Fort Wainwright, Alaska. 2020. NEPA Review Form USAG Alaska: PN 61526 Construct Large Child Development Center, Fort Wainwright, Alaska. April 15, 2020.
USAG Fort Wainwright 2021a	USAG Fort Wainwright, Alaska. 2021. *Actual Emissions in 2020 – Privatized Units*. August 2021.
USAG Fort Wainwright 2021b	USAG Fort Wainwright, Alaska. 2021. *GHG Emissions in 2020*. August 2021.
USAG Fort Wainwright 2021c	USAG Fort Wainwright, Alaska. 2021. *Actual Emissions in 2020 – FWA*. August 2021.
USARAK 2009	U.S. Army Alaska (USARAK). 2009. *Stationing and Training of Increased Aviation Assets within U.S. Army Alaska Environmental Impact Statement*. August 2009.
USARAK and USAG Fort Wainwright 2013	USARAK and USAG Fort Wainwright, Alaska. 2013. *Hazardous Material and Waste Management Plan*. December 2013.
USCB 2019	U.S. Census Bureau (USCB). 2019. American FactFinder: American Community Survey. Available online <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed September 23, 2019.
USFS 2019	U.S. Forest Service (USFS). 2019. Groundwater-Dependent Ecosystems. Webpage. Available online <https://www.fs.fed.us/science-technology/geology/groundwater/groundwaterdepecosystems>. Accessed December 11, 2019.

USFWS 2019	U.S. Fish and Wildlife Service (USFWS). 2019. Information for Planning and Consultation (iPaC) webpage. Available online <https://ecos.fws.gov/ipac/>. Accessed December 11. 2019.
Usibelli Coal Mine 2019	Usibelli Coal Mine. 2019. Home webpage. Available online <http://www.usibelli.com/>. Accessed December 2, 2019.
USKH 2009	USKH Inc. (USKH). 2009. *Six-Year Transportation Plan Update, Fort Wainwright, Alaska*. April 2009.
Vuyovich and Daly 2012	Vuyovich, Carrie. M., and Steven F. Daly. 2012. The Chena River Watershed Hydrology Model. ERDC/CRREL TR-12-1. Prepared by Cold Regions Research and Engineering Laboratory, Engineer Research and Development Center. Prepared for U.S. Army Engineer District, Alaska. April 2012. Available online <https://pdfs.semanticscholar.org/f785/eccbac0cbae963124c6395d2dd81ac29121b.pdf>. Accessed December 11, 2019.
Weatherly et al. 2018	Weatherly, John W., Michael Shaw, Steven Peckham, and Thomas A. Douglas. 2018. *Modeling Wintertime Ice Fog at Fort Wainwright, Alaska.* April 4, 2018. Prepared by U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.
Wegner 1997	Wegner, M.A. 1997. Transient Groundwater and Surface-water Interactions at Fort Wainwright, Alaska. Thesis presented to the faculty of the University of Fairbanks in partial fulfillment of the requirements for the degree of Master of Science. December 1997.
Whitney et al. 2017	Whitney, E., Byrd, A., and D. Huang. 2017. "An Alaska Case Study: Biomass Technology." *Journal of Renewable and Sustainable Energy*. Volume Issue 6. November 2017. Available online <https://acep.uaf.edu/media/254006/Biomass_AlaskaCaseStudy_14986578.pdf>. Accessed August 5, 2021.
WNA 2019	World Nuclear Association (WNA). 2019. Nuclear Power in the USA. March 2019. Available online <http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/usa-nuclear-power.aspx>. Accessed March 14, 2019.
World Nuclear News 2021	World Nuclear News. 2021. "US Air Force Confirms Site for First Microreactor." October 26, 2021. Available online <https://www.world-nuclear-news.org/Articles/US-Air-Force-confirms-site-for-first-microreactor>. Accessed June 15, 2022.

WRCC 2019a — Western Regional Climate Center (WRCC). 2019. Fairbanks INTL AP, Alaska (502968): Period of Record Monthly Climate Summary. Available online <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak2968>. Accessed November 18, 2019.

WRCC 2019b — WRCC. 2019. Fairbanks INTL AP, Alaska: Period of Record Daily Climate Summary, Daily Summary Stats. Available online <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak2968>. Accessed November 18, 2019.

Zazula et al. 2007 — Zazula, G.D., D.G. Froese, S.A. Elias, S. Kuzmina, and R.W. Mathews. 2007. "Arctic Ground Squirrels of the Mammoth-steppe : Paleoecology of Late Pleistocene Middens (~24,000 – 29,450 14 C yr BP), Yukon Territory, Canada." *Quaternary Science Reviews* 26:979–1003.

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7. Glossary

Advisory Council on Historic Preservation—An independent federal agency that promotes the preservation, enhancement, and productive use of our nation's historic resources, and advises the President and Congress on national historic preservation.

Affected environment—The existing environment to be affected by a proposed action and alternatives.

Air pollution—The presence in the outdoor atmosphere of one or more contaminants (e.g., dust, fumes, gas, mist, odor, smoke, or vapor) in quantities and of characteristics and duration such as to be injurious to human, plant, or animal life or to property, or to interfere unreasonably with the comfortable enjoyment of life and property.

Air quality—A resource that incorporates several components that describe the levels of overall air pollution within a region, sources of air emissions, and regulations governing air emissions.

Ambient air—Any unconfined portion of the atmosphere: open air, surrounding air.

Attainment area—An area considered to have air quality as good as or better than the National Ambient Air Quality Standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a nonattainment area for others.

Best management practices (BMPs)—Methods that have been determined to be the most effective, practical means of preventing or reducing pollution or other adverse environmental impacts.

Biological resources—Native and nonnative plant and animal species and the habitats used by those species.

Consulting parties—Entities that have consultative roles in the Section 106 process, including the State Historic Preservation Officer, Indian tribes, representatives of local governments, individuals or organizations with a demonstrated interest in the undertaking, and members of the public (see 36 CFR § 800.2).

Cultural resources— Physical material items associated with past human activities. Examples include prehistoric and historic districts, sites, buildings, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reason.

Cumulative effects—Under National Environmental Policy Act regulations, the incremental environmental impact or effect of an action together with the effects of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR § 1508.7).

Decibel—A logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level and is used as a measure of sound pressure level.

Environmental Impact Statement (EIS)—A document prepared to analyze the impacts on the environment of a proposed project or action and released to the public for comment and review. EISs are prepared when there is the potential for severe impacts on natural, cultural or socioeconomic resources. An EIS must meet the requirements of National Environmental Policy Act, the CEQ, and the directives of the agency responsible for the proposed project or action.

Executive Order—Official proclamation issued by the President that may set forth policy or direction or establish specific duties in connection with the execution of federal laws and programs.

Floodplain—An area of low-lying ground adjacent to rivers or stream channels, formed mainly of river sediments that may normally be dry but become inundated with water during flood events. A floodplain extends from the edges of a stream or riverbank to the outer edges of a valley, providing a broad area to disperse and temporarily store floodwaters.

Geology—The study of surface and subsurface materials of the earth, the features and structures of materials, and the processes that act upon them. Within a given physiographic province, features include topography, soils, minerals, and paleontology, where applicable.

Groundwater—Water below the ground's surface that is contained in the spaces and cracks of rocks and/or unconsolidated materials, such as sand or gravel. Groundwater aquifers are replenished by rain and snowmelt that seeps down into the ground and infiltrates cracks and crevices of soils and/or rocks below ground. Groundwater typically moves relatively slowly and may eventually recharge surface water, such as streams and lakes.

Hazardous and toxic material or substance—A material or substance that poses a risk to human health or the environment.

Historic property—Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register. The term includes artifacts, records, and remains which are related to such district, site, building, structure, or object. 54 U.S.C. § 300308.

Human health and safety—The consideration of facets of military activities and materials that potentially pose a risk to the health, safety, and well-being of the public, military personnel, civilian employees, and dependents.

Impact—A change. Types of impacts are described below.

> **Beneficial impact**—An impact that would result in a positive change in the condition or appearance of the resource or a change that would move the resource toward a desired condition.

Adverse impact— An impact that would result in a negative change to the appearance or condition of the resource.

Short-term impact— An impact that would be temporary and associated with the demolition/construction phase but would no longer occur once demolition/construction is completed or shortly thereafter.

Long-term impact— An impact that would be permanent or would persist for the operational life of the project.

Institutional Control—An administrative measure to control property access and usage and are applicable to known or suspected contaminated sites. Institutional controls (such as limitations on the location and depth of excavations, water use, property transfer agreement restrictions, etc.) are designed to supplement active contaminant reduction and remediation actions, as appropriate, for short-term and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants and to safeguard human health and safety and environmental resources.

Invasive species—A plant or animal species that is not native to a specific location but has been introduced and its presence either causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.

Land use—A real property classification that indicates natural conditions or human activity. Natural conditions of property can be described or categorized as unimproved, undeveloped, preservation, or conservation areas. Human land use categories include residential, commercial, industrial, agricultural, institutional, and recreational.

Lend-Lease operations—Under Public Law 77-11, the U.S. government assisted Allied forces during the war by providing Lend-Lease deliveries of aircraft and war materiel. From 1942–1945, the U.S. supplied the Soviet Union with more than 7,900 U.S.-built aircraft over the Alaska-Siberia, or ALSIB, route. Pilots from the Air Transport Command flew aircraft from Great Falls, Montana, through Canada and Alaska until they reached Ladd Field. At Ladd Field (the official transfer point), Soviet pilots took over the ferrying operation, flying the aircraft to Nome, then across Siberia and on to the European war front.

Level of Service (LOS)—A qualitative measure that describes operational conditions and provides an index to the quality of traffic flow. LOS is defined in letter designations from A (no congestion on the road) to F (roadways that are overcapacity).

Maintenance area—An area that has previously been designated nonattainment and has been redesignated to attainment for a probationary period through implementation of a maintenance plan.

National Environmental Policy Act of 1969 (NEPA)—The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and it provides a process for implementing these goals within the federal agencies. It requires federal agencies to integrate environmental values into their

decision-making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

National Historic Landmark—Nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. At present, there are only 2,500 properties with this distinction.

National Historic Preservation Act of 1966 (NHPA), as Amended (54 U.S.C. § 300101 et seq.)—An act to establish a program for the preservation of historic properties throughout the nation, and for other purposes, approved October 15, 1966 (PL 89-665; 80 Stat. 915; 16 U.S.C. § 470 as amended by PL 91-243, PL 93-54, PL 94-422, PL 94-458, PL 96-199, PL 96-244, PL 96-515, PL 98-483, PL 99-514, PL 100-127, and PL 102-575). See Section 106 and National Register of Historic Places.

National Register of Historic Places (NRHP)—A register of districts, sites, buildings, structures, and objects of significant state, local, and national historic properties, maintained by the Secretary of the Interior under authority of Section 2(b) of the Historic Sites Act of 1935 and Section 101(a)(1) of the National Historic Preservation Act of 1966, as amended.

Noise—Any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, can be steady or impulsive, and can involve a number of sources and frequencies.

Nonattainment area—A geographic area where concentrations of a criteria pollutant exceed the National Ambient Air Quality Standard for that pollutant.

Petroleum, oil, and lubricants (POL)—Petroleum products that include crude oil or any derivative thereof, such as gasoline, diesel, or propane. They are considered hazardous materials because they present health hazards to users in the event of incidental releases or extended exposure to their vapors.

Polychlorinated biphenyl (PCB)—A man-made chemical that persists in the environment and was widely used in building materials (e.g., caulk) and electrical products before 1979.

Record of Decision (ROD)—The ROD is the final step for agencies in the EIS process. It states what the decision is; identifies the alternatives considered, including the environmentally preferred alternative; and discusses mitigation plans, including any enforcement and monitoring commitments.

Region of influence (ROI)—The geographic extent of potential effects from the alternatives on the important elements of a resource.

Scoping—Scoping, as part of NEPA, requires examining a proposed action and its possible effects, establishing the depth of environmental analysis needed, and

determining analysis procedures, data needed, and task assignments. The public is encouraged to participate and submit comments on proposed projects during the scoping period.

Section 106—Section 106 of the NHPA, as Amended, and as implemented in 36 CFR Part 800, requires federal agencies to consider the effects of federally funded, regulated, or licensed undertakings on cultural resources listed in or eligible for inclusion in the National Register. In addition, the federal agency must afford the ACHP the opportunity to comment in the event that an undertaking will have an adverse effect on a cultural resource that is eligible for or listed in the National Register.

Socioeconomics—The science that studies social and economic conditions of the human environment. Indicators of socioeconomic conditions include population, employment, unemployment rate, income, cost of living, and housing availability.

Solid waste—Any garbage, refuse, sludge, or other discarded materials resulting from industrial, commercial, institutional, and residential activity.

State Historic Preservation Officer—The official appointed by the governor of a state or territory to carry out the state's responsibilities under the National Historic Preservation Act.

Surface water—Water in rivers and streams (i.e., flowing waters), lakes, reservoirs, ponds, and wetlands. Surface waters and their ecosystems support plant and wildlife species and are important to the economic, recreational, and human health of a community or locale.

Sustainability—For this EIS, a focus on energy use and reliable energy production, along with the continued capability to maintain the mission at Fort Wainwright. Sustainability consists of the technologies, systems, physical structures, management strategies, and cultural practices that, when incorporated into design and use of infrastructure and utilities, enable resource-use-efficiency that supports operational readiness while maintaining balance with the natural environment.

Traffic—The movement of vehicles on transportation networks such as roadways and rail systems.

Unexploded ordnance (UXO)—Explosive weapons, including bombs, shells, grenades, land mines, naval mines, cluster munition, etc., that did not explode when they were employed and have never been detonated.

Utilidor—A steam and condensate main installed inside a concrete tunnel network connecting buildings. Distribution lines for other utilities, including potable and fire water distribution, wastewater collection (i.e., sewer), hot water supply and return, glycol supply and return, and low-voltage electrical and communication systems, are often collocated in a utilidor.

Wildlife—Undomesticated bird, fish, amphibian, and mammal species that occur in the environment. Wildlife and plant species, or subspecies, may be considered as either "threatened" or "endangered" depending on their risk for extinction. The term "endangered" is generally used for a species in danger of extinction and "threatened" if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

8. Index

APPENDIX A

AGENCY AND TRIBAL SCOPING LETTERS

During the scoping process for the Fort Wainwright Heat and Electrical Upgrades Environmental Impact Statement (EIS) the United States (U.S.) Army Garrison Fort Wainwright, Alaska (USAG Alaska) sent scoping invitation letters to the following agency and organization representatives:

Trina Bailey
Regional Special Assistant to U.S. Senator Lisa Murkowski, U.S. Senate

Bob Sattler
Liaison-Realty Specialist
Tanana Chiefs Conference

Geoff Beyersdorf
District Manager, Fairbanks District Office
Bureau of Land Management

Audra Brase
Regional Supervisor – Fairbanks Habitat Division
Alaska Department of Fish and Game

Darren Bruning
Regional Supervisor – Fairbanks Wildlife Conservation Division
Alaska Department of Fish and Game

Ryan Anderson
Regional Director, Northern Region
Alaska Department of Transportation and Public Facilities

Judy Chapman
Planning Chief, Northern Region
Alaska Department of Transportation and Public Facilities

The Hon. Click Bishop
Alaska Senate

Sarah Conn
Field Supervisor, Fairbanks Field Office
U.S. Fish and Wildlife Service

Kyle Cowan
Associate Deputy State Director, Fire and Aviation
Bureau of Land Management – Alaska Fire Service

Alice Edwards
Division Director, Division of Air Quality
Alaska Department of Conservation

Jennifer Curtis, NEPA Reviewer
U.S. Environmental Protection Agency

Nancy Durham
Floodplain Administrator
Fairbanks North Star Borough

Donald Galligan
Transportation Planner
Fairbanks North Star Borough

Bert Frost
Regional Director
National Park Service

Leslie Hajdukovich
Regional Director to U.S. Senator Dan Sullivan
U.S. Senate

Denise Koch
Division Director, Division of Spill Prevention and Response
Alaska Department of Conservation

Lanien Livingston
Public Information Officer
Fairbanks North Star Borough

The Hon. Bart LeBon
Alaska House of Representatives

The Hon. Scott Kawasaki
Alaska Senate

The Hon. John Coghill
Alaska Senate

Fairbanks Public Information Center
Alaska Department of Natural Resources

Jackson Fox
Executive Director
Fairbanks Metropolitan Area Transportation System

Paloma Harbour, Director
Alaska Department of Labor and Workforce Development

Bob Henszey
Conservation Planning Assistance Branch Chief,
Fairbanks Field Office
U.S. Fish and Wildlife Service

Meadow Bailey
Communications Director, Office of the Commissioner
Alaska Department of Transportation and Public Facilities

Justin Hogrefe
Environmental Program Manager, 354 CES/CEIE
Bldg 22588
Eielson Air Force Base

Ronald K. Inouye
President
Tanana Yukon Historical Society

The Hon. Grier Hopkins
Alaska House of Representatives

Public Affairs Office
Alaska District Headquarters
U.S. Army Corps of Engineers

The Hon. Jim Matherly, Mayor
City of Fairbanks

The Hon. Michael Welch, Mayor
City of North Pole

Jim Styers, Chief
Fairbanks Fire Department

Jennifer Pederson Weinberger
Team Manager Cultural Resources Team
National Park Service

Teal Soden
Communications Director
City of Fairbanks

Nancy Sonafrank
Program Manager – Division of Water
Alaska Department of Conservation

The Hon. Adam Wool
Alaska House of Representatives

The Hon. David Talerico
Alaska House of Representatives

The Hon. Steve Thompson
Alaska House of Representatives

The Hon. Tammie Wilson
Alaska House of Representatives

The Hon. Bryce Ward, Mayor
Fairbanks North Star Borough

Bruce Newman
Special Assistant to U.S. Representative Don Young
U.S. House of Representatives

Marisa Sharrah
President/CEO
Greater Fairbanks Chamber of Commerce

Jeanne Proulx, Natural Resource Manager
Division of Land, Mining and Water
Alaska Department of Natural Resources

See the attached letter to Ms. Trina Bailey, Regional Special Assistant to U.S. Senator Lisa Murkowski, U.S. Senate as an example of the letter sent to each individual.

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON ALASKA
1046 MARKS ROAD #6000
FORT WAINWRIGHT, ALASKA 99703-6000

Office of the Garrison Commander JUL 23 2019

SUBJECT: Invitation to the Agency Scoping Meeting, Environmental Impact Statement for Heat and Electrical Upgrades at Fort Wainwright, Alaska

Ms. Trina Bailey
Regional Special Assistant to U.S. Senator Lisa Murkowski
U.S. Senate
250 Cushman Avenue, Suite 2D
Fairbanks, AK 99701

Dear Ms. Bailey:

United States Army Garrison Alaska (USAG Alaska) invites you to participate in an agency scoping meeting to discuss an Environmental Impact Statement (EIS) being prepared to evaluate the potential impacts on the natural and man-made environment from proposed heat and electrical at Fort Wainwright, Alaska. Due to the current condition of the Central Heat and Power Plant, USAG Alaska needs to construct reliable heat and electrical infrastructure to reduce utility costs, help safeguard mission readiness, meet energy efficiency standards, be compliant with emissions standards, minimize the risk of a single point catastrophic failure, and conform to United States Army directed energy security criteria. The purpose of the proposed upgrades is to provide reliable heat and electrical infrastructure for Fort Wainwright that resolves current safety, resiliency, fiscal, and regulatory concerns.

The agency scoping meeting will be held Wednesday, August 7, 2019 in Fairbanks, Alaska at the Noel Wien Public Library Conference Room, 1215 Cowles Street, from 3:00 p.m. to 5:00 p.m. A public scoping meeting is scheduled in Fairbanks, Alaska on Thursday, August 8, 2019 at the Carlson Center Pioneer Room, 2010 2nd Avenue, from 5:00 p.m. to 8:00 p.m., with a presentation given at 6:30 p.m.

In addition to comments received during the scoping meetings, written comments will be accepted for consideration and analysis in the draft EIS. The public comment period will end on August 21, 2019, which is 30 days after the July 22, 2019 publication of the EIS Notice of Intent in the Federal Register by the Department of the Army. Written comments may be submitted via mail or email to Ms. Laura Sample, National Environmental policy Act (NEPA) Program Manager, ATTN: IMFW-PWE (Sample), 1046 Marks Road #6000, Fort Wainwright, Alaska 99703-6000, or email: usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.

A copy of the EIS Notice of Intent published in the Federal Register is accessible online at: https://home.army.mil/wainwright/index.php/about/environmental/national-environmental-policy-act-nepa.

USAG Alaska looks forward to your participation in the EIS scoping process. If you would like any additional information, please contact Ms. Laura Sample, NEPA Program Manager, at (907) 361-6323 or usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.

Sincerely,

Christopher J. Ruga
Colonel, US Army
Commanding

During the scoping process for the Fort Wainwright Heat and Electrical Upgrades Environmental Impact Statement (EIS) the United States (U.S.) Army Garrison Fort Wainwright, Alaska (USAG Alaska) sent scoping invitation letters to the following tribal organization representatives:

Gerald Albert
President
Northway Village

Herbert Demit
President
Native Village of Tanacross

Michael Sam
First Chief
Native Village of Tetlin

Tracy Charles-Smith
President
Village of Dot Lake

Tim McManus
First Chief
Nenana Natives Association

Evelyn Combs
Secretary-Treasurer
Healy Lake Village

See the attached letter to Gerald Albert, President, Northway Village as an example of the letter sent to each individual.

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON ALASKA
1046 MARKS ROAD #6000
FORT WAINWRIGHT, ALASKA 99703-6000

Office of the Garrison Commander JUL 23 2019

SUBJECT: Offer of Government-to-Government Consultation on the Heat and Electrical Upgrades at Fort Wainwright, Alaska

Gerald Albert, President
Northway Village
P.O. Box 516
Northway, AK 99764

Dear President Albert:

United States Army Garrison Alaska (USAG Alaska) invites you to participate in an agency scoping meeting to discuss an Environmental Impact Statement (EIS) being prepared to evaluate the potential impacts on the natural and man-made environment from proposed heat and electrical upgrades at Fort Wainwright, Alaska. Due to the current condition of the Central Heat and Power Plant, USAG Alaska needs to construct reliable heat and electrical infrastructure to reduce utility costs, help safeguard mission readiness, meet energy efficiency standards, be compliant with emissions standards, minimize the risk of a single point catastrophic failure, and conform to United States Army-directed energy security criteria. The purpose of the proposed upgrades is to provide reliable heat and electrical infrastructure for Fort Wainwright that resolves current safety, resiliency, fiscal, and regulatory concerns.

A public scoping meeting is scheduled in Fairbanks, Alaska on Thursday, August 8, 2019 at the Carlson Center Pioneer Room, 2010 2nd Avenue, from 5:00 p.m. to 8:00 p.m. Written comments for inclusion in the draft EIS will also be accepted. The public comment period will end on August 21, 2019, which is 30 days after the July 22, 2019 publication of the EIS Notice of Intent in the Federal Register by the Department of the Army.

If you believe that a tribe-specific scoping meeting is warranted for this National Environmental Policy Act (NEPA) action or if you wish to enter into government-to-government consultation because you feel this proposed activity may significantly affect tribal rights or protected resources, please advise Ms. Elizabeth A. Cook in writing within 30 days after July 22, 2019. Please consider this letter our notification in accordance with the Department of Defense (DOD) Instruction Number 4710.02: DoD Interactions with Federally Recognized Tribes and the DoD American Indian and Alaska Native Policy.

Requests should be directed to Ms. Elizabeth Cook, USAG Alaska Native Liaison, ATTN: IMFW-PWE (Cook), 1046 Marks Road #6000, Fort Wainwright, Alaska 99703-6000 or elizabeth.a.cook80.civ@mail.mil.

Sincerely,

Christopher J. Ruga
Colonel, US Army
Commanding

APPENDIX B

SCOPING COMMENTS

This table is a consolidation of all comments received during the Scoping Period. Including substantive comments received after the Scoping Period ended.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
1A	7/26/2019	Email	Brian Duffy	Stanley Consultants	Dear US Army Garrison Alaska Team, we have three questions regarding the planned scope/intent for the Heat & Electrical Upgrades initiative, pls: - Is Doyon Utilities the Privatized Owner for utility systems on Ft Wainwright? If so, which utility systems and does this include the Central Heat & Power Plant?
1B	7/26/2019	Email	Brian Duffy	Stanley Consultants	Is there a preferred alternative on a centralized vs decentralized end state?
1C	7/26/2019	Email	Brian Duffy	Stanley Consultants	Is the EIS being done in house or through a contracted effort? If contracted, which firm is performing the analysis? Thanks in advance for your assistance & we look forward to seeing how we can best assist with this effort! We do currently hold a contract with the USACE Alaska District focused on mechanical/electrical requirements with emphasis on stoker-fed coal fired power plants primarily at locations in Alaska.
2A	8/7/2019	Comment Sheet	Ron Inouye	Tanana-Yukon Historical Society	What are fuel sources? Will they be accessible and possibly available from Alaska sources?
2B	8/7/2019	Comment Sheet	Ron Inouye	Tanana-Yukon Historical Society	If Eielson AFB similarly needs upgrading, would a mutual upgrade be beneficial?
2C	8/7/2019	Comment Sheet	Ron Inouye	Tanana-Yukon Historical Society	How are other non-US arctic military instillations (sic) powered in Canada, Greenland, Scandanavia, Russia? Anything to learn from them?
2D	8/7/2019	Comment Sheet	Ron Inouye	Tanana-Yukon Historical Society	What about small scale nuclear reactors as was proposed for Galena?
3A	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	There are three studies that were conducted about the power plant and different courses of action. Can we receive a copy of those studies or do we need to do a FOIA request?
3B	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Can the Army make a unilateral decision regarding converting to an alternative fuel source or do you need to also have an agreement with the RCI partner?
3C	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Currently the Army is subsidizing the utility costs for the RCI partner. Will the Army continue to do this subsidy if a different fuel source or concept is used?
3D	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Can gas lines be used in the current utilidors? a. If yes - what coordination or potential costs would be associated with using the utilidors? b. Can the Army direct that the utilidors be used for gas pipelines or does it require Doyon's approval? c. If no - will the Army assume all the environmental risk associated with trenching new lines? FWA is a superfund site. d. What restrictions can be expected when crossing over utilidors, existing communication lines, etc? Who will have priority?
3E	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Would the Army allow a gas transmission line to run through FWA? Would the Army allow an LNG tank to be placed on its property? Would the Army allow for railhead operations to download LNG from a train to the tank on FWA property?
3F	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	If the steam lines are no longer being utilized has the Army accounted for how it will keep the water and sewer lines from freezing inside the utilidors? Is that an Army problem or will it be the contractor's problem?
3G	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Some of the housing areas have mechanical buildings that feed multiple homes. Does the Army want to stay with that concept, or does it want each facility to have its own meter?
3H	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Will the Army want metering information that it can use for its own purposes? - Will there be any restrictions by the Army on smart meters being used? This includes Cyber Security issues.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
3I	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Is the Army willing to divest itself from the Co-gen operations and buy electrical power from GVEA?
3J	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Is the Army planning on issuing an Army contract that will be managed by Army Contracting or is the Army going to relay (sic) solely on the Regulatory Commission of Alaska (RCA) to provide the oversite, or a hybrid situation that now exists with Doyon?
3K	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Will the Army allow a contractor to use current Army GIS information to create additional layers? If so will the Army dictate the software to use?
3L	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Will the Army provide a master plan for future buildouts for the next 10 years?
3M	8/7/2019	Comment Sheet	Mike Meeks	Chief of Staff, City of Fairbanks	Will the Army weight (sic) energy security over costs or will cost be weighted (sic) over energy security?
4A	8/8/2019	Comment Sheet	Julene May	Stanley Consultants	If a coal-fired plant is constructed, will the boilers have the ability to be converted to natural gas if a pipeline/source becomes readily available?
4B	8/8/2019	Comment Sheet	Julene May	Stanley Consultants	Under the Distributed Natural Gas Boilers option, how will all the boilers/generators effect the air emission program?
4C	8/8/2019	Comment Sheet	Julene May	Stanley Consultants	Will current utilidors continue to be used under all options?
5A	8/8/2019	Comment Sheet	Alison Carter	Member of the Public	I thought there was a moratorium on new coal-fired plants. Is DOD exempt?
5B	8/8/2019	Comment Sheet	Alison Carter	Member of the Public	Is Doyon Utilities part of the decision-making team or just significant contributor to the discussion?
5C	8/8/2019	Comment Sheet	Alison Carter	Member of the Public	DOD has the financial and other resources to develop new technologies for extreme environments. Climate change=more volatile environments worldwide=impacts on mission readiness beyond just Alaska. Think LONG TERM.
5D	8/8/2019	Comment Sheet	Alison Carter	Member of the Public	Areas to be developed: 1. Drawing energy through turbines or other technology from water currents. Chena River and Tanana have current year round. 2. Tidal movement power near Ft. Richardson converted to electricity and sent North through transmission lines.
5E	8/8/2019	Comment Sheet	Alison Carter	Member of the Public	Fort Richardson uses landfill methane. Understand that City of Anchorage burns off unused methane. Invest in infrastructure to maximize use of methane to electricity-send it North on transmission lines.
5F	8/8/2019	Comment Sheet	Alison Carter	Member of the Public	Delta Wind Ft. Greely Wind - Methane released from thawing permafrost - Please invest in R&D for long range solutions.
6	8/8/2019	Comment Sheet	Justin Lovejoy	Directorate of Public Works, Fort Wainwright	I believe Nat Gas De-Centralized solution would be the optimal solution to CHPP Delivery on FTWW, economically & environmentally
7A	8/8/2019	Comment Sheet	Dan Britton	General Manager of Interior Gas Utility	FWW has an opportunity to enhance the availability of natural gas in the FNSB. The use of gas by FWW would contribute to demand growth and volumes necessary for critical mass and cost savings for all customers. I encourage a solution which uses natural gas as the primary fuel for FWW needs.
7B	8/8/2019	Comment Sheet	Dan Britton	General Manager of Interior Gas Utility	What is projected average, daily & peak demand required for the gas options? How many days of fuel suppply will be required for each option?
8	8/8/2019	Comment Sheet	Mark Rockwell	Director of Operations, Fairbanks Natural Gas, LLC	Really encourage continued education and involvement with the public and utility organizations. Excited to be a part of the process. Personally and professionally, I am a supportor (sic) of Natural Gas options.
9	8/8/2019	Comment Sheet	Gary Wilken	Board Member, Interior Gas Utility	What an exciting project for our military and our community! Another example of our military working with our community. I'm a great admirer of "win-win" projects and this is a shining example. I encourage a thorough analysis natural gas as feed stock. It fill (sic) many needs of this project. As a member of the Interior Gas Utility Board of directors, I pledge my full support and assistance. We are working hard to provide confidence in our system. IGU will grow and Fairbanks, No. Pole, at FTWW will prosper and benefit by a robust, secure, and economic gas supply. Please keep us involved and thank you for asking.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
10A	8/8/2019	Comment Sheet	Brent J. Sheets	Acting Director, Petroleum Development Laboratory, University of Alaska, Fairbanks	Is waste heat given a value?
10B	8/8/2019	Comment Sheet	Brent J. Sheets	Acting Director, Petroleum Development Laboratory, University of Alaska, Fairbanks	With the communitiy's growing interest in renewable energy, we are seeing more intermitment (sic) sources of generation on the grid. GVEA is currently limited in the additional intermitent (sic) sources it can handle on its grid. Do any of your alternatives help provide voltage regulation to GVEA.
10C	8/8/2019	Comment Sheet	Brent J. Sheets	Acting Director, Petroleum Development Laboratory, University of Alaska, Fairbanks	Usibelli Coal Mine has lost its export market. If Ft. Wainwright chooses a fuel other than coal, then does that put UCM in financial jeapordy (sic)? Aurora Energy's Coal Plant is at the end of its life. If it, too, shuts down, then what affect (sic) wll losing both Fort Wainwrigh (sic) and Aurora have on UCM. What becomes of UAF's new coal plant? Of GVEA's coal plants? Coal is cheapest source of fuel. Wouldn't all of Fairbank (sic), Healy, and surrounding communities suffer with higher energy cost if UCM is no longer viable?
10D	8/8/2019	Comment Sheet	Brent J. Sheets	Acting Director, Petroleum Development Laboratory, University of Alaska, Fairbanks	Assuming energy security is a requirement, why would you choose anything other than coal? LNG is trucked twice as far, Petrostar cannot provide enoug (sic) diesel or naphtha to keep you going. Seems like coal is your nearest fuel supply to me.
10E	8/8/2019	Comment Sheet	Brent J. Sheets	Acting Director, Petroleum Development Laboratory, University of Alaska, Fairbanks	One more alternative may be the small scale coal gasification demo plant. It is a U.S. DOE sponsored project. There are 3 phases to DOE project. Phase 1 was completed in the Spring 2019 for $1.5 million. Cost share was provided by UAF, GVEA, Aurora Energy, and others. The Phase 1 report was a Front End Engineering Design. So the plans are finish, including a construction schedule & budget. The report can be found at NETL.DOE.Gov. Search for "Making Coal Relevant for Small Scale Applications". The design was done with PM2.5 in mind. Phase 2 was just awarded. By the winter of 2020/2021, UAF and its partners will need to raise cost share of about $10 million for a $45M plant, and apply for and acquire all air quality and other permits. Phase 3, if awarded, will provide construction funds from DOE. Therefore, I urge Ft. Wainwright to consider adding a 5th alternative: syngas/engine combo. If the army can wait another 3 yrs, this should be "proven" technology. Cost of elictricity (sic), in the FEED study, estimate at 8cents/kwhr. NOTE: Following Mr. Sheets comment sheet, he attached a power point named "Modular Gasification for Syngas/Engine Combine Heat and Power Applications in Challenging Environments (Funding by DOE/NETL Contract DE-FE0031446) Making Coal Relevant for Small Scale Applications".
11	8/7/2019	Court Reporter	Justin Hogrefe	Eielson Environmental Planning Progam Manager and NEPA	When they -- with the three action alternatives, are they all about the same megawatt capacity?
12	8/7/2019	Court Reporter	Mike Meeks	Chief of Staff, City of Fairbanks	If you weight energy security over cost, it's going to drive you a different decision versus if you weight cost over energy deci -- or energy security. Have you made a decision on where the weight is going to go yet? Right. If you -- if just real quick on your four options, if you do -- energy security is weighted heavily, then you're going to probably have a distributed system. If cost is weighted heavily over energy security you're going to probably have that dual general system without doing any -- I mean, just rough off the top of the head. So that's going to be really key on how the Army decides to weight it and it should be known up front, pretty early, because that's going to drive a lot of things. Okay. That's the one I didn't write down.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
13A	8/7/2019	Court Reporter	Ron Inouye	Tanana-Yukon Historical Society	I'm curious about where the fuel sources would be, obviously, for that second choice that you had. Where would you get the fuel? How would you get it here?It's about your dual fuel system. And the natural gas. Sure, I think we all want something that's going to be from Alaska to help our economy, and that's going to be a real key issue, too.
13B	8/7/2019	Court Reporter	Ron Inouye	Tanana-Yukon Historical Society	I guess I had a second question about what may be happening out at Eielson. You mentioned that their infrastructure is about the same age. Will they be going through a similar process? And if so, could you do something -- jointly on both bases, simultaneously to get some efficiency?
14	8/7/2019	Court Reporter	Bryce Ward	Fairbanks North Star Borough Mayor	You had said that you use about 225,000 ton of coal a year at the power plant.
15	8/7/2019	Court Reporter	Kathy Mayo	KMA (Kathy Mayo and Associates)	I came in late, so did you say how many megawatts -- up to how many megawatts you're going to design for?
16	8/7/2019	Court Reporter	Justin Hogrefe	Eielson Environmental Planning Progam Manager and NEPA	Yeah, again, Justin Hogrefe with Eielson. With the alternatives, are they set in stone or are there other options that you might be weighing, you know, such as two smaller coal plants instead of one new large one, or possible a dual fuel CHPP -- where you can -- you know, you can maybe burn pelletized cardboard or what not?
17	8/7/2019	Court Reporter	Sarah Meitl	Department of Natural Resources, State Historic Preservation Office	One of the things that our office is concerned about for the proposed project is that the national historic landmark is quite close, and just kind of wanting to get a feel is -- or even discussed internally, about say the distributed natural gas boiler alternatives and how that was going to be addressed, integrate that into the landmark.
18	8/7/2019	Court Reporter	Sandy Halstead	Environmental Protection Agency, Anchorage	So it looks like alternatives 1, 2, and 4 sit within the boundaries of a (indiscernible) operable unit, operable unit 4. It's hard to tell with alternative -- the distributed alternative; is that alternative 3? The natural gas -- distributed one. How many of the -- like, where those would be located, how many of those might be needed?
19A	8/16/2019	Email	Karl Monetti	Member of the Public	Regarding the EIS scoping for the Ft. Wainwright power plant, I would ask the following issues be taken into consideration; 1. First and foremost should be energy conservation and efficiency. Reducing the demand for energy should be the first item of business. That would include upgrading all lighting fixtures to LEDs, upgrading all appliances to Energy Star equivalent, l retrofitting existing buildings to at least five star ratings, and ensuring all new construction is five to six star levels. This should also include policiies that direct personnel to conserve energy at all levels, from their living quarters to their workplaces. Reducing demand allows one to properly size your heating and electrical generation facility.
19B	8/16/2019	Email	Karl Monetti	Member of the Public	2. Although we have an abundant resouce in coal locally, coal has been shown to be amoung the most highly polluting form of energy production, from the energy it takes to mine and transport it, to the handling of it and the combustion of it.
19C	8/16/2019	Email	Karl Monetti	Member of the Public	3. Fairbanks has some of the worst winter air quality in the nation, and part of it is from coal combustion.
19D	8/16/2019	Email	Karl Monetti	Member of the Public	4. The U.S. Military has identified climate change as a threat to national security. In that case, the option of continuing to utilize the existing coal powered plant or to build a new one should be the lowest priority on your list.
19E	8/16/2019	Email	Karl Monetti	Member of the Public	5. Referencing the threat to national security and clearing up our local air-shed to reduce health hazards, I would suggest actively seeking any source of renewable (non-fossil fuel) energy sources, including but not limited to wind, solar, and geothermal.
19F	8/16/2019	Email	Karl Monetti	Member of the Public	6. The U.S. Military has a huge budget; Surely some of that can be used to build solar farms on the abundant lands on base and on the south facing sides of the many buildings thereon, and also invest in wind generation nearby. The option of base load geothermal energy should be thoroughly explored, as the Tanana valley is underlaid with a warm water source that could be tapped for continuous renewable power.
19G	8/16/2019	Email	Karl Monetti	Member of the Public	7. Continued use of coal as an energy source is incompatible with the Paris Climate Accord. Our president has withdrawn us from that accord, but surely the military understands the importance of reducing emissions to try to prevent the 2 degree Celsius increase in world temperatures and its resulting impact on water and crop shortages around the world, leading to geo-political instability.
19H	8/16/2019	Email	Karl Monetti	Member of the Public	8. Alaska has abundant renewable sources (wind, solar, base load geothermal, hydro-electric) that could provide a diversified, secure energy source unaffected by interruptions in transportation of fossil fuels such as coal, oil, or natural gas. Thank you for your consideration.
20A	8/15/2019	Email	Carol Johnson	ACS Alaska	Hello, I would like to echo words from Fairbanks Climate Action coalition regarding the importance of renewable energy generation at the new Ft Wainwright power plant. - Fairbanks suffers from unacceptable and hazardous air quality, caused in part by the combustion of fossil fuels from the region's power plants, including Ft. Wainwright's current coal plant. - Building additional fossil fuel generation-which will last decades-is incompatible with the Paris Climate Agreement and the widespread scientific consensus that anthropogenic carbon emissions must be rapidly decreased in order to keep global warming to at least 2 degrees Celsius.
20B	8/15/2019	Email	Carol Johnson	ACS Alaska	Alaska has renewable sources-including base load geothermal heat and electricity, as well as wind and solar-that offer a diversified, reliable, inexpensive, and local energy supply. - We must lessen our toxic dependence on fossil fuel.

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21A	8/18/2019	Email	Justin Hogrefe	Eielson Environmental Planning Progam Manager and NEPA	Below are my comments for the proposed CHPP upgrade project at Fort Wainwright, AK 1. Consider an alternative where two coal-fired central heat and power plants (CHPPs) are used. With this alternative, the electrical and heat generation capacities would equal the proposed single coal-fired CHPP. Potentially one CHPP could be located next to the current CHPP and the other could be on north post, similar to the past arrangement of two CHPPs on post. • Calculate volume of water consumption and waste-water generation and the impacts on the water-table and outfall streams. • Will moisture in the exhaust effect air quality/visibility in the winter? Will ice-fog be generated? • Consider that resiliency will be increased/strengthened by this two-CHPP alternative. Strong resiliency is needed in this region of extreme cold. • Project the price and availability of coal for the next 50 years. Does Usabeli have adequate coal reserves? • Was is the effect on air quality? Even though the new boilers will be subject to New Source Performance Standards (NSPS) emissions requirements, will they have less emissions than the current old boilers? A high number and prolonged periods of boiler startup and shutdown (periods of increased emissions) could mean that emissions rates would remain the same as present. How many periods of boiler startup and shutdown are predicted/anticipated and what is the total time duration of the startup/shutdowns?
21B	8/18/2019	Email	Justin Hogrefe	Eielson Environmental Planning Progam Manager and NEPA	2. Consider an alternative where two smaller multiple fuel-fired CHPPs are used. With this alternative, the electrical and heat generation capacities would equal the proposed single coal-fired CHPP. Potentially one CHPP could be located next to the current CHPP and the other could be on north post, similar to the past arrangement of two CHPPs on post. The fuel could be coal, ultra-low-sulfur diesel (ULSD), natural gas, or refuse-derived fuel (such as pelletized cardboard/paper) and would use boilers. • Calculate volume of water consumption and waste-water generation and the impacts on the water-table and outfall streams. • Will moisture in the exhaust effect air quality/visibility in the winter? Will ice-fog be generated? • Consider that resiliency will be increased/strengthened by this two-CHPP alternative. Strong resiliency is needed in this region of extreme cold. Resiliency is further increased by making each CHPP capable of firing multiple fuel. If one fuel becomes unavailable, then there are others that can be used. • Evaluate the benefits of reusing waste cardboard by palletizing/combusting in the CHPP versus discarding it. • Evaluate the air emissions of all proposed fuel. How do the potential air emissions compare to current air emissions? • With ULSD, how would the diesel reach Fort Wainwright? If trucks are utilized, how many deliveries per day would be needed, versus what the current diesel delivery is? • Since no coal would be used with this alternative, what is the cost savings/increase of the other fuel?
21C	8/18/2019	Email	Justin Hogrefe	Eielson Environmental Planning Progam Manager and NEPA	3. Consider an alternative where photovoltaic cells/solar panels and battery storage bank are utilized, either as an augment to the one or two CHPP alternatives, or as a decentralized alternative, where they either augment or fully supply the installation's electrical needs. With this alternative only electricity would be produced by the photovoltaic panels, not heat, so boilers would still be needed. The boilers could be central or distributed across the installation. • Calculate cost/benefit of the materials needed. What is the lifespan of photovoltaic panels and deep cycle batteries? • Calculate the average long-term cost of electricity produced versus paying the off-base utility. • Calculate the mission risk of being dependent on a non-Department of Defense cooperative/company for electricity.

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22A	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	Dear Ms. Sample: Doyon Utilities, LI.;C, as Owner and Operator of the Central Heat and Power Plant at Fort Wainwright, Alaska, hereby submit.s comments for consideration during the scoping review associated with the Environmental Impact Statement Addressing Heat and Electrical Generation and Distribution Upgrades at Fort Wainwright, Alaska, as published in the Federal Register. 84 Fed.Reg. 140, July 22, 2019 at 35106. The Central Heat and Power Plant meets air emissions standards. Doyon Utilities ("DU') notes that the Supplementary Information published in the Federal Register contains the following material misstatement: "[The CHPP] is failing to meet air emissions standards[.]" This is inaccurate. DU has owned and operated the plant for more than 11 years. During that time, DU has received one (1) notice of violation; that NOV concerned a maintenance issue that occurred during a source test. The issue was identified during the source test, the boilers were taken off line immediately, the items were repaired immediately, and the CHPP passed the source test all within a very short period of time. DU successfully implemented Boiler MACT by 12/31/2016, as required. There is no factual basis for the statement that the CHPP fails to meet EPA or ADEC air emissions standards, or that DU operates in violation of its Title V Air Permit. DU requests the statement be withdrawn as it is untrue and injurious to our operations and standing with regulators.
22B	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	DU has undertaken the most extensive review of generation and distribution options for Fort Wainwright. DU is a utility regulated by the Regulatory Commission of Alaska that provides heat and electric generation and distribution services on Fort Wainwright. As a regulated utility, DU must prudently operate infrastructure and provide safe, reliable utility services on the installation. DU is aware it operates one of if not the oldest coal fired Central Heat and Power Plants in the country. DU recognized the importance of developing a heat and energy strategy that will provide compliant, reliable, sustainable, and resilient heat and energy to the installation in the future. Accordingly, in 2017, DU engaged Black and Veatch to advise DU with respect to potential options to address the operational and regulatory challenges of the CHPP. Black and Veatch is one of the world's top global engineering, procurement, consulting and construction firms specializing in infrastructure development for energy, environmental, and government interests. Black and Veatch engineers considered our existing infrastructure, and took into account the unique Alaskan operating environment, including impacts to the environment, energy availability, and commodity sµpply. The Black and Veatch Study ("B&V Study") is comprehensive and provides a well·informed perspective with regard to future heat and energy options for Fort Wainwright. The B&V Study, provided by DU to U.S. Army and Fort Wainwright officials, should be afforded great weight during this EIS process given it was prepared before the process began, was prepared by experts in the field, and has been cited in EIS-referenced materials. The B&V Study considered current DOD and Army policies and directives, an assessment of existing energy infrastructure, and an assessment of future energy needs and expected environmental and regulatory requirements. A broad selection of energy options were considered, including coal, fuel-oil, natural gas, biomass, solar and nuclear. Three energy options were selected as the most viable for more detailed evaluation and comparison, including a Coal Central Heating and Power Plant (Option 1); a new Central Heating Plant using dual fuel combustion (Option 2); and decentralized heat with electricity purchased from the grid (Option 3).
22C	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	B&V Option 1: Coal Central Heating and Power Plant. THIS OPTION VARIES FROM NOTICE OF INTENT OPTION 1. This option utilizes existing central plant infrastructure to generate heat and electricity and distribute heat throughout post via utilidors, and includes required replacements and modifications to meet environmental compliance demands. This Option enables continued operations, capital investment, operations and maintenance, and required repairs or upgrade costs. This Option proposed a phased approach, with the initial phase to conduct required repairs and upgrades to meet compliance requirements, and second phase 9·12 years later to include a circulating fluidized bed boiler and a 30 MW steam turbine generator that will increase the capacity of the CHPP. Due to the critical need for heat during the winter, a secondary (redundant) 300,000 lb/hr steam generation system is also included in the scope for this option. An air quality control system will be added in the flue gas system to comply with all EPA requirements, including those anticipated under the Serious State Implementation Plan (SIP).

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22D	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	Advantages: This Option has the lowest PV cost of the three options discussed. Option 1 is projected to cost $270 million less than Option 2, and $929 million less than Option 3. SOURCE: B& V Study, Table ES· 1. • Coal provides high fuel resiliency as it has been a proven fuel for 60 years, promises more than 100 years of supply and allows for three months of storage on site. • Coal is the least expensive fuel available in interior Alaska and there is opportunity to further lower the cost. The Army previously had a longer-term contract for coal. However, the Army currently has a short term (three year) coal purchase contract; this results in a rate per ton higher than the rate charged elsewhere for contracts with a longer term (for instance, the cost per ton of coal delivered to Eielson Air Force Base). A longer-term contract would secure a better price. Additionally., under the terms of DU's 50-year utility services contract with the Army, the Army may authorize DU to purchase coal directly, further extending the term of a coal purchase contract. Because DU is reimbursed its costs without markup, all savings for a longer-term coal contract would be passed directly to the Army. There is precedent for this approach. At Joint Base Elmendorf Richardson, DU purchases landfill gas for its generation plant directly from the vendor, and then recovers the cost, with ito markup, from the Department of Defense under the terms of its 50-year contract there. • Backup steam boiler capacity is available with six boilers, while only four are required in the coldest periods of highest steam demand. DU may operate five boilers during the coldest periods to allow for heat redundancy. • High power resiliency with on-site power generation in parallel with GVEA for fully redundant power sources. • Continues to support the use of utilidors providing heat within preventing freezing of domestic water and wastewater piping. • Continued use of utilidors maintains possibility for other longer·term technical options developed in the future. • Coal is the most stable fuel available in interior Alaska. Diesel fuel pricing is volatile. Natural gas is not yet available in sufficient quantities in the interior, and the stability of availability and pricing is unproven. Because heat and electric are key to the mission at Fort Wainwright, the risk with another fuel supply must be carefully weighed.
22E	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	Disadvantages: • Condensing steam turbine generators lower CHP thermal efficiency and power. • This option relies on aging plant which may require replacement before other long lead time options become economically viable. • Air quality control equipment is required to reduce plant emissions to satisfy the State of Alaska and federal Environmental Protection Agency requirements. However, the cost of these requirements has been included in the NPV considerations discussed below. • Reliance on coal will not increase demand for natural gas in the interior. • Availability of natural gas at a reasonable cost Oess than $12.82/MMBtu) will impact the advantage of coal over natural gas.
22F	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	B&V Option 2: New Central Heating Plant Using Dual Fuel combustion. THIS OPTION TRACKS WITH NOTICE OF INTENT OPTION 2. This option replaces the existing coal plant but uses the existing utilidors to distribute heat. This option consists of a dual-fuel combustion turbine generator (CTG) and a heat recovery steam generator (HRSG). This technology produces electricity and steam simultaneously from the same combustion process. During the winter when steam loads exceed the capacity of the HRSG, boilers will supplement the heat recovery steam to provide enough steam to meet heating demands. This option uses ultra-low sulfur diesel (ULSD) as the primary fuel, but would be equipped with a dual-fuel burner so natural gas can also be fired if it were to become available in sufficient quantity. This combustion equipment includes a selective catalytic reduction unit to reduce emissions and satisfy EPA requirements.
22G	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	Advantages: • Better load (power and steam production) and alignment (higher energy efficiencies) • Provides demand for natural gas in Fairbanks area • Utilizes existing utilidors to distribute heat (distributed heat supports water distribution and wastewater collection piping systems located within utilidors) Disadvantages: • Air construction permit would be required. Additional challenges would be encountered as a result of the Fairbanks area PM2.5 Serious Non Attainment designation. • High fuel cost of ultra-low sulfur diesel (ULSD) drives higher annual O&M costs than Option 1 -Coal • No adequate supply of natural gas (either as trucked LNG or a pipeline source) exists in Fairbanks
22H	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	B&V Option 3: Decentralized Heat and Power. THIS OPTION TRACKS WITH NOTICE OF INTENT OPTION 3. A completely decentralized energy system that solely generates heat. This option consists of individual boiler systems that serve individual building or co-located buildings. Without electricity generation on post, all electric power loads would be served by purchasing power from Golden Valley Electric Cooperative (GVEA). The primary fuel for this system is ultra·low sulfur diesel (ULSD), with possible future conversion to natural gas were it to become available in sufficient quantity. One large fuel tank for large quantity storage is included in addition to local fuel tanks to supply the individual boilers.

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22I	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	Advantages: • The approach could be implemented over a period of time. • The B&V Study identified 546 facilities that could be installed and converted in phases. However, the current coal fired CHPP would need to be in service until all phases were completed. • The Army could implement by installing boilers that serve groups of buildings - particularly in the housing areas. However, the CHPP would need to be in service until all phases were completed.
22J	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	Disadvantages: Most expensive option (highest operations and maintenance costs) . Most difficult of the options to permit. Alaska regulations do not provide an exemption based on the individual size or purpose of units. Permit exemption requirements are based on the aggregate potential to emit from all of the units included in a project. Given the number of units required for this Option, it may be infeasible for the project potential to emit (PTE) in a distributed heating scenario to remain under the 10 tons per year (tpy) .exemption threshold, even with the possible emissions netting as described in the sections above. Risks safe operations of water distribution and wastewater collection systems . Currently, potable water and wastewater pipelines are routed within utilidors heated by steam heat distributed from the existing CHP. Decentralizing heat would remove steam from these utilidors and risk freeze up. It is standard utility operations in Fairbanks to heat distributed water; the other water and wastewater utility in Fairbanks heats water to avoid freeze ups of its distribution system. Not a resilient option. If GVEA fails to supply power to post, only systems with emergency backup generators on post will remain functional. Further, if power to the installation is lost, each individual boiler will lose pumping capabilities so heat will also be lost. For redundancy of power supply, further backup power equipment will need to be added. • Barrier against longer-term technical options such as small modular nuclear. • Drives additional costs to maintain heat within existing utilidors to support water , distribution and wastewater distribution. • Decentralized heat would require extensive ground disturbance activities. FWA contaminated soil is extensive throughout the installation. This option would require EPA/ADEC approved contaminated site plans, 3rd party onsite monitoring during excavation activities, soil sampling of excavated and remaining soils, and ultimately contaminated soil disposal management.
22K	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	On a total cost basis, B& V Option 1, a refurbished Centralized Heat and Power Plant, is the most cost-efficient option, and decentralized heat with purchased power is the most expensive option. The B&V Study identified the comparative costs of the projects as scoped earlier in these comments. The B&V Study considered the up-front capital costs as well as Operations and Maintenance costs over a 30·year period. The results of the financial model showed Option 1, refurbishment of the existing plant using coal as the fuel, as the recommended option based on the lower overall 30-year present value (PV) cost. Option 2, a new centralized duel·fuel capable plant, was the next most favorable option, with a PV cost 23% higher than Option 1. Option 3, a decentralized system, has a PV cost of 70% higher than option 1, but presents other significant vulnerabilities that ruled it out as a feasible course of action. It should be noted the greatest savings determined by the B&V study is in the low cost of coal relative to the other fuel alternatives of Ultra Low Sulfur Diesel (ULSD) and Liquified Natural Gas (LNG). Doyon Utilities believes a coal price more favorable than the current price paid by the Defense Logistics Agency may be achieved with negotiation of a long·term contract. The economic modelling also changes if LNG were to become available in sufficient quantity and at substantially lower price than is currently projected.
22L	8/21/2019	Email	Shayne Coiley	Senior Vice President, Doyon Utilities	Notice of Intent Option 1: New Coal Fired Central Heat and Power Plant DU recognizes that the EIS has solicited comments with respect to a new CHPP, and DU has provided information about refurbishing the existing CHPP. B&V did not consider the replacement of the existing coal fired CHPP with a new coal fired CHPP because the cost of a new plant would be higher than refurbishing the existing plant and ensuring air compliance. Although the cost of a new plant would be higher than refurbishing the existing plant, a new plant would not result in operational advantages over refurbishing the existing plant according to the B&V Study. Conclusion Doyon Utilities is the installation's electric and heat provider and is responsible to ensure safe, reliable utility service. DU recognizes heat and electricity is mission critical on Fort Wainwright. DU is committed to assist with detailed analysis, operational data, and expertise during this process.
23A	8/19/2019	Email	Tom Paragi	Program Manager, Directorate of Public Works	Thank you for the opportunity to comment on the draft EIS for the project to upgrade heat and power production at Fort Wainwright. Natural gas would substantially reduce PM2.5 emissions below coal, but the supply of gas is not yet secured in pipeline. Thus, at least the short term it would require trucking LNG from distant sources (such as the North Slope, once a supply is secured) or by rail tanker from Cook Inlet. Bulk storage tanks at Fort Wainwright (buried under concrete to reduce military strike risk) would be prudent in the event that 400 mile transportation corridors are damaged by natural events or military strikes.

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23B	8/19/2019	Email	Tom Paragi	Program Manager, Directorate of Public Works	If coal is used by itself, or as duel fuel with natural gas, I recommend a feed system to the fluidized bed that can also use wood chips to offset a substantive (e.g., 30%) volume of coal. Wood has the advantage over fossil fuels of not being an export commodity, thus not being subject to world market pricing. The Alaska Division of Forestry updated its wood inventory in 2012 to include biomass estimates for energy (as chips, pellets, hog fuel, etc.) for the Tanana Valley, which permits estimates of volume at varying distance from Fort Wainwright. ADOF can provide materials on wood energy, including a study from the 1980s that demonstrated coal volume reduction from using wood chips in the Aurora power plant in Fairbanks. Utilizing local wood from hazardous fuel reductions on post and surrounding areas off post also lessens risk to wildland fire in the urban interface and enhances wildlife habitat to benefit local hunters with wild food sources.
24A	8/20/2019	Email	Timothy Jones	Member of the Public	Please accept these comments on the Heat and Electrical Upgrades EIS: I am a former garrison commander of Fort Wainwright and a current executive with Doyon Utilities. Though each of those positions inform my comments, the comments are purely my own and not intended to represent either the US Army or Doyon Utilities. Of the four courses of action offered in the EIS, I find the distributed heat option, with all electric power provided by GVEA, to place the installation at the greatest potential risk and in opposition to current DOD and Army guidance on resilience. Fort Wainwright, with its CHPP and recent decision by DPW to return Turbine One to service, has the ability to completely self-sustain, using stockpiled coal, for three months or more. The Army has the option to buy energy from GVEA if it believes purchased energy to be more economic, and still have the ability to self-sustain should GVEA be unable to supply energy for any reason.
24B	8/20/2019	Email	Timothy Jones	Member of the Public	It is true that for heat the existing CHPP is a single point of failure. By all means, that should be remedied with an alternate heat plant that can provide adequate heat in the event of a catastrophic failure of the existing CHPP or a new centralized plant. I personally believe that, until a gas pipeline is in place, coal offers the best solution due solely to the installation's ability to stockpile fuel. Alaska's existing transportation and logistics infrastructure is austere and relatively fragile. An interruption of fuel or electricity in the lower 48 can be remedied relatively quickly by switching to another source of supply. That is not the case in Alaska, currently or in the foreseeable future. I strongly urge selection of a centralized plant capable of supplying heat and power for Fort Wainwright's long term heat and power solution.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
25A	8/19/2019	Email	Alison Carter	Member of the Public	I've been getting into the details and notice that the 4 concepts presented at the open house fall short of both the Installation Energy and Security Policy outlined in Army Directive 2017-07, and the Army Energy and Water Management Program (AEWMP) as outlined in AR 420-1. Army Directive 2017-07 cited in the Ft. WW EIS poster at: Caution-https://home.army.mil/wainwright/application/files/9915/6520/9178/20190805_HEU_Posters_508.pdf < Caution-https://home.army.mil/wainwright/application/files/9915/6520/9178/20190805_HEU_Posters_508.pdf > Army Directive 2017-07 Installation Energy and Water Security Policy at paragraph 5. b. (1) says, "Assured. . . [r]edundant and diverse sources of supply including renewable energy . . ." At paragraph 9 it states that the directive is rescinded after publication of updated Army Regulations (AR): AR 420-1 (Facilities Mgmt) and AR 525-2.(Protection Program), meaning that the directive is to supplement AR 420-1. AR 420-1 Caution-https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN15517_R420_1_admin_FINAL.pdf < Caution-https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN15517_R420_1_admin_FINAL.pdf > At page 239, says, Chapter 22Army Energy and Water Management Program Section IIntroduction22–1. Overview. This chapter prescribes policies, procedures, and responsibilities for the AEWMP . . . The overall objective of the AEWMP is to ensure theavailability, quality, and security of energy and water for the Army without degrading the environment, missionreadiness, or the well-being of Soldiers (see para 22–5 of this publication). At page 242 it says,22–5. Program objectives. Objectives of the AEWMP include— a. Providing guidance for resourcing utility infrastructure modernization and program execution. b. Participating in the national effort to conserve energy and water resources. c. Participating in research and development (R & D) efforts regarding new and improved energy and utilitytechnologies. d. Implementing the Army Energy Strategy for Installations by— (1) Eliminating/reducing energy waste in existing facilities. (2) Increasing energy efficiency in new/renovated construction. (3) Reducing dependence on fossil fuels. (4) Conserving water resources. (5) Improving energy security. e. Encouraging partnerships with local communities and utility suppliers to obtain power from renewable sources.
25B	8/19/2019	Email	Alison Carter	Member of the Public	1. The four options presented to the public seem to be responding mainly to the "security" directive, but do not include the other program objectives of conserving resources, R&D regarding new technologies, and reducing dependence on fossil fuels. Although one option presented includes partnering with local utility suppliers (GVEA and IGU) it does not address the renewable sources requirement in AR420-1, chapter 22-5 e.
25C	8/19/2019	Email	Alison Carter	Member of the Public	2. "Participate in research and development efforts" (22-5 c.) to (a) use the year-round current of the Chena River to produce electricity (d.(3) above); (b) store the excess heat from the existing power plant to heat buildings and produce electricity instead of using energy to cool the heat "waste." (d.(1) above) (c) capture methane from the borough landfill and vast areas of cleared land occupied by the military as the permafrost thaws.
25D	8/19/2019	Email	Alison Carter	Member of the Public	3. "Reduce dependence on fossil fuels" (22-5 d.(3) by installing solar panels on every building and storing the excess summer solar energy for winter use.
25E	8/19/2019	Email	Alison Carter	Member of the Public	4. Explore "partnership with local utility suppliers to obtain power from renewable sources" (22-5 e.) by: (a) working with Delta Wind to purchase wind power if they expand their wind farm. (b) working with the Fairbanks North Star Borough to pelletize waste paper and cardboard to burn in a manner that does not contribute to poor air quality.
25F	8/19/2019	Email	Alison Carter	Member of the Public	5. Publicize what efforts have been made to "Eliminat[e]/reduc[e] energy waste in existing facilities" (22-5 d.(1)). Hopefully, all new construction has used state-of-the-art cold regions energy efficient construction techniques, LED lighting, etc. Thank you for engaging the local community in this important discussion. I also thank you for past responsiveness to local concerns such as the traffic hazard caused by the old cooling pond associated with the power plant.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
26	8/21/2019	Email	Patrice R Lee	Coordinator, Citizens For Clean Air, Fairbanks North Star Borough	Dear Ms. Sample, Citizens for Clean Air is a local group of citizens based in the Fairbanks North Star Borough. We promote clean air and warm homes through education, political action, citizen participation, scientific research and public outreach. We have spent a decade keeping the issue of the Fairbanks North Star Borough's poor air quality at the forefront of important community issues. We have sued the EPA four times to keep legal timelines from being further ignored as we have fought for the health and safety of the community. Our community, the Golden Heart Community, regards Fort Wainwright and the people who live and work there and in our community to be our neighbors, friends, protectors, and compatriots. We view the health and welfare of the post as a part of the health and welfare of the entire community. Now is the pivotal time to plan, engineer and construct a new power plant at Fort Wainwright that will employ: -Cleaner burning fuels such as natural gas and/or propane -Efficient, modern technologies that employ carbon capture and reuse -Best practices and most stringent technologies -Flexibility to include other renewable energy sources such as wind, solar, geothermal, etc. -Consideration of the impacts of rapid climate change in the sub-arctic -Best health and safety practices that can improve air quality and thus the quality of life for everyone living in the borough Coal is dirty, outdated, and inefficient. When the health effects of poor air quality are factored in (which they are often not), coal may be one of the most expensive fuels. The coal itself may be inexpensive, however the medical care needed to treat people who are affected by bad air quality (of which coal plays a part) is extremely expensive. Coal ash dumping has its own set of problems. There are no safety regulations in place to deal with this and the practice will only get worse and the ash more prevalent if we don't switch to natural gas, propane, or some combination of the two along with wind, solar, or geothermal sources. The Fort Wainwright power plant is at the end of its life. Its efficiency may be around 40%. That means that every tax dollar spent at the facility loses 60 cents. That is not economic, and should drive rational decision makers to consider modern efficient, cleaner alternatives. Build a new heat and power plant at Fort Wainwright. An investment in cleaner natural gas/propane, best technologies, and better health is a prudent choice, a wiser use of money, and an improvement to heat and power security for the important mission of Fort Wainwright.
27A	8/21/2019	Email	Cathy Walling	Member of the Public	Please accept my comments regarding the EIS scoping for the Ft. Wainwright Power Plant. In learning a few days ago about Ft. Wainwright's scoping period deadline of August 21, 2019 to get comments in and only having the period open for 30 days, my first suggestion is to extend the comment period for another 30 days. In the summer many Fairbanks folk are less available to respond to such a request, and extending will allow more opportunities on this very important matter.
27B	8/21/2019	Email	Cathy Walling	Member of the Public	In light of Climate Change and the poor air quality in Fairbanks, replacing the existing coal fired power plant should NOT be replaced with another coal fire power plant. With the military's knowledge of climate change and concerns for global security as a result, here's a change to lead by example and replace this power plant with renewable energies like wind/ solar/ geothermal. With the immediate problem of very poor air quality in Fairbanks in the wintertime, coal fired power plants being one of the polluters, and Ft. Wainwright being located within the non-attainment area, here's another huge region that lower pm 2.5 emitter sources for heat/power need to be pursued. Working to make all buildings as energy efficient as possible will reduce the power generation needed, and again be a wonderful way to lead by example. In learning about the scoping period at the end of the 30 days, I haven't had time to review all the options, yet urge any steps forward to have the priorities of reducing PM 2.5 to enhance air quality and reducing CO2 to help reduce Climate Change impacts to be the two top considerations for developing a plan.
28A	8/20/2019	Email	Diane Preston	Member of the Public	A. It is imperative that the scoping take into consideration two significant issues. 1) Climate change and all the infrastructure damage that is already doing to Alaska as well as the identification of climate change as a national security issue. 2) The very real and deadly health issues resulting from the poor air quality in Fairbanks, a significant portion of which is generated by emissions from coal fired power plants.
28B	8/20/2019	Email	Diane Preston	Member of the Public	B. The first action needed is to retrofit Ft. Wainwright buildings, put in energy efficient lighting and appliances and mandate that for any new/remodel of buildings a high level of energy efficiency is required. The military has a built in advantage because of the ability to order personnel to follow energy conservation measures.
28C	8/20/2019	Email	Diane Preston	Member of the Public	C. There should be a thorough investigation of all possible renewable energy sources to include solar, wind, geothermal and hydro all of which are viable in Alaska. Coal should not even be considered as a fossil fuel energy source for a power plant given it's known contribution to health hazards as well as the disposal of coal ash problem.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
28D	8/20/2019	Email	Diane Preston	Member of the Public	D. With the vast military budget as well as the recognition by the military that climate change is a security issue which is already costing our community, state and nation vast sums to mitigate, the current cost factor of renewables should not be the determining or driving factor in the decisions about energy for Ft. Wainwright. Factors such as effects on climate and health should be higher priorities than cost.
28E	8/20/2019	Email	Diane Preston	Member of the Public	E. The health of military personnel should be considered and the expense of the treatment for the ailments caused by air pollution needs to be factored in as well. Ft. Wainwright personnel are currently and likely will be impacted by the current air pollution in the Tanana basin.
28F	8/20/2019	Email	Diane Preston	Member of the Public	It would be unconscionable for Ft. Wainwright to build another coal fired power plant at this time when the climate crisis is getting worse and far faster than scientists previously predicted. Renewables are a viable energy source even here in Alaska and we must as a society act now and quickly to counter the release of CO2 into the air. The military can lead the way in training personnel in renewables and demonstrating how clean energy can power a base. Thank you for considering my comments.
29	8/21/2019	Email	Patrice R Lee	Member of the Public	Fort Wainwright is an integral part of the Fairbanks North Star Borough and is valued for the community of fine people who work and live there, those who contribute to, diversify, protect, raise their families, and recreate in our fine city. At this time Fort Wainwright's aging, undependable, inefficient heat and power plant must be replaced. The Fairbanks North Star Borough is in a "Serious Non-Attainment" status with the EPA for air quality with the highest wintertime levels of PM 2.5 in the United States. Our community is fighting to reduce air pollution as well as other types of pollution and every move forward must be one that involves cleaner energy sources, and more efficient technologies. It is estimated that the Fort Wainwright plant is extremely inefficient. It may be running as low as 40% efficiency and that is not economic. The taxpayer money is 60% wasted if efficiency is 40%. That is not sustainable, not a best practice, and a needless waste. Coal is dirty, inefficient, outdated, and cannot help our community meet attainment and compliance with the Clean Air Act. Coal ash is overwhelming parts of the community, contaminating large areas and regulatory based safety precautions are not in place to deal with coal ash. Moving forward, the community will be best served if coal, as a solid fuel, is eliminated from the heat and power production at Fort Wainwright. We need to reduce air pollution right now for the health of everyone living in the borough. The military must not constrained in their mission because we are beyond maximum pollution limits. Build a new, efficient, technologically sound power plant that uses natural gas/propane. Combined heat and power is a good technology to consider. Make the plant as flexible as possible to employ/mix renewable energy sources such and wind, solar, and geothermal. Our community needs an Energy Policy so we can come into concert with opportunities to build new, efficient heat and power infrastructures. We're not there yet, but if we were, I'm quite sure that moving to natural gas/propane as a cleaner, more efficient fuel would not only improve many aspects of life in Fairbanks, it would help anchor best practices as we move forward.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
30A	8/19/2019	Letter	John Coghill	Alaska State Senator	1. Can natural gas be supplied affordably in the timeline suggested? a. Where will the natural gas come from if there is a decision to build a new dual-fuel combustion turbine generator CHPP? Cook Inlet? Or another area? b. Although coal may not be as "politically correct'· as natural gas, the supply is known. A stable coal supply exists around Healy. Most agree that there's enough coal to be mined in the area for hundreds of years. A stable supply of energy is a huge benefit for powering a national security installation. c. A secure supply of natural gas is not known at this time. How much natural gas storage capacity will be needed? i. Will it be a "just-in-time supply?" ii. Are national security interests served by a non-stable supply of natural gas? iii. What will be the mode of transportation? How viable is that? iv. Can the need be met? d. If the dual-fuel combustion turbine generator CCHP has to rely on ultra-low sulfur diesel, what are the effects (both pro and con) when compared to coal? i. What are the costs? e. Does the natural gas provide the economic residential or industrial heat required by Fort Wainwright?
30B	8/19/2019	Letter	John Coghill	Alaska State Senator	2. If the Army is considering a change from a coal-fired central heat and power plant (CHPP), there must be thorough consideration about how that change will affect the surrounding economy in the Interior. a. If coal is no longer used as a primary fuel source on Fort Wainwright, that will likely have a long-term detrimental effect on Usibelli Coal Mine. Noteworthy: Usibelli's portfolio largely consists of in-state customers now that coal exports to world-wide customers have diminished. i. Usibelli is a large employer in the Interior. How many employees will be affected if coal no longer is used on Fort Wainwright? ii. What about other collateral consequences? The health of the coal mine has a direct correlation to charitable giving to many causes throughout the Interior. Those causes include: youth services, scholarships, and, importantly, the University of Alaska. b. What is the effect on the Alaska Railroad? i. The Alaska Railroad transports the coal. If less coal, how much will the railroad decline? c. One wonders the difference between the scrubbed coal stack CO2 emission over a natural gas CO2 emission. when comparing the cost benefit ratio. Are the "emission effects" substantially similar? In other words: Is it worth it? Please feel free to call my office at any time if you'd like to have further discussion on any of these issues.
31	8/21/2019	Email	Kathy Mayo	Principal Manager, Kathy Mayo and Associates	Please consider another option for providing power generation to the Post: Advanced Nuclear power, either micronuclear or Small Modular Reactors. This technology has been under development for decades and is now ready for commercial use. This technology holds the promise of carbon-free, clean, affordable power. Deployment in Alaska will enable testing leading to greater understanding of how this technology can be used at other remote sites, such as military facilities outside of the grid-system.
32A	8/21/2019	Letter	Bryce Ward	Mayor, Fairbanks North Star Borough	The Fairbanks North Star Borough administration and staff (Borough) encourages and supports Fort Wainwright's (FWW) efforts to upgrade the heat and electrical facilities at FWW along with the Environmental Impact Statement (EIS) to evaluate potential environmental impacts. As you are aware, the Fairbanks area was designated as a serious non-attainment area for fine particulate (PM2.s) in 2017. Several stakeholders including the Borough, the State of Alaska Department of Environmental Conservation (ADEC), the U.S. Environmental Protection Agency (EPA), FWW, industrial point sources, and community members have been involved in the planning process to develop the Serious State Implementation Plan (SIP). A draft Serious SIP has been released, the public comment period has closed, and ADEC is currently evaluating the additional public input. With such a complicated and multi-faceted issue it is imperative that all stakeholders work collaboratively to ensure the Borough's air quality is improved and protected. The public comment periods during the EIS process provides a platform for all interested stakeholders to comment, and the Borough is pleased to offer the following comments which primarily address the air quality analysis. Comment 1: The Borough encourages the ambient air quality analysis to go beyond screening methodologies, e.g. emission inventory comparison and screening modeling analysis, to include dispersion modeling analysis for all alternatives. The Borough also encourages the modeling analysis to contain at minimum both primary PM2.s and the precursor pollutant sulfur dioxide (SO2). If possible the ambient air quality analysis should be completed with a photochemical modeling tool such as the Community Multiscale Air Quality Modeling CMAQ system which is utilized for SIP analysis.

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32B	8/21/2019	Letter	Bryce Ward	Mayor, Fairbanks North Star Borough	Comment 2: A General Conformity analysis is required for any part of the project occurring in nonattainment or maintenance areas for criteria pollutants. Section 176(c) of the Clean Air Act (CAA) requires federal agencies to ensure that federally approved or funded projects conform to the applicable approved SIP. Such activities must not: cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in an area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area. FWW is located inside the PM2.s non-attainment area and within the carbon monoxide CO maintenance area boundary. The Borough encourages the EIS to address conformity with the currently federally approved SIPs as well as the Serious Area SIP which is in the final process of approval. The Borough encourages the no-action alternative to evaluate PM2.s and SO2 controls necessary to comply with the Serious SIP. The Borough encourages that the action alternatives be evaluated with pollution controls necessary to comply with non-attainment New Source Review permitting requirements.
32C	8/21/2019	Letter	Bryce Ward	Mayor, Fairbanks North Star Borough	Comment 3: The PM2.s issues in the Borough are primarily a winter season phenomenon. The Borough encourages the air quality impact analysis to include construction emissions, and to separate those emissions on a seasonal basis. With construction activities in the Borough primarily occurring during the summer months, seasonal breakouts of construction emissions will accurately portray the impacts.
32D	8/21/2019	Letter	Bryce Ward	Mayor, Fairbanks North Star Borough	Comment 4: The National Environmental Policy Act (NEPA) requires the lead federal agency to consider the potential cumulative impacts of proposals under its review. Cumulative impacts may result when the environmental effects associated with the proposed action are superimposed on or added to impacts associated with past, present, and reasonably foreseeable future projects, regardless of what agency or person undertakes such other actions. Although the individual impact of each separate project may be minor, the additive or synergistic effects of multiple projects could be significant. The Borough encourages the analysis to assess cumulative impacts for not only air quality issues, but also other socioeconomic impacts that the project may have.
32E	8/21/2019	Letter	Bryce Ward	Mayor, Fairbanks North Star Borough	Comment 5: In 2018 an Air Quality Stakeholders brought together a broad cross-section of the community including various interests in air quality, home heating and the economy. The Stakeholders final report included a list of 53 individual recommendations to improve air quality in the community. Should air quality impacts be unavoidable, the Borough encourages FWW to consider mitigation measures from the final Stakeholders report. The final Stakeholders report can be found at: http://fnsb.us/transportation/AQDocs/Fairbanks%20AQ%20Stakeholder%20Process%20Final% 20Report.pdf The Borough is fortunate to have a military installation such as FWW within the community and we sincerely appreciate the opportunity to comment on this document.
33A	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	Thank you for the opportunity to submit scoping comments on the Fort Wainwright Heat and Electrical Upgrades EIS. Public participation is an integral part of the NEPA process. To that end, my first comment is to request a comment period extension. I understand you advertised in the requisite locations, however,many of us were unaware of the 30-day scoping period until two days prior to the public meetings when information was shared by Fairbanks Economic Development Corporation, followed by a story on KUAC. I further shared the announcement and links to our members and partner groups, among whom there is great interest in this EIS. Additional time would garner further comments during this step in the process. The following includes items for USAG Alaska to consider during alternative development, impact analysis, and while drafting the EIS: 1. Include energy efficiency and weatherization upgrades and requirements for existing and newly constructed infrastructure. Meeting mandated energy efficiency requirements is listed as a “need” for this project. It is also included as part of implementing the Army Energy Strategy (p. 242, publication AR 420-1: (1) Eliminating/reducing energy waste in existing facilities. (2) Increasing energy efficiency in new/renovated construction. (3) Reducing dependence on fossil fuels. (4) Conserving water resources. (5) Improving energy security.). Reducing energy needs and consumption through improved weatherization and energy efficiency are among the most cost effective and forward thinking actions DOD can take toward addressing energy security, fiscal, and resilience concerns.The cheapest energy is the energy not needed.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
33B	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	2. Concerns with building a new CHPP (or the No Action Alternative) and continued reliance on coal. a. This alternative warrants serious investigation prior to moving forward. Understanding that coal is among the cheapest and most readily available fuel sources in interior Alaska, fuel source costs should not take precedence over health,climate, and other environmental costs. UAF's new CHPP faced similar issues during the evaluation stage and was moved forward as the best alternative due to lack of LNG or other viable options. The plant has been beset by problems and is still not functional, despite "celebrating completion of the CombinedHeat and Power Plant" nearly a year ago (August 29, 2018). GVEA's Healy 2 powerplant has also had numerous, serious set-backs. b. CO2 emission levels from coal combustion are of serious concern for air quality in the Fairbanks North Star Borough (FNSB) and for the need to reduce carbon emissions in light of the current and impending impacts of climate change. GVEA recently pledged to reduce their carbon emissions by 26% by 2030. The team evaluating means to that goal presented an update at the July 22, 2019 GVEA board meeting. Included was a graphic that shows cost vs carbon emissions by GVEA power source (see attached pdf). Although coal is among the cheaper fuel sources (along with wind and hydro), it has some of the highest emission rates. The climate change crisis dictates excluding coal as a fuel source. c. Additional considerations include plans for coal dust deposition and potential air and water quality concerns.
33C	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	3. Alternative to Build a New Dual-Fuel Combustion Turbine Generator CHPP. Feasibility analysis needs to include the realistic likelihood of an adequate, reliable, and consistent supply of LNG. Currently, the AKLNG project is still a "pipe dream" with innumerable and substantial financial and environmental hurdles to overcome (the public comment period for the DEIS for that project is open until October). The IGU storage tank project off Peger Road and LNG trucked up from south central is the nearest to completion; their storage facility in North Pole is currently non-existent, although may have funding.
33D	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	4. Add a renewable portfolio alternative, either as a stand-alone or combined alternative. I understand that a viability analysis was conducted prior to the NOI for this EIS and that the screening process eliminated an alternative with renewables. The most recent, publicly available report I found regarding a review of Fort Wainwright Power Plant alternatives was published in 2003 (Central Heating and Power Plant Alternatives Review: Fort Wainwright, Alaska. ERDC/CETL TR-03-11). I urge USAG Alaska to think out of the box and work with local experts (such as Renewable Energy Project Alaska, Alaska Centerfor Energy and Power, and the Cold Climate Housing Research Center) to reconside rrenewables and develop alternatives that utilize wind, thermal, solar, biomass, or other options. Dependence solely on fossil fuels (coal, LNG, diesel) is no longer viable, especially when powering for decades into the future. I have no doubt that there are reasonable alternatives not yet considered.
33E	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	5. Include the viability report in the DEIS along with a clear analysis and description of all alternatives considered and not carried forward.
33F	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	6. Climate change considerations must be analyzed and included. Some were addressed above. a. DOD considers climate change a national security concern, including as recently as January 2019 (see "Report on Effects of a Changing Climate to the Department of Defense" at Caution-https://climateandsecurity.files.wordpress.com/2019/01/sec_335_ndaa-report_effects_of_a_changing_climate_to_dod.pdf < Caution-https://climateandsecurity.files.wordpress.com/2019/01/sec_335_ndaa-report_effects_of_a_changing_climate_to_dod.pdf >). It, therefore, behooves DOD to dramatically reduce fossil fuel use. b. Resources being evaluated include Air Quality and Greenhouse Gases. Climate Change, beyond GHG emissions, must also be analyzed, including each alternative's contribution to climate change and the impacts of climate change (e.g., permafrost thaw, increased rain events, etc.) on each alternative. c. As noted above, GVEA pledged to decrease carbon emissions by 26% by 2030. New power plant considerations ought to align (or, better yet, improve upon) that proposed reduction. d. The FNSB Assembly passed Resolution 2019-29 (see attached) on July 25, 2019. It establishes a joint Climate Change Task Force to develop a climate action plant for the FNSB. Fort Wainwright, as a major landowner and population center inthe FNSB, should consider collaborating with and contributing to the task force and working closely with the Borough to best align energy needs with climate change mitigation.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
33G	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	7. Project area determinations for impact analyses. The DEIS should clearly define the areas considered for impact analysis, particularly for air shed and water shed impacts. Both are subject to “downstream” effects, and climatic and atmospheric conditions that extend beyond proposed power plant footprints and the Fort Wainwright property boundaries. Thank you, again, for the opportunity to submit scoping comments for this EIS. I look forward to continued engagement as the EIS moves forward.
34	8/21/2019	Email	Joe Byrnes	Chief of Staff, Office of Representative Bart LeBon	Thank you for the opportunity to provide comments for the EIS scoping for the Fort Wainwright Heat and Electrical Upgrade. Of the alternatives considered, construction of a new coal-fired CHPP would be preferred. Coal power plants are demonstrated technology in the Interior with local expertise and a reliable supply source of fuel. All of the necessary infrastructure to provide coal to Fort Wainwright is already in place with Usibelli Coal Mine and the Alaska Railroad. During the Agency Scoping Meeting, I was curious why a dual-fuel natural gas and coal generator was not considered as an alternative. Having a natural gas and coal plant would use reliable sources of fuel locally. If technologically feasible, it seems that would be a preferred option.
35A	8/21/2019	Email	Brent Sheets	Member of the Public	I am writing to suggest that you consider a fifth option for re-powering Fort Wainwright, namely, small scale coal gasification to operate a reciprocating engine generator (such as a diesel engine). The U.S. Dept. of Energy funded a $1.8 million study conducted by the Univ. of Alaska Fairbanks, with cost-share provided by GVEA (the local utility that also sells power to Fort Wainwright), Aurora Energy (another Fairbanks utility), and others. It was completed in the Spring 2019, and, based on the results of that initial study, DOE is sponsoring a $1.4 million continuation effort at UAF aimed at acquiring the air permits to enable the building of the coal gasification plant. After you examine this option, and see how close it is to commercialization, I believe you will think it deserves closer examination. The design presented in the attached Techno-Economic analysis is based on commonly available commercial components, with the exception of the gasification unit, which is near commercial ready. The DOE-funded project could lead to construction of a demonstration plant on the campus of UAF as soon as 2021, with operations 2022. If successful, it could be deemed "commercial" in 2022 or 2023, which I presume makes it eligible for your consideration. Therefore, I encourage you to read the attached, paying close attention to Chapter 10 which is a cost and efficiency comparison between conventional coal and the syngas/engine system described herein. (This report should be available on the DOE/OSTI website, but I was unable to locate it as of this writing.) The point of the demonstration plant is to move it into the commercial market. By the end of Phase 2 (Sept 2019 through Dec 2020), UAF will need to complete its NEPA effort and acquire all air emission permits to operate the plant in the non-attainment area, as well as raise 20% cost share to build the plant, estimated at $46 million. While costs for your four options have not been presented, as far as I have been able to find out, I believe any of the four options you have identified will have either significantly higher capital costs, operating costs, or both.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
35B	8/21/2019	Email	Brent Sheets	Member of the Public	I encourage Fort Wainwright to remain with coal as its primary fuel source. First, coal is the most "local" of any of the fuel options. LNG is trucked in from Anchorage, or perhaps from the North Slope some day. Even if a pipeline were to be built connecting Fairbanks to one of the natural gas basins, it would become a target for vandalism. (While working as a DOE Federal employee, I assisted in two different threat assessments against TAPS and am aware of its past attacks and its vulnerabilities. A natural gas pipeline would become a similar target.) Fuel oil would similarly have be trucked into the area, or the local refinery would need to expand. Even if the local refinery expands, TAPS remains a vulnerability. Natural gas and diesel are still expected to cost about $20/MMBtu, barring any market disruptions. Coal is delivered by rail, but if the rail is disrupted, it is near enough to truck into Fairbanks, plus there are multiple routes available, the Parks Hwy, Denali Hwy (summertime), or the Glen Hwy if worse comes to worse. Further, it is not subjected to the huge market swings that plague it's fossil-based cousins. Second, please consider the consequences on the economic viability of the Usibelli Coal Mine if Fort Wainwright switches to another fuel source. If UCM becomes economically nonviable (and I believe it may be close to that already, but you should check to be certain because my information may be incorrect), then what impact will its closure have on UAF, Eilson AFB, and GVEA because each installation currently relies upon coal as its most economic fuel source. Indeed, I would encourage you to review UAF's decision to invest in a new coal-fired power plant. Even though it had the largest capital cost, over the entire life of the project the decision should pencil out, plus they chose to remain with coal due to fuel certainty. With the PM2.5 issue, it is entirely possible Aurora will be forced into retrofitting their plant with expensive emission devices. They have publicly stated they will close-up before investing in that because of the expense. So, if Fort Wainwright switches away from coal, and if Aurora goes out of business, then the question is whether UCM will be able to remain economically viable. If not, then UAF, Eielson AFB, and GVEA will all be forced to close their coal plants and to invest in some other power source for its electricity. Third, Fort Wainwright has a 30-day (or more, I cannot recall) supply of coal on hand. Please consider how easy it is to store that much solid fuel on base, as opposed to a similar quantity of fuel oil or natural gas. And I have already mentioned how much easier it might be to deliver coal if some natural disaster disables a pipeline or takes out more bridges.
35C	8/21/2019	Email	Brent Sheets	Member of the Public	Finally, over the course of completing the attached Techno-Economic analysis, I have come to the conclusion that the syngas/engine combination presented has the greatest potential to provide the lowest cost heat and power while meeting the area's strict air emission requirements. Because its components are well understood and widely used, with the exception of the gasification unit, it will be easy to maintain, and replacement parts should be widely available.
36	8/20/2019	Email	Dan Givens	Stone Castle Masonry	I would like to submit my comments regarding the potential future power plant. As a member of the air quality stakeholders group and the Borough Air Pollution Control Board I have researched various new technologies . Considering cost and availability of fuel coal makes the most sense. Until now, it has been the most detrimental to the air quality. A new technology has been developed by Dr. LS Fan and others through their research in the coal fields of West Virginia. Currently, a distinguished professor at Ohio State University where his mission is to disprove the notion that "there is no such thing as clean coal !" Dr. Fan has developed and patented a process called chemical looping. It is an exothermic reaction without ignition which approaches almost zero emissions. Originally, the carbon dioxide was captured to sequestered back into the earth , so no carbon footprint. Recently, Dr Fan developed another process to use the CO2 to make syngas. This makes this system cutting edge technology. The Department of Energy became aware of this technology and provided a $117 million grant to build a test plant in Wilsonville Alabama. This was several years ago and it worked great. Since that time Dr. Fan has been fine tuning the design and process. It would behoove you to check out this cutting edge technology. I will try to give reasons why this should be used. (1) Cheapest fuel source would be coal and it is available locally. (2) Be able to use the existing area where the current power plant is located enabling the hook up to the utilidor system currently in place. Save the long and costly delays of trying to find a new location. (3) Chemical looping uses coal, but other materials such as calcium and iron. There is a limestone deposit north of Fairbanks that Dr Metz from UAF has been trying to develop for years. This would create an economic need and eventually create jobs. Iron could come from the various gold mines in the form of black sand. Ft Knox should have tons of it. Otherwise, utilize all the iron scrap metal here that is to expensive to ship back to the lower 48. (4) The near zero emissions has to be the most compelling reason. The future regulatory costs would not be as stringent without emissions. The plant would be more like a refinery, but completely contained. A well maintained system would not be dealing with continuous pollution issues. (5) While being a flagship for other military bases around the country and world, the goodwill generated here in the North Star Borough would be enormous. Being a good partner to the community while helping to solve the air quality problem just makes sense. Whether you can convince EPA to consider this as part of an offset expenditure I will leave to you. That being said the possibility of help finacially from other Federal agencies is something that should be investigated because of the overall ramifications . In conclusion the near zero emissions and being able to use much of the existing infrastructure such as the location, rail line, utilidors, etc. has to be considered as a reason to not only to investigate, but use chemical looping as an alternative. Thank you for your time and consideration.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
37	8/20/2019	Email	Karl Gohlke	Member of the Public	I support Building a New CHPP Alternative. 1. Reliability of CHPP – the greatest advantage, 2. Abundance - Coal is Alaska's most abundant energy resource. There is more contained energy in Alaskan coal than in all the combined oil and natural gas in Alaska. 3. Affordability - The use of diesel and natural gas are volatile fuels and have experience extreme fluctuations in price. Coal has maintained a very stable price during the past several decades. 4. Known Technology - State of the art developments within the electrical power generation industry and new technologies have significantly improved coal fired power plants environmental characteristics burning process; i.e. bag houses, emission control devices, etc. 5. The world situation is unstable and uncertain. Coal maintains an important position as a low-risk, relatively secure commodity in today's volatile environment. 6. Natural disasters and terrorism are not likely to impact the distribution and availability of coal in comparison to other world energy sources. 7. Ft Wainwright needs to be its own self-contained installation and not connected to any outside grid. Energy security is a big deal. Coal offers energy security through the ability to stockpile the coal (e.g. +90 day supply). The equivalent storage for NG or diesel would be huge tanks with lots of potential liability; single points of failure. If Ft Wainwright relies on importing power, that it makes it difficult to secure energy needs.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
38A	8/20/2019	Email	Chris Miller	Member of the Public	In my opinion Replacement of the existing coal plant with a modern coal plant is appropriate for the following Environmental reasons. 1. UAF just went through this same deliberative process and concluded that a modern coal plant with fuel supply from the interior was the best bet for 50 years. 2. We don't have a fixed natural gas supply. Unless the project is going to build a pipeline with at least two different sources it seems poor to rely on the trailer/train car LNG system for reliability of source. The coal, delivered by rail and truck, has had decades of experience. The rail LNG is has not been proven long term, and we need a much higher quantity that is being shipped today which may not really work. 3. Emissions of modern coal plants are manageable. Gas plants make emissions as well. 4. Buying electricity from the 'Grid' is buying coal and fuel oil electricity anyway, that does not benefit from the distributed steam system which makes things more efficient. Electricity only production is only about 33% efficient and modern CHPP can be 60% efficient. 5. District heat system are reliable and already exist throughout post. Individual boilers at each building have a much higher maintenance cost due to wide variety of equipment that may be installed 6. Small boilers are much harder to regulate and monitor emissions as the sources are spread throughout post. 7. Construction would be required at every building for a boiler connection which could disturb existing contaminated soils. 8. The central power plant already has all power lines and district heat lines running to it. They be reused and upgraded in a methodical fashion each year. 9. IF the CHPPs were all grid tied together the coal fired cost effective electrical generation could be used for the regional needs, and make the local utility rates less. 10. The power plant can be easily designed as a critical facility capable of withstanding design earthquake events. This will be easier than designing many small additions to be seismic stable.
38B	8/20/2019	Email	Chris Miller	Member of the Public	11. One big building is easier to manage that many small plants. 12. Gas fired equipment still produces PM2.5 particles through the non-condensable gases. 13. Steam can be used for cooling equipment to reduce the electrical needs on base. 14. One exhaust source may provide let ice fog potential over the runway as the discharge is high and in one location compared to distributed sources 15. It is easier to improve the ground in one location to avoid liqufiaction potential than it is to improve ground at multiple location in a distrubted system. 16. If a coal to liquid or gasification plant was built to provide a reliable source of gas for the community, a gas plant may make sense. 17. One industrial sized plant should be safer to operate that a distributed system as the operators wll have more specialized training and one work location. 18. The bassett army hospital has a extensive backup system that takes significant maintenance, a distributed system will be similar. 19. The utilidor system exists already and continue to be maintained long term 20. It is easier to physically protect one facility than distributed facililties. 21. It is not easy to store gas, so Fort wainwright will be dependent on the community to provide gas constantly. The coal plant can be an island for over a month without any inputs due to the coal pile.
39A	8/21/2019	Email	Phil Wight	Fairbanks Climate Action Coalition	As I resident of Fairbanks and someone personally and professionally concerned with energy use and pollution in Interior Alaska, please accept my below comments regarding the Ft. Wainwright Power Plant EIS Scoping process. As part of the EIS scoping process, the Army should strongly consider: • Generating heat and power from as many local renewable energy sources as possible, including geothermal heat and power, wind, and solar • Options that prioritize reducing load— Efficiency must be part of solution. • Options that include purchasing renewable energy from our local co-op, Golden Valley Electric Association, and encouraging GVEA investment in additional renewable generation. • Constructing additional electrical transmission infrastructure—like the proposed "Road belt" Power Line Project connecting Fairbanks, Valdez, and Anchorage—to source electricity from a more resilient grid and matrix of existing and future renewable generation. With our air quality crisis and the escalating climate crisis, it is absolutely unacceptable for the Army to build another coal plant or to build a LNG facility that will lock us into decades of further greenhouse gas emissions. Any new facility must be in alignment with the air quality SIP. Coal is unacceptable since it will produce harmful air pollution. If the old plant is any example, the new facility will be operating for at least thirty years-- if not longer. We need to transition beyond fossil fuels by then-- for both the sake of our national security, our health, and the stability of the climate system.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
39B	8/21/2019	Email	Phil Wight	Fairbanks Climate Action Coalition	The Army should consider sourcing its energy needs from a diverse mix of local renewable and zero-carbon sources for several reasons: • Fairbanks suffers from unacceptable and hazardous air quality, caused in part by the combustion of fossil fuels from the region's power plants, including Ft. Wainwright's current coal plant: • Building additional fossil fuel generation—which will last decades—is incompatible with the Paris Climate Agreement and the overwhelming scientific consensus that anthropogenic carbon emissions must be rapidly decreased in order to keep global warming to at least 2 degrees Celsius • Alaska has significant renewable sources—including base load geothermal heat and electricity, as well as wind and solar—that offer a diversified, reliable, inexpensive, and local energy supply. • The military understands that climate change is a threat multiplier and has a duty to mitigate its own carbon emissions. • A diversified mix of local renewable energy sources will enhance security and reduce midstream (transportation) vulnerabilities. • The Army's Energy and Water Management Program stipulates (p. 242) the service should "Participating in research and development (R & D) efforts regarding new and improved energy and utility technologies", as well as implement "the Army Energy Strategy for Installations by— (1) Eliminating/reducing energy waste in existing facilities. (2) Increasing energy efficiency in new/renovated construction. (3) Reducing dependence on fossil fuels. (4) Conserving water resources. (5) Improving energy security." Thank you for your consideration--
40A	8/19/2019	Email	Mike Craft	Member of the Public	I am making these comments to address the operation of a sixty year old coal plant that is currently running at 40% efficiency. As a tax payer, I am unwilling to subsidize such a blatant waste of money. I know that if operational capacity improvements were made the plant would run 60% cleaner than it currently operates. Please understand that the 40% rating is directly given at the power plant and does not include the poor performance of the utilidors and the heat distribution system. Some estimates hover around 20% efficiency overall. It would appear to me that a distributed energy scheme using either propane or LNG on a combined heat and power basis would solve all of the problems Ft Wainwright is experiencing and would be much cheaper, definitely cleaner, and would deliver resiliency. I also know that Fairbanks, Alaska is dealing with (suffering) irreversible health damages with the PM 2.5 and source point pollution from coal being used at Ft. Wainwright. And the situation has prompted the EPA to assign interventions and rate Fairbanks as a serious non-attainment area. At a meeting at the Fairbanks North Star Borough on August 19, 2019, the Ft. Wainwright Deputy Commander informed the Alaska delegation that the US Army, Alaska had been asked by seventeen of its soldiers to be reassigned to avoid intolerable health effects for their families and spouses, relating to air pollution, specifically PM 2.5. I would like to raise the issue of water pollution as it relates to coal ash disposal. I am not aware of an approved coal ash dump site for the Ft. Wainwright power plant. Is there a plan to address ash disposal and removal going forward?

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40B	8/19/2019	Email	Mike Craft	Member of the Public	Lastly, I want to understand the concept of Doyon Utility is not addressing EIS because Doyon Utility is the owner/operator as certified by the Regulatory Commission of Alaska. This is a statewide regulated utility with its own service area and for the last eleven years Doyon has operated with a CPC from the state of Alaska.
41A	8/21/2019	Email	Scott Bell	Member of the Public	I am submitting these comments regarding the EIS scoping for the Ft. Wainwright Power Plant. A. It is imperative that the scoping take into consideration two significant issues. 1) Climate change and the infrastructure damage that is occurring in Alaska, as well as the identification of climate change as a national security issue. 2) Fort Wainwright is in the FNSB Non-Attainment Area and the new plant will affect the air quality in Fairbanks. There are significant health issues resulting from the poor air quality in Fairbanks, primarily a result burning wood and fossil fuels for heating, electricity and vehicle operations.
41B	8/21/2019	Email	Scott Bell	Member of the Public	B. It is important to look beyond the scope of only replacing the existing plant. The first action should be to reduce the heating and electrical power demands served by the FWA power plant. Investing in infrastructure retrofits to reduce energy use will have a significant payback over the life of the FWA powerplant.
41C	8/21/2019	Email	Scott Bell	Member of the Public	C. There should be a thorough investigation of maximizing the integration of renewable energy sources (including solar, wind, geothermal and hydro) and energy storage into the FWA power plant project. With the vast military budget, as well as the recognition by the military that climate change is a security issue which is already costing our community, state and nation vast sums to mitigate, the current cost of renewables should not be the determining or driving factor in the decisions about energy for Ft. Wainwright. Instead, factors such as the effects on climate and health should be higher priorities than first cost.
41D	8/21/2019	Email	Scott Bell	Member of the Public	D. Estimate the impact of carbon fees which may be imposed during the life of the new power plant to estimate the financial impact of using coal, natural gas, and renewable energy sources, and as well estimating the benefits of demand reduction investments.
41E	8/21/2019	Email	Scott Bell	Member of the Public	E. The health of military personnel should be considered and the expense of the treatment for the ailments caused by air pollution needs to be factored in as well. Ft. Wainwright personnel are currently, and will continue to be, impacted by the current air pollution in the Tanana basin. Energy demand reductions and alternatives to fossil fuels are viable options in Alaska and we must as a society act quickly to counter the release of CO2 into the air. The military can lead the way in training personnel in renewables and demonstrating how clean energy can help power a military installation.
42	8/21/2019	Email	Elizabeth Cook	Tanana-Yukon Historical Society	Thank you for the presentation on possible alternative solutions! Well done. But, has geothermal energy, specifically as a complement to any or all of the proposed alternatives been considered? Nearly a decade ago, one school in this area installed ground heat pumps to augment its fuel oil heating system and showed savings. A report of this project is found at Caution-http://www.cchrc.org/ < Caution-http://www.cchrc.org/ > Publications: Hybrid Ground Source Heat Pump at Weller Elementary School < Caution-http://www.cchrc.org/sites/default/files/docs/Hybrid%20GSHP%20at%20Weller%20Elemetary%20School.pdf > Thank you for the opportunity to comment.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
43	8/21/2019	Email	Mike Musick	Member of the Public	Thank you for this opportunity to address the EIS for the Fort Wainwright Power Plant. I have several suggestions to offer but would like to first share a bit of my own history at Ladd Air Force Base in the mid 1950's. As a young teenaged dependent I had the opportunity to spend some time in the utilidors beneath the older part of Ladd Field going from the movie theater to the Officers' Club or the bus stop all inside the heated tunnels distributing combined heat and power to the base. I would suggest that going forward you should plan to run all utilities in accessible utilidors so that as technologies change or repairs need to be performed year round in comfort with out the expense of digging up roads or frozen ground. My main concern for the new power plant is that it does not emit any green house gases including excess water vapor. To accomplish this I recommend that you consider the following suggestions: 1. Do not burn any fuel. 2. Consider the use of any or all the possible renewable energy sources in Alaska: a. Wind b. Solar c. Hydro d. Geothermal All of these sources of heat and power will require back up and long term storage of heat and power. Natural gas and propane are considered to be the cleanest fossil fuels and may be good back up to intermittent renewable energy systems. No matter what technology is incorporated, please keep in mind that Energy Efficiency is the first thing to implement. Second is Energy Conservation. These measures can be implemented now. Cutting energy use by up to 50% is possible and will require a much smaller power plant. Air Quality in the Fairbanks area is often as bad as the air in Beijing, China. Please help us clean up the air in our community in the near term and to slow down climate change in the long run. You will also save a lot of money on energy bills forever.
44	8/21/2019	Email	Lisa Baraff	Program Director, Northern Alaska Environmental Center	I spoke with Tracy Carter on Monday about the contractual relationship with Doyon Utilities, who owns and operates the FWW power plant. During that conversation, she mentioned that if/when the plant is no longer in use, DoD can purchase it from Doyon for $1. Can you verify this?

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45A	8/21/2019	Letter	Michelle Hollowell	Interior Gas Utility	The Interior Gas Utility (IGU) supports the conversion of coal-fired central heat to natural gas. IGU is well positioned to supply natural gas to either the centralized or the decentralized natural gas option. Natural gas consumption on Fort Wainwright, Alaska (FWA) would produce many benefits, to the base and the community. As a public utility, IGU is focused on lowering energy costs and improving the quality of life for all those who live here and visit here. We are focused on bringing economic and environmental relief to the residents of the Interior to keep our community vibrant and healthy. IGU is able to provide FWA with reliable and sustainable heating that complies with Army installation energy security requirements and air quality regulations for the Fairbanks North Star Borough. Natural gas infrastructure requires less of a footprint than steam utilidors and is less intrusive to the surrounding land through simplified routing of gas piping. Natural gas requires less excavation and essentially has no impact to groundwater and surface water while coal requires significant water usage to remove impurities. The infrastructure from natural gas does not impact recreational resources of walk and bike paths, river access, etc. The benefits of natural gas include areas such as land use, air quality, noise, geological and soil resources, water resources, socioeconomics, traffic and transportation, solid waste and hazardous materials, and human health and safety. "DOE analyses indicate that every 10,000 U.S. homes powered with natural gas instead of coal avoids the annual emissions of 1,900 tons of NOx, 3,900 tons of SO2, and 5,200 tons of particulates."(1) Air quality in the Fairbanks North Star Borough is of high concern and natural gas is the cleanest burning fossil fuel. Natural gas releases 50% less CO2 than coal. Natural gas also produces less SO2, NO, and mercury compounds than coal. Coal leaves behind ash that needs to be disposed of, and natural gas equals no ash. The ash from coal has contributed to contamination of ground water in many states that now have to deal with contaminated water issues caused by leaching of toxic chemicals into the water tables. Ash disposal has additional regulations, procedures, safety concerns and costs. The U.S. Energy Information Administration states – "Burning natural gas for energy results in fewer emissions of nearly all types of air pollutants and carbon dioxide (CO2) than burning coal or petroleum products to produce an equal amount of energy. Environmentally natural gas is the best choice for providing reliable, clean energy. Since natural gas provides a cleaner source for heat it means better health for the community on and off the base. The increased health benefits improve mission readiness. Natural gas will provide FWA with the ability to provide reliable heat that resolves current safety, resiliency, fiscal, and regulatory concerns.
45B	8/21/2019	Letter	Michelle Hollowell	Interior Gas Utility	From a financial perspective, IGU is the best solution. IGU is a municipally owned public utility and therefore is tax exempt. The tax exempt status provides a significant cost savings to FWA by eliminating the current tax repayment requirement for capital investment. The cost savings continues in regards to the health benefits of cleaner air, which equates to fewer medical bills and more productivity. IGU is able to supply FWA with the needed energy security supply of natural gas to satisfy the mission ready critical components. The construction of our 5.25MM capacity tank will ensure our ability to meet the demand necessary for smooth operations and security of supply that meet the requirements of DOD. Our large storage tank is scheduled for completion Fall 2019. The tank provides a viable, reliable source of natural gas that gives IGU the ability to state that we can unequivocally provide FWA with natural gas. In addition to our 5.25MM gallon capacity storage tank, we are expanding our Titan Alaska Liquefied Natural Gas (LNG) facility in Point Mackenzie. LNG is the method for provision of natural gas to the Fairbanks area. Natural gas is liquefied at the Titan Alaska LNG facility, supplied with gas from the Cook Inlet and transported in cryogenic vessels to the Interior. This method of delivery of natural gas to smaller markets has a long history and is a common solution to provide natural gas to markets not served by pipelines in the current energy market. (2) As part of this supply chain, IGU has expansion capabilities to meet the natural gas demands of Fort Wainwright while continuing to provide natural gas to Fairbanks area residents and businesses. IGU has a contract with Braemar Technical Services to conduct the front-end engineering and design for the expansion (100,000gpd). The final investment decision for the 2 year construction expansion will be finalized by the end of 2019. After this initial planned expansion, the Titan plant will have the ability to further increase capacity by an additional 3 billion cubic feet (Bcf) per year to meet any future FWA demand. With the large storage tank and the Titan expansion, IGU will provide FWA with access to energy security that provides for a strengthened, ready and resilient base.
45C	8/21/2019	Letter	Michelle Hollowell	Interior Gas Utility	The need for LNG storage and regasification would be dependent upon the model of natural gas usage selected by FWA. IGU could also provide services for the buildout of a natural gas distribution system for the installation if desired. Ownership of the storage and/or distribution lines would be an option for FWA. Depending upon the selected mode of gas usage, nearby IGU transmission lines can be extended to provide service to the installation from the east. Additionally, development plans within the current IGU service area envision extension of service lines to the area immediately west of FWA; together, offering the installation a highly desirable redundant supply capability. IGU has the support of the Fairbanks North Star Borough community leaders. IGU, through its wholly owned subsidiary, Fairbanks Natural Gas, has reliably provided natural gas to Fairbanks area residences and businesses for over 20 years. The management team has unrivaled experience managing the sourcing of gas as well as developing, building and operating the associated liquefaction, transportation, storage and ultimately distribution facilities in a safe, reliable manner. IGU is qualified from a financial, technical, operational and management perspective to lead the effort to provide gas to Interior natural gas customers, including Fort Wainwright, and recommends the selection of natural gas as the option for Fort Wainwright. IGU is available to assist the DOD in any way necessary to develop and implement natural gas to provide heat and/or power to Fort Wainwright. IGU stands ready to economically, reliably, and safely meet the natural gas needs of Fort Wainwright. (1) Proceedings of the National Academy of Sciences 109:6435-6440 (2) Alaska Journal of Commerce – LNG trucking expands as option in absence of pipelines 8/7/2019

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46	8/21/2019	Comment Sheet	Malcolm Nason	Member of the Public	Did the US Army consider a nuclear power option? For example, NuScale Power partnered with Utah Associated Municipal Power Systems (UAMPS) to site a NuScale 12-module plant capable of generating 720MWe of electricity. NuScale and UAMPS will locate the plant within the 890-square mile site of the Department of Energy Idaho National Laboratory (INL-DOE). NuScale Power announced on July 22, 2019 that the US Nuclear Regulatory Commission completed the second and third phases of review of NuScale's Small Modular Reactor (SMR) design. According to the information presented at the public scoping meeting, the US Army considered four alternatives - new coal-fired CHPP, new dual-fuel combustion turbine generator CHPP, distributed natural gas boilers, and no action. All four options share common environmental impact traits: air emissions from the plants or boilers, air emissions from the equipment needed to produce and transport the fuels (e.g., coal, natural gas, diesel fuel). NuScale's SMR would seem to offer a viable alternative for consideration.
47A	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issues to be discussed: 1. Does the Department of Army have jurisdiction to recommend a new facility for a combined heat and power upgrade at Fort Wainwright, Fairbanks, Alaska?
47B	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	2. Under the National Environmental Policies Act, is the Department of Army authorized to issue an Environmental Impact Statement? 6. Is federal law preempted by Department of Army contractual agreements? 7. Is Fort Wainwright and its air shed under a “serious nonattainment” designation by the US Environmental Protection Agency? 8. As a result of its determination of a serious nonattainment zone covering Fort Wainwright, the fort is under the requirement of “Best Available Control Technology” for stationary sources. Therefore is the US Department Environmental Protection Agency the federal agency required to produce an Environmental Impact Statement regarding any improvements or alterations by a regulated public utility for property in the serious nonattainment zone?
47C	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	3. Has the Department of Army/Defense Logistics Agency sold the electric utility and steam heat utility at Fort Wainwright to Doyon Utilities LLC effective 2008? 4. Is the Department of Army a customer for electric and heat services by a regulated utility at Fort Wainwright? As such, can a customer determine facility upgrades? 5. Is Doyon Utilities a Regulated Public Utility under both State of Alaska and federal law?

