2019 MS4 Annual Report

U.S. Army Garrison Alaska

Fort Wainwright, Alaska

APDES Permit No. AKS055859

U.S. Army Garrison Alaska
Fort Wainwright, Alaska

10/15/2020

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APPENDICES

LIST OF ACRONYMS

AEC	Army Environmental Command
ADEC	Alaska Department of Environmental Conservation
APDES	Alaska Pollutant Discharge Elimination System
BMP	Best management practice
CGP	Construction General Permit
CHPP	Central Heat and Power Plant
DoD	Department of Defense
DPW	Directorate of Public Works
EPA	Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
FOG	Fats, oils, and grease
FWA	Fort Wainwright
IDDE	Illicit discharge detection and elimination
MCM	Minimum control measure
MEP	Maximum extent practicable
MILCON	Military Construction
MS4	Municipal separate storm sewer system
MSGP	Multi-Sector General Permit
NOI	Notice of Intent
OWS	Oil/water separator
PAO	Public Affairs Office
POL	Petroleum, oil, lubricant
PWE	Directorate of Public Works Environmental Division
PX	Post Exchange
QAPP	Quality Assurance Project Plan
SGT	Sergeant
SWMP	Storm Water Management Plan
SWPP	Storm water pollution prevention
SWPPP	Storm Water Pollution Prevention Plan
USAG	United States Army Garrison
USACE	United States Army Corps of Engineers
WPM	Water Program Manager
WQS	Water quality standards

1.0 INTRODUCTION

1.1 Mission, Vision, and Values

The U.S. Army Garrison Alaska Mission, Vision, and Values are as follows:

Mission – U.S. Army Garrison Alaska enables the readiness of Army forces in Alaska by integrating resources and delivering installation services that enhance the quality of life for Arctic Warriors, Families, Civilians and Community.

Vision – A unified team which promotes a community of choice… where Arctic Warriors, Families, and Civilians live, thrive, serve, and train.

Values – Loyalty • Duty • Respect • Selfless Service • Honor • Integrity • Personal Courage

Fort Wainwright is also required to comply with regulations that protect public health and the environment from current and former military/industrial activities. These activities are regulated for their impact to air, soils, and water by the Environmental Protection Agency (EPA) and the State of Alaska. There are also federal, state, and army requirements that are enforced to minimize the impact of military activities on natural, historic, and cultural resources. Several specialized teams composed of civilians, contract scientists, and academic professionals are employed to meet these requirements; in doing so, military readiness is supported.

Simply complying with environmental regulations does not prevent the Army from excessive use of our nation's resources. Therefore, as a part of the Army's Strategic Plan, installations use a set of sound business and environmental practices to implement effective policies and practices that safeguard the environment and our quality of life.

1.2 Overview

For clarification purposes throughout this document and other submittals from Fort Wainwright, Alaska (FWA) permits, the Army has updated its organizational structure and style guide in 2018. United States Army Garrison (USAG) Alaska is the organization that now also encompasses USAG Fort Greely and what was formerly known as USAG Fort Wainwright. Fort Wainwright will continue to represent the physical location of the installation; however, USAG Alaska is the organization.

This document has been prepared to satisfy the annual reporting requirements for the FWA Municipal Separate Storm Sewer System (MS4) Permit.[1] USAG Alaska must submit a Summary Annual Report and a Detailed Annual Report to fulfill the reporting requirements set forth in Part 4.3 of the MS4 Permit. The Summary Annual Report is included as Appendix A and the Detailed Annual Report comprises the main body of this document.

USAG Alaska was issued the MS4 Permit on September 26, 2016 with an effective implementation date of November 1, 2016. According to the compliance schedule presented in Table 4-2 of the Permit (*Submission Deadlines for Annual Reports*), Annual Reports are due February 15 following each respective Permit year. This report accounts for the 2019 calendar year and is being submitted past the February 15 deadline.

The purpose of the Annual Report is to:

1. Evaluate compliance with Permit conditions,
2. Gauge the appropriateness of best management practices (BMPs),
3. Track BMP implementation towards satisfying measureable goals identified in the Storm Water Management Plan (SWMP), and
4. Determine the overall effectiveness of the SWMP.

This document is structured according to the Minimum Control Measures (MCMs) listed in section 3 of the FWA MS4 Permit:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention and Good Housekeeping

[1] *Alaska Pollutant Discharge Elimination System Permit For Storm Water Discharges From Small Municipal Separate Storm Sewer Systems, Final Permit, Permit Number: AKSO55859*; hereto referenced as "the MS4 Permit," "the FWA MS4 Permit," "the Permit," or "Permit."

1.3 Detailed Annual Report Requirements

Part 4.3.3 lists what must be included in, or with, the Annual Report, at a minimum:

- An updated SWMP document as required in Part 2.0 of the MS4 Permit.
- A description of the effectiveness of each SWMP program component or activity (see Part 4.2 of the MS4 Permit).
- Planned activities and changes for the next reporting period for each SWMP program component or activity.
- An evaluation of compliance with the requirements of the MS4 Permit, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals of the SWMP for each MCM.
- Results of any information collected and analyzed during the previous twelve-month reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the maximum extent practicable (MEP).
- A summary of the activities USAG Alaska plans to undertake during the next reporting cycle (including an implementation schedule) for each MCM.
- Proposed changes and completed changes to the SWMP, including changes to any BMPs or any identified measurable goals for any MCMs.
- Description and schedule for implementation of additional BMPs that may be necessary, based on monitoring results, to ensure compliance with applicable water quality standards (WQS).
- Notice if USAG Alaska is relying on another entity to satisfy some of the permit obligations, if applicable.

The following sections of this report address applicable provisions in the above list. Copies of all Annual Reports must be available to the public through the municipal library system, a USAG Alaska-maintained website, or other easily accessible location.