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47D	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	9. In EPA's determination of "Best Available Control Technology" what is the least PM 2.5 polluting solution? 10. In EPA's determination of "Best Available Control Technology" what is the least SO2 polluting solution? 11. In EPA's determination of "Best Available Control Technology" what is the least NOx polluting solution? 12. In EPA's determination of "Best Available Control Technology" what is the practical likelihood of available liquefied natural gas? 13. In EPA's determination of "Best Available Control Technology" what is the largest incorporation of renewable non- polluting power?
47E	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	14. If coal is considered, based upon future Clean Water Act litigation what is the plan to store new coal ash and what is the plan to remediate already stored coal ash?
47F	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #1, Does the Department of Army have jurisdiction to determine new electric and heat facilities at Fort Wainwright? Discussion: Normally the Department of Army will have jurisdiction to make any needed improvements at any US Army base. However, under a privatization agreement in 2008, the Department of the Army sold its interest for a period of 50 years to Doyon Utilities to own and provide electric and heat services to Fort Wainwright. That leaves the following question, "Is the Department of the Army in regard to electricity and heat services an owner, a regulated public utility or a mere customer?" Review of the privatization contract will recognize a sale. Under Alaska state law, any third party selling electricity must receive a certificate of public convenience and become a regulated public utility. There is no record of the Department of Army receiving such certificate. Therefore, by the process of elimination, the Department of Army is a mere customer. As a mere customer, the Department of the Army is not granted initial party status with the Regulatory Commission of Alaska, which has original jurisdiction over the approval of utilitys' new electrical and steam heat generation facilities or the sale thereof. Such RCA jurisdiction reviews tariff requests by the utilities it regulates, in this case Doyon Utilities LLC. Any comments by the Department of the Army are subject to a grant of impleader status by the RCA.
47G	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #2, Under the National Environmental Policies Act, a federal agency which has jurisdiction must produce an environmental impact statement for the replacement of an existing power plant on a military base. If the Department of Army, by virtue of its previous sale of the electric utility at Fort Wainwright no longer has jurisdiction, then, unquestionably, because of its prior determination of a serious nonattainment air pollution zone covering Fort Wainwright, the US EPA has jurisdiction over stationary sources of pollution and is statutorily required to issue the final EIS. As such, the US EPA is required to provide proper notice of an EIS in the Federal Register.
47H	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #3, Under the terms of a contract effective in 2008, the Department of the Army/Defense Logistics Agency sold the production, transmission and distribution of electricity and steam at Fort Wainwright to Doyon Utilities LLC. The Department of the Army retained the right to purchase the coal for the power and steam plant. At a public hearing on Monday, August 19, 2019 to the Fairbanks North Star borough assembly, Senator Sullivan and Senator Murkowski together with the director of the US Environmental Protection Agency, Doyon Utilities LLC represented that it owned and operated the power and steam plant at Fort Wainwright and it owned the transmission and distribution system for both the electricity and steam at the fort. The term of the utility sale contract is 50 years, (2058).
47I	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #4, Under the terms of Federal Power Act of 1935, a customer of electric services does not have either standing or authority to determine the type or size of a power production facility proposed by a regulated public utility. Under the controlling laws of the State of Alaska, Doyon Utilities LLC is a regulated public utility and the regulatory body with initial jurisdiction is the Regulatory Commission of Alaska. There is no case or statutory law granting an electricity customer the right to determine the type or size of the facilities of a supplying regulated utility.
47J	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #5, In 2007, Doyon Utilities LLC applied for and received a certificate of public convenience from the Regulatory Commission of Alaska. Therefore, since beginning operations in 2008, Doyon Utilities LLC has been a regulated public utility operating an electric and steam heat utility on a geographically reserved service area that encompasses Fort Wainwright. Perhaps the Department of the Army is relying on some provision in its contract for the sale of the electric utility to repurchase the utility and now reassert jurisdiction. If so, the Regulatory Commission of Alaska will have to first approve of the resale. Such approval is far from a sure event because the RCA is entrusted with protecting the public, therefore the pollution history of the coal plant and the Army's efforts or lack of effort to address the serious health hazards caused from its emitting of PM 2.5, NOx, SO2 and coal dust is subject to review. As such, public hearings on the issue will likely be raised by the environmental community of Fairbanks.
47K	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #6, In the event there is a conflict between federal or state law and a contractual provision contained in the 2008 privatization agreement both state and federal law preempt the conflicting operation of contractual provisions. Thus any buyback provision may be voided by the RCA.
47L	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #7, On April 28, 2017 the EPA designated much of Fairbanks North Star Borough, and specifically Fort Wainwright as a serious nonattainment zone for 24 hour PM 2.5 fine particulate matter per the National Ambient Air Quality Standard. As a result, the Clean Air Act of 1963 requires the implementation of Best Available Control Technology for all stationary sources of industrial air pollution within the serious nonattainment zone.
47M	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #8, Under the terms of BACT the EPA will examine PM 2.5 emissions. Because of coal plant's lower heat rate (less efficient combustion) they emit a much higher amount of PM 2.5 when compared with natural gas and propane. Currently according to its Air Permit with ADEC, Fort Wainwright produces 124.3 tons per year of PM 2.5 pollutants. Wind generation of power produces no PM 2.5 pollution. Therefore, as to PM 2.5 only natural gas and propane in conjunction with wind can be BACT and will result in the elimination of nearly all of the PM 2.5.
47N	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #9, At a Fairbanks North Star Borough assembly meeting on August 19, 2019 the University of Alaska Fairbanks reported that the coal they purchased locally for their coal plant had a higher degree of sulfur than they anticipated. Currently the Fort Wainwright coal plant produces 1,767 tons per year of SO2. Sulfur content in diesel and natural gas cannot be economically reduced whereas propane can achieve zero content. Therefore as to SO2 content, only propane is BACT

Comment Number	Date	Comment Type	Commenter	Organization	Comment
47O	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #10, Currently the coal plant produces 1,533 tons of NOx per year. With the use of the most efficient selective catalytic reduction units both propane and natural gas can eliminate 99% of NOx and that figure will be the BACT standard.
47P	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #11, The supply of liquefied natural gas in Fairbanks is suspect as the existing liquefaction plant is limited in its capacity and likely will have OSHA problems as it lacks original engineered site plans to insure proper maintenance and repair. The cost, per MMBtu is estimated by a board member of the Interior Gas Utility at more than $24 MMBtu which exceeds the cost of propane, coal and low sulfur diesel.
47Q	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #12, Eco Green Generation will submit a plan incorporate up to 8.4 MW of wind generation and 20 MW combined heat and power plant fueled with propane and ultra low sulfur diesel pilot fuel (3%) to provide a nearly pollution free source of power to Fort Wainwright. This nearly pollution free energy should be a BACT consideration especially in light of factoring in health care costs of pollutants to Fairbanks residents of the various PM 2.5, SOx, NOx, and coal ash disposal hazards
47R	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Issue #13, Downstream of Fort Wainwright ground water has been polluted by coal ash. Increased levels of arsenic and mercury are present emanating from unlined coal ash deposits. The addition of more coal ash that may become aerosoled will only exacerbate the damages to Fairbanks residents ' health and should disfavor a BACT finding.
47S	8/21/2019	Email	Bill Rhodes	Eco Green Generation, LLC	Conclusion, The Department of Army should be aware that Eco Green Generation will offer Doyon Utilities LLC. a wholesale electricity and heat contract from 4 distributed generation facilities on Fort Wainwright together with wind generated electricity from a wind farm which is 90 miles away in Delta Junction connected by a high voltage line provided by Golden Valley Electric Association. The contract will seek a term of 25 years, will not require any capital investment by the Army and will charge wholesale electric rates no more than the cost avoided rate Doyon Utilities LL would have incurred if it built a BACT compliant power and heat plant. Respectfully submitted, this the 21st day of August, 2019
48A	8/20/2019	Email	Jim Schwarber	Member of the Public	Thank you for the opportunity to provide 'scoping comments'on replacing the coal-fired central heat and power plant (CHPP) on FortWainwright in Alaska. First, we simply cannot afford to continue with the old model of burning coal to generate heat and electricity. The local air shed is already too polluted, and the planet is experiencing a climate crises from the combustion of carbon-rich fuels. Please develop a suite of alternatives that are carbon-neutral for meeting the operational needs of Fort Wainwright. Adopting super-efficientend-uses for power, such as LED lighting and super-insulated buildings will minimize the scale and amount of energy needed to meet the needs of a modern Fort Wainwright. The local Cold Climate Housing Research Center and the national Rocky Mountain Institute are providing tools for successfully moving us away from coal. In addition to efficiencies, alternatives to coal (or carbon)to develop in the draft E.I.S. include: 1) Geothermal – through a deep borehole 1500 to4000 feet deep on-site a. Chena Hot Springs Resort and Iceland are great examples 2) Solar technologies, including photovoltaic and wind generators 3) Ground loop circulators with heat exchangers 4) Biomass such as wood-chips or pelletized localwood products 5) On-site battery storage for back-up 6) Purchase of off-site generated wind, hydroelectric, or other solar sources 7) Or a combination of the above that fully replacesthe need for burning of coal, fuel oil, or gas

Comment Number	Date	Comment Type	Commenter	Organization	Comment
48B	8/20/2019	Email	Jim Schwarber	Member of the Public	I request an extension of at least thirty days to this scoping period to provide for more meaningful input on this major replacement project. My request is due to the Fairbanks North Star Borough being within a PM 2.5 'Non-Attainment Area'because of unhealthy particulate air pollution, as well as the planet itself reeling from unprecedented climate change driven by anthropogenic sources of carbon dioxide being pumped into the atmosphere from fossil fuel sources. The original thirty-day scoping period is much too short and totally inadequate to get the word out in the summer and for citizens to provide input into this process that potentially threatens to exacerbate local air pollution and contribute to global climate change emergency. The era of coal-fired power plants has ended; more time is needed to better define alternatives that are consistent with and support our security, our society, and our world.
49	8/20/2019	Email	Stefan Milkowski	Member of the Public	Thank you for the opportunity to comment, and for hosting the open house in Fairbanks. I came away impressed by the scope of the project and the range of considerations involved. I believe the contribution to greenhouse gas emissions should be one of the top considerations. I recognize climate change is a global problem that will require collective political action, and that any individual decision doesn't matter much. But I believe strongly that projects like this should strive to be consistent with the future we know we need and should not stand in the way of the kinds of global action we need, such as a price on carbon. Specifically, I would request that the EIS include: -a scientifically rigorous accounting of greenhouse gas emissions of each alternative, including but not limited to embodied energy of new infrastructure and carbon costs of construction (including concrete), and combined efficiency of different production and distribution types. This analysis should consider the carbon impacts on a life-cycle basis, including the impact of decommissioning. -an analysis of the option of addressing heating and electrical needs through efficiency measures (reducing demand) rather than new or increased generation. If it is cheaper to reduce demand than to produce the heat or power, then that should be done. -an analysis of each proposal's consistency with new or newly economic, less polluting options. Electrical production, battery storage, and the use of electricity in transportation and for heating through heat pumps are all fast-changing fields. The ability of a given plan to take advantage of these new and newly cheap technologies is a consideration that should be studied and valued in ranking. Projects should also be considered in light of future legislation or regulation to reduce greenhouse gas emissions, which is a potential economic liability for all energy infrastructure. Thank you again for allowing the opportunity to comment. I look forward to reviewing the EIS.
50	8/19/2019	Email	Dave Nebert	Member of the Public	Fort Wainwright planners. It's unfortunate that our local IGU failed to take the Siemens offer to bring natural gas into the Fairbanks area for less than what they are attempting. Siemens also had plans to get natural gas to Ft Wainwright and possibly to Eielson AFB as well. If at all possible, the Army should try to build a natural gas power plant as opposed to staying with a coal driven system.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
51A	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Recommended Preferred Alternative Building a new, modern, coal-fired CHPP and steam distribution system should be the preferred alternative as it is the only option that can provide a safe, resilient heat and power system to the garrison at a price that will be much less than any other alternative. Coal provides fuel resiliency; it has been a proven fuel source for over 75 years. There are over 700 years of proven reserves at Usibelli Coal Mine, Inc. (Usibelli), in Healy, Alaska, just a short 114 miles from FWA. Furthermore, Usibelli has a proven supply chain which has provided heat and power to the region since 1943. This supply chain has proven to be financially self-sufficient, not requiring government subsidies as compared to the Liquefied Natural Gas (LNG) option which has been heavily reliant upon multiple forms of subsidies. As mandated by Army Directive 2017-07 (Installation Energy and Water Security Policy), Usibelli can provide assured access to the coal resource supply. The installation currently maintains between three to six months coal supply on post. The installation must maintain critical mission capabilities and mitigate risks posed by energy and water interruptions. A coal-fired CHPP has been proven to provide available, reliable, quality power and water which continuously sustain critical missions. The new, modern, coal-fired CHPP option will provide the lowest present value cost due to the low cost of coal. The coal-fired CHPP will continue to support the use of the utilidor system by providing heat to prevent the domestic water and waste water pipes from freezing. Coal has the lowest price per million British thermal unit (MMBtu) out of any alternative fuel source being considered. Burning diesel or trucked natural gas costs nearly 3 to 5 times the cost of coal. Coal is locally available, has the lowest cost, and can maintain a large storage capacity. Military spending supports about one-third of the Fairbanks economy. Any large increases in energy costs could potentially risk the sustainability of the military's current presence in the Interior and stability of the Fairbanks economy. The emission profile of coal is also favorable. Today's new, modern coal plants burn just as cleanly as natural gas plants, and a new coal-fired CHPP at FWA will greatly improve efficiency and emission rates. A new CHPP at FWA would be required to install Lowest Achievable Emission Rate technology; this plant could arguably have the lowest emission rate for any power plant in Interior Alaska.
51B	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Inaccuracies in the Notice of Intent The NOi included incorrect statements which must be corrected. The NOi stated that the current system is "failing to meet air emissions standards" - this is incorrect. This falsehood creates misunderstanding about the current condition of the plant causing people to believe that it is out of compliance and leading to a conclusion that steps must be taken to come into compliance. The power plant is in fact, in compliance with emission standards. Additionally, the NOi claimed that the power plant has had "near-critical failures." The EIS should clarify and explain this statement.
51C	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Deficiencies in the Statement of Need The statement of need lacks specific measurable metrics to demonstrate how each alternative meets the criteria identified. The need statement to "Reduce the overall costs by having a system that runs more efficiently" should specify the energy efficiency requirement and have measurable metrics for efficiency and for costs. One alternative may be more efficient than another alternative but would cost more due to fuel prices, operation and maintenance costs, or other factors. Cost criteria should be clearly defined if it is life-cycle cost or just operational costs. The need statement "minimize the risks of a single point of catastrophic failure that may require evacuating the installation and may severely affect mission readiness" should look at single points of failure not just within the fence line but also for the fuel or power source supply chain. This criterion should specify if it applies to the entire installation or just the mission critical facilities. Is the single point of failure criteria to apply to power as well as the heat supply? - The need statement "meet mandated energy efficiency requirements" should identify if the requirement is based on energy conversion regardless of cost, or if cost efficiency is the measurable metric. The need statement "compliant with emission standards" should identify the exact promulgated regulations that currently apply to each alternative and not proposed rules that are unpredictable.
51D	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Centralized System: New Dual-Fuel Combustion Turbine Generator CUPP Any centralized system would presumably use the existing utilidor system. The Frequently Asked Questions state that the current utilidor system is at the end of its design life. At the public scoping meeting one of the project designers stated that the condition of the utilidor system needed to be evaluated but that there have been many projects upgrading the system. A comprehensive evaluation of the condition of the utilidor and any system improvements should be included in the EIS development and be part of the life cycle cost analysis. According to one of the project designers, FWA currently has back-up power supply from Golden Valley Electric Association (GVEA), therefore a back-up power supply will not be an additional cost to the centralized alternatives only to the decentralized alternative. Will the centralized alternatives require back-up heat to all facilities?

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51E	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Decentralized System: Distributed Natural Gas Boilers The decentralized alternative would require a 20 Megawatt (MW) power plant to provide back-up heat to the installation. Will the reliability of maintaining a standby 20 MW power plant and applicable life cycle costs be factored into the analysis and included in the EIS? The decentralized alternative would require extensive new construction within a Historical Landmark. All mitigation requirements and cost should be factored into the analysis. The decentralized alternative would require extensive excavation with the Comprehensive Environmental Response, Compensation, and Liability Act, National Priorities List (CERCLA, NPL) site. The cost to excavate and remediate the contaminated soils should be factored into the analysis. The decentralized system would require either adding a heat source back to the utilidor distribution system or adding heat trace and circulating systems to the water and sewer systems. All of these changes to the utilities and their associated power costs should be factored into the analysis. The EIS should model all emissions for each alternative. Typically, models have shown that centralized power plants do not contribute to PM 2.5 pollution but the proposed numerous decentralized fuel oil boilers would contribute to the PM 2.5 concentrations. This is a serious issue given the fact that FW A is within a Serious Non-Attainment area. The EIS should model the impact of ice fog and the applicable regulations. It is well known that natural gas emissions have a high level of water content. This becomes an issue when the discharge of those emissions are closer to ground level as compared to a taller stack at a central power plant. According to reports made by Interior Gas Utility (IGU), LNG pricing is subject to IGU being able to supply enough gas in its distribution channels to keep its prices low. Analysis of the upstream pricing mechanism for natural gas should be included in the EIS. IGU is incapable of guaranteeing price stability to FW A Currently, there is only one company producing gas in Cook Inlet. IGU purchases its gas from this sole provider. Recent reports have shown that the cost of gas from Cook Inlet is more than 3 times the cost of gas in the contiguous lower 48 states. Alternatively, coal prices have only increased an average of 3.9 percent each year over the past 30 years. The EIS should provide a thorough analysis of price volatility for all fuel sources being considered.
51F	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Resiliency Most of the alternatives presented rely on natural gas or diesel as the fuel source. In addition to the efficiency and cost of fuel sources, the EIS must analyze and address reliability and availability of fuel sources. Natural gas, in the volume required to meet the needs at FWA, is not currently available in Interior Alaska. At present, the natural gas supply system relies on trucking gas from Point MacKenzie which has a single point of failure if something were to happen to the Parks Highway. An analysis of locally sourced fuel oil availability should be included in the analysis due to the increased demand for jet fuel and the limited refining capability in Alaska. If the fuel oil has to be shipped from the lower 48 states then the reliability, cost, and availability should be considered in the analysis. FWA currently uses approximately 250,000 tons of coal per year which is equivalent to 3.75 billion cubic feet (BCF) of natural gas based on energy content. Army Directive 2017-07 requires a minimum of 14-days of energy security. A 14-day supply of LNG based on current energy use will require about 1.7 million gallons of storage capacity. Because Fairbanks has the potential of being isolated from the supply chain, a larger reserve than a minimum 14-day supply makes tactical sense. Currently, FWA keeps at least a 90-day supply of coal. The equivalent LNG storage would have to be 11.1 million gallons, and diesel storage would be approximately 6.6 million gallons. The EIS should also consider the impact of a single point of failure on large concentrated storage. Since resiliency is a critical part of the statement of need for FWA's future energy system, the reliability of the regional electrical grid must also be evaluated.
51G	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Positive Environmental Benefits of Coal Ash Within the Resource Conservation and Recovery Act regarding coal ash disposal, the ability to use coal ash as beneficial fill should be a significant consideration. The use of coal ash is allowed for roadway projects in both federal and state regulations for solid waste and provisions for use as structural fill are also available. Additionally, if carbon content in the coal ash is low, the ash could qualify for use in Portland cement mix. Beneficial reuse of coal ash is a positive impact and could provide a measurable recycling credit to the installation's activities.

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51H	8/21/2019	Letter	Joseph Usibelli Jr.	Usibelli Coal Mine	Other Alternatives The NOi states that "Other reasonable alternatives raised during the scoping process and capable of meeting the project purpose and need will be considered for evaluation in the EIS." An alternative to retrofit the existing power plant to meet all of the identified needs should be considered as part of the EIS analysis. This option would allow for a reduced capital cost while still providing for increased efficiencies and lower emissions. Much of the supporting plant infrastructure such as material handling systems, the building envelope, and cooling system, could be reused. FWA would realize substantial upfront capital savings. Additionally, the EIS should consider other coal-plant options such as Integrated Gasification Combined Cycle, gasification with internal combustion engines and boilers, multi-fuel options (including coal, biomass, diesel and natural gas), stoker boilers, circulating fluidized bed technology, as well as pulverized coal boilers. Conclusion Within the current portfolio of energy sources that FWA can choose from, the difference in cost (infrastructure, operation, fuel, and transportation) is dramatic. A new coal-fired CHPP will substantially reduce the cost of energy for FWA, while increasing efficiency, reducing emissions, continue to provide an affordable, safe, and resilient supply of heat and power to Fort Wainwright, Alaska. Usibelli Coal Mine looks forward to continuing to participate in the EIS process. Should you need additional information, or have questions, please do not hesitate to contact Lorali Simon, Vice President of External Affairs.
52A	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Range of Alternatives: We recommend the EIS include a range of reasonable alternatives, which meet the stated purpose and need for the project and are responsive to the issues identified during the scoping process. This will ensure the EIS provides agency decision makers and the public with information that defines the issues and identifies a clear basis for the choices made among the range of alternatives as required by NEPA. The Council on Environmental Quality recommends all reasonable alternatives be considered, even if some of them are outside the capability or the jurisdiction of the agency preparing the EIS for the proposed action. 1 A robust range of alternatives will include options for avoiding significant environmental impacts. In addition to the alternatives identified in the Notice of Intent for the proposed project, we recommend that the Army consider renewable energy alternatives to provide all or a portion of the energy currently supplied by the existing combined heat and power plant. Such alternatives would be reasonable to consider in combination with other adjustable power generating facilities, such as the combustion turbine generator proposed for consideration under Alternative 2, or with purchase of electricity directly from the regional electric grid, as in Alternative 3. The EIS should "rigorously explore and objectively evaluate all reasonable alternatives."2 This includes identifying the specific criteria that were used to: (1) develop the range of reasonable alternatives, (2) eliminate certain alternatives, and (3) select the agency preferred alternative. In addition, we recommend the EIS provide a clear discussion of the reasons for the elimination of alternatives that are not evaluated in detail.

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52B	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Comprehensive Environmental Response, Compensation and Liability Act The proposed project has the potential to disturb existing CERCLA Operable Units and Records of Decisions at Fort Wainwright or sites not previously known to be contaminated, as well as the operation and maintenance of remedial actions and institutional controls. We recommend that the CERCLA requirements in place for Fort Wainwright be identified in the EIS, and that the document disclose how the Army will continue to meet its investigation and cleanup obligations pursuant to the Fort Wainwright Federal Facilities Agreement. Based on our records, Fort Wainwright has several identified Operable Units containing numerous sites, as well as sites not yet assigned to an OU. Based on the information provided in the Notice of Intent and the materials provided for the August 7, 2019, agency scoping meeting, it appears that the existing power plant is within the Land Use Control boundary of OU4, therefore the proposed project is likely to impact this site. The Doyon Clear Well Tank site (Army identification number 2871.1125) was discovered in 2015 and is also.within the OU 4 Land Use Control boundary. This site will undergo a future CERCLA investigation for nature and extent of contamination, and if necessary, remedial action to address risk. If any ground disturbing activities will be conducted within the footprint of OU4 or other areas of known contamination, the Army will need regulatory approval for sampling and analysis workplans to identify and address any current or historic contamination. We recommend that the EIS analyze the potential impacts of construction activity within OU 4. As the location(s) of Alternative 3 are unspecified, the extent of possible interaction with CERCLA contaminated sites is unknown. Due to the number of sites existing within Fort Wainwright as well as the likelihood of undiscovered contaminated soils and/or groundwater in the general project area, we strongly encourage the Army to work closely with their Remedial Project Manager for Fort Wainwright to ensure that all required steps are taken to comply with the institutional and land use controls prior to any ground disturbance. We also recommend coordinating with our EPA Region 10 Remedial Project Manager for Fort Wainwright for review of any sampling workplans and if any changes to institutional controls or the CERCLA Records of Decision are contemplated at OU4 or other areas of known contamination.
52C	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Hazardous Materials Given the age of the existing central heat and power plant, it is likely that the heat and electrical infrastructure components contain lead-based paint or asbestos. Activities like sanding, cutting, and demolition can create hazardous lead dust and airborne asbestos fibers, which can be harmful to human health. The EPA is concerned about such contamination and regulates the management and disposal of certain materials containing these hazardous substances. We recommend that the EIS address the potential environmental impacts associated with removal and disposal of asbestos, lead-based paint, or other hazardous materials, as well as disclose how the Army will ensure that removal and disposal are conducted in accordance with the National Emission Standards for Asbestos and applicable RCRA regulations. We recommend that the EIS also address potential direct, indirect and cumulative impacts of management and storage of hazardous materials required for construction or operation of the proposed heat and power generating facilities, as well as any hazardous and solid waste material that would be generated. We further recommend that the EIS identify the sources, types, and volumes of hazardous and solid waste materials and discuss how the hazardous and solid waste material would be properly handled, stored, and disposed.
52D	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Air Quality The EPA recommends that the EIS evaluate how the construction and operation of the proposed project and alternatives could affect air quality and what measures may be needed to mitigate potentially significant impacts. Such an evaluation is necessary to disclose the potential impacts from temporary or cumulative degradation of air quality. To address potential air quality impacts, the EIS should consider whether the direct, indirect, or cumulative impacts of project-related air emissions would result in any adverse impact on air quality or air quality-related values. Potential air pollutant concerns for the proposed project include: • Criteria pollutant emissions from operation of heat and power generation facilities, as well as operation of heavy machinery and equipment during construction that result in the emission of fossil fuel combustion exhausts. Such emissions will include oxides of nitrogen, oxides of sulfur, carbon monoxide, and particulates. We recommend that the significance of the contribution of project emissions to the formation of secondary particulate matter (PM2.s) and ozone also be evaluated; • Hazardous air pollutants may result from construction and operation of the heat and power generation facilities. The EPA recommends the EIS disclose whether hazardous air pollutant emissions would result from project construction and operations, discuss the cancer and non-cancer health effects associated with air toxics and diesel particulate matter, and identify sensitive receptor populations and individuals likely to be exposed to these emissions; and, • Fugitive dust emissions may be generated from construction activities. In addition to human health effects, dust can settle onto wetlands, vegetation, or waterbodies, impairing their health as well.

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52E	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	The EPA recommends that the EIS include an evaluation of the current air quality conditions and trends as well as the direct, indirect, and cumulative impacts from potential activities for: • Each of the criteria pollutants relevant to the project and their appropriate National Ambient Air Quality Standards, i.e., ozone, particulate matter, carbon monoxide, nitrogen oxides, and sulfur dioxide; AQRVs in potentially impacted federal Class I areas and any sensitive areas identified by state or federal Land Managers; Prevention of Significant Deterioration increment at potentially impacted federal Class I and any sensitive areas identified by state or federal land managers; and Relevant health-based risk thresholds for HAPs . We recommend the following steps for the EIS air quality analysis: Characterize the existing conditions to set the context for evaluating project impacts, including: o Regional climate and meteorology; o Air quality and air quality related values (e.g., visibility); and o Identification of sensitive receptors in the vicinity (such as communities, federal Class I Areas, and any sensitive areas identified by state or federal land managers); Review air quality regulations and any air permitting requirements that apply to the air pollutant sources associated with the project; Provide an emissions inventory of criteria pollutants (in tons per year), greenhouse gas emissions (in metric tons CO2 equivalents per year), and HAP emissions for all project components and project phases; and If projected emissions are substantial, conduct near-field and far-field air quality modeling to assess project-related air quality and visibility impacts. We recommend that the Army evaluate and incorporate best management practices and mitigation measures into the EIS to reduce emissions of criteria pollutants and hazardous air pollutants, which also have co-benefits of reducing GHGs.
52F	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Fairbanks Non-Attainment Portions of the Fairbanks North Star Borough, including the City of Fairbanks, the City of North Pole, and Fort Wainwright, are in a designated, Federal non-attainment area for exceeding the National Ambient Air Quality Standard (NAAQS) for PM2.s (fine particulate matter that is 2.5 micrometers in diameter or smaller) and a maintenance area for carbon monoxide (CO). Local sources, such as wood stoves, distillate oil, industrial operations and mobile emissions contribute to PM2.s standard violations during stable weather events associated with extreme strong temperature inversions. We recommend that the EIS evaluate the air quality impacts within the non-attainment and maintenance areas; evaluate whether the proposed project would improve or hinder progress in air quality attainment for PM2.s or impact maintenance of the CO NAAQS; and provide mitigation and monitoring to ensure that air quality effects are neutral or beneficial in the Fairbanks area. General Conformity Since the Fairbanks North Star Borough area is designated a non-attainment area for 24-hour PM2.s and a maintenance area for CO, the Clean Air Act requires a general conformity analysis be conducted for any project emissions occurring in an area designated as nonattainment or maintenance from the NAAQs. As part of the analysis, a determination should be made that the emissions (either direct or indirect) from a federal action will not exceed a de minimus threshold level (measured in tons per year) for the criteria pollutant of concern. If the determination indicates that the proposed project could contribute to the exceedance of the de minimus level, then a general conformity analysis is required to document how the federal action will affect implementation of the Alaska State Implementation Plan (SIP) to reach attainment for PM2.s or the CO Maintenance Plan. We recommend that the EIS discuss whether general conformity analysis is required (i.e., whether the relevant emissions for PM2.s or CO exceed the de minimus thresholds) and how this proposed action would comply with the Alaska SIP. If a general conformity analysis is determined to be necessary, we recommend that it be integrated with the NEPA process and incorporated into the EIS.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
52G	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Environmental Justice and Impacted Communities In compliance with NEPA and with Executive Order 12898 on Environmental Justice, federal agency actions should be taken to conduct adequate public outreach and participation that ensures the public and Native American tribes understand possible impacts to their communities and trust resources. Executive Order 12898 requires each federal agency to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations, low-income populations, and Native American tribes.3 The EPA also considers children, the disabled, the elderly, and those of limited English proficiency to be potential Environmental Justice communities due to their unique vulnerabilities. The CEQ has developed guidance concerning how to address Environmental Justice in the environmental review process.4 In accordance with this guidance, the EPA recommends that the EIS address the following points: • Identify low income, minority, and Alaska Native communities that may be impacted by the project; • Describe the efforts that have been or will be taken to meaningfully involve and inform affected communities about project decisions and impacts; • Disclose the results of meaningful involvement efforts, such as community identified impacts; • Evaluate identified project impacts for their potential to disproportionately impact low income, minority, or Alaska Native communities, relative to a reference community; • Disclose how potential disproportionate impacts and environmental justice issues have been or will be addressed by the Army's decision-making process; • Propose mitigation for unavoidable impacts that are likely to occur; and, • Include a summary conclusion, sometimes referred to as an 'environmental justice determination' that concisely expresses how environmental justice impacts have been appropriately avoided, minimized, or mitigated. The EPA has developed a website with considerations and key references for environmental justice and the NEPA.5 We encourage your use of this website and note Section vm Disproportionately High and Adverse Impacts in the March 2016 Report of the Federal Interagency Working Group on Environmental Justice and NEPA Committee, "Promising Practices for EJ Methodologies in NEPA Reviews."6
52H	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Health Risk or Impact Analysis Consistent with Sections 4321 and 4331 of NEPA, and the goals of Executive Orders 12898 and 13045, we recommend the Army undertake a screening process to determine which aspects of health (including but not limited to public, environmental, mental, social, and cultural health) could be impacted by the proposed project. Depending on the screening results, an analysis of health effects, such as a health risk assessment or Health Impact Assessment, may need to be conducted to determine the direct, indirect, and cumulative impacts to health. This analysis may need as much time to complete as the Draft EIS, so early screening is essential to ensuring a timely analysis. We recommend the Army partner directly with local, state, tribal, and federal health officials to determine the type of analysis needed to assess health impacts and conduct the analysis, and to determine appropriate and effective mitigation of potential health impacts. Scope of Health Assessment in EIS In terms of the scope of the health assessment, we recommend that the potential for contaminant exposure and resulting risks be evaluated. In addition, we recommend the EIS consider how income from new jobs can result in positive or negative health impacts, for example by increasing socioeconomic status or by generating rapid social and community change. Data Collection To appropriately evaluate health impacts, specific health data that may not be routinely collected as part of the scoping process may be required. To ensure that the necessary data are available for this evaluation, the EPA recommends the Army involve public health professionals early in the NEPA process. Public health data and expertise for prospective health impact analysis, or for providing input on health issues, may be available from local health departments, tribal health agencies, the Alaska Department of Health and Social Services, or federal public health agencies such as the U.S. Centers for Disease Control and Prevention's National Center for Environmental Health, U.S. Agency for Toxic Substances and Disease Registry, or Indian Health Service. Methods and Tools Health Impact Assessment methodology is a common tool that can be used to assess potential health impacts. HIA is a combination of procedures, methods, and tools that enables systematic analysis of potential positive or negative effects of a policy. plan, program, or project on the health of a population, as well as the distribution of those effects within the population.7 Depending on available data and potential effects, there are different levels of HIA analysis, and we recommend that the Army involve public health professionals mentioned above in determining the appropriate level of analysis. In addition to evaluating impacts, we recommend that the HIA identify the appropriate actions to manage or mitigate health effects from the proposed project.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
52I	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Children's Health and Safety Executive Order 13045 on children's health and safety directs that each Federal agency shall make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, and shall ensure that its policies. programs, activities, and standards address these risks.9 Analysis and disclosure of these potential effects is appropriate because some physiological and behavioral traits of children render them more susceptible and vulnerable than adults to health and safety risks. Children may be more highly exposed to contaminants because they generally eat more food, drink more water, and have higher inhalation rates relative to their size. Also, children's normal activities, such as putting their hands in their mouths or playing on the ground, can result in higher exposures to contaminants as compared with adults. Children may be more vulnerable to the toxic effects of contaminants because their bodies and systems are not fully developed and their growing organs are more easily harmed. Because children can be more exposed and vulnerable to contaminants, we recommend that the EIS address the potential direct, indirect, and cumulative impacts of the proposed project on children's health, including consideration of prenatal exposures (exposures that may be experienced by pregnant women).
52J	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Climate Adaptation and Quantifying Greenhouse Gas Emissions The EPA recommends that the EIS include a discussion of reasonably foreseeable effects that changes in the climate may have on the proposed project and the project area, including its long-term infrastructure. This could help inform the development of measures to improve the resilience of the proposed project. If projected changes could notably exacerbate the environmental impacts of the project, the EPA recommends these impacts also be considered as part of the NEPA analysis. The EPA recommends that the EIS estimate the direct and indirect greenhouse gas emissions that would result from heat and power generation under the various alternatives. Estimated emissions serve as a useful proxy for assessing effects and comparing alternatives. Examples of tools for estimating emissions can be found on the Council on Environmental Quality's website at https://ceq.doe.gov/guidance/ghg-accounting-tools.html.
52K	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Water Quality We recommend the EIS describe the existing water resource conditions in the project area, including ground and surface water quality and hydrology, and analyze the potential impacts of the proposed project to water resources. Section 303(d) of the CW A requires states to identify waterbodies that do not meet water quality standards and to develop water quality restoration plans to meet established water quality criteria and associated beneficial uses. We recommend the EIS disclose which waters may be impacted by the project, the nature of potential impacts, and specific pollutants likely to impact those waters, if applicable. It should also include any waterbodies potentially affected by the project that are listed on Alaska's most current EPA-approved 303(d) list. The EIS should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters. In the general project area, Goldstream Creek, Noyes Slough, and Garrison Slough are currently listed as impaired waterbodies with an improved total maximum daily load (category 4a) in the Alaska Department of Environmental Conservation's State of Alaska Final 2014/2016 Integrated Water Quality Monitoring and Assessment Report, November 2, 2018.
52L	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Aquatic Resources, Wetlands, and Riparian Areas We recommend the EIS describe aquatic habitats in the affected environment by resource type using the data sources and classification approaches that provide the greatest resolution possible. The baseline information for aquatic resources should include their functional condition and integrity. Wetlands and streams perform different functions at different rates, and capturing this information is critical for evaluating the potential environmental impacts of the proposed action, alternatives, and reasonably foreseeable actions on these resources. The areal (i.e., acreage) extent of impacts to aquatic resources should be quantified for both direct and secondary effects. The acreage values for the direct and secondary impact footprints should include the acreage for streams as well as for wetlands, ponds, lakes, mudflats and other waters. In other words, reported acreage losses should represent the total loss of jurisdictional waters. For streams, the loss of channel length should also be quantified by linear feet and/or miles. Channel length values are a more intuitive metric for some, and facilitate different types of analyses than the acreage values. In addition to the areal or linear extent, impacts to aquatic resources should also be quantified by the expected change in the function these resources perform, or change in the condition of the resource. If a Clean Water Act Section 404 permit is required for the proposed project, the EPA will review the proposed project for compliance with Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials (40 C.F.R. Part 230), promulgated pursuant to Section 404(b)(l) of the CW A ("404(b)(l) Guidelines"). For wetlands and other special aquatic sites, the 404(b)(l) Guidelines: • Establish a presumption that upland alternatives are available for non-water dependent activities; • Require that any permitted discharge into waters of the U.S. be the least environmentally damaging practicable alternative available to achieve the project purpose; and, Require that appropriate and practicable steps be taken, in sequence, to: (1) avoid, (2) minimize, and then (3) compensate for unavoidable impacts to aquatic resources. If the proposed project will involve the discharge of dredged or fill material into waters of the U.S., we recommend that the EIS include an evaluation of the project alternatives within this context in order to support assessment of the project's compliance with the 404(b)(1) Guidelines, as well as discuss alternatives to avoid those discharges. If unavoidable discharges to waters of the U.S. remain necessary, the EIS should discuss how impacts would be minimized, and discuss options for providing compensatory mitigation.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
52M	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	For unavoidable impacts to wetlands, streams, and other aquatic resources, the Guidelines require appropriate and practicable compensatory mitigation to offset unavoidable environmental impacts associated with discharges permitted under CW A Section 404. We recommend that the EIS consider potential mechanisms to offset likely unavoidable aquatic resource impacts. We also recommend that the EIS include the applicant's proposed compensatory mitigation plan. Compensatory mitigation requirements, including the components of a compensatory mitigation plan, are described in Subpart J of the Guidelines. Pursuant to the Guidelines, the level of detail in the compensatory mitigation plan should be commensurate with the scale and scope of the impacts. Compensatory mitigation required by the Guidelines is separate from, and may be in addition to, proposed project impact mitigation under NEPA.
52N	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Coordination with Tribal Governments Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States' government-to-government relationships with Indian tribes. In addition, pursuant to Public Law 108-119, 118 Stat. 452, as amended by Public Law 108-4217, 188 Stat. 3267, federal agencies are required to consult with Alaska Native Claims Settlement Act Corporations on the same basis as Indian tribes under Executive Order 13175. The EIS should describe the process and outcome of govemment-to-government, or government-to-corporation, consultation between the Department of the Army and tribal governments or ANCSA corporations within the project area, issues that were raised, and how those issues were addressed in the selection of the proposed alternative.
52O	8/20/2019	Letter	Molly Vaugh	US Environmental Protection Agency	Mitigation and Monitoring The EPA recommends that the EIS identify the type of activities that would require mitigation measures during the construction, operation, and closure phases of this project. In addition, we recommend identifying whether implementation of each measure is required by the Department of the Army or any other governmental entity and which entity will be responsible for implementing the measure. To the extent possible, mitigation goals and measurable performance standards should be identified in the EIS to reduce impacts and adopted to achieve environmentally preferable outcomes. The CEQ guidance on the Appropriate Use of Mitigation and Monitoring seeks to enable agencies to create successful mitigation planning and implementation procedures with robust public involvement and monitoring programs. An environmental monitoring program should be designed to assess both impacts from the project and whether mitigation measures being implemented are effective. We recommend the EIS identify clear monitoring goals and objectives, such as what parameters are to be monitored, where and when monitoring will take place, who will be responsible, how the information will be evaluated, and what actions (contingencies, triggers, adaptive management, corrective actions, etc.) will be taken based on the information. We also recommend the EIS discuss public participation, and how the public can get information on mitigation effectiveness and monitoring results.
53A	2/28/2020	Letter	Aaron M. Schutt	Doyon, Limited	Doyon, Limited (Doyon), an Alaska Native Corporation (ANC) established pursuant to the Alaska Native Claims Settlement Act of 1971 (ANCSA), requests that the United States Army engage in Consultation in connection with the Army's upcoming decision to upgrade the heat and electrical generation and distribution systems at Fort Wainwright. Doyon is requesting consultation as the Army's decision has the potential to significantly affect Doyon and its over 20,000 Alaska Native shareholders. As the Alaska Native Regional Corporation for Interior Alaska, Doyon's mission includes enhancing our position as a financially strong Native corporation, promoting the economic and social well-being of our current and future shareholders, strengthening our shareholder's Native way of life, and protecting our lands and resources. To satisfy our mission and shareholder obligations, Doyon owns and operates over a dozen for-profit companies. Among its companies, Doyon holds a 50% ownership interest in Doyon Utilities LLC, which in 2007, was awarded a 50-year utility privatization contract that transferred to Doyon Utilities ownership of the Fort Wainwright Central Heat and Power Plant (CHPP), a coal-fired cogeneration facility consisting of six boilers and four steam turbines that supplies the installation's heat and electricity. On July 22, 2019, the Army announced its intent to prepare an Environmental Impact Statement (EIS) to address heat and electrical generation and distribution upgrades at Fort Wainwright.1 The three action alternatives that the Army will consider in the EIS include: (1) constructing a new coal-fired CHPP, (2) constructing a new dual-fuel combustion turbine generator CHPP that would be primarily fueled by natural gas, and (3) decentralizing heat and power, with heat provided by distributed natural gas boilers installed at individual facilities and electricity purchased from the regional electrical grid.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
53B	2/28/2020	Letter	Aaron M. Schutt	Doyon, Limited	While the Army's EIS materials to date are silent on the future of the existing CHPP, each of the alternatives, and likely any other alternatives that the Army identifies and evaluates in the EIS, has the potential to significantly affect the continued operation of the existing CHPP at Fort Wainwright. Any alternative that shuts down or significantly diminishes the generation of Doyon Utilities' CHPP will substantially reduce or eliminate revenues that benefit Doyon and its shareholders. Even further, such a decision would have the unprecedented consequence of devaluing and risking the loss of one of the largest utility privatization contracts that DoD has ever awarded, which Doyon competed for, negotiated, was awarded, and pursuant to which, Doyon subsequently invested a significant amount of money in utility infrastructure modernization. The Army's proposal unquestionably puts that contract, which has 38 years remaining, as well as, Doyon's significant investment of money and resources to date, at great risk. In these circumstances, Consultation is critical for the Army to fully understand and properly consider the potential impacts of its decision on Doyon and its shareholders. The Department of Defense's (DoD) Consultation Policy2 requires the Army to engage in consultation on "a timely and good faith manner with Alaska Native corporations on any proposed action or policy that may have a substantial direct effect . . . on the ability of an Alaska Native corporation to participate in a DoD or DoD Component program for which it may otherwise be eligible," including, specifically, on "proposed actions, plans, or ongoing activities that may have the potential to significantly affect . . . business contracting matters."3
53C	2/28/2020	Letter	Aaron M. Schutt	Doyon, Limited	To comply with the letter and spirit of the Consultation Policy, this required consultation must occur "early in the planning process,"4 which here, means before the Army issues its Draft EIS (DEIS). Pursuant to NEPA, the DEIS will address a wide range of impacts, including on socioeconomics and existing utilities,5 which are resource areas that uniquely affect Doyon and its shareholders. It is therefore critical both for ensuring an adequate and legally sufficient EIS and for meeting its obligation to engage in "meaningful consultation,"6 that the DEIS consider and address Doyon's interests and concerns when it identifies and analyzes alternatives and impacts associated with its potential action at Fort Wainwright. Indeed, given the potential impacts on Doyon, one of the first items that Doyon and the Army should address in consultation is whether Doyon should be a cooperating agency in the Army's EIS.7 Doyon understands that the Army intends to issue its DEIS by July 2020, making it imperative that Doyon and the Army engage in consultation as soon as possible. Further, given the unique circumstances and what is at stake here, including the possible shut-down of an ANC-owned and operated utility, a pending decision that could affect one of the largest utility privatization contracts DoD has ever issued, a fast approaching DEIS publication date, and, most importantly, a decision that could have significant repercussions on an ANC and its more than 20,000 shareholders, Doyon believes that it is critical that the initial consultation meeting include both the Fort Wainwright Installation Commander and the Secretary of the Army. Doyon looks forward to engaging in consultation with the U.S. Army on this very important matter.
53D	2/28/2020	Letter	Aaron M. Schutt	Doyon, Limited	1 84 FR 35106 (July 22, 2019). 2 See DoD Instruction 4710.02: DoD Interactions with Federally-Recognized Tribes (Sept. 24, 2018), which establishes DoD's policy for interacting and working with federally-recognized American Indian and Alaska Native governments. Federal agencies must consult with Alaska Native corporations on the same basis as Indian tribes under Executive Order No. 13175. 3 DoD Instruction 4710.02, at secs. 3.1(c) and 3.2(a)(10). 4 Id. at sec. 3.3(a). 5 U.S. Army Garrison (USAG) Alaska, Frequently Asked Questions (can be accessed at https://home.army.mil/alaska/application/files/8315/6389/7616/20190722_HEGDU_EIS__FAQs_Final.pdf 6 Achieving "meaningful consultation . . . demands that the information obtained from tribes be given particular . . . consideration, [which] can happen only if tribal input is solicited early enough in the planning process that it may actually influence the decision to be made." 7 See CEQ Memorandum for Heads of Federal Agencies: Designation of Non-Federal Agencies to be Cooperating Agencies in Implementing the Procedural Requirements of NEPA (July 28, 1999).
54A	5/15/2020	Letter	Aaron M. Schutt	Doyon, Limited	Thank you for facilitating a consultation meeting on May 7, 2020, to discuss the long-term heat and power needs at Fort Wainwright, and the Army's decision-making process and ongoing NEPA action to consider replacement of the Fort Wainwright Combined Heat and Power Plant (CHPP). I found the session productive and I appreciate your willingness and commitment to continue a dialogue to ensure that the US Army understands Doyon, Limited's unique role as an Alaskan Native Corporation and equity holder in Doyon Utilities, and the significant implications that the Army's decision could have on Doyon, its shareholders, and the Army's Utility Privatization (UP) contract, as well as the entire Fairbanks region. At the same time, I believe that our discussion confirmed the unique opportunities that exist for the Army and Doyon Utilities to continue our successful partnership in ensuring that Fort Wainwright receives reliable utility services.
54B	5/15/2020	Letter	Aaron M. Schutt	Doyon, Limited	As the Army moves forward with its NEPA process, and we continue our discussions and consultation, I wanted to reiterate and confirm our understanding of our May 7th discussion. • First, terminating the CHPP portion of the UP contract 38 years early or taking on a different UP provider would have a significant impact on Doyon's 20,000 shareholders. Doyon Utilities has invested significantly to improve and sustain the plant, and reasonably relies on the revenues from the UP contract, which are critical in supporting Doyon, Limited's mission and shareholder obligations.
54C	5/15/2020	Letter	Aaron M. Schutt	Doyon, Limited	Second, whatever alternative is chosen, it is critical that the CHPP is adequately maintained in the interim and during any transition period. While Doyon Utilities strongly believes that the CHPP is in far better shape than portrayed in the Federal Register Notice of Intent, some sustainment activities will be required to ensure the continued safe and reliable operation of the CHPP. Doyon Utilities is committed to working with the Army to limit sustainment activities and capital costs to only what is necessary, including strongly advocating (as the air emissions permittee) to the Alaska Department of Environmental Conservation to limit any required emissions control equipment if the Army decides to decommission the CHPP.

Comment Number	Date	Comment Type	Commenter	Organization	Comment
54D	5/15/2020	Letter	Aaron M. Schutt	Doyon, Limited	Third, Doyon Utilities wishes to (and equitably should) continue as the owner and provider of utility services at Fort Wainwright. Doyon Utilities competed fairly for and was awarded the UP contract, and since that time has built a leadership and operations team that will be best suited to sustain the CHPP and transition to the next form of technology with minimal risk. Further, between Doyon, Limited and Doyon Utilities, we have the experience, expertise, and resources to develop, own, and operate whatever power and heat solution the Army selects. There is ample precedent to retain utility providers as physical infrastructure is replaced and the law has long allowed contract changes to be part of federal NEPA actions. Accordingly, the EIS should identify Doyon Utilities as the utility provider under each of the alternatives and include any required amendments to the UP Contract (e.g., for new equipment or associated financing obligations) as part of the Army's NEPA action.
54E	5/15/2020	Letter	Aaron M. Schutt	Doyon, Limited	An Army commitment to maintain Doyon Utilities as your UP owner and provider will respect the letter and the spirit of the UP contract, continue the socio-economic benefits that the UP Contract provides to Doyon, Limited and our 20,000 shareholders, and allow the Army and Fort Wainwright to continue to benefit from the experience, expertise, and leadership that Doyon Utilities has built over the past 12 years. Moreover, depending upon the alternative that the Army selects, it will avoid disruption during transition to a new technology, and avoid costs (including through Doyon Utilities advocating for less severe and expensive emissions control equipment based upon Doyon Utilities' role as the permittee, experience with the CHPP and our enduring relationships with Alaskan environmental and regulatory bodies). Finally, a continued partnership if a natural gas sourced plant is selected will lower risk during any future transition to a long term and sustainable supply of natural gas. Thank you again for hosting me and members of the Doyon team last week. I look forward to continuing our dialogue in the near future. We will coordinate with your staff to schedule a follow-up meeting appropriately.

APPENDIX C

DRAFT EIS NOTICE OF AVAILABILITY IN THE FEDERAL REGISTER

order to comply with airfield safety regulations. As such, the appraisals indicated both parcels have no economic use in a competitive marketplace and therefore worth a nominal or ''zero'' monetary value. The restrictions will stay in place after the land exchange in order to serve both parties future interests with regard to the usage of the land.

On September 18, 2020, the Air Force notified the appropriate Congressional committees of the terms and conditions of the proposed exchange pursuant to 10 U.S.C. 2869(d)(2).

Authority: 10 U.S.C. 2869(d)(1) and 10 U.S.C. 2684a(d)(4)(B)

Adriane Paris,

Acting Air Force Federal Register Liaison Officer.

[FR Doc. 2020–22359 Filed 10–8–20; 8:45 am]

BILLING CODE 5001–10–P

DEPARTMENT OF DEFENSE

Department of the Army

Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska

AGENCY: Department of the Army, DOD.

ACTION: Notice of availability.

SUMMARY: The Department of the Army announces the availability of the Draft Environmental Impact Statement (EIS) as part of the environmental planning process to address heat and electrical upgrades at Fort Wainwright, Alaska. The current condition of the heat and power plant, one of the oldest coal-fired central heat and power plants (CHPP) in the United States, and its aging heat distribution system requires an upgrade to provide reliable heat and electrical infrastructure for the installation that resolves safety, resiliency, fiscal, and regulatory concerns. The Draft EIS evaluates reasonable alternatives, potential environmental impacts, and key issues of concern. A preferred alternative is not identified at this time. Comments received on the Draft EIS will be fully considered prior to determining which alternative would be the Army's preferred alternative, a preference that will be identified when the Final EIS is published.

DATES: Comments must be received by December 8, 2020 to be considered in the preparation of the Final EIS.

ADDRESSES: Please submit written comments to Laura Sample, NEPA Program Manager at: Directorate of Public Works, ATTN: IMFW–PWE (L. Sample), 1046 Marks Road #4500, Fort Wainwright, AK 99703–4500, email: *usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.*

FOR FURTHER INFORMATION CONTACT: Please contact Grant Sattler, Public Affairs Office, IMPC–FWA–PAO (Sattler), 1060 Gaffney Road #5900, Fort Wainwright, AK 99703–5900; telephone (907) 353–6701; email: *alan.g.sattler.civ@mail.mil.*

SUPPLEMENTARY INFORMATION: Fort Wainwright, Alaska is located in the interior of Alaska in the Fairbanks North Star Borough, and is home to the U.S. Army Garrison (USAG) Alaska and units of United States Army Alaska (USARAK). The soldiers, families, and civilians that make up the Fort Wainwright population are reliant upon a 65-year old coal-fired CHPP and an antiquated heat distribution system to heat and power more than 400 facilities. The CHPP is one of the oldest operational coal-fired power plants in the United States and is operating beyond the average design life of similar facilities. Constructing upgraded heat and electrical infrastructure would reduce utility costs, minimize the risk of a catastrophic failure, help safeguard mission readiness, meet energy efficiency standards, be compliant with emissions standards, and conform to Army-directed energy security criteria.

The Army identified three reasonable Action Alternatives that would meet the purpose of and need for the Proposed Action. Alternatives considered in the Draft EIS, including a No Action Alternative, are (1) construction of a new coal-fired CHPP, (2) construction of a new dual-fuel combustion turbine generator CHPP that would be primarily fueled by natural gas, and (3) decentralization of heat and power in which heat would be provided by distributed natural gas boilers installed at facilities across the installation and electricity would be purchased from a local utility provider.

The Draft EIS evaluates the potential direct, indirect, and cumulative environmental and socioeconomic impacts of these alternatives. Adverse impacts would be minimized to the extent possible through implementation of the avoidance, minimization, and mitigation measures.

Resource areas analyzed in the Draft EIS include: Air quality, utilities, hazardous and toxic materials and wastes, socioeconomics, environmental justice, noise, land use, transportation and traffic, human health and safety, geology and soil resources, water resources, cultural resources, and airspace.

Unavoidable environmental impacts would result from implementation of the Proposed Action. Significant, adverse impacts would be anticipated for socioeconomics (Alternatives 2 and 3, reduced coal demand), environmental justice (Alternatives 2 and 3, reduced coal demand), and cultural resources (Alternative 3, utilidor upgrades in Ladd Field National Historic Landmark). Less than significant, adverse impacts include increases in water turbidity; disturbance of sediments; noise from construction; localized habitat degradation; soil disturbance and erosion; stormwater runoff into surface water; and increased traffic, air emissions, and noise associated with construction vehicles and activities. Beneficial impacts would be anticipated for utilities (increased heating efficiency and improved system reliability). Under the No Action alternative, significant, adverse impacts would be anticipated for utilities, environmental justice, and human health and safety due to continued risk of plant failure.

Federal, state, and local agencies; Alaska Natives; Native Americans; Native American organizations and tribes; private organizations; and the public are invited to be involved in this EIS process by providing verbal or written comments. An online open house is available at *https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS* and a virtual public meeting will be announced locally. The date and time of the virtual public participation will be announced via Fairbanks and Healy, Alaska local news media and on digital platforms. Holding the public comment meeting virtually is required because of COVID–19 safety concerns.

An electronic copy of the Draft EIS is available online at: *https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS.* Copies of the Draft EIS will be available for review at the Noel Wien Library, 1215 Cowles Street, Fairbanks, AK 99701; the Post Library, Building 3700, Santiago Avenue, Fort Wainwright, AK 99703; and the Tri-Valley Community Library, 400 Suntrana Road, Healy, AK 99743, if these facilities are open. Copies of the Draft EIS are also available by submitting a request to: See **ADDRESSES**. Written comments must be sent within December 8, 2020. The Department of the Army will consider all comments received on the Draft EIS when preparing the Final EIS. As with the Draft EIS, the Department of the Army

will announce the availability of the Final EIS.

James W. Satterwhite Jr.,

Alternate Army Federal Register Liaison Officer.

[FR Doc. 2020–22368 Filed 10–8–20; 8:45 am]

BILLING CODE 5061–AP–P

DEPARTMENT OF DEFENSE

Department of the Army

Draft Environmental Impact Statement for Clinton District Area Development, U.S. Army Garrison West Point, New York

AGENCY: Department of the Army, DoD.

ACTION: Notice of intent.

SUMMARY: Pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA), as implemented by the Council on Environmental Quality Regulations (40 CFR parts 1500–1508), the Department of the Army (Army) announces its intent to conduct public scoping to gather information to prepare an Environmental Impact Statement (EIS) for implementing the Clinton District Area Development Plan (Clinton District ADP) at U.S. Army Garrison West Point (USAG West Point), New York. USAG West Point is home to the U.S. Military Academy (USMA), the U.S. Army's preeminent leader development institution. The EIS will evaluate the environmental impacts from implementing the Clinton District ADP.

DATES: Comments must be received by November 23, 2020.

ADDRESSES: Please send written comments about the scope of the EIS and questions concerning the proposed action to: Mr. Christopher Pray, U.S. Army Garrison, West Point, NEPA Coordinator, P.O. Box 102, West Point, NY 10996. Comments may also be provided via email to: *WestpointClinton-ADPEIS@usace.army.mil.*

FOR FURTHER INFORMATION CONTACT: Mr. Christopher Pray, U.S. Army Garrison West Point, NEPA Coordinator, IMML–PWE, Building 667, Ruger Road, West Point, NY 10996, Christopher Pray at (845) 938–7122 or by email at *Christopher.c.pray.civ@mail.mil.*

SUPPLEMENTARY INFORMATION: The purpose and need for the proposed action (implementation of the Clinton District ADP) is to provide improvements and effective long-term management of installation facilities and infrastructure within the Clinton District so that USMA can continue to improve its offerings to meet evolving educational standards concurrent with its goal of training its Corps of Cadets as future leaders in the defense of the nation and its core values. These improvements are necessary to satisfy these high standards while maintaining the visual character of the historic landscape in and around USAG West Point. The Clinton District comprises the main campus of USMA, and this ADP is one of seven separate ADPs in the USAG West Point Real Property Master Plan (RPMP), which addresses the effective long-term management of installation facilities and infrastructure through a comprehensive and collaborative planning process. The Clinton District is the most sensitive area at USAG West Point due to its location within the USMA National Historic Landmark District, and it encompasses historic buildings and structures, archeological sites, and historic landscapes. The Clinton District ADP is a critical component of the RPMP because it is home to USMA's academic core. It contains the majority of the academic, athletic, and waterfront areas, and includes such prominent sites as Trophy Point, West Point Cemetery, Eisenhower Hall, and The Plain.

The implementation of the projects proposed in the ADP would allow improvements and effective long-term management of installation facilities and infrastructure within the Clinton District. USMA needs to continue improving its infrastructure while observing the constraints of its physical location and protecting its cultural and natural resources. The ADP analyses several projects that are to be built, renovated, or reorganized to meet the needs of providing modern structures for the training of its Corps of Cadets as future leaders.

The Clinton District ADP includes the short-, mid-, and long-range components of development. It reflects ongoing projects previously considered under NEPA as well as potential future development opportunities at USAG West Point. These components are at different developmental stages with some under way and others at the conceptual level. One of the short-range components is the proposed construction and operation of the Humanities Center at Trophy Point. The EIS will consider the implementation of the Clinton District ADP relative to the various components, depending on their developmental stages. Components that are further along in development such as the Humanities Center will be evaluated in detail while components at conceptual stages will be evaluated at a programmatic level in the EIS. For those potential future development opportunities evaluated in the EIS at a programmatic level, the Army will ensure that appropriate NEPA review is completed at the time when the components reach the stage ripe for specific decision-making.

The EIS will analyze the alternatives of full implementation of proposed projects in the Clinton District ADP, implementation of the Clinton District ADP without the revitalization of Trophy Point and the Humanities Center, and a No Action Alternative. The EIS will also evaluate the effects of the proposed action and past, present, and reasonably foreseeable future actions. There may be significant impacts to historic properties, including the visual historic component. Other potential impacts may occur on land use, biological aspects, and water resources. Construction activities may cause traffic, noise, and air quality impacts. Consultation with the State Historic Preservation Office will be required. Permitting actions for construction, air emissions, and storm water pollution prevention may be required.

A tentative schedule has been developed for this EIS. The scoping meeting is anticipated to be held in October of 2020. The Draft EIS and subsequent public meeting will occur in the summer of 2021. The Final EIS is anticipated to be solicited in October of 2022 with the Record of Decision to be issued in November of 2022. The EIS is estimated to be signed and completed in December of 2022.

Native American Tribes; Federal, state, and local agencies; organizations; special interest groups; and individuals are invited to be involved in the scoping process for the preparation of this EIS by participating in the scoping meetings and/or submitting written comments to assist with identifying alternatives or providing information to inform the analysis. Due to the COVID–19 Pandemic and the need to maintain social distancing, all public meeting materials will be provided online, and the public meeting will be hosted by telephone. The meeting materials can be found at *https://www.nan.usace.army.mil/Missions/Environmental/Environmental-Assessment/Clinton-Area-Development-Plan/.* Interested parties will also be invited to attend two public telephone meetings scheduled for October 29, 2020. The phone number and passcode for both meetings is 1–877–229–8493 and 119890. The first meeting will be from 2:00 p.m. to 4:00 p.m., and the second meeting will be from 6:00 p.m.

Washington

Department of Agriculture

Specific exemption: EPA authorized the use of the herbicide pyridate on a maximum of 16,000 acres of mint for postemergence control of herbicide-resistant annual weeds such as redroot pigweed, *Amaranthus retroflexus* and other broadleaf weeds. Tolerances in connection with an earlier registration action are established in 40 CFR 180.462(a). Effective May 21, 2020 to August 31, 2020.

West Virginia

Department of Agriculture

Specific exemption: EPA authorized the use of bifenthrin on a maximum of 5,986 acres of apples, peaches, and nectarines to control the brown marmorated stinkbug. Time-limited tolerances in connection with past actions were established in 40 CFR 180.442(b). Effective June 16, 2020 to October 15, 2020.

Wisconsin

Department of Agriculture

Specific exemption: EPA authorized the use of the herbicide pyridate on a maximum of 3,100 acres of mint for postemergence control of herbicide-resistant annual weeds such as redroot pigweed, *Armaranthus retroflexus* and other broadleaf weeds. Tolerances in connection with an earlier registration action are established in 40 CFR 180.462(a). Effective May 21, 2020 to August 31, 2020.

B. Federal Departments and Agencies

Agriculture Department

Animal and Plant Health Inspector Service

Quarantine exemptions: EPA authorized the use of a mixture of sodium hypochlorite and propylene glycol for use under freezing conditions on hard, nonporous surfaces associated with poultry facilities in the United States, for disinfection from Newcastle disease virus. Effective November 1, 2019 to November 1, 2022.

EPA authorized the use of a mixture of potassium peroxymonosulfate and propylene glycol for use under freezing conditions on hard, nonporous surfaces associated with poultry facilities in the United States, for disinfection from Newcastle disease virus. Effective December 4, 2019 to December 4, 2022.

EPA authorized the use of methyl bromide on post-harvest unlabeled imported/domestic commodities to prevent the introduction/spread of any new or recently introduced foreign pest(s) to any U.S. geographical location. Time-limited tolerances in connection with previous actions for this use have been established in 40 CFR 180.124(b). Effective March 1, 2020 to March 1, 2023.

Centers for Disease Control and Prevention

Public health exemptions: EPA authorized the uses of hydrogen peroxide, didecyl dimethyl ammonium chloride, isopropanol, ethanol, n-alkyl-dimethyl ethylbenzyl ammonium chloride, and n-alkyl dimethyl benzyl ammonium chloride, on hard, nonporous surfaces in health care settings in the United States to disinfect from *Candida auris.* Effective October 16, 2019 to October 16, 2020.

Authority: 7 U.S.C. 136 *et seq.*

Dated: September 24, 2020.

Marietta Echeverria,

Acting Director, Registration Division, Office of Pesticide Programs.

[FR Doc. 2020–22418 Filed 10–8–20; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9053–3]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information 202–564–5632 or *https://www.epa.gov/nepa.*

Weekly receipt of Environmental Impact Statements (EIS)

Filed September 28, 2020 10 a.m. EST Through October 5, 2020 10 a.m. EST

Pursuant to 40 CFR 1506.9.

Notice: Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *https://cdxnodengn.epa.gov/cdx-enepa-public/action/eis/search.*

EIS No. 20200197, Final, TVA, IL, Sugar Camp Energy, LLC Mine Number 1 Boundary Revision 6, Review Period Ends: 11/09/2020, Contact: Elizabeth Smith 865–632–3053.

EIS No. 20200198, Final, TxDOT, TX, North Houston Highway Improvement Project, Review Period Ends: 11/09/2020, Contact: Carlos Swonke 512–416–2734.

EIS No. 20200199, Draft, USA, AK, Heat and Electrical Upgrades at Fort Wainwright, Alaska, Comment Period Ends: 12/08/2020, Contact: Laura Sample 907–361–6323.

EIS No. 20200200, Final, USFS, NV, Lee Canyon EIS, Review Period Ends: 11/09/2020, Contact: Jonathan Stein 702–515–5418.

EIS No. 20200201, Draft, FHWA, GA, Project DeRenne Draft Environmental Impact Statement and Draft Section 4(f) Evaluation, Comment Period Ends: 11/23/2020, Contact: Aaron Hernandez 404–562–3584. Amended Notice:

EIS No. 20200170, Draft, FAA, NY, LaGuardia Airport Access Improvement Project, Comment Period Ends: 10/20/2020, Contact: Andrew Brooks 718–553–2511.

Revision to FR Notice Published 08/21/2020; Extending the Comment Period from 10/05/2020 to 10/20/2020.

Dated: October 5, 2020.

Cindy S. Barger,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2020–22395 Filed 10–8–20; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

[OMB 3060–0848; FRS 17112]

Information Collection Being Reviewed by the Federal Communications Commission

AGENCY: Federal Communications Commission.

ACTION: Notice and request for comments.

SUMMARY: As part of its continuing effort to reduce paperwork burdens, and as required by the Paperwork Reduction Act of 1995 (PRA), the Federal Communications Commission (FCC or Commission) invites the general public and other Federal agencies to take this opportunity to comment on the following information collections. Comments are requested concerning: Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; the accuracy of the Commission's burden estimate; ways to enhance the quality, utility, and clarity of the information collected; ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology; and ways to further reduce the information collection burden on small business concerns with fewer than 25 employees.

The FCC may not conduct or sponsor a collection of information unless it displays a currently valid Office of

intellectual property field. What are ways of promoting diversity in the corps of intellectual property attorneys and agents who represent innovators?

IV. Realizing Innovation—Reaping the Personal and Societal Benefits of Innovation

14. Financial support is a critical element in translating an innovation into commercial success. What organizations, programs, or other efforts help promote access to capital to an expanded group of inventors and entrepreneurs—demographically, geographically, and economically?

15. Successfully commercializing an inventive product or concept requires in-depth knowledge about production processes, market forces, and other pertinent information. What types of mentoring initiatives could be implemented or expanded to help experienced entrepreneurs impart this specialized knowledge to diverse and novice inventors?

16. Formalized partnerships like tech transfer offices/conferences, accelerators, and incubators can help streamline commercialization objectives such as product development, licensing, and distribution. What can be done to make these partnerships more accessible and effective at supporting all inventors and entrepreneurs?

V. Other

17. Please provide any other comments that you feel should be considered as part of, and that are directly related to, the development of a national strategy to expand the innovation ecosystem demographically, geographically, and economically.

Andrei Iancu,

Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

[FR Doc. 2020–28298 Filed 12–22–20; 8:45 am]

BILLING CODE 3510–16–P

DEPARTMENT OF DEFENSE

Department of the Army

Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska

AGENCY: Department of the Army, DOD.

ACTION: Amended Notice of Availability.

SUMMARY: The Department of the Army (Army) is issuing this Amended Notice of Availability, updating the original notice published on October 9, 2020 (**Federal Register**, Vol. 85, No. 197, 64133) of the continuing availability of the Draft Environmental Impact Statement (EIS) as part of the environmental planning process to address heat and electrical upgrades at Fort Wainwright, Alaska. The comment period for the Draft EIS, originally scheduled to conclude on December 8, 2020, is being reopened for an additional 60 days to conclude on February 22, 2021.

The Army invites public comments on the Draft EIS during the comment period that began with the publication of the NOA in the **Federal Register** on October 9, 2020.

DATES: Comments must be received by February 22, 2021 to be considered in the preparation of the Final EIS.

ADDRESSES: Please submit written comments to Laura Sample, NEPA Program Manager at: Directorate of Public Works, ATTN: IMFW–PWE (L. Sample), 1046 Marks Road #4500, Fort Wainwright, AK 99703–4500, email: *usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil,* or through the project website: *https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS*.

FOR FURTHER INFORMATION CONTACT: Please contact Grant Sattler, Public Affairs Office, IMPC–FWA–PAO (Sattler), 1060 Gaffney Road #5900, Fort Wainwright, AK 99703–5900; telephone (907) 353–6701; email: *alan.g.sattler.civ@mail.mil.*

SUPPLEMENTARY INFORMATION: The current condition of Fort Wainwright's heat and power plant requires an upgrade to provide reliable heat and electrical infrastructure for the installation that resolves safety, resiliency, fiscal, and regulatory concerns. The Draft EIS evaluates reasonable alternatives, potential environmental impacts, and key issues of concern. A preferred alternative is not identified at this time. The comment period is being reopened in response to requests from commenters. Additional information can be found within the original notice published on October 9, 2020 (**Federal Register**, Vol. 85, No. 197, 64133). Federal, state, and local agencies; Alaska Natives; Native Americans; Native American organizations and tribes; private organizations; and the public are invited to continue being involved in this EIS process by providing written comments. An electronic copy of the Draft EIS is available online at: *https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS*. Copies of the Draft EIS will be available for review at the Noel Wien Library, 1215 Cowles Street, Fairbanks, AK 99701; the Post Library, Building 3700, Santiago Avenue, Fort Wainwright, AK 99703; and the Tri-Valley Community Library, 400 Suntrana Road, Healy, AK 99743, if these facilities are open. Copies of the Draft EIS are also available by submitting a request to: see **ADDRESSES**. Written comments must be sent by February 22, 2021. The Army will consider all comments received on the Draft EIS when preparing the Final EIS. As with the Draft EIS, the Army will announce the availability of the Final EIS.

James W. Satterwhite Jr.,

Alternate, Army Federal Register Liaison Officer.

[FR Doc. 2020–28322 Filed 12–22–20; 8:45 am]

BILLING CODE 5061–AP–P

DEPARTMENT OF DEFENSE

Office of the Secretary

[Transmittal No. 21–0A]

Arms Sales Notification

AGENCY: Defense Security Cooperation Agency, Department of Defense (DoD).

ACTION: Arms sales notice.

SUMMARY: The Department of Defense is publishing the unclassified text of an arms sales notification.

FOR FURTHER INFORMATION CONTACT: Karma Job at *karma.d.job.civ@mail.mil* or (703) 697–8976.

SUPPLEMENTARY INFORMATION: This 36(b)(5)(C) arms sales notification is published to fulfill the requirements of section 155 of Public Law 104–164 dated July 21, 1996. The following is a copy of a letter to the Speaker of the House of Representatives, Transmittal 21–0A with attached Policy Justification.

Dated: December 17, 2020.

Aaron T. Siegel,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

BILLING CODE 5001–06–P

APPENDIX D

AGENCY AND TRIBAL DRAFT EIS LETTERS

At the beginning of the Draft EIS comment period for the Fort Wainwright Heat and Electrical Upgrades Environmental Impact Statement (EIS) the United States (U.S.) Army Garrison Fort Wainwright, Alaska (USAG Alaska) sent Notice of Availability letters to the following agency and organization representatives:

Agencies and Elected Officials

Geoff Beyersdorf
District Manager, Fairbanks District Office
Bureau of Land Management

Kyle Cowan
Associate Deputy State Director, Fire and Aviation
Bureau of Land Management – Alaska Fire Service

Tim LaMarr
Field Manager
Bureau of Land Management

Public Affairs Office
Alaska District Headquarters
U.S. Army Corps of Engineers

Bob Henszey
Conservation Planning Assistance Branch Chief,
Fairbanks Field Office
U.S. Fish and Wildlife Service

Sarah Conn
Field Supervisor, Fairbanks Field Office
U.S. Fish and Wildlife Service

Darren Bruning
Regional Supervisor – Fairbanks Wildlife
Conservation Division
Alaska Department of Fish and Game

Audra Brase
Regional Supervisor – Fairbanks Habitat Division
Alaska Department of Fish and Game

Nancy Sonafrank
Program Manager – Division of Water
Alaska Department of Environmental Conservation

Alice Edwards
Division Director, Division of Air Quality
Alaska Department of Environmental Conservation

Denise Koch
Division Director, Division of Spill Prevention and
Response
Alaska Department of Environmental Conservation

Jeanne Proulx, Natural Resource Manager
Division of Land, Mining and Water
Alaska Department of Natural Resources

Judith Bittner
Alaska Historic Preservation Officer
Alaska Department of Natural Resources

Sarah Meitl
Review and Compliance Coordinator
Alaska Department of Natural Resources

Fairbanks Public Information Center
Alaska Department of Natural Resources

Jennifer Curtis, NEPA Reviewer
U.S. Environmental Protection Agency

Lanien Livingston
Public Information Officer
Fairbanks North Star Borough

The Hon. Bryce Ward, Mayor
Fairbanks North Star Borough

Donald Galligan
Transportation Planner
Fairbanks North Star Borough

Nancy Durham
Floodplain Administrator
Fairbanks North Star Borough

Ryan Anderson
Regional Director, Northern Region
Alaska Department of Transportation and Public
Facilities

Judy Chapman
Planning Chief, Northern Region
Alaska Department of Transportation and Public Facilities

Caitlin Frye
Information Officer
Alaska Department of Transportation and Public Facilities

Jackson Fox
Executive Director
Fairbanks Area Surface Transportation Planning

The Hon. Jim Matherly, Mayor
City of Fairbanks

The Hon. JW Musgrove, Mayor
City of Delta Junction

The Hon. Michael Welch, Mayor
City of North Pole

Teal Soden
Communications Director
City of Fairbanks

Don Striker
Acting Regional Director
National Park Service

Jennifer Pederson Weinberger
Team Manager Cultural Resources Team
National Park Service

Sabrina Brinkley
Board Member
Greater Fairbanks Chamber of Commerce

Jim Styers, Chief
Fairbanks Fire Department

Ronald K. Inouye
President
Tanana Yukon Historical Society

Paloma Harbour, Director
Alaska Department of Labor and Workforce Development

Trina Bailey
Regional Special Assistant to U.S. Senator Lisa Murkowski, U.S. Senate

Greg Bringhurst
Regional Director to U.S. Senator Dan Sullivan
U.S. Senate

Emily Peterson-Wood
Special Assistant to U.S. Representative Don Young
U.S. House of Representatives

The Hon. Scott Kawasaki
Alaska Senate

The Hon. Click Bishop
Alaska Senate

The Hon. John Coghill
Alaska Senate

The Hon. Bart LeBon
Alaska House of Representatives

The Hon. Steve Thompson
Alaska House of Representatives

The Hon. Grier Hopkins
Alaska House of Representatives

The Hon. Adam Wool
Alaska House of Representatives

The Hon. David Talerico
Alaska House of Representatives

The Hon. Mike Prax
Alaska House of Representatives

Bob Sattler
Liaison-Realty Specialist
Tanana Chiefs Conference

Doyon, Limited

Aaron Schutt
President and CEO
Doyon, Limited

Tribal

Michael Sam
First Chief
Native Village of Tetlin

Tim McManus
First Chief
Nenana Native Association

Herbert Demit
President
Native Village of Tanacross

Tracy Charles-Smith
President
Village of Dot Lake

Gerald Albert
President
Northway Village

Patricia MacDonald
President
Healy Lake Village Council

See the attached letters to Mr. Geoff Beyersdorf, Mr. Aaron Schutt, and Mr. Michael Sam as examples of the Agency & Elected Officials, Doyon, Limited, and Tribal letters sent to each individual.

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON ALASKA
1046 MARKS ROAD #6000
FORT WAINWRIGHT, ALASKA 99703-6000

OCT 0 9 2020

Mr. Geoff Beyersdorf
District Manager
Bureau of Land Management
222 University Avenue
Fairbanks, AK 99709

Dear Mr. Geoff Beyersdorf:

United States Army Garrison Alaska (USAG Alaska) announces the availability of the Draft Environmental Impact Statement (EIS) Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska for your review and comment. Due to the current condition of the Central Heat and Power Plant, USAG Alaska needs to identify reliable heat and electrical infrastructure to reduce utility costs, help safeguard mission readiness, meet energy efficiency standards, be compliant with emissions standards, minimize the risk of a catastrophic failure, and conform to U.S. Army directed energy security criteria. The purpose of the proposed options is to provide reliable heat and electrical infrastructure for Fort Wainwright that resolves current safety, resiliency, fiscal, and regulatory concerns. The Federal Register will publish a Notice of Availability for the Draft EIS on October 9, 2020, which will formally initiate a 60-day public review period.

USAG Alaska invites public and agency input on the Draft EIS. A digital copy of the Draft EIS and virtual meeting material is available at the following website: https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS. If libraries are operable, a copy of the Draft EIS will be available for review at the Noel Wien Library, 1215 Cowles Street, Fairbanks, AK, 99701 and at the Post Library, Building 3700, Santiago Avenue, Fort Wainwright, AK 99703. If requested, we will provide a hard copy of the Draft EIS via mail; please send an email request to usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil and provide the name and mailing address of the preferred recipient.

We will host a virtual agency meeting on Friday, November 6, 2020, from 9:00 a.m. to 11:00 a.m. Please dial Toll-free (844) 844-0414 and use Access Code 973468 to participate in the virtual agency meeting. Additionally, we will hold a virtual public meeting Monday, November 9, 2020, from 5:00 p.m. to 7:00 p.m. Please dial Toll-free (855) 756-7520 and use Access Code 65742 to participate in the virtual public meeting. In addition to comments received during the virtual public meeting, we will accept written comments through December 8, 2020 for consideration and analysis in the Final EIS.

You may submit written comments may be submitted via mail or email to Ms. Laura Sample, National Environmental Policy Act (NEPA) Program Manager, Attn: IMFW-

PWE (Sample), 1046 Marks Road #4500, Fort Wainwright, Alaska 99703-4500, or email: usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.

USAG Alaska looks forward to your participation in the EIS planning process. We greatly appreciate your input and comments. If you would like any additional information, please direct requests to Ms. Laura Sample at (907) 361-6323 or usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.

Sincerely,

Christopher J. Ruga
Colonel, US Army
Commanding

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON ALASKA
1046 MARKS ROAD #6000
FORT WAINWRIGHT, ALASKA 99703-6000

OCT 0 9 2020

Aaron Schutt
President and CEO
Doyon, Limited
1 Doyon Place, Suite 300
Fairbanks, Alaska 99701-2941

Dear Mr. Schutt:

United States Army Garrison Alaska (USAG Alaska) announces the availability of the Draft Environmental Impact Statement (EIS) Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska for your review and comment. Due to the current condition of the Central Heat and Power Plant, USAG Alaska needs to identify reliable heat and electrical infrastructure to reduce utility costs, help safeguard mission readiness, meet energy efficiency standards, be compliant with emissions standards, minimize the risk of a catastrophic failure, and conform to U.S. Army directed energy security criteria. The purpose of the proposed options is to provide reliable heat and electrical infrastructure for Fort Wainwright that resolves current safety, resiliency, fiscal, and regulatory concerns. The Federal Register will publish a Notice of Availability for the Draft EIS on October 9, 2020, which will formally initiate a 60-day public review period.

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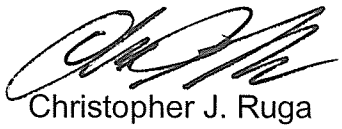
We will host a virtual public meeting on Monday, November 9, 2020, from 5:00 p.m. to 7:00 p.m. Please dial Toll-free (855) 756-7520 and use Access Code 65742 to participate in the virtual public meeting. In addition to comments received during the virtual public meeting, we will accept written comments through December 08, 2020 for consideration and analysis in the Final EIS.

You may submit written comments via mail or email to Ms. Laura Sample, National Environmental Policy Act (NEPA) Program Manager, Attn: IMFW-PWE (Sample), 1046 Marks Road #4500, Fort Wainwright, Alaska 99703-4500, or email: usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.

USAG Alaska looks forward to your participation in the EIS planning process. We greatly appreciated your input and comments. If you would like any additional information, please direct requests to Ms. Laura Sample at (907) 361-6323 or usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.

Sincerely,



Christopher J. Ruga
Colonel, US Army
Commanding

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON ALASKA
1046 MARKS ROAD #6000
FORT WAINWRIGHT, ALASKA 99703-6000

OCT 0 9 2020

Mr. Michael Sam
First Chief
Native Village of Tetlin
P.O Box 797
Tok, AK 99780

Dear First Chief Michael Sam:

United States Army Garrison Alaska (USAG Alaska) announces the availability of the Draft Environmental Impact Statement (EIS) Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska for your review and comment. Due to the current condition of the Central Heat and Power Plant, USAG Alaska needs to identify reliable heat and electrical infrastructure to reduce utility costs, help safeguard mission readiness, meet energy efficiency standards, be compliant with emissions standards, minimize the risk of a catastrophic failure, and conform to U.S. Army-directed energy security criteria. The purpose of the proposed options is to provide reliable heat and electrical infrastructure for Fort Wainwright that resolves current safety, resiliency, fiscal, and regulatory concerns. The Federal Register will publish a Notice of Availability for the Draft EIS on October 9, 2020, which will formally initiate a 60-day public review period.

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We will host a virtual public meeting on Monday, November 9, 2020, from 5:00 p.m. to 7:00 p.m. Please dial Toll-free (855) 756-7520 and use Access Code 65742 to participate in the virtual public meeting. In addition to comments received during the virtual public meeting, we will accept written comments through December 8, 2020 for consideration and analysis in the Final EIS. You may submit written comments via mail or email to Ms. Laura Sample, National Environmental Policy Act (NEPA) Program Manager, Attn: IMFW-PWE (Sample), 1046 Marks Road #4500, Fort Wainwright, Alaska 99703-4500, or email: usarmy.wainwright.id-pacific.mbx.heu-eis@mail.mil.

If you believe this National Environmental Policy Act (NEPA) action warrants a tribe-specific meeting, or if you wish to enter into government-to-government consultation because you feel this proposed activity may significantly affect tribal rights or protected

resources, please advise Ms. Elizabeth A. Cook in writing by December 8, 2020. Please consider this letter our notification in accordance with the Department of Defense (DOD) Instruction Number 4710.02: DoD Interactions with Federally Recognized Tribes and the DoD American Indian and Alaska Native Policy.

Please direct requests to Ms. Elizabeth Cook, USAG Alaska Native Liaison, at Attn: IMFW-PWE (Cook), 1046 Marks Road #4500, Fort Wainwright, Alaska 99703-4500 or Elizabeth.A.Cook80.ctr@mail.mil.

Sincerely,

Christopher J. Ruga
Colonel, US Army
Commanding

APPENDIX E

COMMENTS ON DRAFT EIS AND ARMY RESPONSES

After consideration of the public comments on the Draft Environmental Impact Statement (EIS), and in accordance with 40 CFR § 1502.9(d), the Army determined that a supplemental Draft EIS was not required based on the following:

- Comments on the Draft EIS did not result in substantial changes to the proposed action that were relevant to its environmental concerns.
- Comments on the Draft EIS did not identify significant new circumstances or information relevant to the environmental concerns that have bearing on the proposed action or its impacts.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
1.00	10/11/2020	Email	Susanna Kailing	Public	After careful review of the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska, it appears that the US Army properly followed the NEPA process and did a satisfactory job of assessing the potential environmental impact that their proposal would have. The proposed alternatives were reasonable and well thought out with the benefits and drawbacks for each analyzed in detail. Great consideration was given to the biophysical, social, and economic impacts that would occur under this proposal. Overall, the Environmental Impact Statement was well executed, and it would seem appropriate for the project to move forward as planned.	Thank you for your comment. Your input to the evaluation process is appreciated.
2.01	10/22/2020	Form Submission	Mike Craft	Public	I own and operate the Delta Junction Wind Farm located 100 miles south of Ft. Wainwright and adjacent to Ft. Greely. I have the potential to produce 38 MWs of electricity from WIND on the 320ac site. There is a 138 KV transmission line between Delta Junction and Ft. Wainwright that has more than enough capacity to carry power at much less cost than any other scenario put forth. AEP /Alaska Environmental Power LLC, has produced 2MWs wind power at Delta Junction farm for 12 years and understand the wind resource very well. We also have demonstrated operational capabilities and engaged a propane supplier, railroad carriers (Canadian National Railroad and the Alaska Railroad) for delivery of 33,000 gallon tankard cars to Fairbanks, Alaska again at much lower fuel cost. We tried to talk to Ft. Wainwright officials and were shut out of this opportunity to lower energy cost through increased efficiency, lower cost fuel, and improve the health of local residents relating to PM2.5, sulfur dioxide and nitrogen oxide, CO2 gases, heavy metals, pot ash contaminants. The propane would be used to run distributed energy supply with combined heat and power scenarios and to firm the variable wind power from Delta Wind Farm. This could also be deployed at Clear AFB and Ft Greely/Missile Defense. We believe that propane offers many advantages over the other sources of energy described in this EIS. The combination of wind power and propane could solve many of the objectives noted in the EIS, for instance cost savings through increased efficiencies, resiliency, deployment of renewables, and all of the issues relating to the current State SEP plan for the EPA. This could be accomplished with private funding sources. It is simple, buy what you need, which is heat and power. I would like to address this in the EIS review, please.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 megawatts (MW) of electricity. Sections 2.3 and 2.4 of the EIS considered wind energy as an alternative, and it was determined that installing centralized boilers or upgrading electric feeders and installing building level electric boilers would not be reasonable or feasible. There is no regional infrastructure or adequate technology (Screening Criterion 4) to support propane as a reliable fuel source and raises a risk of supply disruption. Propane has been added to EIS Section 2.4 as a potential alternative (Alternative 17) identified and dismissed from further analysis.
2.02	10/23/2020	Email	Mike Craft	Public	As you can see we have a great deal of work put in on the issues FYI .	Thank you for your comment. Please see the response to comment 2.01.
3.00	11/2/2020	Form Submission	John Brown	Public	I support the distributed gas fired boiler option. Further, I suggest that the required diesel back up expenses could be mitigated by making the diesel facilities available to provide load balancing to the local grid under normal operations. Load balancing is becoming increasingly challenging as more and more wind and solar generation joins the grid. The Army would also benefit from better readiness, having the diesel facilities and their operators producing power regularly would ensure that the facilities are ready to go when the Army needs them for local grid disruptions.	Thank you for your comment. We appreciate your thoughts on load balancing. Historically, the Army has participated with load balancing opportunities with the local utility, to the extent it has not disrupted Army's mission. As an example, when energy prices were high in the interior, the Army exported electricity from the coal power plant to the local grid which minimized the overall electricity cost in the interior.
4.00	11/4/2020	Form Submission	Frank Rast	Public	I support Build Alternative #3 Install Distributed Natural Gas Boilers as it has the least capital, and operational and maintenance costs. Build Alternative #3 also has the lowest operational carbon footprint which was not quantified adequately in the EIS.	Thank you for your comment. The operational carbon footprint has been addressed in Section 4.2 of the 2015 Guernsey Study (Guernsey 2015) and in Section 5-3.3 of the 2018 Huntsville Study (USACE 2018), and will be refined based on design parameters and during the Title V air quality permitting process. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
5.01	11/6/2020	Email	Michele Christiansen	MTNT	MTNT urges the Army to honor its Utilities Privatization (UP) Contract with Doyon Utilities, and retain Doyon Utilities as the utility owner and provider of heat and power at Fort Wainwright. MTNT's mission is to increase corporate profitability, provide shareholders with economic benefits and opportunities, and protect our corporate assets and land base while recognizing the traditional cultural values and subsistence lifestyles of our shareholders.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
5.02	11/6/2020	Email	Michele Christiansen	MTNT	Congress established Alaska Native Corporations (ANC) as "for profit" corporations "to provide for the economic and social needs, including health, education, and welfare, of their shareholders . . . " Like other ANCs, Doyon, Limited, relies upon its business interests, such as its 50% ownership in Doyon Utilities, to fulfill its obligations under the Alaska Native Claims Settlement Act, including generating revenues to support the economic and social wellbeing of its shareholders. With Doyon, Limited's backing, support and resources, and following a lengthy competitive procurement process, the Army selected Doyon Utilities as the owner and operator of the heat and power utility at Fort Wainwright. The DEIS presents no valid reason for the Army to displace or diminish Doyon Utilities' role at Fort Wainwright. After awarding Doyon Utilities one of the largest UP Contracts that the Army has ever awarded, and as the first ever awarded to ANC, the Army must fulfill its obligations, and should be taking all efforts to preserve Doyon Utilities' role at Fort Wainwright.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
5.03	11/6/2020	Email	Michele Christiansen	MTNT	On top of it being patently unfair for the Army to terminate a significant portion of the UP Contract 38 years early – and after Doyon competed for, negotiated, was awarded, and invested significant money to perform under that contract – this would have widespread negative repercussions of true consequence to Alaska Native Villages such as MTNT, Ltd. The Army must understand that revenues from ANC businesses are not limited to supporting their own shareholders. Doyon, Limited uses its contract revenues, including from Doyon Utilities' contract at Fort Wainwright, to provide funding and benefits to other ANCs, Alaska Native Tribes, and nonprofits within Interior Alaska.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations. Discussion regarding potential impacts on Alaska Native Tribes is provided in Sections 3.5, 3.6, and 3.13 of the EIS.
5.04	11/6/2020	Email	Michele Christiansen	MTNT	Doyon has provided consistent dividends to your Shareholders, provided over $21,000 in donations and $29,950 in language grants. In addition, they provide training, consultation and support to MTNT on many issues. Therefore, MTNT's support for Doyon, Limited is also based upon the wider ramifications that reducing Doyon Utilities revenues under the UP Contract could have in the region. Surprisingly, the DEIS does not acknowledge or address either these wider ramifications or the direct negative social and economic consequences that the Army's decision could have on Doyon, Limited's shareholders. The Army cannot make an informed decision based upon the DEIS without acknowledging and understanding the true consequences and ramifications of its actions.	Thank you for your comment. Impact analysis regarding ANC shareholders and beneficiaries is discussed in Sections 3.5 and 3.6 of the EIS. Discussion regarding potential impacts on Alaska Native Tribes is provided in Section 3.13 of the EIS. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
5.05	11/6/2020	Email	Michele Christiansen	MTNT	The Army's failure to honor its UP Contract is not only fundamentally unfair, but it also sets a very negative precedent for the Utilities Privatization program and for contracting with the federal government. This will be especially true for ANCs and Alaska Native Tribes if the Army were to disregard its contractual obligations under the only UP Contract that the Army has ever awarded to an ANC. Contractors, more generally, also may avoid entering into UP contracts with the Army, which require expending significant resources, where they cannot rely on the Army to fulfill its end of the bargain under a validly executed contract.	Thank you for your comment. The Army did incorporate condition assessment data provided in the 2018 Black & Veatch Study. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
5.06	11/6/2020	Email	Michele Christiansen	MTNT	Finally, MTNT urges the Army to continue consultation with Doyon, Limited. ANCSA Corporations were established to provide for the economic and social needs, including health, education, and welfare of their shareholders, and have a variety of business interests which may trigger the ANCSA Consultation requirement. ANCs that rely on consultation with federal agencies to protect their rights and interests. The law expressly requires that "all Federal agencies" consult with Native Corporations pursuant to Executive Order 13175, furthermore, its important for agencies follow their own policies, including the Department of Defense's (DoD) own Consultation Policy, which requires the Army to engage in consultation "with Alaska Native corporations . . . ."	Thank you for your comment. Section 1.5.2 describes the consultation process and meetings that have occurred to date, including consultative meetings with Doyon Utilities in recognition of both EO 13175, Consultation and Coordination with Indian Tribal Governments, and Department of Defense Instruction (DoDI) 4710.02, Department of Defense Interactions with Federally Recognized Tribes. Consultation will continue as planning progresses.
5.07	11/6/2020	Email	Michele Christiansen	MTNT	MTNT strongly urges the Army to understand and address the range of consequences that would come with a decision by the Army not to retain Doyon Utilities as the owner and operator of the heat and power utility at Fort Wainwright. Thank you for your consideration of MTNT's comments.	Thank you for your comment. See the response to comment 5.04.

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6.00	11/6/2020	Letter	Ronald K Inouye	Tanana-Yukon Historical Society	On behalf of the Tanana-Yukon Historical Society I request additional information on the possible mitigation plans for Alternative 3 within the Ladd Field NHL and Ladd AFB Cold Weather HD. All proposals appear to vastly improve the efficiency and cost savings of the current heat and electrical infrastructure. However, the view-shed analysis is a critical component for consideration. The military has been a significant factor in Alaska history, and these Ladd Field components are critical for understanding the international scale of military effort for the United States and Alaska, and are the "living history" and represent the continuing positive relationship between the military and the community of Fairbanks. For this reason we believe the view-shed analysis must be completed and made part of the information offered to stakeholders in this process.	Thank you for your comment. Section 3.13.2.5 of the EIS acknowledges that a viewshed analysis was not conducted for Alternative 3 because specific locations of new facilities under this alternative have not yet been determined. If Alternative 3 were to be identified, appropriate agency coordination including Section 106 consultation, as well as determinations for studies and analyses required to make further assessments and identify mitigation, would occur.
7.01	11/9/2020	Telephone Public Meeting	Lorali Simon	Usibelli Coal Mine, Inc.	The Draft EIS has several fatal flaws, including inaccuracies and deficiencies in the purpose and need for the proposed action. The Draft EIS lacks specific measurable metrics to demonstrate how each alternative meets the criteria identified.	Thank you for your comment. See the response to comment 7.02 below.
7.02	11/9/2020	Telephone Public Meeting	Lorali Simon	Usibelli Coal Mine, Inc.	It claims that alternative 1, building a new coal combined heat and power plant, would have the highest implementation in operations and maintenance cost, and the highest risk for installation-wide loss of heat through distribution. We do not believe this to be credible assumptions or conclusions. Usibelli questions the data used to make these assumptions. The redacted reports provided do not provide enough information to follow the Army's process for reaching such conclusions. The full, unredacted reports for each reference listed in the Draft EIS should be released with adequate time for stakeholders to analyze the data.	Thank you for your comment. Upon request, the full unredacted reports were released in December 2020 for review prior to the reopened 60-day comment period from December 2020 to February 2021. See the unredacted Sections 4.4 and 4.5.1 of the 2018 Huntsville Study (USACE 2018) for the source details on the coal-fired CHPP operations and maintenance and implementation costs. See also Table 5-10 in Section 5.3.2 of the Huntsville Study for the data comparisons of heat loss per alternative, which showed the coal-fired CHPP to have the highest heat loss.
7.03	11/9/2020	Telephone Public Meeting	Lorali Simon	Usibelli Coal Mine, Inc.	Building a new, modern coal-fired combined heat and power plant and steam distribution system should be the preferred alternative, as it is the only option that can provide a safe, resilient heat and power system to the garrison at a price that will be much less than any other alternative. Coal provides resiliency. It has a proven -- it has been a proven fuel source in interior Alaska for nearly 80 years. Additionally, Usibelli has a proven supply chain, which is self-sufficient and does not need government subsidy, compared to the liquified natural gas options. It is unreasonable that the Draft EIS doesn't include coal as a dual-fuel option.	Thank you for your comment. A combined coal and liquid fuel CHPP is not reasonable or feasible, and is not a proven technology in Arctic regions as a primary source. Under Alternative 2, the dual-fuel technology is not reasonable or feasible when combined with combustion turbine generators (CTG). For coal to be a viable dual fuel option with Alternative 2, a coal gasification plant or a coal liquid fuel (called Fischer-Tropsch diesel) must be available to the Army. Requirements for this system are described in Department of Energy (DOE) Studies: Beluga Coal Gasification Feasibility Study (DOE 2006) and the Alaska Coal Feasibility Study - Healy Coal-to-Liquids Plant (DOE 2007). As explained in DOE's Pacific Northwest National Laboratory (PNNL) Study analyzing renewable energy opportunities at Fort Wainwright, there is no regional infrastructure to provide these fuels to the Army (DOE 2009).
7.04	11/9/2020	Telephone Public Meeting	Lorali Simon	Usibelli Coal Mine, Inc.	Also, an alternative to retrofit the existing heat and power plant to meet all of the identified needs, should be considered as part of the EIS analysis. This option would allow for a reduced capital cost while still providing for increased efficiencies and lower emissions. Finally, let me state, for the record, that there is no large supply of natural gas readily available for Fort – to Fort Wainwright. Usibelli will provide greater detail in our written comments.	Thank you for your comment. The existing CHPP has exceeded the Army's policy on a 40-year life cycle. In addition, Section 2.3.3 of the EIS outlines that the No Action Alternative does not meet the Purpose and Need in accordance with the screening criteria. Sections 2.5.3 and 2.5.4 explain there has been demonstrated availability of natural gas in Alaska as sufficient to meet the installation's demand (per Pentex Alaska LLC 2016).
8.01	11/9/2020	Telephone Public Meeting	Lou Florence	Doyon Utilities, LLC	I'm president and CEO of Doyon Utilities. Doyon Utilities is the utility privatization system owner referred to in the Draft Environmental Impact Statement. I appreciate the opportunity to go on the record, tonight, to offer comments on the Draft EIS. I have two points to make.	Thank you for your comment. Please see the response to comment 8.02 below.

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8.02	11/9/2020	Telephone Public Meeting	Lou Florence	Doyon Utilities, LLC	First, Doyon Utilities and the Army agreed, 13 years ago, to a 50-year contract for Doyon Utilities to provide utilities to Fort Wainwright. That contract required Doyon Utilities to invest in the combined heat and power plant and the heat distribution system. The contract was a significant commitment to the owners of Doyon Utilities to make, and it was not made lightly. Today, the combined heat and power plant, or CHPP, and the heat distribution system are highly reliable. Now, the Army has proposed a change in the plan that they agreed to with Doyon Utilities. They're considering replacing the existing CHPP with one of the alternatives described in the Draft EIS. The Draft says the alternatives may be constructed by Doyon Utilities, but it does not guarantee it, nor does it address ownership in operations of any new heat and power system. If Doyon Utilities is not the provider, there will be impacts on Doyon Utilities, its employees, its owners, and the community. Since Doyon Limited owns a 50 percent share of Doyon Utilities, there would be impacts on Doyon Limited shareholders, as well. Doyon Utilities has held up its end of the bargain. Our position is simple and based in contract and on fairness. That is, the Army should honor its part of the agreement by maintaining Doyon Utilities as the owner and operator of whatever system the Army ultimately chooses in the Final EIS. Laura, I'm going to go ahead and stop after that first remark, and get back in the queue to allow others time, but, hopefully, I'll be able to deliver my second one later on.	Thank you for your comment. Impact analysis regarding ANC shareholders and beneficiaries is discussed in Sections 3.5 and 3.6 of the EIS. Discussion regarding potential impacts on Alaska Native Tribes is provided in Section 3.13 of the EIS. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
9.01	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	I'm an eight-plus-year resident of Fairbanks and an engineer at Doyon Utilities. My background is in mechanical engineering, (indiscernible - audio breakup) dynamics and heat transfer. I received a Ph.D. on the subject at UAF in 2016 after defending a dissertation on integration of electrical thermal storage with renewable energy generation. My responsibilities at DU include ensuring successful capital upgrades to the public utilities on Forts Wainwright, Greely, and Richardson. After having reviewed the conclusions of the EIS, I have grave concerns for the air quality of our community and about the future of Fort Wainwright utilities. First, please note that I have not been asked to provide comment this evening, and that the following concerns are my own.	Thank you for your comment. Please see the response to comment 9.02 below.
9.02	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	It's my understanding DPU -- DPW's preferred plan suggests decommissioning of functioning power plant, buying power from Golden Valley, and installing new heat generating infrastructure throughout the Fort Wainwright (indiscernible) area, as a primary option. In short, this plan fails to make use of waste heat inherent to the generation of electricity. This will increase overall fossil fuel consumption substantially. It does not eliminate any of the burdens of burning coal; rather, it transfers these burdens onto the shoulders of the community. The plan, essentially, takes a small grid designed and built for coal generation and seeks to pay for what is available for free. It does so while tacitly ignoring the primary method of freeze protection of public utilities on Fort Wainwright; it does so while creating the demand for additional fuels and heating infrastructure while abandoning what is already paid for; it does so by increasing the demand for fossil fuels, increasing carbon emissions and increasing community PM2.5 production.	Thank you for your comment. The Draft EIS did not identify a preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS. Although it cannot be speculated how the Golden Valley Electric Association (GVEA) would meet the increased power demand, GVEA has a diverse power portfolio which does not solely rely on fossil fuels. Impacts on air quality are anticipated to improve under every action alternative as identified in Section 3.2 of the EIS.Freeze protection is only required for Alternative 3 and is addressed in Section 4.5.4 of the "Life-Cycle Cost Analysis For Heat and Electric Power Alternatives for Fort Wainwright, Alaska" (2018 Huntsville Study [USACE 2018]).

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
9.03	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	To my eyes, the EIS seems to wave its hands at these concerns. It leaves the evidence rather than following it. From the second (indiscernible) thermodynamics, whether it bring coal, natural gas, wood, diesel, or anything, every unit of electricity generated, there are two units of release in the form of heat. This heat can be used or wasted. Where else in the world would it make sense to use this heat if not in a cold climate where the distribution infrastructure already exists and where the heat is a lifeblood of the utility freeze protection strategy? By analogy, the proposed plan makes about as much sense as leasing an electric car, charging it with expensive coal-fired electricity, and depositing your functioning pickup at the transfer station, all because you want your heat to come from a propane heater that you keep in the back seat. And you do this because you don't want to pay for gasoline. A plan like this might make sense in warmer climates, but in Fairbanks, I believe it is not just a bad option, but that it represents a total ignorance of our circumstance. So I have my own opinions as to the optimal energy mix strategy for Fort Wainwright; it is not my intent to present them. My primary motivation is to stress the importance and near perfect suitability of co-generation (ph) for this application, which will ultimately be squandered and dismantled if the chosen plan is brought to fruition. I urge the committee to oppose this plan out of concern for our air quality, concern for our environment, and respect for sound engineering principles.	Thank you for your comment. The Draft EIS did not identify a preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS. Although it cannot be speculated how the Golden Valley Electric Association (GVEA) would meet the increased power demand, GVEA has a diverse power portfolio which does not solely rely on fossil fuels. Impacts on air quality are anticipated to improve under every action alternative as identified in Section 3.2 of the EIS. Freeze protection is only required for Alternative 3 and is addressed in Section 4.5.4 of the life cycle cost analysis in the 2018 Huntsville Study (USACE 2018).
10.01	11/9/2020	Telephone Public Meeting	Sarah Obed	Doyon, Limited	I am the senior vice president of external affairs for Doyon Limited, headquartered here in Fairbanks. Doyon has more than 20,100 Alaska Native shareholders, and we were established under the Alaska Native Claims Settlement Act. We have subsidiaries in oilfield services, government contracting, tourism, and we're also the largest private land owner in Alaska. We have a mission to enhance our position as a financially-strong native corporation and promote the economic and social well-being of our shareholders and our future shareholders.	Thank you for your comment. Impact analysis regarding ANC shareholders and beneficiaries is discussed in Sections 3.5 and 3.6 of the EIS. Discussion regarding potential impacts on Alaska Native Tribes is provided in Section 3.13 of the EIS. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
10.02	11/9/2020	Telephone Public Meeting	Sarah Obed	Doyon, Limited	I appreciate the Army's willingness and commitment to continue a dialogue to ensure that the U.S. Army understands Doyon's role as an Alaska Native corporation and equity owner in Doyon Utilities, and the significant implications of the Army's decision could have on Doyon, on our shareholders, and on the Army's utility privatization contract. Doyon Utilities was awarded the UP contract following a fair and open competition. And terminating the UP contract 38 years early, which the Draft suggests can occur, would be unfair and would have direct and lasting implications on our shareholders. In addition, Doyon uses contract revenues, including from Doyon Utilities contract at Fort Wainwright, to provide funding and benefits to other Alaska Native corporations, Alaska Native tribes, and nonprofits here within Alaska's interior.	Thank you for your comment. Impact analysis regarding ANC shareholders and beneficiaries is discussed in Sections 3.5 and 3.6 of the EIS. Discussion regarding potential impacts on Alaska Native Tribes is provided in Section 3.13 of the EIS. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
10.03	11/9/2020	Telephone Public Meeting	Sarah Obed	Doyon, Limited	Doyon Utilities is the utility privatization system owner referred to in the Draft EIS, supplying heat and power from the combined heat and power plant, or the CHPP, and the heat distribution system running primarily through underground utilidors. DU contract to provide utility services is a significant commitment of trust and resources that was not entered into lightly by either party. It's a long-term commitment that requires DU to buy the power plant, utilidors, and all utility infrastructure. DU invests in infrastructure and is now a highly-reliable system. The Draft EIS says that the alternatives may be provided by Doyon Utilities, but it does not guarantee it. If the Army changes its mind on upgrading the plant and now wants a different type of plant or heating system, the Army should also affirm that DU constructs its own and operates that plant.	Thank you for your comment. Regardless of the alternative selected and in consideration of the UPC, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
11.01	11/9/2020	Telephone Public Meeting	Mike Craft	Public	I want to make sure that you guys are considering the number one thing in my book, is the air quality issue and the role that you could potentially play in helping us improve the (indiscernible - audio breakup). And I say that, because of what it does to kids and elderly people, and almost everybody gets affected by it. And I am worried that it's going to get so bad that you won't be able to keep families at Fort Wainwright, and that bothers me.	Thank you for your comment. Section 3.2.2 of the EIS includes an analysis of air quality impacts, which found long-term, beneficial impacts on air quality under all the alternatives due to reductions in criteria pollutant emission levels.

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11.02	11/9/2020	Telephone Public Meeting	Mike Craft	Public	So the first thing in my book is help us with this pollution, even if that's just cleaning up whatever you can clean up out there in your backyard. And then the second thing is, I'd like to talk about the efficiency of it. You know, I'm a taxpayer, and to think that 60 cents on every one of my dollars is not being really spent very well, that's not very good. I don't think that's fair that it's running at 40 percent efficiency, so, you know, that definitely needs to be improved. And then, you know, that goes back to the pollution. That means that 60 percent of the pollution that's coming off that plant doesn't have to happen. That's a huge factor right there.	Thank you for your comment. The alternatives for the Proposed Action identified in the EIS would increase efficiency from 42 percent to a range of 53 to 75 percent (see Section 3.3 of the EIS).
11.03	11/9/2020	Telephone Public Meeting	Mike Craft	Public	And then I want to talk about the fact that there are some things that have been put on the table that offer the resiliency of the 14 days that you're talking about. It offers diversification of fuel. It will -- it also helps with the resiliency of your heat, and that's using some kind of a combined heat and power scenario using a clean fuel. And when I say clean, I mean, nothing with PM2.5 low-sulfur, that type of stuff. And that's propane, and it's available. And it can be brought up by the rail, just like coal is. It could be stationed at each and every one of these combined heat and power plants. It gives you the resiliency of as many days as you want; just pick the (indiscernible) size.	Thank you for your comment. Propane was added as a potential alternative (Alternative 17) identified and dismissed in the EIS (see Section 2.4 of the EIS).
11.04	11/9/2020	Telephone Public Meeting	Mike Craft	Public	And I do think, you know, it's sad that that wasn't talked about as an opportunity using combined heat and power. And there's also a potential of incorporating renewable energy into that equation. You know, I know that there are wind projects in Alaska that could contribute significant amounts of renewable energy to your facilities, especially, if you've got motors that can carry the swing of it, which those combined heat and power units can do.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind energy as an alternative, and it was determined that this would require retrofit of all facilities on the installation to electric heating, which has been determined to not be reasonable or feasible.
11.05	11/9/2020	Telephone Public Meeting	Mike Craft	Public	And so I hope that you guys start looking at real technology that's out there; what's available to us? Fort Wainwright is very important to our community. It's what brought me to Alaska in the seventies, and I want to see it stay here. And Doyon does a great job running the stuff. But the question is, what are we going to be running for the next 50 years over there? And, you know, to think that we have a plant that was scheduled for retirement here in a couple years.	Thank you for your comment. Section 2.3 of the EIS provides a viability analysis regarding the technological alternatives for heat and energy generation and distribution on Fort Wainwright.
12.01	11/9/2020	Telephone Public Meeting	Michael Ojala	Public	I've been a resident of the Fairbanks area for over 30 years. Whether people may know it or not, the Fort Wainwright power plant has had impacts on the Fairbanks area, both small and great. We refer to the central heat and power plant as the CHPP. The CHPP has not only a stable source of heat and power for Fort Wainwright, it has provided jobs and education for many Alaskans. My first interaction with the CHPP was back in 2009. When I was college student, I had the chance to tour and learn about controls associated with the newly-constructed air-cooled condenser. It was this tour that piqued my interest in the process industry, and provided a jumping point into my career. I remember walking through the plant and seeing a unique marriage of old equipment operated by new controls, equipment that has stood the test of time that was upgraded and re-engineered to achieve longer, more usable life. This is when it clicked and made me realize that this could be something I would like to do. Several tours and many years later, I found myself employed at Doyon Utilities. While employed at the Fort Wainwright CHPP, I have had the opportunity to see and operate the equipment that is described by the report as antiquated and beyond its useful life.	Thank you for your comment. Responses to your comments on the analysis provided within the EIS are detailed below.
12.02	11/9/2020	Telephone Public Meeting	Michael Ojala	Public	To say the CHPP is no longer useful is more of a notion and not factual at all. The longevity is a result of quality maintenance and upgrades throughout its life. The longevity is indicative of the skills and the intellect of Doyon Utilities' employees who manage, operate, and maintain this equipment. The CHPP is in fine form. It is a fact that centralized heat is a more efficient option, especially for Alaska's cold snaps we experience versus having small boilers all calling for heat at different times. I feel that shutting down the CHPP would be -- and a steam heating system is not a well-thought-out idea. The Fort Wainwright utilidors are heated by steam; that is what keeps the water and sewer mains moving in the winter. By shutting down the steam heat, this puts existing infrastructure at risk. I may be wrong; however, my initial reaction is to feel that this is predetermined, and DEIS process is merely a formality, and their mind is -- has -- the decision has been made. I hope this is not the case.	Thank you for your comment. The Draft EIS did not identify a preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Alternatives 1 and 2 would continue to transmit steam heat via the utilidors. System efficiency would improve from the existing CHPP heating efficiency of 42 percent up to 53 percent under Alternative 1, 58 percent under Alternative 2, and up to 75 percent under Alternative 3 (see Section 3.3).

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
13.01	11/9/2020	Telephone Public Meeting	Bill Rhodes	Eco Green Generation	I'm the manager of Eco Green Generation. We'd like to support, actually, Mr. Lawrence (ph) of Doyon and his comments. Under the 2008 transfer of the power plant to Doyon, they're the owner of the power plant, and they're also a licensed utility in the state of Alaska. It's our understanding, in 2008, that the Army agreed to comply with Alaska law, and I also agree with the regulatory of commission in the operation of that utility. As a result, the Army, right now, is a customer of the utility, not the owner of a util -- not the utility, itself. So by being a customer and proposing an Environmental Impact Statement under NEPA, you don't have standing, because you lack the authority to be the author of the Environmental Impact Statement.	Thank you for your comment. This EIS is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. § 4321 et seq.) which requires federal agencies to consider the effects from implementing major proposed actions and alternative, and is developed per the NEPA implementing regulations issued by the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508). As the federal action proponent, the Army is the agency responsible for completion of the EIS per NEPA, 40 CFR 1500-1508, and the Army's NEPA implementing regulation (32 CFR Part 651, Environmental Analysis of Army Actions).
13.02	11/9/2020	Telephone Public Meeting	Bill Rhodes	Eco Green Generation	So to avoid a bunch of litigation, we urge that the Army consult more closely with Doyon, and that they have a joint proposal, and, frankly, that Doyon would continue to be the owner of the -- of whatever the proposed facility would be.	Thank you for your comment. Consultation will continue as planning progresses.
13.03	11/9/2020	Telephone Public Meeting	Bill Rhodes	Eco Green Generation	We, also, want to support Mr. Craft. We believe that a hybrid propane CHPP wind produced power plant with distributed generation around the base, would be the best alternative. So that's our comment.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind energy as an alternative, and it was determined that installing centralized boilers or upgrading electric feeders and installing building level electric boilers would not be reasonable or feasible. There is no regional infrastructure or adequate technology (Screening Criterion 4) to support propane as a reliable fuel source and raises a risk of supply disruption. Propane has been added to the EIS as a potential alternative identified and dismissed from further analysis.
14.01	11/9/2020	Telephone Public Meeting	Courtney Kimball	Public	I'll comment on several aspects of the air quality analysis in the Draft EIS. I'm a senior engineer with SLR International Corporation, an environmental consulting firm with extensive experience in Alaska industry. I live in Fairbanks and I've provided air quality consulting services to Doyon Utilities since 2008, before DU took ownership of the plant. I was previously an Air Force civil engineer officer. Among other locations, I served at Eielson and managed construction projects, including the Eielson coal-fired heat and power plant. I'm familiar with DOD facilities in Alaska, DOD facility management and operation methods, and been closely involved with the air quality permitting compliance work at the Fort Wainwright CHPP for the past 12 years.	Thank you for your comment. Responses to your comments on the analysis provided in this EIS are detailed below.
14.02	11/9/2020	Telephone Public Meeting	Courtney Kimball	Public	The Draft EIS seems to outline a history of environmental failures at the plant, a characterization with which I disagree. While I cannot speak to how the plant was operated under Army ownership prior to August 2008, since that date, the plant has maintained continuous compliance of the vast majority of the extensive air quality regulatory requirements. In the past five years, the plant attained, and has largely maintained compliance with the EPA national emissions standards for hazardous air pollutants. The plant meets stringent emissions standards for particulate matter, carbon monoxide, mercury, and hydrogen chloride, which requires a complex and integrated plant management approach.	Thank you for your comment. Section 1.1.2 of the EIS identifies that a Notice of Violation was issued by the Alaska Department of Environmental Conservation (ADEC) because the CHPP did not meet statutory carbon monoxide (CO) emissions limits. The plant is operating at a 20 percent reduced capacity in order to meet these thresholds. Section 2.5.1 further explains that among other major repairs and upgrades to the system needed to keep the plant operational under the No Action Alternative, USAG Alaska would need to incorporate cost-intensive Best Available Control Technology (BACT) with implementation costs estimated between $22 million and $235 million (Agrawal 2020), and continue to operate the derated CHPP boilers at 80 percent of their nameplate-rated capacity to meet air quality emissions regulations and standards.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
14.03	11/9/2020	Telephone Public Meeting	Courtney Kimball	Public	The Draft EIS states that's the boilers are currently operating at 20 percent reduced capacity to meet those emissions standards. That statement is inaccurate and misleading. The boilers have, and continue to operate, at the loads needed to meet all demand requirements as DU operating data can demonstrate.	Thank you for your comment. As stated in Section 1.1.2 and Section 2.5.1 of the EIS, the 20 percent operating limitation was agreed upon between the UPC and ADEC as a remedy to emissions exceedances as noted in the January 2018 Notice of Violation (Title V) imposed by ADEC. Text was added to Sections 1.1.2 and 2.5.1 to clarify how the CHPP operates at reduced capacity.
14.04	11/9/2020	Telephone Public Meeting	Courtney Kimball	Public	I'm concerned at the level of air quality analysis the Draft EIS is not sufficient to support the implementation of an action alternative by the 2026 timeline. Because the analysis is preliminary, the detailed designs for the alternatives are not yet available. As a result, the analysis does not provide a substantive and thorough assessment of the various possible air quality impacts. For example, the EIS seems to assume that the installation of sulfur dioxide emission controls required by the PM2.5 serious nonattainments that can be avoided if one of the numbered alternatives is pursued. The requirement to install and operate SO2 emission controls by October 2023, is enforceable by the Alaska Department of Environmental Conservation. The reduction in SO2 emissions from the Fort Wainwright CHPP is one of the measures which ADEC is relying on to able the community of Fairbanks and North Pole to demonstrate compliance with the PM2.5 ambient air quality standard by 2024.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time. Any Best Available Control Technology (BACT) that is required would be installed as applicable.
14.05	11/9/2020	Telephone Public Meeting	Courtney Kimball	Public	I understand the Army wishes to avoid the costs associated with installing controls on an older facility, but unless an alternative has enforceable permit conditions that provide at least the same amount of SO2 emission reductions in a timely manner, I see no reason to expect any regulatory relief from the SIP mandated at the (indiscernible) emission control requirement.	Thank you for your comment. Any Best Available Control Technology (BACT) that is required would be installed as applicable.
14.06	11/9/2020	Telephone Public Meeting	Courtney Kimball	Public	Additionally, the analysis for alternative 3 does not address the incremental emissions increases from offsite power generation and the impacts the emissions could cause. Also, the analysis does not incorporate the carbon monoxide emission reductions, which have occurred in the past few years due to compliance with the EPA NESHAP standards. The plant CO emissions are now significantly lower so the comparisons of the plant's existing CO emissions to the estimated CO emissions from the numbered alternatives is not accurately quantified.	Thank you for your comment. GVEA's coal plant is not operating in this area, so it is not a contributor to local carbon monoxide emissions.Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS because GVEA's power generation plans cannot be speculated.The analysis that was conducted on CO emissions was based on information available to Fort Wainwright. CO emissions are variable on an annual basis.
15.01	11/9/2020	Telephone Public Meeting	Dave Dean	Public	I'm retired from the U.S. Army, and my last duty assignment was Fort Wainwright where I served consecutively for five-and-a-half years, three-and-a-half years as a director of Engineering and Housing, and my final two years as a post commander. In both of those assignments, I had either primary or major responsibility for the power -- heat and power plant, and maintaining heat and electrical distribution for the installation. Even though I am now retired, I remain active with the military and veterans throughout our community.	Thank you for your comment. Responses to your comments on the analysis provided in this EIS are detailed below.
15.02	11/9/2020	Telephone Public Meeting	Dave Dean	Public	Quite honestly, I am shocked at the generalities by which the various alternatives are proposed. Throughout my tenure at Fort Wainwright, I, as well as residents on the installation, viewed the CHPP as a reliable and critically important lifeline for both families and operation units. When other utilities in surrounding communities experienced disruptions of service, Fort Wainwright continuously provided reliable service without exception. There was a great deal of comfort in knowing that the installation controlled its own destiny by providing uninterrupted heat and power, especially during the cold winter months. I cannot recall a single instance where my faith in the utility system was misplaced. And example in contract is the widespread outage of electrical service in Fairbanks in the winter of 1992, when heavy, wet snow downed power lines throughout Fairbanks for several days. Fort Wainwright did not suffer during that episode, because the CHPP ensured the installation was self-sufficient for power and heat.	Thank you for your comment. This EIS reviewed a wide range of potential alternatives for heat and powering the installation, based on the heat and electricity studies discussed in Section 1.1.2 and input gathered during the scoping and Draft EIS public comment periods. The need for additional environmental impact analysis will be assessed upon project design of the alternative selected for implementation.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
15.03	11/9/2020	Telephone Public Meeting	Dave Dean	Public	The EIS summary indicates Fort Wainwright has the highest cost of any installation in the Army. That's likely indisputable, but with the installation's position in the subarctic, significant winter heating costs are not unexpected. The strategic location of Fort Wainwright certainly warrants the costs of maintaining a troop location that is capable of a worldwide DOD response. In essence, the tradeoff of higher costs is necessary in order to support the strategic positioning of America's military forces.	Thank you for your comment. Responses to your comments on the analysis provided in this EIS are continued below.
15.04	11/9/2020	Telephone Public Meeting	Dave Dean	Public	I'm uniquely familiar with the utility distribution system housed in the utilidor system. Water and waste water mains are kept from freezing by the steam distribution system coal located in the utilidors. Much of the water and waste water distribution system is not buried deep enough to prevent winter freezeups if the steam pipes are abandoned. In Fairbanks, severe winter temperatures -- the frostline frequently goes as deep as 10 to 12 feet or more, and the utilidors have many access points that would serve as freeze points unless the steam distribution mains provide heat. To believe otherwise, is simply unrealistic and dangerous – and a dangerous option. There are multiple years in the greater Fairbanks area where water and waste water lines freeze, causing major maintenance challenges that Fort Wainwright has not experienced. Any alternative that proposes abandonment of even a portion of the existing steam distribution network, exponentially increases the risk to the entire installation.	Thank you for your comment. Section 2.5 of the EIS provides brief descriptions of continued use of utilidors for steam distribution. Alternatives 1 and 2 would continue to transmit steam heat via the existing utilidors, which would be renovated. Alternative 3 would use existing utilidors to the extent possible and provide adequate mechanism to avoid the water and wastewater lines from freezing.
16.01	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	My first question is, is there a flow sheet that show the coordination between Doyon, the military, ADEC, EPA, Fairbanks North Star Borough, and others, showing how you'll coordinate to come up with the best final plan. I looked for it and didn't see it. It may be there.	Thank you for your comment. Agency coordination is discussed in Sections 1.3.1 through 1.5.3 of the EIS. The preferred alternative is identified in Section 2.5.5 of the Final EIS. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
16.02	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	My second is, I have serious concerns for incomplete economic analyses on several levels. The SIP, the serious state implementation plan for air quality, may or may not be accepted as the draft amendment has been submitted. I don't see anything in economic analyses about the mitigation of coal ash. If I missed it, I'm sorry. We don't know whether coal ash will remain a solid waste or will be recategorized as a toxic waste. There's certainly a movement for that.	Thank you for your comment. Coal ash management is discussed in Section 3.4.2.3 of the EIS.
16.03	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	I haven't seen any analysis for the health effects. And most importantly, the concept of constraint, the military needs to be able to carry out their mission. And if we are already over federal limits on our air quality, it leaves them no room to exercise their important mission while under constraint.	Thank you for your comment. The health analysis is included in Section 3.10 of the EIS, titled "Human Health and Safety".
16.04	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	And we haven't shown in 12 years that we have cleaned up our air, and so opting for something that makes sense like combined heat and power with wind backup, is something that I support as some of the others have already mentioned. I'll be submitting, you know, very specific comments, at some point, before the deadline.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement a renewal energy portfolio as available. Section 2.4, Alternative 9 of the EIS discusses wind power sources and it's feasibility for implementation.
16.05	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	But I also wanted to talk about the taxpayers. We'd like to treat that money with as much respect as possible, and, with all due respect, the seriously-reduced efficiencies shown in an old plant plus all of the other mitigations, the climate change to the air quality to emissions and health effects and the cost of those health effects associated, those things haven't been in the economic analysis that I can see. And 60 cents or whatever it is on the dollar return on efficiency at this plant, I would think should be able to be improved.	Thank you for your comment. Analysis of the social cost of carbon is provided in Section 3.2.2 of the EIS.
16.06	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	So with that, I'd just like to say that whatever represents the maximum benefit to the military, their families, taxpayers, Doyon for everyone, is the best outcome for all, and I hope there will be robust discussion regarding all of the options. I don't think that they're all on the table yet. I think we can do even better.	Thank you for your comment. Section 2.3.2 discusses alternatives considered and Section 2.3 discusses the viability analysis of alternatives for carrying forward for full environmental impact analysis in this EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
17.00	11/9/2020	Telephone Public Meeting	Greg Bringhurst	Office of Senator Sullivan	On behalf of our office, we'd just like to encourage robust and continued consultation with local stakeholders to include, but not limited to Doyon, Usibelli, Fairbanks North Star Borough, the City, members of the public.	Thank you for your comment. The Army continues to consult with local stakeholders upon request.
18.01	11/9/2020	Telephone Public Meeting	Dan Britton, General Manager	Interior Gas Utility	IGU is the local publicly-owned gas utility providing natural gas services in the Fairbanks area. IGU has been charged by the Fairbanks North Star Borough with providing low-cost service to as many residents and businesses as possible, as quickly as possible. IGU, through its whollyowned subsidiary, Fairbanks Natural Gas, has been providing reliable natural gas and backup storage of natural gas to Fairbanks area residents and businesses since 1998, and is a current provider of natural gas to a housing complex on Fort Wainwright. IGU provided comment during the U.S. Army initial EIS comment period. Those comments, particularly the ones about the environmental and economic benefits of natural gas solutions remain as valid today as they were 13 months ago.	Thank you for your comment. Comments provided during the comment periods for this EIS have been considered by the Army.
18.02	11/9/2020	Telephone Public Meeting	Dan Britton, General Manager	Interior Gas Utility	Some updating of those comments, particularly regarding IGU's capability to provide service as necessary: In the 13 months since the initial comments were provided, IGU has completed construction, commissioned, and put into the service, the 5.25 million gallon storage facility that was described as scheduled for completion fall of 2019. This storage facility allows IGU to meet the 14-day fuel storage requirement delineated in the Draft EIS for either the centralized or decentralized gas options. An expansion of the local faction facilities is still planned and would be sized to incorporate either gas option, if alternative 2 or 3 were to be selected at the end of the EIS process.	Thank you for your comment. The natural gas storage facility was acknowledged in Sections 3.3.1.3 and 3.9.2.4 of the EIS.
18.03	11/9/2020	Telephone Public Meeting	Dan Britton, General Manager	Interior Gas Utility	IGU remains positioned to provide services for the buildout of either natural gas system, including construction of necessary off-base distribution or transmission lines for construction of a main transmission line to a central heat and power facility that utilizes natural gas as its primary fuel source. IGU would coordinate with U.S. Army Alaska in planning efforts necessary to ensure delivery of natural gas in quantities necessary and with storage as specified for either alternative 2 or alternative 3.	Thank you for your comment. The alternative selected for implementation will be identified within the Notice of Availability for the Record of Decision, which will be published within the Federal Register upon approval by the decision maker.
19.01	11/9/2020	Telephone Public Meeting	Chris Miller	Design Alaska	I have reviewed the Draft EIS, and I'm a firm believer in district energy in centralized facilities in the combined heat and power concept. We went through -- I, personally, went through this similar process with the University of Alaska Fairbanks and their decision to go to a fluidized bed, centralized coal boiler to heat and power the University of Alaska Fairbanks' campus. The biggest decision that led us to coal power for the University was the reliability of the fuel source. Rail and truck coal has been available, consistently, in the interior of Alaska for many years, but with -- since Dan was just on the phone, we also included natural gas as part of that combustion process. So we can get the efficiencies of the natural gas that when they're available, and it makes sense. But coal is a great energy source for stationary power plants with an extensive distribution system already attached.	Thank you for your comment. Sections 2.5.1 and 2.5.2 of the EIS identify coal-fired centralized CHPP alternatives that were carried forward for analysis.
19.02	11/9/2020	Telephone Public Meeting	Chris Miller	Design Alaska	So, of course, like all things, this is probably more complicated than alternative 1, 2, and 3 as provided, but I would certainly suggest a centralized co -- se -- heat and power plant is the appropriate solution for Fort Wainwright. And -- but it could be combination of a coal -- a base-loaded coal boiler to provide the electrical needs that are there, year-round, but some combustion turbine technology related with it that would use the same recovery steam generators and the same air-cooled condensers and give you some more -- better load matching for some of the winter peaks, and be able to use the natural gas or oil resources that are available to us.	Thank you for your comment. Section 2 of the EIS provides a viability analysis of the alternatives considered.
19.03	11/9/2020	Telephone Public Meeting	Chris Miller	Design Alaska	So, certainly keeping the plant centralized and utilizing the built-out infrastructure of the distribution utilities is very economic, a very smart thing to do; keeps all your -- it works for many, many installations of -- around to have CHPPs, and they are proven over and over, again, to be very cost efficient. And you can utilize a fuel source that's not available to anybody else, which gives you -- or to the general consumers.	Thank you for your comment. Sections 2.5.1 through 2.5.3 of the EIS identify centralized heat and power generation alternatives that were carried forward for analysis.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
19.04	11/9/2020	Telephone Public Meeting	Chris Miller	Design Alaska	Save the natural gas. Use it for homes and other people who have no choice; we don't want them to burn coal. And let's use coal in an application where we can control it and get maximum efficiency.	Thank you for your comment. Your input to the evaluation process is appreciated.
20.01	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	I appreciate a second chance to make additional comments. I've just been listening to some of the additional comments that have been made. And I -- in general, very in support of most of everything I've heard. But I just wanted to sort of clear up maybe one potential point of confusion, which is the efficiency of the combined heat and power plant, which has been called into question a couple times. The efficiency of most thermal power plants or, indeed, any heat engine, including one such as in your vehicle, that's on the order of 30 to 40 percent for a very, very good performing vehicle. That doesn't mean that the vehicle, itself, is inefficient or that there's any inherent problem with the machinery or with the process or with the design. That is just inherent to the process of converting heat into work.	Thank you for your comment. The efficiency considerations of the current CHPP is described in Section 1.1.2 of the EIS.
20.02	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	So, I heard numbers, 60 percent, for efficiency of the CHPP. That's actually very, very good. And the reason why that number is so high and so much higher than, say, 30 or 40 percent, is because so much of that heat is being used to service buildings and provide domestic heat for space and water. And so, really, offsetting by going to buy power from Golden Valley, you're essentially saying, well, we don't think that a 60 percent power plant is efficient, so let's go to a 30 to 35 percent efficient plant, and we'll pay them and just turn a blind eye towards the efficiencies. And, by the way, buy additional fuel to heat our post, whereas, that used to be provided by that 60 percent. So just wanted to clear that up so there's no misunderstandings about the word, efficiency, or about the actual levels of efficiency.	Thank you for your comment. The efficiency considerations of the current CHPP is described in Section 1.1.2 of the EIS.
20.03	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	I'll just make one final point. I have -- also have -- I didn't talk about as much, but I think one of the other callers mentioned the concerns about freezing of pipes, sewer and water, in the utilidors. And all the data I have shows that there's really no proposed plan in the EIS to address that; none that has any kind of academic backing.	Thank you for your comment. Section 2.5 of the EIS provides brief descriptions of continued use of utilidors for steam distribution. Alternatives 1 and 2 would continue to transmit steam heat via the existing utilidors, which would be renovated. Alternative 3 would use existing utilidors to the extent possible and provide adequate mechanism to avoid the water and wastewater lines from freezing.
21.01	11/9/2020	Telephone Public Meeting	Justin Hogrefe	Former Fort Wainwright employee for DPW Environmental	I'm a former Fort Wainwright employee for DPW Environmental. I currently work at Eielson for the Air Force in the environmental department for the -- with the civil engineers. However, I do not comment tonight for the Air Force. But I'm just calling to talk about the similarities between the Eielson plant and the Fort Wainwright plant. They're both older coal plants. And I worked for a year at the Eielson plant. And about six years ago, we started to repair and replace the boilers at the plant and -- versus building a new plant.	Thank you for your comment. Responses to your comments regarding the analysis in this EIS is provided below.
21.02	11/9/2020	Telephone Public Meeting	Justin Hogrefe	Former Fort Wainwright employee for DPW Environmental	And so I would suggest, if you've not already, consult with the Eielson and the Air Force on that experience. The new boilers, I have -- if alternative 1 was chosen, a new plant was built, the new boilers would likely require best available controlled technology backed or maximum achievable control technology known as MAC for their emissions controls. And these emissions controls would be very expensive and they -- I render the boilers not as reliable as you might think. So I suggest looking at that in depth for the -- especially the sodium bicarbonate injection systems and the ammonia injection, (indiscernible) operating in an extremely cold environment. Those can lead to failures and shutdowns, and I would suggest 10 percent or more of the operational time could be affected by the shutdowns.	Thank you for your comment. BACT would be implemented, as needed, depending upon the selected alternative.
21.03	11/9/2020	Telephone Public Meeting	Justin Hogrefe	Former Fort Wainwright employee for DPW Environmental	So, installation resilience and the mission could suffer with the new plant option. So I would suggest alternative 2 or 3; however, if the new coal plant is chosen, alternative 1, maybe gas could be an option to augment that.	Thank you for your comment. Section 2 of the EIS provides a viability analysis of the alternatives considered. The alternative selected for implementation will be identified within the Notice of Availability for the Record of Decision, which will be published within the Federal Register upon approval by the decision maker.

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22.01	11/9/2020	Telephone Public Meeting	Dave Dean	Former Director of public works and post commander of Fort Wainwright. Also retired military	I'm the former director of public works and post commander of Fort Wainwright, and I'm retired military. And I'll continue where I left off on the earlier statement. An overwhelmingly major benefit of the existing CHPP has always been the reserve of fuel stored on site. Even when there were disruptions of coal delivery by rail, the installation could rely upon the 90-day coal stockpile. During one winter period, the coal supplier even demonstrated their ability to deliver coal by truck if rail shipments were disrupted for an extended period. The test delivery option enhanced the confidence that fuel would not bean impediment to providing heat and electrical service to the installation. The CHPP may be aged in relative terms, but upgrades in solid maintenance practices have extended its useful life for many more years. While there have been instances of failure such as a coal fire, the system was still able to provide service to the installation through a redundancy of coal conveyors, boilers, and turbines.	Thank you for your comment. The action alternatives carried forward for analysis, as described in Section 2 of the EIS, are compatible with mission and energy security needs to allow critical missions to be capable of withstanding extended utility outages for a duration set by the installation or a minimum of 14 days.
22.02	11/9/2020	Telephone Public Meeting	Dave Dean	Former Director of public works and post commander of Fort Wainwright. Also retired military	Any alternatives that recommends installing multiple high-efficiency natural gas heat and power equipment, overwhelmingly, increases the risk of multiple points of failure. The existing CHPP avoids many of those issues and allows immediate response by the existing workforce when any anomalies surface. To assume that adequate supplies of ultra-low fuel -- ultra-low sulfur would be available during critical winter months, is a dangerous proposition, as the entire area would be demanding the same fuels for commerce as well as heating fuel. As a rate payer for Golden Valley Electric, I can, personally -- or I am, personally, aware of the cost of electricity. Every time electrical transmission lines service is disrupted, Golden Valley Electric has to produce power from the diesel generators. This scenario would also exist for the backup natural heat and power equipment at Fort Wainwright.	Thank you for your comment. Alternative 3 was determined to be compatible with mission and energy security, and minimized disruption to the mission as identified in Section 2.3.3 of the EIS.
22.03	11/9/2020	Telephone Public Meeting	Dave Dean	Former Director of public works and post commander of Fort Wainwright. Also retired military	Additionally, the alternative of installing distributed natural gas boilers throughout the installation, sounds easy in concept; however, in practical terms, it would be a major impact upon family housing residents. Housing units are densely constructed, and there are few suitable locations for siting the boilers without a major construction effort and enormous negativity to residents. I cannot envision a single family housing occupant wanting a natural gas boiler constructed in their backyard.	Thank you for your comment. Boiler locations under Alternative 3 would be sited appropriately to minimize impacts on residential areas.
22.04	11/9/2020	Telephone Public Meeting	Dave Dean	Former Director of public works and post commander of Fort Wainwright. Also retired military	The matrix of Section 3.5 addresses the socioeconomic impacts of the various proposals, reflects -- reflecting a significant number of temporary jobs for the various alternatives. Temporary job numbers, ranging from 2,700 for alternative 1, 1,700 for alternative 2, and 500 for alternative 3, cannot be realized. In my view, many of these temporary jobs would require skilled labor, and that number of existing workers does not exist in Fairbanks and, likely, not in Alaska. It is easy to project labor requirements, but reality reflects far fewer available workers than those required. Thank you for allowing me to comment on the proposed EIS. I encourage any action to be well thought out and considerate of adequately supporting the mission as well as the residents of the installation.	Thank you for your comment. Section 3.5 of the EIS acknowledges that temporary workers would not only come from the borough labor pool but also from elsewhere in Alaska or other states. These workers would likely temporarily relocate to the region during the proposed construction activities.
23.01	11/9/2020	Telephone Public Meeting	Mike Craft	Public	Hi, this is Mike Craft. Thanks for a second bite at this apple. Yeah, I want to talk about just the idea that (indiscernible - audio breakup) and that's about the two years after Sputnik was launched. You know, and so from a systems perspective, it was designed when things were totally different than they are now.	Thank you for your comments. Responses to your comments on the analysis presented in this EIS are provided below.
23.02	11/9/2020	Telephone Public Meeting	Mike Craft	Public	You know, and I think about things like the water lines and the sewer lines. Now, I've been a builder in Fairbanks for 30 years. I've built 300 home sites. I own a gravel operation. I know a little bit about dirt. And, you know, the whole town of Fairbanks operates without hardly any parasitic loads on the water and sewer system. So, those parasitic loads that happen out there on the military base, are kind of wasteful in a sense.	Thank you for your comments. Responses to your comments on the analysis presented in this EIS are provided below.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
23.03	11/9/2020	Telephone Public Meeting	Mike Craft	Public	We've also got a situation where we live in a thermal inversion. And, in 1960, there was less than 20,000 people. Here we are the year 2020, and we're bumping off 100,000 people. And I'd like to see more people come here. I'd like to see the military base expand. But, at the same time, when you live in a bubble, that's pretty hard to do. And, according to the University, it's about 68 percent of the time, we're under these thermal inversions. The technology advances that have happened since 1960, you know, I'm in the energy business; I'll admit it. I own a wind farm. I operate that wind farm from my house in Fairbanks. It's 100 miles away. So I do know a little bit about some of the technology advances that have taken place, the SCADA systems and so on. So, you know, should get up with the times.	Thank you for your comments. Responses to your comments on the analysis presented in this EIS are provided below.
23.04	11/9/2020	Telephone Public Meeting	Mike Craft	Public	And then the last thing I want to talk about is the solid waste issue. You know, if we continue to use coal in Fairbanks, where are we burying the ash? Have we ever decided that? And how are we going to deal with it to the extent where it doesn't necessarily come back to bite us in the butt like Sulfolane has, like PFAS has. We already can't drink the water here. We can't breathe the air half the time. I mean, so what are we going to do with all this coal ash? Are we just going to keep building parking lots on it and soccer fields, or are we going to come up with a -- something that works? Take it back where it came from, whatever that is. So I think that that issue is definitely on the table. Where is 60 years of coal ash buried? So those are my cleanup comments. I -- like I said, I appreciate the second bite at this apple. And to your knowledge very much.	Thank you for your comment. Coal ash management is discussed in Section 3.4.2.3 of the EIS.
24.01	11/9/2020	Telephone Public Meeting	Lou Florence	Doyon Utilities, LLC	I'm president and CEO of Doyon Utilities. I had made one comment earlier, and I want to make our second comment now. And the second one is that Doyon Utilities wants the Army to make the best possible decision. Doyon Utilities is actually not here today to advocate for any one solution over the other, but we feel strongly that the Draft EIS must contain accurate information so that the Army can make a well-informed decision. There are a number of instances in the Draft EIS where we've identified that the information used or the conclusions drawn are simply not accurate. For example, the CHPP is referred to as, in various places, failing, antiquated, or obsolete. It's stated that it should be shut down, because it's exceeded its design life. As a power plant professional of many years' experience, I can tell you, it's not the age, but the condition of a plant that matters. This plant is in good condition. It has years of life left on it. Doyon Utilities has done extensive condition assessments. And this plant can be sustained for 20 years at a lower cost than any of the alternatives provided in the Draft EIS. The plants described in the Draft EIS is a single point of failure and that four, quote, unquote, near catastrophic events have occurred. What's not discussed is the extensive redundancy built into the plant. The fact that none of these events resulted in a sustained loss of heat or power to the post, or the fact that Doyon Utilities -- or under Doyon Utilities' ownership, the plant has become highly reliable.	Thank you for your comment. Section 3.3.1.3 of the EIS describes the current condition of the existing CHPP. Furthermore, the Army's guidance on evaluating and selecting district and islanded/decentralized heating systems requires a life cycle of 40 years; therefore, sustainment of the plant for 20 years does not meet the associated screening criteria.
24.02	11/9/2020	Telephone Public Meeting	Lou Florence	Doyon Utilities, LLC	There's been some discussion of efficiency, but little discussion of cost this evening. And from a cost perspective, there's one significant fact that the Draft EIS does not discuss. Our estimate is that the Army will save over $20 million every year that they burn coal instead of natural gas. Those savings would more than offset any costs needed to upgrade and maintain the current plant. The provider of utilities to Fort Wainwright, Doyon Utilities wants what's best for our customer. Our interests are aligned with the Army's. My objective in addressing these inaccuracies in the report, is not to criticize, but to ensure that the Army has and can use and relay upon the best and most accurate information to make this critical decision. Whatever decision is made, we look forward to holding up our end of the contract with the Army in providing our essential utilities to support Fort Wainwright's critical missions for the next 37 years. And that concludes my statement.	Thank you for your comment. As discussed in Sections 1.1.2 and 2.3.2 of the EIS, information that informed analysis of the alternatives considered in the EIS was from several studies that comprehensively reviewed the fuel, operations and maintenance, and cost efficiency for each.
25.01	11/9/2020	Telephone Public Meeting	Chris Miller	Design Alaska	I was part of the decision-making on the UAF power plant, University of Alaska Fairbanks power plant, which was -- has been recently built in the last -- gosh, three years we finished it -- two years we probably finished it.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
25.02	11/9/2020	Telephone Public Meeting	Chris Miller	Design Alaska	I highly encourage the EIS people to in -- visit with UAF and get some more information about what a modern coal plant can do. The biggest thing is, we didn't lose all the investment in the existing plant. The exis -- we demolished the coal boilers, the old technology coal boilers that were in the plant and replaced the coal part, but we re -- we used a lot of infrastructure, piping and control systems and air compressors and all those important systems that make a plant work, and all that investment that the Army has already made and already renewed over the years with working with Doyon. So the plant can be -- any of the investments that have been made can be made to make many, many years longer by the design of the new plant to incorporate the modern -- the stuff that's in great condition at the existing plant -- the -- at the existing Fort Wainwright plant.	Thank you for your comment. Section 2.5.2 identifies a new coal-fired CHPP that was carried forward for analysis in the EIS. Section 3.3.1.3 of the EIS describes the current condition of the existing CHPP.
25.03	11/9/2020	Telephone Public Meeting	Chris Miller	Design Alaska	The boiler at UAF does not use dry sorbent injection. It uses a -- it uses a circulating fluidized bed boiler, which would even work better for Fort Wainwright, because of the larger heat demand at Fort Wainwright, large electrical demand; would be a great fit for the facility. And I (indiscernible) all the coal infrastructure that already exists, the rail, the coal pile, the rail of coal unloading could all be reused for a new facility. So at -- I guess to summarize, I encourage the EIS writers to dig a little more into the modern coal facilities and the reliable infrastructure of coal and how it can be well married with natural gas to get a perfectly sized facility to meet Fort Wainwright's changing demands.	Thank you for your comment. Section 2.5.2 identifies a new coal-fired CHPP that was carried forward for analysis in the EIS.
26.01	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	Hi. Patrice Lee, speaking for myself and as the coordinator, Citizens for Clean Air, and not with any other hat I might wear in the community. I did want to -- the last speaker piqued my interest. I wondered where that new modern coal technology -- where more information could be found, so I will be looking that up.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.
26.02	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	I, also, looked through all of the technology portion of the EIS that is online, and I didn't see anything -- I hope I didn't miss it -- about carbon recovery and the ability to take that and make something useful out of it.	Thank you for your comment. Carbon recovery is among the BACT that could be implemented under any action alternative.
26.03	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	I want to associate myself with comments that Mr. Craft made. The amount of coal ash that's coming out of here and just being indiscriminately dumped, by its own admission, has toxics that are problematic, is, I think a cost -- dealing with that as a cost that just has not been put into the economic analysis. And when you deal with the potential for the fact that our communities have the highest levels of cancer and all kinds of other problems, illnesses, high levels, it doesn't make sense to do any extra polluting. That is not good for the community.	Thank you for your comment. Coal ash management is discussed in Section 3.4.2.3 of the EIS.
26.04	11/9/2020	Telephone Public Meeting	Patrice Lee	Public	And so I would say 20 more years or 30 more years of, where is all that coal ash going to go, if we don't have a carbon recovery facility, either in -- to build something out of the carbon or to remove it from the air and store it, we're not going -- and to deal with the coal ash, we're going to be in a world of hurt. We need to move forward into the 21st century. And I don't know anywhere else in the world where coal is the up-and-coming energy source for so many different reasons. And when you consider the health effects and the coal mitigation, it might be that coal is way more expensive than what it appears on the surface. I understand and appreciate all the arguments that have been made, but moving to natural gas or to combined heat and power, backed up by -- or run by solar and backed up by gas, or some combination of that combined heat and power, with modern technology and non-polluting renewable energy, just makes a lot of sense. And over time, I think it would show that it's less expensive.	Thank you for your comment. Coal ash management is discussed in Section 3.4.2.3 of the EIS.
27.01	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	There's been a few concerns made about the consumption of coal and the associated environmental impacts, which I'm very sensitive to. And I just want to highlight that, probably the largest coal option, largest carbon emission option is definitely the distributed natural gas and buy-power-from-Golden-Valley option, or I think option 3. Just so that folks are aware, that even though the word, coal, doesn't appear in that option, and that I don't believe the EIS (indiscernible - audio breakup), that is (indiscernible -audio breakup) the largest contributor to coal consumption since that's Golden Valley's primary method.	Thank you for your comment. GVEA's coal plant is not operating in this area, and is not a contributor to carbon emissions. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS because GVEA's power generation plans cannot be speculated.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
27.02	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	So I -- yeah, I applaud natural gas and the technology. I think if natural gas (indiscernible - audio breakup) it should be considered in the centralized fashion, so that there's some sort of co-generation to generate heat and power together. So just wanted to clear that up and plant that flag there where everybody can see it, that just, you know, distributing (indiscernible - audio breakup).	Thank you for your comment. Section 2.4 of the EIS identifies centralized alternatives involving natural gas that were considered but eliminated from further consideration because they did not meet one or more of the screening criteria defined in Section 2.3.1.
27.03	11/9/2020	Telephone Public Meeting	Nick Janssen	Public	Sure. Thank you so much. And sorry about the dropped call. Probably something on my end. I just wanted to comment on the claim that I've been hearing that any -- regardless of which action option is chosen, that 2.5 and burning of coal will be reduced and that envi -- the overall improvement to the environment will be realized. I don't see that with option 3, at all, because I think it completely discounts the amount of offset coal that will be burned by Golden Valley, should we decide to purchase power for Fort Wainwright from them. Essentially, it's just kicking the can down the road. And so I just wanted to plant that flag. So all -- that claim, I take exception with, and also want to just voice -- or not -- maybe voice my agreement with, but just speak to the two folks, thus far, who have made comments, and had concerns about burning coal, that that option 3 definitely burns more coal than any of the other options. And so I just want that to be known, that even though explicitly, the option doesn't talk about burning coal, purchasing power from Golden Valley is, essentially, doing that. So I'll yield the rest of my time.	Thank you for your comment. See the responses to comments 27.01 and 27.02 above.
28.01	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	I am writing to renew Doyon Utilities' (DU) request for the Army to produce full and complete unredacted copies, with all associated exhibits and attachments, of the following documents that the Army incorporated by reference and heavily relied upon in preparing its Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska (DEIS): i. Guernsey, Inc. 2015, Business Case Analysis: Heat and Electricity Alternatives for Fort Wainwright, Alaska (Aug. 2016); and ii. U.S. Army Corps of Engineers, 2018, Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK (Dec. 2018) ("USACE Report; together the "Requested Documents"). DU requires access to complete copies of the Requested Documents in order to evaluate and prepare its comments on the DEIS.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.02	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	DU's Efforts to Obtain the Requested Documents As you are aware, on October 26, 2020, DU requested the "complete, unredacted materials" that the Army relied upon in preparing the DEIS. One week later, you responded by stating that the "information redacted within the documents is procurement sensitive" and that the Army had provided all that it is "able to release . . . pursuant to 40 C.F.R. § 1501.12." (A copy of this email exchange is attached as Exhibit A). As detailed below, however, the very regulation that you cited as a basis for redacting information (i.e., 40 C.F.R. § 1501.12) prohibits the Army from relying on documents in a DEIS where information is withheld or redacted. Your response further instructed DU to "pursu[e] additional information . . . by way of a Freedom of Information Act request." Requiring the public to seek the Requested Documents through a Freedom of Information Act (FOIA) request – notably, more than three weeks after the DEIS's release – directly conflicts with the Army's obligation to make information incorporated by reference in the DEIS available for the entire comment period. Nonetheless, on November 10, 2020, DU submitted a FOIA Request to the Army in order to take all actions possible to secure the Requested Documents. A copy of DU's FOIA Request is attached as Exhibit B.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.03	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	Despite DU's best efforts to secure the Requested Documents through direct requests to the Army, and now through a FOIA request, the comment period on the DEIS is more than halfway complete and the Requested Documents have not been provided. Given the Army's heavy reliance on the Requested Documents, and that the redacted information is critical to DU's ability to adequately review the DEIS and prepare proper comments, on November 12, 2020, DU filed a request for an extension of the DEIS public comment period of 60 days following receipt of the Requested Documents. A copy of DU's Comment Period Extension Request letter is attached as Exhibit C.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.

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28.04	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	NEPA Requires that the Army Make the Requested Documents Available The Council on Environmental Quality's (CEQ) regulations implementing the National Environmental Policy Act (NEPA), at 40 C.F.R. § 1501.12, preclude the Army from incorporating, referencing, or relying upon materials in the DEIS that are not "reasonably available for inspection by potentially interested persons within the time allowed for comment." The regulations expressly state that "Agencies shall not incorporate by reference material based on proprietary data that is not available for review and comment." Federal courts have erased any doubt on the Army's obligations. "It is settled in [the Ninth Circuit] that any supporting data or studies expressly relied upon in an EIS must be "available and accessible" to the public." Similarly, the Ninth Circuit has found that "it is well settled that supporting studies need not be physically attached to the EIS. They only need be available and accessible." Thus, to comply with NEPA, the Army must either provide complete and unredacted copies of the Requested Documents immediately or withdraw the current DEIS and re-issue a new DEIS that does not incorporate by reference, refer to, or rely upon these documents.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.05	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	CEQ has also confirmed that making available a redacted document does not fulfill an agency's obligations under section 1501.12. In response to a commenter's concern (on the most recent NEPA regulations) that agencies could potentially thwart the requirement to make documents available through "the redaction of information," CEQ stated that its regulation is clear and "fully addresses the commenters' concerns" through the prohibition on incorporating material "based on proprietary data that is not available for review and comment." CEQ's NEPA Guidance similarly confirms the Army's responsibility to provide full and complete copies of the Requested Documents, stating: "Care must be taken in all cases to ensure that material incorporated by reference, and the occasional appendix that does not accompany the EIS, are in fact available for the full minimum public comment period."	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.06	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	The Requested Documents are Necessary for DU to Prepare Meaningful Comments on the DEIS NEPA is a transparency statute, where the public's review and opportunity to provide input is essential. Where the Army redacts essential elements of its analysis, such key information is truly not "available or accessible" for public review and comment. This is the case here, as the redactions withhold information regarding key aspects of the Army's analysis, including: actual and projected fuel and energy consumption; fuel and energy costs; estimates of the capital costs of the alternatives presented; and assumptions underlying the studies on which the Army is basing its analysis.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.07	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	The USACE Report itself states that these redacted data constitute "key factors favoring" one solution over the others. The public cannot meaningfully comment on the accuracy, fairness, or usefulness of this analysis when the Army has redacted the data that the analysis itself states constitute "key factors." By way of example: • The public cannot adequately evaluate the project's purpose and need when the Army will not say what amount of energy it uses. • The public cannot adequately review and comment on projected air emissions impacts when the Army will not state how much coal is consumed or how much heat and electricity is generated from that combustion. • The public cannot adequately assess the economic impacts of the project when the Army has provided only one portion of the costs, while withholding information about fuel costs, which constitute one of the major sources of the elevated overall costs the Army cites as the reason for the project.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.

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28.08	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	The Redacted Information is Not Procurement Sensitive Even if the Army could properly redact information from a report that it incorporated by reference, referred to, and relied upon in its DEIS – which it cannot – the Army's stated justification that the documents are "procurement sensitive" is questionable. First, there is no ongoing procurement; the Army is conducting a NEPA process to determine whether a new heat and power generation source is required at Fort Wainwright. Second, it appears that in many cases the redacted information is not relevant to a procurement. For example: • Redactions in section 4-3, of the USACE Report, including Table 4-10, obscure information such as regulated electricity and natural gas prices that are available to the public through the local utilities or the cost of coal from a sole source contract. As such, releasing this information will not deter competition because the relevant cost is either not subject to competition or set by public regulatory proceeding.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.09	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	• The USACE Report redacts information about Fort Wainwright's actual fuel and energy consumption, e.g. Tables 4-11 through 4-13, which is factual information that would be foundation for any hypothetical future procurement and thus must be released to all parties in that context. Third, it is unclear how this type of information could benefit a party seeking to contract with the Army if there was a future procurement, as the information would be public and thus available to all future bidders, and would not appear in any way to prejudice the Army in a future procurement if it were disclosed. Finally, the Army has not provided any explanation about what is intended by "procurement sensitive," much less citation to a regulation or other standard authorizing failure to disclose for that reason.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.10	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	It is Improper to Require a FOIA Request to Obtain Documents that the Army is to have Available and Accessible for the Full Comment Period Finally, directing DU to seek additional documentation "by way of a [FOIA] request" is not an acceptable solution as a practical matter nor as a matter of law. NEPA regulations require that the Army make information "reasonably available for inspection by potentially interested persons within the time allowed for comment." Information is not "reasonably available" if the public is required to initiate and proceed through a formal FOIA request process to obtain such information.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
28.11	11/12/2020	Email	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	Requiring the public to go through a FOIA process to obtain information after a DEIS is issued directly conflicts with NEPA's mandate that information referenced in the DEIS be available for the entire comment period. By definition, the information is not available during the full comment period if a FOIA request is required during the comment period in order to make it available. Further, agency responses and subsequent production of requested documents is not instantaneous; the FOIA law allows agencies 20 business days to provide an initial response to a FOIA request, plus an extension of 10 days, which here constitutes more than half of the comment period. Additionally, if the Army failed to provide this key information on the grounds that it is "procurement sensitive," there is every reason to believe that the Army would seek to withhold disclosure under FOIA on the very same grounds. And if that is not the case, then there should be no reason to redact under NEPA in the first place. In closing, the Army should immediately provide full, complete, and unredacted copies of the Requested Documents.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
29.01	11/12/2020	Letter	John Coghill Click Bishop	Alaska State Senate	Although many have sought (and support) a stable, sizable supply of natural gas in the Interior (going back decades), that necessary supply simply has not materialized in a manner that meets the needs of the entire region. Recent construction of the University of Alaska Fairbanks's 17- megawatt coal-fired power plant demonstrates why: "The university just couldn't buy reliable, affordable gas." a. Historically, in the not-too-distant-past, a large portion of Alaska experienced rolling brownouts because of natural gas disruption from Cook Inlet. b. As long as the large gas reserves on the North Slope remain out of reach, and unless something drastically changes in Cook Inlet, Interior residents have to look elsewhere.	Thank you for your comment. There is a demonstrated sufficient supply of natural gas in the region to support the Proposed Action (per Pentex Alaska LLC 2016; see Section 2.5.3 of the EIS).

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29.02	11/12/2020	Letter	John Coghill Click Bishop	Alaska State Senate	There is a recognition that, nationwide, coal is not politically popular. But that should not be a reason to rush into a "non-viable" alternative scenario based on decisions that, perhaps, face "top down pressure" outside of Alaska. a. Noteworthy: Alaska was exempted from the Clean Power Plan back in 2015.4 That was based on an "on-the-ground" analysis, after objections from many around the state. The proposed plan, at the time, just would not work. "It's a very different animal here (than the Lower 48) and I think the [federal government] has acknowledged that in this ruling and that's a good thing," said Alaska Railbelt Cooperative Transmission and Electric Co. CEO David Gillespie at the time.	Thank you for your comment. Responses to your comments on the analysis in the EIS are provided below.
29.03	11/12/2020	Letter	John Coghill Click Bishop	Alaska State Senate	Coal is generally a low cost, firm form of energy. Additionally, unique to the Interior, coal has a stable supply and built in infrastructure. Fort Wainwright can have a 90-day supply, on-site, in case of disruption. a. Realistically, can the same be said for natural gas? i. There is a reference to a "minimum 14-day supply" in proposed Alternative 2. Is there a high confidence level that a "minimum 14-day supply" can be enough, considering historical struggles with gas supply? ii. How much of a gas build-out would be required to equal the durational supply of coal, if the choice is made to expand gas storage capacity? Have those costs been properly considered?	Thank you for your comment. Alternative 2 would be a dual-fuel system, minimizing reliance on one fuel source, and Army Directive 2020-03 (supersedes Army Directive 2017-07) has a requirement for a 14-day supply. A natural gas supplier has the resources available off-post for the facility on the installation, and these costs have been incorporated. A 14-day supply of fuel oil/natural gas would also be available for mission critical facilities. A 90-day coal supply is in excess of the 14-day Army policy.
29.04	11/12/2020	Letter	John Coghill Click Bishop	Alaska State Senate	Coal has to travel from Healy to Fairbanks and is approximately 109.7 miles away. Natural gas from Cook Inlet has to travel approximately 409 miles.	Thank you for your comment. The distance is noted and it is recognized in both cases that shipment would occur by rail or truck.
29.05	11/12/2020	Letter	John Coghill Click Bishop	Alaska State Senate	Alternative 1 (the building of a new coal CHPP) alleges that "this alternative would have the highest implementation and operations and maintenance (O&M) costs, and the highest risk for installation-wide loss of heat through distribution." a. That needs further explanation. i. The means and costs for delivering coal to Fort Wainwright is known. The means and costs for delivering natural gas to Fort Wainwright is unclear. ii. The scope of coal infrastructure/storage is known. The natural gas infrastructure/storage construction is unclear. iii. Even a targeted price of $15/mcf (which many consider optimistic) would struggle against the firm, known costs of coal. Costs increases (hovering around $19/mcf or more) would further erode the economic viability of natural gas.	Thank you for your comment. Reasonable assumptions were made in the cited document (USACE 2018) to arrive at these conclusions.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
30.00	11/18/2020	Letter	Lorali Simon	Usibelli Coal Mine, Inc.	[R]equesting the Army to provide the un-redacted files for the Guernsey report as well as the USACE report, and an extension of 90 days to the DEIS comment period after the un-redacted documents are received. Usibelli Coal Mine, Inc. (UCM) respectfully requests the Army to produce full, complete, un-redacted copies, with all associated exhibits and attachments, of the following documents that the Army incorporated by reference and heavily relied upon in preparing its Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska (DEIS): 1. Guernsey, Inc. 2015, Business Case Analysis: Heat and Electricity Alternatives for Fort Wainwright, Alaska (Aug. 2016); and 2. U.S. Army Corps of Engineers, 2018, Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK (Dec. 2018) ("USACE Report; together the "Requested Documents"). UCM requires access to the full, complete, un-redacted Requested Documents in order to analyze and prepare its comments on the DEIS. Furthermore, UCM requires an additional 90 days to analyze the unredacted documents prior to submitting its comments on the DEIS. On November 2, 2020 I emailed you explaining that, after reading the DEIS, UCM was unable to ascertain how the Army came to many of its conclusions regarding the alternatives. Many of the documents referenced are not publicly available, making it impossible for stakeholders to critically analyze the information contained in the DEIS, or follow the process by which the Army made its conclusions. On that same day, you responded by sending redacted copies of the Requested Documents, and further stated that the full information within the documents is procurement sensitive and that UCM would need to file a Freedom of Information Act request. Ms. Sample, as the Army is well aware, the comment period for the DEIS is more than halfway complete. Clearly, the Army has relied heavily upon the information contained in the un-redacted Requested Documents, and UCM is at a disadvantage without the ability to adequately review them. The redacted information is critical to UCM's ability to sufficiently analyze the DEIS and prepare comments. The National Environmental Policy Act (NEPA) is predicated on transparency. UCM's review of the full, complete, un-redacted information contained in the Requested Documents is critical in formulating comments which the Army claims it values in its decision making process. The redactions withhold information regarding key aspects of the Army's analysis, specifically: actual and projected fuel and energy consumption; fuel and energy costs; estimates of the capital costs of the alternatives presented, and assumptions underlying the studies on which the Army is basing its analysis. The Army has claimed that the redacted information is procurement sensitive. Please provide the regulatory reference that authorizes the redaction of critical information used in the development of the DEIS Alternatives. In conclusion, UCM requests the Army to immediately provide full, complete, and un-redacted copies of the Requested Documents and extend the comment period by 90 days after the date it does so.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
31.00	11/15/2020	Email	Mike Craft	Public	Table of: Complete Air Quality Advisories/Episodes List (Filterable by Area < Cautionhttps:// dec.alaska.gov/Applications/Air/airtoolsweb/advisories > and Year)	Thank you for your comment. Your input to the evaluation process is appreciated.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
32.01	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	While your November 19, 2020, email provided Doyon Utilities (DU) with an unredacted copy of the U.S. Army Corps of Engineers, 2018, Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK (Dec. 2018) ("USACE Report), the Army's failure to provide the Appendices that contain financial and other calculations from the USACE Report continues to violate the Army's obligations under 40 C.F.R. 1501.12. Your email states that: the Army has "fulfill[ed] [its] obligation to make information that is incorporated by reference reasonably available for inspection under 40 C.F.R. 1501.12; the Army will not make the USACE Report Appendices available for inspection because they were "not incorporated by reference anywhere in the DEIS, nor referred to or relied upon by the Army in preparing the DEIS;" and that the information in the Appendices falls beyond the scope of 40 C.F.R. 1501.12. You also note that DU may request the USACE Report Appendices from the USACE through the FOIA process, but that no extension of the public comment period will be made to allow for the USACE's production of the Appendices in response to such a FOIA request. Respectfully, the Army has not complied with 40 C.F.R. 1501.12 by providing only part of the USACE Report. The NEPA regulations do not allow the Army to pick and choose the portions of the USACE Report to make available to the public, especially when, as is the case here, in numerous places the DEIS cites to and relies upon the USACE Report generally, and more specifically, the information in the Appendices supports and is the basis for data and analyses in the DEIS.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
32.02	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	The Army has incorporated by reference, relied upon, and referenced the USACE Report as a whole to support the data and analyses in the DEIS, and accordingly, must make available the entire USACE Report, including its Appendices. As just a few examples: • DEIS section 1.1.2 cities the USACE Report to support the statement that CHPP inefficiency is the cause of Fort Wainwright's high utility costs; • DEIS section 2.5.2-4 cites to the USACE Report for determinations about the relative costs and risks of the alternatives carried forward; • DEIS sections 2.5.3 and 3.3.2.3-5 cite to the USACE Report for design parameters and efficiencies of the various Alternatives; and • DEIS section 3.5.2.3-5 cites to the USACE Report for overall construction costs and fuel requirements of the various Alternatives. Notably, each of these citations is to the USACE Report generally, rather than to a specific section thereof. Thus, the Army cannot incorporate by reference, rely upon, and reference the USACE Report as a whole, and then decide to make only certain parts of that report available. The NEPA regulations (and relevant jurisprudence) require that the Army make all referenced material available.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
32.03	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	Further, your email incorrectly states that "material identified in the Appendices was not incorporated by reference anywhere in the DEIS, nor referred to or relied upon by the Army in preparing the DEIS." While the DEIS may not explicitly reference a specific Appendix, a number of calculations throughout the DEIS that cite to and rely on the USACE Report are based upon the detailed information in the Appendices. The USACE Report expressly states (at pg. 3) that "the models used in completing this study" are contained in the appendices. Thus, relying upon and referencing the USACE Report is, by that fact itself, relying on its Appendices. Here are just a few examples:	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
32.04	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	• The No Action Alternative discussion in DEIS section 3.3.2.2 cites to the USACE Report for estimates of system thermal efficiency. The corresponding section of the USACE Report, section 4-3.2.2, describes the Foundational Heating Loads of the existing CHPP, and includes Table 4-18, which estimates distribution system mass losses. These mass losses are estimated in the "Thermal Loads" tab of the CEHNC LCCA.xlsx file that is part of Appendix A. Thus, a major assumption underlying the purpose and need – the alleged inefficiency of the current distribution system – is based upon the calculations in USACE Report Appendix A.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.

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32.05	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	• A number of the data points and impacts identified in the DEIS regarding the CHPP (e.g., costs, emissions, efficiency, etc.) are based on fuel consumption. USACE Report section 4- 3.2.3.1, in estimating the thermodynamics of Alternative A, says that details and calculations are in the "Coal CHPP Model" tab of the CEHNC LCCA.xlsx file that is part of Appendix A. This is also documented in the USACE Report at Tables 4-11, 5-8, and 5-11, which, for example, indicate that coal consumption for Alternative A is estimated at 161,147 tons per year in those tables. While no citation is provided, the number is not explained and thus it is inferred that the detailed calculations in the USACE Report Appendix A must be the source; if DU had the Appendices, we could confirm this. To understand how the Army estimated coal consumption – which impacts system design, efficiency, air emissions, and other significant features and impacts of the project – DU requires access to the Appendices to understand and review the calculations.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
32.06	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	• DEIS sections 2.5.2 and 2.5.3 cite to the USACE Report regarding net profits to the System Owner. In USACE section 4-5, Table 4-21 lists capital costs, but does not break out net profit. Rather, in USACE sections 4-5.1.1 and 4-5.1.2, the details of the cash flow are described as being contained in the "UPC Coal Initial" and "UPC CT Initial" tabs of the CEHNC LCCA.xlsx file that is part of Appendix A. Thus, the Army's calculations regrading net profits are based upon and can only be reviewed, analyzed, and verified by information in USACE Report Appendix A.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
32.07	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	For this reason as well, the Army has not fulfilled its obligations under 40 C.F.R. 1501.12 until the Army provides the USACE Report Appendices. Finally, also contrary to the statement in your email, it is in fact the Army's (Fort Wainwright's) obligation under 40 C.F.R. 1501.12 to provide the USACE Report Appendices, and not DU's obligation to secure these Appendices by initiating a new FOIA request process with a different agency (i.e., the U.S. Army Corps of Engineers). NEPA regulations require that the Army, as the DEIS preparer, make information "reasonably available for inspection by potentially interested persons." Information is not "reasonably available" if the public is required to initiate and proceed through a formal FOIA request process with a separate agency to obtain such information.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
32.08	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	Your email further states that that no extension of the public comment period will be made to allow for processing of the FOIA request. NEPA's regulations and Guidance require that the Army make the full USACE Report available for the public to review, consider, and utilize for preparing its DEIS comments for the full length of the public comment period, in this case, 60 days. To meet this 60 day availability mandate, the manner in which the Appendices are made available is not relevant. If the Army were to provide the Appendices today, that 60 days would commence immediately. If DU is forced to obtain the Appendices via a FOIA Request to the USACE, that 60 days would commence upon receipt of the Appendices from the USACE. And finally, even if the Army were required only to produce the body of the USACE Report – which, as demonstrated above, is not the case – the public is entitled to have the USACE Report available while the comment period remains open for 60 days, thus extending the DEIS comment period to at least January 21, 2021.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
32.09	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	The Army's decision regarding heat and electrical upgrades at Fort Wainwright not only affects security, resiliency, air quality, and regulatory compliance, but also has significant cost implications to the Army and, depending on the decision made, could have significant implications for DU, Doyon, Limited, and Doyon, Limited's 20,000 shareholders. It is important that the Army's ultimate decision is informed by correct data and analyses and proper public input. It is therefore critical that the public receives, and has the ability to review for the required 60 day time period, the complete USACE Report, which the Army relied heavily upon in its DEIS.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.

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33.01	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	Attached please find correspondence renewing Doyon Utilities' (DU) request for an extension of the comment period for the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska("DEIS") until 60 days after DU receives full and complete unredacted copies, with all attachments, appendices, and exhibits, of the following report: U.S. Army Corps of Engineers, 2018,Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK(Dec. 2018). Doyon Utilities ("DU") renews its request for an extension of the comment period for the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska ("DEIS") until 60 days after the Army produces full and complete unredacted copies, with all attachments, appendices, and exhibits, of the U.S. Army Corps of Engineers, 2018, Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK (Dec. 2018) (USACE Report).	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports have been released for review prior to the reopened 60-day comment period.
33.02	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	The Army's continued refusal to provide the full USACE Report has greatly prejudiced DU's ability to comment on the DEIS, and that prejudice has been amplified by the Army's production of the documents requested by DU in piecemeal fashion, forcing DU to spend additional time and resources on obtaining the documents. The lack of these documents has frustrated DU's good-faith efforts to comment meaningfully on the DEIS. National Environmental Policy Act ("NEPA") regulation 40 C.F.R. § 1501.12 requires the Army to make information that is incorporated by reference and relied upon in the DEIS "reasonably available for inspection by potentially interested persons within the time allowed for comment," which NEPA Guidance confirms, means the full length of the public comment period. After DU has been forced to repeatedly request a full and unredacted copy of the USACE Report via emails, letters, and multiple Freedom of Information Act (FOIA) Requests to multiple agencies, DU now finds itself 45 days into the 60 day comment period without the documents that DU requires to review the DEIS and provide adequate comments.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports have been released for review prior to the reopened 60-day comment period.
33.03	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	While DU now has an unredacted copy of the USACE Report (provided 41 days into the comment period, on November 19, 2020), the Army's failure to provide the Appendices that contain the engineering, technical, financial, and other calculations that are the basis for the data and analyses throughout the USACE Report and DEIS does not solve or lessen DU's need for its requested extension. Nor does providing just the body of the USACE Report satisfy the Army's obligations under 40 C.F.R. § 1501.12. The applicable NEPA regulations and Guidance are clear; the Army must make the full USACE Report available for the public to review, consider, and utilize for preparing its DEIS comments for the full length of the public comment period.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
33.04	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	We are now more than three quarters of the way through the 60 day comment period and still do not have the materials needed to allow for adequate comments, which should have been available on October 9, 2020. For the first 40 days (fully two thirds) of the comment period, DU had only a redacted version of part of the USACE Report. As of the evening of November 19, 2020, DU was provided an unredacted copy of the Report's body, but not the Appendices. Even if the Army were to provide the Appendices today, DU and the public would only be afforded 15 days (of which five are weekends and holidays) to review and prepare comments on material that, by law, was supposed to be available for 60 days.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
33.05	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	The Army's act of providing the unredacted body of the USACE Report 41 days into the comment period does not provide DU meaningful relief. Without any assurance from the Army that DU would receive an unredacted complete copy of the USACE Report or a comment period extension, DU was instead forced to proceed with preparing its comments based upon the incomplete information that the Army had provided. Now that DU has the unredacted body, but still not the complete report, nor a response to the comment period extension, DU is forced to take a step backwards (which costs DU further time, resources, and monies) to review all of the DEIS work prepared to date that relied upon the redacted USACE Report, and update that work in light of the unredacted information.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.

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33.06	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	This is not a simple task, as it involves analyses of technical, cost, and engineering information that can only be undertaken by qualified individuals. Given the gravity of the potential repercussions of the Army's decision, DU has been required to retain and pay technical experts for the initial review, and now pay again for this second review to consider the unredacted information. Now once again, given the uncertainties associated with receiving the requested Appendices and being granted a comment period extension, DU does not have the luxury of taking a "wait and see" approach; this work has already commenced, and if, and when, the Army provides the Appendices, DU will be forced, yet again, to take another step backwards to re-review its work in light of the Appendices. It is patently unfair, unreasonable, and in direct conflict with the requirements of NEPA, for the Army to have put DU in the position of having to undertake this process and incur triple costs for its review.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
33.07	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	In addition to the redundant costs, DU staff are being forced to duplicate and triplicate their time and resources focusing on the DEIS comments, which takes their time away from their already full- time obligations of operating the utilities at Fort Wainwright, Fort Greely, and Fort Richardson. Thus, the Army's approach of providing incomplete information in waves is even more prejudicial.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports were released for review prior to the reopened 60-day comment period.
33.08	11/23/2020	Letter	Submitted by Ian Shavitz	Lippes Mathias Wexler Friedman LLP on behalf of Doyon Utilities LLC	Finally, you directed DU to request the USACE Report Appendices from the USACE through the FOIA process, but noted that the Army would not extend the public comment period to allow for the USACE's production of the Appendices in response to such a FOIA request. Your solution is wholly inappropriate. First, NEPA requires that the Army make available the materials that it incorporated by reference and relied upon in its own DEIS. It is not DU's obligation to go to another agency to seek these materials. Second, NEPA requires that these materials be made available for the full length of the public comment period, in this case, 60 days. The Army cannot properly refuse to provide requested materials, cause the loss of additional time by forcing the public to go through a FOIA process with another agency, and then deprive the public of the benefit of the additional time that is needed to prepare public comments, when that lost time was the result of the Army refusing to provide the requested documents in the first place. This is facially unfair and an egregious and improper approach to disclosing documents. In closing, the Army should immediately provide full, complete, and unredacted copies of the Requested Documents, and extend the comment period by 60 days after the date it does so.	Thank you for your comment. Full unredacted reports were released, upon request, in December 2020 for review prior to the reopened 60-day comment period.
34.01	11/25/2020	Email	Michael Meeks	City of Fairbanks	The City will address their comments through two lenses; energy security, which translates into economic security for the City, and PM2.5, air quality. FWA is an economic engine for the City. A loss of FWA, for any reason, would have a major impact on the City's ability to provide services for the residents of Fairbanks. Even though the City does not have a sales tax, the money spent by the soldiers and their families, assist in the economic viability of city businesses, who, in turn, pay property tax, which fuels City services. The current power plant is the Achilles heel for the installation. If this sixty plus year old plant has a major failure during the winter, loss of utilidors and buildings are sure to follow. It would then be doubtful that the Army would expend the resources to bring FWA back to its current manning, which, in turn, would negatively impact the City of Fairbanks.	Thank you for your comment. The Army's need for reliable heat and electrical infrastructure for the installation in support of sustaining the Army's mission at Fort Wainwright is described in Section 1.2 of the EIS.
34.02	11/25/2020	Email	Michael Meeks	City of Fairbanks	Air quality, under the current PM2.5 restrictions, is another City concern. Although the FWA coal fired power plant is reportedly not a major contributor to PM2.5 issues, like wood smoke, a different fuel source (ie, gas) would provide an anchor customer, that could then increase the local gas company's ability to provide gas to the residents. The gas company would benefit from a larger user such as FWA, furthering its ability to spread cost over more users and expand the current system. Increasing the gas company's expansion abilities will provide additional opportunity for customers to choose gas over wood, thus improving the air quality. This area wide air quality improvement will also assist FWA with any future installation expansion opportunities when stationing decisions are contemplated.	Thank you for your comment. Sections 2.5.3 and 2.5.4 of the EIS describes the Army's natural gas or other liquid dual-fuel CHPP and distributed natural gas boilers alternatives that were carried forward for analysis.

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34.03	11/25/2020	Email	Michael Meeks	City of Fairbanks	The Conversion of FWA to natural gas either through selection of Alternative 2 or Alternative 3 is in the best interest of the residents of the City. Should there be a delay in the complete replacement of the current system, FWA should consider building smaller gas distribution centers on post.	Thank you for your comment. Sections 2.5.3 and 2.5.4 of the EIS describes the Army's natural gas or other liquid dual-fuel CHPP and distributed natural gas boilers alternatives that were carried forward for analysis.
35.01	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	Thank you for the opportunity to review the Draft Environmental Impact Statement regarding the heat and electrical upgrades at Fort Wainwright, Alaska. I commend the Army team that prepared this EIS for their careful analysis of the 16 options that they studied for upgrading these facilities. I am attaching my comments on the DEIS options that the army is considering.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
35.02	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	Thank you for the opportunity to review the Draft Environmental Impact Statement regarding the heat and electrical upgrades at Fort Wainwright, Alaska. I commend the Army team that prepared this EIS for their careful analysis of the 16 options that they studied for upgrading these facilities.	(This is a duplicate comment)
35.03	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	I am a long-term resident of Fairbanks (since 1974) and was a professor of ecology at the University of Alaska until I retired in 2011. My research has addressed the consequences of climate change, especially for northern ecosystems and communities and the ways that communities can adapt to minimize their vulnerabilities and risks to future climate change. My focus is particularly on ways to increase community resilience so that communities have more options and flexibility to respond to future changes in climate, the natural environment, or the economy. During my research, I often collaborated with scientists at the Army's Cold Regions Research and Engineering Laboratory and conducted permitted research on the Army's facility at Fort Greeley. I also conducted research for several years that was funded by the U.S. Army Research Office. I therefore have some familiarity with the Army's operating procedures.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
35.04	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	As a volunteer, I served as a community organizer for the Goldstream Valley neighborhood in Solarize Fairbanks campaign in 2020 to help residents obtain and install solar panels on their residences. Through this group and the Fairbanks Climate Action Coalition, I have some familiarity with cost, feasibility, and environmental impacts of various technologies for generating electricity. I have also collaborated with the Alaska Center of Energy and Power in their analysis of various options for upgrading the University of Alaska power plant a few years ago. I therefore have some appreciation for the environmental and technological issues involved in choosing among alternative technologies for heat and electricity generation.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
35.05	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	In general, I agree with the analysis presented in the EIS. In my view, the over-riding considerations—all of which are stated in the EIS—are: 1. The no-action alternative is not a viable option because the current CHPP is much older than its expected lifetime and would be the least reliable and the most expensive option. It places Fort Wainwright in violation of federal emissions standards and is a health and safety hazard to army personnel and to the community. I recognize that the Army does not take this option seriously and that it is presented only as a baseline for comparison with other options.	Thank you for your comment. As stated in Section 1.1, this EIS was prepared in in accordance with NEPA of 1969, as amended (42 U.S.C. § 4321 et seq.); NEPA implementing regulations issued by the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508); and the Army's NEPA implementing regulation (32 CFR Part 651, Environmental Analysis of Army Actions). As required by these regulations, the No Action Alternative was carried forward for analysis in the EIS.
35.06	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	2. Alternative 1 (to build a new coal CHPP) is the least desirable of the three options that the Army is seriously considering and, in my view, is not a viable option. It is the "most expensive in implementation and maintenance costs and has the highest risk of installation-wide loss of heat" (Army EIS statement). It would also have the highest health and environmental impacts of the three alternatives and is least likely to meet current and future federal emissions standards (see below). If climate change leads to more stringent federal emissions standards, as I expect to occur within 10-20 years, this option will become a stranded asset that will need to be replaced well before the end of its design life.	Thank you for your comment. Regardless of the alternative selected, state and federal regulatory emission requirements would be met.

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35.07	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	3. Alternative 2 (build dual-fuel combustion turbine generator CHPP) is not a desirable option because, contrary to what is stated in the EIS, it is less resilient than option 3. In addition, it would be more expensive in implementation and O&M costs than option 3 and would have larger negative environmental and health impacts.	Thank you for your comment. Table 2.3-1, Matrix of Considered Alternative Evaluated with the Screening Criteria, identifies that Alternative 2 is compatible with mission and energy security needs.
35.08	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	4. Alternative 3 (install distributed natural gas boilers and obtain electricity from the local utility) seems like the most desirable option. From a practical viewpoint, it is the least expensive in implementation and O&M costs. Its distributed nature and backup electrical generators make it much more resilient and less vulnerable to catastrophic failure than any of the other options. If the electricity purchased from the local utility comes primarily from renewable energy sources, this alternative would have least environmental impact and greatest health benefits of all the options considered. If federal emission standards become more stringent in the future (see below), this option allows a gradual shift to greater use of electricity produced from potentially renewable sources, without requiring a replacement of the entire CHPP. I would strongly encourage a modification of this alternative that would state a preference to the local utility to use renewable energy to meet the electricity needs of Fort Wainwright.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. While the Army cannot speculate on how the local utility provider generates electricity, the provider has multiple sources of energy such as coal, natural gas, oil, wind, photovoltaic, hydropower, and purchased power.
35.09	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	I understand why the EIS has decided that options 4-16 are less desirable from a practical perspective than the options they put forward for analysis. Alternative 3 has the possibility of providing the environmental benefits of options 9 and 10, if wind and solar are integrated into the power system of the electrical utility provider.	Thank you for your comment. Rationale presented in Sections 2.3.3 and 2.4 for Alternatives 9 and 10 explains the lack of investment, developed infrastructure, and space for construction of new infrastructure to include them as viable options for the Proposed Action.
35.10	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	Potential implications of climate change Rapidly accelerating climate change is increasing the risks and vulnerability of society in Alaska, nationally, and globally. If society continues its current pattern of fossil-fuel emissions, one third of the global population will experience average temperatures warmer than the heart of the Sahara Desert within 50 years, probably unleashing massive global migration and societal upheaval. Increasing intensity and frequency of coastal storms, rising sea level, and more extensive wildfires are creating additional risks. Alaska and other northern latitudes locations are warming twice as fast as the global average and will therefore suffer these risks disproportionately. Sixty percent of the American public view climate change as a serious risk, and another 20% view it as a major concern. In my view, as a climate scientist, it seems likely that there will be strong global and national pressure to drastically reduce fossil fuel emissions in the near future (for example, perhaps 1-2 decades). Therefore, any heating option that relies entirely on fossil fuels (the no-action alternative and alternatives 1 or 2) may need to be replaced by options that use electricity produced from renewable sources well before the end of the design-life of these facilities. Alternative 3 allows you to use natural gas for heating in the short term in a resilient distributed system but has electrical generator back-up that could be gradually upgraded if future emissions standards require it.	Thank you for your comment. Section 3.2 of the EIS provides greenhouse gas emission analysis for the no action and action alternatives.
35.11	12/2/2020	Email	F. Stuart Chapin, III (Terry Chapin)	University of Alaska Fairbanks	In summary, I strongly encourage the Army to choose alternative 3 for their upgraded heat and electricity system and that the local utility be encouraged to provide as much of the electricity as possible from renewable sources.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. While the Army cannot speculate on how the local utility provider generates electricity, the provider has multiple sources of energy such as coal, natural gas, oil, wind, photovoltaic, hydropower, and purchased power.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
36.00	12/3/2020	Email	Frank Keim	Public	Re the upgrade to your Ft. Wainwright power plant. First, I believe a completely new power plant should be constructed using a combination of natural gas, wind, solar-thermal and others. And definitely no coal! That said, if you decide to upgrade the plant for the next 20 years, please consider using more of the aforementioned cleaner sources of energy generation as a part of your mix with dirty coal. This is a moral as well as a health issue. You must always incorporate the need to keep particulates, especially from dirty coal, at an absolute minimum. Integral with this is the need to keep greenhouse gas emissions at an absolute minimum because of the chaotic consequences they will visit on future generations as a part of Climate Change writ large that we humans are inflicting on the Earth and its ecosystems and civilizations.	Thank you for your comment. Section 2.5.4 of the EIS provides the description of Alternative 3, which was carried forward for analysis in the EIS. Under Alternative 3 a distributed natural gas boiler system would generate heat for Fort Wainwright, while electricity would be purchased from a local utility provider. While the Army cannot speculate on how the local utility provider generates electricity, the provider has multiple sources of energy such as coal, natural gas, oil, wind, photovoltaic, hydropower, and purchased power.
37.00	12/3/2020	Email	Jan Bronson	Public	I'm commenting on the DEIS for a new power system for Ft Wainwright. Doing nothing or building a new coal plant are not acceptable because of the particulate matter that burning coal produces, and because burning coal produces so many greenhouse gases. Please quantify the costs the community would incur as a result of increased air pollution and greenhouse gas emissions, and take these costs into account in your decision-making. Include the toll on health as well as the economic costs. The DEIS should include a renewable energy alternative. Prices have come down, and it will look like the smart decision in 30 years and probably sooner. I have lived in Alaska for 61 years. My mom, sister, husband, and two children still live here. This is our home and we need to protect it.	Thank you for your comment. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
38.01	12/3/2020	Email	Laura White	Public	No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Renewable energy sources are discussed in Sections 2.3 and 2.4 of the EIS. Section 2.5.4 describes Alternative 3, which would install a distributed natural gas boiler system on Fort Wainwright, and would purchase electricity from the local utility provider. While the Army cannot speculate on how the local utility provider generates electricity, the provider has multiple sources of energy such as coal, natural gas, oil, wind, photovoltaic, hydropower, and purchased power. Section 3.2 provides an analysis of the social cost of carbon and greenhouse gas emissions for the no action and action alternatives carried forward for analysis. The Proposed Action is to determine how to best continue to provide heat and electricity to Fort Wainwright. Consideration of technologies and appliances to be used will depend upon the alternative selected and subsequent development of a project design. Development of the project design would occur following the approval of the Record of Decision.
38.02	12/3/2020	Email	Laura White	Public	The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.

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39.01	12/3/2020	Letter	Molly Vaughan	EPA	The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska, prepared by the United States Army Garrison Alaska (CEQ No. 20200191; EPA Project Number 19-0045-USA). Our review was conducted in accordance with EPA's responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. EPA previously provided scoping comments to the USAG Alaska in August 2019.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
39.02	12/3/2020	Letter	Molly Vaughan	EPA	The Draft EIS analyzes a proposal by USAG Alaska to upgrade its heat and electrical generation and distribution system. The existing coal-fired central heat and power plant and steam utilidor distribution system are operating at or beyond design life. In addition, the CHPP has difficulty meeting Clean Air Act requirements for emissions of particulate matter less than 2.5 microns in diameter and carbon monoxide. The Draft EIS analyzes three action alternatives as well as the no action alternative. The Draft EIS does not identify a preferred alternative.	Thank you for your comment. The Army's preferred alternative is identified in Section 2.5.5 of the Final EIS, in accordance with the NEPA implementing regulations identified in Section 1.1. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
39.03	12/3/2020	Letter	Molly Vaughan	EPA	Alternative 1 would replace the existing coal-fired CHPP with a modern coal-fired CHPP and upgrade the steam distribution system. Alternative 2 would replace the CHPP with a modern dual-fuel combustion turbine generator CHPP and would also include upgrading the steam distribution system. This alternative includes construction of a natural gas supply pipeline for primary fuel supply and an ultra-low sulfur diesel fuel storage area for secondary supply. Under Alternative 3, the CHPP would be replaced by dispersed high-efficiency natural gas-fired boilers to provide heat across the installation, and electricity would be purchased from a local utility provider. ULSD reciprocating combustion generators would be installed to provide emergency backup power and heat sources.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
39.04	12/3/2020	Letter	Molly Vaughan	EPA	Based on our review of the Draft EIS, our primary concern is the potential to disturb existing Comprehensive Environmental Response, Compensation and Liability Act operable units and records of decision at Fort Wainwright or sites not previously known to be contaminated. In addition, we are concerned that the level of detail provided regarding the three action alternatives is not sufficient to enable a robust analysis and comparison of potential environmental impacts associated with soil disturbance or impacts to surface water resources. The enclosed detailed comments and recommendations address these key issues, as well as additional concerns and recommendations for your consideration.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
39.05	12/3/2020	Letter	Molly Vaughan	EPA	Description of Alternatives The three action alternatives analyzed in the Draft EIS would vary in terms of location and area of soil disturbance for facility and infrastructure construction. The specific location and size of disturbance will affect the scale of impacts to multiple resources. As noted in our scoping letter, EPA is particularly concerned regarding the potential to disturb contaminated soils.	Thank you for your comment. See the response to comment 39.04 above.
39.06	12/3/2020	Letter	Molly Vaughan	EPA	Recommendation for the FEIS: Provide the following additional details to more completely characterize alternatives and enable thorough analysis of potential environmental impacts: • Alternative 1: Location and acreage of soil disturbance for construction of a new central heat and power plant and utilidor upgrades; • Alternative 2: Length and route of natural gas supply pipeline; location and acreage of soil disturbance for construction of a new CHPP, utilidor upgrades, natural gas supply pipeline, and 14-day ultra-low sulfur diesel back-up fuel storage facility; and • Alternative 3: Number of dispersed natural gas-fired boilers and ULSD backup generators; length and route of natural gas supply pipeline; location and acreage of soil disturbance for construction of dispersed natural gas-fired boilers, upgrades to existing steam distribution system, natural gas supply pipeline and distribution network, ULSD backup generators, and 14-day ULSD back-up fuel storage facility.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.

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39.07	12/3/2020	Letter	Molly Vaughan	EPA	Hazardous and Toxic Materials and Waste Comprehensive Environmental Response, Compensation and Liability Act Potential for Disturbance of CERCLA Sites As EPA previously noted in our scoping comments, the proposed project has the potential to disturb existing CERCLA operable units and records of decision at Fort Wainwright or sites not previously known to be contaminated, as well as the operation and maintenance of remedial actions and institutional controls. As noted above regarding the description of alternatives, the Draft EIS does not provide sufficient information to determine the extent of this risk. In particular, under Alternative 3, there could be significant implications to existing remedies or discovery of previously unknown contaminated sites, depending on the location of distributed boilers and generators. Recommendations for the FEIS: • Consider the locations of known contaminated sites when selecting locations for distributed infrastructure and avoid those sites where possible; • Conduct investigations of proposed sites prior to beginning construction to identify any previously unknown contamination concerns; and • Develop detailed plans for worker protection, surface runoff prevention, and contaminated soil disposal in the case of encountering known or unknown contaminated soils during construction.	Thank you for your comment. Section 3.4.2 of the EIS states investigations and remedial actions as appropriate would take place prior to demolition or ground disturbance. Text has been revised in the EIS to include recommendations noted in the comment.
39.08	12/3/2020	Letter	Molly Vaughan	EPA	Definition of CERCLA Hazardous Substances Section 3.4.1.1 of the Draft EIS describes hazardous substances as defined under various regulations but does not include CERCLA hazardous substances. Recommendation for the FEIS: Include a definition of hazardous substances under CERCLA. CERCLA Section 101(14) includes toxic materials as defined by other statutes, additional substances can be defined under CERCLA 102(a), and individual compounds are listed at 40 CFR 302.4	Thank you for your comment. The CERCLA definition of hazardous substances has been added to Section 3.4.1.1 of the EIS.
39.09	12/3/2020	Letter	Molly Vaughan	EPA	Federal Facility Agreement The proposed project has the potential to disturb existing CERCLA operable units and records of decision at Fort Wainwright or sites not previously known to be contaminated, as well as the operation and maintenance of remedial actions and institutional controls. EPA appreciates that the Draft EIS Section 3.4.1.2 includes information pertaining to CERCLA actions, stating "The Army, EPA, and the State of Alaska have signed Federal Facility Agreements for Fort Wainwright. These agreements outline institutional controls, which are administrative measures to control property access and usage and are applicable to known or suspected contaminated sites within Fort Wainwright" (pg. 3-45).	Thank you for your comment. As stated in the EIS in section 3.4.1.2, the institutional controls within the Federal Facility Agreement for Fort Wainwright would be adhered to during the implementation of the proposed action.
39.10	12/3/2020	Letter	Molly Vaughan	EPA	Recommendations for the FEIS: • Clarify that there is one signed Federal Facility Agreement for Fort Wainwright (1992, amended in 2007); and • Clarify that the FFA outlines the process for investigation and removal/remediation of environmental contaminants that may pose a threat to human health or the environment but does not define institutional controls or land use controls. These administrative mechanisms, if necessary, are placed on a contaminated site as part of the selected remedy in a record of decision for a site. Until operable unit-specific institutional controls are developed for any CERCLA-contaminated sites, policy memos and standard operating procedures are used to apply land use restrictions; these are not enforceable regulatory documents.	Thank you for your comment. Text clarifications have been added to Section 3.4.1.2 of the EIS.

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39.11	12/3/2020	Letter	Molly Vaughan	EPA	Ongoing CERCLA Actions The Draft EIS Section 3.4.1.3 includes the following information regarding the current status of CERCLA actions on Fort Wainwright: "In 2002, USAG Alaska completed construction of all systems necessary for site cleanup (USAG Fort Wainwright 2013a). The Army continues to perform active remediation and groundwater monitoring, enforce land use controls, conduct inspections, and consider possible additional cleanup options" (pg. 3-46 to 3-47). We note that there are also a number of contaminated sites discovered since 2002 that are currently under investigation. Recommendation for the FEIS: Add "investigations" to the list of ongoing Army actions. We appreciate that Section 3.4.1.3 of the Draft EIS discloses active remediation sites surrounding the existing CHPP. As noted in the document, the current power plant is within the boundaries of CERCLA Operable Unit 4. Active remedial treatment systems have been decommissioned at OU 4; however, land use restrictions remain for soil disturbance and use of groundwater. Recommendation for the FEIS: Provide additional detail regarding the current status of OU 4. Section 3.4.1.3 of the Draft EIS states, "A portion of the landfill no longer accepts any wastes and is closed and covered. Groundwater downgradient from the closed portion is sampled for mercury and arsenic, which are contamination constituents in coal ash" (pg. 3-48). We note that the inactive portion of the landfill is part of OU 4 and is monitored for a variety of contaminants. These include chlorinated solvents, which exist at concentrations above remedial cleanup goals. Recommendation for the FEIS: Provide additional detail regarding the status and monitoring at the OU 4 Landfill.	Thank you for your comment. Information has been added as requested to Section 3.4.1.3 of the EIS.
39.12	12/3/2020	Letter	Molly Vaughan	EPA	Identification of Potentially Contaminated Soils The Draft EIS provides the following general information regarding identification and management of potentially contaminated soils during construction: "Any project that involves excavation or movement of soils must include field screening for petroleum products (plus any other identified contaminants). Soils exhibiting readings less than 20 ppm are considered clean and may be reused on site or disposed of in accordance with the scope of work for the specific project (USAG Fort Wainwright 2013a)" (pg 3- 47).	Thank you for your comment. Please see the response to comment 39.13 below.
39.13	12/3/2020	Letter	Molly Vaughan	EPA	Recommendation for the FEIS: Clarify that only volatile contaminants can be field screened with a Photo Ionization Detector (PID). Metals, polychlorinated biphenyls, chlorinated pesticides, and per- and polyfluoroalkyl substances (PFAS) do not respond to PID readings and would require other field screening tools or laboratory analytical samples to detect.	Thank you for your comment. Text clarified per comment in the discussion on excavation or movement of soils in Section 3.4.2.3 of the EIS.
39.14	12/3/2020	Letter	Molly Vaughan	EPA	Polychlorinated Biphenyls The Draft EIS states that, "PCBs are not known to be present in transformers at Fort Wainwright" (pg. 3-50). However, we note that a Time Critical Removal Action at OU 6 was based almost completely on PCB release from transformers. Removal and investigative actions at OU 6 generated over 3,300 cubic yards of PCB-contaminated soils for disposal. In addition, when discussing the need to consider requirements under the Toxic Substances Control Act when disposing of demolition debris, the Draft EIS focuses on the potential for PCB-containing light ballasts. We are concerned that paint and other building materials in the existing CHPP may contain PCBs as well. Recommendations for the FEIS: • Provide additional detail regarding existing PCB contamination in the project area; and • Disclose the potential for PCBs to be present in additional materials within the existing CHPP and describe how TSCA disposal requirements will be followed.	Thank you for your comment. Text added per comment in the polychlorinated biphenyls (PCBs) subsections in Section 3.4 of the EIS. No PCB contamination was identified in the vicinity of the existing CHPP during investigations associated with OU-6.

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39.15	12/3/2020	Letter	Molly Vaughan	EPA	Unexploded Ordnances The Draft EIS states that, "[s]everal active [Military Munitions Response Program] sites that require further action exist at Fort Wainwright in the Main Cantonment Area: FTWW-004-R-01, Arctic Survival Area-Ski Slope; FTWW-001-R-01, TA-105; and FTWW-002-R-01, TA-101" (pg. 3-50). We note that these three Military Munitions Response Program sites completed a no further action ROD for munitions and explosive compounds in February 2020. Recommendation for the FEIS: Update the reference to these unexploded ordinance sites to disclose that no further action is required.	Thank you for your comment. Text in Section 3.4.1.3 of the EIS was revised per comment.
39.16	12/3/2020	Letter	Molly Vaughan	EPA	Water Quality The Draft EIS discusses the potential for short-term impacts to water quality during construction in general terms but does not provide alternative-specific details regarding proximity of anticipated infrastructure and construction activities to water resources. In particular, it is unclear whether the natural gas pipeline under Alternatives 2 and 3, or the distributed infrastructure under Alternative 3, will cross or be adjacent to any surface water features. Such information is needed to fully characterize potential impacts to water quality and to develop mitigation measures where appropriate. Recommendations for the FEIS: • For each alternative, describe whether any infrastructure or construction activities will occur in proximity to surface water features; and • If any surface water features will be crossed or are near enough to proposed disturbance areas to have the potential for water quality impacts resulting from surface water runoff, describe mitigation measures that will be used to reduce impacts. In particular, disclose measures that will be in place to ensure that runoff from any unanticipated contaminated soils encountered during construction will not reach waterbodies.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
39.17	12/3/2020	Letter	Molly Vaughan	EPA	Air Quality Quantification of Construction Emissions Project-specific construction emissions have not been estimated for the alternatives. Rather, the Draft EIS provides estimated emissions from a previous analysis conducted for an unrelated project at Fort Wainwright, with a brief explanation supporting this approach. While tiering to a previous air quality analysis can be a reasonable way to efficiently analyze potential air quality impacts, additional information is needed to support the use of this existing emissions inventory. Recommendations for the FEIS: • Provide estimated acres and timing of construction activity, anticipated material handling processes, and associated emissions types for each alternative; and • For each alternative, compare this information to the specifications of the reference project, to support the statement that the construction emissions provided in Table 3.2-4 are a conservative estimate. Alternatively, develop project-specific construction emission inventories if possible.	Thank you for your comment. Section 3.2.2 of the EIS has been updated per comment.
39.18	12/3/2020	Letter	Molly Vaughan	EPA	General Conformity EPA appreciates that the Draft EIS discusses General Conformity requirements for the proposed action, since the project area is within a PM2.5 non-attainment area and carbon monoxide maintenance area. The Draft EIS states, "[n]one of the direct emissions associated with the No Action Alternative or any of the action alternatives are subject to General Conformity. Emissions generated by the on-site energy production equipment (i.e., the CHPP or the distributed natural gas boilers) would be subject to ADEC's Prevention of Significant Deterioration (PSD)/New Source Review (NSR) permitting and, therefore, are exempt from General Conformity, in accordance with 40 CFR § 93.153(d)(5)" (pg. 3-9). It goes on to explain "indirect emissions from mobile source operations would be equal to or less than the No Action Alternative and will not be quantified or further discussed" (pg. 3-10). While we agree with the determination that construction emissions are the only emissions subject to a General Conformity analysis, we recommend revisions to the text for clarity. Recommendations for the EIS:	Thank you for your comment. Please see the response to comment 39.19 below.

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39.19	12/3/2020	Letter	Molly Vaughan	EPA	• On page 3-9, clarify that the discussion and explanation regarding exemption of direct emissions from General Conformity is with regard to permitted operational emissions only. In addition, we recommend that the sentence referencing 40 CFR § 93.153(d)(5) be revised to refer to § 93.153(d)(1) for accuracy when referencing PSD/NSR permitting programs; • Explain in Section 3.2.1.2 – Conformity that a General Conformity determination is required for non-exempt direct and indirect emissions. Clarify that, for the proposed project, this would include emissions associated with construction equipment used to prepare the site and install the new equipment. Describe the process for determining whether the emissions (either direct or indirect) will exceed a de minimus threshold level (measured in tons per year) for the criteria pollutant of concern, and for conducting a General conformity analysis if threshold levels are exceeded; and • Following the revisions described in the previous comment for the quantification and explanation of construction emissions for each alternative, update the General Conformity determination for each Alternative. Explain, for each alternative, whether direct and indirect construction emissions could contribute to the exceedance of the de minimus level. If emissions are above de minimus levels, include a general conformity analysis to document how the federal action will affect implementation of the Alaska State Implementation Plan (SIP) to reach attainment for PM2.5 or the CO Maintenance Plan. Should an alternative be above de minimis levels, the document should address emissions offsets. Please refer to the General Conformity Guidance document specifically the response to question #25, regarding mitigation efforts and the calculation of de minimis levels (see https://www.epa.gov/sites/production/files/2016-03/documents/gcgqa_940713.pdf).	Thank you for your comment. Regulatory text in Section 3.2 was updated and clarified per comment.
39.20	12/3/2020	Letter	Molly Vaughan	EPA	Monitoring and Mitigation of Construction Emissions As disclosed in the Draft EIS, sensitive receptors for children's health are present in proximity to the proposed project area. It will therefore be important to monitor air quality during construction and take corrective action to prevent any deterioration of air quality conditions in the area. We appreciate that the Draft EIS includes several best management practices to reduce dust and other emissions during construction.	Thank you for your comment. The best management practices identified in Section 3.16.2 would be adhered to, as applicable, during the implementation of the Proposed Action.
39.21	12/3/2020	Letter	Molly Vaughan	EPA	Recommendations for the EIS: • Consider methods to monitor air quality in the project area during construction, so that any unanticipated air quality concerns can be detected and corrected; and • Include a draft Fugitive Dust Control Plan to provide additional details on how fugitive dust emissions will be controlled during construction.	Thank you for your comment. Text added to Section 3.2.2 per comment.
39.22	12/3/2020	Letter	Molly Vaughan	EPA	Environmental Justice The Draft EIS identifies the potential for both beneficial and adverse impacts to sensitive populations, including minority and low-income populations and children, as a result of the alternatives for replacing the existing CHPP. Health and safety benefits are anticipated to result from replacement of the aging CHPP with modern equipment, and these benefits would be greater under Alternatives 2 or 3 because natural gas facilities generate fewer emissions than coal-fired facilities. However, the Draft EIS identifies the potential for a disproportionate adverse economic impact to the community of Healy, home of the coal mine that currently supplies coal for the CHPP, if an alternate fuel source is used. Recommendations for the FEIS: • In the Environmental Justice analysis, provide additional detail regarding the efforts that have been or will be taken to meaningfully involve and inform potentially affected communities and sensitive populations about project decisions and impacts; and • Discuss the results of meaningful involvement efforts, such as community identified impacts or suggested mitigation measures.	Thank you for your comment. Section 3.16.2.5 of the EIS identifies best management practices (BMPs) that meaningfully involve and inform potentially affected Environmental Justice populations in the community of Healy. The community of Healy was notified of the project during scoping and the release of the Draft EIS. The result of meaningful involvement efforts prior to the start of construction would be outside of the NEPA timeline.

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40.00	12/3/2020	Email	Princess Lucaj	Public	I am a resident of Fairbanks, Alaska and want to take this time to voice my concerns during this public commentary period. I am advocating for no action (in regards to continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
41.00	12/3/2020	Letter	Sarah Obed	Doyon, Limited	Doyon, Limited is formally requesting an extension of the comment period for the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska ("DEIS"). Doyon requested consultation on the DEIS shortly after the comment period opened, and the consultation has yet to be scheduled between Doyon, Limited and the United States Army. Doyon, Limited furthermore supports Doyon Utilities request for an extension following a request for information. This request is for an extension until 60 days after the Army produces full and complete unredacted copies to Doyon Utilities, with all attachments, appendices, and exhibits, of the U.S. Army Corps of Engineers, 2018, Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK (Dec. 2018) (USACE Report).	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020. Full unredacted reports have been released for review prior to the reopened 60-day comment period.
42.00	12/3/2020	Form Submission	Amber Masters	Public	The use of coal should be discontinued at FWW, No Action and Alternative 1 are not acceptable courses to take. FNSB has terrible air quality and if taking on such a large expense, every opportunity to help minimize air pollution in FNSB should be considered with greater weight than options that do not minimize air pollution. Coal is an outdated power source, FWW should seek to progress their systems and not be stuck with a power plant that cannot be retrofitted to use better technologies that develop. Alternative 3 is the most promising option, as it allows reduction of greenhouse gases and would allow for updates that include renewable energy sources as those technologies advance. Please consider adding an alternative that explores the use of renewable energy.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
43.01	12/3/2020	Form Submission	Joshua Knicely	Public	No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. · The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.

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43.02	12/3/2020	Form Submission	Joshua Knicely	Public	· The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. · The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming. Please, do not make air quality worse in Fairbanks. It's already a huge problem and contributing further to it will only drive a wedge between residents and the military. Y'all are amazing and I would hate to see this create a divide.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
44.00	12/4/2020	Email	Anne Lilley	Tanana Chiefs Conference	Whatever solution you come up with to address Fort Wainwrights energy needs, please consider Fairbanks air quality as a priority. Poor Air quality, especially during temperature inversions in the Fairbanks bowl area in the winter, consistently and adversely affects the health of all ages, but most especially at risk populations - those with asthma, COPD and other lung diseases. Replacing or upgrading outdated systems, using new technology can help as we work together to combat the problems of poor air quality in Fairbanks.	Thank you for your comment. Air quality impacts from the no action and action alternatives carried forward for analysis is provided in Section 3.2 of the EIS.
45.01	12/4/2020	Email	Rebecca Siegel	Public	I am writing to submit a public comment about the DEIS on options for power at Fort Wainwright. No Action and Alternative 1 are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution. Alternative 3 is the best of the three alternatives presented. It would have the greatest reduction in greenhouse gas emissions (70%), it has the lowest building and operational costs, and it would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. The Army's preferred alternative is Alternative 3, as identified in Section 2.5.5 of the EIS. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
45.02	12/4/2020	Email	Rebecca Siegel	Public	The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
45.03	12/4/2020	Email	Rebecca Siegel	Public	The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
46.01	12/4/2020	Email	Jayne Naze	Public	As a resident of the Fairbanks North Star Borough I am writing to you regarding the options being reviewed for heat and power upgrades at Ft. Wainwright. Realistically, we as a community cannot afford to have an energy source which threatens our air quality. Air quality is an ongoing issue within the borough and Ft. Wainwright is in a position to have a great impact upon that, either positively or negatively. Continuing to use the existing coal plant or building a new coal plant will only further contribute to our air quality problem. Particulate pollution and greenhouse gas emissions are major concerns with this energy source. During winter months, we are constantly hearing about the need to reduce our airborne particulates as the borough is threatened with fines for not meeting federal air quality standards, fines we truly cannot afford. During our summer months, we often battle forest fires and their damaging effects to our lungs. Do we need to add to the problem?	Thank you for your comment. Air quality impacts from the no action and action alternatives carried forward for analysis in the EIS is provided in Section 3.2.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
46.02	12/4/2020	Email	Jayne Naze	Public	Natural gas would be a far superior alternative as it would reduce greenhouse gas emissions while providing lower building and operational costs. In drafting an EIS, the prospect of using renewable energy alternatives and enhancing energy efficiency measures should also be seriously examined. Planning for the future requires the foresight to envision a strategy that addresses not just today's needs, but tomorrow's. Therefore, the draft EIS should consider alternative energy sources since their initial investment gets recouped, there are no future fuel costs. Alaska is on the forefront of climate change where the evidence for global warming abounds. It is only a matter of time before legislation will call for reducing greenhouse emissions. These are compelling reasons to utilize renewable energy. Thank you for taking the time to evaluate all considerations for this draft EIS. It is a pivotal decision the people of the Fairbanks North Star Borough are counting on you to take thoughtfully and in everyone's best interest.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
47.00	12/4/2020	Email	Margo Mendoza	Public	Don't want it use a cleaner greener source of energy. Don't use coal.	Thank you for your comment. Section 2 of the EIS provides descriptions of action alternatives that, among coal, include energy sources such as ultra-low-sulfur diesel, natural gas, and power purchased from a local utility provider. While the Army cannot speculate on how the local utility provider generates electricity, the provider has multiple sources of energy such as coal, natural gas, oil, wind, photovoltaic, hydropower, and purchased power.
48.01	12/4/2020	Email	Pollack Simon Jr.	Tanana Chiefs Conference	I am writing on behalf of Tanana Chiefs Conference (TCC) to provide the U.S. Army with comments on the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska (DEIS). We urge the Army to honor its Utilities Privatization (UP) Contract with Doyon Utilities, and retain Doyon Utilities as the utility owner and provider of heat and power at Fort Wainwright.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
48.02	12/4/2020	Email	Pollack Simon Jr.	Tanana Chiefs Conference	With Doyon, Limited's backing, support and resources, and following a lengthy competitive procurement process, the Army selected Doyon Utilities as the owner and operator of the heat and power utility at Fort Wainwright. The DEIS presents no valid reason for the Army to displace or diminish Doyon Utilities' role at Fort Wainwright. After awarding Doyon Utilities one of the largest UP Contracts that the Army has ever awarded, and as the first ever awarded to an ANC, the Army must fulfill its obligations, and should be taking all efforts to preserve Doyon Utilities' role at Fort Wainwright.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
48.03	12/4/2020	Email	Pollack Simon Jr.	Tanana Chiefs Conference	The Army's failure to honor its UP Contract is not only fundamentally unfair, but it also sets a very negative precedent for the Utilities Privatization program and for contracting with the federal government. This will be especially true for ANCs and Alaska Native Tribes if the Army were to disregard its contractual obligations under the only UP Contract that the Army has ever awarded to an ANC. Contractors, more generally, also may avoid entering into UP contracts with the Army, which require expending significant resources, where they cannot rely on the Army to fulfill its end of the bargain under a validly executed contract.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
48.04	12/4/2020	Email	Pollack Simon Jr.	Tanana Chiefs Conference	Finally, TCC urges the Army to continue consultation with Doyon, Limited. ANCSA Corporations were established to provide for the economic and social needs, including health, education, and welfare of their shareholders, and have a variety of business interests which may trigger the ANCSA Consultation requirement. ANCs that rely on consultation with federal agencies to protect their rights and interests. The law expressly requires that "all Federal agencies" consult with Native Corporations pursuant to Executive Order 13175, as extended to ANCs by Congress. Furthermore, it's important for agencies follow their own policies, including the Department of Defense's (DoD) own Consultation Policy, which requires the Army to engage in consultation "with Alaska Native corporations . . . ." Tanana Chiefs Conference strongly urges the Army to understand and address the range of consequences that would come with a decision by the Army not to retain Doyon Utilities as the owner and operator of the heat and power utility at Fort Wainwright.	Thank you for your comment. Consultation will continue as planning progresses. Impact to beneficiaries of the ANC, for which the System Owner is a subsidiary, is provided in Sections 3.5 and 3.6 of the EIS.