2.0 ANNUAL REPORTING REQUIREMENTS FOR MCMs

Reporting requirements for each MCM are addressed in the order in which they are described in the FWA MS4 Permit.

2.1 MCM 1 – Public Education and Outreach

2.1.1 Permit Year 2 Reporting Requirements for MCM 1

Section 3.1.4 of the MS4 Permit requires the following information be included in the Annual Report regarding MCM 1:

Addressed in Section 2.1.2, *Compliance Discussion*, below:

a) Describe the public education program and outreach activities accomplished during the previous calendar year, and submit at least one copy of each educational material distributed.

b) Describe the methods and frequency of disseminating information.

c) Describe the target audiences and pollutants/sources that are addressed by the program and how they were selected.

d) Estimate the number of people reached by the program over the previous 12-month period.

Addressed in Section 2.1.3, *Measureable Goals*, below:

e) List the measureable goals for the public education and outreach program over the next 12-month period.

f) List the dates by which the measureable goals will be achieved.

g) Identify the person(s) responsible for implementing and coordinating the education activities.

2.1.2 MCM 1 Compliance Discussion

The Public Education and Outreach Program at FWA is detailed in SWMP Section 3.1. The compliance schedule for implementation of MCM 1 milestones is included in Table 1 of FWA's MS4 Permit. Table 1 describes the general permit requirement and provides the compliance date (typically, which permit year) that each respective requirement must be implemented by.

The Public Education and Outreach Program at FWA is detailed in SWMP Section 3.1. The target audiences are all on-site Army units, tenant organizations, and civilian and contractor personnel who work in industrial facilities. Additionally, FWA's public includes enlisted personnel and their

dependents, many of whom reside in base housing, as well as employees whose work is not industrial in nature.

In 2019, as in the prior year, an emphasis was put on education and outreach with Army units and base housing residents, based on observations of illicit discharges in motor pool areas and sampling results from MS4 outfalls, respectively.

Tracking logs for brochures/flyers, training, news articles, and other activities are used to oversee these actions and plan dates for future outreach materials. An estimated 2,000 individuals were reached in 2019. Tracking logs are provided in Appendix C.

The following measureable goals were required to be implemented for MCM 1 during the third year of permit coverage (i.e., prior to December 31, 2019):

1. Publish articles in a local newspaper or permittee website regarding storm water pollution prevention (SWPP) (within six months of the permit date and annually thereafter)

On May 24, 2019 an article was published in the Garrison newspaper (the Alaska Post) and on the Garrison Facebook page titled *Free Household Hazardous Waste Reuse and Recycling*. The article introduced the Fort Wainwright Household Hazardous Waste (HHW) program and the importance of handling and disposing of household product properly. A copy of this article is provided in Appendix B. Articles are published at least annually.

The Alaska Post is a weekly newspaper produced by the U.S. Garrison Fort Wainwright Public Affairs Office (PAO). The publication serves more than 16,000 soldiers, families, and DOD civilian employees at Fort Wainwright and local communities. The Alaska Post is made available throughout the installation at various locations as well as on line. A link to the publication is located at Fort Wainwright's home webpage, located at: www.wainwright.army.mil.

2. Create or purchase SWPP materials for key audiences and distribution at annual FWA events (within one year of the permit date and annually thereafter)

Three outreach brochures/rack cards previously developed were used during year three: *Storm Water Compliance at Maintenance Facilities*, *Pet Waste and Water Quality,* and *The Household Hazardous Waste Program*. These materials are made available to residents, employees, contractors, and visitors at the Directorate of Public Works Environmental Division (PWE) office, and are distributed at a variety of installation events. The *Pet Waste and Water Quality* brochure is distributed to new residents to Fort Wainwright with coordination from the Directorate of Public Works (DPW) Housing Division through USAG Alaska's housing partner, North Haven Communities (NHC) and pet waste baggie kits are available at the Veterinary Services building. Another brochure entitled *The Household Hazardous Waste Program* was developed and is distributed to new residents to Fort Wainwright through NHC. Copies of these handouts are provided in Appendix C.

A flyer called "Be the Solution to Storm Water Pollution" was distributed at several events on Post, including the National Night Out event and North Haven job fair.

MCM 1 – Public Education and Outreach

Over 1,000 brochures were distributed during the 2019 calendar year.

3. Update housing tenant materials to include storm water related materials (within one year of permit date and annually thereafter)

The *North Haven Communities Tenant Guide* was updated on October 22, 2017. The guide conveys educational information to tenants regarding activities that can impact storm water. Examples include proper pet waste management, pest management, vehicle maintenance activities, recycling, and the proper handling, management, and disposal of household hazardous wastes. All residents receive the current version of the Tenant Guide when they move in to their residential units. Changes have been identified for the Tenant Guide, but these have not yet been published. Specifically, the 2017 Tenant Guide does not explicitly credit the MS4 Permit as the driver for policies on activities that can impact storm water. These changes identified will be included in future versions of the document.

As part of Newcomer's Orientation, soldiers, tenants, civilians, and contractors receive an Environmental Handbook.

4. Develop and install signs on storm water pollution prevention and pet waste management in key areas (within two years of the permit date)

Signs have been developed and installed in the two locations along the Chena River walking/bike trail. In addition, one sign was installed near the Trainor Gate and Siku Basin neighborhood. The signs were placed on April 30, 2019.

5. Purchase or develop brochure on use of lawn chemicals and household hazardous products and distribute to key audiences (within two years of the permit date and annually thereafter)

The brochure *The Household Hazardous Waste Program* was developed and is distributed to all new residents to Fort Wainwright through NHC as they go through orientation. In 2019, approximately 800 new resident families were given the HHW brochure. This brochure is included in Appendix C.