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49.01	12/4/2020	Form Submission	Emilie Sinkler	Public	The DEIS for power at Ft. Wainwright, while fairly comprehensive, fails to accurately examine a few very important aspects of power generation in our area. The economic impact of air pollution caused by particulate matter dispersed by power generation facilities is not calculated. Adverse health impacts like asthma and aggravation of heart and lung conditions are well established by science and lead to loss of life and medical visits that should be economically quantified in order to determine the best possible power source.	Thank you for your comment. Section 3.2 of the EIS provides the social cost of carbon impact analysis.
49.02	12/4/2020	Form Submission	Emilie Sinkler	Public	Energy efficiency of the end users is not considered. Reducing energy use with retrofits and more efficient appliances can reduce the costs of energy systems and the negative impacts associated with energy production and should be considered in all alternatives outlined in the DEIS.	Thank you for your comment. The Proposed Action is to determine how to best continue to provide heat and electricity to Fort Wainwright. Consideration of technologies and appliances to be used will depend upon the alternative selected and subsequent development of a project design. Development of the project design would occur following the approval of the Record of Decision. Upon project design, the need for additional environmental impact analysis will be assessed.
49.03	12/4/2020	Form Submission	Emilie Sinkler	Public	The DEIS fails to consider the climate impact of greenhouse gasses (GHGs) emitted by power generation. The US Army is well aware of the negative impacts that a warming climate has on their bases (including sea level rise that inundates coastal bases and intensifying storms that threaten infrastructure and lives, not to mention locally thawing permafrost and increasing wildfire risk) and should consider the negative impacts that continued GHG emissions pose for bases and communities across the country in the environmental justice, health, and economic sections of the DEIS. With these considerations in mind, the best alternative is even more clear. Alternative 3 would emit lower levels of particulate matter and greenhouse gases, in addition to making the base more energy resilient by distributing generation. However, I am disappointed to see a lack of consideration of how alternative energy sources, like solar and wind, could be included. They are extremely cheap and clean sources of energy and could be a part of new development at Ft. Wainwright.	Thank you for your comment. All three action alternatives considered would result in negative net greenhouse gas (GHG) emissions due to improved efficiencies from the new proposed heat and energy systems. Renewable energy alternatives were considered in Section 2.4 of the EIS.
50.00	12/4/2020	Form Submission	Sarah Clement	Public	The Draft EIS should include a renewable energy alternative; not having one is not acceptable at this point in history. Renewable energy options are getting significantly cheaper, and quickly, and will likely be required in future legislation to curb the impacts of climate change. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of alternatives; local particulate pollution in the Fairbanks North Star Borough is a serious health hazard that needs to be addressed here.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
51.00	12/5/2020	Email	Pstark	Public	I am very concerned about the amount of greenhouse gasses and local particulate pollution that will be produced if a new coal plant is built. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%) , has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include a renewable energy alternative.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
52.01	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Comments on U.S. Army Garrison (USAG) Alaska Draft Environmental Impact Statement (Draft EIS) Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska Notes/Instructions: Please find attached a letter from Mr. Frank Richards and included comments.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
52.02	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Overall Comments The Alaska Gasline Development Corporation (AGDC) is an independent, public corporation of the State of Alaska with primary responsibility for developing infrastructure to deliver natural gas in-state for the maximum benefit of the people of the state. AGDC is currently leading the Alaska Liquefied Natural Gas (LNG) Project, which will transport natural gas from Alaska's North Slope using a safe and reliable buried pipeline to a liquefaction facility in Nikiski, Alaska where LNG will be exported. The Alaska LNG mainline pipeline will pass through Interior Alaska and will be available for interconnection to in-state gas users. As the Draft EIS notes (Section 1.4), the U.S. Army Garrison (USAG) Alaska plans to use the analysis of alternatives to select an option informed by anticipated environmental impacts, socioeconomic impacts, and the public's concerns.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
52.03	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	From AGDC's perspective, it appears clear the current 'No Action' alternative to keep the current coal-fired Central Heat and Power Plant (CHPP) does not adequately address Fort Wainwright's long-term heat and energy needs. Keeping the coal-fired CHPP operational would take significant capital investment and process upgrades, and the resultant facility would still trail the other alternatives in efficiency and mission security.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
52.04	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	As noted in the Draft EIS, USAG Alaska needs to construct reliable heat and electrical infrastructure that addresses each of the following issues, and the 'No Action' alternative falls short on each item: • Reduce overall utility costs by having a system that runs more efficiently and has lower O&M costs; • Minimize the risk of a single-point catastrophic failure that may require evacuating the installation and may severely affect mission readiness; • Increase energy efficiency; • Boost the military's efforts to alleviate major climate impacts on defense infrastructure in strategically important Alaska; • Boost military readiness through consistent, sustainable, and reliable energy access; • Be compliant with emissions standards; and • Conform to energy security standards in accordance with Army Directive 2017-07.	Thank you for your comment. The No Action Alternative has been carried forward for full analysis in the EIS in accordance with the NEPA implementing regulations identified in Section 1.1.
52.05	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Further, constructing a new coal CHPP (Alternative 1) is noted to have the highest implementation and operations and maintenance (O&M) costs. In a report required by Section 335 of the National Defense Authorization Act for Fiscal Year 2018 the Department of Defense highlighted climate change effects impacting military installations in Alaska. Use of coal would not be the best alternative to alleviate climate impacts. Moreover, using coal as the main fuel, and building a new coal plant would be contrary to the global transition away from coal. As the Australian National University noted, "…coal will need to be phased out of the world's economy to meet the climate change challenge…". The UK has committed to eliminating coal power generation by 2025, other countries are moving rapidly to focus on cleaner energy, and U.S. coal-fired power plants are being phased out.	Thank you for your comment. Regardless of the alternative selected for implementation, the Army will adhere to federal and state regulatory emission requirements.
52.06	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	The U.S. phase-out of coal is illustrated in the following statistic: "The nation's coal fleet generated only 65 terawatt-hours of electricity in January 2020, according to numbers compiled by the U.S. Energy Information Administration (EIA). That marked a 35% decline from the year-ago period and the first time in decades that coal-fired power plants failed to deliver more than 100 terawatt-hours of electricity in January. The latest numbers confirm what individual investors likely already know, the U.S is increasingly ditching coal in favor of natural gas and renewable energy". Furthermore, "The coal fleet that remains operational is increasingly being idled. Numbers aren't yet available for January 2020, but the nation's coal-fired power plants recorded a full-year 2019 utilization rate of only 47.5%. Ten years ago, the figure was over 67%". It does not make economic or environmental sense to pour significant capital investment into a new CHPP that burns coal given the global shift away from coal as a fuel source, as well as climate and air quality concerns, especially in Alaska where there are substantial reserves of cleaner-burning natural gas.	Thank you for your comment. Regardless of the alternative selected for implementation, the Army will adhere to federal and state regulatory emission requirements.

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52.07	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	To improve air quality, transition away from an outdated fuel source, contribute to job growth, and provide an overall boost to the Alaska economy, AGDC encourages the USAG Alaska to focus on Alternatives 2 (Build New Dual-Fuel Combustion Turbine Generator CHPP) and 3 (Install Distributed Natural Gas Boilers). These two alternatives provide the most significant contribution to the stated Purpose and Need for the Proposed Action. AGDC provides additional comments for the natural gas-based Alternative 2 and Alternative 3 in the sections below.	Thank you for your comments. Table 2.3-1 of the EIS provides the viability analysis of the alternatives evaluated by their applicability to meet the screening criteria described in Section 2.3 of the EIS.
52.08	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Of some concern, however, is the apparent reliance in the Draft EIS on trucking natural gas to Fairbanks for distribution to Fort Wainwright. Both natural gas options require a pipeline to supply the quantity of natural gas required to ensure a reliable supply and to meet the military's requirements for energy security. Supplying either natural gas option will require hundreds of trips each year if transported by truck; a pipeline removes the safety, environmental, and reliability-related issues with that method of supply. The cost of transporting by truck also more than doubles the cost of natural gas to Fairbanks and Fort Wainwright. A pipeline will supply gas that will truly reduce the cost of utilities to the installation and the Fairbanks community. AGDC encourages the Army to select a natural gas alternative for Fort Wainwright, and notes that the Army should insist on completion of a pipeline to meet its daily operational needs and energy security requirements.	Thank you for your comment. As part of existing incorporated reference studies, the Army has done a due diligence to ensure sufficient quantities of natural gas and infrastructure is available in the Fairbanks area to meet the demand.
52.09	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Natural Gas as a Transition Fuel Natural gas is a 'transition fuel' that can help move economies from carbon-rich fossil fuels (coal and diesel) to renewable carbon-neutral energy. For Alaska, providing that transition fuel is critical as large scale renewable energy development is in its infancy in the state, and clean-burning natural gas from Alaska's North Slope is plentiful. The Unites States Geologic Survey (USGS) estimates over 200 trillion cubic feet of natural gas resources on Alaska's North Slope.	Thank you for your comment. Sections 2.5.3 and 2.5.4 of the EIS describe alternatives that implement the use of natural gas.
52.10	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Positive attributes of natural gas as a transition fuel include the following: • Natural gas supplied by pipeline can be stored and available for peak demand times, while current renewable power sources like solar and wind have limited capability to meet peak demand times. • High efficiency natural gas-fired power stations can produce 50-70% less greenhouse gas emissions than coal-fired generators. • Natural gas has twice more heat content than coal and therefore provides higher overall efficiency. • Natural gas can be securely and easily transported in a pipeline versus in trucks or rail cars, therefore having a lower energy requirement for distribution and higher reliability than other fuel sources.	Thank you for your comment. Sections 2.5.3 and 2.5.4 of the EIS describe alternatives that implement the use of natural gas.
52.11	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Environmental Justice The environmental justice evaluation of alternatives in the Draft EIS noted there would be long-term, significant, localized adverse economic impacts of Alternatives 2 and 3 to low income populations in Healy from less coal demand. However, that assessment does not take into account the positive impacts of economic growth and high-paying jobs from additional development and use of Alaska's natural gas reserves. The assessment also does not consider the economic growth from lower-cost clean energy provided for Interior Alaska in the event natural gas is transported in larger volumes to the region. AGDC believes that Alternative 2 and Alternative 3 would have a positive impact to jobs for Alaskans exceeding the impacts of decreased coal mining.	Thank you for your comment. Section 3.5.2 of the EIS describes the economic impacts of Alternatives 2 and 3 on the local natural gas utility and transportation sector during project operations.
52.12	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Air Quality As noted in the Draft EIS, the U.S. Environmental Protection Agency (EPA) has designated the Fairbanks North Star Borough (FNSB), which includes Fort Wainwright, as a serious nonattainment area for particulate matter (PM) smaller than 2.5 microns in diameter (PM2.5). To continue operating the current CHPP, or to build a new coal-fired CHPP (Alternative 1), is not consistent with expectations for clean energy development and will not contribute to a significant improvement in FNSB air quality. Alternative 2 and Alternative 3 will use cleaner-burning natural gas and will likely contribute to significant improvement in FSNB air quality.	Thank you for your comment. Regardless of the alternative selected for implementation, the Army will adhere to federal and state regulatory emission requirements.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
52.13	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	Socioeconomic Considerations The socioeconomic evaluation of the Draft EIS considered the potential loss of jobs associated with the shift from coal and concluded that Alternatives 2 and 3 would result in long-term, significant, localized adverse socioeconomic impacts on the coal mining sector in Healy. However, this conclusion does not fully take into account the offsetting positive socioeconomic impacts associated with increasing the availability of natural gas in the Interior that would be associated with Alternatives 2 and 3, nor does it consider the likelihood that a fuel shift would inherently add jobs associated with additional storage and transportation support. Alternatives 2 and 3 will help resolve worst-in-the-nation air quality problems that have plagued the City of Fairbanks and Interior Alaska for decades, improving health, climate, and tourism outcomes and improving overall economic wellbeing. Several of those positive socioeconomic impacts are outlined below.	Thank you for your comment. Section 3.5 of the EIS identifies beneficial impacts to the economy under Alternatives 2 and 3.
52.14	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	1. Boost in Alaska Natural Gas Demand Under both Alternative 2 and Alternative 3, the Draft EIS indicates there would be a requirement to secure a gas supply. Boosting Alaska's natural gas demand will have a positive impact on the economy as operators from Cook Inlet and/or the North Slope would have a market for gas that is otherwise not currently being used. Boosting natural gas infrastructure would also have the potential to make gas more affordable for others in the region, as noted on Page 144 of the Draft EIS.	Thank you for your comment. Please see the response to comment 52.13 above.
52.15	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	2. Job Creation The potential need for additional infrastructure development is identified in two sections of the Draft EIS for the natural gas-related options (pages 107 and 111, Alternatives 2 and 3 respectively), "Alaska has sufficient availability of natural gas to meet the CHPP's demand; however, operation of the dual-fired CHPP would substantially increase the regional demand for natural gas, which would constitute a long-term, moderate, adverse impact because only limited natural gas storage and distribution infrastructure is available in the Fairbanks region." This statement supports the fact that additional infrastructure would likely be needed to deliver gas associated with an increased regional demand, which would help offset the potential loss of coal-related jobs.	Thank you for your comment. Please see the response to comment 52.13 above.
52.16	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	As an example, if the Alaska LNG Project is built in phases, with the first phase delivery of gas to Interior Alaska, the project is expected to create more than 1,400 direct civil construction, labor, engineering and consulting jobs; provide thousands of indirect jobs in service industries (e.g., restaurants, hotels, etc.); and have an estimated a $1.5 billion-dollar economic impact within the first 24 months. These jobs would more than offset the potential negative impact of the shift away from coal.	Thank you for your comment. Please see the response to comment 52.13 above.
52.17	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	3. Manufacturing and Logistics Boost Depending on the natural gas and ULSD fuel sources, selecting Alternative 2 or 3 could boost manufacturing and logistics work in Alaska and across the US, including: • Transportation – trucking, rail, port-to-port barging • Steel pipe manufacturing • Construction equipment	Thank you for your comment. Please see the response to comment 52.13 above.
52.18	12/4/2020	Email	Frank Richards	Alaska Gasline Development Corp.	4. Decreased Energy Costs As noted in the Draft EIS (Page 144), Alternative 2 (a new duel-fuel CHPP) would be anticipated to increase demand for natural gas and would benefit the Fairbanks region by creating economies of scale in the proposed expansion of the natural gas distribution system in Fairbanks, thereby lowering the cost of natural gas and heating in the region. However, the document further indicates "At least in the near-term, however, fuel costs at Fort Wainwright would increase because coal costs less than natural gas and ULSD, but the increased fuel costs would be offset by reduced capital costs under this alternative." Decreased energy costs associated with the economies of scale noted in the Draft EIS could be substantial, depending on the fuel and method of delivery. Below are AGDC's estimated costs to fuel power generation in Fairbanks, and the estimated cost of each fuel type modeled on forecast rates. [Bar chart provided depicting Cost to Fuel Power Generation in Fairbanks. See native comment].	Thank you for your comment. Please see the response to comment 52.13 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
53.00	12/6/2020	Email	Gail Norton, MD	Public	I am a Fairbanks physician and lifetime Alaskan (born in Fairbanks Memorial Hospital). I am writing to express my concern over the future of power at Ft. Wainwright as I think this can be an opportunity to clean our air and make life healthier for ourselves and our patients. I urge you to consider the drastic health effects of particulate pollution. When the air quality index in Fairbanks rises, the number of hospitalizations for any cause rises dramatically. Continued use of coal produces the highest level of greenhouse gasses and local particulates, and I urge you to consider these costs in the DEIS. Please consider that natural gas is the best of the alternatives as far as reduction in emissions and cost, but I think that considering renewable energy is the only way to ensure that in the future we are able to comply with emissions.	Thank you for your comment. Section 2.4 of the EIS provides a discussion of renewable energy alternatives. Section 3.2 provides an analysis of the social cost of carbon. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
54.01	12/6/2020	Email	Mike Craft	Public	Coal is proven to have negative environmental affects related to emissions [sulphur ,Co2,NOx and heavy metals, PM10, PM2.5] and solid waste disposal see above figure 2 [coal ash] containing heavy metals barium, cadmium, lead, mercury, zinc, and the transportation of solid waste spreads coal ash dust. Coal presents a single point of failure at Ft Wainwright IE' I power plant for heat and power. The coal plant is operating at 40% efficiency and the heat distribution system is not much better. That means 60% of emissions do not even supply power. Also, the existing coal plant was constructed in 1956=64 years old. The idea of a new coal plant is unlikely because Black and Vetch announced they will not be building any more coal plants, no builders? Burning coal creates greenhouse gases that are contributing to warming affects in the local environment [ARTIC]. The Coal plant is operating within the EPAs no-attainment area for safe air and will be subject to MSM (Most Stringent Measures) by the EPA required SIP. Emissions from point source stations including Ft Wainwrights are contributing to air quality degradation inside the thermal inversion against the ground in Fairbanks. SEE ABOVE Figure 3	Thank you for your comment. The Army is unaware of statements made by Black & Veatch pertaining to a decision to not construct coal plants. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The locations provided within the comment enclosures are outside of the region of influence for the Proposed Action. Additionally, Fort Wainwright disposes of coal ash from the CHPP into its Class I regulated landfill on the installation, as stated in Section 2.5.2 of the EIS.
54.02	12/6/2020	Email	Mike Craft	Public	LNG in Fairbanks is the most expensive fuel to buy and store and requires extensive distribution infrastructure. It is trucked from cook inlet on the parks Hy with limited deliveries. LNG does improve local air quality conditions. LNG presents a single source point of failure because it cannot be stored on sight without parasitic cost and cryogenic infrastructure. LNG is better for the environment than oil and coal but does emit greenhouse gases.	Thank you for your comment. LNG is commercially available in sufficient quantity (see EIS Section 3.3.1.3).
54.03	12/6/2020	Email	Mike Craft	Public	Oil in Fairbanks would have to be ultra-low suffer with major emissions controls to meet EPA BACT requirements under the clean air act, it would contribute to PM 10, PM 2.5, suffer Co2, Nox as precursor gases. The fuel price is in the middle of the spread with out the environmental aspects included. Oil could meet the resilience needs although it cannot be stored for long periods of time without rotation. Burning oil creates greenhouse gases.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
54.04	12/6/2020	Email	Mike Craft	Public	Propane at this time is the lowest cost hydrocarbon fuel considered. Propane is free of PM2.5, suffer and will be less NOx with emissions controls. propane can be stored indefinitely without degrading. Propane can be brought in by rail in 33,000 gal cars and kept on siderails for reserves, it can also be stored in smaller tanks at the consumption site for as long as is needed eliminating the single point of failure concerns. Using a distributed energy scenario using high efficiency propane engines that can provide heat and power at each location again eliminating single point of failure conditions for heat and power. Propane could also be used for stoves, dryers, waters heaters that have a 66% increase in efficiency over electricity units by not taking a hydrocarbon to a electron and an electron to make a thermal load, eliminating 2 energy conversions. Propane does emit greenhouse gases. The same can be said for LNG. If Ft wainwright was to use propane it could be an anchor tenant for the interior to gain access to cheaper propane fuel for space heating, cooking, dryers, hot water, power production transportation.	Thank you for your comment. Propane has been added as a potential alternative (Alternative 17) identified and dismissed in the EIS (see Section 2.4).

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
54.05	12/6/2020	Email	Mike Craft	Public	Wind power has proven itself in interior Alaska to be reliable with 12 years of grid scale operational performance. Wind is the cleanest source of electricity available and is abundant in vast quantities along both transmission corridors along the Parks Hy and the Richardson Hy within 100 miles of Ft wainwright. Wind power is competitive with all hydrocarbon cost. The nature of wind power is variable outputs and would require integration response equipment in the form of balancing generators, battery's. The long-range cost of fuel becomes less of an inflation concern because there is not as much fuel used win operating with wind turbines. Wind power does not create greenhouse gases. Todays wind turbines can stabilize voltage, harmonic's and frequency and supply Reactive power .	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind energy as an alternative (Alternative 9), and it was determined that this would require retrofit of all facilities on the installation to electric heating, which has been determined to not be reasonable or feasible.
54.06	12/6/2020	Email	Mike Craft	Public	Solar power has proven to be verry reliable in the mounts we have sunshine. Estimates of 10% capacity over all are observed in interior Alaska. Solar power is a variable power source and would require back up generation, batteries. Solar could be used to supply thermal hot water loads, space heating. Solar in interior Alaska at the scale needed is unlikely to be the right fit. Solar power does not create greenhouse gases.	Thank you for your comment. Sections 2.3 and 2.3 of the EIS considered solar energy as an alternative (Alternative 10), and it was determined that this would require retrofit of all facilities on the installation to electric heating, which has been determined to not be reasonable or feasible.
54.07	12/6/2020	Email	Mike Craft	Public	Combinations, combined heat and power scenarios are by far the best bang for the buck. Propane combined systems offer the most resilient option under a distributed energy scenario because they supply heat and power at the point of consumption from a storage tank on sight. To take things a step further you can add wind and solar power into the scenario and reduce hydrocarbon use. The use of high efficiency Propane motors to generate electricity that can integrate variable power sources like Wind, Solar. You can also install Batteries to fill in gaps. Using a combined heat and power with propane and incorporating renewable energy is the least polluting scenario and is the least expensive and offers the most resilient scenario.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be feasible or reasonable due to the analysis provided within the USACE's 2005 Joint Long Range Energy Study for the Greater Fairbanks Military Complex (USACE 2005) and the PNNL study (DOE 2009). Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources and battery storage. Propane has been added as a potential alternative (Alternative 17) identified and dismissed in Section 2.4 of the EIS.
54.08	12/6/2020	Email	Mike Craft	Public	This is just outside FT Wainwrights Gate Figure 6. It is intended to remind the EIS team that we are in the ARCTIC and have long periods with extreme cold and verry strong thermal inversions. Any adjustment that can improve air quality hast to be considered a must for the Families and soldiers of Ft Wainwright and the Families in Fairbanks. The SIP requires that BACT be the measure used to evaluate whether a particular power source is appropriate for serving the non-attainment zone. Fairbanks and Ft Wainwright must take action to mitigate the effects of dangerous stack emissions into the air of the nonattainment zone. One other environmental concern is the disposal of coal ash, We have been putting coal ash into unlined pits for 65 years all over the China river basin were the water table is 4 to 10 Ft below the surface of the ground level {see figure 2}. The EPA is currently looking at the practice of putting coal ash in unlined pit in interior Alaska as a Clean Water Act volition.	Thank you for your comment. BACT is assumed under the No Action Alternative as stated in Section 2.5.1 of the EIS. The action alternatives would already integrate BACTs. Operational costs are discussed in Section 3.5.2. Coal ash management is discussed in Section 3.4.2.3 of the EIS.
54.09	12/6/2020	Email	Mike Craft	Public	The idea that residents cant go out side for recreation because of stage 2 air quality alerts and forced to stay in doors in the dark of winter leads to seasonal mental stress disorders and lack of physical exercise. The current level of suicides and desperation at Ft wainwright are well known. The EIS team needs to understand the harmful effects of PM.2.5 on children and elderly residents, it is estimated that 100 premature deaths occur annually in the FNSB.	Thank you for your comment. See Section 3.6 of the EIS for the environmental justice analysis.
54.10	12/6/2020	Email	Mike Craft	Public	It should be noted that conservation of resources is the low hanging fruits, First the inefficiency of the current power system is imprudent and creates higher cost and injects more toxic waste into the environment by 60% over the delivered power produced. The use of better building standards, Better insulation techniques, more efficient lighting would create savings of cost and resources. Supper insulation is also a must.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's responsibility to provide reliable, economically efficient, and operationally sustainable heat and electrical generation and distribution capabilities at Fort Wainwright.

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55.00	12/6/2020	Form Submission	Mary Ann Nickles	Public	I have lived in Fairbanks for 62 years and remember Ladd Field well. Sometimes I have heard Taps late in the evening. If that sound can travel to my ears, I know that the emissions from your power plant have traveled to my lungs. It has had a cumulative effect and if it continues, I know I may have problems that I do not have now. The PM2.5 emissions that are produced by the Fort Wainwright Power Plant will continue if the current plant continues to be powered with coal or a new coal plant were built. Greenhouse gasses such as carbon dioxide are also contributing to climate change. Every coal-burning plant must take steps to switch to renewable energy. Now is the time to make that decision for the good of the planet. Alternative 3 is the best choice. With natural gas becoming available, the U.S. Army can start the ball rolling by building a power plant that can eventually be replaced for use with renewable energy. Support for this path could be further supported by researching the health costs for your soldiers and Fairbanks residents if coal burning continues.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's Preferred Alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
56.00	12/6/2020	Form Submission	Savannah Fletcher	Public	I'm a Fairbanks resident invested in ensuring longevity and health for our community, and I think the ways we source our energy, especially throughout the winter, plays a big role in that. FWW's draft EIS is a great opportunity to assess how best to move forward and weigh what we truly value: the health of our community and environment. Alternative 3 (distributed natural gas) is the best of the three alternatives presented because it would have the greatest reduction in greenhouse gas emissions (70%), it has the lowest building and operational costs, and it would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. Additionally, the costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. These are meaningful impacts on community health. Lastly, the draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
57.01	12/7/2020	Email	Bill Rhodes	Eco Green Generation LLC	Ms. Sample attached is Eco Green Generation LLC's response to your draft EIS. Please note Eco Green seeks further discussion with the US Army. We are serious about the US Army's lack of standing, Further, we don't understand why the US Army has failed to contact the federal agencies we have consulted as to assistance in choosing the best available technology. As we have already discussed this project with representatives of the Secretary of the Army some two years ago, we are deeply concerned over the entire progress of this project, especially its disregard for previously issued Executive Orders regarding the implementation of Renewables.	Thank you for your comment. The Action Alternatives that were carried forward for analysis (see EIS Section 2.5) were developed at the Garrison level consulting with U.S. Army Engineering and Support Center, Pacific Northwest National Laboratory, and other federal agencies listed in Section 1.5 of the EIS. The U.S. Army Garrison is the proponent responsible for development of the Proposed Action. The required Executive Orders have been considered while developing the action alternatives.
57.02	12/7/2020	Email	Bill Rhodes	Eco Green Generation LLC	Eco Green Generation LLC requests the US Army to state why it has standing under NEPA to draft an Environmental Impact Statement for a new power plant at Ft Wainwright, Fairbanks, Alaska. Under NEPA an EIS is required but only because the US Army will through the Department of Defense provide financing to a private party, Doyon Utilities LLC for the construction and operation of a new power plant. Doyon Utilities, as the utility owner has both the standing and the obligation to prepare the EIS. As such, it is the responsible author of the EIS. The US Army's role is that of an interested party and commentator, not that of an author or decision maker because in 2007 it sold the electric and steam utility at Fort Wainwright to Doyon Utilities. Failure of Doyon Utilities to be the sole author of the proposed EIS will result in a federal court challenge of the US Army's role in its authorship of the EIS.	Thank you for your comment. This EIS is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. § 4321 et seq.) which requires federal agencies to consider the effects from implementing major proposed actions and alternative, and is developed per the; NEPA implementing regulations issued by the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508). As the federal action proponent, the Army is the agency responsible for completion of the EIS per NEPA, 40 CFR 1500-1508, and the Army's NEPA implementing regulation (32 CFR Part 651, Environmental Analysis of Army Actions).

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57.03	12/7/2020	Email	Bill Rhodes	Eco Green Generation LLC	Under NEPA, the US Army and Doyon Utilities are required to follow State of Alaska law which under the authority of the Regulatory Commission of Alaska has jurisdiction of all electric utilities in the State of Alaska. Under Alaska law, any entity that sells retail electricity to even one customer (provided more than $50,000 per year of electricity is sold) is regulated by the RCA. The RCA's jurisdiction is limited to regulated utilities. When a regulated utility seeks to build a new power plant, it must present application to the RCA for approval and the receipt of a tariff from which the cost of the new plant will be repaid. In this event, the US Army can seek to intervene in the decision making process with the RCA and subject to acceptance by the RCA present its interests. Doyon Utilities, as the regulated utility is responsible to initiate the tariff request. The RCA does not have jurisdiction of electricity customers, only the supplying utility. Without the proper filing with the RCA by Doyon Utilities, (not the US Army), NEPA is being violated as well as State of Alaska statutes and regulations.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
57.04	12/7/2020	Email	Bill Rhodes	Eco Green Generation LLC	The current EIS draft fails to establish the required findings in NEPA for a new source in a serious non-attainment area regarding Best Available Control Technology, Most Stringent Measures and Lowest Achievable Emission Rate. BACT, MSM and LAER are required detailed findings for this proposed project. Key emission rates need to be quantified as well as associated operational costs to which none are included and no technology choice is currently identified in the draft.	Thank you for your comment. BACT is assumed under the No Action Alternative as stated in Section 2.5.1 of the EIS. The action alternatives would already integrate BACTs. Operational costs are discussed in Section 3.5.2 of the EIS.
57.05	12/7/2020	Email	Bill Rhodes	Eco Green Generation LLC	Because LAER does not consider the price of emission compliance, the proposed power plant will be required to have the least polluting emissions possible regardless of the capital cost or the cost of operations. The current draft is completely devoid of this critical discussion. Instead it relies on discussion of a BACT determination which is not by itself the sole technical consideration to achieve NEPA compliance.	Thank you for your comment. The chosen alternative will comply with regulatory requirements.
57.06	12/7/2020	Email	Bill Rhodes	Eco Green Generation LLC	Additionally, both Doyon Utilities and the US Army should consult with other federal agencies that normally respond to technical questions including viable options to successfully comply with BACT and LAER. For example, the entire discussion of including Renewables, especially wind fails to even mention a direct proposal from Eco Green Generation to build a hybrid wind/propane solution to provide power and heat production. There are several Executive Orders that require the inclusion of Renewables whenever possible.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind energy as an alternative, and it was determined that installing centralized boilers or upgrading electric feeders and installing building level electric boilers to accommodate wind energy generation sources would not be reasonable or feasible. There is no regional infrastructure to support propane as a reliable fuel source and raises a risk of supply disruption. There is no known adequate technology (Screening Criteria 4) to support this. Propane has been added as a potential alternative identified and dismissed in the EIS. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
57.07	12/7/2020	Email	Bill Rhodes	Eco Green Generation LLC	In conclusion, Eco Green Generation LLC seeks Doyon Utilities to draft a compliant NEPA EIS and initiate a proper filing with the RCA for a new power plant at Fort Wainwright.	Thank you for your comment. This EIS is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. § 4321 et seq.) which requires federal agencies to consider the effects from implementing major proposed actions and alternative, and is developed per the; NEPA implementing regulations issued by the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508). As the federal action proponent, the Army is the agency responsible for completion of the EIS per NEPA, 40 CFR 1500-1508, and the Army's NEPA implementing regulation (32 CFR Part 651, Environmental Analysis of Army Actions).

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58.01	12/7/2020	Email	Bill Turman	Public	I wanted to pass on my concerns and comments as a member of the Fairbanks area medical community regarding Fort Wainwright's future planning for energy production. As a Fairbanks based general practice medical provider to interior Alaska's native population here in Fairbanks (as well as rural interior villages) I deal directly with the impacts of particulate pollution in Fairbanks on a weekly and sometimes daily basis seeing complications in my patients secondary to the poor air quality in our community. It's likely not news to you that Fairbanks area has consistently had some of the worst particulate pollution in the nation. In sending this note I wanted to make my plea to the Army that minimizing negative impacts to air quality is important to me, with regard both to particulates that affect my patients and my own health, and with regard to greenhouse gas emissions which accelerate climate change that has repeatedly been shown to disproportionately affect rural Alaska- the people I serve. A few concerns and comments specifically regarding the DEIS:	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Section 3.6 provides an analysis of environmental justice impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
58.02	12/7/2020	Email	Bill Turman	Public	-the plans for No Action, and Alternative 1 (a new coal plant) and unacceptable. They would continue to cause the greatest harm by producing the most greenhouse gasses and harmful particulate pollution to the air we breathe.	Thank you for your comment. See the response to comment 58.01 above.
58.03	12/7/2020	Email	Bill Turman	Public	-I support Alternative 3 (natural gas), as it would allow the greatest reduction in greenhouse gas emissions, has the lowest building and operational cost, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
58.04	12/7/2020	Email	Bill Turman	Public	-I recommend that the DEIS be more robust in quantifying the costs of local air pollution that FWW causes, as well as quantifying the greenhouse gas emissions.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed.
58.05	12/7/2020	Email	Bill Turman	Public	-The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. The Proposed Action is to determine how to best continue to provide heat and electricity to Fort Wainwright, not identify best energy efficient appliances for end uses. Consideration of technologies and appliances to be used will depend upon the alternative selected and subsequent development of a project design. Development of the project design would occur following the approval of the Record of Decision.
58.06	12/7/2020	Email	Bill Turman	Public	-The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming. Thank you for your time and consideration regarding my comments and concerns regarding the future of energy production at Fort Wainwright.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
59.01	12/7/2020	Email	James Durst	Public	1.4 Decision to be Made – The No Action Alternative does not meet the scoped purpose and need. Alternative 1 has all the poor performance and high impact characteristics of the No Action alternative but none of the benefits of alternatives 2 or 3. Alternative 2 or Alternative 3 are the only supportable choices to be made by the ROD. The choice appears to hinge more on effects on the mission and readiness criteria of the Army than of the impacts and benefits of the two alternatives.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.

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59.02	12/7/2020	Email	James Durst	Public	3. Affected Environment and Environmental Consequences – I believe that additional information regarding potential effects associated with Alternative 3 needs to be added to this chapter to address the lack of a centralized power source on post and the purchase of that electricity from the local utility. Calculations of avoided emissions need to include likely emissions produced by GVEA facilities, or other utilities over the intertie, to provide the same level of power generation. In addition, the inclusion of multiple backup generators, each with an ULSD fuel tank, maintenance requirements, etc., across the post to provide needed backup generation to meet mission and readiness requirements would seem to create the potential for additional impacts that should be included in a significance analysis.	Thank you for your comment. GVEA's coal plant is not operating in this area, so is not a contributor to carbon emissions. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS because GVEA's power generation plans cannot be speculated.
60.01	12/7/2020	Email	James Schwarber	Public	Upon close review, however, this Draft E.I.S is deficient in addressing local air quality issues and it totally fails to address the climate change emergency and the role that proposed power upgrades on Fort Wainwright can play in helping the United States achieve the transition to carbon-free energy generation. Earlier this month the United Nations Secretary-General called on humanity to commit in 2021 to a carbon-free future. There is a world-wide scientific consensus about the peril the climate emergency brings to us all.	Thank you for your comment. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS because GVEA's power generation plans cannot be speculated.
60.02	12/7/2020	Email	James Schwarber	Public	This Draft E.I.S. is incomplete and possibly legally deficient for its failure to fully develop and consider an action Alternative that defines an energy transition path to net-zero carbon output from energy sources examined for the Fort Wainwright power study. A facility-wide energy efficiency deep retrofit and adoption of energy efficiency standards for new buildings will reduce the amount of energy needed for the base. It would be a huge and costly mistake to stay wedded to coal or other fossil fuels as the primary source of energy. The fossil fuel path is antiquated and no longer sustainable. Please develop and adopt an alternative that is sustainable and forward looking, and eliminates contributing to climate change. We are in a climate emergency of our own making; we must take steps now to get on a sustainable path. Our survival depends on it.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement renewal energy portfolio as available. Section 2.4 of the EIS discusses renewable energy sources and their feasibility for implementation.
60.03	12/7/2020	Email	James Schwarber	Public	I recommend this NEPA EIS process be restarted to include at least one action alternative that targets net-zero carbon emissions or includes a commitment to achieving net-zero carbon emissions by 2030 to 2040.	Thank you for your comment. See the response to comment 60.02 above.
60.04	12/7/2020	Email	James Schwarber	Public	the DEIS is significantly deficient for its failure to incorporate as a first step in any of the Alternatives an analysis of the end-use energy efficiency of the different options. Only energy generation efficiency is compared. It is standard to require an energy audit and implement end-use efficiency measures prior to designing and building a new power source to meet the resulting reduced energy consumption from efficiency upgrades. This end-use energy efficiency step is absent from this DEIS. 'Beneficial electrification' or the wide adoption of using clean electricity for end-uses such as efficient lighting, refrigeration, heat pumps and electric vehicles for transportation all contribute to reducing and potentially eliminating the use of fossil fuels and their associated carbon and other pollutants.	Thank you for your comment. The Proposed Action is to determine how to best continue to provide heat and electricity to Fort Wainwright, not identify best energy efficient appliances for end uses. Consideration of technologies and appliances to be used will depend upon the alternative selected and subsequent development of a project design. Development of the project design would occur following the approval of the Record of Decision. Upon project design, the need for additional environmental impact analysis will be assessed.
60.05	12/7/2020	Email	James Schwarber	Public	both the 'no action alternative' and Alternative 1 are unworthy of consideration, since both continue the dependence upon burning dirty coal that negatively impacts local air quality and contributes to the climate emergency with additional carbon dioxide. Difficulty in safely managing toxic coal ash is another reason to dismiss using coal. The "cost" from carbon being added to the atmosphere from com busting the coal and fossil fuel alternatives is not recognized nor captured in this DEIS. Coal plants across the United States and the world are being decommissioned early and are no longer being built. For these reasons it would be a huge mistake to continue with coal at Fort Wainwright or invest in a new coal plant with a technology whose time is past. Coal's role as a power source is history.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.

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60.06	12/7/2020	Email	James Schwarber	Public	Instead of finalizing this DEIS that includes two coal alternatives and no renewable action alternatives, I request the DEIS be withdrawn and rewritten, de-emphasizing coal and incorporating end-use energy efficiencies along with a new action Alternative comprised of an integrated suite of proven renewable sources of energy and storage. This proposed new Alternative is the only one that will fully address the horribly polluted local air quality situation where Fort Wainwright is located, provides a path to a carbon free future, and is an affordable long-term sustainable solution that reflects an appropriate response to mitigating the climate emergency.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
61.01	12/7/2020	Email	Martha Raynolds	Public	I am a concerned citizen of Fairbanks, and a plant ecologist. My family and I live here, breathe the air, and personally experience the local effects of climate change and the effects on friends and family throughout Alaska and elsewhere. I am a member of several organizations that work to address the issue of climate change, including the Fairbanks Climate Action Coalition, the Northern Alaska Environmental Center and Citizens' Climate Lobby. My primary concern when considering a new power source for Fort Wainwright is greenhouse gas emissions. My secondary consideration is particulate air pollution.	Thank you for your comments. Section 3.2 of the EIS provides an analysis of air quality impacts.
61.02	12/7/2020	Email	Martha Raynolds	Public	In addition, I am interested in efficiency. Energy efficiency upgrades to facilities, housing, distribution and transportation would all reduce power needs and form a critical and cost-effective first step that should be included in all alternatives. Of the Alternatives presented, Alternative 3 most effectively improves on the current coal plant. The No Action Alternative and Alternative 1 result in unacceptable greenhouse gas emissions as well as high costs. This Draft EIS should be written in context with a plan for Fort Wainwright becoming carbon neutral by 2040 in all operations. The Army is uniquely positioned to set and meet this type of goal. Carbon neutrality will result in greater independence and reduced military vulnerability. The Army has the funding to set an example and support the latest technology, leading the way for the rest of society.	Thank you for your comment. The Proposed Action is to determine how to best continue to provide heat and electricity to Fort Wainwright, not identify best energy efficient appliances for end uses. Consideration of technologies and appliances to be used will depend upon the alternative selected and subsequent development of a project design. Development of the project design would occur following the approval of the Record of Decision.
61.03	12/7/2020	Email	Martha Raynolds	Public	There are three energy options that are not adequately treated by the Alternatives in the Draft EIS. The first is small nuclear. The Draft EIS mentions a nuclear option, but the reason it was not given full consideration, according to Table 2.3-1 was costs and long permitting times. Both of these reasons are valid for large nuclear installations, but do not apply to the new, small nuclear plants available. Small nuclear would have the advantages of low fuel costs, minimal greenhouse gas emissions, and zero particulate pollution. Propane is not even listed as one of the 16 options considered, yet it is clean burning and relatively inexpensive. Using propane in a distributed scenario as described in Alternative 3 should be evaluated as a separate Alternative. The third energy option that is not adequately considered is a mix that includes renewable energy options. Both wind and solar were dismissed because they could not meet the objectives on their own. However, they are important components of the road to carbon neutral operations. It is impossible to overstate the importance of having an alternative that describes a way to reach carbon neutral operations. Even if some of the technology is not currently available, we need to be envisioning the possibilities, so that we can prepare for and not hinder future options.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement a renewable energy portfolio as available. Section 2.4 of the EIS includes alternatives that were reviewed and dismissed from further consideration. Such alternatives included nuclear power generation, propane, and a diverse renewable energy portfolio.
62.01	12/7/2020	Email	Rose Hewitt	Public	As a lifelong Fairbanksan, it excites me that Fort Wainwright is considering the opportunity to switch to a cleaner, more environmentally friendly source of energy and heat! Our community has struggled to meet the challenge of improving our air quality, and I wholeheartedly support efforts to reduce emissions that contribute to better air quality and thus better quality of life for our residents. I support Alternative 3 as it offers the greatest reduction in local particulate and greenhouse gas emissions. It is also the most fiscally responsible choice, with initial savings of $246 million over Alt 2 and $570 million over Alt 1. Operational and maintenance cost savings are also significant, varying from $6-14 million per year over Alt 1 and 2. If the reduced operations and maintenance costs are an indication of the simplicity, longevity, and lower-maintenance nature of a system that utilizes natural gas, that is a compelling argument for Alternative 3 as well.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
62.02	12/7/2020	Email	Rose Hewitt	Public	I also support the exploration of renewable energy options for the CHPP, as it is an amazing opportunity to invest in more sustainable technologies that support the growth of green jobs in our community, do not have continuous fuel costs, and may well be required by future legislation aimed at curbing global warming. I oppose the No Action Alternative and Alternative 1, as they will continue to contribute to the existing air quality problem in our community and release the greatest amount of greenhouse gases.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement a renewable energy portfolio as available. Section 2.4 of the EIS discusses renewable energy sources and their feasibility for implementation.
63.00	12/7/2020	Email	Scott Bell	Public	I recommend Option 3 assuming: 1. The new boilers and water heaters at each building be ultra-high efficiency (90% plus) natural gas- or propane-fired models. 2. The ULSD-, propane- or natural gas-fired reciprocating generators specified to provide back-up heat and power be upsized, and utilized to sell electrical power to GVEA to maintain grid stability. Because reciprocating generators can more quickly react to changes in the output from electrical sources than can turbines, the generators could a) eliminate the need for GVEA to operate turbine generators as expensive "spinning reserve" power sources, and b) increase the percentage of electrical power from renewable sources such as solar photovoltaic panels and wind turbines. Both wind power and solar PV sources are less costly to construct than central coal plants, and GVEA already integrates wind power and solar power in to its electrical grid. 3. Waste heat from the reciprocating generators be used to heat the utilidors and operate efficient steam-fired absorption chillers for FWW cooling needs.	Thank you for your comment. A description of Alternative 3 is provided in Section 2.5.4 of the EIS. While the Army cannot speculate on the energy portfolio of the local utility provider, they do include sources of renewable energy as identified in your comment.
64.00	12/7/2020	Form Submission	Arleigh Hitchcock	Public	The draft EIS that has been released to the public is not sufficient. It should contain the end of use energy efficiency of all the different options. Local air pollution and green house gas emissions from the alternatives should also be included. Of the options, alternative 3 appears to be the better one because it would lead to the greatest reduction of green house gasses. Inaction or alternative 1 are not acceptable because they would lead to the most green house gasses	Thank you for your comment. The Proposed Action is to determine how to best continue to provide heat and electricity to Fort Wainwright, not identify best energy efficient appliances for end uses.
65.01	12/7/2020	Form Submission	Anne Triest	Public	Please prioritize minimizing the impact on air quality in our community and minimizing the release of greenhouse gases that contribute to climate change. No Action and Alternative 1 are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions, has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
65.02	12/7/2020	Form Submission	Anne Triest	Public	The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.

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66.00	12/7/2020	Form Submission	Emily Barry	Public	The costs of air pollution and green house gas emissions need to be considered, quantified, and included in the evaluation of alternatives. No Action and Alternative One would be the worst for the health of our community and would undermine the work the community is doing to create a healthy environment for our residents. Please be accountable to the community. Please listen to those who live here year round and who have multi-generational stake in the quality of the air and carbon in the atmosphere. We must do right by our ancestors and by our future generations. Alternative Three seems to be the best option for the Fairbanks community. It provides the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. Thank you for taking the time to weigh the options and act in accordance with community wellbeing. This should be your highest priority as the US Military invested in national security. It starts right here.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
67.00	12/7/2020	Form Submission	Margaret Durst	Public	After reading the alternatives, I would mostly like to state that we should in no way consider a coal plant. Fairbanks already has enough pollution due to coal in our community. For a forward looking alternative, Alt. 3 is the best choice. Natural gas is the most clean option out there. One must consider the long term of what is being built, and at this point, the cleanest choice should be made.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
68.00	12/7/2020	Form Submission	Olivia Edwards	Public	This EIS is insufficient in both scope and proposed solutions. First, a renewable energy alternative should be included. These technologies have rapidly dropping initial costs, do not continually fuel costs, and could easily be required under future administrations in order to curb climate change. Additionally, renewable energy options would lessen the negative impact of energy production on local air pollution and greenhouse gas emissions. The full impacts of pollution and emissions of any alternative in relation to community and ecosystem health should also be included in the EIS. As the EIS is written, alternative three is best in regard to health and has the lowest building and operational costs. However, I believe that the EIS should be redrafted to include analysis of end use efficiency of all options. The public should then have the opportunity to review a new draft.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS. The Proposed Action is to determine how to best continue to provide heat and electricity to Fort Wainwright, not identify best energy efficient appliances for end uses. Consideration of technologies and appliances to be used will depend upon the alternative selected and subsequent development of a project design. Development of the project design would occur following the approval of the Record of Decision.
69.01	12/7/2020	Form Submission	Patricia Rivera	Public	First thank you for the opportunity to comment on the US Army Garrison Alaska Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska (DEIS). As a researcher in human and animal physiology in Alaska, I am opposed to continued coal burning at FWW with either the current plant or a new coal plant because of existing negative public health impacts in Fairbanks and North Pole that are a result of chronically dirty air (PM2.5). There are numerous references on the chronic long-term and short term health damage that Coal-fired power plants (CFPPTs) emissions cause in densely populated cities. CFPPTs are the source of particulate matter, sulfur and nitrogen oxides, carbon dioxide, volatile organic compounds and ozone all of which contribute to respiratory illness in cities around the world as well as cities in the USA. While Fairbank NSB (pop. ~96,000) doesn't have the population density of Los Angeles (>3,000,000), Salt Lake City (>200,000), or Sacramento (>500,000), Fairbanks NSB surpasses them and 22 more cities in short-term particle pollution (stpp) (Amer. Lung Assoc. https://www.stateoftheair.org/city-rankings/mostpolluted- cities.html) In fact, Fairbanks comes in 4th of the top 25 cities for short-term particle pollution. The reasons have been studied/known about for years and are caused by very cold temperatures that concentrate particles near the ground in Fairbanks (and North Pole) for almost five months of the year, making our air quality worse than cities with 5 to 30 times the population (i.e. Los Angeles).	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.

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69.02	12/7/2020	Form Submission	Patricia Rivera	Public	Allowing for another CFPPT in the Fairbanks area is NOT the answer given our chronic hazardous air quality. ADEC in their State Air Quality Control Plan says, " As heating fuel costs increased during the past 5 years, a large number of outdoor wood and coal boilers were installed by residents seeking to reduce their heating costs. These large units have proven problematic in some neighborhoods creating significant localized smoke impacts. The volume of solid fuel-fired heaters, whether large or small, have combined to increase PM2.5 levels significantly and the Borough has identified a number of "hot spot" neighborhoods." (iii-d-5-07-control-strategies-12-8-17-final.pdf). Further, the State Air Quality Control Plan will require the removal of all coal fired residential units by 2024 ("18 AAC 50.079(f) all existing coal-fired heating devices shall be removed by December 31, 2024.").	Thank you for your comment. The Proposed Action includes the evaluation of a new more efficient replacement coal plant, not an additional one.
69.03	12/7/2020	Form Submission	Patricia Rivera	Public	Regular air sampling indicates that 50% of the time, the dirty air in Fairbanks and North Pole is hazardous to breath; Fort Wainwright sits right between these two communities. FWW wants "Heat and power needed to support more than 400 facilities across the 9-million-square-foot Garrison." How is that amount of coal burning (producing PM2.5, sulfur and CO2 emissions) going to help improve the local air quality and reduce greenhouse gases? Replacing the FWW CFPPT with a cleaner energy source is an opportunity for Fort Wainwright to show their commitment to support clean air for the health of our local community as well as help reduce greenhouse gases. Remember, we also have to meet requirements to decrease atmospheric CO2. A coal powered plant at FWW is not the solution to either one of these problems. Coal in the Interior is simply a two-steps-backward and no-steps-forward bad choice.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
69.04	12/7/2020	Form Submission	Patricia Rivera	Public	According to the FWW Federal registry document "The scoping process will help identify reasonable alternatives, potential environmental impacts, and key issues of concern to be evaluated in the EIS." The current DEIS should be rejected as it fails to provide a clean energy alternative and perpetuates unnecessary contributions to local air pollution and greenhouse gases. Propane by itself would have a higher 'end of use efficiency' than coal. Propane is also free of PM2.5 and sulfur; and produces half the CO2 emissions of coal. A new draft EIS should be written that takes a deeper dive into the use of combination fuel sources such as propane and solar power that includes: 'end of use efficiency' numbers, future benefits of a combination of propane and solar power, and how such a system would be designed to plan for additional demand. Reducing CO2 would help the battle against climate change, and limit the potential financial burden of CO2 removal that will be incurred by local and state governments. Combining propane with solar is a step in the right direction to improve local air quality - a step that Fort Wainwright should strongly pursue in their goal to "identify reasonable alternative sources of power."	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS. There is no regional infrastructure or adequate technology (Screening Criterion 4) to support propane as a reliable fuel source and raises a risk of supply disruption. Propane has been added to the EIS as a potential alternative (Alternative 17) identified and dismissed from further analysis (see Section 2.4).
70.01	12/7/2020	Form Submission	Scott Bell	Public	Fort Wainwright Combined Heat and Power Plant Replacement Options Thank you for the opportunity to comment on the Draft Environmental Impact Statement. I recommend a variation on Option 3, Install Distributed Natural Gas Boilers, assuming: 1. The new boilers and water heaters located at dispersed boiler buildings or installed at each building will be ultrahigh efficiency (90% plus) natural gas- or propane-fired models. 2. The ULSD-, propane- or natural gas-fired reciprocating generators specified to provide back-up heat and power be centralized and up-sized, and utilized to sell electrical power to GVEA to maintain grid stability. Because reciprocating generators can more quickly react to changes in the output from existing power sources than can turbines, the generators could: a. Eliminate the need for GVEA to operate existing turbine generators as expensive "spinning reserve" power sources. b. Increase the percentage of electrical power from renewable sources such as solar photovoltaic panels and wind turbines. Both wind power and solar PV sources are less costly to construct, and have lower O&M costs, than coal plants, and GVEA already integrates wind power and solar power in to its electrical grid. 3. Waste heat from the reciprocating generators will be used to heat the utilidors and operate efficient steam-fired absorption chillers for FWW cooling needs.	Thank you for your comment. Renewable energy alternatives (Alternatives 9, 10, 19, and 21) were considered and dismissed in Sections 2.3 and 2.4 of the EIS.

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70.02	12/7/2020	Form Submission	Scott Bell	Public	Further discussion: Combined heat and power plants (CHPPs) are popular because from one unit of fuel they generate both heat and electrical power. An electricity-generating power plant converts about 1/3 of the available energy in a unit of fuel in to electrical power and if the waste heat can be put to use it is the equivalent of an additional 1/3 of the available energy increasing the overall efficiency to 2/3 or about 67%. Heating-only powerplants use about 1/3 of the available energy in a unit of fuel and can achieve 2/3 efficiency by generating electrical power from the excess steam. So CHPPS are efficient but only if all of the heat and all of the electricity can be put to use. In Interior Alaska, CHPPs are operated during the warmer part of the year to meet the electrical load (and they generate waste heat in the form of excess steam) and during the coldest part of the year are operated to meet the heating load (and generate waste electricity if it is all run through turbines). At UAF the temperature at which the campus heating load equals the campus electrical load is about minus 40F. It is the temperature at which the highest usable efficiency (67%) of the plant is achieved because all of the generated electricity and all of the generated heat are put to use.	Thank you for your comment. See the response to comment 70.01 above.
70.03	12/7/2020	Form Submission	Scott Bell	Public	During warmer times of the year excess steam is used to heat campus buildings. Left over steam is routed the air cooled condensers and the heat is dumped to the air. During colder times of the year excess electrical power can be sold to other utilities but if there is not enough demand, some of the steam the turbines are slowed and the excess steam heat is again routed to the air cooled condensers and the heat is dumped to air. So the maximum thermal efficiency (67%) of the CHPP is only achievable for short times of the year. The annual efficiency of the existing CHPP is 42%. Option 3, would install natural gas- or propane-fired boilers in dispersed plants across FWW. Boilers would not be installed in individual buildings. If the boilers are ultra high efficiency (90% plus) the overall heating system efficiency will be very high. Option 3 would purchase electrical power from the local utility (at this time GVEA). GVEA's current generation sources are a mix single cycle coal-fired plants, diesel and naphtha-fired turbines, small amounts of wind and solar PV, and power purchased from other local utilities and from Southcentral Alaska utilities via the Intertie. Very little use is made of waste heat from the fuel-fired plants and the penetration of solar and wind power is small due to the challenges of maintaining grid stability with these uncontrollably variable sources in the mix. Reciprocating generators on the FWW electrical grid could provide backup heat and power in case of a utility power outage Modifying Option 3 to include larger reciprocating engine generators would allow GVEA to purchase fast-response grid stabilization power from USAG Alaska. USAG Alaska could use waste heat from the reciprocating generators to supplement boiler-fired heat. Fast response-grid stabilization would allow GVEA to source more energy from wind and solar installations. Wind and solar installations are now less expensive to construct than coal plants, and have much lower operation and maintenance costs.	Thank you for your comment. See the response to comment 70.01 above.
71.01	12/7/2020	Form Submission	Sebastian Zavoico	Public	As a part of the Fairbanks community and as a person who spends a lot of time in the outdoors, I greatly value the health of our community in the short term and the long term. In the short term, using coal for electricity increases local particulate pollution which contributes to Fairbanks having one of the worst air quality problems in the US. In the longterm, coal contributes to global greenhouse which endangers people's livelihoods across the world, geopolitical stability, and contributes to the sixth mass extinction. The US Army should have great interest in reducing greenhouse emissions, as climate change has the ability to destabilize governments all over the world - there is substantial evidence that climate change was a large underpinning in the destabilization of Syria.Additionally, The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.

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71.02	12/7/2020	Form Submission	Sebastian Zavoico	Public	As noted in the Draft Environmental Impact Statement, the current coal plant is desperately in need of replacement. The multiple failures to meet environmental standards is absolutely not acceptable. Given the substantial greenhouse emissions that coal produces, replacing this coal fired powerplant with another one is not acceptable either. Neither the No Action nor Alternative 1 are acceptable options.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
71.03	12/7/2020	Form Submission	Sebastian Zavoico	Public	Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. This alternative is the best option for the community, and the best option for the USAG.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
71.04	12/7/2020	Form Submission	Sebastian Zavoico	Public	Additionally, The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
72.01	12/8/2020	Email	Cathy Walling	Public	The question of "What action will our child and grandchildren in 20 years time be thankful that we made today?" is the one that guides my response. I'm concerned that the draft EIS fails to acknowledge or address the climate change emergency and lacks a decarbonization path or alternative. None of the 4 alternatives include a path to decarbonization and beneficial electrification. I'm concerned that our community's challenges around air quality are not front and center in the proposed options. Correlated with this concern, the DEIS does not address coal ash toxin and proper disposal, and ignores potential regulatory impacts if coal ash is defined as a hazardous waste. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives.	Thank you for your comment. For all action alternatives, the air quality would be improved as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies.
72.02	12/8/2020	Email	Cathy Walling	Public	Addressing improving energy efficiency, as a first step will reduce the amount of energy needed regardless of the type. Hence, Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. I would love to see the draft EIS include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing climate change. I have long heard that the military understands the climate crisis and the need to take actions/ efforts to address it to help prevent other global crisis's that could require military action. Taking actions now with the view towards our future generations and reducing climate change impacts in our energy decisions is of paramount importance. I hope that this decision at Ft. Wainwright can be a beacon for leading that change.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.

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73.01	12/8/2020	Email	David Fish	Aurora Energy, LLC	The U.S. Army Garrison (USAG) Alaska (AK) is proposing to upgrade the on-post heat and electrical generation and distribution capabilities at Fort Wainwright, Alaska (FWA). USAGAK is proposing to upgrade the heat and power system claiming the current system has operated beyond its useful life and is becoming exponentially more expensive to operate and faces significant overhaul to operate reliably and meet environmental quality standards. A draft Environmental Impact Statement (EIS) has been prepared and submitted for public comment. The comment period closes on December 8, 2020. Aurora Energy, LLC appreciates the opportunity to comment on the Draft EIS addressing heat and electrical upgrades at FWA.	Thank you for your comment. Responses to your comments are provided below.
73.02	12/8/2020	Email	David Fish	Aurora Energy, LLC	USAGAK is concerned that the Central Heat and Power Plant (CHPP) and installations steam distribution system are beyond their design life. Continued investment in the aged facility is suspected to be a risk to the mission. In addition, air emission standards have periodically not been met. In 2017 the Fairbanks North Star Borough was designated a serious nonattainment area for fine particulate matter. The CHPP is required to implement Best Available Control Technology (BACT) at an estimated cost between $22 million and $235 million (by 2023). The boiler are operationally capped at a 20% reduction in capacity to meet the federal emissions standards for Carbon Monoxide (CO). The installation's existing coal-fired CHPP and heating system are operating at 42 percent efficiency which increases the existing fiscal and operational constraints on the USAG Alaska mission; one of the highest heating costs of any installation in the Army.	Thank you for your comment. The condition of the current CHPP is described in Sections 1.1 and 3.3 of the EIS.
73.03	12/8/2020	Email	David Fish	Aurora Energy, LLC	Currently, the CHPP provides all of the heat and 19MW of electrical demand using three 5MW extraction turbines and one 4MW backpressure turbine. Per the EIS, the installation has a peak electricity demand of 21 MW and annual average of 1.3 trillion British Thermal Units (45 MW) of heating needs.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
73.04	12/8/2020	Email	David Fish	Aurora Energy, LLC	Alternatives for implementing the proposed action were evaluated against six screening criteria to determine which would meet the project's purpose and need: 1. Address current cost constrains in operation and maintenance; 2. Compatibility with current mission and energy security needs; 3. Achieve cost efficiency with funding mechanism based on a 40-year life cycle cost; 4. Uses adequate technology for subarctic environment; 5. Minimize environmental impacts; 6. Locate on FWA for energy security purposes.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
73.05	12/8/2020	Email	David Fish	Aurora Energy, LLC	Current Configuration (No-Action Alternative) There seems to be a varying degree of interpretation regarding the current state of the CHPP with reference to the draft EIS and what is provided within the context of the supporting documents. The overall evaluation of the systems and their environmental impact are potentially misleading depending on the source documentation. The EIS background information points to 'near- catastrophic critical failures' that were associated with steam line ruptures and control system malfunctions. These 'critical failures' were not associated with the integrity of the steam generators and turbines but peripheral systems; i.e., the control system and distribution system. Eight unnamed and unexpected outages were referenced as well as a coal dust fire as justification to mothball the current CHPP. Outages happen even with modern systems, how these outages are different than those occurring at 'modern' facilities are not elucidated within the document. The coal handling system, while necessary, is auxiliary to the main steam generators and turbines comprising the CHPP. As such, the coal handling system may need additional attention as a part of maintenance as opposed to being addressed as a point of critical failure. Within the EIS the current CHPP is defined by a few key anecdotal statements which depict the plant as a failing entity; conversely, within the supporting documents there are justifications for the CHPP's performance:	Thank you for your comment. The condition of the current CHPP is described in Sections 1.1 and 3.3 of the EIS.

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73.06	12/8/2020	Email	David Fish	Aurora Energy, LLC	EIS Statement: CHPP boilers are operating at 20% reduced capacity (Section 3.5.2.2) The EIS implies that in order to meet federal limits for carbon monoxide, the boilers were fired at a reduced capacity of 20 percent. The steam generators are rated for 150,000 lb/hr. At 20 percent reduced capacity they would be capable of 120,000 lbs/hr steam. Within Appendix 3 of the Guernsey Report 2015 (Task Order No. W912DY-13-0111-0010) the following contradictory information is provided: Boiler 3 through 6 are identical boilers with the following specifications: • Rated steam Flow: 150, 000 lbm/h • Discharge Pressure: 425 psig (at superheater outlet) • Discharge Temperature: 625 °F (at superheater outlet) • Fuel Heating Value: 8,500 btu/lbm Since the actual btu content of coal supplied by Usibelli coal mine is less than the above rating, the actual steam capacity of boiler has been reduced to about 125,000 lbm/h. If the boilers are meeting federal limits for carbon monoxide at 120,000 klbs/hr, then they are firing at 96% of their capacity (125,000 lb/hr) based on the above reference.	The Guernsey study was completed in 2015, and at that time the boilers were not derated and the fuel heating value was 8,500 btu/lb (Guernsey 2015). Since June 2019, the boilers have been derated to 120,000 lbs/hr.
73.07	12/8/2020	Email	David Fish	Aurora Energy, LLC	EIS Statement: About 60% of the heat energy generated at the plant is lost through process conversions before reaching its intended facility (Section 1.1.2) It is difficult to determine exactly what is being implied by the statement within the EIS. There are multiple ways interpret the statement. On face value, it appears to be a negative talking point that the facility is losing '60% of its energy before reaching its intended facility'. However, based on the Thermodynamic Modeling Results of the Guernsey Report 2015 (Figure 2-2 below), the total loss of 58.14% energy prior to net steam delivered to the distribution system seems within reason for a coal facility with the configuration of the current CHPP.	Thank you for your comment. As stated in the Business Case Analysis: Heat and Electricity Alternatives for Fort Wainwright, Alaska (Guernsey 2015) report, which is referenced in Section 1.1.2 of the EIS, the existing CHPP and the distribution system are about 42% efficient. A modern coal plant and steam distribution system can easily reach an efficiency of 60 to 65%. Under Alternative 1, the existing CHPP would be replaced by a modern coal plant which would result in the improvement of the system efficiency by approximately 50% and would reduce the coal consumption by approximately 33%.
73.08	12/8/2020	Email	David Fish	Aurora Energy, LLC	Energy loss is partitioned between Electrical production loss (36.66%); Steam Production loss (15.23%); and Net Electrical Production (9.68%). Based on the figure (2-2), the steam production loss of 15.23% indicates that the boilers are operating at close to 85% efficiency, which is indicative of a well-functioning steam generator. The electrical production thermal loss of 36.66% is likely a consequence of the technology being used and includes parasitic extraction heat used by the plant. Essentially, the only "wasted" thermal loss is associated with the Distribution System Losses (i.e., 9.47%). There is probably an opportunity to address the distribution system through maintenance in order to increase the distribution systems efficiency	Thank you for your comment. Please see the response to comment 73.07 above.
73.09	12/8/2020	Email	David Fish	Aurora Energy, LLC	The plant consists of three extracting turbines and one backpressure turbine. The backpressure turbine can achieve greater thermal efficiencies of over 75% when accounting for the steam heat delivered to the distribution system after generating electricity through the turbine. That being said, there is only so much distribution heat load which can be accommodated by the 4 MW backpressure turbine. For example, potentially all of the summer heat load and maybe half to three-quarters of the winter heat load at FWA can be accommodated by the 4MW backpressure turbine alone. That leaves a deficiency in electrical production of 15 MW. Using the 'typical' coal-fired plant heat rate of 10,551 btu/kW (not a combined heat and power plant), the average efficiency of coal-fired electrical generation is a 32.34% (3,412 btu/kW ÷ 10,551 btu/kW). Based on the numbers for electrical generation and electrical production loss in Table 2-2, the assumed "heat rate" of electrical production is 16,339 btu/kW. That translates to an electrical generation efficiency of 20.88%. The turbine efficiency is very low. Either the extraction turbines are extremely inefficient and need to be replaced or the electrical production loss includes extraction heat (which could be used for parasitic heat loads…coal barn, coal facility, feedwater heaters, air preheaters, other auxiliary heating, etc.) as well as the condensed fraction of steam used for electrical generation (heat exhausted through air-cooled condenser). The actual loss in energy from the distribution system is 9.47% of the total input energy or approximately 25% of the heat used within the distribution system. That implies conservation of heat within the distribution system is in fact upwards of 75%. Due to unreliable metering associated with the distribution system, the implied thermal losses are assumed through heat modeling; as such actual losses may be less.	Thank you for your comment. Please see the response to comment 73.07 above.

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73.10	12/8/2020	Email	David Fish	Aurora Energy, LLC	Based on the Guernsey report, the current plant (particularly the steam generators) do not seem to be operating poorly. The boilers are potentially operating at 85% efficiency and the distribution system is operating at about 75% efficiency. The efficiency of the electrical generation is skeptical because it is very low, 20.88%; the low efficiency could be a result of accounting for extraction steam heat used for parasitic heat loads at the plant.	Thank you for your comment. Please see the response to comment 73.07 above.
73.11	12/8/2020	Email	David Fish	Aurora Energy, LLC	EIS Statement: The energy performance of the heat distribution system was evaluated and found to be underperforming compared to systems of similar size and age. Operating the CHPP at less-than-optimal level of efficiency only furthers the existing fiscal and operational constraints on the USAG Alaska mission (Section 1.1.2) The EIS depicts the current CHPP as less than capable of providing future needs of the installation. Within the "Energy Assessment of the Utility System at Fort Wainwright, Alaska" [Task Order No. W912DY-13-0111-0010 (2015)], the document recognizes that the plant can operate within an acceptable range if operated to its capabilities: The plant efficiency of 49.83% is lower than comparable cogeneration plants in the United States. While the plant is configured to operate as a cogeneration plant, typical operations under the current operational strategy is to meet the steam needs of the distribution system and generate excess electrical power in order to wheel electricity to FGA and GMD. When this strategy is considered, the final efficiency of the plant is within an acceptable range for a vintage plant of this age and size.	Thank you for your comment. As stated in the Business Case Analysis: Heat and Electricity Alternatives for Fort Wainwright, Alaska (Guernsey 2015) report, which is referenced in Section 1.1.2 of the EIS, the existing CHPP and the distribution system are about 42% efficient. A modern coal plant and steam distribution system can easily reach an efficiency of 60 to 65%. Under Alternative 1, the existing CHPP would be replaced by a modern coal plant which would result in the improvement of the system efficiency by approximately 50% and would reduce the coal consumption by approximately 33%. Generating excess electricity and wheeling it to Fort Greely and Ground Missile Defense is no longer a financially feasible option for the Army. This practice has been discontinued since 2015. After discontinuing this practice, the CHPP has not shown a notable change in the efficiency.
73.12	12/8/2020	Email	David Fish	Aurora Energy, LLC	It seems that the CHPP is not so much a failed system but rather configured in a way that doesn't operate within the expected efficiency of a typical commercial cogeneration plant. The plant seems to be over designed to accommodate a much greater heat load than it currently supports. If there were more load to the system, the system efficiencies would be increased. Since steam can be used in both heating and cooling, a cooling load could be an option which would increase thermal efficiency of the plant and reduce the electric load of the military installation. This form of load augmentation would increase the overall thermal efficiencies of the plant.	Thank you for your comment. The existing CHPP and distribution system are operating beyond their design life, which has resulted in the inability to provide reliable heat and power to Fort Wainwright, and the inability to meet the Army's energy security requirement.
73.13	12/8/2020	Email	David Fish	Aurora Energy, LLC	Current operations of the three 5 MW turbines, when not extracting, is probably more consistent with a 'typical' coal-fired energy plant configuration which has an average thermal efficiency of about 32%. The EIS references an efficiency of 42% which is consistent with a 4 MW backpressure turbine operating at 75% efficiency and three 5 MW extracting turbines operating at 21% efficiency. That being said, the turbine efficiency is very low in comparison to an average thermal efficiency for electrical generation using a steam turbine. It is suspect that heat loads for auxiliary heating needs of the plant (such as the coal barn and coal facility) are not accounted for as 'useable' steam heat to the distribution system. Those auxiliary heating needs are a product of the subarctic environment. Using an average steam turbine efficiency of 32% for the 5 MW turbines brings the overall system efficiencies up to 56% which is 2% less than the overall efficiency of the NG Plant (58%) per the USCOE life-cycle cost analysis. For the purpose of comparing the effective efficiency of the current coal-fired power plant to other alternatives, the use of extraction heat for auxiliary heating should be included as part of 'usable' steam heat. This exercise will increase the calculated overall efficiency of the plant and be more representative of the actual efficiencies of the current systems performance.	Thank you for your comment. Please see the response to comment 73.07 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
73.14	12/8/2020	Email	David Fish	Aurora Energy, LLC	Air Quality The current power plant is required to install Best Available Control Technology to mitigate sulfur dioxide emissions as a consequence of recently promulgated air quality regulations. The timeline for its installation is 2023; prior to the implementation timeline of any potential alternative heat and power upgrade proposed in the EIS (i.e., 2026). The sulfur dioxide emissions from the CHPP will be reduced as a consequence of control technology installation. The current impact to the nonattainment area from the CHPP is uncertain, however; it will be less with the added control technology. In addition, all emergency engines, generators, fire pumps, and fuel oil boilers will be switched over to ULSD further reducing the overall impact of the military installation to the nonattainment area.	Thank you for your comment. Section 1.2 of the EIS states that the implementation of the proposed action is contingent on availability of funds. Section 3.2 of the EIS addresses BACT implementation. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
73.15	12/8/2020	Email	David Fish	Aurora Energy, LLC	Solid Waste Coal ash is currently being disposed of in a landfill on post. Coal ash can be used for beneficial fill or used for other recycling opportunities. Recycling coal ash reduces the use of other natural resources. Environmental credit can be taken for recycling coal ash under the Toxic Release Inventory annual reporting requirement. The environmental recycling opportunities of coal ash should be considered within the context of this EIS.	Thank you for your comment. Text added to Section 3.3.2.3 of the EIS.
73.16	12/8/2020	Email	David Fish	Aurora Energy, LLC	New Coal Plant (Alternative 1) The capacity of the new coal plant would be limited to supplying 45MW of heat energy. According to the Draft EIS, the remainder of the power needs would be acquired through GVEA. The baseline case as referenced in the USCOE life-cycle cost analysis denotes a total electric use of approximately 102,000 MWh/yr with purchased electricity consisting of approximately 11,000 MWh annually. Under Alternative 1, the purchased electricity increases to 66,000 MWh annually. The reason for the increase in electrical purchase is because the electrical generation strictly follows the heat load through the use of two 5MW backpressure turbines. While the efficiency of the 'blended distribution system (heat + elect.)' increases to 74%, it doesn't generate enough power to support the facility. The current 'blended distribution system efficiency' is 57% as a consequence of using extraction turbines to supplement additional power.	Thank you for your comment. Please see the response to comment 73.07 above.
73.17	12/8/2020	Email	David Fish	Aurora Energy, LLC	Air Quality The air emissions decreases significantly with this alternative due to reduced power generation. The impact to local air quality from the facility is decreased; however, the overall impact to air quality from the project is contingent on where the purchased energy comes from. If the purchased energy is supplemented locally by GVEA, then the emission from purchased power would be displaced to another facility within the nonattainment area. The emission rates of the potential power generation could exacerbate the nonattainment area problem further depending on the impact of the source's emissions, stack height, and location with respect to local meteorology. If the purchased power is made up through GVEA's Healy Plant then the displaced emissions would increase the total impact to the air shed by Denali National Park. Those considerations should be addressed within the air quality assessment. Net effect values for several pollutants in Table 3.2.6 are miscalculated.	Thank you for the comment. Under the permitting process, all on-site emissions would be evaluated to ensure that there is no degradation of the airshed. Although it cannot be speculated how GVEA will meet the increased power demand, they have a diverse power portfolio which does not solely rely on fossil fuels. GVEA emissions and their impacts are subject to ADEC permitting to ensure that they refrain from adversely affecting other resources.
73.18	12/8/2020	Email	David Fish	Aurora Energy, LLC	Solid Waste Coal ash is currently being disposed of in a landfill on post. Coal ash can be used for beneficial fill or used for other recycling opportunities. Recycling coal ash reduces the use of other natural resources. Environmental credit can be taken for recycling coal ash under the Toxic Release Inventory annual reporting requirement. Section 3.4.2.3 Alternative 1 also mistaken implies coal ash is combustible.	Thank you for your comment. The EIS text is discussing the risk of fires from inadvertent remnant hot materials remaining in coal ash. It does not imply coal ash is combustible.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
73.19	12/8/2020	Email	David Fish	Aurora Energy, LLC	This alternative would replace the older CHPP for a newer coal facility. Ultimately, the older plant would have to be demolished. Being an older plant, there is likely a significant amount of hazardous materials which would have to be transported offsite and potentially out of state to a proper disposal facility. While cost for the military is not an issue, the logistics of transport and identifying an acquiring facility should be addressed as a potential environmental concern.	Thank you for your comment. The EIS text is sufficient as is regarding demolition debris.
73.20	12/8/2020	Email	David Fish	Aurora Energy, LLC	New Dual-Fuel Combustion Turbine Generator (Alternative 2) Alternative 2 consists of three 7MW as turbine generators with three heat recovery steam generators (HRSG) that are equipped with supplemental duct burners capable of 250 klbs/hr steam production each. The alternative assumes that the turbines operate to follow the electric load of the facility.	Thank you for your comment. Responses to your comments regarding Alternative 2 are provided below.
73.21	12/8/2020	Email	David Fish	Aurora Energy, LLC	The electric load accommodated by the alternative is consistent with the "basecase", that is 102,000 MWh/yr. However, the combustion turbines will requires a significant station load to operate natural gas compressors for feeding the turbine and local storage of the fuel could require extensive energy use for cooling if natural gas is to be stored on post in a liquefied state. These considerations should be included in the evaluation.	Thank you for your comment. The incorporated reference studies include an increase in load and cost for station service. Alternative 2 does not include storing liquid gas on-post.
73.22	12/8/2020	Email	David Fish	Aurora Energy, LLC	Air Quality The alternative evaluates the air quality assessment on a fuel mix of NG/ULSD Fuel oil in a 19/1 ratio. Each fuel should be evaluated independently of the other at capacity in order to determine what permitting strategy will be necessary. Permitting is traditionally evaluated at the sources maximum potential then, if necessary, an operational limit for each fuel type is defined. The resulting maximum of three 7 MW combustion turbines and three supplemental duct burners capable of 250 klb/hr is significant and will trigger Nonattainment New Source Review (NNSR) major source modification. The use of "Warm" and "Cold" emission rates for NOx, SO2, and VOCs is not conventional.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
73.23	12/8/2020	Email	David Fish	Aurora Energy, LLC	The references to where the emission factors can be found are not provided. If the anticipated thermal input is multiplied using the higher emission factor used for VOC, the emission change could trigger major modification. Also, off-gassing from fuel transfer and storage for both ULSD and NG are not included in the emission calculations which would alter the total emissions from the alternative.	Thank you for your comment. VOC emissions from conversion to natural gas or ULSD (including off-gassing), would be addressed in the permitting process. Upon project design, the need for additional environmental impact analysis would be assessed. Emission factor sources are discussed in Sections 3.2.2.2 and 3.2.2.3 and Appendix F of the EIS.
73.24	12/8/2020	Email	David Fish	Aurora Energy, LLC	The emission inventory (Table 3.2-9) is based on varying heat input rates across the pollutants listed. The heat input should not vary when calculating pollutant emissions. Depending on the source and moisture content of natural gas, water vapor emissions could increase to over 100% in comparison to coal combustion on output based emission rate (taking efficiency of process into consideration). The significant amount of water vapors emitted from natural gas combustion could impact the chemistry of particulate formation and should be evaluated and modeled for any detrimental impact to the nonattainment area.	Thank you for your comment. Upon project design more detailed analyses would be conducted as part of air quality permitting processes, and the need for further environmental impact analysis would be assessed.
73.25	12/8/2020	Email	David Fish	Aurora Energy, LLC	Solid Waste This alternative would replace the older CHPP for a newer coal facility. Ultimately, the older plant would have to be demolished. Being an older plant, there is likely a significant amount of hazardous materials which would have to be transported offsite and potentially out of state to a proper disposal facility. While cost for the military is not an issue, the logistics of transport and identifying an acquiring facility should be addressed as a potential environmental concern.	Thank you for your comment. Section 3.9 of the EIS discusses impacts to transportation. Upon project design the need for further environmental impact analysis would be assessed.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
73.26	12/8/2020	Email	David Fish	Aurora Energy, LLC	Natural Gas Distributed Boiler (Alternative 3) The distributed natural gas boilers provide heat for the army post. This alternative does not include any electrical generation. The pollutant emissions are calculated based on the heating needs of the post congruent with baseline usage. The alternative considers two 10 MW ULSD fuel backup generators at the installations main substation for emergency power. This alternative assumes that 102,000 MWh/yr will be purchased by FWA. Air Quality Similar to Alternative 1, the emissions for the purchased power could be generated locally or in Healy; those impacts should be evaluated.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
73.27	12/8/2020	Email	David Fish	Aurora Energy, LLC	All potential emissions are not considered within the context of the alternative. The potential emissions from the use of emergency backup generators are not included in the emission inventory. Emissions related to off-gassing from fuel transfer and new fuel storage tanks are also not included in the emission inventory for either natural gas or fuel oil. If additional heat will be used to maintain the water and sewer lines within the utilidor, then those emissions also need to be included within the emission inventory as well. All emission from Distributed Natural Gas Boilers will be under the 'inversion' layer. As such, all of the pollutants from combustion will be captured as low lying emissions directly accumulating within problematic elevations in the nonattainment area. This could have a significant impact on the community's health. That consideration should be addressed through modeling to better assess any potential health risks.	Thank you for your comment. Emissions from fuel oil tanks would be expected to be lower than the VOC emissions from the existing CHPP. Natural gas would be piped to the installation and no storage tanks would be located on the installation, so there would be no off-gassing on the installation. These emissions would be addressed in the permitting process as applicable.
73.28	12/8/2020	Email	David Fish	Aurora Energy, LLC	Depending on the source and moisture content of natural gas, water vapor emissions could increase to over 100% in comparison to coal combustion on an output based emission rate (taking efficiency of process into consideration). The significant amount of water vapors emitted from natural gas combustion could impact the chemistry of particulate formation and should be evaluated and modeled for any detrimental impact to the NAA.	Thank you for your comment. See the response to comment 73.28 above.
73.29	12/8/2020	Email	David Fish	Aurora Energy, LLC	Solid Waste This alternative would replace the older CHPP for a newer coal facility. Ultimately, the older plant would have to be demolished. Being an older plant, there is likely a significant amount of hazardous materials which would have to be transported offsite and potentially out of state to a proper disposal facility. While cost for the military is not an issue, the logistics of transport and identifying an acquiring facility should be addressed as a potential environmental concern.	Thank you for your comment. Section 3.9 of the EIS identifies impacts to transportation due to demolition activities. Upon project design the need for further environmental impact analysis would be assessed.
73.30	12/8/2020	Email	David Fish	Aurora Energy, LLC	Conclusion USAGAK FWA has evaluated the environmental impacts from several alternatives which consist of replacing and demolishing the current power plant. While the overall environmental benefits seem in favor of a new facility, there are a few considerations that were not addressed within the context of the EIS that could help in the decision making process to determine a preferred alternative.	Thank you for your comment. Responses to your comments concerning the identification of the preferred alternative in the EIS are provided below.
73.31	12/8/2020	Email	David Fish	Aurora Energy, LLC	No Action Alternative. Distribution System maintenance and additional district heating load may be the cheapest alternative to increasing the efficiency of the current system. Based on supporting documentation, the current CHPP appears to be efficient in generating steam. The electrical generation thermal losses and distribution thermal losses seems large; however some loss could be due to certain parasitic thermal loads, such as heating the coal facility and coal cars in the coal barn. The plant equipment was probably originally selected with more expected heat load than actually occurred, or the electric power consumption has grown more than anticipated. A different turbine, sized for the current heating and electrical power loads, could solve much of the efficiency discrepancies.	Thank you for your comment. Section 2.5.1 of the EIS explains that among other major repairs and upgrades to the system needed to keep the plant operational under the No Action Alternative, USAG Alaska would need to incorporate cost-intensive Best Available Control Technology (BACT) with implementation costs estimated between $22 million and $235 million (Agrawal 2020), and continue to operate the derated CHPP boilers at 80 percent of their nameplate-rated capacity to meet air quality emissions regulations and standards.

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73.32	12/8/2020	Email	David Fish	Aurora Energy, LLC	Alternative 1 - New coal plant. The alternative is lacking in comprehensive assessment on air quality impacts to the nonattainment area. The alternative displaces electrical needs to the grid which changes the fuel source for electrical generation and emissions within the area. The calculated reduction in emissions at the facility is more likely a lateral displacement of emission that could either be emitted at other power stations within the nonattainment area or in Healy, near Denali National Park. The beneficial use of coal ash is an opportunity that would exist as part of this alternative. The benefits of solid waste recycling should also be highlighted within the context of the EIS.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
73.33	12/8/2020	Email	David Fish	Aurora Energy, LLC	Alternative 2 - Dual Fuel NG/HO plant. This option uses combustion turbines to fire natural gas and or ULSD. The use of combustion turbines could increase station load significantly due to necessary air compressors. A more detailed analysis on the station service of a combustion turbine would be necessary to accurately resolve pollutant emissions from the process. A traditional air permitting assessment considers each fuel source at maximum capacity to determine the required permitting strategy. As such, a similar course should be taken with respects to this alternative. University of Fairbanks Alaska (UAF) looked at a gas turbine option and had difficulties with the emission limits for fine particulates (PM2.5) with a gas turbine operating on fuel oil because of the PM2.5 precursors. This same consideration would be evident if each fuel source for the combustion turbine were evaluated independently for air quality permitting.	Thank you for your comment. See the response to comment 73.32 above.
73.34	12/8/2020	Email	David Fish	Aurora Energy, LLC	Alternative 3 – NG Distributed Boilers. Distributed boilers would directly emit pollutants within the nonattainment area at elevations of particular concern for the area. Air quality modeling should be used to determine the potential impacts to low lying emissions from the option. Increased electrical needs of this option displace power generation to local commercial sources. The impact to air quality within the area could be exacerbated depending on the efficiency, source, and location of the commercial generating facility that accommodates the displaced electrical load. Since GVEA's Healy plants run at high capacity factors, the load increase will likely come from GVEA's North Pole plant, or the Zenders in Fairbanks; both of which are in the local air shed and nonattainment area for fine particulates.	Thank you for your comment. See the response to comment 73.32 above.
74.01	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	Golden Valley Electric Association, Inc. (GVEA) appreciates the opportunity to provide input on the USAG Alaska Draft EIS noticed through the Federal Register on October 9, 2020. As the utility certified by the Regulatory Commission of Alaska (Commission) to furnish electric service within the Fairbanks North Star Borough (FNSB) and surrounding areas, GVEA is well positioned to provide a unique perspective to USAG Alaska as it evaluates options for heat and electrical upgrades at Fort Wainwright, Alaska.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
74.02	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	General Comments GVEA was formed in 1946 and provides electric service to over 100,000 residents across a service area of 5,900 square miles. This service areas includes areas to the southwest of the FNSB (including the communities of Cantwell, Healy, Ferry, Anderson, Clear, and Nenana), the cities of Fairbanks and North Pole, the communities of Fox and Salcha, and areas to the southeast (including Delta Junction). GVEA owns generation, transmission, and distribution facilities, including nine (9) generation units with a combined capacity of 381 megawatts (MW), 3,282 miles of transmission and distribution lines, and 35 substations, including a mobile substation. GVEA's peak load in 2019 was 194.7 MW. GVEA is a not-for-profit cooperative that is owned by its Members and as such, GVEA is ever mindful to ensure that Member resources are used prudently in providing economic, safe, and reliable electric service.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
74.03	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	2021 marks GVEA's 75th anniversary. Naturally, it is a time to reflect on the past while at the same time contemplating what the next 75 years will bring. One of GVEA's recently adopted strategic directives is to develop and implement a future generation strategy that utilizes proven generation and demand side technologies on a GVEA owned or purchased basis to optimally balance fuel and life cycle cost, emissions reduction, load, reliability, fuel resource and timeframe criteria. The decision as it relates to future generation will have short-term and long-term implications for GVEA, its Members, the FNSB, and Fort Wainwright.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.

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74.04	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	To that end, GVEA respectfully encourages USAG Alaska to seriously consider Alternative #3 of the Draft EIS (the installation of multiple high-efficiency, natural gas-fired boilers to provide heat, and the purchase of all required electricity from GVEA) in deciding how to provide reliable heat and electric power at Fort Wainwright. Alternative #3 is technically and economically feasible, addresses significant environmental issues, allows USAG Alaska to fulfill its mission, and will provide symbiotic benefits to Fort Wainwright, the FNSB, and Interior Alaska. GVEA is providing additional comments on three "resource areas" USAG Alaska analyzed for environmental and socioeconomic impacts: Air Quality, Utilities, and Socioeconomics.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 of the EIS provides an analysis of air quality impacts.
74.05	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	Air Quality Under Alternative #3, there would be both local and regional benefits to air quality. Fort Wainwright is located in a designated serious nonattainment area (NAA) for particulate matter less than 2.4 microns in diameter (PM2.5). Alternative #3 is the most effective of the four alternatives in reducing primary PM2.5 and SO2 precursor emissions within the NAA. In conjunction with providing electric service under Alternative #3, GVEA would use its most efficient generation unit within the NAAthe North Pole Combined Cycle Plant, which burns low-sulfur fuel and has low PM2.5 emissions. The effect would be an estimated 30% fewer tons of emissions than is produced by Fort Wainwright's current generation. The overall benefit of Alternative #3 is a reduction in PM2.5 related emissions.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
74.06	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	Utilities For years, GVEA has provided electric service to entities that require a high degree of reliability. GVEA currently provides electric service to several military installations, including Fort Greely, the Ground-based Midcourse Defense (GMD) at Fort Greely, Eielson Air Force Base, and Clear Air Force Station. GVEA has the generation and transmission infrastructure already in place to provide the anticipated load requirements of Fort Wainwright. GVEA will also work closely with Fort Wainwright to determine if appropriate system modifications are required or desired to provide increased reliability. GVEA routinely performs system studies that consider projected load requirements to determine what system modifications may be necessary to maintain system integrity and reliability. As part of those efforts, GVEA will work with Fort Wainwright in analyzing Fort Wainwright's projected demand and annual energy needs since those projections will affect GVEA's system planning in the coming years. Fort Wainwright's energy needs will be considered by GVEA as we evaluate future generation projects and transmission modifications and upgrades.	Thank you for your comment. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
74.07	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	Socioeconomics From GVEA's perspective, it is premature to state, with any degree of certainty, that Alternate #3, on its own will cause a "near term rate increase". GVEA is required to set rates that are just, reasonable, and reflective of providing electric service to Members. GVEA performs a series of analyses that take into account multiple factors whenever it seeks a change to rates. Any changes to rates are subject to review and approval by the Commission. The extent of Fort Wainwright's use of natural gas as contemplated in Alternative #3 will increase the demand of natural gas in Interior Alaska, and thus supply. There is a likelihood that the overall cost of natural gas would then decrease, which will spur residential conversions. GVEA would likewise seek, to the extent practical and economic, to convert certain generating units to natural gas, which would likely result in a decrease to the cost of energy. Therefore, the socioeconomic impact of Alternative #3 as it pertains to rates could be a positive, not negative, change.	Thank you for your comment. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS. Although it cannot be speculated how the Golden Valley Electric Association (GVEA) would meet the increased power demand, GVEA has a diverse power portfolio which does not solely rely on fossil fuels.

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74.08	12/8/2020	Email	Daniel Heckman	Golden Valley Electric Association	Conclusion The process of selecting which of the four alternatives can provide reliable heat and electric power at Fort Wainwright is important and has long lasting ramifications, not only for Fort Wainwright, but also for the FNSB and Interior Alaska. Fort Wainwright's presence in Interior Alaska is strategically critical for national security reasons, but also to the financial and socioeconomic well- being of the FNSB. Alternative #3 is the best long-term alternative. Alternative #3 not only addresses air quality issues, but also is the best opportunity to enhance low-cost energy in Interior Alaska through an increased demand for natural gas. Please realize that regardless of which alternative USAG Alaska chooses, GVEA stands ready to provide assistance and electric service to Fort Wainwright and USAG Alaska.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
75.01	12/8/2020	Letter	Diane Preston	Public	Growing up four blocks from the downtown coal burning power plant, with next door neighbors burning coal for heat and both my parent smoking, I grew up with both indoor and outdoor pollution and as a consequence have had lung issues my entire life. I am acutely aware of the long term negative health consequences of air pollution for our community, in particular for children, which has resulted in the EPA listing the Fairbanks North Star Borough as a nonattainment area and requiring mitigation measures.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
75.02	12/8/2020	Letter	Diane Preston	Public	My main concern is that none of the four alternatives, offered in this Draft Environmental Impact Statement, adequately address both the climate change consequences of that option as well as the important air quality and coal ash toxicity issues for all of us in Fairbanks. Because of that, my opinion is that None of the Above is the best temporary option until you can go back to the drawing board and come up with more creative and forward thinking alternatives.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts, which addresses greenhouse gases. Section 3.10 addresses coal ash considerations to human health and safety. Section 2.4 discusses renewable energy sources and their feasibility for implementation. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
75.03	12/8/2020	Letter	Diane Preston	Public	The alternative No Action is obviously not a viable option for any length of time and is totally unacceptable. This current coal fired power plant is 65 years old and continues the local pollution of air, soil and water that create health hazards for our community including the personnel who live and work at Ft. Wainwright It also continues to contribute to the ever worsening climate crisis. The only way this option makes sense is to provide a short amount of additional time for other more responsible alternatives to be developed.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Regardless of the alternative selected, the Army will adhere to federal and state regulatory requirements concerning hazardous material and waste, and air emissions.
75.04	12/8/2020	Letter	Diane Preston	Public	Alternative No. 1 also is out of the question as a responsible option. Building a new coal fired power plant, even with newer technology, is no longer acceptable in terms of the environmental costs or the health costs to the community. Toxic coal ash and PM2.5 emissions contributed by burning coal are health hazards our community does not need, particularly when there are other renewable energy options. In addition, given the rapid recognition, by both citizens and our incoming government, of the peril to the earth and humanity from climate change, a new coal fired plant with green house gas emissions and local pollution issues likely would be an expensive and short term endeavor.	Thank you for your comment. See the response to comment 75.02.
75.05	12/8/2020	Letter	Diane Preston	Public	Alternative 2 still relies on coal and other fossil fuel with all the pollution, negative health effects and climate crisis emissions problems mentioned above and is not acceptable.	Thank you for your comment. See the response to comment 75.02.
75.06	12/8/2020	Letter	Diane Preston	Public	Reducing energy use could allow for more efficient integration of renewable energy which also is not adequately considered in these four options. Yes, it is difficult to integrate solar into a grid but clearly not impossible as is shown by the explosion of home and business solar installations taking place in the Fairbanks area. Ft. Wainwright sits on level ground, for the most part, with few large trees; rooftops there would be ideal for solar installations. In interior Alaska, there are many sites appropriate for wind turbines, including 4 unused platforms at Eva Creek.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
76.01	12/8/2020	Letter	Grace Cochon	U.S. Department of the Interior	The U.S. Department of the Interior (DOI) appreciates the opportunity to review and comment on the U.S. Army Garrison Fort Wainwright, Alaska (USAG FWA), Draft Environmental Impact Statement (EIS) addressing heat and electrical upgrades for the Fort Wainwright Army Installation. Our comments and recommendations are submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 844), Fish and Wildlife Coordination Act (48 Stat. 401, as amended: 16 U.S.C. 661 et seq.), Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), National Invasive Species Act of 1996 [P.L.104-332] as amended, and National Environmental Policy Act of 1970 (42 U.S.C. 4321-4347).	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
76.02	12/8/2020	Letter	Grace Cochon	U.S. Department of the Interior	The Draft EIS focuses on the proposed upgrade to the central heat and power plant (CHPP). The Draft EIS describes three action alternatives: Alternative 1) construct a new coal-fired CHPP, Alternative 2) construct a new dual-fuel combustion turbine generator CHPP, and Alternative 3) construct and install distributed natural gas boilers. General Comments The DOI and its U.S. Fish and Wildlife Service (Service) appreciates the USAG FWA's coordination for this proposed project. We offer the following recommendations to help minimize the proposed project's impacts on wildlife and their habitat.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
76.03	12/8/2020	Letter	Grace Cochon	U.S. Department of the Interior	Threatened and Endangered Species The purpose of the ESA is to conserve threatened and endangered species and the ecosystems upon which they depend. Projects that may affect listed species and/or designated critical habitat must be evaluated under section 7(a)(2) of the ESA to ensure federal agencies authorizing, funding, and conducting the projects are not likely to jeopardize the continued existence of any listed species, or result in the destruction or adverse modification of designated critical habitat. In this case, no ESA-listed species or designated critical habitat occur within the project area. Therefore, the project would have no effect on listed species or critical habitat, and no further action regarding ESA-listed species is required. This information can be confirmed, and the potential for effects of other projects can be evaluated, at https://ecos.fws.gov/ipac/.	Thank you for your comment. This finding has been added to Section 3.1.3 of the EIS.
76.04	12/8/2020	Letter	Grace Cochon	U.S. Department of the Interior	Migratory Birds Construction Staging: DOI recommends including Best Management Practices (BMPs) for temporary material staging in the Final EIS. Construction projects involving high mounds of gravel or dirt can attract nesting bank swallows (Riparia riparia). If material is removed before the nesting season ends, nests can be destroyed. We recommend avoiding the creation of stockpiles with steep slopes and, when practicable, storing the material in a low-grade pile, so it is not an attractant to bank swallows. Structural Design to Discourage Swallows: DOI encourages building designs incorporating architecture that deters nesting birds when possible. Cliff swallows (Petrochelidon pyrrhonota) are prolific on the instillation, and proactively designing new structures that are not attractive to this species will be beneficial. Cliff swallows are a migratory species protected under the Migratory Bird Treaty Act and have been a source of frustration for Fort Wainwright. The nests are a concern because they are a source of fecal matter and parasites. We recommend reviewing the USAG FWA Natural Resources Report (2011) as a good source of information for proactively excluding cliff swallow nesting. Vegetation Clearing: We understand the new CHPP will likely not require vegetation clearing. However, if this is not the case, DOI recommends avoiding land clearing activities during the migratory bird nesting period, which is generally May 1 through July 15 at the proposed site. We also recommend following the multiagency guidelines for riparian and wetland buffers in Interior Alaska to avoid clearing and other disturbances along wetlands and fish-bearing streams.	Thank you for your comment. Text was added to Section 3.1.3 to incorporate measures that would be followed during the construction effort.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
76.05	12/8/2020	Letter	Grace Cochon	U.S. Department of the Interior	Invasive Species Unlike most of the country, the Alaska climate and limited access to remote areas previously minimized the potential for introducing and proliferating invasive species in the state. However, these barriers are no longer as effective due to a warming climate and improved access. Special precautions are now needed to ensure protection from invasive species. DOI recommends implementing BMPs for minimizing the introduction and transport of invasive species into and out of the project area. Prevention is the most critical aspect of invasive species management, including winter months. BMPs can include thoroughly washing equipment before entering the project area to remove dirt and debris that may harbor invasive plant seeds and propagules to minimize their introduction and spread throughout areas that would not otherwise be exposed. BMPs may also include invasive species education for staff and contractors, using weed-free erosion control products, employing management strategies that anticipate and suppress secondary invaders while rapidly restoring native plants to fill the space vacated by invasive species control, and developing a monitoring and treatment plan. Please refer to http://aknhp.uaa.alaska.edu/maps/akepic/ for the location of invasive species within the project area, with the understanding that lack of information does not equate to the potential absence of invasives at the location. To enhance on-the-ground knowledge of invasive species management, we recommend project contractors review a free, self-paced training course on invasive species control, which can be found at http://weedcontrol.open.uaf.edu/. For more assistance with managing for invasive species in the project area, please contact the Service.	Thank you for your comment. Text was added to Section 3.1.3 to incorporate measures that would be followed during the construction effort.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
77.01	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The Alaska Department of Environmental Conservation (ADEC) agrees with Fort Wainwright that the proposed Central Heat and Power Plant (CHPP) upgrade project is located within a PM2.5 nonattainment area and a CO maintenance area. Therefore, under 42 U.S.C. §7506(c)(5), the proposed project is subject to General Conformity applicability assessment with respect to the PM2.5 and CO NAAQS. To determine if a demonstration of conformity is required, the following factors must be considered: 1) Is the project exempt or within the de minimis threshold? 2) Are the emissions reasonably foreseeable and subject to practical control? 3) Are the emissions below the specified de minimis threshold (e.g., 100 ton/year for CO)? and 4) Is the project regionally significant (that is 10% of total emissions budget). 1) Is the project exempt or within the de minimis threshold? Although Fort Wainwright indicated in Table 3.2-4 (page 90) that the anticipated construction emissions for Alternative 1 are below the de minimis threshold, it did not provide the justification for comparing the proposed construction emissions to a previous construction project. Also, the EIS failed to provide information on seasonal operation, hours of operation of the equipment, tier of engines, etc. The EIS should provide estimated emissions, to document how the anticipated construction emissions are indeed below the de minimis threshold. Emission factors used to calculate emissions should also be included. 2) Are the emissions reasonably foreseeable and subject to practical control? Yes. The purpose for the project is to reduce the PM2.5 precursor emissions. In addition, in the EIS, Fort Wainwright stated that all the three Action Alternatives would also reduce CO emissions considerably and that the No Action Alternative would be operated at reduced capacity to avoid exceeding regulatory CO emissions standards. The EIS also mentioned the commitment of Fort Wainwright to the best management practices and mitigation measures that would contribute to lower emissions for both CO and PM2.5 or its precursors. 3) Are the emissions below the specified de minimis threshold (e.g., 100 ton/year for CO)? See item (1) above. The EIS needs to provide the emission estimate calculations and documentation for the construction emissions for the project, not just comparing the proposed construction emissions to a previous construction project. Please provide information on seasonal operation, hours of operation of the equipment, tier of engines, emission factors, etc. 4) Is the project regionally significant (that is 10% of total emissions budget)? ADEC believes that the project is not regionally significant. Based on the response given on items (1) and (3) above, the EIS provides insufficient information for ADEC to concur that the project is below the de minimis requirements for meeting General Conformity. While not required, it is encouraged that while working on the EIS in response to the comments provided, that an interagency consultation (either through teleconference or email) be convened. Working with EPA and ADEC through an interagency consultation will assist authors in preparing the necessary information to complete the General Conformity requirements and expedite any additional reviews.	Thank you for your comment. For all of the alternatives considered, it is expected that the operational emissions of CO, PM2.5, and PM2.5 precursors (SO2 and NOx) would decrease from the current level as identified in Section 3.2.2. Upon the development of a design, further environmental coordination, permitting, and consultation will occur, along with review of the air conformity analysis. The need for additional environmental impact analysis will be assessed at that time.
77.02	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	DEC respects the Q/d analysis but is using the area of influence and weighted emission potential analysis which is more accurate and takes into account meteorological and topographical information.	Thank you for your comment. The Q/d analysis is sufficient for the EIS; future permitting processes would be more detailed.
77.03	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The DEIS is dated June 2020, more recent data is available. Please update the data or revise this sentence.	Thank you for your comment. The EIS was updated to incorporate the most current data, per comment.

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77.04	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Replace Design value data with most recent. Data is from 2018, please use 2019 for all but NO2. Also please use Ncore data, not State Office building data for PM2.5. Data table provided below. (see separate spreadsheet tab)	Thank you for your comment. Text and data were updated to include the most recent information available per comment.
77.05	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	While it is stated that interference with achieving the NAAQS is considered 'significant criteria', no analysis is provided for any of the Alternatives on how emissions impact concentrations of the NAAQS. Emissions reduction alone cannot be used to demonstrate impacts on concentrations on the ground, as atmospheric processes are complex and are impacted by multiple variables. Dispersion modeling is one of the few tools that would allow an assessment of how changes to emissions impact ambient concentrations. The EIS should use dispersion modeling analyses to estimate impacts for all Alternatives.	Thank you for your comment. The analysis approach is sufficient for the EIS; future permitting processes would include dispersion modeling.
77.06	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The existing combined heat and power plant (CHPP) is required under the State SIP to install a dry sorbent injection system effective no later than October 1, 2023. This should be noted under the discussion of the no action alternative.	Thank you for your comment. Section 3.2.2.2 reflects this note.
77.07	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Reference what the current emission rates are by a table, to understand what values the resulting 54 % decrease from BACT are referring to. It seems like for SO2 for example it is 460 tpy from the permitting table (54% decrease = 212 TPY). This comment applies to all pollutants.	Thank you for your comment. Text in Section 3.2 was revised per comment.
77.08	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The DEIS uses the No Action Alternative to compare the impacts from the other 3 Alternatives. Without a clear understanding of the current impacts, it is impossible to compare and rank the other Alternatives. An assessment of the impacts should include dispersion modeling.	Thank you for your comment. Table 3.2-6 and other tables have been added to Section 3.2 to compare the net emissions values for each alternative.
77.09	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	ADEC has not formally determined the Q/d threshold of 10. The Western Regional Air Partnership (WRAP) developed a Q/d tool for 2014 using 2014 NEI emissions. Based on that analysis it is correct that the Q/d would be approximately 15. However, ADEC decided to use a weighted emission potential analysis (WEP) and used back trajectories from the Class 1 IMPROVE monitors on the most impaired days to further define the highest area of influence (AOI) and in combination with the emission inventories, to rank the facilities with the highest impact. DEC used both 2014 and 2017 emissions and in both 2014 and 2017, this facility ranked third with the most impact on most impaired days.	Thank you for your comment. The Q/d analysis is sufficient for the EIS as informed by the WRAP Q/D tool; future permitting processes would be more detailed.
77.10	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	As stated, the Q/d is not the final preferred method for establishing a facility's impact on an IMPROVE monitor. In using the 2017 emissions as reported to DEC and EPA the 54% SO2 reduction would still keep this facility's emissions within the top ten contributing facilities on impairment with SO2 and with no reductions in NO2, The facility would be the third highest contributor to impairment at Denali National Park. In conclusion, DEC does not have a trigger threshold and is using the WEP and AOI to determine a facility's impact on a C1A IMPROVE monitor. With the no action alternative, this facility would continue to be a high contributor towards visibility impairment at Denali National Park.	Thank you for your comment. See the response to comment 77.09 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
77.11	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The existing combined heat and power plant (CHPP) is required under the PM-2.5 Serious State Implementation Plan (SIP) to install a dry sorbent injection system effective no later than October 1, 2023. If a new coal fired CHPP is selected, this source would be required to comply with the PM-2.5 Implementation Rule which requires new or modified sources emitting 70 tons or more per year of direct PM-2.5 or any PM-2.5 precursor in any Serious nonattainment area for the PM2.5 NAAQS to conduct a BACT analysis and be incorporated into the SIP.	Thank you for your comment. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
77.12	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Please provide calculation in the appendix for Table 3.2-6	Thank you for your comment. Refer to Appendix F of the EIS for Air Quality and Greenhouse Gas Analysis Methods and Assumptions. Refer to Tables 3.2-5 and 3.2-2 for what is included in Table 3.2-6.
77.13	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Please provide calculations and notes a,b,c and d from Table 3.2- 5	Thank you for your comment. Refer to Appendix F of the EIS for Air Quality and Greenhouse Gas Analysis Methods and Assumptions.
77.14	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The EIS would benefit from a more detailed discussion. No information is provided on anticipated construction emission, at the same time as they are assumed to be short term and not to significantly impact air quality. It is stated that 'most' construction emissions are anticipated to occur prior to the winter season. This leaves the reader to anticipate that some emissions could impact the area during the wintertime. These emissions should be estimated, and their impact assessed.	Thank you for your comment. Anticipated construction emission analysis was conducted in Section 3.2.2 of the EIS. The construction emissions were estimated as a worst case scenario on a full year of construction operations as identified in Section 4.7 of the EIS for Stationing and Training of Increased Aviation Assets within U.S. Army Alaska (USARAK 2009). Upon the development of a design, further environmental coordination, permitting, and consultation will occur, along with review of the air conformity analysis. The need for additional environmental impact analysis will be assessed at that time.
77.15	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Without details on design and construction sequencing, no statement can be made about the ambient air quality impacts in general or in comparison to the No Action Alternative. To assess air quality impacts, USAG Alaska could use a design known to provide a conservative estimate, which would offer an upper limit of impacts. Emissions reduction alone cannot be used to demonstrate impacts on concentrations on the ground, as atmospheric processes are complex and are impacted by multiple variables. Dispersion modeling is one of the few tools that would allow an assessment of how changes to emissions impact ambient concentrations. The EIS should use dispersion modeling analyses to estimate impacts for all Alternatives.	Thank you for your comment. The Q/d analysis is sufficient for the EIS; future permitting processes would be more detailed. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
77.16	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Please provide more detailed information on fugitive dust abatement measures.	Thank you for your comment. Text added to Section 3.2.2.3 per comment.
77.17	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Appendix C states that emissions from a previous project was used as a surrogate, but no detailed information was provided. Please provide the emission inventory of the project used as a surrogate.	Thank you for your comment. Text added to Appendix F per comment.