6. Develop and make available to FWA personnel a website with information about storm water management (within one year of the permit date and update semi-annually thereafter)

The USAG Alaska environmental compliance website provides links to each program department under the Environmental Division, including the FWA storm water program website[2]. The storm water program website provides an overview of the installation's storm water program, including which storm water permits the installation operates under. Key aspects of the storm water permits are

[2] https://home.army.mil/alaska/index.php/fort-wainwright/garrison/public-works/environmental/compliance/storm-water or shortened hyperlink address https://home.army.mil/alaska/index.php/fort-wainwright/storm-water

discussed, and contact information is provided, in addition to links to specific storm water permits, annual reports, outreach materials, and management plans.[3]

Copies of educational outreach materials discussed in this section are provided in Appendix C. Tracking logs are provided in Appendices B and C, accordingly.

2.1.3 Measurable Goals for MCM 1 during the Next 12 Months

The measureable goals under MCM 1 that must be implemented during calendar year 2020 are listed below, with anticipated milestone dates, and the responsible party/parties for respective actions.

1. **Develop, implement and evaluate an on-going public education program to educate the community about the ways to reduce impacts to storm water quality (within two years of the permit date and annually thereafter)**

Continue to update the tracking logs and work with organizations around Post including PAO to identify the most effective education strategies to include in SWMP updates.

Materials will continue to be distributed at annual FWA events including the National Night Out event. As the privatized housing partner develops updated housing tenant materials, PWE will provide input for updates, in addition to new residents receiving information in their orientation packets. The installation's environmental compliance website will be updated semi-annually, as required. PWE will coordinate with the installation's PAO to facilitate this process and convey pertinent information.

In January 2020, PWE began a recurring Facebook and Alaska Post series on a broad range of environmental topics called "Sergeant Salmon's School of Environmental Basics." This program will include topics on water and pollution prevention.

Ø The updated SWMP for 2020 will be submitted by the PWE Water Program Manager (WPM) with the 2019 Annual Report by December 31, 2020.

2. **Publish article(s) in a local newspaper or FWA website regarding SWPP.**

FWA will continue to educate the public about SWPP by publishing articles in the local newspaper, Facebook page, and/or installation website.

Ø The PWE WPM will ensure that a news article, Facebook post, and/or brochure/flyer specific to the storm water conveyance system, hazards associated with illegal discharges and improper disposal of waste is generated and disseminated to users of the conveyance system and the

[3] The U.S. Army has changed the layout and format of all installation websites to standardize their appearance and function. This created a slight challenge in loading material onto the website and required breaking file sizes into small groups. Therefore only the body of the SWMP is available on the site (no SWMP attachments).

general public. The target date for this outreach material distribution is July 26, 2020 with a deadline of December 31, 2020.

3. **Create or purchase SWPP materials for key audiences and distribution at annual FWA events (within one year of the permit date and annually thereafter)**

Three brochures from prior years, *Storm Water Compliance at Maintenance Facilities*, *Pet Waste and Water Quality*, and *The Household Hazardous Waste Program* will continue to be distributed to key audiences on Post. Another brochure or flyer will be developed for distribution at the National Night Out celebration for Fort Wainwright residents in August, in partnership with the DPW Housing Division and NHC.

Ø Distribution of the three existing brochures mentioned above is ongoing throughout the year. The brochure or flyer for National Night Out will be distributed by August 31, 2020, or another brochure will be developed and distributed by December 31, 2020. The WPM will ensure that these tasks are accomplished.

4. **Update housing tenant materials to include storm water related materials**

The next version of the Tenant Guide will explicitly describe the MS4 Permit and list the most pertinent requirements relating to residents. DPW Environmental will review future versions of the Tenant Guide as they are developed in order to ensure compliance and accuracy.

Ø It is expected that the housing tenant materials updates will be coordinated between the WPM, the DPW Housing Division and NHC, again before December 31, 2020.

5. **Develop and install signs describing SWPP and pet waste management along the Chena River, in FWA recreational parks, and in other sensitive areas. Signage shall be reviewed and updated, if needed, at least once during the permit cycle.**

Section 2.1.2.5 of this report, above, discusses signage for the Chena River walking/bike trail.

In Section 3.1.3.3 of the SWMP, PWE identified the following areas to install signage with SWPP-specific messaging:

- Memorial Park
- Glass Park
- Chena Cove Recreation Area
- Engineer Park

Signage at these location will be developed and installed over the next three years. The 2019 SWMP will be updated to reflect these changes.

Ø The WPM and/or PWE staff will ensure that signage at the four identified locations will be developed and installed by December 31, 2021.

6. **Create or purchase and distribute a brochure on the proper use and disposal of lawn chemicals and household hazardous products and distribute to key audiences.**

PWE staff will continue to distribute the *Household Hazardous Waste Program* brochure to residents. Another brochure aimed specifically at lawn chemicals and personal vehicle washing and/or maintenance will be developed and distributed in 2020.

Ø The WPM and PWE staff will develop the lawn chemical and personal vehicle brochure. DPW Housing Division and NHC, and potentially the FMWR Auto Skills Center, will cooperate in its distribution by December 31, 2020.

7. **Develop and make available to FWA personnel a website with information about storm water management.**

The storm water website will be updated with the second Annual Report by April 2019. The website will again be updated with new outreach materials generated for the above tasks. The text on the website will be verified for accuracy at the time each new item is uploaded.

Ø The WPM will coordinate with PAO to ensure that this Annual Report is uploaded to the program's website by December 31, 2020.

2.1.4 Responsible Parties for MCM 1

The USAG Alaska Garrison Commander has ultimate responsibility for all regulatory compliance at Fort Wainwright; the USAG Alaska chain of command below the USAG Alaska Garrison Commander has compliance responsibilities as dictated by position, and the WPM has direct responsibility for day-to-day compliance with the MS4 Permit and SWMP, including coordinating and implementing the Public Education and Outreach program at FWA. The PWE Chief has responsibility for overseeing the WPM, assisted by the PWE Compliance Branch Chief, and has been delegated authority by the Garrison Commander to sign and submit documents related to the MS4 Permit and MSGP. The Delegation of Authority letter is provided in Appendix G.

The WPM coordinates with leadership at organizations on FWA, including PAO, DPW Housing Division, and NHC, to develop and distribute educational and outreach materials as needed.

2.2 MCM 2 – Public Involvement and Participation

2.2.1 Annual Report Requirements for MCM 2

Section 3.2.7 of the MS4 Permit requires the following information be included in the Annual Report regarding MCM 2:

Addressed in Section 2.2.2, Compliance Discussion, below:

a) Describe the activities and target audiences for public involvement that the program accomplished for the preceding 12-month period, including any monitoring and/or survey results, number of storm drains stenciled, etc.

b) Describe the procedure(s) for receiving and reviewing public comments.

Addressed in Section 2.2.3, Compliance Discussion, below:

c) Describe the measureable goals for the public involvement/participation program over the next 12-month period.

d) List the dates by which FWA will accomplish each of the upcoming measureable goals.

e) Identify the person(s) responsible for implementing and coordinating the public involvement/participation activities.

2.2.2 MCM 2 Compliance Discussion

The USAG Alaska Public Involvement and Participation program is detailed in SWMP Section 3.2. Four measureable goals were required to be implemented for MCM 2 during the third year of permit coverage:

1. The SWMP and all Annual Reports must be made available to the public by posting them on an FWA-maintained website.

Copies of the FWA SWMP, MS4 Permit, MSGP, and 2017 (Year One) MS4 Annual Report are currently available on the FWA storm water website (link provided in section 2.1.2.7, above). Brochures distributed as part of the MS4 program are also available on this website. The website refers readers to call the Storm Water Program at 907-361-9686 for more information. Customers from various organizations throughout the Department of Defense (DoD) may also submit Interactive Customer Evaluation (ICE) feedback in person at Building 3023 or via the ICE website at https://ice.disa.mil/index.cfm?fa=card&sp=114103&s=360&dep=*DoD&sc=5.

2. FWA must host a community event aimed at litter removal or similar cleanup within the MS4.

The annual FWA Spring Clean Up was held May 28 – 31, 2019 addressing the cantonment area of the post, including areas along the Chena River. Multiple tenant units and organizations participated,

including 1st Brigade, 25th Infantry Division Stryker Brigade Combat Team (SBCT), 17th Combat Sustainment Support Battalion (CSSB), U.S. Army Alaska (USARAK) staff, Bureau of Land Management (BLM), NHC, Doyon Utilties, 574th Quartermaster (QM), 507 Signal, Explosive Ordinance Disposal (EOD), and DPW staff. Loose trash was collected and properly disposed of, and the FWA community was engaged in a SWPP-specific activity in which program goals were conveyed.

3. FWA must develop and conduct a survey of public knowledge and attitudes related to storm water management within the MS4.

The Opinion Survey was distributed beginning in December 2019. Due to the limited number of responses and because it was not distributed broadly, the survey was distributed through a Microsoft forms link and ran through June 2020. The survey link was distributed through the Garrison Facebook page and NHC, and a prize drawing was held in April 2020. A total of 82 responses were recorded.

4. FWA must convene a quarterly Storm Water Steering Committee to coordinate and accomplish the goals of the SWMP. The meeting schedule must be made known to the public and Alaska Department of Environmental Conservation (ADEC) through direct mail or e-mail notification, or other locally appropriate means.

The USAG Alaska Storm Water Steering Committee met quarterly in 2019. The meetings are advertised to the public through the garrison's Facebook page, the Environmental Division's Facebook page, and occasionally through the Alaska Post. Facebook was selected as a method of communication due to the large amount of military, spouse, veteran, civilian, and other individuals that see or can access the information. Fort Wainwright's official PAO Facebook page has over 29,000 followers and the PWE Facebook page has over 500 followers. The ADEC Division of Water Permitting and Compliance and Enforcement personnel, as well as key organizations and tenants on post were invited to and reminded about the Storm Water Steering Committee Meeting by e-mail.

An Operations Order was issued in October 2018 by the USAG Alaska Garrison Commander requiring participation from nine organizations and notification to fourteen organizations, as well as invitation to the public and ADEC. The USAG Alaska Storm Water Steering Committee was re-established for fiscal year 2019 under Operations Order.

2.2.3 Measurable Goals for MCM 2 During the Next 12 Months

The measureable goals under MCM 2 that must be implemented during calendar year 2019 and the actions USAG Alaska will implement are listed below, with anticipated milestone dates, and the responsible party/parties for the respective actions.

1. **The SWMP and all Annual Reports must be made available to the public by posting them on an FWA-maintained website.**

MCM 2 – Public Involvement and Participation

This 2018 Annual Report will be posted on the FWA-maintained website. When the SWMP is updated, it will also be posted on the website. Brochures distributed as part of the MCM 1 will be added to the website as appropriate.

Ø The WPM will submit the 2019 MS4 Detailed Annual Report to PAO to post on the storm water website by December 31, 2020.

2. **FWA must host a community event aimed at litter removal or similar cleanup within the MS4.**

Fort Wainwright will continue to plan and host community litter cleanup activities annually during the spring after most of the snow has melted. All tenant units and organizations including 1-25th SBCT, 17th CSSB, UATF, USARAK staff, BLM, RCI Housing, Doyon, 574th QM, 507 Signal, EOD, and DPW staff will be invited and encouraged to participate.

Ø The USAG Alaska Garrison Commander will issue an Operations Order to perform the community cleanup event in spring 2020. Organizations will participate in the cleanup during these dates.

3. **The Storm Water Opinion Survey will be continued to collect more responses.**

The IDDEP includes a knowledge check to be implemented after training. A survey was generated, focusing on Fort Wainwright industrial users. The survey began in December 2019, but distribution to the wider community of Fort Wainwright was delayed as discussed in 2.2.2 item 3 above.