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77.18	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	These statements are based on annual emission estimates. Changes in annual emissions alone do not provide sufficient information to adequately predict impacts to short term ambient air standards and concentrations. An emissions inventory and dispersion modeling are needed to evaluate the impacts to the local air quality. Changes in the facility layout, stack heights, and operations all determine how emissions translate into pollutant concentrations on the ground.	Thank you for your comment. Calculating annual emissions estimates are a standard practice for determining impacts in a NEPA document. More detailed analyses would be conducted as part of air quality permitting processes.
77.19	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	This is requirement, not a BMP. Please remove here as well as in the sections for the other Alternatives.	Thank you for your comment. Text deleted per comment.
77.20	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	As stated, the Q/d is not the process is using for regional haze screening and DEC is not establishing threshold values for visibility impairment. Utilizing the WEP/AOI and 2017 NEI data, the proposed SO2 level of 146 tpy in alternative 1 would result in a SO2 ranking within the top 10 facilities that have the potential to contribute towards visibility impairment at Denali NP.	Thank you for your comment. While there would be continued emissions from a power plant on Fort Wainwright under the Proposed Action, no new emissions would occur. All three action alternatives considered would result in negative net emissions due to improved efficiencies from the new proposed heat and energy systems replacing the existing systems.
77.21	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The existing CHPP is required under the PM-2.5 Serious SIP to install a dry sorbent injection system effective no later than October 1, 2023. If a new Dual-Fuel Combustion Turbine CHPP is selected, this source would be required to comply with the PM-2.5 Implementation Rule which requires new or modified sources emitting 70 tons or more per year of direct PM-2.5 or any PM-2.5 precursor to conduct a BACT analysis and be incorporated into the SIP and federally enforceable permits.	Thank you for your comment. The chosen alternative would comply with regulatory requirements.
77.22	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Please provide calculations for Table 3.2-7 and Q/d of 3	Thank you for your comment. Refer to Appendix F of the EIS for Air Quality and Greenhouse Gas Analysis Methods and Assumptions. Refer to Section 3.2 of the EIS for the Q/d calculations for regional haze.
77.23	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The information provided is insufficient to make these determinations. To assess air quality impacts, USAG Alaska could use a design known to provide a conservative estimate which would offer an upper limit of impacts. Emissions reduction alone cannot be used to demonstrate impacts on concentrations on the ground, as atmospheric processes are complex and are impacted by multiple variables. Dispersion modeling is one of the few tools that would allow an assessment of how changes to emissions impact ambient concentrations. The EIS should use dispersion modeling analyses to estimate impacts for all Alternatives.	Thank you for your comment. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time. More detailed analyses would be conducted as part of air quality permitting processes.
77.24	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	These statements are based on annual emission estimates. Changes in annual emissions alone do not provide sufficient information to adequately predict impacts to short term ambient air standards and concentrations. An emissions inventory and dispersion modeling are needed to evaluate the impacts to the local air quality. Changes in the facility layout, stack heights, and operations all determine how emissions translate into pollutant concentrations on the ground.	Thank you for your comment. Calculating annual emissions estimates are a standard practice for determining impacts in a NEPA document. More detailed analyses would be conducted as part of air quality permitting processes.
77.25	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Please note previous comments on the Q/d threshold. Utilizing the WEP/AOI and 2017 NEI data and the proposed SO2 level of 4.33 would greatly reduce the impairment ranking for this facility for visibility impairment potential. DEC agrees that the reduction in total emissions Alternative 2 would result in visibility improvement for Denali NP.	Thank you for your comment. See the response to comment 77.15.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
77.26	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	It is also noted in this section that there is a potential to construct ULSD storage facilities at project area. Have the emissions from the construction and operation of these tanks been included in the emission estimate for Alternative 2? Please also estimate the emissions from increased truck deliveries on an operational basis.	Thank you for your comment. VOC emissions due to the storage of ULSD have been addressed in Section 3.2.2.4. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
77.27	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The existing CHPP is required under the PM-2.5 Serious SIP to install a dry sorbent injection system effective no later than October 1, 2023. If distributed natural gas boilers are selected, they would also be required to comply with the PM-2.5 Implementation Rule which requires new or modified sources emitting 70 tons or more per year of direct PM-2.5 or any PM- 2.5 precursor to conduct a BACT analysis and be incorporated into the SIP and federally enforceable permits.	Thank you for your comment. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
77.28	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Please provide calculations for Table 3.2-9	Thank you for your comment. Refer to Appendix F of the EIS for Air Quality and Greenhouse Gas Analysis Methods and Assumptions. Refer to Section 3.2 of the EIS for the Q/d calculations for regional haze.
77.29	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Please provide calculations for Q/d result of 1	Thank you for your comment. Refer to Appendix F of the EIS for Air Quality and Greenhouse Gas Analysis Methods and Assumptions. Refer to Section 3.2 of the EIS for the Q/d calculations for regional haze.
77.30	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Since you are using the 2018 Weatherly report on ice fog and finding the results inconclusive, while noting in the earlier climate section that ice fog is an issue, please reference the amount of natural gas emission currently in the Siku basin as compared to the proposed alternative 3 and current stacks in that area.	Thank you for your comment. Emissions information is provided in Section 3.2.2.5.
77.31	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	It is stated that alternative 1 will have stack height of 60 ft, which is not similar to 120 ft , this change in stack would have adverse effects on all pollutants during inversions and the water vapor, even with the decrease. This change in stack height should be addressed and possibly modeled using dispersion modeling to see the impact of the reduced stack height on all the criteria pollutants, especially PM 2.5 and its precursors since this is a non-attainment area.	Thank you for your comment. The 60-foot height refers to the height of the CHPP building. No substantial stack height decrease is expected under Alternatives 1 or 2. Text clarified per comment.
77.32	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	The decrease in water vapor vs the stack height decrease should be addressed in Alternative 3 for PM 2.5 and its precursors since this is a non attainment area. It is noted that these stack heights will not be similar to other alternatives.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur regarding PM 2.5 and its precursors because the project is in a serious nonattainment area.
77.33	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	What is the threshold of significant beneficial impact and why is the result moderate when, for example the decrease in SO2 is from 212 to 0.46 tpy.	Thank you for your comment. Overall, emissions would be reduced but not eliminated.

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77.34	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	If alternative 2 or 3 is selected, recommend meeting with the Spill Prevention Division's Prevention, Preparedness and Response (PPR) staff to discuss requirements for newly constructed aboveground storage tanks (ASTs), as noted in the DEIS, that would be required to meet state regulations. If alternative 2 or 3 is selected, please also be aware that the review and approval of a new Oil Discharge Prevention and Contingency Plan typically takes a minimum of 6 months. In addition, 18 AAC 75.405 requires a pre-application meeting with the department at least 60 days prior to submission.	Thank you for your comment. Upon project design, the Army will coordinate with all applicable agencies. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
77.35	12/8/2020	Email	Gary Mendivil	Alaska Department of Environmental Conservation	Recommend clarifying that reporting of a spill/release notification is required by state law (AS 46.03.755, 18 AAC 75.300, 75.325 and 18 AAC 78.200). Any release of a hazardous substance must be reported as soon as the person has knowledge of the discharge. For oil/petroleum releases: •To Water: Any release of oil to water must be reported as soon as the person has knowledge of the discharge. •To Land: Any release of oil in excess of 55 gallons must be reported as soon as the person has knowledge of the discharge. Any release of oil in excess of 10 gallons but less than 55 gallons must be reported within 48 hours after the person has knowledge of the discharge. A person in charge of a facility or operation shall maintain, and provide to the Department on a monthly basis, a written record of discharge of oil from 1 to 10 gallons. •To Impermeable Secondary Containment Areas: Any release of oil in excess of 55 gallons must be reported within 48 hours after the person has knowledge of the discharge. For USTs - you must report a suspected belowground release from a UST system, in any amount , within 24 hours (18 AAC 78.220(c).	Thank you for your comment. Upon project design, the Army will coordinate with all applicable agencies. Upon the development of a design, further environmental permitting, and consultation will occur.
78.01	12/8/2020	Letter	Marisa Sharrah	Greater Fairbanks Chamber of Commerce	We strongly encourage you to engage with local stakeholders throughout this process to ensure that you find a solution which will serve the installation effectively into the future. The past 13 years of experience with the current combined heat and power plant puts Doyon Utilities in an excellent position to advise on the viability of the no-action alternative. Usibelli Coal Mine provides a reliable, cost-effective energy source. The Interior Gas Utility can provide insight into the capacity and supply chain status of natural gas in the Interior. And, Golden Valley Electric Association can speak to the power generation capacity and reliability in the region. All of these and additional consulting and construction firms in the greater Fairbanks area can help the Army make an informed decision on the many viability factors.	Thank you for your comment. The Army will continue to engage with local stakeholders in accordance with NEPA, as cited in Section 1.1 of the EIS. Section 1.5 provides a summary of public involvement during the development of the EIS.
78.02	12/8/2020	Letter	Marisa Sharrah	Greater Fairbanks Chamber of Commerce	The military has a significant impact on the economic health of Interior Alaska. A recent study by the UAA Center for Economic Development credits the military with creating nearly one in three civilian jobs in the region. The Army's analysis of economic impacts in the EIS acknowledges negative financial impacts on the community of Healy if the selected alternative reduces coal consumption, but those impacts would not be confined to only one location. When coupled with "near-term utility rate increase[s]" noted in the EIS, economic effects could be felt by military and civilian families as well as a wide range of local businesses and non-profits. High energy costs are a barrier to economic opportunity in Interior Alaska.	Thank you for your comment. Section 3.5 and 3.6 of the EIS provides socioeconomic and environmental justice analysis of the potential impacts from implementation of the no action and action alternatives.
78.03	12/8/2020	Letter	Marisa Sharrah	Greater Fairbanks Chamber of Commerce	We support assisting the Army to find the right solution to its future energy and power needs at Fort Wainwright. We hope this process will be made in consultation with the local experts and with consideration of the local impacts.	Thank you for your comment. The Army will continue to engage with local stakeholders in accordance with NEPA regulations (referenced in Section 1.1 of the EIS) in support of the Army making an informed decision regarding the potential environmental impacts from the proposed action. Section 1.5 provides a summary of public involvement during the development of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
79.01	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Thank you for the opportunity to provide comment on the US Army Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska. I encourage and support Fort Wainwright's efforts in this project and note that this is an opportunity for the community to be set for success. The Fairbanks area was designated as a serious nonattainment area for fine particulates (PM2.5) in 2017. As indicated in our scoping comments, given this is such a complicated and multi-faceted issue, it is imperative that all stakeholders work collaboratively to ensure the Borough's air quality is improved and protected. This project will have long term impacts on our community and serves as an opportunity to protect both the physical and economic health of the community. As such, it is imperative that the US Army's decision is one that is fully informed of all the nuances of each alternative proposed. Please note that the following comments are not intended to show a preference of any of the alternatives presented in the Draft EIS and come from my administration only as the FNSB Assembly has not taken any formal action regarding this project.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
79.02	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 1 With the need to fully engage all the stakeholders, the Borough requests more summary tables and figures comparing the relative impacts between alternatives (particularly in the Air Quality and Socioeconomic sections) to strengthen the presentation of the relative benefits and impacts between alternatives. For example, using the DEIS air quality data presented separately by individual alternative in Section 3.2, Table 1, below, provides an example summary table comparing the operational air quality emissions and Figures 1 and 2, below, provide example summary figures illustrating the relative differences in the impacts for PM2.5 and GHG emissions, respectively, by alternative. These summary tables and figures quickly illustrate the relative benefits and impacts between alternatives in centralized visuals.	Thank you for your comment. Data summary tables are provided throughout the EIS and in appendices, where applicable, to facilitate reader understanding of impacts of the alternatives on environmental resources.
79.03	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 2 Given the importance of this DEIS and the need to fully engage all the stakeholders, the Borough recommends more information be provided to substantiate the assumptions applied in the air quality section. Specifically, additional details of the assessment methods and source documents would strengthen the analysis. Therefore, the Borough requests that assessment details be expanded so that emissions by emission units are transparent for each alternative and across alternatives.	Thank you for your comment. The air quality and GHG analysis methods and assumptions are provided a memorandum in Appendix F of the EIS. Documents incorporated by reference in the air quality analysis are available upon request. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data.
79.04	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Determining project emissions by emissions unit will also allow for a preliminary determination of the extent that air dispersion modeling review will be required for each alternative under the permitting requirements found at 18 AAC 50, and described in detail in the ADEC Modeling Review Procedures Manual. Consideration should be given to conducting the dispersion modeling at this time, to the extent feasible given the available information. Presenting the results in the EIS- and particularly the PM2.5 impacts between alternatives-would be informative since the project is located in an area designated as Nonattainment for PM2.5.	Thank you for your comment. See the response to comment 79.03 above.
79.05	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	With respect to further substantiation, Table 3.2-5 contains a column heading "Note" with superscript letters 'a' through 'd'; however, no footnotes are present. For Alternative 2, emissions were "calculated based on anticipated fuel usage and emission factor information obtained fromnumerous recent similar projects. And for Alternative 3, emissions were "calculated based on anticipated fuel usage and emission factor information obtained from EPA emission factors documentation." The Alternative 3 emissions analysis does not address the incremental increases in emissions from off-site power generation and the impacts from those emissions. It is considered that this level of analysis does not meet the minimum standard of transparency for a NEPA air quality analysis. The Borough requests that additional effort be given to fully documenting emission calculations in a technical appendix. At minimum, anticipated Best Available Control Technology (BACT) levels should be determined and used for emission calculations for each emissions unit. Further, evaluation should address process efficiency (e.g., Alternative 3 would be found to be less efficient than Alternative 1).	Thank you for your comment. The table to which the commenter is referring is now Table 2.3-6, and the table notes immediately follow the table (see Section 3.2.2.3 of the EIS).

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
79.06	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Additionally, FWW currently has utilidors, which are open underground tunnels which house the utilities including steam, water, electricity, sanitary sewers, etc. Currently the distributed steam system provides heat and freeze protection for the water and sewer utilities, Moving away from a centralized heat system would remove the heat source from the utilidors. The DEIS provides a statement that the existing utilities are below the frost line and not subject to freezing; however, there is no data to support that claim (open tunnels are different than buried utilities). The Borough requests additional substantiated analysis which includes emissions estimates required to protect utilities in the utilidor from freezing, for all alternatives and specifically for alternatives that do not include distributed steam.	Thank you for your comment. Freeze protection is only required for Alternative 3 and is addressed in Section 4.5.4 of the life cycle cost analysis in the 2018 Huntsville Study (USACE 2018).
79.07	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Related to this point, the DEIS contains "Appendix C -Air Quality and Greenhouse Gas Analysis." This appendix is referenced once in Section 3.2.2.3 of the DEIS as describing the "methods and assumptions used to estimate emissions" for Alternative 1. Appendix C includes a brief memo containing a singular reference to Alternative 1, no emission calculations, no information pertaining to GHG emissions, and only cursory other air quality information. It is unclear whether the memo in Appendix C was erroneously substituted for more substantive materials.	Thank you for your comment. The appendix to which the commenter is referring to is now Appendix F, and this appendix was prepared correctly. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. In addition, upon design the need for additional environmental impact analysis will be assessed.
79.08	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 3 Table ES-1 - Summary of Environmental Impacts contains a matrix describing the environmental impacts of each project alternative. Regarding operational emissions, the matrix characterizes the " long-term (during operations)" impacts of the "No Build" Alternative, Alternative 1, and Alternative 2 as being "minor, beneficial impacts. Alternative 3 is described as having "moderate, beneficial impacts." This characterization does not properly describe or summarize the air quality analysis or conclusions. For example, regarding PM2.5 emissions, the No Action Alternative, Alternative 1, and Alternative 2 result in PM2.5 emission changes of zero, -66.2 TPY, and -65.8 TPY respectively, which are all characterized as "minor, beneficial impacts" on air quality. The magnitude of the PM2.5 reductions for Alternative 3 is only slightly greater at -73.6 TPY, which is characterized as a "moderate, beneficial impact." It is unclear why a theoretical project increasing PM2.5 emissions by only 10 TPY (the threshold listed in Table 3.2-1) would be considered to have a "significant" impact, yet project alternatives resulting in reductions six to seven times this amount are considered to have only "minor" or "moderate" benefits. The Borough requests more detail in Table ES-1 regarding the magnitude of emission reductions.	Thank you for your comment. It was determined that an increase in emissions in a nonattainment area is a greater adverse impact relative to the benefits from a reduction of emissions. The impact characterization is also reflective of impacts on all components of air quality, not just one criteria pollutant.
79.09	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 4 Given that the project is in a PM2.5 nonattainment area and there are significant economic impacts from not achieving attainment, the Borough requests additional substantiated evaluation of the project alternatives' ability to hasten or impede achievement of the PM2.5 NAAQS. Please include a discussion of economic sanctions that FNSB and Alaska could be subject to (for example, loss offederal highway funds currently measured at $17 million within FNSB and $500 million to the State of Alaska) if the FWW project is seen to contribute to or worsen PM2.5 nonattainment. More transparent Gaussian based dispersion modeling could clearly establish the relative alternatives' impacts on the proposed Actions' effects on PM2.5 nonattainment status (requested previously under Comment 2). Please include this additional assessment in the Air Quality and Socioeconomic impact areas and provide summary tables and figures showing the relative effects across alternatives.	Thank you for your comment. As identified in Section 3.2 of the EIS, all action alternatives considered would comply with federal and state regulations and result in negative net emissions due to improved efficiencies from the new proposed heat and energy systems. A discussion regarding potential economic sanctions that can be levied against Fairbanks North Star Borough (FNSB) and Alaska are beyond the scope of this EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
79.10	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 5 Given the project is in the Arctic and there are already documented changes in the amount of precipitation in the winter months, please include additional environmental setting information on the importance of climate resiliency, which is the effect of climate change on the proposed Action and the potential effects with freeze-thaw, flooding, and water table conditions relative to the environmental effects of the various alternatives. Please relate the various GHG estimated emissions to these potential climate resiliency effects using tables and charts. In addition, include an assessment of the potential effects of the quality of the local coal (e.g., sulfur content) could have on climate change.	Thank you for your comment. Section 3.2 of the EIS has been updated to reflect emission data from the latest three-year average (2018-2020). Climate resiliency will be taken into account during the design phase of the Proposed Action in accordance with the Army's 2020 guidance on climate resiliency (Army 2020).
79.11	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 6 Given the project could affect power grid stability, please define grid stability, grid resiliency and redundancy. Please provide additional assessment information about grid stability, resiliency, and redundancy and the potential effects of each alternative with respect to grid stability, resiliency, redundancy , and general health and safety effects for the FNSB communities if the FWW power plant went out of service for more than four hours. How long could the area maintain power without the FWW power plant?	Thank you for your comment. Even though the Fort Wainwright CHPP is connected to the power grid, the plant does not provide power to the electric grid outside Fort Wainwright. The primary purpose of grid connectivity is to allow the Army to import power from the grid. An outage of the CHPP would not have any negative consequences on the power grid's stability, resiliency and reliability.
79.12	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 7 The DEIS's treatment of the issue of climate change is incomplete and unclear. Chapter 3.2 (Air Quality) contains extensive discussion of the air quality regulatory framework with regard to criteria pollutants, but no discussion related to the environmental factor of GHG and climate change. No significance criteria are provided for GHG emissions; however, GHG emissions are quantified in Section 3.2.2 (Environmental Consequences) and Appendix C purports to be an "Air Quality and Greenhouse Gas Analysis." (Appendix C is addressed in a prior comment.) Given the nature of the project, it is recommended that the DEIS clearly set forth the analysis approach for GHG emissions and climate change impacts, including the status of draft amended CEQ Guidance.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur.
79.13	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 8 Section 3.2.2.1 (Significance Criteria) sets forth the mass emissions thresholds, which if exceeded would be considered to result in a significant air quality impact for each project option. These are identified as the "regulatory de minimis thresholds for the pollutants identified in Table 3.2-1," which in turn are the "major modification" thresholds under the federal Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR) programs. While not questioning the selection of the major modification thresholds as NEPA thresholds of significance, characterizing them as "de minimis" may provide readers with the impression that they reflect comparatively low levels of emissions, which is not the case.	Thank you for your comment. “De minimis” has been deleted in this context.
79.14	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 9 Section 3.2.2.1 (Significance Criteria) may also provide an opportunity to explain the overall position of the project relative to the customary approach applied to air quality analyses under NEPA. That is, a typical project may be viewed under NEPA as a new addition to the environment to be evaluated relative to a baseline of zero existing emissions. In this case, all three "action" alternatives involve the shutdown of a large source of existing emissions that are reflected in the baseline. This results in emissions being negative for all cases, except for the No Action alternative, in which case the emissions change is zero. Because there is no chance that emissions will be significant (or even positive), simply comparing zero or negative emission changes to the major modification NSR thresholds is not particularly meaningful. Because each project action alternative will result in air quality benefits, consideration should be given to comparing the magnitude of the benefits for each option, so that the lead agency can evaluate the opportunity cost of options providing less-than-maximum emission reductions.	Thank you for your comment. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time. More detailed analyses would be conducted as part of air quality permitting processes.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
79.15	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 10 In review of Section 3.5, Socioeconomics, similar to the above comments relative to air quality, the Borough requests expanding the scope of this assessment to include more comparative analysis of the direct and indirect effects of the relative differences in potential short- and long term economic and employment effects. The Borough recommends comparative tables and graphics for relative economic and employment differences. Specifically, the Borough requests additional substantiated details on the operating costs for each alternative specific to fuel and maintenance costs and comparative presentation (in tables and charts) of these relative costs.	Thank you for your comment. Data summary tables are provided throughout the EIS and in appendices, where applicable, to facilitate reader understanding of impacts of the alternatives on environmental resources. The estimated capital costs, O&M costs, and fuel and utilities costs of the alternatives are summarized in the "Life-Cycle Cost Analysis For Heat and Electric Power Alternatives for Fort Wainwright, Alaska" published by the U.S. Army Corps of Engineers in December 2018.
79.16	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 11 As your Section 3.5.1.2 states, there are no specific regulations for managing or evaluating socioeconomic effects; however, there is a body of practical application within NEPA assessments that guides the NEPA socioeconomic review to consider the following broad indicators: economic activity, employment, income, population, housing, public services, and social conditions. Factors to consider that may be applicable to socioeconomic resources, if they are interrelated with natural or physical environmental impacts (see 40 CFR § 1508.14), include, but are not limited to, situations in which the action would have the potential to result in one or more of the following: • Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area); • Disrupt or divide the physical arrangement of an established community; • Cause extensive relocation when sufficient replacement housing is unavailable; • Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities; • Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities; or • Produce a substantial change in the community tax base.	Thank you for your comment. The socioeconomic analysis presented in Section 3.5 of the EIS was prepared pursuant to applicable NEPA regulations identified in Section 1.1.
79.17	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Given there are existing FWW jobs as well as related local mining jobs to support FWW's existing operation, additional details on the local and regional direct and indirect employment and community tax base effects and benefits would be relevant and therefore appropriate. Specifically, the Borough requests the DEIS address how the local and regional direct and indirect employment and community tax base effects or benefits relate to the FNSB Comprehensive Economic Development Strategy (CEDS) (2016).	Thank you for your comment. The potential employment effects of the proposed action are discussed in Section 3.5.2. The change in the number of jobs under the Proposed Action are not substantial enough to warrant comparison with the Fairbanks North Star Borough Comprehensive Economic Development Strategy (CEDS).
79.18	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	Comment 12 As your section 3.2.1.2 states the proposed project is located within a PM2.5 nonattainment area and a CO maintenance area. Under 42 U.S.C. §7506(c), the proposed project is subject to General Conformity applicability assessment with respect to the PM2.5 and CO NMQS. To determine if a demonstration of conformity is required, the following factors must be considered: 1) Is the project exempt or within the de minimis threshold? 2) Are the emissions reasonably foreseeable and subject to practical control? 3) Are the emissions below the specified de minimis threshold? and 4) Is the project regionally significant?	Thank you for your comment. Please see the response to comment 79.19 below.

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79.19	12/8/2020	Letter	Nick Czarnecki on behalf of Mayor Bryce Ward	Fairbanks North Star Borough	The DEIS states that none of the direct emissions associated with the No Action Alternative or any of the action alternatives are subject to General Conformity. This conclusion is flawed because the PSD/NSR permit applicability analysis for Alternatives 1, 2, and 3 are not correctly based on the actual-to-potential emissions test specified in 40 CFR 52.l(a)(2)(iv)(d). Table 3.2-4 indicates that the anticipated construction emissions for Alternative 1 are below the de minimis threshold, however no justification was provided for comparing the proposed construction emissions to a previous construction project. The DEIS also lacked detail on seasnal operation, hours of operation of the equipment, tier of engines, etc. The Borough requests the EIS provide emission estimates on an actual-to-potential emission basis and to document how the anticipated construction emissions are below the de minimis threshold. Emission factors used to calculate emissions should be included as well as the emission calculation methodology. The Borough is fortunate to have a military installation such as FWW within the community and we sincerely appreciate the opportunity to comment on this document.	Thank you for your comment. Design level data is not currently known for this Proposed Action. Upon selection of a preferred alternative, a design would be developed and the proposed emissions from the new source will be subject to New Source Review (NSR) or Prevention of Significant Deterioration (PSD) permitting. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
80.01	12/8/2020	Email	Patrice R. Lee	Public	Please accept the attached EIS statement for the Ft. Wainwright Power Plant on behalf of myself with two photo exhibits.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.
80.02	12/8/2020	Email	Patrice R. Lee	Public	I am writing these comment on behalf of myself, a citizen of the Fairbanks North Star Borough. I am also signed on to other comments that have been submitted. I am commenting on the proposed EIS for a new heat and power plant on Fort Wainwright. An Environmental impact statement should, I believe include consideration regarding the social and influence environment structures of our community. I believe it is important to look at the board or boards that are making the decisions, the people on them, and their relationship to the community over time, other projects, including past utility projects and their effect on the community for good or bad. Is there breadth and depth of consideration to come to the best decision for the military and the community?	Thank you for your comment. Section 1.5 of the EIS provides a description of public engagement during the development of the EIS.
80.03	12/8/2020	Email	Patrice R. Lee	Public	The project that would most benefit the military and the community isn't one of the current choices. It appears that relevant, currently available technology has been left off in favor of three choices that are all fraught with problems ranging from extreme cost, huge ongoing operations and maintenance costs, polluting fuels, high cost fuels, inefficiency, low value to dollar spent, waste of taxpayer money from inefficiency and continued exacerbation of climate change. Is the Doyon Board aware of the range of possibilities that represent better economic, environmental, health and safety, and Ft. WW mission enhancement options?	Thank you for your comment. Section 2.3 of the EIS identifies the screening criteria used to identify alternatives to carry forward for analysis. Section 2.4 identifies alternatives considered that include renewable energy options. Section 1.5 provides a description of public engagement during the development of the EIS, during which time the System Owner has provided input on the development of the EIS.
80.04	12/8/2020	Email	Patrice R. Lee	Public	I cannot imagine any of the three current choices being acceptable when the life of the project is 30-50 years. In light of climate change, its impact on Alaska specifically and the world in general, the most current, cleaner, efficient technology must be employed in order to result in a better project than the ones listed. I'm not an engineer however; CoGen with renewables (solar or wind) and gas reserve comes to mind. The cost of wind and solar power, both of which are available with a spinning reserve gas in the area of Ft. WW have come down tremendously and no documents were available in the EIS which supported saying these alternatives were too expensive.	Thank you for your comment. See the response to comment 80.04 above.
80.05	12/8/2020	Email	Patrice R. Lee	Public	Status quo option: That status quo CHPP is not an upgrade and should not be considered under any circumstance. It leaves the garrison at risk of failure to protect personnel, their families, and the mission itself. I saw no detailed analysis of the cost to evacuate the Fort if the 65-year old CHPP fails.	Thank you for your comment. The No Action Alternative was analyzed in accordance with applicable NEPA regulations, identified in Section 1.1 of the EIS.
80.06	12/8/2020	Email	Patrice R. Lee	Public	At present the old CHPP requires very costly upgrades because Ft. Wainwright is located within the Fairbanks North Star Borough Non-attainment area that is designated by the EPA as "Serious" under the Clean Air Act. The efficiency of the status quo option also wastes up to 60% of every taxpayer dollar used to operated the system and 60% of the air pollution derived from operation didn't contribute to heat or power.	Thank you for your comment. Please see the response to comment 80.05 above. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.

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80.07	12/8/2020	Email	Patrice R. Lee	Public	The Status quo facility continues to produce huge amounts of coal ash that is being dumped all over Fairbanks and the surrounding area. The coal ash contains toxics that are contaminating soils and water in many places where they are dumped. It is likely that coal ash will be designated a toxic waste in the near future. This is a very different status than "solid waste" and comes with very different, increased costs for mitigation. Those costs have not been figured into this EIS as far as I can see. Photo exhibit-1.	Thank you for your comment. Costs for coal ash management under the status quo is not required to be addressed in a NEPA document. The locations provided within the comment enclosures are outside of the region of influence for the Proposed Action. Additionally, Fort Wainwright disposes of coal ash from the CHPP into the installation's Class I regulated landfill on the installation, as stated in Section 1.1.2 of the EIS.
80.08	12/8/2020	Email	Patrice R. Lee	Public	Alternative 1 New Coal-Fired CHPP The building of a new CHPP requires an unnecessarily large capital expenditure ($687 Million) and continues to cost the most for maintenance and operation over the life of the facility. Coal is not a cheap fuel when analyzed properly. The analysis needs to include environmental impacts including air quality, danger to health and safety, cost of mitigation of toxic coal ash and "constraint of the military mission" due to the high levels of existing air pollution in the area. The emission of harmful green house gases continues. It is widely reported that the only company building coal-fired power plants isn't building them anymore. They are dinosaurs of the past and should have no place in an energy plan that takes us into the future. This option isn't economic or efficient. The efficiency of this plan remains very low and as such is a waste of taxpayer money. Pollution problems are not adequately addressed in the EIS for this option. The coal ash issue remains. A single point of failure possibility remains. Photo exhibit-two	Thank you for your comment. Impacts on human health and safety are described in Section 3.10 of the EIS, and analysis regarding greenhouse gas is provided in Section 3.2 of the EIS. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The locations provided within the comment enclosures are outside of the region of influence for the Proposed Action. Additionally, Fort Wainwright disposes of coal ash from the CHPP into the installation's Class I regulated landfill on the installation as stated in Section 1.1.2 of the EIS.
80.09	12/8/2020	Email	Patrice R. Lee	Public	Alternative 2 New Duel-fuel Combustion Turbine Generator This project with a $363 Million price tag with very high ongoing maintenance and operations costs is similar to the UAF power plant. That plant had serious problems getting its coal feed to work properly. This project is not efficient, continues to pollute the air with green house gases, continues to be a possible single point of failure, and doesn't deal with the ongoing issue of coal ash. The plant would continue to add to the air pollution in the area when coal was being used. It was not clear in the EIS how often coal would be used versus natural gas. Natural gas continues to have volatile pricing, however the price is coming down and Alaska has plenty of it.	Thank you for your comment. Coal would not be an energy source under Alternative 2.
80.10	12/8/2020	Email	Patrice R. Lee	Public	Alternative 3 Distributed Natural Gas Boilers with Local purchase of Electricity Of the three alternatives #3 is the best of the three, but not the choice needed. This alternative does eliminate the single point of failure, however, it doesn't meet the Federal requirement that sources of heat and power be generated on Ft. WW and use renewables where possible. Renewables are possible here. Data used to determine that they are not cost effective or too expensive was not evident in the EIS. I didn't see this idea discussed in the EIS that electricity would be produced off post in this alternative. The separation of heat from power (electricity) makes no sense. It reduces efficiency. Why would one consider losing so much efficiency when CO-Gen with renewables is reliable, cost effective, more efficient, readily available, especially by 2024-2026 and represents a more responsible energy project? With battery back up redundancy is clearly feasible. The three proposed projects are not acceptable. Please go back to the drawing board. It shouldn't take long to find a better fit. The following very serious concerns need to be addressed as discussions continue. 1. How will the chosen project affect immediate and long-term climate change? 2. How will the project help reduce air pollution in the Fairbanks North Star Borough, which is currently designated to be in Serious Violation of the Clean Air Act? 3. How will the project protect the critical mission(s) that Fr. WW will be charged with carrying out? 4. Will the chosen project represent the best of technology, reliability, energy efficiency, and cost effectiveness?	Thank you for your comment. All three action alternatives considered would result in negative net emissions due to improved efficiencies from the new proposed heat and energy systems. Mission resiliency is discussed in the purpose and need for the project in Section 1.2 of the EIS. The intent is for the preferred alternative to represent the best option.

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81.01	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Attached are comments submitted by Alaska Community Action on Toxics et al. concerning the Fort Wainwright Heat and Electrical Upgrades DEIS. Also attached are some of the sources in support of these comments. Additional sources will be submitted by separate email. There are a few sources that are too large to transmit electronically. We have included hyperlinks to those sources in our comments, and unless you would prefer we submit them by a file-sharing system, we will mail them to you on a thumb drive or DVD.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.
81.02	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Attached are additional sources in support of Alaska Community Action on Toxics et al.'s comments concerning the Fort Wainwright Heat and Electrical Upgrades DEIS.	Thank you for your sources. No relevant comments were provided in the attachments.
81.03	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Alaska Community Action on Toxics, Citizens for Clean Air, Earthjustice, Fairbanks Climate Action Coalition, Native Movement, Northern Alaska Environmental Center, and Sierra Club submit the following comments on the U.S. Army Garrison Alaska's Draft Environmental Impact Statement (DEIS) on addressing heat and electrical upgrades at Fort Wainwright, Alaska. Through the DEIS, the U.S. Army (the Army) is proposing to upgrade its heat and electrical generation and distribution capabilities, which are currently entirely reliant on a 65-year-old, coal-fired central heat and power plant (CHPP). The DEIS carries forward for analysis three action alternatives, along with the required no-action alternative. Under Alternative 1, the Army would build a new coal-fired CHPP, which would cost $687 million to construct. Under Alternative 2, the Army would build a new dual-fuel combustion turbine generator CHPP, that would be primarily fueled with natural gas. Alternative 2's construction costs would be approximately $363 million. Under Alternative 3, the Army would install distributed natural gas boilers for approximately $117 million to provide heat, while purchasing electricity from a local utility provider. By the Army's estimates, Alternative 3 would have the smallest environmental impacts of the three options. Alternative 3 is therefore the most economic and least environmentally harmful alternative that was advanced for analysis in the DEIS.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.
81.04	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Nevertheless, as discussed throughout this comment letter, the DEIS fails to meaningfully consider other viable alternatives that would have less environmental impact at potentially lower cost, while also failing to take the requisite "hard look" at the three alternatives that were carried forward for analysis. In particular, the DEIS unreasonably dismissed or failed to even acknowledge a range of resources—such as wind, solar, storage, geothermal, hydroelectric, and demand-side management—that could substantially contribute to a portfolio of resources for providing heat and power to Fort Wainwright in a manner that is less environmentally harmful, more secure, and potentially less costly. Accordingly, the undersigned organizations respectfully request that the Army reject the alternatives identified and issue for public review and comment a supplemental or revised environmental impact statement (EIS) that fully evaluates viable alternatives that incorporate renewable energy and reduce reliance on fossil fuels. Indeed, as discussed below, the DEIS's deficiencies are so pervasive that the Army must issue a supplemental or revised EIS in order to comply with NEPA's requirements.	Thank you for your comment. Section 2.4 of the EIS addresses the aforementioned alternative fuel sources. Responses to your comments on the analysis presented in this EIS are provided below.
81.05	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	I. The Army's DEIS Fails to Comply with NEPA and Requires Supplementation or Revision with Additional Time for Public Comment. The National Environmental Policy Act (NEPA) is "our basic national charter for protection of the environment."1 NEPA's analysis and disclosure goals are two-fold: (1) to ensure informed agency decision making, and to ensure public involvement.2 NEPA requires that federal agencies prepare a detailed EIS for any major Federal action that may significantly affect the quality of the human environment.3 Unfortunately, the Army's DEIS fails to satisfy NEPA's mandates and provides an inadequate basis for proceeding with any of the three alternatives carried forward for analysis in the DEIS.	Thank you for your comment. The Army originally published a notice for an extended 60-day comment period from October 9, 2020, through December 8, 2020, more than the 45 days required per NEPA. In response to requests, the Army extended the comment period for an additional 60 days from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.06	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	In particular, and as detailed in this comment letter, the DEIS is fundamentally flawed for at least the following reasons: • The Army did not provide for meaningful public involvement in the process because it relied on numerous analyses and studies that were not readily available to the public. • The DEIS fails to rigorously explore and objectively evaluate a reasonable range of alternatives. • The DEIS assumes a "status quo" no-action alternative baseline that unreasonably assumes the continued untenable operation of the existing CHPP. • The DEIS does not take the requisite "hard look" at the air quality, climate, and groundwater impacts of the alternatives. • The DEIS does not identify and analyze steps that can be taken to mitigate adverse environmental consequences of the actions proposed in the DEIS. Remedying these deficiencies is necessary to achieve compliance with NEPA, and would require significant revisions that cannot simply be made in a response to comments document. Instead, in order to comply with NEPA, the Army would need to provide the types of modified or new alternatives or analyses that require revision or supplementation of the draft EIS. In short, because the DEIS is so inadequate as to preclude meaningful public review and analysis, a revised draft EIS must be prepared and circulated for public comment.	Thank you for your comment. Please see the response to comment 81.05 above. The No Action Alternative was analyzed pursuant to applicable NEPA regulations identified in Section 1.1 of the EIS. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.07	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	II. The DEIS Violates NEPA's Core Tenets of Informed Decision Making and Public Involvement by Extensively Relying upon Studies and Reports that are Neither Attached to the DEIS nor Publicly Available. NEPA requires federal agencies to "[e]ncourage and facilitate public involvement in decisions which affect the quality of the human environment." To help guarantee public participation and informed decisions, the language of an EIS must be "clear," "be written in plain language," and presented in a way that "the public can readily understand." It must also be "supported by evidence that the agency has made the necessary environmental analyses," and the information must be of "high quality" because "[a]ccurate scientific analysis . . . and public scrutiny are essential to implementing NEPA." These safeguards help agencies "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." Agencies must also explicitly reference the scientific and other sources relied upon in reaching its conclusions. Although agencies are not required to physically attach supporting studies and other documentation to an EIS, such documentation must be publicly available. The public availability of supporting resources is critical, because NEPA mandates that the "public [ ] be adequately informed of the probable significant environmental impacts by an impact statement." Accordingly, when an EIS does not attach supporting documentation and provides "no hints where to search or whether studies were in fact performed[, t]he adequacy of the EIS must stand or fall on its own supporting documentation."	Thank you for your comment. The Army originally published a notice for an extended 60-day comment period from October 9, 2020, through December 8, 2020, more than the 45 days required per NEPA. In response to requests, the Army extended the comment period for an additional 60 days from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period. Full copies of the unredacted reports were made publicly available for the second comment period (December 23, 2020 through February 22, 2021).
81.08	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	At times, agencies have attempted to argue that despite failing to attach relevant supporting documentation to an EIS or fully discuss such supporting documentation, a reviewing court should permit the agency to supplement the administrative record. Courts have been highly critical of such practices. For instance, in Grazing Fields Farm v. Goldschmidt, the court held: The requirement of a detailed statement is not a pointless technicality even when the agency has in fact considered environmental factors in good faith; intra-agency consideration lacks the benefits secured by discussion in the EIS. NEPA seeks to achieve substantive environmental improvement by requiring full disclosure of the basis for agency action. Accordingly, while an agency is not required to attach all referenced scientific and other sources supporting its conclusions, when such documentation is not otherwise publicly available, the agency risks violating NEPA's core mandate of transparent decision making.	Thank you for your comment. Please see the response to comment 81.07 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.09	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	The Army's DEIS extensively relies on studies and other sources that were not made publicly available. For example, the DEIS points to three studies relied upon in the development of 11 alternatives preliminary considered: • U.S. Department of Energy (DOE). 2009. Renewable Energy Opportunities at Fort Wainwright and Fort Greely, Alaska. Document PNLL 18892. Prepared by PacifiCorp Northwest National Laboratory operated by Battelle for DOE under Contract DE-AC05- 76RL01830. • Guernsey, Inc. 2015 Business Case Analysis: Heat and Electricity Alternatives for Fort Wainwright, Alaska. Prepared for U.S. Army Garrison Alaska • USACE. 2018. Life Cycle Cost Analysis for Heat and Electrical Power Alternatives for Fort Wainwright, AK. Prepared by Engineering and Support Center, Huntsville, for Directorate of Public Works, Utility Privatization, Fort Wainwright. December 2018. Yet, these studies are neither attached to the DEIS nor readily available online. Moreover, the DEIS does not discuss these studies in any meaningful detail. For example, the DEIS does not contain any details pertaining to the 2009 DOE study on renewable energy, such as whether the study concluded that some level of renewable energy is viable at Fort Wainwright and at what cost. As a result, any ability of the public to evaluate the reasonableness and relevance of that study to the decision being made is significantly hindered.	Thank you for your comment. Full copies of the unredacted reports were made publicly available for the second comment period (December 23, 2020 through February 22, 2021).
81.10	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Additionally, the DEIS heavily relies upon a report produced by Black & Veatch in discussions pertaining to current operations and conditions at the installation. As above, this study was not provided as part of the DEIS and does not appear to be publicly available online. Without access to previous studies identifying current conditions at Fort Wainwright and the viability of replacement resources for the current CHPP, the public is unable to fully and accurately assess the conclusions made in the DEIS. Moreover, the public is placed at a disadvantage when suggesting other viable alternatives that should be considered, including combinations of resource systems that incorporate renewable energy. Lack of access to this critical information falls short of NEPA's mandate that agencies provide full disclosure of the basis for a proposed action.	Thank you for your comment. This document is available upon request and was provided to the commenter.
81.11	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Similarly, the DEIS does not include the technical analysis completed to estimate air quality and greenhouse gas emissions alluded to throughout the DEIS, inhibiting the public from scrutinizing the validity of the results. While the DEIS purports to describe the "methods and assumptions used to estimate emissions" in Appendix C, the appendix is a two-page memo that provides only cursory information that is far from sufficient to evaluate the accuracy or reasonableness of the emission estimates. With regards to the estimated operating emissions identified in the DEIS for the three alternatives, Appendix C simply identifies additional sources of information—such as "the Huntsville study," information from "HDR's library of information," and unidentified emission factor information from a coal boiler in Fairbanks—that were not made publicly available. Even if this cursory memo was somehow sufficient—which it is not—it readily admits that construction emissions could not be estimated because "no information is currently available regarding the sequencing of construction, equipment to be used, or area disturbed for any of the Action Alternatives" and that "[n]o modeling was conducted to determine air quality impacts or the impact of ice fog formation of each Action Alternative." Accordingly, it appears that the DEIS's emissions estimates are largely unsupported and fail to "insure the professional integrity, including scientific integrity, of the discussions and analyses" in the DEIS. In addition to failing to provide access to studies and reports relied upon in the Army's decision making, the DEIS further makes broad conclusions without providing any supporting citation whatsoever. As a result, it is unclear whether the Army's conclusions are supported by a previous analysis or whether the conclusions lack any serious foundation. For instance, the DEIS eliminates renewable energy sources from serious consideration in large part because the Army concludes that wind and solar energy would be prohibitively expensive. However, the DEIS contains no supporting citation for this conclusion.	Thank you for your comment. Section 3.2 of the EIS incorporated emissions factors pursuant to 40 CFR Part 98, Subpart C, Tables C-1 and C-2; from EPA's AP-42 Section 1.1 (EPA 1998a); and from ADEC's SO2 BACT determination for the existing CHPP. These references provide the emissions factors, and the Huntsville Study (USACE 2018) provided the capacity data that were used to develop the analysis. The Huntsville Study, which is available upon request, has been provided to you. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be feasible or reasonable due to the analysis provided within the PNNL Study (DOE 2009). Wind is not a viable resource at Fort Wainwright, and solar pilot projects were not reasonable or feasible.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.12	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	III. DEIS Fails to Consider a Reasonable Range of Alternatives. The "heart" of the EIS process is the identification and analysis of "alternatives to the proposed action." In particular, an agency is required in an EIS to "[r]igorously explore and objectively evaluate all reasonable alternatives" for achieving the purpose and need for a proposed action. Accordingly, the EIS must include an evaluation of "all reasonable alternatives," and provide the decision maker with a "range of alternatives" from which to select. Consistent with NEPA's basic policy objective to protect the environment, such "range of alternatives" must include environmentally protective alternatives that will "avoid or minimize adverse effects" to the environment. The "touchstone" of the inquiry is "whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation." "The existence of a viable but unexamined alternative renders an [EIS] inadequate."	Thank you for your comment. Section 2.3 of the EIS provides the viability analysis of alternatives considered for full consideration in the EIS.
81.13	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	The DEIS carries forward for analysis only three alternatives, each of which relies entirely or predominantly on new fossil fuel infrastructure to meet the heating and energy needs of Fort Wainwright. Pouring money into new fossil fuel plants with no accompanying clean energy, however, is questionable at best given the dire and well-documented threats posed by climate change, the severe air pollution problems in the Fairbanks area, and the long-running toxic waste problems at Fort Wainwright that would be extended by the continued disposal of coal ash in an unlined landfill as proposed in Alternative 1. Such a narrowly-cabined approach is also unnecessary given the rapid rise of cost-effective renewable energy, storage, and demand side management resources that could play a significant role in serving the energy and heating needs at issue here. Yet such resources were summarily dismissed on the basis of unreasonably restrictive screening criteria that were inconsistently applied, outdated and undisclosed analyses, and a failure to consider combinations of alternatives that could very likely serve Fort Wainwright's needs while minimizing the environmental impacts of doing so. As a result, the DEIS fails to demonstrate the rigorous exploration and objective evaluation of all reasonable alternatives that is necessary to satisfy the requirements of NEPA.	Thank you for your comment. Section 2.4 of the EIS provides an analysis of the viability of renewable energy alternatives.
81.14	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	A. The DEIS should have considered combinations of alternatives for supplying heat and power to Fort Wainwright. The focus of an alternatives analysis should be on identifying ways to meet the general goals of a project. Here, the general purpose of the project is heating and powering Fort Wainwright. There can be no reasonable dispute that such purpose, especially with regards to powering the installation, can be achieved through a combination of resources. For example, in Alaska, solar can provide significant amounts of electricity during summer days when the sun shines for 12-plus hours per day, and then storage and other generation such as geothermal or wind can fill the gap when the sun is not shining. In fact, there is hardly a utility in the country that relies solely on one source of generation; instead, most utilities undertake integrated resource planning to determine what mix of resources will reliably meet their customers' needs at the lowest price.	Thank you for your comment. Please see the response to comment 81.13 above.
81.15	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	An overarching problem with the DEIS's consideration of alternatives, however, is that it does not take such an integrated approach. Instead, with the exception of Alternative 3 (which considers one source for heating and one source for power), each type of generation resource that is considered in the DEIS is assessed only individually to determine whether it can meet Fort Wainwright's full heating and power needs. By doing so, the DEIS unreasonably and unlawfully rejects alternatives (and fully fails to consider others) that could play an important role in a portfolio for providing energy and heat to Fort Wainwright with less environmental impact and at a lower cost than the alternatives that were carried forward for analysis. For example, the Army should consider alternatives that combine multiple sources of energy, such as wind and solar with battery storage coupled with distributed gas boilers. At a minimum, NEPA requires that a reasonable range of combinations of such alternatives be evaluated, and the DEIS must be revised with such an analysis and re-noticed for public review and comment.	Thank you for your comment. Consideration of a diverse portfolio of renewable energy resources was added as Alternative 19 in Section 2.4 of the EIS. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be feasible or reasonable due to the analysis provided within the PNNL Study (DOE 2009). Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources as well as battery storage. An integrated approach combining heat and electricity was considered in the life cycle cost analysis conducted in the 2018 Huntsville Study (USACE 2018) which was incorporated by reference.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.16	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	B. The DEIS unreasonably ignores Army Directive 2017-07's call for "redundant and diverse sources of supply, including renewable energy " The problems with the DEIS's consideration of alternatives starts with the screening criteria. The DEIS identifies a list of six screening criteria, which were used to dismiss from further analysis a range of alternatives, including wind and solar power. Yet these criteria are unreasonably narrow. In particular, Criterion 2 establishes that an alternative should "provide compatibility with mission and energy security needs," which the DEIS defines as "being capable of allowing the critical mission load to continue operations for a minimum of 14 days in the event of a major energy disruption." The DEIS states that Criterion 2 is "in accordance with Army Directive 2017-07," which sets forth installation energy and water security policy. But that same Army Directive also sets forth a policy calling for "[r]edundant and diverse sources of supply, including renewable energy . . ." in order to "sustain all missions." Such policy would appear to be directly responsive to the problem that the DEIS purports to be trying to solve—namely, that Fort Wainwright is heavily reliant on a single source of heating and energy that is aging, often on the brink of catastrophic failure, and so polluting that it is operating at twenty percent reduced capacity. Replacement of the CHPP with redundant and diverse sources of supply, including renewable energy, could alleviate the risks of catastrophic failure and reduce Fort Wainwright's contribution to the severe air pollution problems in the Fairbanks area.	Thank you for your response. Refer to Section 2.3 of the EIS for Screening Criteria 2 and 4, which discuss the use of adequate technology for a subarctic environment. Section 2.4 of the EIS has been revised to include consideration of a diverse renewable energy portfolio.
81.17	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Yet the screening criteria in the DEIS led to two alternatives that continue to rely on a single fossil fuel source for heating and energy, and a third that while it at least distributes the heating infrastructure, still relies solely on fossil fuels for heating and fails to consider any renewables or storage for power supply. The DEIS screening criteria should be broadened to encourage analysis of the more diverse portfolio of resources that Army Directive 2017-07 calls for and that NEPA requires.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be reasonable or feasible. Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources as well as battery storage.
81.18	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	C. The DEIS applied its screening criteria arbitrarily and without support to unreasonably dismiss wind and solar resources The DEIS also erred in applying the screening criteria in ways that unreasonably excluded a number of viable alternatives that could play important roles in meeting the purpose and need for this project. For example, the DEIS posits three reasons for dismissing wind power generation, none of which hold water. First, the DEIS claims that the "wind resource in the Fort Wainwright region . . . is not sufficient to support a wind energy project." This claim is contrary to the fact that the 24.6 megawatt Eva Creek wind farm has been successfully operating near Ferry, Alaska (not far from where Fort Wainwright currently sources its coal for the CHPP) since 2012. As the Alaska Energy Authority has noted, the Eva Creek site is "able to accommodate expansion should the demand for wind power increase" in the region.	Thank you for your comment. Section 2.4 provides the rationale for removing wind energy from further analysis in the EIS, including that use of this technology on the installation would require retrofit of all installation facilities. This was determined to be unreasonable and infeasible.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.19	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	In ignoring the demonstrated feasibility of wind energy projects in the region, the DEIS cites only to a 2009 Department of Energy study that has not been provided, or even summarized in, the DEIS. As such, it is not known what assumptions and data were included in the DOE study or relied on in the DEIS. What is certain, however, is that such assumptions and data are outdated and almost certainly irrelevant to evaluating the feasibility and cost of pursuing wind energy today. Wind turbine technology has continued to become more efficient over the past decade, with turbine capacity, hub height, and rotor diameters all higher in 2019 than they were in 2009. As a result, wind turbine "specific power" factors (i.e. the ratio of nameplate generation capacity to swept area of its rotor) has declined, which in turn has helped lead to an increase in average capacity factor from 31 percent for projects built from 2004 through 2012 to 41 percent for projects built from 2014 through 2018. At the same time, the average installed cost of wind projects has fallen more than 40 percent since 2009-2010 to $1,440/kW in 2019. The improved wind turbine technology has also led to a significant increase since 2008 in the amount of land mass in Alaska with wind capacity factor potentials of 10 percent to 50 percent. Given such technological progress, it is plainly arbitrary and unreasonable for the DEIS to rely on a 2009 study to reject wind as a viable alternative. Instead, before deciding its energy future for decades to come, Fort Wainwright must evaluate based on current information the feasibility, benefits, and cost of including wind generation as part of that future.	Thank you for your comment. Please see the response to comment 81.18 above.
81.20	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	The DEIS also rejects wind under Criterion 1 and 3 on the grounds that it would be "cost prohibitive" to satisfy the heat and power needs with wind, especially given the retrofits that would be needed to shift the base from steam to electric heat. That claim is unsupported in the DEIS, as no details are provided as to how the determination that such alternative is cost prohibitive was reached. At a minimum, such cost analysis must be provided to the public for review and comment. Regardless, even if retrofitting Fort Wainwright to use electric rather than steam heat was cost prohibitive, that does not provide a basis for dismissing wind as part of a portfolio of resources that could address Fort Wainwright's power needs. Finally, the DEIS rejects wind under Criterion 6 on the grounds that any wind resource would have to be built off-site and, therefore, would not be located on the installation. The DEIS does not provide any support for the claim that no wind generation could be built on the base. But even if that claim is accurate, the DEIS did not consistently apply that criterion in its screening analysis. In particular, Alternative 3, which was carried forward for analysis, includes that Fort Wainwright "would purchase all required electricity from a local utility provider." Such electricity would, of course, be generated off-site just as with a wind power generation alternative. It was plainly arbitrary for the DEIS to reject wind on this basis while advancing Alternative 3 despite having the same purported shortcoming.	Thank you for your response. Section 2.4 of the EIS has been revised to include consideration of a diverse renewable energy portfolio.
81.21	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	The DEIS's screening out of solar resources as an alternative is unreasonable and unsupported for many of the same reasons as wind. In particular, the DEIS makes the same claim that solar should be rejected because it would not be built on the installation, even though that same reason did not lead to rejection of Alternative 3. In addition, no consideration was apparently given to installing rooftop solar on buildings in Fort Wainwright. The DEIS also contends that solar would be cost prohibitive due to the expense of converting the base from steam to electric heat. As with wind, however, this claim is unsupported, as no data or analysis has been provided regarding the cost of such conversion or how it compares to other approaches. Regardless, even if retrofitting Fort Wainwright to use electric rather than steam heat were cost prohibitive, that does not provide a basis for dismissing solar as part of a portfolio for meeting Fort Wainwright's power needs. The DEIS also questions the reliability of solar, especially during the winter. In doing so, however, the DEIS fails to even acknowledge, much less evaluate, the role that battery storage can play in overcoming, at least in part, the intermittency of solar. In addition, it appears that the DEIS considered solar only in the context of being the sole resource used to meet the power needs of Fort Wainwright. In reality, however, reliability can be ensured by using a portfolio of resources (wind, solar, geothermal, storage, etc.) to meet Fort Wainwright's energy needs. By screening out wind and solar individually, however, the DEIS unreasonably foreclosed any analysis of such a portfolio of resources.	Thank you for your comment. See the response to comments 81.17 and 81.20 above. Section 2.4 provides the rationale for removing solar energy from further analysis in the EIS, including that use of this technology on the installation would require a battery bank of a size that is unreasonable and infeasible.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.22	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	In rejecting solar, the DEIS once again relies on the 2009 Department of Energy study discussed above to claim that there is "no reliable solar technology currently available to meet the energy needs of the installation without risking the mission."56 But, just as with wind power, a 2009 study of the potential for solar is wholly outdated and does not provide a useful basis for evaluation in 2020. For example, the installation cost of solar generation has dropped by more than 70 percent since 2010. In fact, in 2018 Golden Valley Electric Association installed one of Alaska's largest solar PV systems near Fairbanks. Given such technological progress, it is plainly arbitrary and unreasonable for the DEIS to rely on a 2009 study to reject solar as a viable alternative. Instead, before deciding its energy future for decades to come, Fort Wainwright must evaluate based on current information the feasibility, benefits, and cost of including solar power generation as part of that future.	Thank you for your response. See the response to comment 81.21 above.
81.23	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	D. The DEIS unreasonably failed to consider a range of other potential alternatives The resources considered in the DEIS are far from the only ones that should have been evaluated as potential alternatives for meeting Fort Wainwright's heat and/or power needs. For example, the DEIS fails to address geothermal, hydroelectric, energy storage, energy efficiency, or demand-side management, each of which could play an important role in a portfolio for providing power and/or heat to Fort Wainwright. Each of these are viable resources that must be evaluated as part of a revised DEIS for this project. For example, in 2019, the Native Village of Hughes—over 200 air miles northwest of Fairbanks—completed a solar-diesel microgrid with 120 kWh of lithium-ion battery storage. As of 2010, the Weller Elementary School in the Fairbanks North Star Borough is equipped with geothermal heat pumps. These are just two examples of communities in and near Fairbanks incorporating renewable and sustainable energy sources. The Army must evaluate alternatives that incorporate a combination of resources—including wind, solar, geothermal, hydroelectric, energy storage, energy efficiency, and demand-side management—with and without supplemental fossil fuel resources, such as a distributed natural gas as proposed in Alternative 3.	Thank you for your comment. Section 2.4 considers renewable energy alternatives that were dismissed from further consideration.
81.24	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Specifically, the undersigned organizations request that the Army evaluate: 1. An alternative that relies exclusively on a combination of renewable energy resources, such as wind, solar, and geothermal, with energy efficiency, demand- side management, and storage; 2. An alternative that incorporates wind and solar energy as well as battery storage in combination with Alternative 3; 3. An alternative that incorporates wind and solar energy as well as battery storage in combination with geothermal energy and natural gas. Finally, we note that in 2003, the U.S. Army Corps of Engineers carried out a review of alternatives to the CHPP at Fort Wainwright. While the specifics of that 27-year-old study are presumably outdated, one of the Corps' recommendations should be evaluated in the DEIS. In particular, the Corps recommended that a Fairbanks Regional Power Study be carried out in order to identify an optimal energy strategy for a region covering a 200-mile radius around Fairbanks, which includes a number of other military facilities.	Thank you for your comment. Section 2.5.4 of the EIS provides the description of Alternative 3, which was carried forward for analysis in the EIS. Under this alternative, power would be provided by a local utility provider. While the Army cannot speculate on the future portfolio of the local provider, they do currently include renewable power sources.
81.25	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	As the Corps report notes, such an approach could better ensure that power, air quality, and economic factors are addressed as Fort Wainwright evaluates its energy future. It could also help ensure that the development of cleaner energy resources, such as wind, solar, geothermal, and storage, is fully maximized in the area. As part of the NEPA required consideration of all reasonable alternatives, we urge that such a regional energy strategy be rigorously explored and objectively evaluated.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind, solar and geothermal energy as energy sources, which has been determined to not be reasonable or feasible. Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources as well as battery storage. A regional energy strategy for Alaska as identified in the Joint Long-Range Energy Study for Greater Fairbanks Military Complex (cited as USACE 2005 in the EIS) was reviewed by the Army and was not considered further.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.26	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	IV. The DEIS's no-action alternative is fundamentally flawed. NEPA and CEQ regulations mandate that agencies consider a no action alternative in all environmental reviews. The no-action alternative provides a baseline against which the effects of the action alternatives may be measured. "Without establishing the baseline conditions which exist . . . before [a project] begins, there is simply no way to determine what effect the [project] will have on the environment and, consequently, no way to comply with NEPA." While "[a]n agency is not required to conduct measurements of actual baseline conditions in every situation[,]" it must assess baseline conditions and that assessment "must be based on accurate information and defensible reasoning." While no-action alternative largely represents the "status quo," it is not merely a "do nothing" alternative. Rather, agencies must include a discussion of reasonably foreseeable development that would result from its adoption. No-action alternatives have been found to be invalid when the alternative includes "an assumption [that] is logically untenable." Accordingly, a no-action alternative must both (1) establish the proper environmental baseline; and (2) take into consideration likely development if the no-action alternative was selected by the agency. The no-action alternative contained in the DEIS fails on each of these prongs. First, while defining the no-action alternative as the continued operation of the existing CHPP, the DEIS utilizes outdated and invalid 2017 operating data as the basis for current conditions. Second, the DEIS fails to evaluate reasonably foreseeable development that would result should the no-action alternative be selected. Each of these points is addressed below.	Thank you for your comment. Section 3.2 of the EIS has been updated with the most recent emission data.
81.27	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	A. The DEIS fails to establish accurate baseline conditions under the no-action alternative. The DEIS identifies the no-action alternative as continued operation of the existing CHPP. Specifically, USAG Alaska would continue to use the existing CHPP and utilidor system described in Section 1.1.2 and would not construct any new facilities. To keep the plant operational, USAG Alaska would need to make major repairs and upgrade plant parts and technologies, upgrade approximately 27 miles of antiquated utilidor pipeline, incorporate cost- intensive BACT (implementation costs estimated between $22 million and $250 million [Agrawal 2020]), and continue to operate the CHPP boilers at 20 percent reduced capacity to meet air quality emissions regulations and standards.	Thank you for your comment. Section 2.5.1 of the EIS provides the No Action Alternative description, which was prepared in accordance with applicable NEPA regulations that are identified in Section 1.1 of the EIS.
81.28	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	In Section 1, the DEIS also emphasizes that CHPP is currently operating at 20 percent reduced capacity, in order to comply with applicable air quality requirements. Nevertheless, the evaluation of environmental impacts of the proposed alternatives as compared to the no-action alternative is premised solely upon 2017 operations, when the CHPP was operating at approximately 50 percent capacity. The DEIS acknowledges that the CHPP boilers are required to operate at 20-percent reduced capacity in order to comply with applicable regulations and will be required to do so moving forward. Accordingly, the baseline for measure and analysis accepts an illegal level of operation and then proceeds based on that faulty idea. Such a baseline is not based on "accurate information [or] defensible reasoning." The failure to establish the true baseline inhibits the DEIS from meaningfully comparing environmental impacts amongst the identified alternatives, and, as discussed below, inhibited the Army from taking the requisite "hard look" at anticipated impacts.	Thank you for your comment. The No Action Alternative is intended to be a baseline by which to compare with action alternatives. In addition, continued operation of the CHPP is not "illegal"; it currently meets regulatory and permitting requirements. It is a reasonable alternative for such a comparison and represents the actual status quo. The No Action Alternative also assumes implementation of BACT as noted in Section 2.5.1 of the EIS. Based on Title V permit requirements, the 20 percent operating reduction is the baseline. Section 3.2 of the EIS has been updated to reflect emission data from the latest three-year average (2018-2020).

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.29	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	B. The DEIS fails to evaluate reasonably foreseeable development as a result of the no-action alternative. In addition to relying on outdated operating data, the DEIS fails to include a discussion of reasonably foreseeable development that would result if the Army selected the no-action alternative. As noted above, the no-action alternative does not simply mean that current conditions are frozen in time. Rather, the Army must discuss reasonably foreseeable development that would result from its adoption. The DEIS readily admits the continued operation of the existing CHPP is infeasible; yet, nevertheless assumes that the plant will continue operating. Such an assumption is "logically untenable" and renders the identified no- action alternative legally deficient. Instead, the Army must identify a reasonable no-action scenario, based on accurate assumptions. At present, if the Army were to select the no-action alternative, it is unknown whether it would choose to operate the existing CHPP at 20 percent reduced capacity, close the CHPP and rely solely on energy purchased from a local utility, or some other option. Identifying the anticipated path forward is critical to establishing the baseline condition from which to compare other alternatives.	Thank you for your comment. Section 3.2 of the EIS has been updated to reflect emission data from the latest three-year average (2018-2020). The No Action Alternative has been stated pursuant to Army NEPA regulations at 32 CFR Part 651, and has established the baseline for which the action alternatives were analyzed. The CHPP would continue to maintain ongoing operations.
81.30	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	V. The DEIS Fails to Take the Requisite "Hard Look" at the Direct, Indirect and Cumulative Impacts on Air Quality, Climate Change, and Groundwater. As a direct result of failing to properly establish a no-action alternative/environmental baseline, the DEIS fails to adequately disclose and analyze the direct, indirect, and cumulative impacts of the proposed action alternatives because the DEIS incorrectly concludes that no environmental impacts will be "significant." Direct effects are those that are caused by the project and that occur in the same time and place. Indirect effects are those effects that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." "Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." A "cumulative impact" is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Such impacts can result from individually minor but collectively significant actions taking place over a period of time.	Thank you for your comment. Section 3.15 of the EIS discusses cumulative impacts. Responses to your comments on the air quality analysis in this EIS are provided below.
81.31	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	A. Air Quality The Fairbanks North Star Borough currently suffers from some of the worst air quality in the country as a result of egregiously high fine particulate matter (PM2.5) pollution, of which coal combustion is a major source. As observed by the U.S. Environmental Protection Agency (EPA), the North Pole Fire Station monitor sometimes records the highest values, recording levels "worse than Los Angeles, Milwaukee and Detroit combined." In fact, of all previously designated nonattainment areas for 24-hour PM-2.5, measured by 2017-2018 design values, Fairbanks is one the most polluted, at 69 µg/m, more than twice. This pollution has serious health consequences for the residents of Fairbanks. "An extensive body of scientific evidence" including literally "thousands of studies" shows that PM2.5 pollution "is causally linked" to a wide range of serious health impacts, including asthma attacks, hospitalization and emergency room visits for cardiopulmonary diseases, chronic respiratory disease, reduction in lung function, cancer, and premature death. These impacts are most felt by children, the elderly, and chronically ill people.	Thank you for your comment. Responses to your comments on the air quality analysis in this EIS are provided below.

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81.32	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	As the DEIS recognizes, the Fairbanks North Star Borough is designated as a serious nonattainment area for PM2.5 NAAQS and the Alaska Department of Environmental Conservation (ADEC) submitted a state implementation plan (SIP) in December 2019 in order to bring the area into compliance. As noted in the DEIS, the State's SIP recognizes the existing CHPP's "contribution to current adverse [air quality] conditions." Since the publication of the DEIS, EPA has rejected the State's SIP, finding, in part, that "[t]he submitted Fairbanks Serious SIP Submission does not demonstrate that the State has identified, adopted, and implemented [most stringent measures] for reducing direct PM2.5 and PM2.5 plan precursors." Accordingly, it is clear that the State must take additional action—above what was described and committed to in its December 2019 Serious SIP Submission—in order to reduce pollution emissions to levels necessary to come into compliance with applicable NAAQS requirements. The State is required to submit a new SIP by December 31, 2020, which will similarly require federal approval.	Thank you for your comment. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
81.33	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	In light of the significant air pollution from which Fairbanks residents currently suffer, proper analysis of the direct, indirect, and cumulative impacts on air quality are of utmost importance. Unfortunately, the DEIS fails to take the requisite "hard look" that is required by NEPA, for at least three reasons: (1). First, the DEIS fails to include any current air quality monitoring to establish actual baseline conditions and instead relies on outdated 2016 through 2018 monitoring; (2) the DEIS utilizes outdated 2017 emission data from the existing CHPP, even though operations have significantly changed since 2017; and (3) the DEIS fails to model or otherwise anticipate air quality impacts from any of the action alternatives.	Thank you for your comment. The Draft EIS was prepared in 2019, when at the time the air quality data used for the EIS analysis was the most current. The Army reviewed and updated the data where appropriate and based on availability. The air quality calculations conducted and reported in the Draft EIS was deemed sufficient for estimating emissions for the purposes of the EIS. Detailed modeling such as dispersion will be conducted as part of air quality permitting processes for the selected alternative. Updated the CO analysis and other emissions data with three year average (2018-2020 AEI). Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data.
81.34	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	First, the DEIS does not include accurate, current ambient air quality data. Instead, the DEIS includes a chart of "local ambient air quality monitoring values" collected from air quality monitoring stations in and around Fairbanks from 2016 through 2018. These monitoring values are up to four years old and almost certainly no longer accurate, not least of all because the Fort Wainwright CHPP has reduced its operating capacity from approximately 50 percent in 2016 to 20 percent today. While an agency is not required to conduct measurements of actual baseline conditions "in every situation," this step may only be avoided when the agency has a reasonable and valid substitute. The Army has not presented any reasonable or valid substitute here.	Thank you for your comment. Section 3.2 of the EIS has been revised to include emission data from 2020. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.35	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Second, even if the air quality monitoring data used in the DEIS was current—which it is not—the DEIS fails to utilize this information as the DEIS solely based "significance" upon whether emissions from any of the Army action alternatives would be higher than historic 2017 emissions from the existing current CHPP. While the DEIS claims that significance is based upon "[a]n increase in emissions relative to the regulatory de minimis thresholds for the pollutants identified in Table 3.2-1 [or] [i]nterference with achieving NAAQS, as outlined in Table 3.2-3[,]" in practice, the DEIS summarily concludes for each alternative that none of the alternatives will have a significant impact on air quality "because the net emissions . . . would be less than the threshold values listed in Table 3.2-1 and result in a reduction of pollutant emissions, [the alternative] would have no adverse effects on air quality." As noted above, historic emissions from the CHPP are neither representative of current emissions nor likely to be representative of future emissions, as the Army has been forced to significantly reduce the CHPP's operating capacity currently and will be required to continue doing so moving forward. As a result, 2017 emissions do not represent a correct baseline, and by relying on this baseline, the DEIS then unsurprisingly concludes that air quality impacts—under any of the proposed alternatives—will all be "less than significant." The improper baseline distorts the actual air quality impacts as compared to the "status quo," rendering" and renders the DEIS's air quality analysis unreliable as there is no basis to conclude that air quality impacts will be less than significant.	Thank you for your comment. See the response to comment 81.34 above.

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81.36	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Finally, the DEIS fails to analyze whether anticipated emissions from any of the action alternatives will, in fact, "[i]nterfere[] with achieving NAAQS[.]", as outlined in Table 3.2-3." The regulatory de minimis threshold identified in Table 3.2-1 for PM10 and PM2.5 is 15 tons per year (tpy) and 10 tpy, respectively. Alternative 1 projects 14.6 tpy of PM10 and 14.6 tpy of PM2.5, meaning that PM2.5 emissions will exceed the regulatory threshold and PM10 emissions will be borderline. Alternative 2 projects 15.0 tpy for both PM10 and PM2.5, exceeding both regulatory thresholds. While each of these projections may be lower than 2017 emissions from the existing CHPP, ...	Thank you for your comment. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.37	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	...the Army's DEIS fails to answer the question of whether operation of any of these alternatives will interfere with compliance with the applicable PM2.5 NAAQS. As noted above, a portion of the Fairbanks North Star Borough is designated as "serious" nonattainment for the applicable PM2.5 NAAQS standard, and the state has yet to present a valid plan to the federal EPA that will bring the area into compliance. As a result, even assuming that the action alternatives achieve reductions from current operations (which, as noted, has not been established through the DEIS), operation of a new fossil-fuel power plant may still interfere with compliance obligations.	Thank you for your comment. All alternatives considered would result in negative net emissions due to improved efficiencies. All regulatory requirements would be met for the chosen alternative.
81.38	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	While the Army could have conducted an air quality model that would have forecasted impacts upon air quality under each of the action alternatives, it failed to do so. Modeling to determine air quality impacts would have also allowed the Army to determine whether any of the action alternatives will result in disproportionate adverse air quality impacts on minority and low-income populations as well as children's environmental health. Instead, the DEIS brushes aside Fairbanks' serious air quality problems by assuming that any of the action alternatives will be a net-benefit for air quality, even if air quality, overall, remains dismal for the area's residents.	Thank you for your comment. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements. Upon the development of a design, further environmental permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.39	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	A. Climate Change The Army's failure to analyze greenhouse gas emissions and associated climate change impacts of the action alternatives renders the DEIS legally deficient. It is well established that when an agency considers a decision that will result in greenhouse gas emissions, NEPA requires the agency to analyze and disclose the effects of these emissions. Indeed, as the Ninth Circuit has explained, "[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct." Numerous other courts have affirmed the necessity of analyzing the climate consequences of an action under NEPA, in a wide variety of contexts.	Thank you for your comment. Section 3.2 of the EIS includes an analysis of greenhouse gases.
81.40	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	While the DEIS presents a quantification of total estimated greenhouse gas emissions under each action alternative, the Army's quantification is inaccurate, as the DEIS does not include numerous direct and indirect sources of greenhouse gas emissions associated with each action alternative. Additionally, the Army's significance evaluation is compared against an inaccurate baseline and fails to consider global carbon budgeting or utilize monetization tools such as the social cost of carbon protocol.	Thank you for your comment. All alternatives considered would result in negative net emissions due to improved efficiencies. Discussion on impacts on greenhouse gas emissions and climate change has been expanded in Section 3.2 of the EIS.
81.41	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	1. Greenhouse Gas Emissions and Climate Change EPA has determined that human emissions of greenhouse gases are causing global warming that is harmful to human health and welfare. Indeed, EPA could not have found otherwise, as virtually every climatologist in the world accepts the legitimacy of global warming and the fact that human activity has resulted in atmospheric warming and planetary climate change. GHG concentrations have been steadily increasing over the past century. The IPCC in 2013 affirmed: "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased" causing "widespread impacts on human and natural systems." This is consistent with the findings of the United States' 2014 Third National Climate Assessment, stating: "That the planet has warmed is 'unequivocal,' and is corroborated through multiple lines of evidence, as is the conclusion that the causes are very likely human in origin."	Thank you for your comment. See the response to comment 81.40 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.42	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	The world is already experiencing impacts from climate change, with drought and extreme weather events becoming increasingly common. Climatic change and GHG emissions are having dramatic impacts on plant and animal species and habitat, threatening both human and species resiliency and the ability to adapt to these changes. According to experts at the Government Accountability Office (GAO), federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others, "(1) physical effects, such as droughts, floods, glacial melting, and sea level rise; (2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and (3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses."	Thank you for your comment. See the response to comment 81.40 above.
81.43	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Extensive research demonstrates the urgent need to reduce greenhouse gas emissions. For example, an October 2018 report from the Intergovernmental Panel on Climate Change (IPCC) quantified the devastating harms that would occur at 2°C warming, highlighting the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth. Consistent with that assessment, in November 2018, the U.S. Global Change Research Program released the Fourth National Climate Assessment, an authoritative assessment of the science of climate change that describes the economic costs of climate change. It concludes, among other things, that "the impacts of climate change are intensifying across the country, and that climate- related threats to Americans' physical, social, and economic well-being are rising." These include more frequent and intense extreme weather and climate-related events, increasing temperatures, and rising sea levels, which are expected to disrupt the economy, resulting in "annual losses in some economic sectors . . . [of] hundreds of billions of dollars by the end of the century—more than the current gross domestic product (GDP) of many U.S. states."	Thank you for your comment. See the response to comment 81.40 above.
81.44	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	In its October 2018 report, the IPCC underscored the need for urgent emissions reductions on an unprecedented scale. To avoid exceeding 1.5°C of warming, global net CO2 emissions reductions would need to decline by 45 percent relative to 2010 levels by 2030, and reach net zero by 2050. To keep warming below 2°C, emissions would have to decline by 20 percent relative to 2010 levels by 2030, and reach zero by 2075. According to the report, "[b]y the end of 2017, anthropogenic CO2 emissions since the preindustrial period are estimated to have reduced the total carbon budget for 1.5°C by approximately 2200 + 320 GtCO2." Further, "[t]he associated remaining budget is being depleted by current emissions of 42 + 3 GTCO2 per year." Estimates of the remaining carbon budget to remain under 1.5°C depend on the measure of temperature effects considered and the probability of success. For a 50 percent chance of successfully staying under 1.5°C, estimates range from 580 to 770 GtCO2.387 For a 66 percent chance, estimates range from 420 to 570 GtCO2.	Thank you for your comment. See the response to comment 81.40 above.
81.45	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Indeed, since at least 2010, the U.S. Department of Defense has recognized climate change as a threat to national security, a stance it has reaffirmed several times. In 2014, the Department released a Climate Change Adaptation Roadmap, that recognized "[a] changing climate will have real impacts on our military and the way it executes its missions." In a 2019 report to Congress, the Department acknowledged that "[t]he effects of a changing climate are a national security issue with potential impacts to Department of Defense (DoD or the Department) missions, operational plans, and installations." In August 2020, the Army released its Army Climate Resilience Handbook, which provides guidance meant to "take[] Army planners through the process to systematically assess climate exposure impact risk and incorporate this knowledge and data into existing installation planning processes such as master plans."	Thank you for your comment. See the response to comment 81.40 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
81.46	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	1. The DEIS Fails to Take a Hard Look at Potential Impacts on Climate Change Despite global consensus that the climate is rapidly changing and that a drastic reduction in fossil fuel burning is required, the DEIS contains no discussion of climate change. For instance, although the DEIS contains a section titled "Regional Climate," the DEIS fails to discuss how the Fairbanks climate is currently changing or what measures might be required to adapt to those changes when selecting replacement energy sources for the existing CHPP. For instance, much of the installation sits on or near permafrost, but the DEIS does not address how thawing of permafrost could impact design or building criteria. In 2017, a report from the Government Accountability Office criticized the Department of Defense for failing to consider climate change impacts in its planning documents. The report recognized that while the Department had previously "emphasized the importance of integrating climate change adaptation into installation planning efforts," integration into installation-level planning is limited. Similarly, numerous public comments submitted during the scoping period alerted the Army to the need to discuss climate change—both how the changing climate may impact the installation's energy resources and impacts that the action alternatives may have on global climate change. Nevertheless, the Army has failed to consider impacts of climate change on its planning process for replacing the existing CHPP.	Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.47	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Presumably, the DEIS fails to include these critical discussions because the DEIS concludes that greenhouse emissions from each of the action alternatives will be less than significant. This finding is fundamentally flawed for at least two reasons. First, while the DEIS quantifies estimated greenhouse gas emissions, the estimates do not account for all greenhouse gases associated with each action alternative. For instance, the DEIS does not contain estimates of greenhouse gas emissions associated with construction of any of the action alternatives. Greenhouse gas emissions for each action alternative are further limited to emissions from the anticipated power plants (Alternatives 1 and 2) or distributed gas boilers (Alternative 3). For Alternative 1, there is no estimate of carbon emissions resulting from the required coal mining, and for Alternatives 2 and 3, there is no estimate of emissions resulting from construction of the anticipated gas pipeline or other required infrastructure. Additionally, quantification of greenhouse gas emissions for Alternative 3 lacks emissions associated with purchased electricity from the local utility provider. It is well established that when quantifying greenhouse gas emissions, agencies must include both upstream and downstream emission sources reasonably anticipated. Inclusion of these emissions is particularly important here to allow for a valid comparison between the identified action alternatives and a new alternative, such as a comparison of Alternative 3 to an alternative that combines the distributed gas boilers for heating with development of renewables and storage for electricity, as discussed in Section III above.	Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.

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81.48	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Second, even if the Army had presented an accurate quantification of greenhouse gases, it errs in its evaluation of whether the identified emissions will be significant. To begin, the DEIS compares the action alternatives' total emissions against an invalid baseline. As explained above, the DEIS presumes that continued operation of the existing CHPP is the appropriate baseline, but nevertheless presents the CHPP's total greenhouse gas emissions based on 2017 emissions data. Since 2017, the CHPP has reduced operating capacity by approximately 30 percent, rendering the emissions data inaccurate and unreliable. Comparison of the estimated greenhouse gas emissions from the action alternatives to 2017 emissions data has no relevance to the current baseline, and thus, no significance determination can be made. Next, there is no comparison of the estimated carbon emissions to the global carbon budget. As with additional PM emissions interfering with compliance with applicable NAAQS standards, additional carbon emissions-- even if lower than emissions from the current CHPP—may have a significant cumulative impact on global climate change. Yet, the DEIS fails to seriously consider carbon budgeting. Finally, the Army omits serious consideration of another tool for assessing significance--the social cost of carbon protocol. The social cost of carbon is a valid and interagency-endorsed method of calculating the costs of greenhouse gas emissions. While the monetization of costs is not always required during a NEPA analysis, monetization of costs may be required where available "alternative mode[s] of [NEPA] evaluation [are] insufficiently detailed to aid the decision-makers in deciding whether to proceed, or to provide the information the public needs to evaluate the project effectively," or the agency presents a misleading analysis assessing the economic benefits of the project without a counterbalanced discussion of economic costs. Indeed, courts have remanded NEPA analyses back to the agency with instructions to consider use of the social cost of carbon or other similar methodologies.	Thank you for your comment. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. Analysis of the social cost of carbon is provided in Section 3.2.2 of the EIS. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.49	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	A. Groundwater Contamination Fort Wainwright has long-term and serious CERLCA contamination problems, resulting from past operations that have contaminated groundwater, soil, and sediments. The contamination has been recognized by both ADEC and EPA since at least 1989. In 1990, EPA listed the installation on the National Priorities List (NPL) (where it remains to this day), and in 1992, the Army signed a Federal Facilities Agreement with EPA and the State of Alaska to address the site contamination. Since that time, the U.S. Army has been investigating and implementing remediation actions. As part of the Army's remediation efforts, Fort Wainwright has been designated into 15 "operable units" (OUs), which are separate areas of contamination. Multiple sources of solid and hazardous waste from the OUs have contaminated groundwater, which flows in the direction of Fairbanks. OU 4 – "Landfill, Power Plant, Fire Training Pits" – includes the existing CHPP, the unlined landfill where the Army disposes of coal ash, the coal storage yard, and the fire training pits. In 1996, EPA issued a Record of Decision, identifying required remediation activities for OU 4. The historic contamination throughout the installation threatens drinking water for the approximately 15,000 people who live and work at Fort Wainwright and get their drinking water from wells that are near contaminated areas. Additionally, the Chena River, which is used by area residents for subsistence, recreation, and sport fishing, runs through the contaminated portion of the installation. Yet, after more than 30 years of investigation and cleanup, EPA has been unable to declare that either "human exposure" or "groundwater migration" is under control at Fort Wainwright.	Thank you for your comment. Section 3.10 of the EIS considers impact to human health and safety from coal ash. Regardless of the alternative, the Army will adhere to federal and state regulations concerning the disposal of coal ash.

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81.50	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Despite this long history of severe contamination at Fort Wainwright, the DEIS fails to seriously discuss coal ash groundwater contamination concerns, even though Alternative 1 would require the disposal of significant amounts of toxic coal ash in an unlined landfill for decades to come. The DEIS acknowledges that the proposed new CHPP "would produce coal ash similar to the existing CHPP . . . [and] [t]he coal ash would continue to be disposed of in the Installation's Permitted Class 1 unlined landfill." Nevertheless, the DEIS fails to evaluate the very serious risk of continued, and potentially intensified, groundwater contamination. For example, the DEIS does not disclose the significant waste problems or acknowledge contributions from the existing CHPP and the Army's coal ash disposal methods. The DEIS provides extremely limited information on the present condition of the site and does not include any mitigation measures, aside from ongoing monitoring, that will be taken to ensure that coal ash does not contribute to the problem. Instead, the DEIS appears to dismiss the possibility of groundwater contamination from the Army's coal ash disposal practices, stating that the "CHPP coal ash has been disposed of two to three times per week for many years in the unlined Fort Wainwright landfill and no known contamination issue have been identified from coal ash disposal." This conclusion is implausible for many reasons. First, it is nearly impossible for coal ash disposal in an unlined landfill to not cause groundwater contamination, particularly in a setting—such as here—where groundwater has been severely contaminated by the adjacent landfill. The DEIS acknowledges that "[a] closed portion of the landfill has known contamination. . .". The list of hazardous chemicals found in contaminated soil and groundwater at the closed portion of the landfill is extensive and contains coal ash contaminants. Additionally, the current landfill is likely located near an area of shallow groundwater since there are wetlands close to the site, making groundwater contamination more likely.	Thank you for your comment. Section 3.10 of the EIS considers impact to human health and safety from coal ash. Regardless of the alternative, the Army will adhere to federal and state regulations concerning the disposal of coal ash.
81.51	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Second, the DEIS acknowledges "the possibility for arsenic and mercury contamination could occur from unlined coal ash deposits" and that "[d]isposal of ash in other unlined facilities in the United States has led to contamination of groundwater in some cases (PSR 2010b)." While the PSR 2010b report was not attached to DEIS, it is undoubtedly out of date and underestimates both the magnitude and likelihood of significant groundwater contamination from the landfill. It was not until 2018 that coal-fired electric utilities were compelled to publicly report groundwater monitoring data under the Coal Combustion Residuals Rule. Shortly thereafter, a report from the Environmental Integrity Project showed groundwater contamination resulting from coal ash on a massive scale. That report found that "91 percent of coal plants have unsafe levels of one or more coal ash constituents in groundwater, even after we set aside contamination that may [be] naturally occurring or coming from other sources." Nevertheless, the DEIS appears to dismiss the possibility of contamination at Fort Wainwright because "[t]he landfill is operating in accordance with the state-issued solid waste disposal permit."	Thank you for your comment. Please see the response to comment 81.50 above.
81.52	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Finally, and most importantly, there is evidence that groundwater contamination may be occurring at the current landfill. The DEIS asserts that in the most recent groundwater monitoring near the closed landfill, "[a]rsenic was detected as exceeding cleanup levels, but below documented background concentrations, and appears to be the result of naturally occurring mineral deposits in the area (USACE 2019). In the active portion of the landfill arsenic concentrations are very low or are not detected and are below the Landfill Groundwater Protection Standard." However, this claim is based on sampling in 2018 and is put into question by more recent monitoring conducted in 2019. Specifically, in October 2020, the Army transmitted its Final 2019 Monitoring Report for Operable Unit 4 to EPA. In this report "[g]roundwater samples were collected from 11 wells during June 2019 and 7 wells during October 2019 to evaluate the migration of contaminants from" the closed portion of the landfill. While the groundwater monitoring wells were not placed to detect contamination only coming from the operating landfill, one well that is likely detecting contamination from the operating landfill, AP-10257MW, shows the highest arsenic levels, a coal ash marker. Still, it is impossible to separate coal ash impacts from the impacts of other wastes due to the location of the wells and the contaminants being tested. This only underscores the need to conduct groundwater monitoring capable of determining whether the current landfill is actively contaminating groundwater.	Thank you for your comment. Please see the response to comment 81.50 above.

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81.53	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Furthermore, the data in the Final 2019 Monitoring Report for Operable Unit 4 contradict the DEIS' unsubstantiated assertion that high background concentrations of arsenic are responsible for the elevated levels of arsenic in groundwater. The DEIS states that the elevated arsenic levels in monitoring wells downgradient of the active landfill, which were recently as high as 31.7 ug/L (more than three times the federal drinking water standard) are below "documented background" groundwater concentrations. Yet the upgradient well data provided in the 2019 report reveals an arsenic level of only 3.1 ug/L, an order of magnitude lower than the downgradient well. Thus it appears both that high levels of arsenic are appearing in wells downgradient of coal ash placement and that these levels are far above background levels. In sum, given long-running contamination issues at Fort Wainwright and the likelihood that the active landfill is continuing to contribute to this contamination, it would be unreasonable to pursue an action alternative, such as Alternative 1, that will continue to produce and dispose of coal ash in an unlined landfill in an area with a known history of groundwater contamination. At a minimum, the Army must fully account for likely impacts of pursuing Alternative 1 in its NEPA analysis. Assuming that groundwater contamination will not occur because the landfill will comply with applicable state laws does not comport with NEPA's require that the agency take a hard look at the likely direct, indirect, and cumulative impacts of its action alternative.	Thank you for your comment. Coal ash disposal is a design level consideration that will be addressed if the selected alternative necessitates it. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.54	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	VI. The DEIS's Mitigation Measures Do Not Comply with Law As the U.S. Supreme Court has explained, "[i]mplicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,' 42 U.S.C. § 4332(C)(ii), is an understanding that the EIS will discuss the extent to which adverse effects can be avoided." Accordingly, an EIS must include a detailed discussion of possible "steps that can be taken to mitigate adverse environmental consequences" in an EIS. NEPA regulations require measures to include: (a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
81.55	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	An EIS should analyze mitigation measures with "sufficient detail to ensure that environmental consequences have been fairly evaluated" and to help agencies, interested groups, and individuals properly evaluate the severity of potential adverse effects on the environment. The mitigation analysis should also identify all "relevant, reasonable mitigation measures that could improve the project," even if they are outside the jurisdiction of the lead agency. Those measures "must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated," and a mitigation analysis must provide "an assessment of whether the proposed mitigation measures can be effective." "Perfunctory descriptions" or "mere lists" of mitigation measures without supporting analytical data do not satisfy NEPA's requirement that an agency take a "hard look" at potential environmental consequences. The DEIS' consideration of mitigation measures violates NEPA because it fails to consider any design alternatives or offsets that would minimize significant impacts to air quality and climate, and it fails to consider the effectiveness of the few meager mitigation measures it does propose. The DEIS fails to propose any meaningful mitigation measures to avoid significant impacts on air quality and climate that would result from the proposals to build a new fossil- fueled source, which would emit harmful pollutants and greenhouse gas emissions over at least a 25-year life. The agency does not take a serious look at any mitigation measures because it unreasonably and unlawfully concludes there would be minor or no negative air quality or climate impacts.	Thank you for your comment. Please see the response to comment 81.54 above.

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81.56	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	Chapter 3 of the DEIS ostensibly includes mitigation measures along with the environmental consequences of the alternatives, and the measures are summarized in the mitigation measures section at Section 3.16.2. The DEIS claims to comply with NEPA guidelines to consider design measures that would be "incorporated into the design of the action alternatives with the goal of avoiding or minimizing" impacts as well as measures that would "offset" adverse impacts. As explained in detail elsewhere in these comments, however, the agency did not consider design alternatives, nor did it consider offsets that would reduce air quality and climate impacts. The agency did not analyze design alternatives to building a new coal or gas plant, or distributed gas boilers, that would pair a smaller fossil fuel source with clean wind, solar, and geothermal generation, storage, and/or energy efficiency projects that could reduce demand. Nor did the agency consider any way to offset emissions, like policies and/or funding for electric vehicles.	Thank you for your comment. Please see the response to comment 81.54 above.
81.57	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	The few measures that the agency did propose are overly vague and fail to provide sufficient detail to evaluate environmental consequences. Notably, the DEIS provides no analysis of the effectiveness of such measures. For example, the DEIS states that the Army will use "[a]s available, newer model construction equipment . . . to minimize engine emissions[;]" however, the DEIS not specify whether the Army will comply with EPA Tier 3 or Tier 4 requirements for diesel equipment, or what percentage of construction equipment is expected to be old versus newer models. As a result, it is impossible to determine whether this proposed mitigation measure would be effective. Numerous other mitigation measures are likewise unlawfully vague. For instance, the DEIS notes that, if pipeline construction is required, "[the] [r]isk of long-term groundwater contamination from pipeline leaks would be minimized through implementation of design specifications and BMPs," without identifying what design specifications or BMPs might be implemented or required. For socioeconomics, the DEIS states that "[t]o the extent practicable, the construction workforce and required construction materials would be locally sourced[,]" without providing any estimation of what percentage could be locally sourced or whether the Army would commit to a certain percentage. Similarly, the DEIS states that "[f]or construction actions occurring near remedial sites, USAG Alaska would implement sampling analysis and work plans as required before any ground disturbance to identify and address any current or historical contamination." This measure does not indicate when such sampling would take place or whether any locations are already suspected of having current or historical contamination. As discussed in Section V.C there is widespread and severe soil and sediment contamination throughout Fort Wainwright. In 2005, the Army began construction on 128 housing units at Fort Wainwright, known as Taku Gardens, without proper "sampling analysis and work plans," only to later discover that the site was profoundly contaminated with PCBs, dioxin, and numerous drums and heavy equipment.	Thank you for your comment. Please see the response to comment 81.54 above.
81.58	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	In sum, the mitigation measures proposed amount to no more than "perfunctory descriptions" or "mere lists" without supporting analytical data and, accordingly, fail to satisfy NEPA's requirements—or the Army's own regulations—that an agency closely evaluate viable mitigation measures.	Thank you for your comment. Please see the response to comment 81.54 above.
81.59	12/8/2020	Email	Submitted by Sarah Saunders	Alaska Community Action on Toxics et al.	VII. Conclusion In conclusion, the undersigned organizations urge the Army to issue a revised or supplemental EIS with further opportunity for public comment. The deficiencies in the DEIS identified throughout this comment more than justify significant revision and supplementation, without which the requirements of NEPA have not been satisfied. In addition, without additional opportunity to comment, the public will be deprived of their right to analyze the proposal and provide meaningfully and well-informed comment.	Thank you for your comment. This EIS is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. § 4321 et seq.) which requires federal agencies to consider the effects from implementing major proposed actions and alternative, and is developed per the NEPA implementing regulations issued by the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508). As the federal action proponent, the Army is the agency responsible for completion of the EIS per NEPA, 40 CFR 1500-1508, and the Army's NEPA implementing regulation (32 CFR Part 651, Environmental Analysis of Army Actions).

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82.01	12/8/2020	Form Submission	Alex Brede	Public	Both local factors (poor air quality in the Fairbanks North Star region, especially during winter months) and global factors (climate change) inform my understanding and opinion regarding this. Before expressing my preference amongst the three alternatives, some caveats: • The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. • The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives. • The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continual fuel costs, and may well be required by future legislation aimed at curbing global warming. Finally, of the three options presented, Alternative 3 (distributed natural gas) is the best, as it would provide the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed.
82.02	12/8/2020	Form Submission	Alex Brede	Public	No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of local particulate pollution and greenhouse gasses.	Thank you for your comment. Section 2.5.1 of the EIS provides the No Action Alternative, which was prepared in accordance with the applicable NEPA regulations referenced in Section 1.1 of the EIS.
83.01	12/8/2020	Form Submission	Jessica Girard, Director	Fairbanks Climate Action Coalition (FCAC)	Fairbanks Climate Action Coalition (FCAC) is a growing group of concerned citizens motivated by the moral, spiritual, and scientific duty to take action and elevate voices calling for responsibility to each other, the earth, and all living beings. Formed in November 2015, FCAC seeks to amplify Alaskan voices for climate action and build momentum for a just and equitable transition to a new way of living with each other and with our environment. FCAC finds the U.S. Army Draft Environmental Impact Statement (DEIS) on energy production at Ft. Wainwright to be dangerously insufficient in its scope and analysis. As residents of Interior Alaska who will bear the burden of the harmful effects of this power plant, we demand a more thorough analysis of the environmental and human costs, data, and alternatives as required by federal law. Remedying the failures of the DEIS is necessary to achieve compliance with NEPA, and would require significant changes and supplementation that cannot merely be made in a response to comments document.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.

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83.02	12/8/2020	Form Submission	Jessica Girard, Director	Fairbanks Climate Action Coalition (FCAC)	The Fort Wainwright installation is on the eastern edge of the City of Fairbanks, the largest city in the Fairbanks North Star Borough. In size and consequence, Ft. Wainwright has a prevailing presence in our community. Fairbanks North Star Borough suffers from some of the most hazardous air quality in the nation, caused in part by the combustion of fossil fuels from the region's power plants--including the 65-year-old, coal-fired central heat and power plant at Fort Wainwright. Any change to Fort Wainwright's energy infrastructure must be grounded by public accessibility in the process, a recognition of the global climate crisis, and local input to all reasonable extent possible. In this context, FCAC, finds the U.S. Army DEIS on energy production at Fort Wainwright to be insufficient in its scope and analysis. The DEIS fails to adequately address the fact that Alaska is on the frontlines of a global climate crisis. It does not adequately consider energy efficiency or impacts on local air quality and groundwater integrity. It does not address the effects of toxic waste contamination, specifically coal ash toxins. It does not include a reasonable range of renewable energy alternatives, and none of the four alternatives include a path to decarbonization which is in direct opposition to the local energy cooperatives' commitments to decarbonization. Each of the alternatives put forward in the DEIS analysis relies entirely or predominantly on new or existing fossil fuel infrastructure, which as we enter 2021, is an outdated and irresponsible path forward given the climate impacts of continued fossil fuel usage. Moreover, community involvement in the process and informed decision making has been thwarted by the numerous citations in the DEIS to studies that are still not readily available to the public. Nor does the DEIS identify or meaningfully analyze steps to mitigate adverse environmental consequences, including the contributions to global emissions. As a whole, the DEIS has failed to adequately inform the public of the probable significant environmental impact of this project.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Coal ash management is discussed in Sections 3.3.2.3 and 3.4.2.3 of the EIS. Studies referenced within the EIS have been made available to stakeholders upon their request. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
83.03	12/8/2020	Form Submission	Jessica Girard, Director	Fairbanks Climate Action Coalition (FCAC)	Of the alternatives suggested, No Action and Alternative 1 would produce the greatest amount of greenhouse gases and local particulate pollution, and therefore are the least acceptable. By the Army's estimates, Alternative 3 is preferable because it would provide the greatest reduction in greenhouse gases (70%), has the lowest building and operational costs, and would allow for the gradual replacement of fossil fuel energy with renewable energy as it becomes available. The economic and health costs of local air pollution and greenhouse gas emissions must be fully quantified with up-to date data in any revised environmental impact statement and considered in all evaluations of energy production alternatives going forward. A thorough analysis of end use efficiency, energy retrofits to existing facilities, and mandating the highest energy efficiency standards should also be incorporated into all alternatives. Most importantly, the DEIS must seriously recognize renewable energy alternatives in its analysis, as well as the potential combinations of these alternatives for supplying heat and power to Fort Wainwright. Mention of renewable energy alternatives in the DEIS is sparse and, even then, each of these is addressed only individually and unreasonably excluded as incapable of fulfilling Fort Wainwright's heating and power needs. Initial costs of renewable energies are decreasing rapidly, and may be required by future legislation aimed at curbing global warming. Renewable energies are proven, viable options that are used by the military across the United States. The power plant at Fort Wainwright serves as a regional anchor tenet, either entrenching harmful energy technologies like coal, or providing a market for cleaner energy technologies to be deployed throughout Interior Alaska. For several years the Department of Defense (DOD) has recognized that climate change is the single largest contributor to homeland security. Having a military installation build a coal power plant is in direct contradiction to this shared understanding.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed.

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83.04	12/8/2020	Form Submission	Jessica Girard, Director	Fairbanks Climate Action Coalition (FCAC)	Given the levels of air pollution and rapid warming in Fairbanks, it is unthinkable that the DEIS does not consider a renewable energy alternative. In 2019, the EPA found that Fairbanks does not meet air quality standards required by law and federal funds are being used to enforce a Serious State Implementation Plan. It has been scientifically established that high levels of particulate matter are linked with serious health problems including early-onset death, respiratory issues, and cardiovascular disease. Large numbers of military personnel and their families have either transferred already or have pending requests to do so specifically due to water pollution and respiratory illnesses directly related to our air quality. The DEIS must include those numbers of military personnel requesting a permanent change of station and air quality complaints from 2000 to the present-day, as well as the numbers of personnel hospitalized with related illnesses. Furthermore, Alaska is warming at twice the rate of the rest of the United States. Permafrost degradation in Fairbanks threatens ecological systems, public infrastructure, and is projected to cost billions of dollars over the next decade. It is widely understood that the consequences of climate change will be shouldered by those who are most marginalized in our communities. DOD can no longer treat Fairbanks as a sacrifice zone. With the immediate threat of climate change and the wide ranging benefits renewable energies provide, it is evident that the DEIS as it stands is incomplete and unacceptable.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be reasonable or feasible. Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources as well as battery storage. In addition, an alternative for a diverse renewable energy portfolio has been analyzed and dismissed from further consideration as Alternative 19 in Section 2.4 of the EIS.
84.01	12/8/2020	Form Submission	Jason Hersey	Public	I have been a Fairbanks resident for 17 years, am a homeowner and small business owner in construction contracting (to be clear, not in any area where new construction of this project would directly benefit my business). I would like to comment in support of Alternative 3, Distributed Natural Gas Boilers. I feel like this alternative's benefits far outweighs the others, and in fact, do not support the other three options. While I understand that any retrofit or new power plant or supply will be better for cost, energy independence, human health and environmental impact, the third alternative is clearly the most progressive and cost efficient way forward. The following are some points that I will try to keep brief. I have read through the Impact Statement provided and come to the following conclusions as best as I could interpret and research. Distributed natural gas boilers has the lowest cost for installation and maintenance. A lower cost project means a lower cost to taxpayer military funded projects. This lower cost of operations and maintenance appears to be for short and long term funding. This option will also bring more revenue to the local economy with jobs and purchases. Distributed natural gas boilers alternative has the highest efficiency rate at 75% according to the Impact Statement. This is much higher than the other alternatives and higher efficiency will equate to lower costs in the long term. More importantly, the alternative will use less fossil fuel resources. While partnering/purchasing with the local utilities for electricity usage is relying on an outside source and sacrificing some autonomy and energy independence, it can serve as a way to bridge further relations with the community that may well benefit the entire community in the long term. We all want to see our local utilities thrive, to lower costs, and become more energy efficient. We are all in this together.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
84.02	12/8/2020	Form Submission	Jason Hersey	Public	Emissions reductions of 90% in the Impact Statement cannot be overlooked! The local and global community can not express how important this is and how grateful we all are collectively for this localized gain. This may well be the most important point I hope to make. Global cooperation and politics are moving in a direction where laws and standards of emissions affecting climate change are only going to tighten. Whether by enforced laws or collective agreement, something like a new coal fired power plant may be obsolete (or even outlawed) in the very near future. The uncertainty of this new potential added cost is important. We should do this right the first time so we don't have to spend more money soon to replace it. I am already concerned that the University's new coal fired plant will be prematurely shut down due to non-compliance of future environmental standards. Those working in the coal industry, I feel for and advocate also for fair and just working/industry transitions. The smaller boiler stations will also be easier to upgrade in the long term. As new technology comes, or new standards, smaller boiler systems will be easier and cheaper to upgrade than an entire plant. Smaller back-up generators will be easier and cheaper to maintain while providing the needed back-up power when needed.	Thank you for your comment. Please see the response to comment 84.01 above.

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84.03	12/8/2020	Form Submission	Jason Hersey	Public	Finally to wrap up with a plea and pitch from a concerned citizen, this is an opportunity for the USAG and U.S. Military to be leaders and stewards of an energy project that is extremely important for human health. It can serve as a model of northern and rural energy solutions that demonstrate best technological methodology, while having the smallest environmental impact. In a perfect world we could use 100% renewable energy sources, but this alternative is getting us closer and sends a clear message that we are making great steps forward as Alaskans with a united military and civilian population.	Thank you for your comment. Please see the response to comment 84.01 above.
85.00	12/8/2020	Form Submission	Mark A. LaFon	IUOE, Local 302	As the IUOE, Local 302 representative of many of the employees currently working at the Fort Wainwright CHPP, we are in favor of the No Action Alternative. We believe the No Action Alternative option provides the least adverse socioeconomic impact to the workers and the community. We believe the other options considered will be overly costly as well as detrimental to the current workforce.	Thank you for your comment. The preferred alternative is identified in Section 2.5.5 of the Final EIS. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
86.00	12/23/2020	Email	Pete Peschang	Ahtna Intertribal Resource Commission	Why not consider a micro-nuke	Thank you for your comment. Nuclear energy was considered as an alternative in Section 2.4 of the EIS.
87.00	12/29/2020	Email	Mike Craft		[This submission included attachments only. No comments.]	Thank you for your comment. No relevant comments were provided.
88.01	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	I. Introduction The Interior Gas Utility (IGU) appreciates the opportunity to comment on the Draft EIS addressing heat and electrical upgrades at Fort Wainwright Alaska. IGU is a local public utility providing low cost natural gas to the residents and businesses of the Fairbanks North Star Borough (FNSB). IGU has been charged by the FNSB, City of Fairbanks and City of North Pole with providing affordable gas service to the largest number of people in the FNSB as quickly as possible. To date, gas service has been provided through its wholly owned subsidiary, Fairbanks Natural Gas (FNG). FNG has been providing natural gas and back-up storage of natural gas to Fairbanks area residents and businesses since 1998. IGU is in the process of consolidating all subsidiaries including FNG and Titan into a fully integrated utility and will operate as IGU only moving forward. A careful review of the Draft EIS demonstrates that the U.S. Army Garrison Alaska (USAG Alaska) and the United States Army Installation Management Command did a quality job in analyzing the options, reducing a large number of options to three viable alternatives for further review, and delineating the environmental impact of the three options and the Status Quo. The Draft EIS provides interested stakeholders and the community with an accurate assessment of the status of the current facilities on Fort Wainwright and with three viable alternatives to replace the aging infrastructure. IGU commends that effort and sees it as an excellent baseline document from which to make decisions about the future of heat and power at Fort Wainwright Alaska.	Thank you for your comment. Responses to your comments on the analysis in this EIS are provided below.

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88.02	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	II. Background IGU provided comment during the USARMY initial EIS comment period. That comment letter was provided on August 21, 2019. Those comments, particularly the ones about the environmental and economic benefits of natural gas solutions remain as valid today as they were 15 months ago. Some updating of those comments, particularly the ones regarding IGU's storage capacity and service capabilities are necessary. In the 15 months since the initial comments were provided, IGU has completed construction, commissioned, and put into use the 5.2 million gallon LNG storage facility that was described as "scheduled for completion Fall 2019" . This storage facility allows IGU to meet the 14- day fuel storage requirement delineated in the Draft EIS for either the centralized or the decentralized gas options. Additionally, IGU is in the final stages of construction of a new storage and vaporization facility in North Pole, Alaska which will be in use early in 2021. Should additional storage be required or should USAG Alaska require stand-alone storage specific to a new facility, IGU is prepared to meet those needs and has demonstrated its experience and ability in the construction of LNG storage. An expansion of the liquefaction facilities is planned with timing scheduled to match growing demand. IGU's planned construction to expand liquefaction capacity has been through FEED (Front End Engineering and Design) and is at 65% design stage. IGU was poised to move forward with this project until the uncertainty created by the COVID19 pandemic resulted in temporarily paused action until local, state, and worldwide conditions improve. Should Alternative 2 or Alternative 3 be selected at the end of this EIS process, IGU is well positioned to meet that need. IGU will incorporate the demand profile of the Alternative selected into its current and future expansion plans - ensuring adequate supply to Ft Wainwright Alaska timed for the 2026 transition to the selected Alternative.	Thank you for your comment. Scoping comments provided during the development of this EIS were considered.
88.03	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	IGU remains positioned to provide services for the build-out of distribution and service lines to a distributed natural gas system (Alternative 3) including construction of necessary off-base distribution or transmission lines or construction of a main transmission line to a central CHP facility (Alternative 2) that utilizes natural gas as its primary fuel source. IGU would coordinate with USAG Alaska in planning efforts necessary to ensure delivery of natural gas, in quantities necessary and with storage as specified, for either Alternative 2 or Alternative 3.	Thank you for your comment. The preferred alternative is identified in Section 2.5.5 of the Final EIS. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
88.04	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	Ill. Comparison of Alternatives The structure of the Draft EIS document provided an assessment of the Status Quo and separate analyses of Alternatives 1-3 and the Status Quo. In doing so, the Draft EIS provided a significant amount of comparative information between the three Alternatives and the Status Quo. Table ES-1 (pages xi xiv) allows the reader to do some comparative analysis of the options but stops short of ranking the approaches under consideration. Direct comparison of the relative capital and operating costs of each option are provided in Appendix D of the Draft EIS. Impacts related to Air Quality and PM 2.5 are limited in the Draft EIS and primarily focused around permitting requirements.	Thank you for your comment. Summary data tables comparing the air quality emissions for the alternatives, including the No Action Alternative, were incorporated into Section 3.2 of the EIS.
88.05	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	This section of IGU's comment document offers a comparative analysis of the four options. In doing so it accepts the costs and environmental impacts outlined in the Draft EIS, except as noted in this document. For comparative purposes, the areas detailed in this section will include: Capital and O&M Costs, Air Quality and Human Health and Safety, Efficiency and Reliability, Other, and Summary.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.
88.06	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	A. Capital and O&M Costs The capital and operating costs (amounts in millions of$) of each Alternative were detailed in Appendix D of the Draft EIS. As can be seen from the Table below, Alternative 1 will cost an additional $570 million for construction and demolition and $14 million more in annual O&M than the costs of Alternative 3. To select an alternative with a capital cost of over a half billion dollars higher with higher annual O&M costs - the benefits on the non-monetary side would have to be overwhelming. From this Draft EIS - the benefits do not exist to justify an additional $500M+ in expenditures. Similarly, the cost of Alternative 2 is over $320 million less in capital and over $7 million less in O&M than Alternative 1. [Table 1 - Comparison of Capital and Operating Costs. See native comment].	Thank you for your comment. Your input to the evaluation process is appreciated.

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88.07	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	The differences in the costs of Alternatives are staggering. While costs for the Status Quo option are not detailed in the Draft EIS, a reasonable projection is that the Status Quo option will, across time, have the highest capital and O&M costs of the three Alternatives. Plus, one would normally expect that increases in capital expenditure lead to decreases in O&M costs. However, in this set of Alternatives that is not the case. In the case of the Ft Wainwright heat and power options, the higher the capital costs of an option, the higher the O&M costs. Other cost items to be considered include the cost of fuel and potential cost drivers for the types of fuel. Alternative 1 uses coal as a primary fuel. It is unquestioned that coal is presently a lower cost fuel source, per MM BTU, than either natural gas or ULSD. However, when evaluating future fuel costs, a complete analysis will include more than the cost of fuel per MMBTU. Items to include are: fuel efficiency of the different options; potential carbon taxes applied in the future (which would significantly increase the landed cost of coal, ballparked at $25-$50/ton in past estimates) over natural gas or ULSD; potential regulatory changes on the handling of coal ash (primary, but not solely, would be the requiring of lined disposal sites for coal ash - again significantly driving up the cost of coal as a fuel); and future regulatory costs to minimize air quality impacts of plant emissions (again, predominantly likely to provide cost increases to the use of coal). These cost drivers are countered against potential cost mitigators for natural gas - the most likely of which is the driver of economies of scale to lower the cost of LNG delivered to the Interior with Fort Wainwright as a large anchor customer providing stability to the ebb and flow of other demand pressures.	Thank you for your comment. Your input to the evaluation process is appreciated.
88.08	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	IGU does not have access to complete information necessary to apply cost and risk factors to the relative fuel choices. However, we are confident the risk of future environmental regulation is much higher for coal than it is for natural gas or ULSD. The Alternatives considered are solutions that will operate across a 30-50 year horizon. Fuel cost projections, across the 30-50 year life of the selected Alternative, should be part of the decision matrix used when comparing annual fuel costs, and potentially future liabilities related to the disposal of coal ash. Finally, the O&M costs for each Alternative should include the return of the utility privatization contractor (UPC) on the capital investment in the facility.	Thank you for your comment. Your input to the evaluation process is appreciated.
88.09	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	At a return of 8.24% on investment (the weighed cost of capital of the current UPC in RCA filings as of Dec 31, 2017), Alternative 1 would cost $56.6 million annually, should the plant investment generate a regulated rate of return to the operator at current debt/equity ratios. Comparatively, Alternative 2 would generate $29.9 million in return on investment annually while Alternative 3 would generate a maximum of $9.6 million annually . These numbers are significantly different for the identified Alternatives - and in most cases would dwarf any differences in the cost of fuel.	Thank you for your comment. Sections 3.3 and 3.5 qualitatively discuss capital investment requirements for each alternative. Estimating return on investment is not necessary for the analysis in this EIS.
88.10	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	B. Air Quality and Human Health and Safety Section 3.2 -Air Quality, Section 3.6 - Environmental Justice, and Section 3.10 - Human Health and Safety all address the impacts of the Alternatives on the populations of Fort Wainwright and the surrounding communities. Most of the discussion and numerical comparisons in Section 3.2 -Air Quality focus on the difference between the Status Quo and each individual Alternative. This information is valuable, as it shows all three Alternatives will improve environmental impacts on the Air Quality resulting from replacement of the old Heat and Power Plant. What IGU would like the USAG Alaska to focus on, in addition to the difference from Status Quo, is the difference between Alternatives.	Thank you for your comment. A summary table (Table 3.2-6) has been added to Section 3.2 as requested.

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88.11	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	The table below summarizes, in Tons Per Year (TPY) of identified pollutant, the differences between the Alternatives. It is clear the Status Quo is the worst polluting option. What was less clear from the Draft EIS is the vast difference in TPY of pollutants between the options. In comparing Alternative 1 (New Coal CHP) with Alternative 2 (New Gas/ULSD CHP), all pollutants except VOC's from Alternative 1 are higher or virtually unchanged compared to Alternative 2. The most significant increases appear in S02, which is 34 times higher from Alternative 1 to Alternative 2 and Lead, which is 38 times higher. Additionally, when Alternative 1 is compared to Alternative 3, the differences jump off the page. CO is 3.4 times greater; NOx is 3.2 times greater; SO2 is 317 time greater; PMl0 and PM2.4 are double; VOC are virtually unchanged; Lead is 85 times greater; and GHG is 3 times greater. [Table 2 - Comparison of Tons of Pollutant Per Year and Relative Ratios between Alternatives. See native comment.] These numbers represent the tons of pollutants per year that are discharged into the Fort Wainwright and Fairbanks area airshed. Numbers in yellow indicate an increase by at least a factor of 2X while numbers in red indicate an increase by at least a factor of 10X. In addition to estimating the relative improvements from changing away from the Status Quo - an action the Draft EIS makes clear is a needed action - the final selection decision should also consider the impact of the three Alternatives on the airshed relative to each other. The data clearly demonstrate that Alternative 2 and Alternative 3 do a much better job of limiting air pollutants and protecting health and human safety than Alternative 1 or the Status Quo.	Thank you for your comment. Section 3.2.2 of the EIS includes an analysis of air quality impacts, which found long-term, beneficial impacts on air quality under all the alternatives due to reductions in criteria pollutant emission levels.
88.12	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	Section 3.6 - Environmental Justice details impacts of the Alternatives on the local population. In Sections 3.6.2.4 the report states, "Because natural gas facilities generate fewer emissions than state-of-the-art coal facilities, air emissions could be expected to be somewhat cleaner than those under Alternative 1...." (page 3-83). This statement understates the magnitude of the differences in pollutant output (detailed above). This topic is also totally omitted from Section 3.6.2.5 when discussing the even cleaner Alternative 3.	Thank you for your comment. Text in Section 3.6 of the EIS has been revised to state that during operations under Alternative 1, the Project would have a long-term, minor beneficial health impact on populations in the analysis area, including EJ populations, due to reduced coal plant air emissions. Given that environmental justice populations tend to be more burdened with adverse health conditions that can increase susceptibility to the harmful effects of air pollution, the beneficial health impacts of reducing emissions may be greater than those experienced by non-minority or non-low-income members of the general population who reside in the affected area. Under Alternatives 2 and 3, these beneficial impacts to the health of environmental justice populations would be greater than under Alternative 1 because natural gas facilities generate fewer emissions than state-of-the-art coal-fired facilities.
88.13	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	Section 3.10- Health and Human Safety accurately describes the considerations and requirements under the applicable laws and regulations outlined on page 3-118. Missing from this analysis, however, is the impact on the health of Ft Wainwright's population from pollutants discharged by the various options. Tons per year less PM2.5, less SO2, less NOx, less CO, less lead, and less GHG will result in significantly less damage to the lungs and environments of countless Ft Wainwright residents and children across a 30-50 year horizon. The same is true for the residents of the surrounding neighborhoods.	Thank you for your comment. Text has been revised in the EIS to cross reference the Air Quality (Section 3.2) and Environmental Justice (Section 3.6) resource area sections.

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88.14	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	C. Efficiency and Redundancy The Draft EIS does an excellent job detailing the probable efficiencies of the three Alternatives and the Status Quo. For purposes of these comments, IGU has summarized the relative efficiency levels provided in the Draft EIS - to more easily compare between the Status Quo and the three Alternatives. [Table 3 - Comparison of Efficiency of Alternatives and Status Quo. See native comment.] As with the environmental impact comparison, the lowest cost option provides the greater efficiency benefits. This is counter to expectations that one would spend additional capital dollars to create greater efficiencies in operations or reduced emissions. The inverse is true in this situation. Part of the "Purpose and Need for the Proposed Action" (page vi) discusses the need for energy security and energy resilience. IGU has ranked the 4 projects under consideration relative to the redundancy capabilities of each option. These rankings are subjective, and notes are provided with each option. [Table 4- comparison of Redundancy Capability of alternative and Status Quo. See native comment.]	Thank you for your comment. Your input to the evaluation process is appreciated.
88.15	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	This comparison is close between Alternatives 2 and 3. Both provide significant redundancy (which translates into resilience and security) in different ways. Alternative 2 allows for a dual fuel option, one that allows for different storages and methods of fuel delivery. It also could be set up such that there are multiple routes within the CHP Plant to separate heat and electricity from one fuel from heat and electricity from another. Redundancy capabilities would be a function of plant design. Alternative 3 provides for a distributed heat system, preventing the loss of the entire Base as a result of a single equipment failure. It also uses electricity from the local provider as a primary source with back-up generators and fuel sources including a diverse mix of generation capacity including geographical separation. Alternative 1 provides almost nothing in terms of redundancy or alternatives, but it does provide for the potential of a 90-day fuel storage. The main security and resiliency protection from this option is that it is new. However, unless the utilidors and associated piping are all replaced, that benefit ends at the plant door.	Thank you for your comment. Your comments addressing arguments for particular alternatives are appreciated.
88.16	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	D. Other Evaluating the Status Quo and Alternatives 1-3 leaves open many other issues that need to be considered in making a final determination under the Draft EIS. These include but are not limited to: status of the current UPC; reliability of fuel supply; untenable nature of retaining the Status Quo - due to both cost and risk; and the ability to mitigate impacts of gas options through directional drilling. This section of IGU's public comment document addresses those issues. The Draft EIS identifies the uncertainty surrounding the status of the current Utility Privatization Contract (UPC) and the USAG Alaska's partner in that contract, Doyon Utilities. While the Alternative selected remains uncertain at this point, it should not be uncertain that a UPC should remain in place utilizing the current contractor . Doyon Utilities is a well -respected, long term member of the Fairbanks and State of Alaska utility community. Doyon is a proven and tested arctic-environment utility provider. Doyon has played a significant role in the improvement of conditions of Fort Wainwright. They also serve as the natural gas utility operator at Joint Base Elmendorf-Richardson (JBER). Doyon's manpower, arctic experience, and natural gas experience would prove valuable in creating a smooth transition to either Alternative 2 or Alternative 3. Additionally, the Draft EIS points out that the UPC is in year 12 of a 50-year contract. While contractual items would need to be negotiated to accommodate the change in conditions, IGU believes Doyon should remain a partner in the UPC moving forward.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.

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88.17	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	On occasion, question has been raised about the availability and price of natural gas to this project. This issue is usually raised by parties looking to advance a coal alternative. The facts of the situation are that the current natural gas supply that would be used to supply both Alternative 2 and Alternative 3 is the same gas supply as is presently used by USAG Alaska to meet the needs of JBER. The natural gas supply at Cook Inlet currently provides the feedstock for liquefaction of natural gas for the Interior of Alaska. It is projected to have capacity to do so for the foreseeable future. However, in addition to the availability of gas from Cook Inlet, Liquefied Natural Gas (LNG) is a worldwide commodity. Should conditions change, whether due to supply restrictions or price volatility, IGU is positioned through ownership of the 5.2 million gallon storage facility discussed earlier, to source LNG on the open market. That flexibility provides USAG Alaska additional fuel resilience into the future.	Thank you for your comment. Sections 2.5.3 and 2.5.4 explain there has been demonstrated availability of natural gas in Alaska as sufficient to meet the installation's demand (per Pentex Alaska LLC 2016).
88.18	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	As has been mentioned above, the Draft EIS provides little data on condition, future costs, and future risks associated with the Status Quo. Three major reports listed on pages 1-5 ((Guernsey 2015); (Black and Veatch 2018); and (USACE 2018)) provide significant information on the Status Quo. It is unquestioned that the Status Quo represents higher pollutant levels, higher costs, and higher failure risks than any of the three Alternatives delineated in the Draft EIS. Arguments can be made that USAG Alaska should maintain and upgrade the Status Quo - essentially a "rebuild in place" strategy. However, at its core the Status Quo will remain a 60-year-old plant. Design strategies from 60 years ago form the basis of the plant. For example, placement of the switch gear in the core of the plant creates exposure to a catastrophic failure from a pipe failure. Arguing that "piping can be replaced" does not eliminate the risk of failure created by plant design. Additionally, while re-piping in the boilers is a regular maintenance item, replacement of auxiliary piping does not receive the same level of attention - leaving the plant exposed to a non-boiler pipe failure. A case study of one such failure can be found at the nearby UAF Heat and Power Plant. This is but one example of what can occur - and exemplifies why replacement of the Status Quo is the recommendation of the Draft EIS. An almost infinite number of other facility and cost examples could be provided of problems with the Status Quo. IGU fully supports the Draft EIS recommendation to move away from the Status Quo.	Thank you for your comment. The EIS incorporates the data presented in the cited reports by reference. Comments addressing support for particular alternatives are appreciated.
88.19	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	Finally, IGU would like to address the adverse impacts detailed in the Draft EIS relative to Alternative 3. The summary of these details can be found on pages 3-177 to 3-180, particularly Resource Area - 3.13 Cultural Resources. The section also mentions that impacts would be less with mitigation. USAG Alaska should be aware in making the determination on this Draft EIS that IGU has the capability to install pipe using directional drilling technology. IGU owns a directional drilling device. IGU also has the capacity to contract for additional drillers, if necessary. IGU is very experienced at installing transmission and supply lines in congested urban areas. Directional drilling is the primary technique used by IGU to avoid facility and intersection disruption. That same approach would be used to avoid conflict with Cultural resources, as well and mitigate Water (3.13), Geology and Soil (3.12), Transportation (3.9}, and Land Use (3.7) adverse impacts.	Thank you for your comment. The information regarding minimization or avoidance of potential impacts is appreciated.
88.20	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	E. Summary A summary of the cost and impact measures used in the Draft EIS generates stark and counter intuitive results. In developing capital improvement projects, one expects as capital costs rise other benefits accrue from the additional capital expense. Most frequently, one looks to increase capital expenditures to decrease future operating costs. Alternatively, one would look to increase capital expenditures to increase redundance or reliability. Finally, one might look to increase capital expenditures to decrease environmental impacts. As can be seen in the summary chart below, none of that occurs in the analysis of the Status Quo and the three Alternatives. [Table 5 - Summary of Results. See native comment.] For every variable outlined above, Alternative 3 ranks the lowest in terms of capital and operating cost, while simultaneously ranking the best in terms of limitation of pollutants, fuel efficiency, redundancy, and health and safety. To compare only central heat and power options, using the same factors Alternative 2 outperforms both Alternative 1 and the Status Quo.	Thank you for your comment. Your comments addressing arguments for particular alternatives are appreciated.

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88.21	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	Sometimes the data speaks for itself. The data from the Draft EIS lead one to the conclusion that Alternative 3, followed by Alternative 2, best meets the objectives of the of USAG Alaska at the lowest costs.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
88.22	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	IV. Conclusion The Draft EIS Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska dated June 2020 is a comprehensive review of the facts and circumstances facing USAG Alaska. IGU supports the content and direction of the Draft EIS and concurs with the determination to replace the aging heat and power infrastructure on Fort Wainwright. The evaluation of possible alternatives and the use of criteria to select three viable Alternatives represents a quality assessment of the project. IGU supports selection of Alternative 2 or Alternative 3 as the preferred Alte rnative. The data in the Draft EIS speak clearly. Alternative 3 represents the Alternative with the lowest capital costs and the lowest operations and maintenance costs while providing the most resilient, the most eff icient, and the fewest negative impacts on environment of the 3 Alternatives and the Status Quo. Alternative 2 is the next lowest cost option, while retaining some of the efficiency, resiliency, and impact limitations of Alternative 3.	Thank you for your comment that the EIS provides a comprehensive review of the project and its impacts.
88.23	12/30/2020	Letter	Submitted by Heather Thomas on behalf of Dan Britton	Interior Gas Utility	Maintaining Doyon Utilities as the contractor in the UPC arrangement at Fort Wainwright would be a responsible decision. Aside from the inherent question of fairness to an existing partner, Doyon Utilities possesses the requisite arctic experience and gas infrastructure experience to ensure a successful transition and to provide 30+ additional years of smooth operations into the future for the heat and power infrastructure on Fort Wainwright, Alaska. IGU is a public utility owned by the FNSB and managed by a mixed Board of appointed and elected Board members. The utility operates on a cost recovery model, taking no profit on expenditures or investments, and paying no taxes to the FNSB. This structure provides the lowest cost pass-thru of natural gas to the residents and businesses of the FNSB- including Fort Wainwright , Alaska. IGU has a proven track record of performance, has demonstrated the ability to manage and complete major construction projects, and is positioned to provide natural gas and storage to USAG Alaska, well timed for a 2026 transition. IGU appreciates the opportunity to comment on the Draft EIS. IGU is available to review any of this material or assist with a transition to either a distributed (Alternative 3) or centralized (Alternative 2) natural gas system on Fort Wainwright, Alaska.	Thank you for your comment. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations.
89.00	1/7/2021	Form Submission	Rammersbach	Public	For a good example change coal to woodgasifaction Alaska has a lot of Forestry the outcome of the green energy efficient system is 2/3 heat and 1/3 electricity it would move forward to create new jobs and kicks the way of green energy for the Army a good example for the future.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
90.01	1/11/2021	Form Submission	Maxwell Plichta	Public	No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution.	Thank you for your comment. See the response to comment 90.02 below.
90.02	1/11/2021	Form Submission	Maxwell Plichta	Public	Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. This last part is key as Alternative 3 is the only plan that would allow for the gradual replacement of fossil fuel energy with renewable energy. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.

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90.03	1/11/2021	Form Submission	Maxwell Plichta	Public	The "Long-term, significant, localized adverse economic impacts low-income populations in Healy from less coal demand" attributed to Alternative 3 in Section 3.6 simply do not outweigh the "Long-term, minor, beneficial health impacts due to reduced emissions" attributed to Alternative 3 in Section 3.6 or the "Long-term, moderate, beneficial impacts: reduces 8 criteria pollutant emissions levels, substantial decrease in levels for most pollutants, and 60 percent less water vapor" attributed to Alternative 3 in Section 3.2. A significant impact to a proportionally small population of workers and their families is not worth sacrificing minor and moderate benefits to community that has just shy of 100,000 residents.	Thank you for your comment. See the response to comment 90.02 above.
90.04	1/11/2021	Form Submission	Maxwell Plichta	Public	Climate change has disproportionately negatively impacted Alaskans and will continue to do so. Additionally, the U.S. Military has identified climate change as a threat to national security. This in mind, Alternative 3 should be the highest priority and the No Action Alternative and Alternative 1 should be the lowest priorities of the 4 listed options.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of greenhouse gases.
91.01	1/12/2021	Email	Mike Craft	Public	I would like to address what I see as gross differences between what is in print as to the EIS review. First I don't see much information about what the Fairbanks community is going through with the PM2.5, coal ash pollution. The Army has made public commits to our Federal Delegation and the EPA director as to the severity of unhealthy air and let 17 families leave the Wainwright station to recover from the effects of it. We are under a FEDERAL EPA mandate to clean the air and the serious nonattainment statis requires Most stringent measures to accomplish the goal . Not seeing this taken into account, and the EIS could not have a do nothing choice . At this stage of the EPAs progression doing nothing is not a option.	Thank you for your comment. The EIS includes evaluation of a No Action Alternative. See EIS text starting in Section 2.5.1 of the EIS.
91.02	1/12/2021	Email	Mike Craft	Public	I also wonder how shifting to GVEA for power is even posable ,the only available capacity is 350 miles away over a very old 230kv single point of failure ,OR adding generators at NP power station. If the Army uses power from NP it would exacerbate the air quality issue that currently exists in North Pole because of the thermal inversions that trap pollutants area wide now.	Thank you for your comment. Nuclear energy was considered as an alternative in Section 2 of the EIS.
91.03	1/12/2021	Email	Mike Craft	Public	I am also shocked to not see any weight given to renewables other than burning biomass that would assuredly increases PM2.5 and if you look at the biomass proposal that FT Greely explored you will see that it is evaluated to not be sustainable using the boreal forest as feed stock the estimates for Greely alone were 1300+ acers per year. You can also look at the photos of 1915 Fairbanks and see the effects of mass use by power houses and steam ships of biomass consumption in the interior.	Thank you for your comment. Multiple renewable energy alternatives besides biomass were considered in Section 2 of the EIS.
91.04	1/12/2021	Email	Mike Craft	Public	There is plenty of wind in Delta Junction just ask any Post commander that has served there or review the attached ARMY weather study from 1956 that was commissioned to save soldiers from frost bite from wind chill. There is a QF wind project that has gone through all environmental reviews and has 2MW of capacity in operation now and has operated for a decade and has proven potential for up to 40MW. The Delta wind could save money and serve Greely and Ft Wainwrights' needs .	Thank you for your comment. Renewable energy alternatives were considered in Section 2 of the EIS.
91.05	1/12/2021	Email	Mike Craft	Public	I point out the neglect for using propane , Propane is available over the Alaska Rail system in abondance using 33,000Gal cars and can be stored on any side rail ,IT is also the least expensive option and can support the resilience requirements because it could be stored every ware heat and power is needed .If the army was to use CHP in a distributed scenario and be used to regulate variable wind power they would save money and clean the air and be as resilient as possible. It would also bring propane to inhabitants including military families of the FNSB to use for heat at better pricing levels than oil or wood.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 megawatts (MW) of electricity. Sections 2.3 and 2.4 of the EIS considered wind energy as an alternative, and it was determined that installing centralized boilers or upgrading electric feeders and installing building level electric boilers would not be reasonable or feasible. There is no regional infrastructure or adequate technology (Screening Criterion 4) to support propane as a reliable fuel source and raises a risk of supply disruption. Propane has been added to the EIS as a potential alternative identified and dismissed from further analysis.

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91.06	1/12/2021	Email	Mike Craft	Public	Last is the fact that the privet sector is ready willing and able to invest the capital to deliver this CHP/propane/wind project, it would not affect the Militaries budget . I hope we can talk about the concerns .	Thank you for your comment. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
92.01	1/12/2021	Email	Nicholas Parlato	Public	I am writing to express my sincere and credible concernabout the Alternatives made available in the recent Fort Wainwright Draft Environmental Impact Assessment for the base's energy system. While Alternative 3 is certainly the best of those presented in this draft, I strongly believe that natural gas constitutes only a half-measure for the massive and rapid reductions of greenhouse gases the US and global economy need at this juncture. If the US Army wishes to regain the globally-championed status it held prior to the Iraq and Afghan wars, a small place to start would be showing initiative in what constitutes the most existential threat to our society- climate change. You know as well as I that it is not a problem that can be ignored and basic infrastructural decisions we make today will determine what we are capable of doing 10 and 20 years down the line. I would thus forcefully request that a renewable energy alternative be included and seriously considered in the DEIS. IfAlaska retains any of its pioneering spirit, it should be directed towards pioneering a cleaner, safer, and more just future. The army can help drive these changes that will save money, effort, and lives in the coming decades. Please do what you can to make this DEIS more robust and more forward-looking. Future generations will cheer you if you do.	Thank you for your comment. Renewable energy alternatives were considered in Section 2 of the EIS.
92.02	1/12/2021	Email	Nicholas Parlato	Public	Thank you for accepting my comments. The military and government are meant to serve the people and these comment periods are more than just a formality. I hope our voices are taken seriously and you take actions to improve the DEIS and transition our institutions away from fossil fuels.	Thank you for your comment. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
93.00	1/21/2021	Email	Mike Craft	Public	I still have questions concerning the process ? I am not a PHD but I clearly see an opportunity for the ARMY to improve it passion on HOW MUCH this cost tax payers and how heavy the impact on the local environment and how the resiliency concern is accomplished .It seams as if those issues are being whitewashed and with all due respect I expect more from the EIS process . I am feed up with the level of complacency in light of all the facts showing that Ft Wainwright is paying way to much for Heat and Power and the overarching effects on the local environment .This EIS is at best incompetent and at worst fraudulent representation of the situation . If the EIS team doesn't address these ,Its not doing the work of the American people .We all have responsibility to do the best for the solders and the publics health and security .That's ware I am coming from.	Thank you for your comment. The comment did not contain any specific citations to incompetency in the EIS.
94.01	1/21/2021	Form Submission	Karl Monetti	Public	The best possible outcome; First, all buildings using the power to be produced should be first upgraded with energy retrofits to the highest efficiency standards so that the new power plant can be properly sized to accommodate the lower power demands. Then the new power plant should be (1), energy efficient, (2), environmentally clean to help with local air quality and climate change, (3) be able to use a variety of fuels including renewables to minimize fossil fuel use, and (4), be economical to build and operate.	Thank you for your comment. Regardless of energy retrofits, a new power plant will be more energy efficient, improve air quality, and be more economical to operate. As noted in EIS Section 1.1, in accordance with Army Directive 2022-03, the Army will prioritize energy and water security requirements to ensure available, reliable, and quality power and water to continuously sustain critical missions and will also continue to evaluate the feasibility of incorporating renewable energy.
94.02	1/21/2021	Form Submission	Karl Monetti	Public	Draft EIS falls short in almost every category mentioned above; First, the DEIS only addresses the supply side of the energy equation; there is no mention of energy efficiency to lessen the demand side of the equation. This should always be the first item addressed before deciding on the size and scope of supplying power.	Thank you for your comment. Section 3.2.2 Air Quality and other resource area analyses demonstrate the efficiency of the alternatives. All three action alternatives considered would result in negative net GHG emissions due to improved efficiencies from the new proposed heat and energy systems. Renewable energy alternatives were considered in Section 2.4 of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
94.03	1/21/2021	Form Submission	Karl Monetti	Public	Second, there is no option for renewable energy sources such as wind, solar, or geothermal. Renewable sources of energy are currently cheaper to build than fossil fuel plants and there is no future fuel cost to add to operational costs. And, there is no waste product such as coal ash to dispose of, and no particulate matter gets added to the air shed, thus helping with our air quality situation. One 'renewable' energy source, biomass, should not be considered either; such a plant would require cutting every tree within 50 miles of town with no prospects of them growing back at a sustainable rate.	Thank you for your comment. Multiple renewable energy alternatives besides biomass were considered in Section 2.4 of the EIS.
94.04	1/21/2021	Form Submission	Karl Monetti	Public	'No action" and "Alternative 1" are unacceptable; No action, keeping the current plant running, is simply dangerous and does nothing to address the inherent problems associated with an aging coal-fired plant. And alternative 1, to build a new coal plant, defeats the hoped-for improvements in air quality and climate change outcomes. In both cases we still would be burning the dirtiest of fossil fuels, (Healy coal is low grade bituminous and 25% water), they would perpetuate the air quality problem, and there is the looming problem of not having a place to safely dump the coal ash, as the contract for such is running out in the next few years. Neither the City, Borough, State, or world can afford to continue to burn this type of fuel.	Thank you for your comment. Coal ash management is discussed in Section 3.4.2.3 of the EIS.
94.05	1/21/2021	Form Submission	Karl Monetti	Public	Alternative 2, construction of a dual-fuel combustion generator, and Alternative 3, distributed natural gas for heat and purchase of electricity from the local grid, are the better of the described options, but neither allow for integration with, or possible future replacement by renewables.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
94.06	1/21/2021	Form Submission	Karl Monetti	Public	In summary I would suggest; 1; increase energy efficiency of all buildings to highest standards prior to sizing any new power plant 2; include all environmental affects regarding air quality and greenhouse gas emissions in all calculations of original cost, future fuel costs, and lasting effects on our local environment including but not limited to air quality, climate change, and hazardous material (coal ash) disposal.. 3; explore all renewable options for power generation. We should not want to burn anything for fuel.	Thank you for your comment. All three action alternatives considered would result in negative net GHG emissions due to improved efficiencies from the new proposed heat and energy systems. Air quality and GHG impacts are discussed in Section 3.2.2 of the EIS. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Coal ash management is discussed in Section 3.3.2.3 of the EIS. Upon project design, the need for additional environmental impact analysis will be assessed.
95.00	2/4/2021	Email	Betty Pixley	Public	Have you ever gone up to Ester Dome and seen the dirty air above Wainwright? A Healthy electrical upgrade would be to copy Golden Valley Electrical Co-Ops example: Start installing wind turbines and solar panels, please.	Thank you for your comment. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be feasible or reasonable due to the analysis provided within the USACE's 2005 Joint Long Range Energy Study for the Greater Fairbanks Military Complex (USACE 2005) and the PNNL study (DOE 2009). Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources and battery storage.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
96.01	2/11/2021	Form Submission	Kenzley Defler	Public	The continued burning of fossil fuels negatively impacted the state's natural landscapes and animals, it is causing a public health crisis. As such a well established and respected organization, the Army has a huge potential and responsibility to be positive change-makers for public health and the environment. The current draft EIS should include renewable energy. In recent years, the cost of renewable energy has dropped significantly, especially solar energy in a place like Fairbanks. The draft EIS should also quantify the cost of pollution and greenhouse gas emissions from the energy being produced.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed.
96.02	2/11/2021	Form Submission	Kenzley Defler	Public	Of the current choices, No Action and Alternative 1 would produce the most greenhouse gas emissions and therefore perpetuate the health issues in our community arising from bad air quality. Alternative 3 is the best given option as it would reduce greenhouse gas emissions and has the lowest building and operational costs. This would also transition smoothly towards a future with more renewable energy. I sincerely hope you, as a leader for the Army, accept your responsibility and opportunity to improve human health and fight climate change by including renewable energy in the EIS for Fort Wainwright.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
97.01	2/11/2021	Form Submission	Tonda Mars	Public	Please consider renewable energy! It's important for my future and my children's future to breath clean air. PLEASE ADD RENEWABLE ENERGRY TO YOUR LIST OF PLANS!!	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
97.02	2/11/2021	Form Submission	Tonda Mars	Public	Our borough suffers from some of the most hazardous air quality in the nation, caused in part by the combustion of fossil fuels from the region's power plants. Currently, the EPA is requiring the most stringent measures to be taken in order to resolve the air pollution in FNSB. Air pollution has a multitude of effects on human health: blood clotting, strokes, kidney failure, and respiratory issues such as asthma or emphysema; permanent cognitive impairment in children; early-onset dementia, Alzheimer's, and premature death in the elderly. It is estimated by a recent study[1] that there are up to 100 premature deaths annually in Fairbanks due to PM2.5 air pollution. Our community is currently facing a health and climate crisis; we cannot afford to continue burning fossil fuels in FNSB. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
97.03	2/11/2021	Form Submission	Tonda Mars	Public	No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution.	Thank you for your comment. See the response to comment 97.04 below.
97.04	2/11/2021	Form Submission	Tonda Mars	Public	Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
97.05	2/11/2021	Form Submission	Tonda Mars	Public	The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed.
98.01	2/12/2021	Form Submission	Shea Brenneman	Public	Our borough suffers from some of the most hazardous air quality in the nation, caused in part by the combustion of fossil fuels from the region's power plants. Currently, the EPA is requiring the most stringent measures to be taken in order to resolve the air pollution in FNSB. Air pollution has a multitude of effects on human health: blood clotting, strokes, kidney failure, and respiratory issues such as asthma or emphysema; permanent cognitive impairment in children; early-onset dementia, Alzheimer's, and premature death in the elderly.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.
98.02	2/12/2021	Form Submission	Shea Brenneman	Public	It is estimated by a recent study 1 that there are up to 100 premature deaths annually in Fairbanks due to PM2.5 air pollution. Our community is currently facing a health and climate crisis; we cannot afford to continue burning fossil fuels in FNSB. 2. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming. 3. No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution. 4. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available. 5. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. 6. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed.
99.01	2/15/2021	Form Submission	Linda (Lou) Brown	Public	As you know, the FNSB has struggled for many years with some of the most hazardous air quality in the nation, caused in part by the combustion of fossil fuels from the region's power plants. You are probably also aware that the Borough is facing significant strictures from the EPA because of our inability to come into conformance with federal guidelines as regards our air pollution. You are also no doubt aware of the significant health impacts of air pollution. In light of these facts, I feel that the military has a special opportunity to render another service to the Fairbanks borough and to your own soldiers who train and work under the adverse conditions created by severe air pollution. This service, of course, would be to choose an option which includes a renewable energy alternative. Renewable energy options have rapidly dropping initial costs and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
99.02	2/15/2021	Form Submission	Linda (Lou) Brown	Public	In my view, alternative 3 (distributed natural gas) is the best of the three alternatives presented since it would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
100.00	2/16/2021	Email	Karl Hough	Public	I have included a letter written by Karl Monetti. I concur with all his points. It is well proven that energy saved is the low hanging fruit of energy conservation. The buildings on Ft. Wainwright are not up to present day energy standards and are in need of retrofitting. I have lived in Fairbanks my whole life and have watched the relationship between Ft Wainwright and the community evolve. It seems like the Army is getting more progressive in areas of waste management, and recycling, setting an example for the greater community of the FNSB to emulate. I hope they can extend that same spirit of community cooperation in the design and operation of a new power generating system. Shifting the burden to GVEA does nothing to really remedy the problem of air pollution as long as GVEA is using the same dirty coal and oil to produce the power. It seems to me that if any one has the ability and the resources to move from combustion power generation to non polluting renewable sources it would be the army. I can't imagine how they can justify continued power generation in our "non attainment" air quality zone using coal, oil, or biofuels, while the entire FNSB population has to breathe the pollution.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
101.01	2/16/2021	Email	Mary Ann Nickles	Public	Your Draft EIS has no really good alternative. Alternative 2 and Alternative 3 are the better of the described options, but neither allows for integration with, or possible future replacement by, renewables. I have written previously mentioning the suffering of Interior Alaska residents' health due to polluted emissions from the current Fort Wainwright power plant. I am glad the plant is dying, but must plead that you replace it with a new one that will not put those emissions into our community's air that we must breathe. No one can avoid it, including myself. Many of my friends have to leave Fairbanks during the winter when the emissions are greatest.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS. Overall long-term air quality and GHG impacts from the Proposed Action would be beneficial compared to existing conditions due to increased efficiency of the new system. Please refer to Section 3.2 of the EIS.
101.02	2/16/2021	Email	Mary Ann Nickles	Public	The changing climate will influence the weather around the planet, as we have seen it changing here and all over the continental United States. For most efficiency and efficacy in the long term do not use any fossil fuels. The progress made to renewable energy production over time indicates that the improvement will continue, as will the cost reduction. Emissions in the Arctic are increasingly harmful, to such an extent that advisors to anyone with money to invest say they should stay away from the Arctic region as it is too risky an option in which to invest.	Thank you for your comment. Section 3.2 of the EIS includes an analysis of greenhouse gases.
102.00	2/16/2021	Form Submission	Diane O'Brien	Public	Our borough has some of the worst air quality in the nation and has failed to bring the problem under control despite repeated attempts at regulation. Ft Wainright has the opportunity to lead in this area by choosing lower emission alternatives, such as natural gas, and by ensuring that plans consider improvements to energy efficiency.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement a renewable energy portfolio as available. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
103.01	2/17/2021	Letter	Montean Jackson	NAACP	We believe that change to the energy infrastructure should include renewable energy alternatives and a phasing out of coal-dominated energy use. None of the alternatives presented have renewable energy additions to gas or coal.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
103.02	2/17/2021	Letter	Montean Jackson	NAACP	It is no secret that the Fairbanks Community has some of the worst air quality issues in the United States. People of color and people struggling economically have a disproportionate health effects linked to our poor air quality. We the residents of the Fairbanks and North Pole communities at large, and the residents of Ft. Wainwright with their children will bear the burden of the harmful effects of continued reliance on coal. We request a more thorough analysis of the health and environmental costs to our citizens and soldiers.	Thank you for your comment. Text in Section 3.6 of the EIS has been revised to state that during operations under Alternative 1, the Project would have a long-term, minor beneficial health impact on populations in the analysis area, including EJ populations, due to reduced coal plant air emissions. Given that environmental justice populations tend to be more burdened with adverse health conditions that can increase susceptibility to the harmful effects of air pollution, the beneficial health impacts of reducing emissions may be greater than those experienced by non-minority or non-low-income members of the general population who reside in the affected area. Under Alternatives 2 and 3, these beneficial impacts to the health of environmental justice populations would be greater than under Alternative 1 because natural gas facilities generate fewer emissions than state-of-the-art coal-fired facilities.
103.03	2/17/2021	Letter	Montean Jackson	NAACP	Please be a good neighbor and listen to the public's input as you make these decisions that affect so many. We request a plant that decreases greenhouse gases and an operating plan that steadily moves toward gradual replacement of fossil fuels with renewable energy as it becomes available.	Thank you for your comment. The EIS has been reviewed to incorporate any new regulations as applicable.
103.04	2/17/2021	Letter	Montean Jackson	NAACP	Accompanying this letter is a fact sheet with well-documented information. We submit this information because it is well worth repeating and respecting. It is the foundation of our concern and fears for our families' health. The information can also be sources of solutions.	Thank you for your comment. Your input to the evaluation process is appreciated.
103.05	2/17/2021	Letter	Montean Jackson	NAACP	Coal bad for the environment. At every stage of coal extraction to burning, coal does serious damage. Coal is the top contributor to climate change, is a leading cause of mercury pollution, and continues to scar mining communities in countless ways. Sulfur dioxide (SOx) is the main cause of acid rain, which damages forests, lakes and buildings. Carbon dioxide (CO2) is the main greenhouse gas and is the leading cause of global warming. There are no regulations limiting carbon dioxide emissions in the U.S. Mercury emissions from coal plants are suspected of contaminating lakes and rivers in northern and northeast states and Canada. Health officials warn against eating fish caught in these waters, since mercury can cause birth defects, brain damage and other ailments.	Thank you for your comment. Your input to the evaluation process is appreciated.
103.06	2/17/2021	Letter	Montean Jackson	NAACP	Burning Coal causes health issues to humans. Coal-fired power plants have been linked to developmental defects in 300,000 infants because of their mothers' exposure to toxic mercury pollution. Asthma rates are skyrocketing in communities exposed to particulates from burning coal, and now one out of ten children in the U.S. suffers from asthma. While the U.S. government has taken some steps to mandate pollution controls, two thirds of coal-fired plants still lack the technology needed to keep toxic air pollution, like mercury, acid gases and arsenic, out of our air and water.	Thank you for your comment. Your input to the evaluation process is appreciated.
104.01	2/19/2021	Email	Philip Martin	Public	Thank you for extending the time period to comment on the Draft EIS concerning the upgrade to the Fort Wainwright Power Plant (DEIS). Like most EIS's, it is a ponderous document that is difficult for the average citizen to absorb and analyze, so I apologize if I have overlooked sections of the document that address my concerns. My overall comment is that the DEIS is shockingly deficient in its treatment of the proposed action in the context of overall energy policy and the imperative to reduce Greenhouse Gas (GHG) emissions, as well as the serious air pollution (specifically PM 2.5) problems of the Fairbanks area. For example, it is beyond comprehension that the Summary of Environmental Impacts (Table 3.16-1) does not even mention GHG emissions, even though a comparative analysis of the alternatives with regard to GHG was presented.	Thank you for your comment. The EIS examines the role that any of the action alternatives would have in reducing GHG emissions in Section 3.2 and Appendix F. The EIS was prepared in accordance to the DoD energy policy and focused mainly on addressing air pollutants of concern in the immediate Fairbanks area.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
104.02	2/19/2021	Email	Philip Martin	Public	The omission of climate change considerations as a major subject of analysis is indicative of an apparent judgment by the DEIS authors that it is a tangential issue. This conclusion is at odds with current federal policy. On January 27, 2021, President Biden signed an "Executive Order on Tackling the Climate Crisis at Home and Abroad." This order states: Sec. 204. Policy. It is the policy of my Administration to lead the Nation's effort to combat the climate crisis by example — specifically, by aligning the management of Federal procurement and real property, public lands and waters, and financial programs to support robust climate action. By providing an immediate, clear, and stable source of product demand, increased transparency and data, and robust standards for the market, my Administration will help to catalyze private sector investment into, and accelerate the advancement of America's industrial capacity to supply, domestic clean energy, buildings, vehicles, and other necessary products and materials.	Thank you for your comment. The EIS has been reviewed to incorporate any new regulations as applicable. Additional climate change analysis has been incorporated into Section 3.2 of the EIS.
104.03	2/19/2021	Email	Philip Martin	Public	Further, the EO states a Federal Clean Electricity and Vehicle Procurement Policy that requires a plan to use all available procurement policies to achieve or facilitate a carbon-free electricity sector no later than 2035. Secretary of Defense Lloyd Austin issued a statement on "Tackling the Climate Crisis at Home and Abroad" (January 27, 2021) including the following: "The Department will immediately take appropriate policy actions to prioritize climate change considerations in our activities and risk assessments, to mitigate this driver of insecurity. As directed by the President, we will include the security implications of climate change in our risk analyses, strategy development, and planning guidance. As a leader in the interagency, the Department of Defense will also support incorporating climate risk analysis into modeling, simulation, wargaming, analysis, and the next National Defense Strategy. And by changing how we approach our own carbon footprint, the Department can also be a platform for positive change, spurring the development of climate-friendly technologies at scale." The DEIS consideration of alternatives and analysis is inconsistent with the EO and with the Secretary's statement and must therefore be thoroughly revised to reflect national and Departmental policy. Some specific examples follow.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.
104.04	2/19/2021	Email	Philip Martin	Public	• There is insufficient consideration of renewable energy alternatives.	Thank you for your comment. Each alternative considered was screened using criteria presented in Section 2.3.1 and based on the project purpose and need. A reasonable range of alternatives was examined, and the screening analysis would remain valid even if renewable alternatives were combined with other alternatives. The summary discussion of the alternatives screening analysis does not capture all the details that were considered, but provides an overview for the reader to follow the evaluation. While there may be opportunities for renewable energy alternatives to partially address the criteria, it was identified early that they must meet all criteria to be considered reasonable in the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
104.05	2/19/2021	Email	Philip Martin	Public	Table 2.3-1 lists several alternatives that include renewable energy alternatives, but dismisses them without further analysis. Given the importance of meeting clean energy goals, these alternatives must be revisited. Even if they are not practical to meet the complete total power and heat demands of Fort Wainwright, the ability of renewables to meet partial demand should be analyzed -- for example wind power could supply whole-base electric power even if building heat is supplied by another means. The declaration that funding is unavailable for renewable energy projects is dubious, given the Biden Administration's commitment to clean energy projects. The dismissal of wind power because it would require a large off-site land base is not valid, unless it poses an unacceptable reliability risk -- large amounts of undeveloped military or private land is available in Interior Alaska and include highlands and wind-prone areas near Delta Junction that could be considered for wind turbines. Use of solar power is dismissed because it is unsuitable in winter but again it could be a partial solution to future energy needs -- solar powered hot water systems are a cost-effective way to provide heat in the summer season and solar electricity is a proven technology which is cost-effective on the timeline well under the expected project life. Furthermore, having multiple redundant sources of energy could help meet the DOD's requirements for reliability.	Thank you for your comment. Section 2.4 of the EIS has been revised to include a diverse renewable energy portfolio alternative.
104.06	2/19/2021	Email	Philip Martin	Public	• The DEIS discussion of mitigation of impacts must analyze the benefits of energy conservation and renewable energy options for reduction of GHG emissions and PM 2.5 pollution. While energy conservation strategies might have been deemed outside the scope of an EIS for construction of a new power plant, ignoring the context of a comprehensive energy use strategy for Fort Wainwright is contrary to the spirit of NEPA and DOD'S Installation Energy Strategy (https://www.acq.osd.mil/eie/IE/FEP_index.html).	Thank you for your comment. The project and the project purpose and need are in line with DoD's installation energy strategy. The current and future energy needs were identified, and a reasonable set of alternatives were evaluated to address those needs. The Proposed Action would not preclude future energy conservation measures, nor detract from their benefits.
104.07	2/19/2021	Email	Philip Martin	Public	• Given the EO's announced policy of eliminating carbon-based electricity generation by 2035, the default alternative for electric power generation should be renewable energy or possibly a small nuclear plant because whatever infrastructure is constructed now will be in place long after 2035. If a thorough analysis reveals that it is technically infeasible to achieve total reliance on renewable sources, then Alternative 3 is preferable because it would provide the greatest reduction in greenhouse gases (70%), has the lowest building and operational costs, and would allow for the gradual replacement of fossil fuel energy with renewable energy as it becomes available. Any alternative that includes a new coal-burning plant is completely incompatible with the national and Departmental Policy and should be taken off the table.	Thank you for your comment. Section 2.3 outlines the criteria that establishes the range of considered alternatives, and no renewable energy sources satisfactorily met the project purpose and need. The Army's preferred alternative is Alternative 3, as identified in Section 2.5.5 of the EIS. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
104.08	2/19/2021	Email	Philip Martin	Public	• The socio-economic aspect of the cumulative effects analysis should consider the effect that adoption of renewable energy and/or a gas-powered plant at Fort Wainwright may have on the economics of energy transition in the community at large. Secretary Austin's statement referenced the role of the Department as "a platform for positive change, spurring development of climate-friendly technologies at scale." As a large consumer of power, there is no doubt that the decisions that DOD makes regarding its own facilities would affect the economics of natural gas conversion in the surrounding community and possibly innovations in the use of renewable energy technologies. It is reasonable and foreseeable that the positive environmental effects would ripple through the entire community, with profound benefits to local air quality and renewable energy goals. This would appear to be exactly what Secretary Austin is advocating and is well within the NEPA requirements for cumulative effects analysis.	Thank you for your comment. Sections 3.5 and 3.15 of the EIS consider long-term and cumulative socioeconomic impacts associated with the action alternatives and the No Action Alternative. Renewable energy alternatives did not meet the project purpose and need criteria to be considered in detail in the EIS (see Section 2.4, Alternatives 9, 10, 19, and 21).
104.09	2/19/2021	Email	Philip Martin	Public	It is my opinion that the issues raised here are too substantive to be addressed through "response to comments" and will require a substantial revision to the DEIS. Thank you again for the opportunity to comment.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided above.

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105.00	2/19/2021	Form Submission	Jules Mermelstein	Public	Consult with UAF researcher engineers who were involved with UAF's new coal fueled power plant. The air quality in & around Fairbanks is terrible enough, but coal is economical. Therefore, reducing harmful emmissions & promoting healthy air quality is essential to this sort of development. As a local resident, I'd be much more confident with UAF professor's allowed to work with the U.S. Army to design plant upgrades / replacement.	Thank you for your comment and the recommendation.
106.00	2/20/2021	Form Submission	Martha Rich	Public	Fort Wainwright power plant officials, I'd like to comment on the replacement of the power plant. As you must know Fairbanks and North Pole have poor air quality. Now is the perfect chance to improve the air quality by replacing fuel burning with renewable energy. Go for it! We'll all breathe cleaner! It is time to address our health and climate crisis!	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
107.00	2/20/2021	Form Submission	Phil Osborn	Public	I am delighted to see all the positive elements available in this plan to rebuild the Fort Wainwright power plant involving new, proven, cost effective, pragmatic and healthy components . The concepts are sound, more affordable than outdated systems which should be headed for the junk yard, and I'm very hopeful this plan can win the day, and help propel us into the cleaner, smarter, better future. Long live smart science and contributions like those of Karl Monetti!	Thank you for your comment. Your input to the evaluation process is appreciated.
108.01	2/21/2021	Email	Charlotte Basham	Public	My main concern is about the air quality in the Borough, which has levels of particulate matter that far exceed the levels considered healthy. The Draft EIS must factor in the costs of local air pollution and greenhouse gas emissions in the evaluation of alternatives.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed.
108.02	2/21/2021	Email	Charlotte Basham	Public	Other points to consider with the Draft EIS: 1. The Draft EIS should include a renewable energy alternative. Please consider that renewable energy options have been rapidly decreasing in initial costs, do not have continual fuel costs , and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
108.03	2/21/2021	Email	Charlotte Basham	Public	2. No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution.	Thank you for your comment. Impacts on air quality are anticipated to improve under every action alternative as identified in Section 3.2 of the EIS.
108.04	2/21/2021	Email	Charlotte Basham	Public	3. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
108.05	2/21/2021	Email	Charlotte Basham	Public	4. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. All three action alternatives considered would result in negative net GHG emissions due to improved efficiencies from the new proposed heat and energy systems. Section 2.4 of the EIS considers renewable energy alternatives.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
109.01	2/22/2021	Email	Jillian Richie	Public	Our borough suffers from some of the most hazardous air quality in the nation, caused in part by the combustion of fossil fuels from the region's power plants. Currently, the EPA is requiring the most stringent measures to be taken in order to resolve the air pollution in FNSB. Air pollution has a multitude of effects on human health: blood clotting, strokes, kidney failure, and respiratory issues such as asthma or emphysema; permanent cognitive impairment in children; early-onset dementia, Alzheimer's, and premature death in the elderly. It is estimated by a recent study1 that there are up to 100 premature deaths annually in Fairbanks due to PM2.5 air pollution. Our community is currently facing a health and climate crisis; we cannot afford to continue burning fossil fuels in FNSB.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
109.02	2/22/2021	Email	Jillian Richie	Public	The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
109.03	2/22/2021	Email	Jillian Richie	Public	No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution.	Thank you for your comment. See the response to comment 109.04 below.
109.04	2/22/2021	Email	Jillian Richie	Public	Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
109.05	2/22/2021	Email	Jillian Richie	Public	The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed.
110.01	2/22/2021	Letter	Kerry Williams	ALICE	Thank you for accepting our public comment on the draft EIS for Fort Wainwright. We are submitting new information not previously analyzed in the EIS process that could help USAG address the need for heat and electrical upgrades at Fort Wainwright more effectively. We have identified a renewable energy and firm power alternative that meets all six project screening criteria to: (1) address current cost constraints, (2) provide compatibility with mission and energy security needs, (3) achieve cost efficiency with funding mechanism, (4) use adequate technology for subarctic environment, (5) minimize environmental impacts, and (6) provide on- installation location with minimized disruption to mission, or improve public health and reduce climate change risks in accordance with US Paris Accord obligations.	Thank you for your comment. Responses to your comments regarding the analysis in this EIS is provided below.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
110.02	2/22/2021	Letter	Kerry Williams	ALICE	None of the Alternatives addressed in the draft EIS would comply with United States renewed climate change obligations or could reduce operational emissions to zero. The No Action Alternative continues reliance on the existing combined heat and coal powered power plant. Alternative 1, build a new coal plant and Alternative 2, build a combined gas and coal CHPP, also continue dependence on costly and high emissions coal fuel. Alternative 3, build natural gas boilers, and receive electricity from the local utility, continues to lock FNSB into long term fuel costs that can only be expected to increase. The EIS considers wind and solar energy generation in alternatives 9 and 10 but rejects those alternatives for not meeting Screening Criteria 1, 2, 3, 4, and 6. Below we present a Firm Renewable Energy Alternative (FRE) that demonstrates that firmed up solar and wind energy can meet most or all of the project Criteria. We respectfully request the FRE be considered in a supplement to the draft EIS, as required under the National Environmental Protection Act (§ 771.130), to "analyze new information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts that results in significant environmental impacts not evaluated in the EIS"	Thank you for your comment. The EIS has reviewed renewable energy alternatives. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be reasonable or feasible. Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources as well as battery storage. In addition, an alternative for a diverse renewable energy portfolio (Alternative 19) has been analyzed and dismissed from further consideration as discussed in Section 2.4 of the EIS.
110.03	2/22/2021	Letter	Kerry Williams	ALICE	Firm Renewable Energy is essentially a system designed to replace conventional dispatchable baseload power systems, thermal energy sources in particular. FRE will accept intermittent energy from wind, solar and other sources and then store enough of that energy to continue supplying 100% of electrical demand even for the longest duration energy deficit which can be expected from exceptionally cloudy and calm weather, ice storms, etc. Methodology for estimating energy deficits from intermittent energy sources was developed by researchers at MIT and Harvard, so energy storage needs can now often be estimated to within 99.9% reliability. FRE systems are composed of intermittent or seasonal energy generation sources (wind, solar, small hydro), coupled with grid scale long term pumped hydro energy storage. Pumped hydro energy storage is the oldest and most mature energy storage system and now supplies about 95% of the grid scale energy storage capacity in the world. From an engineering viewpoint it's nearly identical to conventional hydro, so it's very well characterized, predictable, economical, and extremely reliable. For grid scale long term energy storage applications, it's also by far the most cost-effective storage technology. Wind, solar, and hydro are the most cost-effective energy sources. Integrated with sufficient energy storage they create a firm power generation system, an FRE. Because of the cost of fuel, no thermal energy source can approach the low operational cost of renewable energy. By eliminating the need to burn coal, oil, or natural gas the FRE would have a significant beneficial impact on air quality issues in Fairbanks and Fort Wainwright. It would have a moderate beneficial impact on both temporary and permanent local employment.	Thank you for your comment. Please see the response to comment 110.07 below.
110.04	2/22/2021	Letter	Kerry Williams	ALICE	The FRE Alternative would address all six project Screening Criteria as follows: Address Current Cost Constraints (Screening Criterion 1): The FRE Alternative directly addresses the current constraints in operation and cost of maintenance of the existing CHPP and distribution system. Demolition of the existing CHPP and distribution system would remove associated repair and maintenance costs and eliminate the cost of coal ash disposal. It could increase operational heating efficiencies by as much as ⅔ by replacing steam boilers with modern high efficiency heat pumps. Replacing the steam heating system with air source heat pumps could reduce the total energy cost and consumption of Fort Wainwright by half. Provide Compatibility with Mission and Energy Security Needs (Screening Criterion 2): In accordance with Army Directive 2017-07, FRE would be compatible with the current and future mission and energy security needs by enabling the critical mission load to continue operations for a minimum of 14 days in the event of a major energy disruption or long-term energy deficit by incorporating 14 or more days of energy storage. Fuel source availability and supply line security would not be an issue as it could with any of the considered coal, natural gas, and diesel alternatives.	Thank you for your comment. Please see the response to comment 110.07 below.

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110.05	2/22/2021	Letter	Kerry Williams	ALICE	Achieve Cost Efficiency with Funding Mechanism (Screening Criterion 3): A full cost analysis is beyond the scope of this comment, but it is highly likely the FRE Alternative would be the most cost-efficient of all considered alternatives based on a 40-year life cycle cost. When compared with other published similar cost estimates, the Norwegian PSP's, for example, have a low specific cost per kW and a very low specific cost per stored kWh. The Technology is Adequate for a Subarctic Environment (Screening Criterion 4): FRE technologies are mature and already in operation in subarctic and arctic environments around the world. Norway, for example, has operated Pumped Storage Hydropower facilities since 1955. [Table 1. PSPs in Norway. See native comment.] Table 1 (above) Overview of ten Norwegian PSH open PSH facilities with a cumulative capacity of 1369 MW (11 to 320 MW range) in operation for up to 66 years (range 16 to 66). Minimize Environmental Impacts (Screening Criterion 5): FRE would minimize environmental impacts and be able to meet federal and state regulatory requirements, especially air quality thresholds that are so important for Fairbanks in the winter. No other considered alternative could reduce all emissions to zero.	Thank you for your comment. Please see the response to comment 110.07 below.
110.06	2/22/2021	Letter	Kerry Williams	ALICE	FRE could Provide On-Installation Location with Minimal Disruption to Mission (Screening Criterion 6): Heat generation would be located in each facility on Fort Wainwright for energy security purposes and would not interfere with ongoing mission and training activities. FEA energy storage facilities could be located on local area DoD controlled property. Several potential FRE systems for the Alaska Railbelt grid were assessed last year at the request of Governor Dunleavy in the Pumped Energy for Alaska Report, including one (Eureka) that would primarily serve GVEA. Over thirty more are currently being designed for rural communities for the Denali Commission. Several more FRE systems near Healy, Donnely, and Tanana that could meet ASGA needs are currently being investigated. They will be further explored at an upcoming Fairbanks Chamber of Commerce meeting. We would be happy to provide further information upon request. The Alaska Office of Department of Energy recently hosted a webinar on Pumped Storage Hydropower in Alaska. Alaska Energy Authority and Alaska Center for Power and Energy have also recently expressed interest in FEA, particularly Pumped Storage Hydropower supported systems.	Thank you for your comment. Please see the response to comment 110.07 below.
110.07	2/22/2021	Letter	Kerry Williams	ALICE	Thank you again for considering our comment and request to include the FRE in a supplemental EIS, as required under the National Environmental Protection Act (§ 771.130). We respectfully recommend that No Action be taken until the significant impacts expected from a FRE Alternative can be evaluated in a supplemental analysis.	Thank you for your comment. The EIS has reviewed renewable energy alternatives. Fort Wainwright has a current demonstrated requirement for 19 MW of electricity. Sections 2.3 and 2.4 of the EIS considered wind and solar energy as energy sources, which has been determined to not be reasonable or feasible. Wind is not a viable resource at Fort Wainwright and solar pilot projects were not reasonable or feasible. The local energy grid, which the Army would draw from under Alternative 3, currently has wind, solar, and hydropower as energy sources and battery storage. In addition, an alternative for a diverse renewable energy portfolio (Alternative 19) was analyzed and dismissed from further consideration as discussed in Section 2.4 of the EIS.

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111.01	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Thank you for the opportunity to submit comments on the Draft Environmental Impact Statement (DEIS) addressing the proposal by the United States Army Garrison (USAG) Alaska for implementation of heat and electrical generation and distribution upgrades at Fort Wainwright, Alaska (FWA). The Draft EIS contains three action alternatives: 1) Build a new Combined Heat and Power Plant (CHPP) – new, modern, coal-fired CHPP and steam distribution system. 2) Build New Dual-Fuel Combustion Turbine Generator CHPP - (replacement with natural gas and/or ultra-low sulfur diesel) combustion turbine generator CHPP with steam distribution. 3) Install Distributed Natural Gas Boilers – this action would transition from a centralized heat and power model to a decentralized model. The garrison would install multiple high- efficiency natural gas-fired boilers that would be dispersed at facilities across the installation to provide heat, and purchase all required electricity from the regional electrical grid.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS is provided below.
111.02	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Preferred Alternative Usibelli Coal Mine (Usibelli) concurs with the findings of the Black and Veatch 2018 Energy Master Plan that refurbishment and upgrades of the existing CHPP should be the preferred alternative. The DEIS should be revised to include this as an Action Alternative. Continued investment in the existing infrastructure would ensure the continuation of the CHPP's ability to reliably sustain the mission. While the CHPP has been in use since 1955, it has been well maintained. The CHPP is reliable, meets air quality standards, and can provide many more years of safe, reliable service to the installation. While the CHPP requires some upgrades and maintenance, that investment would be far less than what the Army is proposing with any of the proposed alternatives.	Thank you for your comment. The No Action Alternative was analyzed in accordance with the NEPA regulations referenced in Section 1.1 of the EIS. Table 2.3-1 of the EIS identifies that, based on a 40 year life cycle cost analysis, continuing with existing CHPP is not cost efficient.
111.03	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Furthermore, the current condition of the CHPP at FWA was inaccurately characterized in the DEIS (Section 1.1.2) as having had near catastrophic critical failures. The so-called failures identified were not in the critical power and heat generation systems, but in peripheral components and did not pose a catastrophe.	Thank you for your comment. Section 1.1.2 of the EIS has been revised to more accurately characterize the cause and source of the system shutdowns. The EIS defines that a winter-time loss of the CHPP's ability to generate heat and power would be considered a catastrophic event that would require immediate actions to evacuate the installation; therefore, the use of that term is explained and justified by its examples.
111.04	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Will the Army conduct an analysis on the costs of making incremental improvements to the existing CHPP to reduce potential critical failures and compare those costs to each alternative?	Thank you for your comment. The Army considers that the No Action Alternative already includes actions to make incremental improvements to the existing CHPP to reduce failures. Costs to improve the system are identified in Section 2.5.1 of the EIS.
111.05	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	It is also important to consider the recent promulgation of air quality regulations which require the CHPP to install Best Available Control Technology (BACT) to mitigate sulfur dioxide emissions by 2023. The anticipated costs are between $22 million and $235 million. The Army is proposing to implement the heat and electrical generation and distribution upgrades at FWA by 2026. The installation of BACT in 2023, prior to the upgrades in 2026 will have already begun reducing emissions.	Thank you for your comment. These measures are addressed in Section 2.5.1 of the EIS. Improvement in meeting air quality regulations does not address the existing plant's operations at reduced capacity and inability to support the U.S. Army Garrison and U.S. Army Alaska missions.

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111.06	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Of the three action alternatives considered in the DEIS (not including the suggested refurbishment and upgrade to the existing CHPP alternative), building a new, modern, coal-fired CHPP and steam distribution system is the only option that can provide a safe, resilient heat and power system to the garrison at a price that will be much less than any other alternative. Coal provides fuel resiliency; it has been a proven fuel source for over 78 years. There are over 700 years of proven reserves at Usibelli in Healy, Alaska, just a short 114 miles from FWA. Furthermore, Usibelli has a proven supply chain which has provided heat and power to the region since 1943. This supply chain has proven to be financially self-sufficient, not requiring government subsidies as compared to the Liquefied Natural Gas (LNG) option which has been heavily reliant upon multiple forms of subsidies. As mandated by Army Directive 2017-07 (Installation Energy and Water Security Policy), Usibelli can provide assured access to the coal resource supply. The installation currently maintains between three to six months coal supply on post.	Thank you for your comment. Your input to the evaluation process is appreciated.
111.07	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	The installation must maintain critical mission capabilities and mitigate risks posed by energy and water interruptions. A coal-fired CHPP has been proven to provide available, reliable, quality power and hot water which sustain critical missions. The new, modern, coal-fired CHPP option will provide the lowest present value cost due to the low cost of coal. The coal-fired CHPP will continue to support the use of the utilidor system by providing heat to prevent the domestic water and waste water pipes from freezing. Coal has the lowest price per million British thermal unit (MMBtu) out of any alternative fuel source being considered. Burning diesel or trucked natural gas costs nearly 3 to 5 times the cost of coal. Coal is locally available, has the lowest cost, and can maintain a large storage capacity. Military spending supports about one-third of the Fairbanks economy. Any large increases in energy costs could potentially risk the sustainability of the military's current presence in Interior Alaska and stability of the Fairbanks economy. The emission profile of coal is also favorable. Today's new, modern coal plants burn just as cleanly as natural gas plants, and a new coal-fired CHPP at FWA will greatly improve efficiency and emission rates. A new CHPP at FWA would be required to install Lowest Achievable Emission Rate echnology; this plant could arguably have the lowest emission rate for any power plant in Interior Alaska. Air emissions will decrease under Alternative 1 as power generation is reduced.	Thank you for your comment. Your input to the evaluation process is appreciated.
111.08	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Socioeconomic Impacts Usibelli Coal Mine provides year-round, steady employment to about 100 people. More than 80% of these jobs are based in Healy (the remaining jobs are in Usibelli offices in Fairbanks and Palmer). Usibelli's stable year-round employment is particularly important in Healy, where the economy faces high seasonal employment fluctuations. Usibelli Coal Mine is the largest, year-round, private sector employer in the Denali Borough. Mining wages are among the highest in the state. In 2018, the McDowell Group conducted a study which showed that Usibelli's average wages were more than double the average wage for all workers in Alaska. The employment and wage impacts of Usibelli go beyond the direct jobs at the mine. Employment and wage impacts generated by Usibelli Coal Mine include indirect impacts (the jobs and income supported by Usibelli's spending on the wide variety of goods and services that are required to operate the mine and move coal to customers), as well as the induced impacts (the jobs and income created as a result of Usibelli employees spending their wages in the local and regional economies). In 2019, Usibelli spent approximately $28.7 million on goods and services in support of the mine's operations with 400 Alaska-based vendors (businesses and organizations).	Thank you for your comment. Sections 3.5 and 3.6 of the EIS analyzes impacts to Usibelli Coal Mine and the surrounding community.

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111.09	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	UCM Charitable Giving Usibelli's economic impact includes support for more than 100 non-profit organizations statewide. The Usibelli Foundation (TUF)'s mission is to provide funds to facilitate learning by supporting education, preserving Alaska's uniqueness by supporting its heritage, and strengthening communities. Since 1991, TUF has distributed nearly $2.8 million, with approximately $120,000 distributed annually in recent years. Grants focus on education, health and social services, the arts, youth programs, and civic organizations and activities. TUF also matches employee donations to the United Way of the Tanana Valley, American Cancer Society, American Heart Association, Alaska Resource Education, and several other community organizations in Healy. Over the years, TUF and UCM have committed to several multi-year contributions supporting capital projects throughout Interior Alaska. Some of which include the $100,000 donation made in support of the Greater Fairbanks Community Hospital Foundation's Surgery Center in 2017.	Thank you for your comment. Please see the response to comment 111.08 above.
111.10	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	UCM is also a significant supporter of the University of Alaska system, particularly for the Fairbanks campus (UAF). Since 1977, Usibelli Coal Mine has provided more than $5.2 million to support several signature capital projects on the UAF campus, including $300,000 to the UAF Combined Heat & Power Plant and $500,000 to the Engineering, Learning & Innovation Facility. Additionally, Usibelli has created four programmatic endowments at UAF in Homeland Security & Management, Bachelors of Applied Management, Sports Medicine Endowment, and Nanook Athlete Support. The mine has also created seven endowed scholarship funds for UAF's Mining, Diesel/Heavy Equipment, Accounting & Marketing, Athletics, Homeland Security and Emergency Management, Bachelors of Applied Management, and Honors programs. Each year, UCM proudly awards more than 20 students at the Fairbanks campus with more than $50,000 in scholarships. UAF named the Usibelli Coal Mine & the Usibelli family Philanthropists of the Century in 2017 for their historical support and partnership with UAF.	Thank you for your comment. Please see the response to comment 111.08 above.
111.11	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Resiliency The readiness of the USAG Alaska units of the U.S. Army Alaska (USARAK), including the 1st Stryker Brigade Combat Team, USARAK Aviation Task Force, and Medical Department Activity-Alaska depends on reliable heat and power supplied to more than 400 facilities across the 9 million-square-foot installation.	Thank you for your comment.
111.12	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Most of the alternatives presented rely on natural gas or diesel as the fuel source. In addition to the efficiency and cost of fuel sources, the DEIS must analyze and address reliability and availability of fuel sources. Natural gas, in the volume required to meet the needs at FWA, is not currently available in Interior Alaska. At present, the natural gas supply system relies on trucking gas from Point Mackenzie which has a single point of failure if something were to happen to the Parks Highway. Additionally, the liquefaction plant at Point Mackenzie may not currently contain a redundant system to provide liquefied natural gas, creating an additional point of failure. Furthermore, what is the Army's plan should the sole source of natural gas, assumingly at Point Mackenzie, experience breakdown or failure?	Thank you for your comment. The reliability and availability of fuel sources under Alternatives 2 and 3 are discussed in Sections 2.5.3 and 2.5.4 of the EIS.
111.13	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	An analysis of locally sourced fuel oil availability should be included in the analysis due to the increased demand for jet fuel and the limited refining capability in Alaska. If the fuel oil has to be shipped from the contiguous 48 states then the reliability, cost, and availability should be considered in the analysis.	Thank you for your comment. The EIS examined fuel availability relevant to the Proposed Action, and found that the availability of natural gas in Alaska is sufficient to meet the installation's demand (Pentex Alaska LLC 2016). There is no indication that fuel oil would need to be shipped from the contiguous 48 states, nor a need to consider those costs.

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111.14	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	FWA currently uses approximately 200,000 tons of coal per year which is equivalent to 3.75 billion cubic feet (BCF) of natural gas based on energy content. Army Directive 2017-07 requires a minimum of 14-days of energy security. A 14-day supply of LNG based on current energy use will require about 1.7 million gallons of storage capacity. Because Fairbanks has the potential of being isolated from the supply chain, a larger reserve than a minimum 14-day supply makes tactical sense. Currently, FWA keeps at least a 90-day supply of coal. The equivalent LNG storage would have to be 11.1 million gallons, and diesel storage would be approximately 6.6 million gallons. The EIS should also consider the impact of a single point of failure on large concentrated storage, as well as the cost of tank construction.	Thank you for your comment. The Army considers the minimum of 14-days of energy security sufficient for consideration in this EIS. Section 3.4 of the EIS addresses the additional fuel storage needs and risks. Construction costs for each alternative include energy supply storage.
111.15	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Since resiliency is a critical part of the statement of need for FWA's future energy system, the reliability of the regional electrical grid must also be evaluated.	Thank you for your comment. The reliability of the regional electrical grid was considered in the evaluation of Alternative 3. This alternative assumes that the Installation maintains the capacity to generate critical electrical power on-site using generators.
111.16	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Positive Environmental Benefits of Coal Ash Within the Resource Conservation and Recovery Act regarding coal ash disposal, the ability to use coal ash as beneficial fill should be a significant consideration. The use of coal ash is allowed for roadway projects in both federal and state regulations for solid waste and provisions for use as structural fill are also available. Beneficial reuse of coal ash is a positive impact and could provide a measurable recycling credit to the installation's activities.	Thank you for your comment. The use of coal ash may be allowed under state and federal regulations but can be considered controversial. The current practice of disposing the coal ash in the solid waste landfill, which is monitored for mercury and arsenic contamination, is the most practical way to assess alternative impacts for this EIS. Potential beneficial reuse of the waste ash may be considered in the future, but does not have a measurable impact on the comparison of alternatives.
111.17	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Comments on USAG Alaska DEIS Addressing Heat and Electrical Upgrades at FWA: Section I: Purpose and Need Statement A. The Purpose and Need Statement for the EIS is based on Army Directive 2017-17 (AD17) but two of the Action Alternatives, Alternatives 2 and 3, fail to meet the basic requirements of the Directive. AD17 5b.1. Assured Access to Resource Supply to have a redundant and a diverse sources of supply, including renewable energy, that meet evolving mission requirements during normal and emergency response operations – The natural gas/Ultra-Low Sulfur Diesel (ULSD) reliant Alternatives 2 and 3 do not meet the stated requirement for a diverse source of supply, including renewable energy, while the coal CHPP, Alternative 1, could be adjusted to a dual fuel coal/biomass similar to UAF's new CHPP that would meet the purpose and need statement.	Thank you for your comment. Alternatives 2 and 3 meet the stated requirement for the diverse supply of fuel sources.
111.18	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	AD17 6 Implementation d. Each landholding command will plan, program, budget, and execute energy and water projects that close energy and water security gaps and reduce risk. – The natural gas/ULSD reliant Alternatives 2 and 3, not only do not meet the stated requirement to close security gaps and risk, but increase security risk to the installation due to the following: 1. Alternatives 2 and 3 rely on the implementation of the Interior Gas Utility's Interior Energy Project. There is a significant risk that an affordable supply of LNG as well as accompanying infrastructure will not be in place for startup and commissioning of Alternatives 2 and 3. On April 21, 2020 the Interior Gas Utility paused the bond sale for the Interior Energy Project, increasing the risk associated with an affordable supply of LNG in Alaska's Interior.	Thank you for your comment. See the response to comment 111.19 below.

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111.19	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	2. Alternative 2 relies on ULSD if LNG is not available. Alternative 3 relies on ULSD when electricity is not available. The EIS did not consider a scenario that if imports of ULSD are disrupted and the power grid is disrupted, the priority for large quantities of Alaska refined ULSD would go to support power and heat for the Missile Defense radar (Clear AFS) and missile fields (Fort Greely), leaving Fort Wainwright at risk. 3. Alternatives 2 and 3 include ULSD bulk storage tanks in close proximity to the Installations primary water supply wells, creating a security risk by endangering the quality of the water supply if there was a spill or release of ULSD. Alternative 1 would not endanger the water supply as the existing coal-fired power plant has not impacted the water quality during its operational life. 4. Alternative 3 relies on electrical power for heat load if LNG is not available. Did the DEIS analysis verify adequate commercial power capacity for that scenario?	Thank you for your comment. Fuel sources for Alternatives 2 and 3 are available in sufficient quantities to adhere to Army Directive 2020-03 (see Section 2.3 of the EIS). Upon the development of a design, further environmental coordination, permitting, and consultation will occur, which will include analysis of emission unit data. The need for additional environmental impact analysis will be assessed at that time. All design criteria will meet all regulatory requirements for the design and installation of fuel tanks. Section 3.5.2.5, Section 2.5, and Section 1.1.2 of the Draft EIS and the reports cited in that section all did verify adequate commercial power capacity with respect to Alternative 3.
111.20	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Additionally, AD17 was superseded on March 31, 2020 with Army Directive 2020-03 which places more emphasis on reduction of risk, striving to offset demand with on-site cogeneration, use of renewable energy, assuring access to off-site energy, and performing a cost benefit analysis based on life cycle cost (LCC) per Army Regulation AR 11-18 with the emphasis of closing capability gaps without the requirement to show cost savings. Was the cost benefit analysis per AR 11-18 performed? If not, an analysis should be performed including an action alternative for maintaining and upgrading the existing power plant and revising Alternative 1 to a dual fuel coal/biomass alternative prior to finalizing the EIS.	Thank you for your comment. Text was incorporated to reflect that Army Directive 2017-07 was superseded by Army Directive 2020-03, and fuel supplies would be maintained in accordance with the updated directive. The 2018 Huntsville Study (USACE 2018) life cycle cost analysis was referenced throughout the EIS (see Section 2). A dual-fuel coal/biomass for Alternative 1 does not meet the Army's screening criteria as a viable alternative. Coal gasification alternative was also identified and dismissed from further consideration in Section 2.4 of the EIS.
111.21	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	B. Purpose and Need Statement to reduce the overall utility costs by having a system that runs more efficiently and has lower O&M costs. Life Cycle Cost Analysis Comments: The DEIS does not include the life cycle cost analysis but references the comparative costs of each alternative. The purpose and need statement indicates the need to reduce the overall O&M cost. However, O&M costs presented in the EIS (Section 3.5.2) are non-fuel O&M costs not overall O&M costs.	Thank you for your comment. The life cycle cost analysis in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies include the fuel costs for each action alternative.
111.22	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	The University of Alaska Fairbanks (UAF) had a similarly sized, and aging, CHPP and conducted a similar alternatives analysis but came to a different life cycle cost conclusion than the Army. The alternatives fully analyzed were a coal/biomass CHPP, an LNG CHPP, and distributed heat system with power purchase. Their fair market- transparent life cycle cost analysis, including fuel cost, determined that the most cost effective alternative was a dual fuel coal/biomass. They based fuel cost on historic data of $3.65/MMBTU for coal, $20/MMBTU for fuel oil, $17/MMBTU for LNG, $7/MMBTU for biomass, and $0.15/KWH for electrical power. They found that the coal/biomass CHPP LCC was the most economical as long as the price of LNG was not below $10/MMBTU and the cost for power was not below $0.035/KWH. The cost for LNG and electrical power is not below these thresholds in Interior Alaska.	Thank you for your comment. The Army will continue to evaluate the UAF studies and conclusions as part of the decision-making process.

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111.23	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	1. Based on the supporting data provided by the Army, the assumed cost for fuels was as follows: LNG was $15 MMBtu, electrical power was $0.1061/KWH, and coal was$5.60/MMBtu. The USACE report provided no costs given for the backup ULSD. The costs were well above the breakeven point of the UAF analysis. It is apparent that the significant difference in fuel cost assumptions impact the life cycle cost analysis and may skew the viability of an alternative by not accurately presenting the realized cost of the alternative to the installation's annual budget. 2. The DEIS principal driver for the purpose and need is cost. Yet the DEIS does not present a clear cost analysis. The DEIS references the United States Army Corps of Engineers (USACE 2018) report for all costs. The costs presented in the USACE report are a conglomeration of the Guernsey report with revisions based on the USACE analysis. In Section 4-5.1, Implementation Cost, it is difficult to follow cost analysis as the reference excel tabs in sections 4-5.1.1 thru 4-5.1.3 do not match the tabs in the provided spread sheet titled CEHNC.LLCA.xlsx. The spread sheet does not include a detail breakdown of capital cost components nor does it provide adequate references to the origins of the cost basis. The reviewer would have to spend hours cross referencing the Guernsey and USACE support data to determine cost basis presented in the DEIS.	Thank you for your comment. 1. Since ULSD is a fuel source for the backup system it would infrequently be used for mission critical buildings and only at times when the primary heat and electrical system could not be used. As such, ULSD fuel costs would not be a significant factor. 2. The purpose and need stated in the EIS provides several reasons for the Proposed Action, please see Section 1.2 of the EIS.
111.24	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	3. The costs of the alternatives as presented in the DEIS appear to be skewed by applying the Utilities Privatization Contract (UPC) cost only to Alternative 1 and 2. The DEIS states that Alternative 3 may be constructed using the UPC. If so, the capital cost should be re-analyzed assuming the full UPC cost apply to all Action Alternatives since the EIS states that all Action Alternatives may be executed under the UPC.	Thank you for your comment. The life cycle cost analysis presented in the USACE 2018 study models Alternative 3 with UPC financing cost (see USACE 2018 excel spreadsheet tab UPC DECENT DIST RR).
111.25	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	4. The capital cost for Alternative 3 based on Section 4-5.1.3 of USACE 2018 is based on a 6 MW backup RICE generator but the DEIS Alterative 3 description includes 2-10 MW backup generators with storage tanks for 732,000 gallons of ULSD that is not included in the capital cost. The EIS needs to correct this gross inaccuracy in cost analysis verses alternatives presented.	Thank you for your comment. The capital costs for Alternative 3 have been revised to include the described backup generators not initially addressed in the USACE 2018 report.
111.26	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	5. The annual cost for Alternative 3 as presented does not clearly identify if it includes the additional electrical load for the redundant heat trace system in the utilidor.	Thank you for your comment, and that cost will be considered.
111.27	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	6. The O&M costs for Alternative 1 were assumed to be 2/3 of the O&M costs of the current power plant with no basis to support this assumption. O&M costs should be based on cost of similar operations. The stated basis for this EIS is due to the excessive costs associated with operating a CHPP past its serviceable life. The analysis should be revised based on substantiated O&M data instead of a baseless assumption, as that is the key factor driving the entire action.	Thank you for your comment. The analysis being requested cannot be conducted without design and operational level data, which is not currently known for the Proposed Action. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
111.28	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	C. Purpose and Need Statement to Increase Energy Efficiency. The Army's purpose and need statements to reduce overall utility cost and increase energy efficiency appear duplicitous in light of the type of infrastructure the Army is currently constructing on Fort Wainwright. The tent structures housing the Stryker Winter Maintenance Facilities and Combat Readiness Training Facilities plus the proposed Aquatic Center are not energy efficient facilities and may negate any cost savings realized by the heating and electrical upgrade project.	Thank you for your comment. The scope of this project does not include assessing the installation's facilities and infrastructure requirements. The Proposed Action uses current and near-term future energy demand in determining the amount of energy that would be provided.
111.29	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	1. Did the EIS include the heating needs for the new Facilities and proposed aquatic center in the analysis? 2. How do these types of facilities meet the objective of increased energy efficiency and reduced overall utility cost? 3. What percentage of the overall heat demand of the installation are required to heat these new and proposed facilities?	Thank you for your comment. See the response to comment 111.28 above.

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111.30	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	D. Purpose and Need Statement to be Compliant with Emission Standards. The Air Emissions calculations for Alternative 2 should reflect the real possibility that LNG (See discussion above of Interior Gas Utility's IEP Implementation issues) is not available and air permitting for Alternatives 2 and 3 must be based on the readily available fuel source, ULSD.	Thank you for your comment. Alternatives 2 and 3 were determined reasonable action alternatives and are examined as such. Additional air quality modeling was performed assuming temporary use of ULSD, and that information was added to Section 3.2 of the EIS.
111.31	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Section II: Description of Proposed Action Alternatives 1. Section 2.3.2 Why wasn't the Black and Veatch Utilities Master Plan, Heat and Power Analysis included in the analysis for the basis of Alternatives Considered?	Thank you for your comment. Section 1.1.2 of the EIS explains that the Energy Master Plan for Fort Wainwright (Black & Veatch 2018) was among the documents used for the assessment of alternatives. Text was added to Section 2.3.2 to reiterate this point.
111.32	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	2. Section 2.3.2 Why wasn't a dual fuel coal/biomass alternative considered as it was already proven as a viable Interior Alaska alternative by UAF?	Thank you for your comment. While a dual-fuel coal/biomass CHPP has been determined by the University of Alaska Fairbanks (UAF) to be technologically feasible, there is not a readily available fuel source for biomass at this time. A dual-fuel coal biomass alternative (Alternative 18) has been analyzed within the Final EIS (see Section 2.4).
111.33	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	3. Section 2.5.2 States that USACE 2018 analysis identified Alternative 1 as having the highest risk for installation wide loss of heat through distribution. It has been proven and also mentioned in the DEIS that up to 90 days of coal can be stored on site thus providing 3 months of on-site heat and power capability. While the backup for Alternative 2 LNG is ULSD, and the backup for Alternative 3 LNG is electrical power by on-site generation using ULSD with an on-site storage capacity limited to the AD17 14 days of ULSD. Thus, Alternative 2 has the highest risk for installation wide loss of heat through distribution while Alternative 1 would be the lowest risk.	Thank you for your comment. Risk for installation wide loss of heat is a measure of system efficiency from power generation to the recipient. On-site storage provides a measure of fuel source security. These metrics are not the same.
111.34	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	4. Section 2.5.4: Do the two 10 MW ULSD generators meet the demand for all heat and power requirements if LNG and commercial power are unavailable? If not, does this alternative meet the redundancy and resiliency requirements?	Thank you for your comment. The proposed ULSD generators are designed to meet minimum power needs to maintain base security, thus meeting the project purpose and need requirements.
111.35	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Section III: Affected Environment and Environmental Consequences 1. Section 3.1 Identified the need to upgrade the steam distribution system for Alternative 1 but not for Alternative 2 yet both alternatives use the same steam distribution system. Alternative 3 would also require less extensive upgrades to utilidor distribution system. The inconsistent description of required utilidor upgrades is misleading.	Thank you for your comment. Section 3.1 of the EIS was revised to be consistent and accurate in its alternative descriptions.
111.36	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	2. Section 3.2 Alternatives 2 and 3 based emissions calculations on use of LNG as the primary fuel source. The EIS states that LNG is currently not readily available and therefore ULSD will be the fuel source if LNG is not available. The EIS emissions analysis should be based on available fuel supplies with the caveat that emissions may be less if and when LNG is commercially available. Permitting is evaluated on the maximum potential to emit. The EIS analysis is misleading by evaluating emissions based on a potential future fuel source instead of the readily available fuel source.	Thank you for your comment. LNG is commercially available in sufficient quantity.
111.37	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	3. Section 3.2 Alternatives 2 and 3 with LNG as a fuel source will increase the water vapor emissions by up to 100% over the No Action Alternative and Alterative 1. Increased water vapor in the presences or air pollutants could increase particulate formation and exacerbate the PM 2.5 non-attainment condition rather than improve the air quality. The air quality section should include modeled analysis of the increased water vapor using appropriate stack heights for each alternative instead of a simple emissions calculation to accurately analyze air quality impacts.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.

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111.38	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	4. Section 3.2 Alternative 3 did not include an analysis of air emissions from the 20 MW backup power generation plant. These backup generators would require periodic exercising as well as full time use during any power outages. The emissions for these generators should be included in the emissions calculations for Alternative 3.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur, which will include analysis of emission unit data. Section 3.2 of the EIS did not include an analysis of air emissions from backup power generation because the readiness testing and emergency use would be a small number of hours per year and not expected to contribute to air quality concerns. The installation would be in compliance with all of the reportable requirements for emergency backup generators in accordance with the Clean Air Act.
111.39	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	5. Section 3.2 Alternative 3 simply displaces Fort Wainwright's air emissions from power from Fort Wainwright to Golden Valley Electric Association. The EIS does not account for these displaced emissions even though they may be impacting the same PM2.5 non- attainment area or the Denali Class 1 Airshed, depending on the source of power.	Thank you for your comment. GVEA's coal plant is not operating in this area, so is not a contributor to carbon emissions. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS because GVEA's power generation plans cannot be speculated.
111.40	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	6. Section 3.2 The Air Quality Analysis was based on simple comparative emissions calculations and did not include the effect of emissions stack height on air quality. The cold temperature inversion phenomena that occurs in Fairbanks exacerbates poor air quality by trapping low lying emissions. The air quality section of the EIS should be reevaluated incorporating air quality modeling for accurate evaluation of emissions including stack heights and water vapor content in the analysis.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur, which will include analysis of emission unit data. The need for additional environmental impact analysis will be assessed at that time.
111.41	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	7. Section 3.3.2.3 No Action Alternative mistakenly says that no natural gas would be required on Post but earlier stated that Sitku Basin residential area used natural gas.	Thank you for your comment. The No Action Alternative would not require additional natural gas on-post beyond supporting the existing infrastructure.
111.42	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	8. Section 3.4.2.2 No Action Alternative mistakenly states that coal ash is spontaneously combustible. This is not a true statement.	Thank you for your comment. Section 3.4.2.2 of the EIS text has been revised to more accurately describe the risks associated with coal ash.
111.43	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	9. Section 3.4.2.3 Alternative 1 also mistaken implies coal ash is combustible.	Thank you for your comment. Section 3.4.2.3 is discussing the risk of fires from inadvertent remnant hot materials remaining in coal ash. It does not imply coal ash is combustible.
111.44	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	10. Section 3.4.2.4 Alternative 2 does not analyze the Spill Prevention Control and Countermeasure requirements for additional bulk fuel storage of 732,000 gallons of ULSD per 40 CFR 112 and potential to make Fort Wainwright a Substantial Harm Facility.	Thank you for your comment. The Draft EIS acknowledges SPCC development requirements, and an SPCC Plan and its implementation would occur in accordance with applicable regulations.
111.45	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	11. Section 3.4.2.5 Alternative 3 does not analyze the SPCC requirements for additional bulk fuel storage of 326,000 gallons of ULSD per 40 CFR 112 and potential to make Fort Wainwright a Substantial Harm Facility.	Thank you for your comment. The EIS acknowledges SPCC development requirements, and an SPCC Plan and its implementation would occur in accordance with applicable regulations (see Section 3.4).

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111.46	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	12. Section 3.5.2.4 Alternative 2 does not include the power purchase quantity needed for this alternative but was included in analysis for Alternative 1. The power purchase cost analysis should be included in all alternatives for consistency	Thank you for your comment. Section 3.5.2 of the EIS provides estimates on quantities of electricity to purchase based on the USACE 2018 study. Estimates of the quantity of power that would be purchased under Alternatives 1 and 3 are based on the USACE 2018 study. No estimate was provided under Alternative 2 because it is assumed that the new plant would be capable of producing 45 MW of heat energy and would also operate as a cogeneration plant, in which the plant would operate to follow the electricity load at For Wainwright. Hence, electricity is expected to be generated at the new plant; only in the event that additional power is required would electricity be purchased from the local utility. At this time, it would be speculative to provide an estimate of what the extra electricity requirements would be.
111.47	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	13. Section 3.6 Did the Environmental Justice Analysis include the proximity of a new Child Development Center for sensitive population of 1-5-year-old children within the non- residential zone directly adjacent to the new facilities, gas lines, and bulk ULSD storage facilities?	Thank you for your comment. The text in Section 3.6 of the EIS has been revised. Child Development Center II has been added to the list of facilities in which a large number of children may gather at some point during an average week.
111.48	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	14. Section 3.6 Why doesn't Region of Influence (ROI) include the off-site impact of truck routes and LNG line pipeline routes?	The off-site impact of truck routes and LNG line pipeline routes could not be described in detail because the locations of these routes are uncertain. As discussed in Section 3.8.2 of the EIS, it is anticipated that the pipeline would be placed within a zoning district designated for general use or industrial use by FNSB and may be within an existing utility easement or right-of-way.
111.49	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	15. Section 3.8 Why doesn't ROI include the LNG pipeline routes?	Thank you for your comment. As stated in Section 3.8 of the EIS, the ROI for land use includes a potential corridor for a natural gas pipeline from the City of Fairbanks to on-post.
111.50	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	16. Section 3.9.2.5 How are Alternative 3 long term impacts the same as Alternative 2 when delivery of ULSD on installation by truck will be for significantly different quantities of fuel?	Thank you for your comment. The impacts are not quantity-driven, but due to type of fuel, method of transportation, and route.
111.51	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	17. Section 3.10 Says that trains would no longer be used for fuel delivery which is inconsistent with Section 3.8 that says trains may still be used for fuel deliveries for Alternatives 2 and 3.	Thank you for your comment. Section 3.3 (Utilities) indicates that the Alaska Railroad Corporation is permitted to bring natural gas by rail to the Fairbanks region. The Section 3.8 (Land Use) discussion for Alternative 2 states that trains would no longer use the rail spur adjacent to the existing CHPP to deliver coal, resulting in an overall reduction of train trips through the installation. Section 3.9 (Transportation) indicates that trucks would no longer be used to deliver coal ash to the landfill. As explained in Section 3.10 (Health and Human Safety), LNG would be delivered to the installation by pipeline, and USLD would be delivered by truck. Apart from discussion in Section 3.9 about the possibility of LNG being delivered by rail in the future, there is no mention of trains providing fuel deliveries.

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111.52	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	18. Section 3.12.1.2 Water Resources did not consider the law governing protection of water resources from spills under 40 CFR 112. Alternatives 2 and 3 increase the risk to the installation's drinking water supply by installing bulk ULSD fuel tanks in the vicinity of the drinking water wells. An analysis of 40 CFR 112 needs to be added to the final EIS.	Thank you for your comment. The protection of water resources under 40 CFR 112 is addressed in Section 3.5 Hazardous and Toxic Materials Wastes. All alternatives are subject to the garrison's Hazardous Material and Waste Management Plan, SPCC Plan, and applicable regulations. Further groundwater and soil contamination would be avoided through implementation of these plans and requirements. Description of applicability for each alternative is provided in Sections 3.4.2.3, 3.4.2.4, and 3.4.2.5 of the EIS.
111.53	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	19. Section 3.15 The Cumulative Effects analysis of off-site present and future actions is missing the largest actions presently occurring in Interior Alaska with the construction of the Long-Range Discriminating Radar with 20 MW backup diesel power plant at Clear AFS and the expansion of the Ballistic Missile Fields at Fort Greeley. Were these projects and their power and fuel demands considered in the analysis for Alternatives 2 and 3? Would there be sufficient electrical power and diesel in the state to meet all demands in case of a catastrophic event?	Thank you for your comment. These projects are not considered as having additive impacts when combined with impacts from the Proposed Action.
111.54	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	20. Section 3.15 The Cumulative Effects analysis for on installation projects only included the Master Plan projects and not the US Army Alaska priority Quality of Life projects such as the Stryker Facility projects and aquatics center that have a significant energy and heat demand on the Installation. These projects should be included in the analysis. 21. Section 3.15.4.1 Is this Air Quality Analysis still accurate if the Stryker Facility and aquatic center projects are included in the analysis and what fuel source is used for heat for these facilities in that analysis?	Thank you for your comment. The existing incorporated reference studies include a projected load growth due to mission growth.
111.55	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	22. Section 3.15.4.3 This section incorrectly characterizes coal ash as a hazardous waste. Coal ash has not been classified as a hazardous waste. This statement must be corrected in the final	Thank you for your comment. The EIS has been revised to clarify that coal ash is not a hazardous waste, although the management of the coal ash waste at the solid waste landfill is monitored.
111.56	2/21/2021	Letter	Joseph E. Usibelli Jr.	Usibelli Coal Mine, Inc.	Conclusion Within the current portfolio of energy sources that FWA can choose from, the difference in cost (infrastructure, operation, fuel, and transportation) is dramatic. Usibelli concurs with the findings of the Black and Veatch 2018 Energy Master Plan that refurbishment and upgrades of the existing CHPP should be the preferred alternative. The DEIS should be revised to include this as an Action Alternative. Continued investment in the existing infrastructure would ensure the continuation of the CHPP's ability to reliably sustain the mission with the least amount of capital investment by the government. The CHPP is reliable, meets air quality standards, and can provide many more years of safe, reliable service to the Installation. A new coal-fired CHPP will substantially reduce the cost of energy for FWA, while increasing efficiency, reducing emissions, continue to provide an affordable, safe, and resilient supply of heat and power to Fort Wainwright, Alaska.	Thank you for your comment. The No Action Alternative was analyzed in accordance with the NEPA regulations referenced in Section 1.1 of the EIS.
112.01	2/21/2021	Form Submission	Larry Jackson	Public	The title of your draft EIS (Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright) does not accurately notify the public that a major (significant) change is being proposed to Fort Wainwright's existing power plant. The proposed alternatives except for the no action alternative are replacements to the existing coal fired power plant, not upgrades. I believe the title is misleading to the public and suggest consideration be given to more accurately naming the draft EIS. The proposed actions would be replacements---not upgrades. Using the word upgrade is misleading to the reader who may be interested in the huge impact the proposed alternatives would have on the Fairbanks and Healy economies.	Thank you for your comment. Your input to the evaluation process is appreciated.

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112.02	2/21/2021	Form Submission	Larry Jackson	Public	Alternatives 2 and 3 do not pass your screening criteria that you established. Specifically alternative 2 does not meet screening criteria 1, 2, 3, and 4. Alternative 3 does not meet screening criteria 1, 2, 3, 4, and 6. a. There are no local commercial sources of natural gas available to support alternative 2 and 3 inclusion. b. The estimated costs of commercial quantities of natural gas delivered have been underestimated. Federal and State of Alaska subsidies will be required to make natural gas affordable in Fairbanks. c. The number of potential failure points of natural gas being delivered reliably to Fort Wainwright make alternatives 2 and 3 fail because of lack of security of fuel source. d. Using low sulfur diesel fuel full time in alternative 2 is not economic and adds almost nothing to improved air quality. Using low sulfur diesel fuel while waiting for delivery of natural gas at some time in the future makes this alternative fail screening criteria.	Thank you for your comment. As part of existing incorporated reference studies, the Army has done due diligence to ensure sufficient quantities of natural gas will be available at the estimate costs. Additionally, the ULSD fuel will be used as a backup fuel source to provide fuel diversity and fuel resiliency.
112.03	2/21/2021	Form Submission	Larry Jackson	Public	Alternative 1, building a new coal fired power plant is the most cost effective and secure choice. a. Coal has been a reliable fuel for Fort Wainwright since 1955. b. All infrastructure for coal delivery is in place. c. Coal can be stored onsite in very large quantities (90 days or more). d. Coal production and delivery has very few points of failure that might disrupt supply (unlike natural gas).	Thank you for your comment and your support of this action alternative.
112.04	2/21/2021	Form Submission	Larry Jackson	Public	Many of the problems with the current power and heat supply systems are caused by failure of making proper maintenance and upgrade investments, such as utilidor problems and the roof on the existing power plant needing to be replaced. Clearly, building a new coal fired powered plant would be the most secure and cost effective choice to supply Fort Wainwrights heat and electricity for the next 50 years.	Thank you for your comment and your support of this action alternative.
112.05	2/21/2021	Form Submission	Larry Jackson	Public	To bring enough natural gas by truck from Cook Inlet to Fort Wainwright to supply a 45 MW power plant will be cost prohibitive. Fairbanks does not have the infrastructure for this quantity of natural gas to be delivered nor does Cook Inlet have the infrastructure to supply this gas.	Thank you for your comment. As part of existing incorporated reference studies, the Army has done due diligence to ensure sufficient quantities of natural gas and infrastructure is available in the Fairbanks area to meet the demand.
113.00	2/22/2021	Email	Dave Nebert	Public	The decisions you make today is really a moral one. Do you care about the future residents of our planet? Do you care about our grand children and theirs? The majority (about 98%) of the world's scientists who actively study climate change are in agreement that fossil fuels are the lead culprit in the warming climate. If you decide to continue the burning of fossil fuels far into the future, you are complicit in the warming of the planet. Do the right thing by choosing to move toward greener options, natural gas being the least complicit of all the fossil in the warming of our earth, and would be far better than coal, the worst. Please consider using solar and wind to assist gas in moving away from coal. Future populations will applaud your actions if you do the right thing, Doing the opposite will remain a stain on your names.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
114.01	2/22/2021	Letter	Submitted by Brandon Brefczynski on behalf of Govenor Mike Dunleavy	Office of the Governor	NEPA Alternatives and Impacts As noted in the Draft EIS (DEIS) the United States Army Garrison (USAG) proposes "[t]o upgrade its central heat and power plant (CHPP) and is reviewing four alternatives: Alternative 1, Build a New Coal-Fired CHPP; Alternative 2, Build New Dual-Fuel Combustion Turbine Generator CHPP; and Alternative 3, Install Distributed Natural Gas Boilers". DEIS, p.iii. Alternative 4 is a "No-Build Alternative" that includes major repairs and upgrades to the existing CHPP. "None of the action alternatives would result in significant adverse impacts on environmental resources. Alternatives 2 and 3, however, would have significant, localized, adverse socioeconomic impacts." [Emphasis added]. The socioeconomic impacts are identified in the DEIS as lost family wage jobs in coal mining. "Alternative 2 and Alternative 3, however, would result in long-term, significant, local_ized adve.rse socioeconomic impacts on the coal mining ector in Healy." [Emphasis added, Id. at p. ix-x]. Impacts of these lost jobs are noted as being "long-term" but only "minor to significant" in the DEIS. Id., p.x: "[t]he reduction of coal sales and mining jobs under Alternative 2 and Alternative 3 would result in long-term, minor to significant, localized, adverse economic impacts on children and low-income populations in Healy."	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
114.02	2/22/2021	Letter	Submitted by Brandon Brefczynski on behalf of Govenor Mike Dunleavy	Office of the Governor	Impacts to Doyon Utilities and Doyon Limited By agreement with USAG, the existing CHPP is owned and operated by Doyon Utilities (DU). Doyon Limited, an Alaska Native Claims Settlement Act (ANCSA) corporation representing thousands of Alaska Native shareholders, owns 50 percent of DU. A description of the CHPP and associated infrastructure and systems can be found here: https://www.doyonutilities.com/about/fortwainwright-utilities. The CHPP was formally transferred to Doyon Utilities on August 15, 2008. The DU agreement with the Department of Defense (DOD) runs for a term of 50 years. The DEIS does not address in any detail how each alternative would affect DU, DU employees, or Doyon Limited shareholders. Through ANCSA, Congress intended Doyon Limited and its shareholders to have the benefit of economic activity such as the investment in DU and the agreement to operate the CHPP.	Thank you for your comment. Any further discussion regarding the effects of the alternatives on the economic well-being of the Doyon, Limited's shareholders (including its subsidiaries and beneficiaries) is speculative due to the System Owner UPC contracting processes and Federal Acquisition Regulation obligations managed by the Defense Logistics Agency. During a consultative meeting between USAG Alaska and Doyon, Limited held on February 4, 2021, the Army requested shareholder economic data from Doyon, Limited in support of the analysis (USAG Alaska 2021b). On February 4, 2022, the Army requested additional information regarding the social and economic impacts to Doyon, Limited and their shareholders from the proposed action (Schutt 2022). The data that were provided during the Draft EIS comment periods, and in response to the Army's additional request, by Doyon, Limited is presented in Section 3.5.1.3 of the EIS. Regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations and would ensure that adherence to applicable property tax laws would be maintained. These contractual agreements are confidential and outside the scope of this analysis. Furthermore, Sections 3.5.2.3, 3.5.2.4, and 3.5.2.5 discuss the employment effects of the action alternatives.
114.03	2/22/2021	Letter	Submitted by Brandon Brefczynski on behalf of Govenor Mike Dunleavy	Office of the Governor	Impacts to Usibelli Coal Miners, Their Families, and Other Jobs Coal is supplied by Usibelli Coal Mine, Inc. (UCM). The socioeconomic benefits of UCM operations are described in detail here: http://www.usibelli.com/pdf/McDowell-Report-Statewide-ocioeconomic-Impacts-of-UCM-20151.pdf. Mining jobs at Usibelli pay roughly double the average wage of a job in Alaska, and include company benefits such as healthcare. UCM operations have a direct supply chain that supports hundreds of Alaska businesses. These businesses also have their own employees. The employees of U sibelli, and of supply chain businesses, support other businesses and their employees such as restaurants, gas stations, grocery stores, etc., McDowell Report, at p.1-2. The negative effects of job losses extend beyond UCM and are not "minor" on Alaskan families or children. Loss of a good paying job and healthcare benefits is devastating to those workers and employees. For an example, read, http ://www.theguardian.com/us-news/2020/may/29/coal-minerscoronavirus-job-losses.	Thank you for your comment. Section 3.5.2.4 of the EIS identified locally significant impacts (i.e., obvious impacts with serious consequences that would be readily noticed by an observer, as defined in Section 3.1.1 of the EIS) on labor in Healy.
114.04	2/22/2021	Letter	Submitted by Brandon Brefczynski on behalf of Govenor Mike Dunleavy	Office of the Governor	State's Position The DEIS is deficient. It does not address in detail the existing agreement with DU and how USAG and DOD will be affected by each alternative. The DEIS also does not address the impact on Alaska Native shareholders of Doyon Limited from each of the alternatives. The DEIS is also deficient because it fails to adequately consider the negative socioeconomic impacts of all potential job losses. It also underestimates the impacts of job losses on families and children as only "minor to significant" when they would be devastating. For the reasons stated in this letter, USAG and DOD should include a more thorough discussion of these issues and produce a revised DEIS. At that point, the public can properly review and comment on the proposed alternatives.	Thank you for your comment. The employment effects of the different alternatives are described in Section 3.5.2 which states that the action alternatives would likely require fewer O&M workers than the existing system. The EIS notes that regardless of the alternative selected, the Army is obligated to uphold the terms of its contractual agreements in accordance with the Federal Acquisition Regulations. Sections 3.5.2.3, 3.5.2.4., and 3.5.2.5 have been updated and states because the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, Doyon, Limited, any action taken that affects the income of Doyon, Limited is anticipated to affect the segment of the Alaska Native population that is a shareholder or beneficiary. Please also see the response to comment 114.02 above.
115.01	2/22/2021	Letter	Jennifer Campbell	University of Alaska Fairbanks	The University urges the U.S. Army to specifically analyze the potential impacts of an increase to the price of coal to the University, should the Fort Wainwright CHPP be decommissioned.	Thank you for your comment. The effect on the price of coal that will be paid by other utilities/coal customers in the region resulting from the action alternatives would depend on the coal supplier's economic position/business decisions and the negotiated prices between parties. The Army can not speculate on the coal supplier's business decisions.