Ø PWE WPM and PWE will finish collecting responses to the MS4 Opinion Survey and a summary of the findings will be reported with the 2020 Annual Report by February 15, 2020.

4. **The remaining storm drain inlets on the airfield will be painted with a stencil that does not interfere with airfield activities or pose a foreign object damage hazard. This task will be completed within four years of the permit effective date. As part of MCM 3's requirement to survey 50% of storm drain inlets, identification of missing decals, are replacement or application of the painted stencil will continue in 2020. The remaining surface-linear or trough inlets that did not have placement options for a decal will be re-assessed and determined either unable to label or an alternative labeling method will be devised.**

Ø PWE WPM and/or PWE staff will mark 100% of storm drain inlets by a target date of October 18, 2020. Drain inlets unable to be marked will be revisited and marked during the 2021 summer season.

5. **Quarterly Storm Water Steering Committee meetings will continue. The Storm Water Steering Committee represents multiple FWA organizations, and meetings are open to**

ADEC and the public by attending in person for those with base access or by conference call.

Ø PWE WPM will continue to host quarterly Storm Water Steering Committee meetings.

2.2.4 Responsible Parties for MCM 2

The USAG Alaska Garrison Commander has ultimate responsibility for all regulatory compliance at Fort Wainwright; the USAG Alaska chain of command below the USAG Alaska Garrison Commander has compliance responsibilities as dictated by position, and the WPM has direct responsibility for day-to-day compliance with the MS4 Permit and SWMP, including coordinating and implementing the Public Involvement and Participation program at FWA. The PWE Chief has responsibility for overseeing the WPM, assisted by the PWE Compliance Branch Chief, and has been delegated authority by the Garrison Commander to sign and submit documents related to the MS4 Permit and MSGP. The Delegation of Authority letter is provided in Appendix G.

The WPM coordinates with leadership at organizations on FWA, all those identified in the Operations Order to participate in the Storm Water Steering Committee.

2.3 MCM 3 – Illicit Discharge Detection and Elimination

2.3.1 Annual Report Requirements for MCM 3

The Illicit Discharge Detection and Elimination (IDDE) program is provided in the Illicit Discharge Detection and Elimination Program Manual, provided as Appendix M in the 2018 Annual Report and kept on file with the SWMP.

FWA must include the following information in each Annual Report regarding MCM 3: Illicit Discharge Detection and Elimination (see Part 3.3 of the MS4 Permit):

a) A description of the criteria used to prioritize investigations in areas suspected of having illicit discharges (within two years from the effective MS4 Permit date and annually thereafter).

b) A description of procedures used to locate and remove illicit discharges, including detection methods (within two years from the effective MS4 Permit date and annually thereafter).

c) A summary of all dry-weather testing conducted to date and actions taken by FWA to remove any illicit discharge(s) identified (if any) (within two years from the effective MS4 Permit date and annually thereafter).

d) A copy of the established ordinance or other regulatory mechanism used to prohibit illicit discharges in the MS4 (within two years from the effective MS4 Permit date and annually thereafter).

e) A description of enforcement policy and jurisdiction. The program must include procedures for coordination with adjacent municipalities and/or state or federal regulatory agencies to address situations when investigations indicate the illicit discharge originates outside FWA jurisdiction. When FWA lacks legal authority to establish enforceable rules or if an illicit discharge fails to comply with procedures or policies established by FWA, the program must include procedures for notifying ADEC for assistance in enforcement of this permit provision (within two years from the effective MS4 Permit date and annually thereafter).

f) A description of the methods used over the previous 12-month period to inform the public and/or train employees and tenants about illicit discharges and the improper disposal of waste (within two years from the effective MS4 Permit date and annually thereafter).

g) A list of measurable goals for the illicit discharge detection and elimination program for the next 12-month period and the dates by which FWA will achieve each of the measurable goals (within two years from the effective MS4 Permit date and annually thereafter).

h) The name and title of the person(s) responsible for coordinating and implementing the illicit discharge detection and elimination program.

MCM 3 – Illicit Discharge Detection and Elimination

2.3.2 MCM 3 Compliance Discussion

The IDDE program is provided in the IDDE Program Manual, in Appendix M of the 2018 Annual Report. The IDDE requirements are listed in SWMP Section 3.3.

1. Within two years from the effective date of this permit and annually thereafter, the permittee shall carry out the following inspections: Conduct wet weather outfall inspections to identify and investigate any illicit, inappropriate, or undocumented non-storm water discharges to the storm sewer system; Conduct dry weather outfall inspections to identify and investigate any illicit, inappropriate, or undocumented non-storm water discharges to the storm sewer system.

The Illicit Discharge Detection and Elimination Program Manual includes Section 5.0 Outfall Screening, which describes dry weather outfall screening techniques. In addition, field screening techniques and strategies for screening outfalls were incorporated into the Storm Water Outfall Monitoring Program Plan (MPP) and Quality Assurance Project Plan (QAPP) and the Surface Water Sampling Form. The MPP & QAPP is an attachment to the SWMP and provided in Appendix S of the 2018 Annual Report. The Surface Water Sampling Form includes 5 parameters for Outfall Monitoring Requirements defined in Table 4-1 of the MS4 Permit: flow, temperature, pH, dissolved oxygen, and turbidity. Additionally, this form includes water discoloration, odor, ground discoloration, trash, and general descriptions of the monitoring point such as petroleum sheen or foam. The MPP includes all parameters, including those for laboratory analysis, for Outfall Monitoring Requirements defined in Table 4-1 of the MS4 Permit.

All outfalls within the MS4 were inspected for dry weather flows within two years of the permit issuance. DPW Environmental staff conducted a dry-weather, MS4-wide survey on June 22–23, 2017 to detect any illicit discharges at the installation. The assessment included inspections of the Chena River corridor along the cantonment. No illicit discharges were observed. In addition to this survey, outfalls at the installation that may receive industrial discharges are inspected quarterly under the MSGP program. Due to the nature of weather in Fairbanks, these inspections are often conducted during dry conditions.