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115.02	2/22/2021	Letter	Jennifer Campbell	University of Alaska Fairbanks	The University has recently constructed a state-of-the-art coal combustion CHPP on the Fairbanks, Alaska campus that became fully operational in February 2020. The new CHPP supplies heat and power to the campus and can generate 17MW of electricity and 240,000 lbs/hours of steam. Any disruption in the single source supply of coal in the Fairbanks area -- such as a decision to decommission the Fort Wainwright CHPP and generate heat and power with a non-coal fuel source -- will have direct and consequential impacts to the University and other coal combustion stakeholders in the region.	Thank you for your comment. Please see the response to comment 115.01 above.
115.03	2/22/2021	Letter	Jennifer Campbell	University of Alaska Fairbanks	To that end, the DEIS should a) include an economic impact analysis that models the potential impacts to the price of coal in the Fairbanks region upon the decommissioning of the Fort Wainwright CHPP; and b) provide greater fidelity on the projected timeframe for the Army's decommissioning of Fort Wainwright CHPP so that the University can adjust its business operations accordingly.	Thank you for your comment. In the event that the CHPP would be decommissioned and an alternative chosen other than coal, it is difficult to predict the impact to the price of coal in the Fairbanks region. The price could go up because of loss of volume, or could go down due to reduced demand, so the Army cannot speculate on the effect on price. This is outside the scope of this EIS.
116.01	2/22/2021	Email	Jeff Yarman	Public	We are older Alaskans that came up to this wonderful place many years ago. We came for the open spaces, cleaner air and water and eye pleasing aesthetics of the natural world. It is also becoming very clear that we as humans need to immediately start treating the natural world with more care by eliminating our pollution and minimizing our impacts to our environment so that every person and all living things have the ability to lead productive lives. Failing to do so, we feel, will only create more conflict, social unrest and difficult living conditions for all of us.	Thank you for your comment. Responses to your comments on the analysis presented in this EIS are provided below.
116.02	2/22/2021	Email	Jeff Yarman	Public	In deciding which option to proceed with we ask that you place a very high value on energy sources and systems that reduce pollution, greenhouse gases and protect the environment. We feel that the best option that you have presented is Alternative 3, distributed natural gas, which would have the greatest reduction of greenhouse gas emissions, lowest building and operational costs, and would allow the replacement of coal with natural gas. We would also like to see renewable energy sources play more of an energy source role in the near future as they become cheaper and associated technologies evolve. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of this alternative.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
116.03	2/22/2021	Email	Jeff Yarman	Public	As with all major changes that affect a society or community there will be pro's and con's as you have outlined and discussed. We feel that the long term positive effects of a power generation plant that transitions away from coal and then, eventually from natural gas, to renewable, sustainable energy source(s) is the best course for the residents of Ft. Wainwright, Fairbanks, Healy and everyone and everything else on this very special world we live and depend on.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement a renewable energy portfolio as available. Section 2.4 of the EIS discusses renewable energy sources and their feasibility for implementation.
117.01	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska. I am submitting these comments on behalf of the Northern Alaska Environmental Center. Founded in 1971, we have advocated on behalf of our 900+ members for healthy lands, air, and water for nearly a half century. Human health and environmental health are inextricably linked and a healthy economy is similarly dependent on a healthy environment. We live and work in the greater Fairbanks area and our office on College Road is only about 5 miles from base. The alternative selected to replace the aging CHPP on Fort Wainwright will impact the greater Fairbanks community –our community-- for decades to come. Upon review of the DEIS, it appears that several issues raised in our scoping comments were not adequately addressed and, thus, retain relevance. These points are reiterated as part of the following comments.	Thank you for your comment. Response to your comments on the analysis presented in this EIS are provided below.
117.02	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Concerns with the No Action Alternative (current CHPP) and with Alternative 1 (build a new coal-fired CHPP) The No Action Alternative is clearly not a viable option. The aging infrastructure is rife with problems, is operationally inefficient, and, in order to meet state and federal air quality CO limits and air quality standards, is operating at 42 percent efficiency. Continuing to operate this plant is economically and environmentally prohibitive.	Thank you for your comment. Your input to the evaluation process is appreciated.

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117.03	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Although coal is among the cheapest and most readily available fuel sources in interior Alaska, fuel source costs should not take precedence over health, climate, and other environmental costs. UAF's new CHPP faced similar issues during the evaluation stage and was moved forward as the best alternative due to lack of LNG or other viable options. The plant has been beset by problems as has GVEA's Healy 2 power plant. The Draft EIS acknowledges that Alternative 1 "would have the highest implementation and operations and maintenance (O&M) costs, and the highest risk for installation-wide loss of heat through distribution (USACE2018)." GHG, CO, and PM2.5 emissions are predicted to be lower than for the No Action Alternative, but are the highest of the three action alternatives due to the continued reliance on coal. For these and for cost reasons, this alternative should not be further considered.	Thank you for your comment. Your input to the evaluation process is appreciated.
117.04	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	CO2 (and PM2.5) emission levels from coal combustion are of serious concern for air quality in the Fairbanks North Star Borough (FNSB) and for the need to reduce carbon emissions in light of the current and impending impacts of climate change. GVEA recently pledged to reduce their carbon emissions by 26% by 2030. This is an admirable goal and starting point, which the USAG Alaska should similarly strive to achieve. Although coal is among the cheaper fuel sources (along with wind and hydro), it has some of the highest emission rates. The climate change crisis dictates completely excluding coal as a fuel source option.	Thank you for your comment. Overall long-term air quality and GHG impacts from the Proposed Action would be beneficial compared to existing conditions due to increased efficiency of the new system. See Section 3.2 of the EIS, which also includes additional climate change analysis.
117.05	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Alternative 2, Build a New Dual-Fuel Combustion Turbine Generator CHPP As noted in our scoping comments, "feasibility analysis needs to include the realistic likelihood of an adequate, reliable, and consistent supply of LNG." The same holds true for the secondary fuel source, ULSD. The draft EIS states, "Under this alternative, USAG Alaska would be required to secure a sustained supply of natural gas or ULSD. It has been demonstrated that the availability of natural gas in Alaska is sufficient to meet the installation's demand (Pentex Alaska LLC 2016). Natural gas or ULSD would be sourced from a utility provider, natural gas would be supplied by a pipeline to the installation, and ULSD would be stored in aboveground tanks located on the installation." These assurances seem based on continued transport of a steady and reliable supply from Cook Inlet to, presumably, IGU holding tanks to which the proposed pipeline would connect. Currently, the AKLNG project is still a "pipe dream" with innumerable and substantial financial and environmental hurdles to overcome, including the need for the private sector to develop a lateral line to Fairbanks. The continued reliance on fossil fuels and a currently incomplete supply chain undermine the practicality and efficacy of this alternative from economic and environmental perspectives.	Thank you for your comment. There is a sustainable source of natural gas and ULSD available to Fort Wainwright (per Pentex Alaska LLC 2016; see Section 2.5.3 of the EIS).
117.06	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Alternative 3, Install Distributed Gas Boilers Distributed power generation alleviates issues inherent in single power plants that can impact mission readiness through power generation vulnerability to catastrophic failure. The draft EIS states that "Alternative 3 would result in the greatest long-term, beneficial impacts on air quality by reducing CO and greenhouse gas emissions by almost 90 percent and over 70 percent, respectively." Two points of note, however, are that the reductions, although needed and substantial, are relative to the current aged coal-fired CHPP. Emissions relative to GHG and carbon reduction requirements to adequately mitigate climate change and local air quality impacts need to be assessed independent of the status quo (No Action Alternative) conditions. Additionally, methane, a primary component of natural gas and a potent GHG (second only to CO2 as a contributor to climate change) requires closer scrutiny when evaluating LNG as a fuel source moving forward. Fugitive methane releases during processing and transport of LNG need to be considered when assessing GHG emissions. Also, as noted for Alternative 2 above, this alternative requires a reliable, sustained supply and access to LNG. The distributed power generation model could be ideal for sustainable "micro grids" and be amenable to either combined energy sources from installation or a phased approach to adding power sources –notably renewables – to the grid.	Thank you for your comment. Fort Wainwright has maintained an ongoing program to continuously evaluate the feasibility of renewable energy technologies and micro grids in accordance with relevant Army policies and Presidential Executive Orders (EOs), including those identified in Section 1.3.1 of the EIS.

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117.07	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Add a renewable portfolio alternative, either as a stand-alone or a combined alternative. Alternatives considered but eliminated from further review include wind, solar, and biomass. All were analyzed as stand- alone alternatives and, thusly, eliminated for, among other reasons, lack of 24/7 year-round viability. That is terribly short- sighted. This is a time to be forward looking, to be visionary, to consider combinations of clean energy systems, to build on the micro-grid idea noted above and used (and being further developed) across Alaska. I urge USAG Alaska to think out of the box and work with local experts (such as Renewable Energy Project Alaska, Alaska Center for Energy and Power, and the National Renewable Energy Lab/Cold Climate Housing Research Center) to reconsider renewables and develop alternatives that utilize wind, thermal, solar, biomass, or other options. Dependence solely on fossil fuels (coal, LNG, diesel) is no longer viable, especially when powering the base for decades into the future. I have no doubt that there are reasonable alternatives not yet considered.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
117.08	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Include energy efficiency and weatherization upgrades and requirements for existing and newly constructed infrastructure. Meeting mandated energy efficiency requirements is listed as a "need" for this project (See DEIS Section 1.2 Purpose and Need for Action, which includes "Increase energy efficiency"). Yet, the only references to energy efficiency pertain to the efficiency of the power plant itself and not to the efficiency of the buildings using that heat and power. Energy efficiency is included as part of implementing the Army Energy Strategy (p. 242, publication AR 420-1: (1) Eliminating/reducing energy waste in existing facilities. (2) Increasing energy efficiency in new/renovated construction. (3) Reducing dependence on fossil fuels. (4) Conserving water resources. (5) Improving energy security.). Reducing energy needs and consumption through improved weatherization and energy efficiency are among the most cost effective and forward thinking actions DOD can take toward addressing energy security, fiscal, and resilience concerns. The cheapest energy is the energy not needed.	Thank you for your comment. Fort Wainwright has maintained an ongoing program to continuously evaluate the feasibility of renewable energy technologies and micro grids in accordance with relevant Army policies and Presidential Executive Orders (EOs), including those identified in Section 1.3.1 of the EIS.
117.09	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Climate change considerations must be adequately analyzed and included. Climate change in words, meaning, and actions is sorely lacking in the DEIS. A search of the words "climate change" in the DEIS revealed that the only place where they appear is within comments submitted and included in the summary of scoping comments. Since the original comment period closed and this current comment period extension opened, President Biden was inaugurated and his administration is putting the climate crisis front and center. This is evident throughout his hiring picks and policies, including the signing of Executive Order (EO) 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis and EO14008, Tackling the Climate Crisis at Home and Abroad in January.	Thank you for your comment. The regulatory overview in Section 3.2 of the EIS has been updated to include information on EOs 13990 and 14008.
117.10	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	It behooves the USAG Alaska to follow these directives, act in accordance with the DOD's previous recognition that climate change is a national security issue (see "Report on Effects of a Changing Climate to the Department of Defense" at Caution-https://climateandsecurity.files.wordpress.com/2019/01/sec_335_ndaa-report_effects_of_a_changing_climate_to_dod.pdf < Caution-https://climateandsecurity.files.wordpress.com/2019/01/sec_335_ndaa-report_effects_of_a_changing_climate_to_dod.pdf >) and make mitigating impacts of climate change central to any and all decisions regarding fuel sources and energy use on Fort Wainwright.	Thank you for your comment. Regardless of the alternative selected, the Army will adhere to federal and state regulatory requirements.
117.11	2/22/2021	Email	Lisa Baraff	Northern Alaska Environmental Center	Fro the above stated reasons, we believe that the USAG Alaska must either redo the DEIS or draft a Supplemental EIS that evaluates additional non-fossil fuel based alternatives, considers energy efficiency at the user end of the system, more fully analyzes PM2.5 emissions and potential impacts on local air quality, and addresses the climate crisis.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement a renewable energy portfolio as available. Section 2.4 of the EIS provides analysis regarding renewable energy sources. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.

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118.00	2/22/2021	Email	Liz Greig	Public	I strongly recommend that you do not use coal to burn for energy for the proposed power plant on Ft. Wainwright. It will create ash that needs to be dumped somewhere, which will leach into the ground and groundwater. It will pollute the air and aggravate what is already a bad air situation here in Fairbanks. Use the waste heat for community gardens. I have lived across the river from Ft. Wainwright for nearly 13 years inl Hamilton Acres and I have often smelled the result of burning coal, and our neighborhood has been egregiously impacted by coal burning regarding the air quallity.	Thank you for your comment. Section 3.2 of the EIS discusses air quality impacts. Section 3.10 discusses coal ash disposal.
119.00	2/22/2021	Email	Mike Musick	Public	My reading of the DEIS has lead me to the conclusion that the document has overlooked the gravest existential environmental crisis that humans have ever faced: Climate Change. Clean air, clean water, and clean energy are the goals. We must immediately begin the transition to clean energy now. We can no longer burn coal for heat and power. Natural gas and/or propane offer short term, interim cleaner energy sources for heat and power at Ft. Wainwright. The ultimate solution is, of course, clean renewable energy provided by wind, solar, geothermal, hydro or some combination of the above. While these sources of energy are coming on-line, the first and best best way to reduce the effects of burning carbon is energy efficiency and energy conservation through weatherization of all heated structures on base and the electrification of ground transportation. Electric Vehicles (EVs) have proven to work in Alaska and can reduce a great deal of the air pollution experienced on base. While there is no one, single silver bullet to help us transition to our clean energy future, we must move forward in to the twenty first century and retire the nineteenth century energy sources of the past.	Thank you for your comment. Overall long-term air quality and GHG impacts from the Proposed Action would be beneficial compared to existing conditions due to increased efficiency of the new system. See Section 3.2 of the EIS, which also includes additional climate change analysis.
120.01	2/22/2021	Email	Mathew Sorum	Public	Our borough suffers from some of the most hazardous air quality in the nation, caused in part by the combustion of fossil fuels from the region's power plants. Currently, the EPA is requiring the most stringent measures to be taken in order to resolve the air pollution in FNSB. Air pollution has a multitude of effects on human health: blood clotting, strokes, kidney failure, and respiratory issues such as asthma or emphysema; permanent cognitive impairment in children; early-onset dementia, Alzheimer's, and premature death in the elderly. It is estimated by a recent study that there are up to 100 premature deaths annually in Fairbanks due to PM2.5 air pollution. Our community is currently facing a health and climate crisis; we cannot afford to continue burning fossil fuels in FNSB.	Thank you for your comment. Section 3.2 of the EIS discusses impacts to air quality.
120.02	2/22/2021	Email	Mathew Sorum	Public	The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
120.03	2/22/2021	Email	Mathew Sorum	Public	No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative. Section 3.2 provides an analysis of air quality impacts. Regardless of the alternative selected, the Army will adhere to federal and state regulatory emission requirements.
120.04	2/22/2021	Email	Mathew Sorum	Public	Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Please see the response to comment 120.03 above.
120.05	2/22/2021	Email	Mathew Sorum	Public	The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives.	Thank you for your comment. Section 3.2 of the EIS has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Upon project design, the need for additional environmental impact analysis will be assessed.

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120.06	2/22/2021	Email	Mathew Sorum	Public	The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. All three action alternatives considered would result in negative net GHG emissions due to improved efficiencies from the new proposed heat and energy systems. Renewable energy alternatives were considered in Section 2.4 of the EIS.
121.00	2/21/2021	Email	Sharn Alden	Public	The millitary has a good record of leading. Fairbanks has some of the worst winter air quality in the nation. It's imparitive that Ft. Wainwright take the strongest measures that it can not to make the air polution worse. Whatever power plant that is designed please make sure its the most eco-friendly that is realistic. The current EIS does not appear th address the horrible air polution that Fairbanks and North Pole endure.	Thank you for your comment. The EIS has analyzed air quality concerns in Section 3.2 and the overall long-term air quality impacts from the Proposed Action would be beneficial compared to existing conditions due to increased efficiency and lower emissions.
122.01	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Thank you for providing Doyon, Limited ("Doyon") the opportunity to submit the following comments in response to the Notice of Availability of the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska ("DEIS"). I. Introduction Doyon is one of thirteen Alaska Native regional corporations (ANC) established pursuant to the Alaska Native Claims Settlement Act of 1971 (ANCSA), Pub. L. No. 92-203, 85 Stat. 688 (1971), as amended. Headquartered in Fairbanks, Doyon is the largest private landowner in Alaska, with a land entitlement under ANCSA of more than 12.5 million acres. Doyon's mission includes enhancing its position as a financially strong Native corporation, promoting the economic and social well-being of its current and future shareholders, strengthening its shareholders' Native way of life, and protecting its lands and resources. Unlike a typical corporation, Doyon's stock belongs to Alaska Native shareholders and stock cannot be bought or sold. Following the enactment of ANCSA, Doyon issued voting shares of stock to 9,061 Alaska Natives who are the indigenous people of the region and whose ancestors have inhabited the Doyon region for thousands of years. In March 1992 and again in March 2007, shareholders approved issuing stock to Native children born after the enactment of ANCSA in 1971, missed enrollees, and Elders. Today, Doyon has more than 20,100 shareholders.	Thank you for your comment. Please see the response to comment 114.02 above.
122.02	2/22/2021	Letter	Sarah Obed	Doyon, Limited	To satisfy its mission and shareholder obligations, Doyon owns and operates over a dozen for-profit companies. Among its companies, Doyon holds a 50% ownership interest in Doyon Utilities LLC (DU)1. With Doyon, Limited's backing, support, and resources, and following a lengthy competitive procurement process, the Army awarded DU a 50-year Utility Privatization (UP) contract in 2008 that transferred to DU ownership and operations of utilities on Fort Wainwright, Alaska (FWA), Fort Richardson (now Joint Base Elmendorf Richardson or JBER) and Fort Greeley Alaska (FGA), including the Central Heat and Power Plant (CHPP) on FWA. Revenues generated by DU under the UP Contract at FWA contribute to and support the economic and social well-being of Doyon's more than 20,100 shareholders, as well as provide funding and benefits to other ANCs, Alaska Native Tribes, and nonprofits in Interior Alaska (collectively, with Doyon Shareholders, "Doyon Beneficiaries"). DU's operations generally, and the CHPP specifically, also provide important jobs and employment opportunities to Doyon shareholders.	Thank you for your comment. Please see the response to comment 114.02 above.
122.03	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Despite the direct relationship between the Army's heat and power upgrade decision and potential adverse impacts on Doyon and its shareholders, the Army's DEIS failed to identify and analyze such adverse impacts. The absence of this analysis in the DEIS constitutes a fatal flaw that precludes the Army from making a fully-informed decision, which is a fundamental purpose of NEPA. Compounding this flaw, Doyon made the Army aware of the potential for such adverse impacts (and the need to address these impacts in the DEIS) months before the Army issued its DEIS. In these circumstances, the failure of the DEIS to identify and analyze such impacts was arbitrary and capricious and therefore in violation of NEPA requirements.	Thank you for your comment. Please see the response to comment 114.02 above.

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122.04	2/22/2021	Letter	Sarah Obed	Doyon, Limited	On top of this, the Army has failed to recognize its obligation to engage in consultation with Doyon regarding the potential impacts of the Army's decision on Doyon and its shareholders, as demonstrated by the DEIS' characterization of a May 2020 meeting with Doyon, where the DEIS states that "Consultation did not occur because Doyon Limited, is not a recognized tribe." The DEIS is incorrect on this point. Federal law and Department of Defense policy require that the Army engage in consultation with Doyon, Limited as an ANC on the same basis as an Indian tribe. Consultation is a deliberative process that aims to create effective collaboration and informed Federal decision-making. It is Doyon's expectation that Consultation should be efficient and transparent and be an exchange of information. Through this consultation process the Army should consult with Doyon on the scope for the proposed action and solicit Doyon's feedback and perspective, frequently throughout the decision-making process. By faithfully engaging with Doyon, the Army can fully understand the economic, social and environmental impacts of its decision-making.	Thank you for your comment. See Section 1.5.2 of the EIS. A consultative meeting did occur on July 19, 2020 in recognition of both EO 13175 and DoDI 4710.02.
122.05	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Another issue that is simply missed in the DEIS is the analysis of the economic impact of the Army's decision-making process on the Fairbanks economy. Doyon raises specifically the impact of the disruption to the demand for coal, and the fiscal impacts to the Fairbanks NorthStar Borough from changes in DU property tax payments to the Borough.	Thank you for your comment. Please see the response to comment 114.02 above.
122.06	2/22/2021	Letter	Sarah Obed	Doyon, Limited	II. The DEIS Fails to Identify and Analyze Impacts on Doyon and Doyon Beneficiaries, and Doyon Shareholders. A fundamental purpose of NEPA and its environmental impact analysis process is to facilitate informed decision-making by requiring federal agencies to consider potential impacts to the physical, biological, economic, social, and human environment. The principal tool for achieving this is an environmental impact statement, the "primary purpose" of which is to "ensure agencies consider the environmental impacts of their actions in decision making." It is therefore critical that an EIS is accurate and contains complete and well- supported data and analyses so that a federal agency "will have available, and will carefully consider, detailed information" concerning the impacts of its decision-making, and can thus take the "hard look" at such impacts as it is required to do under federal law. A DEIS must fully and accurately identify and evaluate the impacts of its proposed action, including the alternatives carried forward for detailed review. Under NEPA's regulations, these impacts include "changes to the human environment . . . that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives" and "effects that occur at the same time and place as the proposed action or alternatives and . . . that are later in time or farther removed in distance. "	Thank you for your comment. Please see the response to comment 114.02 above.
122.07	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Relevant here, the DEIS recognizes the direct relationship between any decision that diminishes DU's role at FWA, and the repercussions on Doyon and its shareholders. The DEIS states: The most directly affected business would be the System Owner [DU], which owns, operates and maintains the CHPP itself and the utilidors. The System Owner is 50 percent owned by a for-profit regional ANC that was established under ANCSA, which provided capital to regional and village corporations for investment in diverse industries and services in order to produce investment revenue for Alaska Native shareholders, the ultimate beneficiaries of ANCSA. Any action taken that affects the income of the ANC, directly affects the segment of the Alaska Native population that is also a shareholder of the specific ANC. But while the DEIS recognizes this direct relationship, it fails to identify and analyze the impacts of its decision on Doyon and its shareholders. Because DU's role in the Army's ultimate decision dictates the manner and extent to which Doyon will be impacted, the DEIS must either: (i) define DU's role and analyze the resulting impacts on Doyon and Doyon's shareholders accordingly; or (ii) if DU's role has not yet been determined, analyze the impacts on Doyon and Doyon's shareholders under multiple potential scenarios. The DEIS does neither.	Thank you for your comment. Please see the response to comment 114.02 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
122.08	2/22/2021	Letter	Sarah Obed	Doyon, Limited	DU currently serves as the owner, operator, and utility service provider for heat and power at FWA under the UP Contract. In defining and analyzing the impacts of the Build Alternatives, however, the DEIS is silent as to whether DU will continue in these capacities going forward. Instead, the DEIS includes ambiguous, non-committal, and inconsistent statements concerning the possibility of DU's constructing the Build Alternatives.	Thank you for your comment. Please see the response to comment 114.02 above.
122.09	2/22/2021	Letter	Sarah Obed	Doyon, Limited	In the entire DEIS, the discussion of DU's role is limited to the following: • Under Alternative 1, the DEIS states that the Army "would utilize the existing UPC to construct a new, modern, coal-fired CHPP,"11 but then later in the DEIS states that the Army "would likely utilize the existing UPC to construct a new, modern, coal- fired CHPP;" • Under Alternative 2, the DEIS states: "Although not explicitly required in the UPC, it's plausible that the Army would utilize the existing UPC to construct a new, modern, dual-fuel combustion turbine generator CHPP," and later in the DEIS states that the Army "may utilize the existing UPC to construct a new, modern, dual-fuel combustion turbine generator CHPP." • Under Alternative 3, the DEIS states: "The installation of individual boilers may be executed under the UPC by the System Owner, through a Utilities Energy Service Contract (UESC) or by competitive bid."	Thank you for your comment. Section 3.3 of the EIS has been revised with additional language regarding the UPC and System Owner.
122.10	2/22/2021	Letter	Sarah Obed	Doyon, Limited	The DEIS is similarly silent on the impacts of the Army's decision-making on Doyon and Doyon Beneficiaries. The closest that the DEIS comes to any such analysis – which is not very close at all – is the statement that if the Army utilizes DU to construct one of the Build Alternatives, DU "would invest substantially more money in the utility system than in its original proposal. Therefore, its net profit would be much higher than originally projected in 2007." This statement, however, is simply not correct. The revenue generated by DU constructing any of the Build Alternatives pales in comparison to the revenue that would benefit Doyon if the Army upholds its end of the UP Contract and DU remains the owner, operator, and heat and power provider at FWA, regardless of which Alternative the Army selected.	Thank you for your comment. Please see the response to comment 114.02 above. Text in Section 3.5.1 of the EIS has been revised to include information reported by Doyon, Limited regarding annual revenue that Doyon, Limited receives from the System Owner from the CHPP/DHS. Text is further described in Sections 2.5.2, 2.5.3, and 2.5.4 of the EIS.
122.11	2/22/2021	Letter	Sarah Obed	Doyon, Limited	If the Army does decide to replace the CHPP, Doyon strongly believes that the Army should honor the contractual commitment it made 12 years ago. Doyon, Limited has a long history of supporting our Armed Forces, and especially the soldiers and families at Fort Wainwright. The contract to provide utility services is a significant commitment of trust and resources and was not entered into lightly by either party. It is a long-term commitment that required DU to purchase the CHPP, utilidors, and all utility infrastructure. DU made significant capital and maintenance investments in the infrastructure and the CHPP is now a highly reliable system that is in good condition and can operate for years to come. If the Army changes its mind on upgrading the plant, and now wants a different type of plant or heating system, DU should be the company that constructs, owns, and operates that plant consistent with its UP Contract at Fort Wainwright. A decision by the Army to replace the CHPP with a distributed heat system could impact Doyon, its shareholders, and the community. If a distributed heat system is installed and DU is not the owner, Doyon shareholders will be deprived of the benefit of future earnings from their investment in the plant.	Thank you for your comment. Please see the response to comment 114.02 above.

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122.12	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Adverse Socioeconomic Impacts to Doyon and Doyon Beneficiaries Congress established ANCs as "for profit" corporations "to provide for the economic and social needs, including health, education, and welfare, of their shareholders…" Like other ANCs, Doyon relies upon its business interests, including its 50% ownership in DU, to fulfill its obligations under ANCSA, including generating revenues to support the economic and social well-being of its shareholders. Because such revenues are critical in supporting Doyon's mission and shareholder obligations, taking on a different UP provider or otherwise displacing or diminishing DU's role at FWA would have a significant impact on Doyon's 20,100 shareholders, as well as other beneficiaries of Doyon funding. Doyon shares its profits from its business revenues, such as revenues from DU's contract at FWA, with its shareholders through distributions from the Doyon Settlement Trust, the purpose of which is to promote the health, education, and welfare of its beneficiaries, and to preserve the heritage and culture of Alaska Natives. The Doyon Settlement Trust supported Doyon shareholders through distributions totaling $26 million in Fiscal Year (FY) 2019.	Thank you for your comment. Please see the response to comment 114.02 above.
122.13	2/22/2021	Letter	Sarah Obed	Doyon, Limited	In addition, revenues from Doyon's business enterprises are contributed (through a formula driven percentage of earnings) to the Doyon Foundation, an independent philanthropic foundation serving Doyon shareholders and their children by providing educational scholarships and supporting cultural initiatives, like Athabascan language revitalization. Doyon contributed over $2 million to the Doyon Foundation in FY2019. The repercussions of the Army's decision on Doyon and its shareholders are straight- forward: reductions in DU's revenue under the UP Contract will have direct adverse socioeconomic impacts on Doyon's shareholders by reducing the funding for trust distributions and other benefits and services that Doyon provides.	Thank you for your comment. Please see the response to comment 114.02 above.
122.14	2/22/2021	Letter	Sarah Obed	Doyon, Limited	On top of these reductions in funding and benefits, diminishing DU's ownership and role at FWA will directly result in losses of shareholder jobs and future employment opportunities. As noted, Doyon's mission includes promoting the economic well-being of its shareholders. In 2008, Doyon created the Shareholder Outreach Program specifically to facilitate shareholder hiring at its companies, including at DU. Currently, over one-third of the employees at the CHPP are Doyon shareholders, who could lose their jobs based upon the Army's decision. Further, with Doyon's continued focus on shareholder employment, loss of the CHPP (or selecting a replacement where DU is no longer the owner or operator) would foreclose future shareholder job opportunities at FWA. The Army should have identified and considered these employment-related socioeconomic impacts in the DEIS.	Thank you for your comment. Please see the response to comment 114.02 above.
122.15	2/22/2021	Letter	Sarah Obed	Doyon, Limited	The socioeconomic implications of diminishing DU's role at FWA extend further, as Doyon also uses its contract revenues, including from DU's contract at FWA, to provide funding and benefits to other ANCs, Alaska Native Tribes, and nonprofits within Interior Alaska, and across the State of Alaska. In FY2019, Doyon made significant contributions to the wider community, including nonprofits, cultural programs, and Alaska Native tribes. These donations supported corporate citizenship and community-business partnerships, social and economic well- being, and cultural activities. Over 170 recipients received such contributions in FY2019, which broadly included non-profit agencies, tribal and village councils, schools, and cultural events. Doyon also awarded grants in FY2019 to assist communities in efforts to reduce drug and alcohol abuse. Doyon spent close to $50,000 in impacting an estimated 1,300 shareholders and community members in twelve rural communities. In FY2019 Doyon also issued grants to 16 recipients to conduct culture and language camps, traditional survival camps, fiddle classes, and other community events.	Thank you for your comment. Please see the response to comment 114.02 above.

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122.16	2/22/2021	Letter	Sarah Obed	Doyon, Limited	III. THE DEIS ALSO FAILS DUE TO ITS NUMEROUS OTHER GAPS A significant gap in the DEIS is the Army's failure to analyze adequately key supply chain limitations and costs. Remarkably, the DEIS minimizes and essentially dismisses the significant supply chain issues associated with the delivery of an adequate supply of natural gas at the proposed implementation date of 2026. The DEIS also fails to address in its economic analysis the widespread differences in the costs of fuels that it seeks to rely upon at Fort Wainwright. For example, the reports underlying the DEIS on this issue identify an unrealistically low cost for natural gas. Doyon is also concerned that selection of a replacement Alternative fueled by natural gas seeks to rely on a supply of natural gas to the Interior that is not currently in place and cannot be assured with any degree of certainty by the stated implementation date of 2026. That timeline is fraught with risk for the Alternatives that call for natural gas because Doyon does not believe it will be available in sufficient quantity and with a secure supply chain, both of which are essential to the installation's energy security.	Thank you for your comment. There is a demonstrated and sustainable source of natural gas and ULSD available to Fort Wainwright. The EIS examined fuel availability relevant to the Proposed Action, and found that the availability of natural gas in Alaska is sufficient to meet the installation's demand (Pentex Alaska LLC 2016). The 2026 implementation date was notional and therefore has been removed from the EIS. The Army's anticipated execution date is contingent upon availability of funding.
122.17	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Another issue that the DEIS simply misses is the impact of the disruption to the demand for coal in the Fairbanks area that would invariably result from replacing the CHPP with a natural gas Alternative. The CHPP is the largest single user of coal in the local market, and therefore decommissioning the CHPP would significantly impact Golden Valley Electrical Association, the University of Alaska, Fairbanks and other purchasers of coal in the greater Fairbanks area. The DEIS neither recognizes nor considers these significant impacts. To that end, the Army must undertake an economic impact analysis that models the potential impacts to the price of coal in the Fairbanks region upon the decommissioning of the CHPP.	Thank you for your comment. In the event that the CHPP would be decommissioned and an alternative chosen other than coal, the impact to the price of coal in the Fairbanks region is difficult to predict. The effect on the price of coal that will be paid by other utilities/coal customers in the region resulting from the action alternatives would depend on the coal supplier's economic position and business decisions and the negotiated prices between parties. The Army can not speculate on the coal supplier's economic position or business decisions. This is outside the scope of this EIS.
122.18	2/22/2021	Letter	Sarah Obed	Doyon, Limited	The DEIS also fails to recognize that Doyon Utilities contributes significantly to the Fairbanks North Star Borough budget through property tax payments. Property tax payments made up 75.67% ($130 million) of the Fairbanks North Star Borough FY2020-21 budget. In presenting the budget, Mayor Ward stated: "The COVID-19 pandemic, combined with reductions from the state resulted in a sudden and unprecedented budget gap in excess of $12 million." The Army must consider how another budget reduction that could result from its decision would affect the Fairbanks North Star Borough. Doyon Utilities annually contributes approximately $5.6 million to the North Star Borough in property tax payments for all DU FWA property, which again, the DEIS fails to consider. To that end, the DEIS should include an economic impact analysis that models potential impacts to the Borough resulting from potential property tax changes.	Thank you for your comment. Regardless of the alternative selected, adherence to applicable property tax laws will be maintained.
122.19	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Finally, the DEIS includes inaccurate statements, assumptions, and conclusions regarding the condition of the CHPP, and fails to recognize the maintenance and upgrades that DU would undertake going forward to ensure that the CHPP can continue to provide safe and resilient heat and power to Fort Wainwright. This failure is significant because, as a result, the DEIS presents an improper No Action Alternative, which serves as the baseline for the entire DEIS analysis. The Army must correct this failure as well.	Thank you for your comment. The existing CHPP and distribution system are operating beyond their design life which has resulted in the inability to provide reliable heat and power to Fort Wainwright, and the inability to meet the Army's energy security requirement, which has led to the need to analyze other alternatives. The No Action Alternative (Section 2.5.1) was incorporated into the EIS pursuant to Army NEPA regulations at 32 CFR Part 651 and serves as the established the baseline of existing operational conditions (detailed in Section 1.1.2) against which the action alternatives were analyzed. The EIS acknowledges, in Section 2.5.1, the maintenance, upgrades, and repairs that would be necessary to continue operating the CHPP into the future.

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122.20	2/22/2021	Letter	Sarah Obed	Doyon, Limited	IV. FAILURE TO RECOGNIZE THE ARMY'S OBLIGATION TO CONSULT The Army has also failed to fulfil its obligation to engage in consultation with Doyon. The DEIS seeks to demonstrate that it fulfilled its obligation to consult under Executive Order (EO) 13175 by: stating that "Fort Wainwright has initiated consultation with Alaska Native tribal entities concerning the proposed project;" pointing to the fact that the Army mailed letters to tribal entities on July 23, 2019, informing them about scoping meetings; and noting that the Army "provided letters to tribal entities about the possibility for government-to- government consultation for the proposed project." Despite the Army's clear obligation to engage in consultation with ANCs, the Army neither sent letters to ANCs concerning the proposed project nor offered to engage in consultation. Recognizing the need for consultation with the Army given the indisputable and direct consequences that the Army's decision at FWA will have on Doyon and Doyon Beneficiaries, Doyon proactively requested consultation with the Army in a letter dated February 28, 2020.	Thank you for your comment. Sections 1.5.2 and 3.5.2.3 of the EIS have been updated and provides additional information on consultative meetings.
122.21	2/22/2021	Letter	Sarah Obed	Doyon, Limited	In that letter, Doyon pointed out the Army's obligation to consult with ANCs under EO 13175, as well as under the Department of Defense's (DoD) own Consultation Policy. Doyon further informed the Army that: • Any alternative that shuts down or significantly diminishes the generation of DU's CHPP will substantially reduce or eliminate revenues that benefit Doyon and its shareholders; and • Such a decision would have the unprecedented consequence of devaluing and risking the loss of one of the largest UP contracts that DoD has ever awarded, which Doyon competed for, negotiated, and was awarded, and pursuant to which Doyon subsequently invested a significant amount of money in utility infrastructure modernization; and • Consultation is necessary for the Army to fully understand and properly consider the potential impacts of its decision on Doyon and its shareholders. For these reasons, consultation is critical for ensuring an adequate and legally sufficient environmental review process that identifies and analyzes alternatives and impacts associated with potential actions at FWA.	Thank you for your comment. Sections 1.5.2 and 3.5.2.3 of the EIS have been updated and provides additional information on consultative meetings.
122.22	2/22/2021	Letter	Sarah Obed	Doyon, Limited	While Doyon was granted a meeting with the FWA Garrison Commander and staff on May 7, 2020, in referring to this meeting, the DEIS states: "Consultation did not occur because Doyon Limited, is not a recognized tribe." The Army is not correct. EO 13175 requires federal agencies to implement an effective process to ensure meaningful and timely consultation with tribes during the development of policies or projects that may have tribal implications. Because EO 13175 failed to acknowledge the need for federal consultation with Native Corporations, Congress passed the Consolidated Appropriations Act of FY 2005, which requires that "all Federal agencies" consult with Native Corporations pursuant to EO 13175. Therefore, the Army is legally obligated to consult with Native Corporations pursuant to EO 13175 on the same basis as Indian tribes.	Thank you for your comment. See Section 1.5.2 of the EIS. A consultative meeting did occur on July 19, 2020 in recognition of both EO 13175 and DoDI 4710.02.
122.23	2/22/2021	Letter	Sarah Obed	Doyon, Limited	The DoD's own Consolidation Policy, DoD Instruction 4710.2, DoD Interactions with Federally-Recognized Tribes, expressly states that "[i]n accordance with Section 161 of Public Law 108-199, Section 518 of Public Law 108-447, and E.O. 13175, the DoD Components must consult in a timely and good faith manner with Alaska Native corporations." Because ANCs were established to provide for the economic and social needs of their shareholders, ANCs have a variety of business interests that may trigger the ANCSA consultation requirement. Accordingly, DoD Instruction 4710.2, requires the Army to engage in consultation for "proposed actions, plans, or ongoing activities that may have the potential to significantly affect . . . Business contracting matters." More specifically, DoD Instruction 4710.2 requires consultation on any "action or policy that may have a substantial direct effect on . . . the ability of an Alaska Native corporation to participate in a DoD or DoD Component program for which it may otherwise be eligible." The Army is flat wrong in the DEIS in stating that it need not consult with Doyon.	Thank you for your comment. See Section 1.5.2 of the EIS. A consultative meeting did occur on July 19, 2020 in recognition of DoDI 4710.02.

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122.24	2/22/2021	Letter	Sarah Obed	Doyon, Limited	Putting aside the Army's incorrect understanding of its legal consultation obligations, the fact remains that the Army arbitrarily chose to ignore the issues that Doyon raised at the May 7, 2020, meeting, and which Doyon reiterated in a May 15, 2020, follow-up letter to the Army. Thus, the Army was clearly aware of Doyon's concerns regarding adverse socioeconomic impacts that could befall Doyon and Doyon Beneficiaries from the meeting and letters (which the Army attached to the DEIS, further emphasizing that the Army had actual knowledge of the information), but the Army stayed silent in the DEIS rather than fulfilling its obligation to address these concerns and impacts. Finally, after reviewing the DEIS and confirming that the Army did not address many of the issues raised by Doyon and failed to recognize its obligation to consult, Doyon sent a letter on October 21, 2020 requesting a follow-up consultation meeting during the DEIS public comment period. In that letter, Doyon again cited the DoD Consultation Policy, which states that consultation is "[r]arely a singular event," but instead is "part of a process to inform a pending decision or course of action" and therefore consultation "may require multiple meetings."	Thank you for your comment. As noted in Section 3.5.1.3 of the EIS, the System Owner is 50 percent owned by a subsidiary of a for-profit regional ANC, Doyon, Limited, that was established under ANCSA. Doyon, Limited shares its profits from investments in various businesses such as oilfield services, government contracting, tourism, and land ownership (Obed 2021) through dividend distributions and other benefits that promote the health, education, and welfare of its shareholders and preserve the heritage and culture of Alaska Natives. While Doyon, Limited cannot quantify the percentage of its Trust or Foundation funds due to the CHPP UPC (Schutt 2022), any action taken that affects the income of Doyon, Limited directly affects shareholder dividends and other benefits to the greater Alaska Native population provided by Doyon, Limited (Christiansen 2020, Obed 2021). Please also see the response to comment 114.02 above.
122.25	2/22/2021	Letter	Sarah Obed	Doyon, Limited	On February 4, 2021, Doyon participated in a second meeting with the Army, where Doyon reiterated its concerns regarding the failure of the Army to address the issues Doyon and DU had previously identified, including the lack of a discussion or analysis of impacts to Doyon shareholders and other beneficiaries. Further, based upon this failure and other fundamental flaws that the Army must correct in the DEIS, Doyon requested that the Army prepare a Supplemental EIS. V. THE NEED FOR A SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT As noted in Doyon's comments above, the Army's failure to identify and analyze the potential direct socioeconomic impacts of its decision on Doyon, its shareholders, and other Doyon Beneficiaries is a significant gap in the DEIS. These are impacts that both the Army must identify and consider, and those affected must have the opportunity to comment upon. The Supreme Court has cited two purposes for NEPA's EIS requirement: first, to "ensure that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts;" and, second, to "guarantee that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision." To fulfill these purposes, the Army must issue a Supplemental EIS that identifies and evaluates potential adverse impacts of the Army's proposed action on Doyon and Doyon Beneficiaries. Moreover, a Supplemental EIS is required for the reasons set forth in the DEIS Comments submitted by DU.	Thank you for your comment. Please see the response to comment 122.24 above. Consultation with Alaska Native Tribes is discussed in Section 1.5.2 of the EIS.

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122.26	2/22/2021	Letter	Sarah Obed	Doyon, Limited	VI. CONCLUSION For the foregoing reasons, Doyon believes that the Army must engage in Consultation with Doyon and, if it intends to proceed with the project, prepare a Supplemental EIS to incorporate, consider, and address the issues and concerns raised by Doyon and DU, and the effects of the proposed actions on Doyon and DU.	Thank you for your comment. See Section 1.5.2 of the EIS. A consultative meeting did occur on July 19, 2020 in recognition of DoDI 4710.02. After consideration of the public comments received on the Draft EIS and considering all other new information, and in accordance with 40 CFR § 1502.9(d), the Army determined that a supplemental Draft EIS was not required based on the following: • There are no substantial changes to the proposed action that are relevant to environmental concerns. • There are no significant new circumstances or information relevant to the environmental concerns that bear on the proposed action or its impacts. This determination is based on the comments received and all other new information the Army became aware of following publication of the Draft EIS. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
123.01	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Doyon Utilities (DU) hereby submits its comments to the U.S. Army Garrison (USAG) Alaska on the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska (DEIS). DU is a utility regulated by the Regulatory Commission of Alaska. As the owner and operator of the Central Heat and Power Plant (CHPP) that is at the heart of the DEIS, DU has a significant interest in the Army's decision-making in the current National Environmental Policy Act (NEPA) process. DU also has a legal duty to provide safe reliable service to its Customer, the U.S. Army, and is therefore highly interested in ensuring that any decisions made about the CHPP at Fort Wainwright (FWA) are well founded, do not adversely impact service provided by other utility systems on FWA, and take into account the parties' obligations under the Utilities Privatization (UP) Contract.	Thank you for your comment. Please see the response to comment 114.02 above.
123.02	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	EXECUTIVE SUMMARY In May 2007, following a fair and open competition among multiple bidders, the Army awarded Doyon Utilities (DU) the largest Utilities Privatization contract (UP Contract) that the Army had ever awarded, and the first ever awarded to an Alaska Native Corporation (as Doyon, Limited, the Alaska Native Regional Corporation for Interior Alaska, is an owner of DU). Under this 50-year UP Contract, DU became the utility services provider to Fort Wainwright, Alaska (FWA) and assumed ownership and operation of FWA's Central Heat and Power Plant (CHPP). Despite its age, as a result of DU's investment into capital upgrades at the CHPP over the past 14 years of $96.7 million, the CHPP is in good physical condition and can continue to provide safe and reliable heat and power at FWA for years to come, as the Army anticipated when it entered into the UP Contract 12 years ago. The Army is now proposing to replace the CHPP, and has issued the Draft Environmental Impact Statement Addressing Heat and Electrical Upgrades at Fort Wainwright, Alaska (DEIS) under the National Environmental Policy Act (NEPA) to fulfill and support its legal obligation to make an informed decision regarding heat and power at FWA. The DEIS fails to facilitate informed decision-making, however, because the DEIS is deeply flawed, and any decision by the Army that relies on this legally insufficient DEIS would be arbitrary and capricious. To remedy this, and fulfill its legal obligations under NEPA, the Army must issue a Supplemental EIS.	Thank you for your comment. Please see the response to comment 114.02 above.

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123.03	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The most substantial flaw in the DEIS is its collection of inaccurate statements, assumptions, and conclusions regarding the CHPP. Despite the DEIS' assertions to the contrary, DU's capital investments and maintenance have ensured that the CHPP remains in good condition, has and will continue to meet environmental regulatory requirements, and does not present safety, energy security, or resiliency risks. The failure of the Army to accurately portray the condition of the CHPP both now and in the future (i.e., the No Action Alternative), in turn, creates a faulty foundation that undermines all aspects of the DEIS, calling into question the justification for the Army's action (i.e., the Purpose and Need); the accuracy of the No Action Alternative (including its ability to meet Purpose and Need and serve as a baseline for impact analyses); and the identification and evaluation of Alternatives. These inaccuracies are due, in large part, to the Army's failure to obtain information from DU, which would have provided first-hand knowledge to supplement, or at least truth-check, the Army's own conclusions regarding the CHPP's condition and ability to satisfy the heat and power needs at FWA.	Thank you for your comment. Updated language is included in the Executive Summary and in Section 3.3.1.3 of the EIS, which describes the current condition of the existing CHPP with information provided by the System Owner to the Army.
123.04	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS then builds on those errors by presenting incomplete and misleading analyses of key environmental and socioeconomic impacts, as well as a flawed identification and evaluation of alternatives – undercutting the essential purposes of the environmental review process. For example, with respect to its analysis of impacts, the DEIS presents conclusory, unsupported, and incomplete assertions regarding air quality (which is one of the principle environmental impacts that the Army points to in support of replacing the CHPP), while simultaneously failing to identify and analyze the environmental impacts associated with supplying natural gas (via a pipeline that is neither built nor likely to be in service by the Army's target date of 2026 and/or trucking hundreds of miles) to serve as a fuel source at FWA. With respect to its identification and evaluation of alternatives, the DEIS fails to consistently apply screening criteria, apply Army and Department of Defense policies, and properly define and evaluate the impacts of the alternatives included in the DEIS.	Thank you for your comment. There has been a demonstrated sufficient supply of natural gas to support the Proposed Action (per Pentex Alaska LLC 2016; see Section 2..5.3). Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
123.05	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS also includes significant gaps with respect to key factors that should be central to the Army's decision-making. First and foremost, the DEIS neither addresses whether DU will remain as the owner and operator of any CHPP replacement consistent with the UP Contract, nor the significant impacts that will result if the Army disregards the UP Contract and replaces DU. These impacts include the legal jeopardy and costs that could accrue to the Army under the UP Contract (which must be factored into the costs of any CHPP replacement Alternative) and the significant negative consequences to Doyon, Limited's more than 20,000 Alaska Native shareholders (including those that are employed by DU and work at the CHPP) and the other ANCs, Alaska Native Tribes, and nonprofits in Interior Alaska that receive benefits from DU contract revenues. Most notably, while the DEIS expressly recognizes a direct relationship between any Army decision that diminishes the role of DU at FWA and Doyon, Limited's 20,000 Alaska Native shareholders, the Army fails to identify or analyze such impacts in the socioeconomic section of the DEIS, or any other section. Compounding this, the DEIS ignores the ongoing consideration at Fort Greely of developing a distributed heat system that could result in displacing DU and further terminating another of its UP contracts, which adds to the adverse impacts to Doyon, Limited's shareholders and beneficiaries. NEPA requires the Army to identify and consider such cumulative impacts in the FWA DEIS.	Thank you for your comment. Impacts on Doyon Limited and its shareholders is discussed in the Socioeconomics analysis (Section 3.5) of the EIS. Section 3.5.1.3 has been revised to acknowledge ANC's shareholder employment at the existing facility and Section 3.5.2 discusses the reduction in O&M jobs under the alternatives relative to the existing system. Please see the response to comment 114.02 above.
123.06	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Another major gap results from the unrealistic assumption that natural gas will be available, economically feasible, and able to be securely stored in adequate quantities to serve as a reserve, in order to be used as a fuel source by 2026, which is essential for the ability of two of the alternatives to meet the Army's mission. Finally, because the Army focuses on costs throughout the DEIS, it is notable that the DEIS fails to consider whole categories of costs (e.g., costs associated with terminating a portion of DU's UP Contract, fuel costs, costs of constructing laterals to access a natural gas pipeline, and construction cost escalations due to the presence of hazardous materials), and in many instances where costs are provided, such costs are not correct (e.g., cost of installing pollution control equipment on the CHPP, electricity costs, and freeze protection costs).	Thank you for your comment. There is a demonstrated sufficient supply of natural gas in the region to support the Proposed Action (per Pentex Alaska LLC 2016; see Section 2.5.3 of the EIS).

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123.07	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The flaws in the DEIS require the Army to issue a supplemental environmental impact statement before proceeding to a Final EIS. Remedying the flaws in the DEIS will require the Army to properly characterize the condition of the CHPP and its ability to meet regulatory requirements, amend the Statement of Purpose and Need for the action, and identify and evaluate new and/or modified alternatives that may achieve the Army's (updated) statement of Purpose and Need. In this circumstance, NEPA's regulatory requirements for supplementation are triggered, namely significant new circumstances or information and substantial changes to the project. Further, the resulting environmental analysis will look far different than the current DEIS, and therefore the public and resource agencies must be given the opportunity to review and comment on the Army's new analyses to inform and assist the Army in its decision-making and meet the goals and requirements of NEPA.	Thank you for your comment. After consideration of the public comments received on the Draft EIS and considering all other new information, and in accordance with 40 CFR § 1502.9(d), the Army determined that a supplemental Draft EIS was not required based on the following: • There are no substantial changes to the proposed action that are relevant to environmental concerns. • There are no significant new circumstances or information relevant to the environmental concerns that bear on the proposed action or its impacts. This determination is based on the comments received and all other new information the Army became aware of following publication of the Draft EIS. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
123.08	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	I. Heat and Power at Fort Wainwright In order to assist the Army, DU provides the following information regarding the background, history, and current condition of the CHPP, which will allow for a better understanding of the areas where the DEIS mischaracterizes or fails to consider relevant information regarding the CHPP. a. The Utilities Privatization Contract Pursuant to 10 U.S.C. §2688, in 2005, the federal government issued a solicitation to privatize the utilities at FWA, namely, the Heat Distribution System (HDS), which includes the CHPP, and the Water Treatment and Distribution; Wastewater Collection System; and Electric Distribution System. With Doyon, Limited's backing, support, and resources, DU was equitably awarded the FWA UP Contract following a lengthy and competitive procurement process, which required that the successful bidder beat the Government's "should costs." Under the solicitation for the UP Contract, bidders were required to bid on all four utility systems, or no systems. Thus, the successful bidder was required to bring multi-utility expertise to serve as a unified, single utility provider for FWA, an installation operating in a subarctic environment and in a community that experiences among the highest utility rates in the United States. Initially, the bid was intended to be a Small Business Administration 8(a) solicitation, but that requirement was removed. In the end, the solicitation proceeded with at least three responsive bidders.	Thank you for your comment. Please see the response to comment 114.02 above.
123.09	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	After extensive negotiations, in May 2007, DU was awarded a 50-year contract to provide utility services to FWA. This Contract was the largest UP contract that the Defense Logistics Agency on behalf of the Army) had ever awarded at the time and the first UP contract awarded to an Alaska Native Corporation (ANC). Concurrently, DU successfully bid and was awarded UP contracts at Fort Greely and at Joint Base Elmendorf-Richardson. Each of the UP contracts require DU to be a multi-utility provider. In total, DU owns and operates three water, three wastewater, three electric, two distributed heat, and one natural gas utility systems on these three military installations. All these utilities are subject to economic regulation by the Regulatory Commission of Alaska, which is charged with ensuring that the rates collected by DU are just and reasonable. In terms of gross assets managed in Alaska, DU is the state's fourth largest utility system. More specifically, DU's distributed heat system at FWA, including the CHPP, constitutes its largest single utility, or 26% of the net book value of DU's assets.	Thank you for your comment. Please see the response to comment 114.02 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.10	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	b. Investment in the CHPP Since Privatization as required by the Contract The UP Contract requires that DU continue to maintain and invest capital in the CHPP in order to ensure its reliable and safe operation throughout the contract period. Since privatization, the Army has approved DU's investing a total of $96.7 million into capital upgrades at the CHPP and the HDS. The UP Contract required DU to proceed with immediate capital upgrades to increase plant reliability at the outset of the UP Contract period, which included: reinsulating steam and condensate piping; conducting emergency repairs; adding a black start generator "capable of providing enough power to restart the CHPP in the event of a total plant shutdown to increase reliability;" conducting engineering studies to resolve CHPP HVAC problems and coal dust collection problems; and replacing CHPP electrical system components. Further, the UP Contract required DU to proceed with identified initial renewals and replacements, which included replacement of steam system components and condensate pump stations. It is DU's understanding that once the Army determined it would privatize, it stopped funding a good deal of the turbine repair and replacement schedule. For instance, the Army did not overhaul any of the CHPP turbines between 2004 and 2007, when the UP Contract was awarded. In 2008, DU immediately performed overhauls on two turbines.	Thank you for your comment. Please see the response to comment 114.02 above.
123.11	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	c. The Current Condition of the CHPP In spite of the dire picture painted in the DEIS, the current CHPP is in good physical condition, and DU has responsibly managed the CHPP to ensure safe and reliable operation for years to come. When DU was awarded the UP Contract, DU presented with its contract bid a proposed timeline for capital improvements. Those improvements, which were acknowledged by the Army and incorporated into the contract, include substantial upgrades to the existing CHPP but no overall plant replacement over the Contract's 50-year period.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.12	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Rather than considering the condition of the CHPP as improved by DU's capital investments and continuous maintenance, the DEIS relies on generalized assumptions about the CHPP's condition based on its age. The actual condition of the CHPP is far better than the DEIS assumes it should be despite its age. The age assumption further ignores ongoing compliance and maintenance activities that extend the life of assets. The age assumption also ignores the benefits of a fully funded and trained workforce delivering on contractual expectations over the past 12 years.	Thank you for your comment. The existing CHPP and distribution system are operating beyond their design life, which has resulted in the inability to provide reliable heat and power to Fort Wainwright and the inability to meet the Army's energy security requirement, which has led to the need to analyze other alternatives.
123.13	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Notably, the DEIS misleadingly implies that the Army must take action to reduce air pollution for legal reasons, when in fact the current CHPP is in compliance with applicable federal and state emission requirements. Further, the CHPP currently operates in compliance with all other environmental laws, regulations, and permits. II. The DEIS Contains Numerous Inaccuracies Regarding the CHPP A substantial flaw in the DEIS is the Army's inaccurate statements and analyses regarding the condition of the CHPP. The Army's perceived condition of the CHPP constitutes the very foundation of the Army's proposed action; in other words, if the Army did not have concerns about the condition of the CHPP and associated costs and risks going forward, then the Army would not have proposed the replacement alternatives that are the subject of and reason for the current NEPA process. Inaccuracies regarding the condition of the CHPP create a faulty foundation that undermines and taints all aspects of the DEIS, calling into question: (i) the justification (i.e., the Purpose and Need) for the Army's action; (ii) the accuracy of the No Action Alternative (including its ability to meet Purpose and Need); (iii) the analysis of impacts, as the No Action Alternative serves as the baseline for comparing the Action Alternatives, and an incorrect baseline skews the analysis of impacts; and (iv) the basis for determining whether an alternative is reasonable (which is based upon ability to meet Purpose and Need) and therefore whether an alternative should have been carried forward for detailed analysis. In the current circumstances, the importance of an accurate portrayal of the current CHPP, the maintenance of which serves as the No Action Alternative, cannot be overstated.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.14	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	a. Inaccuracies Regarding the CHPP Result from the Army's Failure to Obtain and Consider Adequate Data It is critical that the Army use the most accurate information possible in preparing its environmental analysis in order to understand the No Action Alternative, to estimate the impacts of its proposed Alternatives, and to allow for a true comparison between the No Action and Action Alternatives. Here, in preparing the DEIS, the Army failed to utilize and consider data that was available from DU,...	Thank you for your comment. As explained in Section 2.3.2, information on the alternatives considered was from several studies to provide a comprehensive and thorough review, not only of the condition of the existing CHPP facility, but also for the alternatives considered. As stated in Section 1.1.2, the Energy Master Plan for Fort Wainwright (Black & Veatch 2018) was among the source documents that informed the discussions. Text was added to Section 2.3.2 to reiterate that this document was used.
123.15	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	...and instead, relied upon inaccurate data provided by second-hand sources, which undercuts the integrity of the discussions and analyses in the DEIS. As the owner and operator of the CHPP and the associated heat and power distribution network for the past 12 years, and as the permit holder for the CHPP's Clean Air Act Title V operating permit, DU has unique and unparalleled information that the Army had an obligation to seek and obtain when preparing its DEIS. Most importantly, from the perspective of NEPA, DU's information is critical when formulating the project's Purpose and Need, identifying and evaluating alternatives and impacts, and assessing regulatory compliance; this is especially true with respect to the condition of the CHPP. The Army, however, failed to seek such information (or even to confirm the information on which the DEIS would rely) from DU. DU observes the CHPP every day of the year, has completed condition assessments on much of the infrastructure covered by the DEIS, and understands fully the risks to and how the effects of a change to one aspect of the system will affect other parts of FWA's complex utility system. Despite DU's first-hand knowledge and expertise, the Army limited its attempt to obtain the data and other information that would be critical to a decision on heat and electrical upgrades at FWA to a one-hour plant tour by the contractor hired to prepare the DEIS. This fails to satisfy NEPA's mandates.	Thank you for your comment. Updated language is included in Section 3.3.1.3 of the EIS, which describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.16	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	In addition to the first-hand knowledge that DU could have provided, in 2017, DU retained Black and Veatch (B&V), one of the world's top global engineering, procurement, consulting, and construction firms specializing in infrastructure development for energy, environmental, and government interests, to prepare a comprehensive report (B&V Study) that considered: the existing CHPP infrastructure; the unique Alaskan operating environment; energy availability and commodity supply; potential impacts to the environment, including ability to receive necessary permits; future energy needs; expected environmental and regulatory requirements; and Department of Defense (DoD) and Army policies and directives. To prepare the B&V Study, unlike the Army's DEIS Contractor, B&V spent a week at FWA inspecting the CHPP and utilidors and reviewing plant-specific studies, reports, maintenance schedules, and standard operating procedures. B&V spoke with key managers and operators and DU engineers while on site and in numerous follow up calls. Notwithstanding that this is the very information that would be critical to inform any Army decision-making regarding the condition of the CHPP and the heat and electrical needs and upgrades at FWA, the B&V Study was largely disregarded in preparing the DEIS, without any reasoning or justification for this.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner. The Black and Veatch study identified within the comment was considered by the Army during the preparation of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.17	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Instead of relying on objective data available from the owner and operator of the system and its experienced engineers, the DEIS based its factual assertions, and thus its analyses, primarily on two reports: the 2015 Guernsey report (Guernsey 2015) and the 2018 U.S. Army Corps of Engineers (USACE) report (USACE 2018). • Guernsey 2015. Guernsey 2015 is a business case analysis developed to address "[Army] concerns over high utility costs" and FWA leadership "concerns regarding the reliability of heat and electricity for the aged [CHPP] and the failing steam distribution systems."10 These "concerns" are generalized and not specifically articulated, beyond the age of the plant and the mention of two outages associated with the CHPP or the HDS. DU was not involved in preparing the report and until release of the DEIS was provided only a redacted copy that omitted key information. Nor did the Army request that DU review or "truth check" the report. Had DU been given this opportunity, DU would have noted that Guernsey 2015 contains inaccurate financial assumptions and assertions in regard to economic costs and figures. Reliance on this report would require reliance on assertions unsupported by testable facts. • 2018 USACE. The 2018 USACE study, by contrast, is essentially a "literature review" that compares the Guernsey report and the B&V Study with the stated intent "to narrow the options down to two or three preferred options (a preferred option and one or two alternates) to be used as options assessed in the required Environmental Impact Statement."11 The USACE conducted modelling and calculations, apparently relying on information provided by Guernsey and the FWA Directorate of Public Works (DPW). DU was not asked to assist or provide information to inform the study or review it for accuracy. While 2018 USACE references a site visit, interaction with DU and the installation's utility systems was limited to a short tour of the CHPP and a thirty-minute out brief in which no information was exchanged.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.18	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Consequently, DU has identified a number of errors in both reports that the Army carried forward into the DEIS, as described below. Finally, the DEIS failed to incorporate and consider information that was readily available and, in many cases, already had been provided to the FWA DPW. DU engineers meet regularly with DPW employees to provide assessments of existing infrastructure and recommendations for repair and replacement work. Again, despite its availability, the DEIS failed to incorporate or consider this direct information from the owner and operator of the CHPP that goes to the very heart of the analyses that are to inform the decision that is now before the Army.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.19	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Similarly, DU provided condition assessments to the Army that the DEIS failed to incorporate or consider.	Thank you for your comment. As explained in Section 2.3.2, information on the alternatives considered was from several studies to provide a comprehensive and thorough review not only of the condition of the existing CHPP facility but also for the alternatives considered. As noted in Section 1.1.2, the Energy Master Plan for Fort Wainwright (Black & Veatch 2018) was among the source documents that informed the discussions. Text was added to Section 2.3.2 to reiterate that this document was used.
123.20	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The Army's minimal, if any, hands-on analysis or use of first-hand information from DU concerning the actual plant and heating infrastructure that is at the center of this entire process has significant implications: as a result the Army mischaracterizes to an extreme degree the current condition of the CHPP, which, as discussed in Section IX, below, requires the Army to issue a supplemental EIS for public review and comment. b. The DEIS is Replete with Inaccurate or Unsupported Statements Regarding the CHPP As described below, the DEIS contains numerous inaccurate or unsupported statements regarding the CHPP's current condition, history, and legal status.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.21	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	i. The description of the condition of the CHPP and the HDS infrastructure is without meaningful foundation	Thank you for your comment. As explained in Section 2.3.2, information on the alternatives considered was from several studies to provide a comprehensive and thorough review not only of the condition of the existing CHPP facility but also for the alternatives considered. As noted in Section 1.1.2, the Energy Master Plan for Fort Wainwright (Black & Veatch 2018) was among the source documents that informed the discussions. Text was added to Section 2.3.2 to reiterate that this document was used.
123.22	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Neither the Guernsey 2015 or USACE 2018 reports rely upon or provide the actual condition of the CHPP. Since 2003, the US Army Corps of Engineers has published at least four reports specifically addressing the CHPP, in addition to the USACE 2018 report. None of these studies support the DEIS conclusions regarding the risk of CHPP failure or the potential installation freeze-up. Further, DU questions why only one of these earlier reports is referenced in the DEIS, and why it is only referenced for the purpose of providing a nominal description of the coal supply and ash disposal. Under NEPA, the Army cannot properly use the CHPP's age as surrogate for the CHPP's actual condition where the actual condition of the CHPP is known and ascertainable. While NEPA's Regulations allow federal agencies to proceed with incomplete or unavailable information, such information must be truly unavailable – i.e., "the overall costs of obtaining it are unreasonable or the means to obtain it are not known." The Army cannot disregard readily available information in favor of unsupported inferences. In addition to CHPP improvements due to the contractual requirements and capital investments discussed above, the information below further supports DU's contention that the CHPP condition is much better than assumed by the DEIS.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.23	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS identifies only two concerns with the CHPP boilers: the overall age of the CHPP; and the incorrect assertion that the boilers must "operate at 20 percent reduced capacity to meet air quality emissions regulations and standards." As noted, age alone is insufficient in light of information regarding the actual condition of the equipment. In addition, boiler operations at 20 percent reduced capacity has no bearing on the CHPP's meeting FWA's needs, as described in Section (iv), below. In fact, the CHPP boilers are anticipated to operate reliably for years. As a prudent utility operator, DU retains a state-certified third party to inspect each of the plant's six boilers annually. A 2016 condition assessment of Boiler 5 indicated that the superheater tubes and water wall tubes were in fair condition. The related report opines that "overall, considering the age and accumulated operating hours, the unit appears to be in good condition." A 2019 condition assessment of Boiler 6 performed by Riley Power concluded that Boiler 6 was in "overall satisfactory condition." Riley Power recommended chemically cleaning the waterwall and screen tubes to maximize heat transfer, but the assessment determined the tubes were "in good condition and there [was] no need for replacement." Overall, the condition assessments show that with chemical cleaning and some tube section replacements the CHPP boilers can continue to operate reliably for many years.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.24	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Beyond age, the DEIS fails to identify any true concerns or risks associated with the turbines. Throughout the years, maintenance and rehabilitation activities have been conducted on the FWA turbines. All four turbines are on a manufacturer-recommended five-year overhaul/rebuild schedule. Turbine Generator 1 was rebuilt in 2020, and the three other turbines have been rebuilt at least twice in the last twelve years. Though all turbines are original, modifications and replacements such as shaft replacement, blade replacement, and generator rewinds have been performed. It is likely that only the outer casings of the turbines are original components, and they do not show any signs of failure. Other than a concern that the "steam utilidor distribution system for transferring heat throughout the installation is … operating at or beyond its design life …", the DEIS fails to identify any concrete issues, concerns, or failings that would support, much less require, a heat or power upgrade. Southern Services performed two condition assessments in 2018 on the steam and condensate pipes in the utilidors just outside the CHPP, and concluded that, with minor repairs and maintenance, they should last for at least another 40 years. The DEIS also cited "substantial" losses of "25 percent of heat generated" in support of replacement." By DU's estimates, the heat transfer is closer to 15-18 percent. Most importantly, it is not a "loss" but instead, is necessary for freeze protection of the collocated water and wastewater pipes. In 2019, DU conducted pipe wall loss assessments on approximately 20% of the steam and condensate piping on post, which generally indicated that HDS steam pipe wall loss is minimal and the pipes have significant remaining useful life.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.25	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	ii. The CHPP has not experienced any near catastrophic events	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.26	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The Army defines a catastrophic event at the CHPP as "a wintertime loss of the CHPP's ability to generate heat and power…that would require immediate action to evacuate the installation." The DEIS contends that four "near-catastrophic" events have rendered the CHPP "a major energy safety and security risk," where the Army's "continued reliance upon the existing system presents substantial risk to life-safety and mission readiness." None of the four cited incidents came close to being "near-catastrophic," which significantly undermines the assertion that the existing system presents "substantial risk to life-safety and mission readiness." The DEIS first identifies a 2012 event that involved corrosion of a portion of the HDS providing heat to North Post. Despite being classified as a "near-catastrophic critical failure," this event did not result in the loss of heat to any part of the installation at any time. The affected portion of the system was direct-buried around the west end of the airfield, underneath the water table and beneath a primary stormwater swale. Redundancy within the HDS (a second steam main around the east end of the airfield) protected against loss of heat to the installation. The system was repaired within weeks and presented no risk of system freeze-up to the installation. Of note, DU had proposed replacement of the steam line in question in the 2009 and 2010 Annual Capital Upgrades, Renewals and Replacements Plan (ACURRP) submissions, neither of which were approved by the installation.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.27	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The second and third events that the DEIS characterizes as "near-catastrophic critical failures" involved "two separate control system malfunctions in 2012, each involving four of the plant's six boilers" that "resulted in halting the CHPP's ability to generate electricity and provide steam to the primary utilidor supporting the North Post area of the installation." The DEIS stated that each event "required several weeks for full repair."	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.28	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	DU is aware of only one control system malfunction in 2012, which occurred on December 6, 2012, and which was unrelated to the condition of the CHPP. Despite being classified as a "near- catastrophic critical failure," the heat system was completely restored within 30 minutes and only three of the boilers were off-line; boilers 7 and 8 remained on-line and fully pressurized. A 30 minute outage is not a "near-catastrophic" failure, much less a catastrophic one, as no personnel were at risk of evacuation at any time. Although the event did result in the loss of electrical power for 3 hours and 45 minutes, additional electricity was imported from GVEA and a load-shed process was initiated at the direction of DPW to avoid setting a ratchet-charge with GVEA. Notably, the event was wholly unrelated to the age or to the condition of the CHPP. Instead, this event was directly related to improperly configured programmable logic on newly-installed GE PAC8000 control systems. While FWA's residents and personnel were subject to an approximately four-hour power outage, the outage did not pose a risk to life-safety or mission readiness.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.29	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	With respect to the second 2012 event, it is possible that the Army is referring to a control system malfunction that actually occurred in 2018, which again, despite being classified as a "near- catastrophic critical failure," resulted in only the partial loss of electrical power for approximately three hours.	Thank you for your comment. The near-catastrophic critical failures reported in the EIS are as originally described in Section 2.1.1.2 of the Guernsey (2015) study and reiterated Section 1-1.3.2 of the Huntsville Study (USACE 2018). The EIS also notes eight unexpected installation-wide outages due to maintenance, repair, or operational challenges that occurred in 2017, and a coal dust fire in October 2018, as reported by USACE 2018).
123.30	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The upset started as a frequency disturbance by GVEA that caused the circuit with GVEA to open, with a loss of power to several feeders. When operators attempted to close in the feeders to restore power, the turbines could not be brought online due to a coding error in the trip equation on the turbine relays. This resulted in a partial shut-down of the CHPP, but was not related in any way to the age or condition of the infrastructure. The source of the upset was traced to a single-character logic error in an update to the turbine trip logic, which was corrected immediately after the discrepancy was discovered. The fourth event that the DEIS identifies as a "near-catastrophic critical failure" involved a coal- dust fire that occurred in 2018. This event, despite being classified as a "near-catastrophic critical failure," did not result in the loss of heat or power to any part of the installation at any time, as redundant measures kept the plant operating at full capacity while the damage was repaired. While any fire is serious, the DEIS exaggerated the damage and risk that the plant actually experienced. For example, while the DEIS noted that "five local fire departments responded" to the fire, in fact the Fort Wainwright Fire Department was the only unit to actually engage in the response; the other four local departments responded due to mutual-aid agreements only, no effort was required by their personnel, and the fire was extinguished within two hours.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.31	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Finally, the DEIS also asserts that "eight unexpected installation-wide outages due to maintenance, repair, or operational challenges associated with the aging infrastructure occurred in 2017" presented substantial risk to life-safety and mission readiness. While the DEIS references the USACE 2018 report as a source for these eight events, DU could not locate any such discussion, nor has any record of eight installation-wide outages in 2017. DU recorded seven service interruptions, but none affected the entire installation. Three were related to operational issues with GVEA's supply of power to the installation, and thus were unrelated to the age or condition of DU's infrastructure. Had the Army sought information or confirmation of information from DU, unsubstantiated or inaccurate claims in the EIS could have been minimized or avoided.	Thank you for your comment. Section 3.3.1.3 describes the condition of the current CHPP with information provided to the Army by the System Owner.
123.32	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	iii. The CHPP operates in compliance with current air emission regulatory requirements	Thank you for your comment. Section 1.1.2 of the EIS describes how the CHPP has periodically failed to meet state and federal air emissions standards.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.33	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS also seeks to call into question the CHPP's ability to comply with current U.S. Environmental Protection Agency (EPA) and Alaska Department of Environmental Conservation (ADEC) air emissions standards and its Clean Air Act Title V permit.	Thank you for your comment. Section 1.1.2 of the EIS describes how the CHPP has periodically failed to meet state and federal air emissions standards.
123.34	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	During DU's 12-year ownership of the CHPP, DU has continuously met all emissions requirements, and received only one notice of violation (NOV) that occurred during an emissions source test and not during normal operations. That source test, which required the boilers to be operated beyond their normal operating range, resulted in DU's first, and only, Title V permit violation. DU resolved the violation with the state regulator. This violation is not indicative of operating conditions because, as described in Section iv, below, operational demands never require DU to operate the CHPP's boilers at their rated capacity of 150,000 lb/hr steam. DU notes that, during peak demand season, average boiler operations are 80,000 – 110,000 lb/hr, which is well below the permit limit that resolved the violation discovered during emissions testing. Thus, the conditions that led to the one violation are not conditions under which DU would actually operate the CHPP. It is important to note that in 2016, DU successfully reduced emissions of particulate matter by 43%, carbon monoxide by 73%, mercury by 37%, and hydrogen chloride by 76% to meet the EPA's updated regulatory requirements. This was done by reconfiguring boiler operations, optimizing existing boiler controls, and training operators, and resulted in a project savings of $2 million, in addition to an overall reduction in coal consumption.	Thank you for your comment. Section 1.1.2 of the EIS describes how the CHPP has periodically failed to meet state and federal air emissions standards.
123.35	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Finally, the DEIS seeks to call the CHPP's compliance into question by pointing to regulatory requirements that are not yet in effect. The Serious State Implementation Plan (SIP), upon approval, will establish requirements for the Fairbanks North Star Borough (FNSB) nonattainment area to achieve the National Ambient Air Quality Standard for PM2.5 (24-hour) in 2024. If approved by the EPA, the Serious SIP would require that the CHPP install and begin operating no later than October 1, 2023, a dry-sorbent injection (DSI) system for sulfur dioxide control. In developing the Serious SIP, the Alaska Department of Environmental Conservation determined that the DSI system is the Best Available Control Technology (BACT) after considering, among other factors, technical feasibility, cost, and timing. The fact that the Serious SIP requires future action from the CHPP to reduce emissions does not indicate that the CHPP is not in compliance today. And even more, the CHPP will meet the Serious SIP's requirements, as DU is taking the steps needed now to meet the 2023 deadline. While the action alternatives in the DEIS may result in lower emissions than the current CHPP, those potential emissions reductions are not mandated to meet the Serious SIP's requirements and are not anticipated to be required for the FNSB to attain the relevant air quality standard. Rather, the measures detailed in the Serious SIP, with which DU will comply, are what is required – and will occur regardless of what path the Army chooses.	Thank you for your comment. As indicated, the CHPP was issued a notice of violation for exceeding currently effective statutory emission limits for carbon monoxide, resulting in boiler derate. The EIS also summarized in Section 3.2 the anticipated future-effective BACT requirements that the CHPP will be required to meet as part of ADEC's implementation of the PM2.5 serious nonattainment SIP. Review of this language indicates that the EIS language does not seek to call the CHPP's compliance with future-effective regulatory requirements into question.
123.36	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	iv. The CHPP Boilers are not operating at reduced capacity in order to meet emissions requirements	Thank you for your comment. Sections 1.1.2 and 2.5.1 of the EIS have been revised to reflect that the boilers have been derated to limit the operating capacity to 80 percent. This limitation was agreed upon between the UPC and ADEC as a remedy to emissions exceedances as noted in the January 2018 Notice of Violation (Title V) imposed by ADEC.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.37	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	In further support of alleged inefficiencies of the CHPP, the DEIS states that, to meet federal emissions standards, the CHPP boilers must operate at 20 percent reduced capacity, which the DEIS contends, in turn, reduces the existing plant's ability to support the USAG Alaska and U.S. Army Alaska missions. This statement is incorrect. The DEIS mischaracterizes the CHPP's single NOV resulting from DU's current standard of source-testing the boilers at 80% of their rated capacity, stating: "In January 2018, [ADEC] issued a notice of violation to the CHPP's System Owner for exceeding statutory carbon monoxide (CO) emission limits. To meet the statutory CO limits and comply with the federal emissions standards, the CHPP boilers are currently operating at 20 percent reduced capacity." In fact, no such causality exists; the boilers are operated in a manner that optimizes output and minimizes emissions, and again, the exceedance resulting in the single NOV occurred during an emission test. Simply put, the boilers operate at the loads needed to meet FWA's demand. The CHPP includes six boilers that provide redundancy for FWA's winter heating demand. Each boiler is rated at a maximum capacity of 150,000 pounds of steam per hour. Typically, four or five boilers are in operation during the coldest winter days with the steam load split evenly, which translates into average hourly boiler steam flow rates of 80,000 to 110,000 pounds per hour.	Thank you for your comment. Please see the response to comment 123.36 above.
123.38	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Following the 2018 NOV, DU completed a study into FWA's capacity needs, which concluded that operational demands never required DU to operate the boilers at the rated capacity. DU determined that boiler operation of approximately 130,000 pounds per hour could successfully deliver the required steam load to the installation during the winter months. Operating the boilers at or near the maximum rated capacity (150,000 lb/hr) constituted atypical boiler operating conditions such as boiler grate speed and damper settings. Ensuring compliance with these operating parameters is critical to achieving constant air flow and compliance with carbon monoxide (CO) emission standards. DU then confirmed these results with the FWA DPW, and as a result of the study, proposed to permit the CHPP at a lower capacity to ensure compliance with the CO emission standard and protect the infrastructure from damage. The limit for each boiler is approximately 12% less than the maximum rated capacity (or 132,000 pounds of steam per hour averaged over a 30-day period), which DU and the Army determined would be the best and most cost efficient method to meet the applicable emission standards. Thus, the DEIS's contention that reduced capacity threatens the CHPP's ability to meet USAG Alaska's mission is patently incorrect.	Thank you for your comment. Please see the response to comment 123.36 above.
123.39	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS expressly states that among the reasons that FWA "needs to construct reliable heat and electrical infrastructure on the installation … is … to reduce emissions associated with criteria pollutants to help meet air quality regulations." DU notes that the requirement to reduce sulfur dioxide emissions in order to comply with state air quality requirements is one that applies to the current CHPP and must be implemented by October 1, 2023. In other words, the projected 2026 implementation is too late to achieve this reason it cites. Putting aside that this statement evidences the Army's apparent predetermination to reject the No Action Alternative, it underscores the importance of understanding the true cost of adding emissions control equipment to the CHPP to ensure that it complies with applicable air quality requirements.	Thank you for your comment. Section 1.2 of the EIS, the Army's anticipated execution date is contingent on availability of funds.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.40	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS states that to meet statutory limits for PM2.5, the CHPP is required to implement BACT at costs estimated between $22 million and $235 million. The upper end of this cost estimate is a gross exaggeration of expected costs, as it is based on a generalized model prepared 10 years ago by a third-party EPA consultant (unrelated to FWA). A study prepared in 2019 that was specifically focused on the cost of emission control equipment at the FWA CHPP found that the upper end cost would be significantly lower at $75 million. Since that time, a much more accurate estimate has been developed, as DU engaged B&V to prepare a 35% engineering and operations design and cost estimate for the DSI installation. B&V is highly familiar with DU's CHPP, having previously prepared a CHPP heat and energy study as described above. In estimating costs, rather than relying on a generalized model, B&V engineers considered DU's existing infrastructure, the unique Alaskan operating environment, impacts to the environment, energy availability, and commodity supply. The results of the 35% design confirm B&V's 2017 rough cost estimate (discussed below). B&V estimated costs of $27.4 million for DSI equipment and $3.4 million annual O&M expenses. Total costs to the Army over a 15-year period, including interest, taxes, and depreciation expenses, are estimated to be $87.8 million, nearly $150 million less than the upper limit calculation included in the DEIS.	Thank you for your comment. Regardless of the alternative selected, the Army will adhere to federal and state regulatory requirements.
123.41	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS cost estimate figures, which DU has confirmed to be incorrect, appear to be based upon comparing estimated capital costs to fully burdened capital and O&M 15-year costs to the Army. These estimates could be presented as total costs or annualized costs. DU submitted the 2017 B&V estimate to ADEC for development of the Serious SIP. In the 2019 Serious SIP, ADEC updated their DSI estimated costs, using B&V's equipment cost estimate. However, rather than relying upon the B&V O&M costs, ADEC relied on a cost model to calculate O&M expenses. Under this modeled approach, very little project-specific information is used to develop anticipated costs. ADEC estimated annual O&M expenses at $11 million - $14 million. The DEIS relies upon ADEC's cost approach adding 16 years of rate base costs to arrive at the $235 million. A more accurate method is B&V's approach incorporating site specific key parameters. DU provided this FWA CHPP-specific estimate to the Army but it was disregarded in favor of the modeled costs. ADEC did not explain why they relied on an outdated model rather than location specific estimates, and neither did the DEIS. Notwithstanding, the Army's analysis should now include the true cost estimates based upon the 35% design because these cost estimates are known, available, and will be utilized to proceed with the required project.	The economic evaluation included in Section 3.2 of the EIS was obtained from publicly available documentation prepared by ADEC as part of their PM2.5 serious nonattainment SIP development.
123.42	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	vi. The DEIS mischaracterizes "design life"	Thank you for your comment. Design life has been characterized accurately in the EIS per Army policy in USACE 2012, and referenced in USACE 2018 and Guernsey 2015.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.43	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Once again, disregarding the actual condition, the DEIS points to the CHPP's design life as 40 years to support the need for a replacement. The Army implies that this is significant due to "Army policy guidance that states the maximum life cycle of a CHPP is typically 40 years," citing a USACE memorandum from 2012. There are several fallacies in arguing that the CHPP should be replaced based upon a 40 year life cycle. First, the referenced 2012 USACE memorandum does not indicate that the CHPP can or should only function for 40 years. Instead, that 2012 memorandum calls for setting a life-cycle cost analysis study period at 40 years. A life-cycle cost analysis study period does not equal a maximum life cycle, but instead is the time horizon to be used for economic analysis purposes when evaluating total costs with respect to a facility or infrastructure; in other words, a life-cycle cost analysis is not related to engineering or operations life in general, much less to the CHPP. Second, use of a 40-year design life for the CHPP is nonsensical. Under the DEIS's reasoning, the Army should have retired the CHPP in 1995, as it was initially installed in 1955. Not only did the Army not retire the CHPP in 1995, but instead, sold the CHPP to DU and required that it be operated and maintained for an additional 50 years. More specifically, the UP Contract, drafted with significant input of the USACE, the local installation, and its contractors: (i) provides that as of the time of transfer to DU, the CHPP had a design life of 60 - 75 years; (ii) required DU to extend that design life by repairing, upgrading, and maintaining the asset; and (iii) provided an estimated life for the CHPP and other HDS assets.	Thank you for your comment. A design life of 40 years is consistent with Army policy and guidance.
123.44	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Given that DU and the Army have agreed to this approach, and rely on these design lives in planning maintenance, proposing capital replacement, and determining depreciation, it is not appropriate for the DEIS to now seek to support replacing the CHPP utilizing an inapplicable "40 year" design life approach that is not bound to reality or accounting principles. Finally, it is common for power utilities to operate properly maintained plants beyond their expected useful life. Indeed, it was the Army's expectation the CHPP would be operated beyond a 40 year life when it privatized FWA's utilities and sold the CHPP to DU in 2008. DU identified major renovations to be conducted in 2027-2029, but proposed no plant replacement throughout the 50-year contract period.	Thank you for your comment. See the response to comment 123.43 above.
123.45	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	vii. The DEIS creates a false narrative regarding system inefficiencies and reduced capacity operations	Thank you for your comment. Please see the response to comment 123.46 below.
123.46	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS repeatedly and inaccurately identifies system inefficiencies and reduced capacity operations as a basis for calling into question the condition of the CHPP and alleging increased costs associated with the CHPP. Fundamentally, "most efficient" does not necessarily mean "best solution." For example, DU can operate the CHPP at a higher efficiency level as a heat-only plant, but that would not provide FWA the value of the electricity that can also be generated. Further, a less efficient system may be preferred over a more efficient system if the cost to operate the more efficient system, economically (in terms of fuel and operating costs) and/or operationally (in terms of resilience and security) is greater. In support of its position regarding system inefficiencies, the DEIS describes the heat losses at FWA as the result of an antiquated and inefficient system "operating at approximately 42 percent efficiency." This 42 percent efficiency reference, however, is both inaccurate and misleading, for several reasons.	Thank you for your comment. Operational efficiency of the CHPP is reported per the 2018 Huntsville Study (USACE 2018), which included a review of other studies that also assessed the operational efficiency of the CHPP at Fort Wainwright.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.47	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	First, the CHPP efficiency has been meticulously calculated by DU, and independently validated by Black and Veatch, to be about 61 percent. It is important to note that even modern coal fired power plants (and indeed, the most cutting-edge internal combustion automobile technology) are only able to achieve 35-40% efficiency, due to inherent losses in the conversion of heat to work. The reason why the CHPP can achieve an impressive 61% is thanks to the presence of the HDS and a considerable demand for the heat rejected during the process of generating electricity— something that would be taken away under Alternative 3. Thus, the DEIS tacitly allows the reader to compare a value like 42% to 100% with no context or basis. Furthermore, it attempts to claim that energy losses are due to an "antiquated system," which (as shown) is untrue. Conversely, if efficiency is truly to be considered, the CHPP can accurately claim an exceptional level of efficiency, thanks to the HDS.	Thank you for your comment, which will be considered in further evaluations for the decisionmaker.
123.48	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS asserts, as a distribution system inefficiency, heat loss in the HDS at 25% of heat generated. This assertion is unfounded and ignores the design intention and benefits of a cogeneration system with co-located utilities. It is also not supported by the record. According to the B&V Study and an earlier USACE study, the amount of heat transferred to the utilidor ranges between 15-18%. In addition to studies that support a better system efficiency than described in the DEIS, the UP Contract identified that DU could improve system efficiency by insulating steam piping in the North Post utilidor system, because the "principal" heat losses in the system occurred in the North Post utilidor system. The North Post utilidor insulation was repaired after DU took ownership of the system. Steam and condensate pipe insulation continues to be repaired or replaced as needed across the installation's utilidor system. Second, inefficiencies in the CHPP system's design are intentional and necessary for cold weather operations to prevent freeze-up of the co-located water and wastewater pipes. Thus, this heat is not truly a "loss," as it is necessary to protect vital sewer and water piping from freezing; it is more accurately described as a necessary load.	Thank you for your comment, which will be considered in further evaluations for the decisionmaker.
123.49	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	viii. Increased heating costs are not the result of the CHPP's condition or age	Thank you for your comment. The increase in heating costs have been accurately characterized in USACE 2018, Guernsey 2015, and Black & Veatch 2018.
123.50	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS describes FWA as having one of the highest heating costs in the Army "because of the continued reliance on antiquated technologies for installation heat." High heating costs at FWA are primarily the result of its location in Alaska, rather than the CHPP's condition or age. The cost of utilities, construction, materials, labor, and other services are higher in Alaska than the costs that the Department of Defense pays at installations located in the Continental United States, which invariably puts FWA's utility costs among the Army's highest. The DEIS itself supports this, citing the Alaska Department of Labor's report from 2018 showing Fairbanks' utility rates at more than twice the national average. The Energy Information Administration ranks Alaska as a whole second highest of the states for electric energy costs and fourth highest in per capita consumption; again, Interior Alaska typically faces higher costs and harsher conditions than, for example, Anchorage. There are many reasons why the cost of energy is higher in Interior Alaska; however, "reliance on antiquated technologies" is not one of them.	Thank you for your comment. The condition of the current CHPP is described in Sections 1.1 and 3.3 of the EIS.
123.51	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	III. The DEIS Fails to Consider the Effects of Terminating the Utilities Privatization Contract	Thank you for your comment. Please see the response to comment 114.02 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.52	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	A significant gap in the DEIS is the Army's failure to address the potential impact on the UP Contract the government entered into with DU in 2008. The costs of terminating a portion of the UP Contract must be factored into the overall cost of each Action Alternative in determining the financial viability of any such alternative. In 2002, the Deputy Secretary of Defense published guidance for the Utilities Privatization Program. Under this guidance, the Deputy Secretary stated: Historically, military installations have been unable to upgrade and maintain reliable utility systems due to inadequate funding and competing installation management priorities. Utilities privatization is the preferred method for improving utility systems and services by allowing military installations to benefit from private sector financing and efficiencies.	Thank you for your comment. Please see the response to comment 114.02 above.
123.53	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DoD later subsequently affirmed this understanding, noting that: Utilities privatization is the preferred method for modernizing and recapitalizing DoD utility systems. By allowing military installations to focus on core defense missions and functions instead of the responsibilities of utility ownership, this program shall transform how installations obtain utility services. By becoming smart buyers of utility services activities shall benefit from innovative industry practices, the reliability of systems kept at current industry standards and private sector financing and efficiencies. These essential value judgments are still recognized today. Utilities privatization is considered a key tool in meeting energy reliability, energy resilience, and cybersecurity goals. Within the privatization process: Military installations shift from the role of owner-operators to that of smart utility service customers. As smart customers, it is incumbent upon DoD components to ensure that privatized utilities continue to support mission assurance goals and that requisite managerial and contractual controls are in place to ensure a ready force.	Thank you for your comment. Please see the response to comment 114.02 above.
123.54	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	A comment taken from the executive summary of USACE 2018, and identified as a "key factor" in its recommendation, illustrates the fundamental disconnect with the Department of Defense utilities privatization effort: "The study further illustrates that funding annual capitalized R&R [Renewal & Replacement] expenses through the [UP Contract] is akin to making minimum payments on a high-interest, no-limit charge card, while continuing to make regular charges." This comment devalues two primary advantages of utilities privatization: leveraging private capital to allow much-needed and poorly resourced utility infrastructure upgrades; and allowing the military services to focus on their core functions by outsourcing utility management to utility professionals. In 2005, when the DoD issued its solicitation to privatize FWA's utilities, the DoD determined it needed one utility provider to provide all services. The solicitation was issued on an "all or none" basis; that is, any bidder must be willing to take on the demands of providing all utilities i.e., water, wastewater, electric generation and distribution, and heat generation and distribution. This was an especially heavy demand at FWA, which is located in a subarctic region, and where the local labor pool is restricted and there are no other multi-utility providers. Further, the potential capital demand associated with the infrastructure at FWA was extensive, and thus the potential financial risk to a successful bidder was also very high.	Thank you for your comment. Please see the response to comment 114.02 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.55	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As noted, DU was the successful bidder, placing its owners at great financial risk, and undertaking the significant operational burden to support the military through guaranteed safe and reliable service. With Doyon, Limited's backing, support, and resources, and following a lengthy competitive procurement process, the Army selected DU as the owner and operator of the heat and power utility at FWA. After awarding, via the Defense Logistics Agency, to DU one of the largest UP contracts that the Army has ever awarded and the first ever awarded to an ANC, the Army must fulfill its obligations under the UP Contract and should be making all efforts to preserve DU's role at FWA. The DEIS presents no valid reason for the Army to displace or diminish DU's role at FWA. Terminating the UP Contract, or decimating the value of it for DU, would be an unfair action that undercuts the purposes of the UP program. The Army and DU made a mutual commitment to allow the Army to benefit from DU's expertise and capital and for DU to have assurances it would have sufficient time to recoup its investment in providing utilities to FWA. For the Army to cast DU aside simply because it wishes for a different funding mechanism would cause undue hardship to Doyon, Limited and its Alaska Native shareholders and, in fact, threatens the entire UP program. Other UP providers or potential bidders for UP contracts could be deterred by the bad precedent of not knowing whether the Army will honor its contract or toss it aside.	Thank you for your comment. Please see the response to comment 114.02 above.
123.56	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Seemingly ignoring NEPA's fundamental purpose of aiding federal decision-makers, the DEIS fails to identify, consider, and address how the UP Contract would guide and/or constrain Army decision-making, and accordingly, is wholly unclear regarding DU's role going forward with respect to construction, ownership, and operation of a new generation source under the various alternatives. A primary document that informs the study (USACE 2018), however, explicitly excludes the economic viability of Alternative 3 if executed under the UP Contract. The alternatives considered in the DEIS appear to assume, without explicitly so stating, that the UP Contract will be partially terminated up to 32 years early. This is so because the implication of the considered alternatives is that other utilities, including another electric utility and a natural gas utility, would assume responsibility to provide service to FWA. This would be patently unfair and is not justified. Since award, DU has invested significantly to improve and sustain the CHPP, and the revenues from the UP Contract are critical to support the social and economic needs of Doyon, Limited's 20,000 Alaska Native shareholders. Further, Doyon, Limited uses its contract revenues, including from DU's contract at FWA, to provide funding and benefits to other ANCs, Alaska Native Tribes, and nonprofits within Interior Alaska.	Thank you for your comment. Please see the response to comment 114.02 above.
123.57	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Of further concern is the DEIS's failure to consider the cumulative impact of the Army's ongoing consideration of developing a distributed heat system at Fort Greely, where DU also holds a UP contract. Taking a similar action to displace DU at another Army installation in Interior Alaska would compound the adverse impacts on Doyon, Limited's Alaska Native shareholders by removing another key source of the revenue that supports them. NEPA requires the Army to identify and consider such cumulative impacts, which the DEIS completely fails to do. On top of fundamental fairness and socio-economic impacts (which the DEIS wholly failed to address) the Government must consider its potential economic liabilities. If the contract is terminated in whole or in part, the Government must pay demobilization costs, return DU's unrecovered investment in the utilities, and pay DU its lost profit on the contract. As of November 30, 2020, DU's current unrecovered investment in the HDS is $146,633,283.10; this would be only part of the eventual financial payment due. In addition to this return of its investment, DU would be entitled to its lost profits for the remainder of the contract, as authorized for contracts partially or wholly terminated for the convenience of the Government, and as otherwise allowed at law.	Thank you for your comment. Please see the response to comment 114.02 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.58	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Because the manner and extent to which Doyon, Limited will be impacted is dictated by DU's role going forward, the DEIS should have either: (i) defined DU's role and analyzed the resulting impacts on Doyon, Limited and Doyon, Limited's Alaska Native shareholders accordingly; or (ii) if DU's role has not yet been determined or cannot be disclosed, analyzed the impacts on Doyon, Limited and Doyon, Limited's Alaska Native shareholders under multiple potential scenarios. Again, this would have supported NEPA's purpose of facilitating informed decision-making. The discussion in the DEIS regarding DU is limited to the Army's potentially utilizing DU under the UP Contract to construct the generation sources under the alternatives, and its impacts analysis is limited to the following conclusion (which is generally consistent throughout and for all alternatives): "System Owner would invest more money in the utility system than in its original proposal. Therefore, its net profit would be much higher than originally projected in 2007." The DEIS lacks any discussion or analysis of: (i) the Army's obligations under the UP Contract; (ii) the adverse impacts on DU if DU does not own the generation sources; and (iii) the role of DU in the ownership, operation, and maintenance of the generation source under the Action Alternatives going forward. And again, as noted above, failing to retain DU as the owner, operator, and provider of heat and power at FWA under one of the Action Alternatives has significant financial implications that the Army must factor in as a cost of Alternatives 1, 2, or 3.	Thank you for your comment. Please see the response to comment 114.02 above.
123.59	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	IV. The DEIS Fails to Properly Analyze and Consider the True Feasibility and Impacts of Natural Gas as a Fuel Source	Thank you for your comment. Please see the response to comment 123.60 below.
123.60	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS's discussion of natural gas assumes the availability of a reliable, plentiful natural gas fuel supply, however the record suggests otherwise. As demonstrated below, relying on natural gas as a fuel source for heat and power at FWA is a "high risk" proposition, especially with a 2026 build date, as set forth in the DEIS. Further, as addressed in Section VIII(b), below, there will be significant impacts associated with obtaining, transporting, and developing infrastructure for supplying that natural gas, which the DEIS failed to address. Alternatives 2 and 3 rely on adequate availability of substantial quantities of natural gas to meet FWA's heat and power needs. Such availability is questionable, especially by 2026. Natural gas supply in Interior Alaska has been under discussion for decades, and previous efforts (which have also included state government subsidies as current efforts do) have still failed. Given the substantial likelihood that a pipeline to Interior Alaska will not be built and in service by 2026, the DEIS should have, but failed to, analyze the supply chain that would provide the natural gas.	Thank you for your comment. There is a sustainable source of natural gas and ULSD available to Fort Wainwright (per Pentex Alaska LLC 2016; see Section 2.5.3 of the EIS).
123.61	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS appears to rely on the in-development Interior Energy Project, with a reliance on trucked natural gas. According to information provided by the Alaska Gasoline Development Corporation, the price of LNG assumed by the USACE 2018 report of $15/mcf (thousand cubic feet) or less would require a pipeline. Pipelines have been discussed as a means of supplying reasonable cost natural gas to Interior Alaska since at least the discovery of oil resources in northern Alaska; none has yet materialized, thus calling into question any alternative relying upon pipeline delivery of natural gas. The primary means of supplying natural gas to FWA would appear to be via truck deliveries from Port Mackenzie in southern Alaska. These trucks have to traverse multiple hundreds of miles of remote terrain. Two routes connect Fairbanks with the natural gas liquefaction plant at Port Mackenzie, where the only currently-operating LNG facility in Alaska is located. One route is 340 miles one-way; the other is 430 miles. Both are primarily two-lane rural highways, subject to high winds, ice, and heavy snowfall, and frequently experience delays for road construction or vehicle accidents. Based on DU's estimations, transportation requirements to meet FWA's annual building heating load identified in Alternative 2 would be at least 9 trucks per day. Requirements under Alternative 3 would be at least 6 trucks per day. More trips would, of course, be required to supply the remaining natural gas customers in Interior Alaska.	Thank you for your comment. As discussed in Section 3.9, liquid fuels can be delivered via rail or truck. Sections 3.3.2.4, 3.5.1.3, 3.5.2.4, 3.5.2.5 also include language regarding rail shipment.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.62	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	In addition to adequately identifying and evaluating the costs of trucking in natural gas, the DEIS fails to quantify the environmental impacts of increased truck traffic, simply stating "the number of LNG truck deliveries to the Fairbanks region would increase." The DEIS must quantify that number of truck deliveries, and analyze associated noise, vehicle emissions, traffic safety, and any other environmental impacts, as the impacts from increased truck trips would be a direct result of the Army selecting an alternative that relies upon natural gas as a fuel source. Moreover, relying on natural gas delivery by truck calls into the question the reliability of the supply given the hundreds of miles the trucks must travel and the potential for inclement weather conditions, especially in Alaska's long winters when the demand and need for natural gas heating will be highest. There are limited highways in Alaska, and as previously described, are routinely subject to closure or delay. Given the weight that the Army put on the need for energy security, resilience, and fuel source back-up, as central components of purpose and need, the DEIS must consider whether the necessary number of truck deliveries can reliably be made in the wintertime, what effect that might have on the reliability of natural gas supply, and whether a solution requiring trucking fuel long distances across remote areas with limited and vulnerable transportation routes truly meets the Army's energy security and resiliency needs.	Thank you for your comment. Redundant delivery systems of natural gas are available via truck or rail as the Alaska Railroad Corporation is permitted to deliver natural gas via railway (see Sections 3.3.1, 3.3.2.4, and 3.3.2.5 of the EIS). Environmental impacts from truck or rail deliveries will be offset by the lack of coal deliveries currently received.
123.63	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS contemplates requiring only a 14-day supply of natural gas be maintained in IGU's single 5 million gallon storage tank in south Fairbanks (as compared to a 90 day supply of coal located inside the FWA fence line). The DEIS fails to demonstrate that IGU's storage capability can meet the requirements for FWA as well as the Fairbanks community, or that such a short period of backup supply is adequate given these uncertainties, in addition to considering whether the natural gas supply chain is robust enough to simultaneously meet peak winter time demand and restore the 14 day supply should it be depleted during an interruption. While citing concern over the risk posed by FWA's single CHPP, little supply-chain concern is raised over Alaska's single gas liquefaction plant, Fairbanks' single storage tank, or the single pipeline that would be used to supply fuel from that tank to the installation. Where the CHPP operates with significant fuel reserves, replacement of the CHPP with another single source of failure with an uncertain fuel supply should be closely reviewed and considered.	Thank you for your comment. In accordance with Army policy, a minimum of 14-day supply for critical mission facilities is required. In addition to natural gas storage using IGU's 5.25 million gallon storage tank, the Army will maintain at least 14-days of onsite storage of ULSD as backup for mission critical facilities IAW Army policy. The current estimated 90-day emergency fuel supply of coal is not required or deemed necessary according to Army policy.
123.64	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	In addition, it is not at all clear that there is adequate liquefied natural gas (LNG) currently available in Alaska to meet FWA's needs. The DEIS relies on a response to a Request for Information (RFI) from Pentex Alaska LLC (Pentex), provided in 2016, to establish that adequate LNG supply exists. This conclusion is belied by the record. Pentex itself stated in its RFI that its LNG facility in Port Mackenzie, Alaska, was fully subscribed, but that it could meet FWA's potential demand by adding a second expansion to a then-planned expansion. The DEIS fails to note that a bond sale to fund this first planned expansion was paused in April 2020, calling into question whether the facility will expand beyond its fully subscribed capacity at all, much less by 2026 and to the extent required to support FWA. The DEIS, therefore, relies on a four year old response for the prospect of natural gas supply, but fails to grapple with the fact that the project that response cites as providing that supply has been put on hold in recent months. The DEIS must identify the current status of these expansions and address this uncertainty. Selecting an alternative without this information and analysis would not only be arbitrary, but would also introduce significant fuel supply risk.	Thank you for your comment. Sections 2.5.3 and 2.5.4 explain there has been demonstrated availability of natural gas in Alaska as sufficient to meet the installation's demand (per Pentex Alaska LLC 2016).
123.65	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The need to fully and thoroughly examine the environmental impacts to Port Mackenzie is supported by a very recent NEPA EIS process. In 2020, FERC issued the results of its consideration of expansion of LNG facilities at Port Mackenzie. FERC noted numerous environmental impacts associated with locating facilities at Port Mackenzie, including the presence of wetlands. These have not been addressed in the current DEIS. The most recent legislative quarterly report for the Interior Energy Project, dated July 2020, further calls into question the availability of natural gas in interior Alaska. That report notes that the IEP has converted 50 customers to natural gas, as compared to its projection of 6,000 – a shortfall of two orders of magnitude. The quarterly report goes on to discuss the potential for adding Department of Defense housing as a customer as something that would "enhance" the "financial viability" of the project, clearly implying that the business case for natural gas is challenging, to say the least, and provides no guarantees that a stable supply will materialize.	Thank you for your comment. Please see the response to comments 123.63 and 123.64 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.66	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Since the Pentex RFI was provided in 2016, absolute and relative prices of different fuels have varied greatly. For example, benchmark prices for natural gas have varied by more than a factor of two. While it is unclear to what extent prices for natural gas in Interior Alaska mirror benchmark prices, given the supply and reliability considerations discussed above, the DEIS should at a minimum consider whether a four year old price quote for a highly variable commodity is still reliable, let alone whether the Army should rely upon it as a reliable price predictor for 2026 (at which time the price quote will be ten years old). Because natural gas costs are factored into the DEIS's analysis, as described above, NEPA requires that this variability be considered. The uncertainty of relying on a natural gas solution at FWA was also recognized in the November 12, 2020, DEIS comment submission by Alaska State Senators John Coghill and Click Bishop, which noted: "Although many have sought (and support) a stable, sizable supply of natural gas in the Interior (going back decades), that necessary supply simply has not materialized in a manner that meets the needs of the entire region." The senators' comment letter further noted: Historically, in the not-too-distant-past, a large portion of Alaska experienced rolling brownouts because of natural gas disruption from Cook Inlet. As long as the large gas reserves on the North Slope remain out of reach, and unless something drastically changes in Cook Inlet, Interior residents have to look elsewhere.	Thank you for your comment. The Army acknowledges the age of RFI response and further also acknowledges that the Black & Veatch 2018 study commissioned by Doyon Utilities conducts its life cycle cost analysis based on an assumption that Doyon Utilities, if the fuel provider, could secure coal at $65 per ton even though the Army and the Air Force contract cost per ton is between $86 and $89 per ton. Further environmental analysis will be conducted as required at the time of design.
123.67	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	V. The DEIS Does Not Properly and Consistently Consider Costs	Thank you for comment. Costs have been considered based on three separate life cycle cost analyses, the most recent completed by USACE in 2018.
123.68	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	It is evident from the DEIS that "cost" is an important factor to the Army in: (i) supporting its proposal for heat and power upgrades at FWA; (ii) determining and classifying the current state of the CHPP (and what would be required to continue operating the CHPP if the No Action Alternative were selected); and (iii) analyzing relative impacts and strengths when evaluating and comparing the three Action Alternatives. Where, as here, the Army has identified cost as a differentiating factor between the alternatives under consideration, it is critical that such cost information be accurate and well-supported. To achieve this, the DEIS must rely upon the most up to date and accurate cost information that is reasonably available and must be sure to include all relevant costs in its analyses. The DEIS fails in this regard. As noted above, the DEIS includes inaccurate cost estimates (i.e., cost of pollution control equipment) and cost gaps (i.e., failure to consider terminating a portion of the UP contract). In addition, the DEIS ignores additional costs, as set forth below.	Thank you for your comment. Please see the response to comment 123.67 above.
123.69	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	a. Fuel Costs The DEIS bases its cost calculations and conclusions on construction and non-fuel O&M costs, but fails to include the actual fuel costs (or any projection of such costs) for each alternative in its economic analyses. The Army cannot ignore or underestimate the significance of fuel costs, as demonstrated by the B&V Study where fuel costs were a deciding factor when evaluating different approaches. The DEIS relies almost exclusively on the USACE 2018 report for its conclusions regarding the costs of Alternatives 2 and 3. That report assumes a cost of $15/mcf (thousand cubic feet) for natural gas, but current rates in Interior Alaska are far from that price, undermining the DEIS's analysis on this differentiating factor among the Alternatives. The Interior Alaska Natural Gas Utility Financial and Operating Report, dated Sep. 30, 2020, shows a total cost per mcf (less interest and depreciation) of $25.15, with a tariff charge for Large Commercial customers of $20.70. The cost of natural gas (including its transportation costs) greatly increases the costs of Alternatives 2 and 3. This is especially true for Alternative 3, where the economic feasibility of distributed heat is called into question when actual fuel costs are considered. In the USACE 2018 Sensitivity Analysis that compares the costs of the Action Alternatives at different fuel prices, the scant data presented suggest that natural gas prices as low as $22.50/mcf – right in the range that customers in Interior Alaska actually pay – change the relative cost effectiveness of various options. That emphasizes the importance that the DEIS use realistic price estimates for natural gas.	Thank you for your comment. As you have stated, the Black & Veatch 2018 study commissioned by Doyon Utilities does consider fuel costs; however, it conducts its life cycle cost analysis based on an assumption that Doyon Utilities, if the fuel provider, could secure coal at $65 per ton even though the Army and the Air Force contract cost per ton is between $86 and $89 per ton.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.70	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	It is all the more concerning, then, that the DEIS fails in that regard as well. The assumed cost of $15/mcf is chosen because it corresponds to the "target price" set by the Interior Gas Utility, even though that very discussion acknowledges that "these prices and the ability to deliver the required quantities are not a reality today." Basing a decision on a several year-old assumed fuel cost that is acknowledged to be unrealistic when far more accurate cost data is readily available would be arbitrary and capricious. Further, the DEIS fails to consider whether FWA's changing to natural gas would adversely impact consumers and ratepayers in the Fairbanks region by increasing the price of coal to those other parties. Unlike many other areas of the country, prices for commodities such as coal in Interior Alaska are determined less by the interaction of supply and demand, and more by the costs of production. There is ample supply of coal available in Healy, but there are significant fixed costs to extracting and transporting coal in Interior Alaska. If FWA were to stop purchasing coal, other consumers (including GVEA, the University of Alaska Fairbanks, and ratepayers) would have to bear a larger share of those fixed costs, negatively affecting their energy prices. The DEIS failed to consider or estimate these effects.	Thank you for your comment. In the event that the CHPP would be decommissioned and an alternative chosen other than coal, the impact to the price of coal in the Fairbanks region is difficult to predict. The effect on the price of coal that will be paid by other utilities/coal customers in the region resulting from the action alternatives would depend on the coal supplier's business/economic decisions and the negotiated prices between parties. The Army can not speculate on the coal supplier's economic position or business decisions. This is outside the scope of this EIS.
123.71	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	b. Electricity Costs The DEIS also fails to include required costs of electricity under Alternative 3 The DEIS identifies the need for "$13.2 million for 6 MW standby generators for mission-critical facilities," but does not assign a cost estimate to the "additional cost for 20 MW of backup to support other facilities." Construction costs and permitting requirements for 20 MW of backup generation and fuel storage for 326,000 gallons of ULSD are material costs and considerations. With all electricity being provided by GVEA, an additional substation and redundant 20MVA transformer would be necessary to prevent GVEA's single transmission feed to FWA from becoming a single point of failure for electricity to the installation. The DEIS fails to analyze these additional costs, risks, and requirements of Alternative 3.	Thank you for your comment. Alternative 3 life cycle cost analysis as presented in Black & Veatch 2018 and USACE 2018 captures the cost of electricity.
123.72	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	c. Freeze Protection Costs The DEIS fails to identify the additional costs required for freeze protection under Alternative 3. Significantly, the presence of a relatively warm utilidor that results from what the DEIS characterizes as system inefficiencies has been the foundational assumption of nearly all utility design projects at FWA for the last 65 years. Indeed, the critical importance of these warm utilidors is identified in the UP Contract as follows: • 83 percent of water lines (approximately 160,719 linear feet) are located in an underground utilidor. The remaining 17 percent are direct buried deeper and are of larger diameter to reduce the potential for freezing. • 69 percent of wastewater lines (approximately 89,723 linear feet) are located in an underground utilidor. The remaining approximately 31 percent of the wastewater lines are direct buried. Direct buried lines are laid deeper and are of large diameter so they do not freeze; they are not heat-traced. The successful operation of not only the pipes in the utilidors, but also the many direct bury water and sewer mains and laterals (which also require utilidor heat to prevent freezing) is dependent upon warm utilidors. Removing the source of heat within the utilidor system would require a substantial investment and engineering effort, including but not limited to water circulation, heat addition to potable water, insulation of more than 26 miles of currently uninsulated sewer pipes, and heat tracing (which adds additional electrical load). Heat tracing is a particularly ineffective countermeasure to freeze protection, unless it is applied under insulation, and is three times as expensive per unit of heat energy delivered.	Thank you for your comment. The EIS analysis included information from the Black & Veatch (2018) and USACE (2018) studies, which both captured the cost of freeze protections. Design level data can refine freeze protection cost estimates. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
123.73	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	d. Natural Gas Specific Costs, Including Pipeline Costs The DEIS identifies no O&M cost for the pipeline system in Alternative 3.	Thank you for your comment. The natural gas utility provider's operation and design of their pipeline is outside of the scope of this EIS. Fuel costs would be negotiated depending upon the alternative selected.