Wet weather outfall inspections were conducted at seven outfalls in 2019. All outfalls were inspected and documented in 2019. No illicit discharges or flows were observed during this inspection.

2. Within three years from the effective date of this permit, the permittee must conduct or revise an existing hydrologic study of all roadway drainage structures within the MS4 to determine whether flows from those structures drain to waters of the United States. Results from this study must be reported to DEC in the following Annual Report, and must be incorporated into the MS4 map.

The storm water GIS database has been updated.

MCM 3 – Illicit Discharge Detection and Elimination

3. Within three years from the effective date of this permit, the permittee must develop a comprehensive storm sewer system map. At a minimum, the map must show jurisdictional boundaries, the location of all inlets and outfalls, names and locations of all waters that receive discharges from those outfalls, and locations of all FWA operated facilities, including snow disposal sites. The permittee must submit a copy of the completed map to DEC as part of the corresponding Annual Report.

In October 2017, FWA completed a storm water survey of every inlet, catch basin, and outfall at the installation. In November 2017, this information was loaded into an advanced watershed modeling software program (PCSWMM), which is used to help manage sub-basin runoff within the FWA MS4. The FWA Flow Direction Mapbook is provided as Appendix H to this 2019 Annual Report.

4. A description of the criteria used to prioritize investigations in areas suspected of having illicit discharges (within two years from the effective MS4 Permit date and annually thereafter).

The IDDE Program Manual describes the procedures for determining and prioritizing illegal discharges as follows. The determination of the occurrence of an illicit discharge by the DPW WPM, based on an observed illicit discharge by an individual or the public, such as during their daily activities, or a follow-up from an incident reported earlier.

A severity index classification of 'potential', 'suspect,' or obvious' is assigned for each. If more than one outfall screening produces one of these classifications, investigation efforts shall be prioritized as:

- Obvious – Illicit discharge(s) suspected of being sanitary sewer discharges or significantly contaminated, such as vehicle washing outdoors, would have this classification
- Suspect – Numerous physical indicators result in this classification including staining of the ground, odor, or stressed vegetation.
- Potential – These discharges should not be expected to be hazardous to human health and safety such as trash.

In 2019, illicit discharges investigated were, as previous years, result of spills, outdoor vehicle washing and fire suppression system discharge, identified as 'obvious'. There were several illicit discharge investigations in 2019 categorized as "suspect" as they were the result of multiple vehicle leaks in a parking lot.

5. A description of procedures used to locate and remove illicit discharges, including detection methods (within two years from the effective MS4 Permit date and annually thereafter).

Location of illicit discharges relies on reporting of spills and illegal activities, outfall monitoring, MSGP monitoring and MS4 monitoring. A detailed description of the procedures is provided in Attachment M, the IDDE Program Manual. In addition, PWE now has a 24-hour spill hotline that is also available for illicit discharges. The phone number is (907) 482-7267.

The primary goal of investigating suspected illicit discharge is to prevent or reduce the impact of pollutants on waters of the U.S. and the MS4. Procedures for investigation include onsite investigation, documentation, information-gathering through interviews, continued monitoring, identification of responsible parties, and coordination with said parties. Further detail of these

procedures is provided in the IDDE Program Manual. Once found, the illicit discharge source should be eliminated and efforts documented on the IDDE Tracking Form or IDDE Tracking Spreadsheet.

6. A summary of all dry-weather testing conducted to date and actions taken by FWA to remove any illicit discharge(s) identified (if any) (within two years from the effective MS4 Permit date and annually thereafter).

No dry weather tests were performed in 2019, although monitoring was performed. All illicit discharges were identified and removed without the need for testing. Because most of the MS4 on FWA consists of open drainages and underground storm water lines are not widespread, identification of the source has been straightforward and is found before pollution is able to reach an underground storm water line or waters of the U.S.

7. A copy of the established ordinance or other regulatory mechanism used to prohibit illicit discharges in the MS4 (within two years from the effective MS4 Permit date and annually thereafter).

The installation adopted Garrison Policy Letter #35 on March 7, 2016. The policy was updated on September 25, 2017 for the Garrison Commander at that time. Although a new Garrison Commander has taken leadership over USAG Alaska, it was determined that the policy letter did not need to be updated to meet the permit requirements.

The policy letter, discusses the MS4 Permit, SWMP program goals, and the requirements of the six MCMs. All individuals, units, directorates, activities, organizations, partners, and tenants at USAG FWA are required to comply with FWA MS4 Permit provisions and the installation SWMP. These parties include military, contractors, consultants and all other personnel living, working, or conducting other authorized activities, on the installation. The letter explains actions that may be taken with individuals or entities that fail to comply with the SWMP. The policy also includes enforcement procedures and actions, including enforcement escalation procedures for recalcitrant or repeat offenders.

Garrison Policy Letter #35 was included with submittals to ADEC for both the draft and final MS4 Permit applications and the SWMP, and the current version is submitted with this Annual Report, as required, as Appendix D.

8. A description of enforcement policy and jurisdiction. The program must include procedures for coordination with adjacent municipalities and/or state or federal regulatory agencies to address situations when investigations indicate the illicit discharge originates outside FWA jurisdiction. When FWA lacks legal authority to establish enforceable rules or if an illicit discharge fails to comply with procedures or policies established by FWA, the program must include procedures for notifying ADEC for assistance in enforcement of this permit provision (within two years from the effective MS4 Permit date and annually thereafter).

Garrison Policy Letter #35 on also includes enforcement procedures and actions, including enforcement escalation procedures for recalcitrant or repeat offenders. To ensure compliance, the USAG Alaska Garrison Commander will implement enforcement procedures against individuals; units;

tenants; and contractors whose actions violate the MS4 permit. Enforcement procedures will vary depending upon the individual(s) associated with the violation, the contract (if any) with the government, the nature of the IDDE, and past enforcement issues.

The WPM works with the PWE Compliance Branch Chief, with the concurrence of the PWE Division Chief, to determine when local enforcement measures are ineffective and additional assistance from ADEC is required. Spills will be reported to the appropriate agencies by PWE personnel as required.

9. A description of the methods used over the previous 12-month period to inform the public and/or train employees and tenants about illicit discharges and the improper disposal of waste (within two years from the effective MS4 Permit date and annually thereafter).

Storm Water pollution prevention training and communication as part of the MSGP and MS4 MCMs 1 and 2 programs continued to include discussion of illicit discharges and improper disposal of waste in 2019 as in 2018.

2.3.3 Measurable Goals for MCM 3 During the Next 12 Months

The measureable goals under MCM 3 that must be implemented during calendar year 2019 are listed below, with anticipated milestone dates, and the responsible party/parties for respective actions.

1. **FWA must continue to implement the IDDE Program.**

The IDDE Program includes training, screening, identification of illicit discharges, tracking and resolution of illicit discharges, and enforcement of Garrison Policy #35. Outfall inspections are addressed below in item 2. Follow-up actions may include passing the information along to the responsible party, but PWE has the responsibility to follow the enforcement procedures listed in the IDDE Program Manual and Garrison Policy #35 to ensure the discharge no longer imposes a threat to water quality.

The PWE WPM and Environmental Contractor will ensure that IDDE tracking forms are updated. PWE and contractor staff will investigate any illicit discharge within 15 days of its detection, and take action to eliminate the source of the discharge within 45 days of its detection.

2. **FWA must conduct the following inspections: wet weather outfall inspections to identify and investigate any illicit, inappropriate or undocumented non-storm water discharges to the storm sewer system; dry weather outfall inspections to identify and investigate any illicit, inappropriate or undocumented non-storm water discharges to the storm sewer system.**

FWA will continue to conduct dry weather field screening for non-storm water flows from all outfalls (to include all outfalls by the end of the current MS4 Permit term). FWA will include field tests of selected chemical parameters as indicators of discharge sources. Outfall screening shall be performed during dry weather using the Outfall Reconnaissance Inspection Form provided in the IDDE Program

Manual. When the screening of an outfall indicates a potential illicit discharge, the DPW Water Program Manager shall be notified within one business day so an investigation can be performed.

Ø The WPM and/or Environmental contractor will perform wet and dry weather outfall inspections and, where dry weather discharges are discovered, outfall screenings using field test methods, with a target date of September 27, 2020 and a deadline of December 31, 2020.

3. **FWA must inform users of the storm water conveyance system and the general public of hazards associated with illegal discharges and improper disposal of waste, and provide educational outreach materials.**

Information is distributed through MCM 1 Public Education and Outreach.

Ø As described in Section 2.1.3 above, the PWE WPM will ensure that a news article, Facebook post, and/or brochure/flyer specific to the storm water conveyance system, hazards associated with illegal discharges and improper disposal of waste is generated and disseminated to users of the conveyance system and the general public. The target date for this outreach material distribution is July 26, 2020 with a deadline of December 31, 2020.

4. **Document the required information during the 2020 calendar year related to illicit discharge detection and elimination, and include relevant information in the next Annual Report (2020 Annual Report) to ADEC.**

FWA will continue to document the required information during the 2020 calendar year related to illicit discharge detection and elimination, and include relevant information in the next Annual Report (2020 Annual Report) to ADEC.

Ø PWE WPM, PWE Spills Program Manager, other PWE staff responding to spills and illicit discharges, including contractors, will document illicit discharges in the IDDE tracking system. The WPM will ensure that this information is included in the 2020 Annual Report to ADEC by February 15, 2021.

2.3.4 Responsible Parties for MCM 3

The USAG FWA Garrison Commander has ultimate responsibility for all regulatory compliance at FWA; the USAG FWA chain of command below the USAG FWA Garrison Commander has compliance responsibilities as dictated by position, and the PWE WPM has direct responsibility for day-to-day compliance with the MS4 Permit and SWMP, including coordinating and implementing the Illicit Discharge Detection and Elimination program at FWA. The PWE Spills Program Manager and PWE Compliance Branch Chief are responsible for ensuring that spills are properly addressed and provide support to the WPM. The PWE Hazardous Waste Program Manager provides support when

hazardous materials and waste are involved with an illicit discharge. The PWE Division Chief is responsible for overseeing the Environmental program and providing support as necessary.

The PWE Chief has responsibility for overseeing the WPM, assisted by the PWE Compliance Branch Chief, and has been delegated authority by the Garrison Commander to sign and submit documents related to the MS4 Permit and MSGP. The Delegation of Authority letter is provided in Appendix G.

2.4 MCM 4 – Construction Site Storm Water Runoff Control

2.4.1 Annual Report Requirements for MCM 4

Section 3.4.10 of the MS4 Permit requires the following information be included in the Annual Report regarding MCM 4:

a) A copy of the established ordinance or other regulatory mechanism used to require erosion, sediment and waste controls at construction sites. If FWA has yet to develop the required regulatory mechanism, a description of the plan and implementation schedule must be provided.

b) A summary of the number of sanctions and enforcement actions taken by FWA to ensure compliance with the construction site ordinance during the previous 12-month period. To the extent allowable under FWA's legal authority, sanctions may include both monetary and non-monetary penalties.

c) A copy of the written requirements for appropriate erosion, sediment, and waste control BMPs at construction sites.

d) A summary of the number of site plan reviews conducted.

e) A description of the procedures for receipt and consideration of information submitted by the public.

f) A summary of the number of sites inspected during the previous 12-month period, including a description of the site inspection procedures, how sites are prioritized for inspection, and when and how often sites are inspected.

g) A list of measureable goals for the construction site runoff control program, including dates by which FWA will achieve each of the measureable goals.

h) The name and title of the person(s) responsible for coordination and implementation of the construction site runoff control program.