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123.74	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Assuming that this is not an oversight, the absence of O&M costs and construction costs for the distribution system suggests that the system would be owned by the gas utility and construction and O&M costs for the pipeline system would be included in the natural gas rates, further jeopardizing the unrealistic assumption of $15/mcf. Because the natural gas rates would be set by an unregulated utility (as discussed below), the Army would lose input into what O&M costs it bears. Further, the Army will not be able to defer paying for capital costs for line extensions due to inclusion in future rates. The DEIS asserts that no costs for Alternative 3 are provided because IGU will own the utility assets. While it is standard utility practice for a utility to own utility assets, from a regulatory cost risk, IGU's intended ownership of the assets alone is an insufficient basis to exclude from Alternative 3 the costs of extending IGU's natural gas distribution system onto FWA.	Thank you for your comment. Please see the response to comment 123.73 above.
123.75	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The costs for line extensions will be required in advance of service (i.e., it is not likely the Army can defer payment through future rates). Currently, there are no natural gas mains located on FWA. There are two types of line extensions that will be required; extensions of natural gas mains into neighborhoods and extensions of natural gas service lines (laterals) from the mains to the buildings. Overall, there is no basis for the assumption that IGU would undertake the vast commitment of capital to extend mains and laterals without an advance payment. IGU's customer base is small (about 1200 customers), and extension of natural gas mains onto FWA would be costly. In addition to the standard costs of installation, IGU would need to contend with all of the financial and coordination challenges faced by other utility providers on post: (1) the short construction season requiring coordination with competing military and utility construction requirements; (2) disturbing soils on a Superfund site that has a high level of environmental oversight by federal and state environmental regulators; and (3) ensuring no disruption of service to other utilities. These challenges add additional costs that may not be feasible for a small utility like IGU to meet without requiring up-front payment by the Army; the alternative is that IGU's existing customer base or local taxpayers would be required to pay for (or carry) some or all of these costs prior to service. Given the risks associated with FWA's status as a Superfund site and EPA's high level of attention to environmental contamination on FWA, IGU may be reluctant to undertake the risk of line extensions without guaranteed recovery of those costs up front.	Thank you for your comment. Please see the response to comment 123.73 above.
123.76	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	More specifically, there is no basis to conclude that IGU will defer recovery of main extensions into neighborhoods in exchange for future rates. IGU must be operated under standards generally applicable in the utility industry. It is standard utility practice to require developers and owners to pay for a main extension into a neighborhood, and to do so in advance. There also is no basis to conclude that all costs to install laterals would be borne by the utility and recovered in the future. Under the terms of the form commercial contract applicable to new service, IGU would pay for the first 100 feet of lateral. However, additional lengths of laterals, if required, would be billed at an additional cost. Additional costs, such as for permitting (including environmental permitting) also may be passed through under the terms of the commercial contract and are required to be paid in advance. Further, because laterals would serve existing structures, the cost to design and accommodate existing structures would be much higher and would need to be recovered as well.	Thank you for your comment. Please see the response to comment 123.73 above.
123.77	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS assumption that capital costs would be recovered in the future is unsupported. By way of contrast, as a regulated utility, and under the terms of the UP Contract which allows the Army to determine the funding source for line extensions, DU may be required to finance line extensions and permit the Army to repay those costs over time through rates.	Thank you for your comment. Please see the response to comment 123.73 above.

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123.78	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Finally, the Army cannot reasonably rely on the FNSB to provide funds for extension of service onto FWA. IGU's owner, the FNSB, intends IGU to stand on its own and provide its own financing. Although IGU may apply to the FNSB for support, this is an uncertain solution, at best. As noted, IGU is required to be operated under standards generally applicable in the utility industry. Utilities apply the principle of cost-causer/cost-payer in developing the cost of service. This principle means that the customer that causes the cost should pay the cost. Under this "prevailing utility practice," any extension for the benefit of the Army would be paid by the Army, not by other ratepayers or by the FNSB.	Thank you for your comment. Please see the response to comment 123.73 above.
123.79	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	e. Potential Costs Arising from Moving to an Unregulated Utility As noted the IGU is a wholly owned corporation of the local governmental unit, the Fairbanks North Star Borough. As a municipally owned utility, the rates charged by the utility are not economically regulated by the third party regulatory agency, the Regulatory Commission of Alaska. Economic regulation of utility rates generally benefits the Army. Under economic regulation, a utility must demonstrate that the prices charged for service are "just and reasonable." Rates may not be implemented without public notice and Regulatory Commission of Alaska approval, which often requires the utility to attend a hearing and demonstrate reasonability. At FWA, rates charged for Heat Distribution, Electric Distribution, Water Treatment and Distribution, and Wastewater Collection are all economically regulated. No rates are charged without the Army's participation in a detailed pre-filing review, and participation by the Army in the third-party approval process.	Thank you for your comment. Please see the response to comment 123.73 above.
123.80	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As a non-regulated utility, by contrast, IGU may charge whatever rates it determines. IGU is entitled to earn a rate of return on its investment in utility infrastructure. IGU's rates are reviewed and approved by its Board. Neither the particular rate of return favored by the Board nor the rates charged for service and commodity are subject to review by a third party for reasonability. The only oversight IGU's municipal owner asserts is in the event that IGU's capital and operating budgets exceed anticipated revenues.98 Accordingly, ratepayers have no recourse to the Regulatory Commission of Alaska or any other entity with respect to IGU's rates or practices. The failure to thoroughly consider the regulatory risk and related costs of the local natural gas utility exposes the Army to significant risk that is not accounted for in the DEIS. For example, the DEIS fails to consider the significant risk that it will be locked into increased distribution and commodity charges.	Thank you for your comment. Please see the response to comment 123.73 above.
123.81	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	While the Army currently pays for the cost of distribution services to DU, these utility services are, to an extensive degree, controlled by the Army. This is so because the Army pre-approves capital investments and is aware, before approval, of the impact of those costs on its rates. The rate of return collectible for these utility services cannot increase over time, even if market rates reflect that the rate of return is unreasonably low and should increase. All costs included in rates are subject to review, examination, and modification by a third-party neutral regulator which must ensure DU's rates are "just and reasonable." Alternative 3 does not discuss or examine the cost-risk of changing from an economically regulated distribution utility to a distribution utility charging discretionary rates. Because the IGU need not seek Army approval prior to increasing its asset base, because the IGU Board alone determines what is an appropriate rate of return, and because the tariff rate is set by the IGU Board without review or oversight by the Army, the Army would undertake significant rate risk without recourse. The Army should be highly concerned that, although it would lack significant input into matters impacting natural gas distribution rates, it would be required to pay those rates even if it found them unreasonable.	Thank you for your comment. Please see the response to comment 123.73 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.82	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	f. Cost Escalations Associated with Managing Contaminated Sites During any Construction The DEIS also fails to account for increased environmental costs (of up to 35%) under the Action Alternatives. FWA's contaminated sites program is managed by the DPW Environmental Program (DPW Environmental), or Installation Restoration Program (IRP), and includes several Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) program Operable Units. Each Operable Unit includes multiple contaminated sites grouped together based on their similarities and location and are managed under an EPA-approved Record of Decision document. DPW Environmental also manages sites under the Military Munitions Response Program (MMRP) and two-party agreement sites managed jointly between DPW Environmental and ADEC. To achieve compliance with all these programs, which includes preapproved plans, additions to on-site personnel, and slower project progress to address requirements, construction costs can increase by 25% to 35%. DU has confirmed, based on its 13 years of operating four systems and constructing hundreds of millions of dollars of infrastructure on FWA, that the presence of soil and groundwater contamination at FWA will increase costs associated with both installing a new power or heat generation source at FWA and upgrading DU's utility infrastructure to accommodate a new power or heat source. The DEIS however, ignores such costs.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
123.83	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	DU is very familiar with the costs associated with working within and managing the contaminated soil and groundwater at FWA. In a typical construction year, DU manages excavation of contaminated soil generated from half a dozen or more projects. By way of example, in 2020, DU began a project that required a large amount of civil work due to the required management of minor levels of petroleum-contaminated soils. This project experienced an increase in total project costs of 26% as a result of onsite environmental contractors, additional DU staff, laboratory analysis, proper management of contaminated soils, required liner material, and segregated stockpiling.	Thank you for your comment. Please see the response to comment 123.82 above.
123.84	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS cannot properly disregard this cost escalator, which would impact all three alternatives but especially Alternative 3. Alternative 3 will require multiple soil excavations to install natural gas boiler building foundations and miles of natural gas piping to supply the fuel. Each excavation will require a contaminated soils evaluation. Adopting any Alternative that does not consider this cost escalator would constitute a grave error.	Thank you for your comment. Please see the response to comment 123.82 above.
123.85	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	g. Inaccurate and Inconsistent Cost Analysis in the Studies Underlying the DEIS The DEIS relies principally on USACE 2018's Life-Cycle Cost Analysis (LCCA) for Heat and Electric Power Alternatives to provide the construction and annual operations and maintenance (O&M) costs given in the DEIS. The LCCA, in turn, relies on Guernsey 2015. As an initial matter, this data used to inform the economic analysis in the DEIS is stale – i.e., it is at least six years out of date. Further, DU identified a significant number of inaccuracies and inconsistences in the spreadsheet models provided as Appendix A to the LCCA: • Capital costs (Plant Additions) to the existing plant are grossly overestimated. The USACE 2018 model uses information provided by Guernsey 2015 that takes DU's Construction Work in Progress (CWIP) figure for 2014 ($8,386,926), uses that figure as the basis for 2015, then accelerates that figure annually. The result is a highly inflated figure for capital additions for the CHPP between 2015 and 2025 of $125,449,248. Actual plant additions for the HDS, which includes both the CHPP and the HDS, totaled $34,628,099 from 2015 through 2020, averaging around $5.8 million annually. Extending those averages through 2025 provides an estimate of $63,484,848, almost half the DEIS estimate. DU believes, based on anticipated projects for the CHPP, the actual figure will be much lower than even that estimate.	Thank you for your comment. Your input to the evaluation process is appreciated.

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123.86	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The USACE model uses electricity rates from GVEA of $0.106/KWh and a demand charge of $27.00; actual October 2020 rates were $0.109/KWh and a demand charge of $30.06. • The USACE model assumes $13.5 million annually for utilidor maintenance. Actual costs for the past 12 years have averaged $3.75 million annually. • The USACE model assumes an income tax rate of 40.2% when considering the current UP Contract; DU's state and federal income tax rate is 28.43%, which is 30% less than the USACE figure. • The Cost of Debt in the USACE model is incorrectly represented as 5.41%; the actual Cost of Debt is more than 100 basis points lower, at 4.32%. • As an illustration, when adjusted for the correct tax rate, debt rate, and the correct rate base, capital costs for 2020 decrease by 44%.	Thank you for your comment. Your input to the evaluation process is appreciated.
123.87	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• In determining the replacement cost for a new coal plant (Alternative 1), rather than determining the cost for a new, high efficiency coal plant, Guernsey identified replacement costs for each of the major components in the existing plant using actual costs for components installed in 2003 (water treatment system) and 2004 (bag house, ash handling system, and air cooled condenser) and estimated values from 2013 for the remaining components, and then applied an escalator to arrive at a replacement cost. This approach fails to account for available technologies and thus artificially increases the projected cost. The USACE approach uses Guernsey's cost estimates and replaces the existing 6 boilers and 4 turbine generators, capable of producing 22 MW of electricity, with 6 boilers and 2 turbine generators capable of producing only 10 MW of electricity, at a cost of $647 million. When DU commissioned Black & Veatch to consider a replacement CHPP, however, B&V's recommendation was to refurbish the existing plant, using best available technology which includes a single circulating fluidized bed boiler and high-efficiency 30 MW turbine. B&V estimated the cost for this fully-modernized plant to be $285 million. By comparison, the University of Alaska completed a new coal plant at its Fairbanks campus in 2019 capable of producing 240,000 lbs/hr of steam and 17 MW of electricity at a cost of $248 million. • The DEIS cost estimate for Alternative 1 includes items that likely would not need replacement, such as the coal thaw building.	Thank you for your comment. Your input to the evaluation process is appreciated.
123.88	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The economic analysis for Alternative 2 appears to primarily derive from Guernsey 2015, with minor modification by USACE, with values taken from historic cost data from 2003, 2004, 2005, and 2009 and escalated to reach a cost of $363 million. Black & Veatch estimated a similar new dual-fuel CHPP could be constructed for $131.4 million, including demolition of the existing plant. • The costs identified for Alternative 3 include only the cost of boilers ($61.5 million, provided by Guernsey 2015 without additional detail in the provided spreadsheet), environmental study, demolition of the existing CHPP, and back-up generation. The economic figures assume that the gas utility will fund the on-post distribution system, stating: "The natural gas distribution system would be owned by the gas utility and O&M costs for the pipeline system would be included in the natural gas rates (USACE 2018)."107 As noted in Section (d), above, there is no guarantee that the local gas utility (and its current ratepayers) would cover this upfront cost, and if it did, the utility certainly would recoup its investment in the rates paid for the fuel. It is important to note that the DEIS-identified cost for this alternative only applies in a situation where the contractor pays for the distribution system and charges for it later in rates. Extending similar logic, a contractor could build Alternative 1 or Alternative 2 for FWA at a cost of $0, if one excludes the increased rate costs that would come from such on-bill financing.	Thank you for your comment. Your input to the evaluation process is appreciated.
123.89	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• Each of the alternatives includes a "Cost Factor" to account for contingencies, markups, engineering, and a line identified as "DoD area cost factors." This would basically be the overhead for the project. For Alternatives 1 and 2, that factor is applied to the full cost of the project (excluding the cost to demolish the existing CHPP), which more than doubles the estimated cost. For Alternative 3 that cost factor is only applied to the cost of backup generation, and not the remaining costs (including the cost of the boilers, which makes up a majority of Alternative 3's total cost). The result of this inconsistent treatment is a cost increase for Alternative 1 from $294 million to $647 million; Alternative 2 from $147 million to $323 million; and for Alternative 3 from $110 million to only $117 million.	Thank you for your comment. Section 3.5 (Socioeconomics) of the EIS discusses costs associated with the action alternatives.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.90	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	VI. Correcting the Record on the No Action Alternative in Light of the True Condition of the CHPP and Contractual Obligations a. Requirements for Setting the No Action Alternative NEPA regulations require the Army to consider and carry forward as an alternative the existing situation without the proposed action, which is the No Action Alternative. The Army must fully assess the No Action Alternative in the same manner as the other alternatives. An improperly defined No Action Alternative can skew the entire alternative analysis, as the No Action Alternative serves as a baseline to allow for the comparison of the impacts of all other alternatives.	Thank you for your comment. The No Action Alternative was developed pursuant to the NEPA regulations identified in Section 1.1 of the EIS. Section 3.3.1.3 of the EIS provides the current condition of the CHPP with data provided to the Army by the System Owner.
123.91	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	b. The DEIS Fails to Properly Define the No Action Alternative The DEIS states: "Although the No Action Alternative would not meet the purpose of and need for the Proposed Action, it reflects current conditions and assumes that these status quo conditions would continue into the foreseeable future." This, however, is not a properly defined No Action Alternative because current operations and the condition of the CHPP would not continue unchanged. In other words, the baseline should not be simply a snapshot of how the CHPP looks and operates today, but instead how it would look and operate in the future if the Army were not to replace the CHPP. Thus, the No Action Alternative must properly reflect that DU would continue to make capital improvements and maintain the CHPP in order to meet FWA's heat and power needs.	Thank you for your comment. The Army has carried forward the No Action Alternative for full analysis within the EIS. The No Action Alternative does properly reflect that Doyon Utilities would continue to make capital improvements and maintain the CHPP in accordance with regulatory requirements.
123.92	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Currently, under the terms of the UP Contract and state law, DU is obligated to provide safe, reliable service to FWA. Under the No Action Alternative, at a minimum, the CHPP would be maintained and upgraded pursuant to the schedule of maintenance and upgrades that DU prepared and provided to the Army at the commencement of the UP Contract. However, as acknowledged in the UP Contract, to keep the CHPP operating reliably and efficiently throughout the duration of the fifty-year contract, DU must continue to ensure that all operations meet legal, environmental, and industry standards and obligations, including as those obligations may change from time to time. These obligations include, but are not limited to, installation of new infrastructure that is required for legal purposes, like the air pollution controls needed to comply with the Serious SIP.	Thank you for your comment. Please see the response to comment 123.91 above.
123.93	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	c. The DEIS's Proposed No Action Financial Model Contains Factually Incorrect Assumptions About Current Plans for the CHPP. To serve as a proper baseline, the CHPP under the No Action Alternative must assume programmed capital improvements, the most significant of which would include replacement of the existing boilers and turbines with a high-efficiency circulating fluidized bed boiler and state- of-the-art 30MW turbine (scheduled for 2029) that improve the efficiency of the CHPP and reduce air emissions while enhancing reliability. Thus, under the No Action Alternative, DU would perform the scheduled maintenance and upgrades, and by the end of the decade, the CHPP would be a high-efficiency plant with three months of energy security.	Thank you for your comment. The financial model assumes the required capital improvements would be implemented under the No Action Alternative.
123.94	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	d. The DEIS's Estimated Costs Associated with the No Action Alternative are also Flawed. In addition to ascribing FWA's relatively high heating costs to incorrect reasons, the DEIS states that heat and electricity costs "are expected to rise exponentially over the next 40 years," creating the impression of an even higher cost No Action Alternative. While the DEIS cites the USACE 2018 report as a source for this statement, the USACE report provides no detail to justify this statement beyond the grossly incorrect assertion that there will be cost increases of over $200 million per year by 2026 and $300 million per year within the next 40 years. These exceedingly high estimates can only have come from highly inflated assumptions, as they have no basis in DU's economic forecasts.	Thank you for your comment. Under the No Action Alternative, the System Owner would continue to invest money in the infrastructure as originally proposed in the UPC, while operational costs would continue to rise as discussed in Section 1.1.2 of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
123.95	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Contrary to statements in the DEIS suggesting otherwise – and absent from the analyses in the DEIS – the 2008 privatization of the CHPP provided significant financial benefits to the Army with respect to heat and energy. A 2007 USACE report on the FWA CHPP identified a number of issues and concerns with the plant, including the lack of: a preventative maintenance program; a maintenance management system; training and certification for plant staff; and an adequate safety program. The report included a proposed $153,960,000 budget of capital and maintenance requirements necessary to sustain the plant through 2030. This report did not consider the cost of environmental controls because they were not then in effect. Utilizing actual and projected costs for the CHPP for these same requirements, DU projects costs to maintain the CHPP through 2030 will require $151,897,000, 1.4% less than the "should cost" identified by USACE and with maintenance, training, and safety issues all corrected. The DEIS includes no credible basis to assume that these savings will not continue.	Thank you for your comment. Your input to the evaluation process is appreciated.
123.96	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	VII. The DEIS Relies on a Flawed Alternative Analysis a. The DEIS Fails to Consistently Apply Screening Criteria to the Alternatives Carried Forward NEPA's regulations require the Army to "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." It is proper for a federal agency to consider many alternatives and screen them down several times – e.g., for impracticability or unfeasibility from a technical, environmental, or economic standpoint – before identifying a preferred alternative. The agency must, however, include the rationale for screening out alternatives and consistently apply the screening criteria to all alternatives. Here, the DEIS fails on both fronts.	Thank you for your comment. The alternatives were screened in accordance with the different aspects of the fuel supply needed by the alternative in question. The screening criteria were applied in accordance with NEPA based on information available to the Army.
123.97	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS states that the Army screened 16 Action Alternatives for viability (along with the No Action Alternative), and carried only three Action Alternatives forward for detailed evaluation. A review of the alternatives screening process indicates that the Army applied the screening criteria (enumerated in Table 2.3-1) inconsistently and selectively, in what appears to be an analysis targeted to reach predetermined conclusions. Some examples follow.	Thank you for your comment. The alternatives were screened in accordance with the different aspects of the fuel supply needed by the alternative in question. The screening criteria were applied in accordance with NEPA based on information available to the Army.
123.98	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Screening Criterion 1 indicates that an alternative must "directly address the current constraints in operation and cost of maintenance of the existing CHPP and distribution system," including realizing efficiencies where possible. Putting aside that the criterion is overly vague, as it does not identify the "current constraints in operation," the DEIS's application of this criterion is uneven and problematic, at best. Under the DEIS:	Thank you for your comment. Please see the response to comment 123.97 below.
123.99	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	· The No Action Alternative fails this criterion because of "ongoing upgrade and repair and replacement costs." However, the Army does not consider the improved efficiencies of future upgrades as required by the plain language of the criterion.	Thank you for your comment. The existing incorporated reference studies include the efficiency improvements of the existing CHPP under the No Action Alternative.
124.00	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	· Alternative 4, a new Oil-Fired CHPP, fails because of a "prohibitively expensive fuel source." Fuel oil is significantly less expensive in Interior Alaska than natural gas, which is the fuel source for two of the alternatives carried forward.	Thank you for your comment. Alternative 4 would utilize fuel oil to produce steam first and then use the steam to produce electricity, which would be a less efficient process than Alternative 2, which produces electricity first. Therefore, Alternative 4 is estimated to use significantly more fuel oil, making it not reasonable or feasible.
124.01	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	· Alternative 5, upgrading the existing CHPP to combust natural gas, is eliminated because "utilizing gas to produce steam and then electricity would be prohibitively expensive." Again, however, the fuel source for two of the alternatives carried forward is natural gas.	Thank you for your comment. Alternative 5 would utilize fuel oil to produce steam first and then use the steam to produce electricity, which would be a less efficient process than Alternative 2, which produces electricity first. Therefore, Alternative 5 is estimated to use significantly more fuel oil, making it not reasonable or feasible.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.02	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	· Alternative 8, nuclear power generation, and Alternative 9, wind generation, are eliminated because installing electric boilers for heat would be prohibitively expensive. However, Alternative 10, solar power generation, somehow avoids that additional cost. Further, it is unknown why nuclear power was considered for electric generation only, when combined heat and power-capable small modular reactors are currently in development.	Thank you for your comment. Section 2.4 of the EIS considers renewable energy alternatives.
124.03	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Another example of inconsistent application of criteria involves Screening Criterion 2, Energy Security. While the DEIS screens out biomass "because of insufficient readily available and affordable quantities in the region," it carries natural gas alternatives forward despite the fact that existing natural gas supplies and infrastructure also are insufficiently readily available and affordable (as acknowledged in USACE 2018 which states that the assumed "prices and the ability to deliver the required quantities are not a reality today)."	Thank you for your comment. Since the completion of USACE 2018 study, Interior Gas Utility has constructed the infrastructure to store and provide the needed quantities of natural gas.
124.04	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As a final example, Screening Criterion 3 calls for cost efficiency as well as a "reasonably foreseeable funding source." Currently, upgrading the existing CHPP has as programmed a contractual funding source through Utility Privatization, under which DU provides the funding and the Army pays a tariff rate over time. However, the DEIS asserts that this Alternative fails due to lack of "a foreseeable funding source." This assertion is false.	Thank you for your comment. Information for this alternative was amended to clarify that the alternative would not be cost efficient.
124.05	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	b. The DEIS Fails to Properly Apply Department of Defense and Army Energy Security and Resiliency Criteria In addition to the inconsistent application of screening criteria, the Army failed to properly apply the Army's energy security and resilience criteria in evaluating alternatives. The DEIS relies upon a number of criteria, data points and other factors to screen and evaluate the alternatives. The ability for an alternative to satisfy the Army's energy security and resilience criteria, however, is of major importance, as confirmed by the Statement of Purpose and Need, which identifies this criteria as a specific need that the Army is undertaking the proposed action to fulfill. It is critical that this criterion is properly applied. The DEIS fails in this regard.	Thank you for your comment. All action alternatives meet the Army Energy Security Requirements to provide 14 days of energy for all mission critical facilities.
124.06	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Current Army guidance requires installations to "sustain critical missions by being capable of withstanding an extended utility outage for . . . a minimum of 14 days." The same guidance describes resilience considerations as "secure on-site supplies of energy and water to support the sustainment of critical missions, as well as assured access to off-site energy and water resources and associated transmission; robust infrastructure to distribute energy and water; and effective system operation through planning, personnel, and equipment to support critical mission requirements." The DEIS itself states in the introduction, "the Army will prioritize energy and water security requirements to ensure available, reliable, and quality power and water to continuously sustain critical missions."	Thank you for your comment. Please see the response to comment 124.05 above.
124.07	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Despite the need for mission critical energy security and resilience, DEIS effectively dismisses the significance of the existing three months' supply of heat and power located within the FWA fence line. The DEIS natural gas alternatives would include only a 14-day supply of natural gas outside of the fence line.	Thank you for your comment. All action alternatives meet the Army Energy Security Requirements to provide 14 days of energy for all mission critical facilities. The three months of coal storage is above and beyond the Army policy.
124.08	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Switching from a secure and substantial fuel supply in subarctic conditions to a minimum supply that is not even currently available represents an unsupportable and high risk decrease in resilience and energy security. It is critical that all alternatives that lack an appropriate fuel supply are carefully evaluated from this perspective.	Thank you for your comment. Please see the response to comment 124.07 above.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.09	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS's analysis also is at odds with an earlier USACE 2005 study that reviewed energy options at FWA, Fort Greely, Eielson Air Force Base, and Clear Air Force Station. In considering a possible CHPP located between Eielson Air Force Base and FWA that would serve both installations, the study was highly critical of delivery logistics and protection of the fuel supply. That study found that "[a]n off-base facility will not be enclosed within the secure area of either base, increasing the vulnerability of the facility to malicious attacks." The study further noted: "The most significant factor affecting the reliability of operations from external factors is the reliability of delivering the fuel and the physical protection of the asset." These concerns are not resolved by the DEIS.	Thank you for your comment. All action alternatives would provide a minimum 14 days of fuel supply within the installation fence for mission critical facilities as required by the Army Energy Security policy.
124.10	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The alternatives that the Army carried forward in the DEIS are at odds with the energy security and resilience criteria in the USACE 2005 study, as the Army is considering an energy fuel supply that must be trucked 340 miles before being stored in a single, off-installation storage tank that supports the entire Fairbanks community. Fuel reserves provide energy security and resilience, and it is contrary to strong Army policy to locate these outside the fence line in a facility that is not owned by the Army. However, the DEIS is silent on the issue. In fact, the 2005 Study rejected natural gas as viable unless a pipeline is completed to Fairbanks, and even with a pipeline, the study ranked coal higher for availability/reliability and security "because of its vast nearby supply, its security as an indigenous fuel that is easily transported and stored, and its projected stable cost." On top of this, there is the vulnerability to interruption of over-the-road transport of fuel should a catastrophic event interfere with highway transportation in Alaska, a relatively likely possibility given the scarcity of intercity highways and harsh conditions that limit when roads can be repaired.	Thank you for your comment. Fuel reserves for Alternative 3 would be located on the installation. Reserves would consist of ultra-low-sulfur diesel fuel stored in aboveground tanks located on mission critical facilities to fuel boilers and create heat. Backup generators would be located at electrical substations to provide backup electricity. See Section 2.5.4 of the EIS. The current estimated 90 days of emergency fuel supply of coal is not required or deemed necessary according Army policy. Furthermore, redundant delivery systems of natural gas are available via truck or rail as the Alaska Railroad is permitted to deliver natural gas via railway.
124.11	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As noted elsewhere in DU's comments, the DEIS appears to stack the deck against the CHPP with respect to energy security and resilience. For example, the Army recognizes and attempts to mitigate the inherent security and resilience risks that would result from purchasing all electricity from GVEA under Alternative 3 by including significant emergency electric generation and fuel storage capability as part of this Alternative. The Army failed, however, to consider a similar mitigation measure with respect to the current CHPP, which would include constructing an alternate heat plant that would easily and economically provide a redundant heat source. The DEIS neither considered nor provided a reason for not considering this "No Action plus" Alternative despite it's being suggested as a mitigating measure in Guernsey 2015 and despite its inclusion by DU in numerous submissions of its Annual Capital Upgrades, Renewals and Replacements Plan. DU's efforts to implement a solution to the "single point of failure" concern that supposedly drives this DEIS have never been approved by the Army.	Thank you for your comment. The No Action Plus Backup alternative has been added to EIS Section 2.4 as a potential alternative (Alternative 20) identified and dismissed from further analysis.
124.12	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	c. The DEIS Fails Properly to Define and Analyze the Alternatives Carried Forward	Thank you for your comment. Section 2.5 defines and details the alternatives carried forward for analysis in the EIS. The preferred alternative is identified in Section 2.5.5 of the Final EIS. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
124.13	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The evaluation of alternatives is the "heart" of an environmental impact statement. As such, an EIS must contain "detailed and careful" analysis of the proposed alternatives, which courts have characterized as the "linchpin" of an EIS. Here, the DEIS's alternatives analysis is flawed in several key respects, including in the alternatives carried forward.	Thank you for your comment. Please see the response to comment 124.14 below.
124.14	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As an initial matter, a short-coming of all of the Action Alternatives is the DEIS's failure to factor in required modifications and/or upgrades to other parts of the utility system (e.g., utilidors, etc.) to facilitate any of the Action Alternatives.	Thank you for your comment. Text was added to the alternatives discussion in Section 2.5 acknowledging that upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time. Additionally, Section 3.3.2.5 of the EIS acknowledges freeze protection would be needed under Alternative 3.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.15	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	For example, removal of a heat source from the utilidors would place water and sewer piping at high risk of freezing, as described in Section V(c), and would not be easily or inexpensively mitigated by insulation, heat trace, or circulation pumps. Complete reliance on GVEA for electrical power would require modification to the electrical distribution system, as described in Section V(b), to insure adequate resilience and reliability. The utilidors include a sump system to deal with infiltration of ground water, as well as the occasional spillover of water or wastewater when conducting maintenance or repair of the water and wastewater systems; the electric sump pumps and system would certainly be affected by sub- freezing utilidor, but to an unknown degree. The inter-related nature of the utilidor system virtually guarantees additional impacts. Additionally, for the Alternatives involving natural gas, greater analysis must be done on emplacement and construction of a natural gas distribution system as discussed below. To assume such extensive construction will be done at no cost to the Army, as the current DEIS does, is unrealistic.	Thank you for your comment. As explained in Section 2.3, operational cost efficiency was among the drivers for selection of alternatives that could be considered viable and therefore carried forward for analysis in the EIS. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.16	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	i. Alternative 1 While in general the DEIS's discussion of Alternative 1 is the most complete, DU notes that even this alternative may be addressing an unnecessary "Purpose and Need" given that the CHPP's actual condition (as discussed above) suggests it can safely, reliably, and economically operate for years to come. Further, this alternative suffers from the same failure as the others to address the need to add air pollution control equipment several years prior to planned project implementation (explained further in Section VIII(a)(i), below).	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.17	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	ii. Alternative 2 Alternative 2 would include replacing the existing CHPP with a dual-fuel combustion turbine generator combined heat and power plant with natural gas as the primary fuel source. The most problematic aspect of Alternative 2 is the "high-risk" proposition of relying on natural gas. As discussed in detail above, the availability of an adequate, affordable supply of natural gas to fulfill FWA's heat and power needs by 2026 remains questionable. Further, relying on natural gas raises another set of issues, complications, and impacts that the DEIS should have, but failed to, address in defining and analyzing the impacts of Alternative 2.	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.18	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS also has not properly included or considered the cost implications of Alternative 2. The DEIS states "increased fuel costs would be offset by reduced capital costs under this alternative," but fails to specify or provide documentation to support such a claim. The DEIS also fails to identify the capital costs (that are necessary to make a comparison) and the cost of fuel. The DEIS also fails to factor in other costs that would be a direct result of this alternative, such as costs for closure/remediation of the coal storage area, demolition or decommissioning of current infrastructure, and payment of DU's investment in utilities, lost profit, and related termination costs.	Thank you for your comment. See Section 3.5.2.4 of the EIS. The studies referenced incorporates the capital cost, fuel cost, O&M cost and the cost to demo the existing CHPP for all action alternatives. All contracting actions would occur in accordance with established Federal Acquisition Regulations.
124.19	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS also fails to address the true air emissions of this alternative. The configuration for this alternative assumes three 7-MW dual fuel combustion turbines with 200,000 lb/hr heat recovery steam generators (HRSGs). If the use of supplemental duct-firing in the HRSGs produces air pollutant emissions, it does not appear that the DEIS considered those emissions.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur, and include analysis of emission unit data. The need for additional environmental impact analysis will be assessed at that time.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.20	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	If there is an ample, reliable, and low cost source of natural gas for this alternative, then a lower cost improvement to this alternative should be considered, which would include installing only two 7 MW combustion turbine generators and gas fired boilers to serve the high winter steam demand. The system would be dispatched to first serve the steam demand with the combustion turbines and HRSGs, and then with boilers. The combustion turbines and HRSGs would be fully utilized and would operate at highest thermal efficiency. Excess electric power demand would be served by GVEA. Turbine maintenance would be scheduled during the summer when electric and steam loads are lowest. Boilers would provide inexpensive resilient heat supply. While utilidors would require upgrading, dual fuel would allow the 14 days of required fuel storage inexpensively. Moreover, this alternative would eliminate the cooling towers shown in DEIS Figure 2.5-4, therefore reducing energy waste.	Thank you for your comment. The No Action Plus Backup alternative has been added to EIS Section 2.4 as a potential alternative (Alternative 20) identified and dismissed from further analysis.
124.21	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	iii. Alternative 3 Similar to the discussion for Alternative 2, the DEIS's discussion of Alternative 3 fails to identify and consider key issues and limitations associated with the true cost of this alternative and the "high-risk" proposition of relying on natural gas.	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.22	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The failure of the DEIS to support the Army's conclusion that the Action Alternatives will reduce overall heat and energy costs is especially significant with respect to Alternative 3, which the DEIS indicates would have the lowest costs, despite not considering the construction costs of the distribution system and the cost of fuel. To the contrary, DU studies indicate that costs will increase substantially due to utilidor upgrades required to prevent freezing of water and wastewater lines; contaminated soils issues encountered during natural gas line installation; and higher than anticipated cost of electricity from GVEA. As further confirmation, a study conducted by the Air Force Civil Engineer Center estimated that decentralization of Eielson Air Force Base's CHPP and centralized heating system, which is very similar to FWA's, would increase annual utility bills by 750%. With cost appearing to be driving factor in the Army's analysis, it is important for the Army to address this apparent contradiction.	Thank you for your comment. The Life-Cycle Cost Analysis study referenced in the EIS (USACE 2018) incorporates the capital cost, fuel cost, O&M cost, and the cost to demolish the existing power plant for all action alternatives. The study acknowledges that the cost of delivered natural gas would be higher under Alternative 3 because of the added distribution system and metering costs that would need to be recuperated by the natural gas provider. To address the uncertainty in various cost elements (including the price of delivered natural gas and the price of coal), the study conducted a sensitivity analysis and determined that "there are no realistic variations in any single variable that result in a change from the original ranking" of action alternatives. The study further noted that "considering only the sum of Fuel and Non-Fuel O&M Costs, all options are approximately equal"; the ranking of the action alternatives is therefore primarily driven by the capital costs of each system. With respect to cost of electricity, GVEA states in their comment to the DEIS that "The extent of Fort Wainwright's use of natural gas as contemplated in Alternative #3 will increase the demand of natural gas in Interior Alaska, and thus supply. There is a likelihood that the overall cost of natural gas would then decrease, which will spur residential conversions. GVEA would likewise seek, to the extent practical and economic, to convert certain generating units to natural gas, which would likely result in a decrease to the cost of energy. Therefore, the socioeconomic impact of Alternative 3 as it pertains to rates could be a positive, not negative, change." All contracting actions would occur in accordance with established Federal Acquisition Regulations.
124.23	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	A common misconception (and one cited by the DEIS) is that direct bury pipes on FWA are buried below the seasonal frost depth, and as such, do not freeze.	Thank you for your comment. Section 3.3.2.5 of the EIS acknowledges the need for freeze protection.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.24	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	In fact, the soils surrounding these pipes are far below freezing temperatures. Minimum burial depths for wet utilities are 4 feet, with some piping buried even more shallow. Water pipe freeze protection relies upon the ability to move water from a heated utilidor, through sections of direct buried piping, to its destination before the water freezes (usually a matter of hours). Utility systems have been designed and installed according to this principle for as long as FWA has used them.	Thank you for your comment. Section 3.3.2.5 of the EIS acknowledges the need for freeze protection.
124.25	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As such, the following countermeasures for freeze protection, at a minimum, would be required under Alternative 3, which are not accounted for in the DEIS: • Provide insulation and heat trace on more than 30 miles of existing utilidor water and sewer pipe. The significant capital cost and additional electrical load were likely substantially underestimated in the DEIS, although the record provided is not clear on how the Army arrived at the estimates. • Provide numerous additional circulation pumps to circulate current dead-end water lines. • Provide heat addition systems at various strategic locations to prevent water lines from freezing (circulation by itself is not sufficient). • Create an air-tight utilidor system to prevent cold ambient air from settling into the system during the winter months (which would involve, among other measures, cutting and capping hundreds of vault vents, spray foam insulation of openings, and sealing old, failing hatches).	Thank you for your comment. The EIS acknowledges that freeze protection would be required for Alternative 3.
124.26	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Because DU owns the water and wastewater systems that would be at risk, DU would perform this work. These costs would increase the cost of the UP Contract through tariff rates. Further, even with these mitigation techniques, numerous freeze-ups would be likely, causing water and sewer failures due to freezing for years into the future, as the current thaw bulbs around the utilidor slowly recede with each winter season. To address this, DU would need to increase operations and maintenance costs, and potentially other capital investment, resulting in increased water and wastewater rates to the installation.	Thank you for your comment. The EIS acknowledges that freeze protection would be required for Alternative 3.
124.27	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Additional shortcomings in the manner that the Army defined and analyzed the impacts of Alternative 3 include: • The DEIS fails to consider the substantial amount of useful heat that would be lost under a distributed generation solution such as Alternative 3. Heat and power cogeneration provide significant efficiencies, especially in colder climates.	Thank you for your comment. Section 3.3.2.5 of the EIS addresses the efficiency of the heat sources for this alternative.
124.28	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS does not address the increase in emissions from GVEA's power generating units that would occur as a direct result of the need for increased generation to meet primary demand on post.	Thank you for your comment. GVEA's coal plant is not operating in this area, so is not a contributor to carbon emissions. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS, because GVEA's power generation plans cannot be speculated.
124.29	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS analysis improperly ignores, as not significant to the analysis, the impacts associated with emissions of air pollutants from backup power generation at FWA or the use of ULSD as a secondary fuel for heating critical facilities; and	Thank you for your comment. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS, because GVEA's power generation plans cannot be speculated.
124.30	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS does not address project aggregation of the installation of the boilers and the backup power generating capability with respect to air quality permit applicability.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.31	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Finally, the UP Contract process required a vast commitment of government resources to elicit competitive proposals for a 50 year Utility Privatization effort at FWA. These resources required extensive review of responsive contractors, detailed and robust negotiations, and multiple layers of stakeholder and agency consideration and approval. The DEIS simply proposes to overlook and override this multi-year, statutorily authorized process in favor of Alternative 3, which proposes potential, uncertain, and unexplored opportunities with a small local natural gas system operating in a geographically isolated location with no local source of gas. This effort, if adopted, would add considerable risk to a strategically located installation operating in a subarctic climate. Given that, any review should seriously consider whether adoption of this Alternative supports the Army's mission or protects its interests.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
124.32	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	VIII. THE DEIS FAILS TO APPROPRIATELY ANALYZE ENVIRONMENTAL IMPACTS A primary purpose of an EIS is to identify and evaluate the effects or impacts of a federal agency's proposed action, including the alternatives carried forward for detailed review. NEPA's Regulations define "Effects" and "Impacts" as: [C] hanges to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives.	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.33	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	DU's comments above address a number of shortcomings with respect to the DEIS's identification and evaluation of impacts of the Action Alternatives. In addition, set forth below is a more detailed discussion of the impact areas where DU has identified the greatest shortcomings. Finally, DU notes that despite the DEIS's recognizing a direct relationship between any Army decision that diminishes the role of DU at FWA and Doyon, Limited's 20,000 Alaska Native shareholders, it fails to identify or analyze such impacts in the socioeconomic section, or any other section of the DEIS. DU is aware that Doyon, Limited has submitted comments that focus in detail on such socioeconomic issues. DU supports Doyon, Limited's comments and will not reiterate them here.	Thank you for your comment. Please see the response to comment 114.02 above.
124.34	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	a. Air Quality Impacts The DEIS's analysis of air quality impacts, one of the principal environmental impacts of the CHPP, is woefully inadequate in numerous ways. i. The DEIS does not adequately explain or account for the Project's timing The DEIS states that the Army's current target, contingent on available funds, would be to implement the project by 2026. The DEIS also states that Alternatives 1, 2, and 3 meet all screening criteria and are each assumed to be able to provide a modern, reliable, operational facility within that target date. While the DEIS's classification as to what it means to "implement the project by 2026," is not clear, it is reasonable to assume that this means an operational project. (The Army should clarify its intent and meaning regarding this "implementation" if it means something different). DU finds it doubtful that the Army could meet this target with anything other than the No Action Alternative. To demonstrate otherwise, especially with respect to emissions requirements, the DEIS should have included a detailed discussion of milestones, such as air permitting and construction steps, taking into account the short construction seasons, expensive transportation costs of long-lead items, and regulatory requirements.	Thank you for your comment. The EIS has been updated to reflect that the target date to implement the project is contingent upon availability of funding (see Section 1.1.2).

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.35	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Construction of any alternative cannot begin until all required air quality permits are obtained. In DU's experience, minor air quality permitting typically requires 12 to 24 months. Prevention of Significant Deterioration (PSD) and/or Nonattainment New Source Review (NNSR) permitting typically requires 14 to 26 months. If meteorological data collection is required, an additional 15 months may be necessary. If ambient pollutant monitoring is required, an additional 18 months may be necessary. Iterative modeling runs may also be required to determine needed stack height for purposes of increasing pollutant dispersion in an ambient air quality modeling demonstration. Given these timeframes, it is unlikely that the Army can decide on, fund, permit, and construct the Action Alternatives in the cited time period.	Thank you for your comment. Section 1.2 of the EIS states the Army's anticipated execution date is contingent on availability of funds.
124.36	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	A second timing issue in the DEIS is the gap between the timing of the air pollution controls required by the Serious SIP (2023) and the planned implementation of the proposed actions by 2026. While not entirely clear, the Army seems to assume that DU will not be required to install and implement the Dry Sorbent Injection (DSI) system on the existing CHPP by October 1, 2023, as required by the Serious SIP, if an Action Alternative is selected. Based upon recent ADEC and EPA statements, however, this does not appear to be the case. Thus, DU, as the permittee, is in the design stage of the pollution control process in order to meet the 2023 deadline.	Thank you for your comment. Section 3.2 of the EIS identifies the current status of the SIP. Regardless of the alternative selected, the Army will adhere to federal and state regulatory requirements.
124.37	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Further, DU notes that the Serious SIP projects that the FNSB nonattainment area will be in compliance with the 24-hour PM2.5 National Ambient Air Quality Standard in 2024. With the installation of DSI by 2023, the projected sulfur dioxide reductions at FWA account for 63 percent of the decrease in such emissions from all sources in the nonattainment area between 2023 and 2024. In other words, the decrease in emissions from the required air pollution controls on the CHPP are central to the state's plan for meeting the health-based air quality standards by 2024. Action by the Army that would prevent or delay the installation of those controls would prolong the period of time that residents of FNSB are breathing air that has been determined to be unhealthy. Moreover, the Clean Air Act and its implementing regulations require that an area designated Serious nonattainment for particulate matter submit a SIP that would attain the standard within ten years of the initial designation, although it allows a single five year extension. For FNSB, this legal maximum 15 year period expires on December 14, 2024, meaning any action that causes the FNSB not to attain the standard by that date will be causing a Clean Air Act violation and thus be contrary to law.	Thank you for your comment. Please see the response to comment 124.36 above.
124.38	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	ii. The DEIS does not address uncertainty around air permitting for the project The DEIS also fails to discuss the multiple areas of permitting uncertainty associated with the Action Alternatives.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
124.39	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	For example, it appears that the Air Quality Analysis for Alternative 1 relies on a permit issued for a similar coal-fired CHPP at the University of Alaska Fairbanks that was issued in 2013, before the designation of Serious Nonattainment and before additional regulations such as the Mercury and Air Toxics Standards took effect. It is therefore unclear if, given regulatory developments in the last seven years, such a permit would issue today, let alone six years from now as is assumed by the Army.	Thank you for your comment. Please see the response to comment 124.38 above.
124.40	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Further, notwithstanding that a key (if mischaracterized) element of the project's Purpose and Need is meeting air quality regulations,, the DEIS fails to discuss the requirement that new major sources of air pollution in nonattainment areas obtain offsets for their emissions.	Thank you for your comment. This discussion is included in Section 3.2.1.2 of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.41	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Depending on location and pollution, such offsets can be very costly or occasionally not available. The DEIS should have considered availability and costs in determining whether and how new facilities might receive an air permit. Finally, all emission units within FWA are currently owned and operated either by DU or by the Army. For this reason, while FWA is a single stationary source of air pollution, it has two separate air pollution operating permits. Notably, DU owns and operates the CHPP and is the permittee responsible for air quality compliance. Given that the DEIS fails to address the fact that FWA has two separate operating permits or how air permitting would work under the proposed alternatives with air quality and permitting being a controlling aspect of the Army's decision-making – i.e., a part of the Purpose and Need – this gap is significant.	Thank you for your comment. Please see the response to comment 124.40 above.
124.42	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	iii. The DEIS's air quality analysis is inadequate	Thank you for your comment. Please see the response to comment 124.43 below.
124.43	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS fails to include or incorporate by reference the analysis upon which it bases its air quality conclusions. Instead, the DEIS contains (as Appendix C) a two-page memorandum listing, at a very high level, the methodologies used in the air quality analysis.	Thank you for your comment. The appendix to which the commenter is referring to is now Appendix F. Appendix F provides the methods and assumptions for the air quality and GHG analysis.
124.44	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The Army's failure to provide the technical support for its air quality analysis, including inputs, modeling assumptions, model runs, emissions factors, design values, and other relevant information, constitutes a fatal flaw in the DEIS's analysis of impacts.	Thank you for your comment. The EIS contains a qualitative air quality analysis and modeling was not conducted. Detailed modeling such as dispersion will be conducted as part of air quality permitting processes for the selected alternative. Appendix F in the FEIS provides the methods and assumptions for the air quality and GHG analysis. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
124.45	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As noted, the Statement of Purpose and Need identifies the need to reduce air emissions and meet air quality regulations, and therefore NEPA demands more than a two page high level memorandum outlining how the Army will do its work to support its analysis. It is the analysis itself, and the potential impacts derived therefrom, that must be made available for public comment. Without this information and support, DU cannot adequately review and comment on the accuracy or appropriateness of the air quality analysis for the No Action Alternative or the three Action Alternatives.	Thank you for your comment. Please see the response to comment 124.44 above.
124.46	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Based upon the limited information available, DU provides the following initial list of concerns with the air quality analysis: • The DEIS provides New Source Review (NSR) permitting thresholds (for Prevention of Significant Deterioration/PSD and Nonattainment NSR programs) but the applicability analyses incorrectly compare the difference in actual emissions to those thresholds to reach judgments about permit applicability. NSR permitting for the replacement of existing emissions units requires the permittee to compare existing actual emissions to future potential emissions. Therefore, the DEIS's analysis of whether NSR permitting would be triggered is inadequate.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
124.47	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS relies on outdated data for evaluating the CHPP's emissions. For example, the DEIS at Table 3.2-2 provides a 2017 emissions inventory that fails to incorporate subsequent reductions in carbon monoxide emissions due to the implementation of federal Boiler MACT requirements. The actual annual CO emission total for the existing boilers is now approximately 143 tons per year, instead of 591 tons per year from the 2017 emission inventory. The Army must update its analysis to use the more accurate data.	Thank you for your comment. Section 3.2 of the EIS has been updated to reflect emission data from the latest three-year average (2018-2020), or in the case of CO, 2020 data per comment.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.48	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS fails to address applicable New Source Performance Standards (NSPS) requirements, which might apply to any of the Action Alternatives (and, depending on the magnitude of the upgrade to the existing CHPP boilers reflected in the No Action Alternative, might apply to that as well). The DEIS must discuss whether NSPS requirements will apply to any of the alternatives and what impact that might have.	Thank you for your comment. All regulatory requirements will be met for the chosen alternative.
124.49	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS analysis does not address Hazardous Air Pollutants (HAPs) or the fact that the CHPP is a major source of HAPs. The Clean Air Act imposes additional National Emission Standards for Hazardous Air Pollutants (NESHAP) rules to HAP sources, including stringent requirements on new sources. The DEIS should consider potential HAP emissions and applicable regulations and limits.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
124.50	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS fails to address project aggregation, which is the requirement that the evaluation of permit applicability for any project include all related actions. Project aggregation prevents circumvention of NSR permitting by "breaking up" a project into smaller pieces. Particularly for Alternative 3, the DEIS should address whether the multiple distributed boilers, when aggregated, would trigger NSR permitting requirements.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
124.51	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The reduction of water vapor emissions and the impact to ice fog is not quantified or explained. The DEIS should properly quantify water vapor, which will necessarily include operating details and specific meteorological conditions.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur which will include emission unit data. The need for additional environmental impact analysis will be assessed at that time.
124.52	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS incorrectly states that the alternatives would not be expected to adversely affect ice fog formation characteristics, citing 2018 Weatherly, et al., report. The Weatherly report was inconclusive and provided significant caveats to future alternatives and their impacts on ice fog. The DEIS should correct this.	Thank you for your comment. In accordance with 40 CFR § 1502.22, the analysis was developed based upon theoretical approaches or research methods generally accepted within the scientific community. As with Alternatives 1 and 2, the qualitative ice fog evaluation for Alternative 3 was mainly focused on the change in water vapor emissions. Upon the development of a design, further environmental coordination, permitting, and consultation will occur and include analysis emission unit data. The need for additional environmental impact analysis will be assessed at that time.
124.53	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS is inaccurate with respect to General Conformity, stating that none of the direct emissions associated with the No Action Alternative or any of the action alternatives are subject to General Conformity because they would be subject to NSR permitting and thus are exempted by 40 C.F.R. § 93.153(d)(5).	Thank you for your comment. The commenter is correct that the regulatory citation should be 40 CFR § 93.153(d)(1). EIS text revised accordingly. Alternatives 1, 2, or 3 each would require a permit under the New Source Review (NSR) or Prevention of Significant Deterioration (PSD) programs either because of potential emissions or the need to make the use of netting or a synthetic minor limit federally enforceable in order to avoid triggering a full NSR and/or PSD review.
124.54	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Section 93.153(d)(5) exempts remedial and removal actions carried out pursuant to the CERCLA to the extent they comply with substantive NSR requirements; this does not appear to be relevant. DU assumes the Army meant to refer to 40 C.F.R. § 93.153(d)(1), which exempts actions that require an NSR permit from General Conformity. Nonetheless, the analysis remains flawed, because the Army has not yet determined what permitting would apply. If NSR permitting does not apply, then General Conformity would. The DEIS should therefore consider what requirements, if any, General Conformity would impose.	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.55	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• It appears that the Air Quality Analysis makes some estimates for Alternatives 2 and 3 regarding emissions from burning ultra-low sulfur diesel (ULSD) as a backup for NG. For Alternative 2, Appendix C estimates 5% of operation will be ULSD. For Alternative 3, Appendix C states the amount is unknown but can be estimated (which is questionable logic). Given the uncertainty in natural gas availability, the air quality analysis should include sensitivity analyses of different amounts of ULSD usage, including a scenario where FWA uses ULSD for an entire winter season due to natural gas supply chain failure.	Thank you for your comment. As explained in Sections 2.5.3 and 2.5.4 of the EIS, there is demonstrated availability of natural gas in Alaska to support implementation of the Proposed Action under Alternative 2 and Alternative 3.
124.56	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	• The DEIS fails to discuss or quantify the estimated incremental air pollution GVEA will emit to serve FWA.	Thank you for your comment. GVEA's coal plant is not operating in this area, so is not a contributor to carbon emissions. Addressing impacts from the consumption of fuel used by outside utility providers to provide electricity to Fort Wainwright under Alternative 3 is outside the scope of this EIS because GVEA's power generation plans cannot be speculated.
124.57	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Electricity on the grid still must be generated, and therefore the Army must evaluate such indirect cumulative environmental impacts i.e., those effects "that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives." DU notes that GVEA has a variety of generation sources that rely on a mix of coal, ULSD, natural gas, naphtha, and renewables. Which generator would increase output, and where it is located, will have significant air quality implications. For example, increased ULSD combustion in FNSB or coal combustion in interior Alaska could result in degradation of the local air quality that already exceeds health standards. Similarly, increased coal combustion in Healy could implicate the Regional Haze rule, given that facility's proximity to the Class I area encompassing Denali National Park and Preserve. The DEIS cannot properly ignore this analysis.	Thank you for your comment. Regional haze is discussed in Section 3.2.1.2 of the EIS. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.58	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	b. Environmental Impacts of Relying on Natural Gas The DEIS completely fails to identify or evaluate the environmental impacts associated with the project's gas supply infrastructure in at least two ways that constitute fundamental flaws that prevent the Army from engaging in reasoned and informed decision making. First, the DEIS must analyze the impacts of the lateral pipeline that it states must be constructed for Alternatives 2 and 3. The DEIS fails to estimate the length of that pipeline or its many potential environmental impacts, which are exacerbated by the need to excavate and install pipe where hazardous materials are present. The areas that the DEIS should have studied, include, at a minimum: (i) the potential for crossing protected natural areas, protected waterbodies and wetlands, contaminated soils, and historic and cultural resources; (ii) the likelihood of needing to acquire rights of way across public and private lands, perhaps at significant cost; and (iii) the noise, dust, water quality, traffic, and other impacts of construction.	Thank you for your comment. Section 3.4.3, 3.4.2.4, and 3.4.2.5 of the EIS states investigations and remedial actions as appropriate would take place prior to demolition or ground disturbance. As explained in Sections 3.13.2.3, 3.13.2.4, and 3.13.2.5, Fort Wainwright's Main Cantonment Area has previously been surveyed for archaeological resources, therefore no impacts on archaeological resources would be anticipated where the new structures may be located. No traditional cultural properties or other resources of known significance to Alaska Native Tribes are known within the Main Cantonment Area. BMPs would be implemented for the alternative selected to avoid or minimize impacts on environmental resources, as explained in the EIS. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.59	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Second, the DEIS fails to consider the environmental effects of the potential expansion of the Pentex LNG facility in Port Mackenzie. Based on the Pentex RFI, Pentex would need to expand an existing facility with a 1.5 billion cubic feet (bcf) capacity by an additional 3 bcf or 6 bcf in order to facilitate FWA's gas needs (in the absence of a pipeline). As discussed above, the existing facility is fully subscribed, so an expansion is necessary for Pentex to supply FWA with natural gas. This makes such an expansion clearly the type of close causal and direct connection that requires the Army to analyze its impacts in the DEIS. Those impacts could include land use, water use and water quality, air emissions including greenhouse gas emissions, and construction impacts.	Thank you for your comment. Addressing impacts from potential expansion of the Pentex facility is outside the scope of this EIS because whether such expansion will be needed is speculative. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.

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124.60	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	c. Impacts on the Remainder of FWA's Utility System The DEIS must properly identify the existing utility infrastructure in order to accurately assess the utility-related impacts of the Alternatives. Here, there are a number of incorrect statements regarding the existing infrastructure that the Army must address in order to fulfill its obligations under NEPA. This is especially critical because the various alternatives, to differing degrees, will rely upon DU's existing utility infrastructure. The DEIS, in its description of the utilidors, states "the system does ensure that smaller water and sewer lines do not freeze." This is only partially correct, and thus misleading. Residual heat in the utilidor system is required for freeze protection not merely for the "smaller water and sewer lines;" rather, it prevents the freezing of all water and sewer lines within the utilidor system. If the heat from the steam and condensate lines is removed, large and small water and sewer lines will freeze in the subarctic winter.	Thank you for your comment. The requirement for freeze protection is acknowledged in Section 3.3.2.
124.61	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS asserts in regard to wastewater lines, "approximately 69 percent of these wastewater lines are within a utilidor and do not freeze because they are below ground and heat travels through the high water flow. The remainder of these lines are direct buried at a depth and diameter sufficient to prevent freezing." This is not correct. The wastewater lines are not insulated and are protected from freezing due solely to the heat provided by the steam and condensate lines. Should that heat be removed the wastewater lines will freeze. As noted above, these lines are not protected from freezing because they are below ground level or by heat generated by water flow. Moreover, the water and wastewater lines throughout the installation are generally oversized for the requirements and are at a grade that ensures low-velocity flow of water, further increasing the chance of a freeze-up without appropriate freeze protection.	Thank you for your comment. The requirement for freeze protection is acknowledged in Section 3.3.2.
124.62	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS describes the installation's water treatment process as not having "changed appreciably" since its construction in 1953. This, too, is incorrect. The installation's water treatment process changed substantially in 1983. At that time, the Army converted the treatment process from its original excess lime softening with rapid sand filtration to potassium permanganate oxidation with pressure sand filtration. DU subsequently has upgraded and expanded capacity to this system.	Thank you for your comment. Text has been revised in the EIS. The installation's water treatment plant was originally constructed in 1953. Since that date, the plant has been upgraded to an inline filtration that uses potassium permanganate as a pre-oxidant to aid in iron and manganese removal. Finished water is stored onsite in one of several onsite clear wells. The plant includes treatment equipment, pumps, and a 1.3 million-gallon storage capacity. It is capable of treating 3.5 mgd (USAG Fort Wainwright 2017a).
124.63	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	d. Impacts of Hazardous Materials The most significant gap in the DEIS's evaluation of hazardous materials is the failure to identify and assess the hazardous material-related impacts that would be caused by physical ground disturbance, excavation, and construction under all three alternatives, especially Alternative 3, in light of the high levels of contamination at FWA.	Thank you for your comment. Section 3.4.2.3 of the EIS states investigations and remedial actions as appropriate would take place prior to demolition or ground disturbance.
124.64	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The DEIS documents the presence of numerous hazardous and toxic materials and wastes at FWA, including hazardous materials, hazardous wastes, underground and aboveground storage tanks, asbestos, lead-based paint, polychlorinated biphenyls, unexploded ordnances, petroleum, oil, and lubricants, metals, pesticides, semi-volatile and volatile organic compounds, and active remediation sites.144 The discussion of resulting environmental impacts associated with this contamination, and how the Army would address such impacts, is cursory at best. For each of the alternatives, the DEIS's discussion is limited to a commitment to follow required procedures, such as stating that "[a]ny hazardous waste generated would be handled according to the protocol outlined in the FWA Hazardous Material and Waste Management Plan" or that, if construction disturbed contaminated sites, "remediation efforts would be conducted in accordance with the applicable…regulations." A statement that the Army will follow procedures and regulations is not an analysis. Instead, NEPA demands that an agency in fact examine the impacts of its actions.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
124.65	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	As noted above (with respect to the discussion of costs), DU is aware of contamination present in soil across FWA, including petroleum, oil, and lubricants (POLs), chlorinated solvents (e.g., trichloroethylene (TCE) and tetrachloroethylene (PCE)), and other volatile organic compounds such as benzene. Other contaminants include lead, mercury, chlorinated solvents, pesticides, and PFAS or per/polyfluoroalkyl substances (due to past releases of firefighting foam at multiple hangar locations on post). Particularly for Alternatives 2 and 3, which involve construction work on a greater footprint than the No Action Alternative or Alternative 1, the likelihood that construction will encounter hazardous substances, and that as a result costs will escalate, is high. For example, addressing minor petroleum contamination in a related project increased costs by 26%; more significant contamination or more challenging contaminants could result in even greater cost escalations.147 The DEIS fails even to attempt to estimate such costs.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.
124.66	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	IX. The Army Must Issue a Supplemental Environmental Impact Statement The flaws in the DEIS require the Army to issue a Supplemental EIS for public review and comment before proceeding to a Final EIS	Thank you for your comment. After consideration of the public comments received on the Draft EIS and considering all other new information, and in accordance with 40 CFR § 1502.9(d), the Army determined that a supplemental Draft EIS was not required based on the following: • There are no substantial changes to the proposed action that are relevant to environmental concerns. • There are no significant new circumstances or information relevant to the environmental concerns that bear on the proposed action or its impacts. This determination is based on the comments received and all other new information the Army became aware of following publication of the Draft EIS. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
124.67	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	NEPA is a statute premised on ensuring that agencies consider the potential environmental effects of their actions, including seeking public input. NEPA requires an agency to supplement its environmental review when there are substantial changes to a federal action or significant new circumstances or information that are relevant to environmental concerns. Supplemental environmental analyses use the same procedures and have the same requirements as the initial analysis (except that scoping need not be repeated). If an agency determines that changes or new circumstances or information do not require a supplement, it must document that decision. In addition to prescribing when an agency must issue a supplemental EIS, the regulations also allow an agency to issue a supplemental EIS "when the agency determines that the purposes of [NEPA] will be furthered by doing so." Doing so here would further the purposes of NEPA.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur and include analysis of emissions unit data. The need for additional environmental impact analysis will be assessed at that time. Please also see the response to comment 124.66 above.
124.68	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	a. The DEIS will not Facilitate Informed Decision-Making A fundamental purpose of NEPA and its environmental analysis process is to facilitate informed decision-making by federal agencies. Section 1502.1 of the Council on Environmental Quality's regulations implementing NEPA (NEPA Regulations) states: The primary purpose of an environmental impact statement prepared pursuant to section 102(2)(C) of NEPA is to ensure agencies consider the environmental impacts of their actions in decision making…Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analyses…An environmental impact statement is a document that informs Federal agency decision making and the public.	Thank you for your comment. The FEIS has been revised based on public comment to facilitate informed decision-making regarding the Proposed Action.

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124.69	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The Supreme Court has held that a primary goal of NEPA is to facilitate informed decision-making by "ensur[ing] that [an] agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts." And while NEPA is a procedural statute that does not require a particular substantive outcome, NEPA requires that "agencies to take a 'hard look' at how the choices before them affect the environment." Thus, it is critical that an EIS prepared under NEPA is accurate and contains complete and well- supported data and information for consideration to allow the decision-maker to fulfill its 'hard look' obligation. The Supreme Court has also found that NEPA "ensures that the agency will not act on incomplete information [and] permits the public and other government agencies to react to the effects of a proposed action at a meaningful time." Further, supplementation is an important part of an agency's 'hard look' obligation: "If there remains major Federal action to occur, and if the new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared."	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.70	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	b. A Supplemental EIS is Needed because Correcting the Flaws in the DEIS Will Result in a Substantially Different Statement of Purpose and Need	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.71	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The flaws in the DEIS identified in these and other comments go to the very heart of the DEIS, including its Statement of Purpose and Need. Accordingly, correcting these flaws will result in a substantially different Purpose and Need for the project, as shown below: [Table provided. See native comment]. Correcting the record to address the inaccurate statements above will require the Army to reconsider and revise the Statement of Purpose and Need for its action, which in turn, will require the Army to modify its environmental analyses and consider new and modified alternatives. Proceeding with a Supplemental EIS is the appropriate vehicle going forward given the breadth and significance of these changes.	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
124.72	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	c. Significant New Circumstances or Information Require Supplementation NEPA's implementing regulations require that an agency must supplement its environmental review when "there are significant new circumstances or information that are relevant to environmental concerns and bearing on the proposed action or its impacts." In particular, an agency must supplement when the new circumstances or information run counter to or are not consistent with assumptions, facts, or other information that the agency relied upon in its previous environmental study. To properly comply with NEPA, the Army must correct the record and address the multitude of issues identified in DU's (and Doyon, Limited's) comments. This will require adding significant new information and making significant changes to the DEIS. This new and changed information will be inconsistent with the assumptions and "facts" presented in the current DEIS and therefore require a supplemental EIS. As such, the Army must prepare a supplemental EIS that accurately portrays the condition of the CHPP, properly analyzes the Alternatives in light of this corrected No Action Alternative baseline, and clearly and concisely states the effects of the alternatives. Moreover, the changes to the project's Purpose and Need will lead to different analysis and understanding of the project's environmental impacts sufficient to trigger the requirement to supplement.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.

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124.73	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Furthermore, the failure to seek or consider information in good faith is sufficient to require supplemental analysis. The Army's failure to seek information from DU, the owner and operator of the very system the Army is proposing to replace, and the Army's failure to consider the information that DU has provided, such as the B&V Study, demands a supplemental EIS for this reason as well.	Thank you for your comment. As specified in Section 1.1.2, the Black & Veatch (2018) study was among the source studies that not only informed the descriptions of current conditions and alternatives considered, but also the analyses. This document was cited numerous times in the EIS. Additionally, another source document, the Huntsville (2018) study, also included information from the Black & Veatch study in its comprehensive review of energy alternatives. Text was added to Section 2.3.2 to reiterate that the Black & Veatch study was among the document sources for information. Upon the development of a plant design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time. Section 3.3.1.3 has been revised to include reference to the capital investment reports for the CHPP system from 2015-2020.
124.74	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Finally, DU's current undertaking to design and install pollution control equipment on the CHPP by 2023 regardless of the Alternative selected by the Army constitutes additional new information and circumstances that mandate a supplemental EIS. DU is required by law to install pollution control equipment to limit air emissions by 2023, as described in Section VIII(a)(i), above. DU's installation of control technology is the lynchpin to areawide attainment requirements expected by state and federal regulators. Accordingly, where the cost and environmental analyses in the DEIS appear to assume that selecting an Alternative that replaces the CHPP would free DU of this legal obligation, this ignores the reality that DU must complete design and construction of this equipment in order to have it operating in 2023, ahead of the 15 year attainment requirement. Thus, the fact that the CHPP will include pollution control equipment under each of the Alternatives – Action and No Action alike – constitutes a changed circumstance because it was neither reflected nor considered in the current DEIS, therefore providing additional grounds for a supplemental EIS.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.
124.75	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	d. Substantial Changes to the Project also Require Supplementation When a federal agency makes changes to an action, the agency must determine whether NEPA requires the agency to supplement its prior environmental review and must document its decisions and corresponding rationale. As demonstrated above, addressing the flaws in the DEIS will result in a changed Statement of Purpose and Need for the project, thereby requiring the Army to propose changes to the action that it proposes to take, including by modifying the current alternatives, re-screening the alternatives not carried forward for detailed review, or proposing new alternatives.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.
124.76	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Additionally, incorporating the natural gas laterals required under Alternatives 2 and 3 adds additional infrastructure to the generation sources under these Alternatives, which are major, impactful components not previously analyzed. Similarly, based upon the information provided in DU's comments, the Army must change the No Action Alternative so that it is accurately identified and analyzed in the DEIS, including, significantly, recognizing that the current CHPP will install pollution control equipment regardless of the Alternative the Army pursues. Therefore, in addition to the need to supplement due to new circumstances and information, the Army is likely to need to supplement its analysis to consider the impacts of what is practically and essentially a changed project.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.

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124.77	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	The law requires that agencies determine whether to supplement by looking at changes in environmental effects. Agencies must supplement when project changes result in qualitatively different environmental effects or a different distribution of environmental effects (i.e., effects occurring in different places or to different interests). Agencies must also look to how the project has changed and the extent to which such changes were studied in the prior review. Thus an agency must supplement where project modifications are not "qualitatively within the spectrum of alternatives that were discussed" in prior environmental analyses. Further, an agency must prepare a supplement if a modified project is not at all like what the agency previously considered. Here, the likely project changes would be outside of the range of impacts already considered, such as the natural gas pipeline laterals impacting a different area (the unspecified route of those laterals) or the natural gas supply chain causing a different impact (increased truck traffic from a distant source of natural gas supply). Therefore, it is highly likely that correcting the deficiencies in the DEIS will result in a project sufficiently changed to require supplemental environmental analysis.	Thank you for your comment. Upon the development of a design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.
124.78	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	e. The Army is Obliged to Look at New or Modified Alternatives under NEPA	Thank you for your comment. The FEIS has been revised based on public comment to facilitate informed decision-making regarding the Proposed Action. Please also see the response to comment 124.66 above.
124.79	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	When the Army addresses the deficiencies in the DEIS – especially where, as here, the deficiencies include the Statement of Purpose and Need – it must then revisit its consideration of alternatives. The law in the Ninth Circuit is clear that when supplemental environmental review is required, agencies may have the obligation to consider alternatives anew. This includes considering additional alternatives other than simply the proposed (or modified) actions and the no action alternative. In ruling against the Army for failure to properly consider alternatives in a supplemental EIS, the Ninth Circuit stated: "The scope of reasonable alternatives that an agency must consider is shaped by the purpose and need statement articulated by that agency. The Army must consider all reasonable alternatives within the purpose and need it has defined….What is missing is the consideration of alternate ways to accomplish its stated mission."	Thank you for your comment. The FEIS has been revised based on public comment to facilitate informed decision-making regarding the Proposed Action. Please also see the response to comment 124.66 above.
124.80	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	In that case, the court examined the Army's stated purpose and need and found that the Army impermissibly narrowed options when alternatives that would have fulfilled the project's purpose and need were not analyzed in the supplemental EIS. The Army must consider new alternatives or reconsider prior alternatives where, as is the case here, project changes or new circumstances or information relate to the previous consideration of alternatives. For example, when the purpose and need changes, agencies must revisit their alternatives analyses. In an analogous case, a court found that the USACE's consideration of alternatives was arbitrary and capricious where the estimate for the amount of water that an impoundment project needed to produce dropped from 40 million gallons per day (mgd) to 16 mgd, and the USACE refused to consider alternatives it had previously rejected on the grounds that such alternatives would not provide enough water to meet the 40 mgd level. Here, the DEIS inaccurately describes the current CHPP's condition and the services it provides to FWA. Correcting those inadequacies will change the project's Purpose and Need, thereby requiring that the Army look again at alternatives it may have screened out or otherwise not carried forward to see if they would meet it (including the No Action Alternative).	Thank you for your comment. The FEIS has been revised based on public comment to facilitate informed decision-making regarding the Proposed Action. Please also see the response to comment 124.66 above.
124.81	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Moreover, correcting the record and the Army's analysis will lead to different estimates of the impacts of the No Action Alternative and the Action Alternatives, especially with respect to air pollution control, costs, socioeconomic impacts, fuel availability, and more. In order to engage in reasoned decision-making, the Army's environmental impacts analysis must properly and accurately consider these impacts. socioeconomic impacts, fuel availability, and more. In order to engage in reasoned decision-making, the Army's environmental impacts analysis must properly and accurately consider these impacts. Further, interested parties may propose alternatives to be evaluated. If those alternatives would accomplish the Army's purpose and need, it must consider them.	Thank you for your comment. The FEIS has been revised based on public comment to facilitate informed decision-making regarding the Proposed Action. Please also see the response to comment 124.66 above.

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124.82	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Here, the DEIS's deficiencies undermine the project's purpose and need (based on the incorrect assessment of the current CHPP), the description and impacts of the No Action Alternative (based on the incomplete and inaccurate statements about whether it would meet FWA's needs), the feasibility of at least two of the three Action Alternatives (based on the failure to consider the availability and reliability of natural gas), and the impacts of all the alternatives (based on the lack of analysis of the effects of the alternatives on Doyon, Limited's shareholders). Given that, it is clear that the Army must reopen its consideration of alternatives, including giving a hard look at maintaining the current CHPP pursuant to the UP Contract, at least until an alternate fuel supply is feasible and readily available.	Thank you for your comment. As stated in Section 2.5.3, the availability of natural gas in Alaska has been demonstrated to be sufficient to meet Fort Wainwright's demand. The EIS analysis was based upon a comprehensive review of data and studies that assessed not only the current conditions of the CHPP, but also for many of the alternatives considered for the Proposed Action. Upon the development of a plant design for this alternative, further environmental coordination, permitting, and consultation will occur which will include emissions unit data. The need for additional environmental impact analysis will be assessed at that time.
124.83	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	f. There is a Need for Additional Public Comment	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020.
124.84	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Upon correcting the deficiencies of the DEIS, the Army must ensure ample opportunity for public comment. The Ninth Circuit has stated: "Informed public participation in reviewing environmental impacts is essential to the proper functioning of NEPA." Similarly, the Supreme Court has cited two purposes for NEPA's EIS requirement: first, as described above, to "ensure that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts;" and, second, to "guarantee that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision." Moreover, both CEQ and Army regulations require the solicitation of public comments.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020.
124.85	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	Here, the deficiencies in the DEIS are so fundamental to and pervasive throughout the Army's analysis as to frustrate the ability of commenters to meaningfully comment. This is especially true given the inaccurate description of the current CHPP, which infects the project's Purpose and Need and the No Action Alternative against which all of the action alternatives are measured, as well as the incomplete or misleading analysis of the Action Alternatives. The changes the Army must make to cure the flaws in the DEIS (including to the Purpose and Need), the new and/or modified alternatives the Army must consider, and the substantial analytical flaws the Army must remedy, will result in a document so wholly different from the DEIS that the only path for the Army to satisfy NEPA's expectations regarding public participation is to provide an additional comment period. Federal regulations make clear that the primary commenting opportunity is to be provided prior to a final EIS, and the 30 day waiting period after issuance of a final EIS (before which an agency may not make or issue a Record of Decision) is no substitute for proper public comment period.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020.
124.86	2/22/2021	Letter	Submitted by Tim Jones on behalf of Lou Florence	Doyon Utilities, LLC	This lack of opportunity for the public to comment on an accurate and complete record cements the need for a supplemental EIS. Because a supplemental EIS carries with it the same public participation opportunities a draft EIS does, the Army's preparing a supplemental EIS that corrects the flaws in the DEIS will also provide the opportunity for meaningful comment that is inherent to NEPA's purposes.	Thank you for your comment. The Draft EIS comment period was extended for an additional 60 days, from December 23, 2020, to February 22, 2021, following the end of the initial Draft EIS comment period from October 9, 2020, through December 8, 2020.
125.01	2/22/2021	Form Submission	Corinna Dart	Public	I am concerned about the level of pollution in our city (to the point that I am considering leaving the area) and the lack of momentum from major polluters in transitioning to cleaner energy options. I am a young generally healthy person and the amount our air quality issues impacts my health and ability to go outside without experiencing breathing issues at certain times of the year is notable. I am worried about our elders and people with underlying conditions especially given the pandemic.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts.

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125.02	2/22/2021	Form Submission	Corinna Dart	Public	Please consider the following issues laid out by the Fairbanks Climate Action Coalition in future planning: 1. Our borough suffers from some of the most hazardous air quality in the nation, caused in part by the combustion of fossil fuels from the region's power plants. Currently, the EPA is requiring the most stringent measures to be taken in order to resolve the air pollution in FNSB. Air pollution has a multitude of effects on human health: blood clotting, strokes, kidney failure, and respiratory issues such as asthma or emphysema; permanent cognitive impairment in children; early-onset dementia, Alzheimer's, and premature death in the elderly. It is estimated by a recent study that there are up to 100 premature deaths annually in Fairbanks due to PM2.5 air pollution. Our community is currently facing a health and climate crisis; we cannot afford to continue burning fossil fuels in FNSB.	Thank you for your comment. Section 3.2 of the EIS provides an analysis of air quality impacts.
125.03	2/22/2021	Form Submission	Corinna Dart	Public	2. The Draft EIS should include a renewable energy alternative. Renewable energy options have rapidly dropping initial costs, do not have continually fuel costs, and may well be required by future legislation aimed at curbing global warming.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
125.04	2/22/2021	Form Submission	Corinna Dart	Public	3. No Action (continuing to use the existing coal plant) and Alternative 1 (building a new coal plant) are not acceptable because they would produce the greatest amount of greenhouse gasses and local particulate pollution.	Thank you for your comment. Section 2.5.1 of the EIS provides the No Action Alternative, which was prepared in accordance with the applicable NEPA regulations referenced in Section 1.1 of the EIS. Section 2.5.2 of the EIS provides a description of Alternative 1.
125.05	2/22/2021	Form Submission	Corinna Dart	Public	4. Alternative 3 (distributed natural gas) is the best of the three alternatives presented, would have the greatest reduction in greenhouse gas emissions (70%), has the lowest building and operational costs, and would allow the gradual replacement of fossil fuel energy with renewable energy as that becomes available.	Thank you for your comment. Section 2.5.5 of the EIS identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.
125.06	2/22/2021	Form Submission	Corinna Dart	Public	5. The costs of local air pollution and greenhouse gas emissions should be quantified and included in the evaluation of the alternatives.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed.
125.07	2/22/2021	Form Submission	Corinna Dart	Public	6. The Draft EIS should include analysis of the end use efficiency of the different options, from generation to consumption. Increased energy use efficiency reduces the power needs and the accompanying negative impacts. Energy retrofits to existing facilities and mandating the highest energy efficiency standards should be part of all alternatives.	Thank you for your comment. All three action alternatives considered would result in negative net GHG emissions due to improved efficiencies from the new proposed heat and energy systems. Renewable energy alternatives were considered in Section 2.4 of the EIS.

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126.01	2/22/2021	Form Submission	Dave Dean	Public	I am retired from the U.S. Army and my last duty assignment was Ft. Wainwright were i served consecutively for 5 ½ years: 3 ½ years as the director of engineering and housing and my final two years as the post commander. In both of those assignments i had either primary or major responsibility for the combined heat and power plant (CHPP) and maintaining heat and electrical distribution for the installation. Even though i am now retired i remain active with the military and veterans throughout our community. Quite honestly i am shocked at the generalities by which the various alternatives are proposed. Throughout my tenure at ft. Wainwright, i, as well as residents on the installation, viewed the CHPP as a reliable and critically important lifeline for both families and operational units. When other utilities in surrounding communities experienced disruptions of service, Ft. Wainwright continuously provided reliable service without exception. There was a great deal of comfort in knowing that the installation controlled its own destiny by providing uninterrupted heat and power, especially during the cold winter months. I can not recall a single instance where my faith in the utility system was misplaced. An example in contrast is the widespread outage of electrical service in Fairbanks in the winter of 1992 when heavy wet snow downed power lines throughout Fairbanks for several days. Fort wainwright did not suffer during that episode because the CHPP ensured the installation was self- sufficient for power and heat.	Thank you for your comment. Upon development of a design for the selected alternative, the Army will determine the need for additional coordination, permitting, and environmental analysis. This will occur after completion of the EIS.
126.02	2/22/2021	Form Submission	Dave Dean	Public	The EIS summary indicates Fort Wainwright has the highest heating costs of any installation in the Army. That is likely indisputable but with the installation's position in the sub-arctic, significant winter heating costs are not unexpected. The strategic location of Fort Wainwright certainly warrants the costs of maintaining a troop location that is capable of a worldwide DOD response. In essence, the tradeoff of higher costs is necessary in order to support the strategic positioning of America's military forces.	Thank you for your comment. The condition of the current CHPP is described in Sections 1.1 and 3.3 of the EIS.
126.03	2/22/2021	Form Submission	Dave Dean	Public	I am uniquely familiar with the utility distribution system housed in the utilidor system. Water and wastewater mains are kept from freezing by the steam distribution system collocated in the utilidors. Much of the water and wastewater distribution system is not buried deep enough to prevent winter freezeups if the steam pipes are abondoned. In Fairbanks' severe winter temperatures the frost line frequently goes as deep as 10-12 feet or more and the utilidors have many access points that would serve as "freeze points" unless the steam distribution mains provide heat. To believe othrwise is simply unrealistic and a dangerous option. There are multiple years in the greater Fairbanks area where water and wastewater lines freeze, causing major maintenance challenges that Fort Wainwright has not experienced. Any alternative that proposes abandonment of even a portion of the existing steam distribution network exponentially increases the risk to the entire installation.	Thank you for your comment. Freeze protection is discussed in Section 3.3.2.
126.04	2/22/2021	Form Submission	Dave Dean	Public	An overwhelmingly major benefit of the existing CHPP has always been the reserve of fuel stored on site. Even when there were disruptions of coal delivery by rail the installation could rely upon the 90 day coal stockpile. During one winter period the coal supplier even demonstrated their ability to deliver coal by truck if rail shipments were disrupted for an extended period. The test delivery option enhanced the confidence that fuel would not be an impediment to providing heat and electrical service to the installation.	Thank you for your comment. The condition of the current CHPP is described in Sections 1.1 and 3.3 of the EIS.
126.05	2/22/2021	Form Submission	Dave Dean	Public	The CHPP may be aged in relative terms but upgrades and solid maintenance practices have extended its useful life for many more years. While there have been instances of failures such as a coal fire, the system was still able to provide service to the installation due to redundancy of coal conveyors, boilers and turbines.	Thank you for your comment. The condition of the current CHPP is described in Sections 1.1 and 3.3 of the EIS.
126.06	2/22/2021	Form Submission	Dave Dean	Public	Any alternative that recommends installing multiple high-efficiency natural gas heat and power equipment overwhelmingly increases the risk of multiple points of failure. The existing CHPP avoids many of those issues and allows immediate response by the existing workforce when any anomalies surface. To assume that adequate supplies of ultra-low-sulfur –diesel would be available during critical winter months is a dangerous proposition as the entire area would be demanding the same fuels for commerce as well as heating fuel. As a ratepayer for Golden Valley Electric, I am personally aware of the cost of electricity every time electrical transmission line service is disrupted and Golden Valley Electric has to produce power from diesel generators. This scenario would also exist for the backup natural heat and power equipment.	Thank you for your comment. There is a sustainable source of natural gas and ULSD available to Fort Wainwright (per Pentex Alaska LLC 2016; see Section 2.5.3 of the EIS).

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
126.07	2/22/2021	Form Submission	Dave Dean	Public	Additionally, the alternative of installing distributed natural gas boilers throughout the installation sounds easy in concept. However, in practical terms it would be a major impact upon family housing residents. Housing units are densely constructed and there are few suitable locations for siting the boilers without a major construction effort and enormous negativity to residents. I cannot envision a single family housing occupant wanting a natural gas boiler constructed in their backyard!	Thank you for your comment. Boiler locations under Alternative 3 would be sited appropriately to minimize impacts on residential areas.
126.08	2/22/2021	Form Submission	Dave Dean	Public	The matrix for section 3.5 addressing the socio-economic impacts of the various proposals reflects a significant number of temporary jobs for the various alternatives. Temporary job numbers ranging from 2,700 for alternative 1, 1,700 for alternative 2 and 500 for alternative 3 cannot be realized. In my view, many of these temporary jobs would require skilled labor and that number of existing workers does not exist in Fairbanks. It is easy to project labor requirements but reality reflects far fewer available workers than those required.	Thank you for your comment. Section 3.5 of the EIS acknowledges that temporary workers would not only come from the borough labor pool but also from elsewhere in Alaska or other states. Workers from locations outside of the borough would likely relocate to the region during the proposed construction activities.
127.01	2/22/2021	Form Submission	Melissa M Head	Public	The alternatives fail to consider the ongoing air quality issues in Fairbanks and the need to move toward cleaner energy sources. Coal should no longer be considered as a viable alternative, especially in Fairbanks where fine particulate matter continues to impact the community. As a community member, FWW should be concerned for its residents' health, but also the health of the community it occupies. Coal will continue to be the dirtiest source of power and is also the highest greenhouse gas emitter of the possible sources. A new, modern coal fired power plant would be less efficient and more costly to human health.	Thank you for your comment. Section 2.3 of the EIS outlines the criteria that establishes the range of considered alternatives and the viability analysis for each.
127.02	2/22/2021	Form Submission	Melissa M Head	Public	Power supply reliability is more effectively achieved by diversifying power sources (i.e. adding renewable sources) to the overall power portfolio. Why were no renewable alternatives considered? During the summer, Fairbanks has abundant sunlight for solar arrays. And with battery technology improving, solar could provide a reasonable percentage of the power required. Additionally, wind turbines and geothermal should be explored.	Thank you for your comment. Renewable energy alternatives were considered in Section 2.4 of the EIS.
127.03	2/22/2021	Form Submission	Melissa M Head	Public	In sum, the alternative presented lack diversity and discussion, and are inadequate. Climate change is real, and the Army should transition away from fossil fuels as much as possible for the sake of the climate and the health of the Fairbanks community.	Thank you for your comment. Section 1.1 of the EIS identifies the Army's continued evaluation on a periodic basis to implement a renewable energy portfolio as available. Renewable energy alternatives were considered in Section 2.4 of the EIS. Regardless of the alternative selected, the Army will adhere to federal and state regulatory requirements.
128.01	2/23/2021	Email	Dan Givens	Public	The proposals for the new power plant have ignored technology involving coal direct chemical looping developed in the Midwest by Dr. L.S. Fan and others at Ohio State University. Low to no emissions and carbon dioxide recapture technology caught the attention of the US Department of Energy. With a 117 million grant several entities partnered on a power plant in Alabama that worked exceptionally well. Ft. Wainwright would be the perfect place for this new and exciting technology. Considering the EPA nonattainment status of the Fairbanks area, this technology would allow the use of coal without the horrible emissions associated with it. Coal is still the cheapest form of energy in our area. Reducing the health risk is a definite plus. The recent forest fires in California and the winter storm in Texas has shown that alternative energy and covenentional energy are not completely reliable when trying to interface with each other. A military base can not rely on power outages for national security reasons.	Thank you for your comment. Section 2.3 and 2.4 of the EIS identifies alternatives that were considered but dismissed for further consideration.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
128.02	2/23/2021	Email	Dan Givens	Public	Even the local provider Golden Valley electric has to provide backup energy to the existing alternative energy programs that they currently have in operation. This is about a 50 percent increase in the to package in order to head down the path to a more green energy supply. Converting to chemical looping would require an overhaul, but should plug into the existing utilidor system and other existing infrastructure. Some plans call for removal of the plant to a new location which would compound the cost of new infrastructure to hook up to in a timely fashion. There would be some grumbling about using coal, but the University just built a new power plant a few years ago. After all the environmental studies they still went with coal because of their budget. With this new technology you could one up them. After several years even the hard-core dissenters would agree that it is better than conventional coal and much cleaner.	Thank you for your comment. Section 2.3 and 2.4 of the EIS identifies alternatives that were considered but dismissed for further consideration.
129.00	11/6/2020	Telephone Agency Meeting	Sarah Meitl	SHPO	In reviewing the Draft EIS and looking through the historic property information and there being a requesting for clarification from the project team regarding the eligibility status of the existing power plant. According to our records, it's still in a pending status in terms of whether it's an eligible resource or not. And so that might be something that we need to sort out in the future. Wanting to get a little bit more information about alternative 3 in terms of the mitigation, perhaps, that's going to be proposed, the reduced -- the effects to be less than adverse by the NEPA process. My review of all of the alternatives that are being proposed is that they would have what would be considered an adverse effect on the NHL there. And so we would need to be going through Section 106 and Memorandum of Agreement or similar process. However, the language that's currently in the Draft EIS under alternative 3, is saying that such mitigation would be able to reduce the impacts to be less than significant. And given the fact that you're going to be introducing a large number of new elements into the NHL, I'm not certain what type of mitigation would be possible to be able to reduce the effects to the point that they wouldn't be considered significant as defined by the NEPA document. Not to say that we can't do mitigation; that's what we're supposed to do, but just in terms of the regulatory language, I -- that's why I was asking the question about what is being proposed as a possibility to be able to substantiate that statement.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
130.00	11/6/2020	Telephone Agency Meeting	Jason Suslavich on behalf of Senator Sullivan	Senator Sullivan's Office	I'm Senator Sullivan's national security advisor here in Washington. And I think the only comment I'd make for the agency folks, on behalf of my boss, is to encourage, you know, robust and continued consultation with all of the relevant stakeholders in the state, you know, to include, but not limited to Doyon Utilities, Usibelli Coal, and, also, the mayor's office in the Fairbanks North Star Borough. You know, we are looking to kind of those stakeholders as we assess the Army's decision and their path or their possible paths forward extending from the EIS.	Thank you for your comment. Consultation efforts on the project are described in Section 1.5.2 of the document. Consultation will continue as the project progresses.
131.00	11/6/2020	Telephone Agency Meeting	Sarah Meitl	SHPO	So just a quick question about the process moving forward. Specifically concerned about the intersection between NEPA and Section 106 in terms of when a preferred alternative is going to be chosen, so we can be moving forward with the Section 106 process. I guess, also, about what type of consideration the cultural resources are supposed to be having in terms of the choosing of the alternative. It's supposed to be one of those where the cultural resources in Section 106 is supposed to be assisting with that if we're doing this in coordination with NEPA.	Thank you for your comment. Upon the development of a design, further environmental coordination, permitting, and consultation will occur. The need for additional environmental impact analysis will be assessed at that time.
132.01	2/22/2021	Form Submission	Alyssa Quintyne	Public	I wanted to suggest Alternative 3 as the best solution. Fairbanks has the worst air pollution in the nation. Many families leave base or request to leave the state entirely because of developing respiratory and heart illnesses. I have a heart condition, PAC (Premature Atrial Contractions) and one of the main factors/contributors to this condition is air pollution. I know 3 friends of mine that also lived on base developed respiratory illness during their time on base. There are multiple facebook groups and pages of military parents and guardians asking about their kids suddenly developing asthma and PACs, sever allergies, or fainting on the bus. I think it would serve us good to look in this and see how many military families are suffering due to air pollution, and include that in the DEIS.	Thank you for your comment. Section 2.5.5 identifies Alternative 3 as the Army's preferred alternative. Comments received on the Draft EIS were considered prior to determining a preferred alternative.

Comment Number	Comment Date	Comment Type	Commenter	Organization	Comment	Response
132.02	2/22/2021	Form Submission	Alyssa Quintyne	Public	Although it is not the best solution to the climate crisis that Fairbanksians are facing, I feel Alt. 3 is the best of the three alternatives presented. This would have the biggest reduction on emissions. and has the lowest building costs. One piece I saw missing in that cost break down was the costs were to mitigate the impacts of pollution and emergencies already happening in Fairbanks and North Pole. Additionally, I think the DEIS should include a renewable, clean energy option moving forward. Our utilities are also moving in this direction. It just makes more sense than fossil fuel or natural gas, considering our energy costs and clean air and water needs.	Thank you for your comment. Potential impacts on air quality for each of the alternatives were presented in Section 3.2 of the EIS. Renewable energy alternatives were considered in Section 2.4 of the EIS. End use efficiency was discussed in the Guernsey 2015, USACE 2018, and Black & Veatch 2018 studies. For all action alternatives, the air quality would improve as analyzed in Section 3.2 of the EIS. This section has been updated to reflect the qualitative analysis of the social cost of carbon based on the currently available guidance and data. Section 3.6.2 of the EIS identifies air quality impacts of the analyzed alternatives on environmental justice and child populations within the region of influence. Upon project design, the need for additional environmental impact analysis will be assessed.

APPENDIX F

AIR QUALITY AND GREENHOUSE GAS ANALYSIS AND RECORD OF NON-APPLICABILITY (RONA)

Memo

Date:	Thursday, August 12, 2021
Project:	FEIS FWA Heat and Electrical Upgrades
To:	Paul McLarnon
From:	M. Kirk Dunbar
Subject:	Air Quality and GHG Analysis Methods and Assumptions

This technical memo was prepared to support the air quality and greenhouse gas (GHG) analysis conducted for the Final Environmental Impact Statement (FEIS) prepared for the Fort Wainwright, Alaska (FWA) Heat and Electrical Updates (HEU) project.

This memo discusses the assumptions used to develop the analysis.

Impact of $PM_{2.5}$ Serious Nonattainment Area Status

The area in which FWA is located was redesignated to serious nonattainment status for particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$) on April 28, 2017. The Alaska Department of Environmental Conservation (ADEC) adopted a revised State Implementation Plan (SIP) to bring the area into compliance with the $PM_{2.5}$ standard, which became effective January 8, 2020. The provisions of the SIP that have already become applicable, and that are anticipated to become applicable prior to implementation of any Action Alternative, to the existing combined heat and power plant (CHPP) were incorporated into the air quality analysis.

Construction Emissions Associated with Each Action Alternative

The FEIS is required to include emissions information for both the construction and operational phases of each proposed action. No information is currently available regarding the sequencing of construction, equipment to be used, or area disturbed for any of the Action Alternatives. To fulfill the requirement to evaluate construction emissions, the emissions associated with a previous project at FWA was used as a surrogate for estimate construction emissions for the HEU project.

Operations Emissions Associated with Each Action Alternative

The emissions associated with the operation of each Action Alternative were estimated as summarized in the following items.

- The anticipated amount of fuel and additional grid-electricity requirements associated with each Action Alternative was obtained from the Huntsville study (Reference HEU-EIS-REF-031).
- The additional grid-purchased electricity was assumed to be generated outside the $PM_{2.5}$ nonattainment area at a facility with emissions similar to FWA's existing CHPP (to provide a conservatively high estimate of the additional grid-purchased electricity). This assumption is as directed in the project's Request for Proposal document.
- The emissions associated with Action Alternative 1 were calculated using permitted emission factor information for the new coal boiler operating at the University of Alaska, Fairbanks campus.
- The emissions associated with Action Alternative 2 were calculated using emission factor information based on proprietary vendor information for similar equipment. Although the amount of No. 2 fuel oil that will be combusted will vary from year to year, the associated emissions were estimated based on an assumption of No. 2 oil operation for 5% of the year.
- The emissions associated with Action Alternative 3 were calculated using emission factor information from the AP-42 emission factor document developed and maintained by the United States Environmental Protection Agency (EPA).
- The amount of No. 2 fuel oil backup associated with Action Alternative 3 is unknown at this point. No information regarding the number of boilers that would have backup fuel capability or the anticipated annual usage of that backup capability is currently available. As such, the emissions associated with use of the backup fuel can be estimated, although they are anticipated to be only marginally higher than the emissions from the natural gas combustion.

Air Quality Impacts and Ice Fog

No modeling was conducted to determine air quality impacts or the impact on ice fog formation of each Action Alternative. The impact that each Action Alternative will have on air quality was qualitatively discussed based on comparison of the mass emissions of each Action Alternative to the actual emissions of the existing CHPP. Similarly, the potential contribution of each Action Alternative to ice fog formation was based on a qualitative analysis of the amount of water anticipated to be produced by each as compared to the amount of water produced by the existing CHPP operations.

The amount of water vapor associated with each alternative was estimated using emission factors based on information from 40 CFR Part 60, Appendix A-7, Method 19 (EPA 2019d). The difference between the Fd and the Fw factors is the amount of water in the flue gas resulting from

combustion of the fuel being considered. This information was used with the Ideal Gas Law to estimate the amount of water, on a lb/MMBtu heat input basis, generated by the combustion of the fuel being considered.

Ideal Gas Las:

$$pV = nRT \rightarrow pV = \frac{g}{MW}RT \rightarrow g = \frac{MWpV}{RT}$$

where:

g = Mass. In this case, the mass is in terms of lb/MMBtu

MW = Molecular weight. For water the MW is 18 lb/lb-mol

p = Pressure. The Fd and Fw factors are at standard conditions, which means that the pressure is 760 mm Hg

V = Volume. In this case the volume is in terms of scf/MMBtu

R = The Ideal Gas Las Constant. For unit consistency with the other values in the equation a value of 999 mm Hg-scf/lbmol-K was used (obtained from https://www.engineeringtoolbox.com/individual-universal-gas-constant-d_588.html)

T = Temperature. The Fd and Fw factors are at standard conditions, which means that the temperature is 20 °C (293.15 K)

Using this information and the Fd and Fw factors the following water emission factors are calculated:

Fuel	Fd	Fx	Fw – Fd	lb/MMBtu
Bituminous Coal	9,780	10,640	860	40.2
Natural Gas	8,710	10,610	1,900	88.8

RECORD OF NON-APPLICABILITY (RONA)
FOR CLEAN AIR ACT CONFORMITY
INSTALLATION OF DISTRIBUTED NATURAL GAS BOILERS

PROPOSED ACTION

Action Proponent: U.S. Army Alaska

Location: Fort Wainwright, Alaska

Proposed Action Name: Install distributed natural gas boilers as a part of the heat and electrical upgrades at Fort Wainwright

Proposed Action and Emissions Summary: This project is located within the Fairbanks North Star Borough's particulate matter (PM)-2.5 Nonattainment and carbon monoxide (CO) Maintenance Areas. As such, this action has to be evaluated for applicability pursuant to the General Conformity Rule.

Based on the information provided, this action does not require a full General Conformity Determination for either of the aforementioned air pollutants. Per CFR §93.153 (c)(1), actions where the total of direct and indirect emissions are below the emissions levels specified in CFR §93.153 (b)(1). For an area located within a serious nonattainment for the $PM_{2.5}$ NAAQS, the applicability criterion is 70 TPY for $PM_{2.5}$. The applicability criterion for NO_x, SO_2, VOCs and ammonia as precursors is 70 TPY. For an area located within a CO maintenance area, the applicability criterion is 100 TPY of CO. For the proposed action an evaluation was performed for $PM_{2.5}$ and each of its precursor pollutant emissions on an individual basis against the 70 TPY threshold and for CO against the 100 TPY threshold. The non-exempt direct emissions from construction and operation of the distributed natural gas boilers will be subject to ADEC's Prevention of Significant Deterioration (PSD)/New Source Review (NSR) permitting, and is therefore exempt from the General Conformity.

Based on the air quality analysis for the proposed action, the General Conformity will not be applicable resulting in this Record of Non-Applicability.

Date of RONA prepared: September 29, 2021

APPENDIX G

ECONOMIC MODEL APPROACH AND ASSUMPTIONS

Memorandum

Date: November 15, 2019

To: HDR

From: Northern Economics

Re: Economic Model Approach and Assumptions

This technical memorandum is provided in support of the socioeconomic effects analysis provided in the Environmental Impact Statement (EIS) for the Heat and Electrical Upgrades (HEU) in Fort Wainwright, Alaska.

This technical memorandum describes the economic model used in the analysis and the data used as inputs in the model.

IMPLAN Model

The socioeconomic analysis presented in the EIS evaluated the proposed action alternatives with respect to their direct, indirect, and induced effects on employment, income, and business sales (economic output). The effects were quantified using the IMPLAN model.

IMPLAN is an economic impact assessment software system. The model contains data on economic factors, multipliers and demographic statistics for a specific geographic area. IMPLAN allows the user to develop regional-level input-output models that can estimate the economic impact of a project. The model accomplishes this by identifying direct impacts by sector, then developing a set of indirect and induced impacts by sector through the use of industry-specific multipliers, local purchase coefficients, income-to-output ratios, and other factors and relationships.

For the EIS analysis, the Fairbanks North Star Borough (FNSB) input-output model was used to quantify the regional effects of the proposed project alternatives. The proposed project alternatives involve construction and operations of a new heating and electrical generation system in Fort Wainwright which is located in the FNSB region.

The regional economic effects of the proposed project alternatives were determined by the amount of spending/expenditures associated with the various construction and operations and maintenance activities. Spending on construction and O&M activities generate stimulus effects in the local economy and create additional employment, income, and business sales in the local economy.

Data Sources and Approach

An impact analysis using IMPLAN starts by identifying expenditures in terms of the sectoring scheme for the model. Each spending category becomes a "group" of "events" in IMPLAN, where each event specifies the portion of price allocated to a specific IMPLAN sector. Groups of events can then be used to run impact analysis individually or can be combined into a project consisting of several groups.

The data used for the analysis were obtained from the Life-Cycle Cost Analysis (LCCA) for Heat and Electric Power Alternatives for Fort Wainwright. This study was prepared for the Directorate of Public Works, Utility Privatization Fort Wainwright by the U.S. Army Corps of Engineers Engineering and Support Center, Huntsville Heating, Ventilating and Air Conditioning (HVAC) Technical Center of Expertise. The study report was completed in December 2018.

The inputs to the model were as follows:

1. Capital Expenditures

The following table shows the implementation and demolition costs for each of the action alternatives in millions of dollars.

Alternative	Implementation Cost	Demolition	Total
Alternative 1	$646.56	$40.00	$686.56
Alternative 2	$322.86	$40.00	$362.86
Alternative 3	$76.70	$40.00	$116.70

The LCCA study defined the implementation cost as the initial construction costs required to implement the alternative.

Details regarding the break-down of capital costs for each alternative were provided as appendices to the LCCA study and these data were used to allocate appropriate construction spending to the different economic sectors in the model. Spending on building/facilities construction and demolition were applied to the construction and maintenance and repair construction of non-residential structures sectors; environmental air quality monitoring costs were applied to the environmental and other technical consulting services sector, and a portion of the equipment costs (mechanical and electrical) were applied to the wholesale trade sector, since these equipment costs were imported from outside the FNSB region.

2. Annual Non-Fuel Operations and Maintenance Costs

The following table shows the estimated annual non-fuel O&M spending for each of the action alternatives.

Alternative	Amount in millions of $
Alternative 1	$16.10
Alternative 2	$8.43
Alternative 3	$1.62

Details regarding the various O&M spending categories were used to apply the spending amounts to the appropriate economic sector in the model. The economic sectors used were fossil fuel generation systems, transmission and distribution systems, wholesale trade for the emission control chemicals under Alternative 1, and maintenance and repair construction sector for the maintenance of the building mechanical rooms.

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July 2022