2.4.2 MCM 4 Compliance Discussion

The Construction Site Storm Water Runoff Control program at FWA is detailed in SWMP Section 3.4. The following measureable goals were required to be implemented for MCM 4 during the 2018:

1. The permittee must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the MS4 from construction activities disturbing one or more acres, in compliance with the requirements of this permit and the current version of the APDES General Permit for Storm Water Discharges from Large and Small Construction Activities in Alaska, AKR100000 (Alaska Construction General Permit or CGP). The permittee's program must also address storm water discharges from construction activity disturbing less than one acre, if that construction activity is part of a larger common plan of development or sale that would disturb

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one or more acres. The permittee must discuss any revisions, planned improvements, and interim implementation schedules related to this program within the Annual Report.

Following the 2019 construction season, construction site inspections were discussed with the PWE Engineering Liaison. Going forward, the PWE WPM will track construction sites with the PWE Engineering Liaison, as both programs are visiting and inspecting construction sites for multiple reasons.

2. The permittee shall inspect all construction sites in their jurisdiction for appropriate erosion/sediment/waste control at least once per year.

Four construction sites greater than 1 acre in size and located within the MS4 were inspected in 2019. Additionally, one project less than 1 acre in size and located within the MS4, which had prepared an Erosion and Sediment Control Plan (ESCP), was inspected in 2019.

3. A copy of the established ordinance or other regulatory mechanism used to require erosion, sediment and waste controls at construction sites.

The Garrison Policy Letter #35, requires individuals or entities to comply with the SWMP, including enforcement procedures and actions, and escalation procedures for recalcitrant or repeat offenders.

4. A summary of the number of sanctions and enforcement actions taken by the permittee to ensure compliance with the construction site ordinance during the previous 12-month period. To the extent allowable under the legal authority of the permittee, sanctions may include both monetary and non-monetary penalties;

No official sanctions or enforcement actions were taken during the 2019 construction season. Minor issues, such as replacing control measures around catch basins, were addressed without the need to exercise any penalties.

5. A copy of the written requirements for appropriate erosion, sediment and waste control BMPs at construction sites;

Examples of appropriate erosion and sediment control BMPs are included in the Sample ESCP. In addition to erosion and sediment control measures, ESCPs also include measures to properly manage other construction-related pollutants, as outlined in this requirement. Included with this annual report in Appendix C is the USAG Alaska Small Construction Sites Best Management Practices for Storm Water Pollution Prevention brochure.

Requirements are also communicated through the "work order review" process that allows DPW Environmental Division to review proposed construction projects on the installation and comment on applicable requirements.

As part of the “Environmental Concerns for Construction, Demolition, and Renovation Projects” package, included in all DPW and USACE construction contracts on post, there are specific requirements for construction and post-construction storm water concerns, hazardous materials, hazardous waste, solid waste and other environmental programs. At the time this report was

prepared, the Environmental Concerns package was being updated to include specific language that contractors "implement appropriate erosion and sediment control BMPs and to control waste, such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site that may cause adverse impacts to water quality".

The DPW attachment CC, also a standard inclusion in construction projects on post, also requires compliance with the PWE programs.

The Bureau of Land Management (BLM) Alaska Fire Service (AFS) provides wildland fire management for Department of the Interior and Native Corporation Lands in Alaska and provides oversight of the BLM Alaska Aviation program. The AFS activities in the northeastern section of Ladd Army Airfield do not always undergo the DPW work order review process, so PWE did not initially review the SWPPP. However, BLM staff was informed of the review and inspection obligations under the MS4 Permit and will coordinate with the PWE office before construction to make sure the appropriate measures are taken in the future.

6. A summary of the number of site plan reviews conducted;

Four new Storm Water Pollution Prevention Plans (SWPPP) related to construction sites greater than 1 acre in size and located within the MS4 were reviewed in 2019.

Three ESCPs for projects less than 1 acre in size and located within the MS4, were reviewed in 2019.

7. A description of the procedures for receipt and consideration of information submitted by the public.

For projects with a federal nexus, which includes essentially all projects occurring within USAG Alaska, a review under the National Environmental Procedures Act (NEPA) process is required. Oversight of NEPA processes is performed by the PWE office. Projects that are flagged for environmental assessments or environmental impact statements must have a public comment period advertised to the general public.

For public input during construction, the public may direct questions or concerns through the following avenues as applicable:

- Through the North Haven Communities staff
- By ICE comment to DPW or PAO
- By attending or calling into the Storm Water Steering Committee meetings
- By calling the contact information on the SWPPP posting at the site
- By contacting the DPW Customer Service number at (907) 361-7069
- Via phone or e-mail directly to PWE

Comments will be reviewed by the PWE WPM and shared with project management staff. Comments to North Haven Communities projects will first go through NHC's internal management procedures and if necessary, will be brought to DPW's attention during the regular water quality meetings or via e-mail.

8. A summary of the number of sites inspected during the previous 12-month period, including a description of the site inspection procedures, how sites will be prioritized for inspection, and when and how often a site will be inspected.

Four construction sites greater than 1 acre in size and located within the MS4 were inspected in 2019. Additionally, one project less than 1 acre in size and located within the MS4, which had prepared an Erosion and Sediment Control Plan (ESCP), was inspected in 2019.

Site inspections include a review of the SWPPP or ESCP, a walkthrough of the project site and discharge points, and the completion of an MS4 Construction Site Inspection Form. Sites with a CGP coverage and SWPPP are the top priority. The PWE WPM discusses project concerns with the PWE Engineer Liaison to determine other priorities for inspection.

Construction sites are inspected at least once per year. The WPM or inspector determines whether a follow-up inspection is needed after the routine inspection. The Water Program may also conduct inspections at the request of project management or contractor staff.

2.4.3 Measurable Goals for MCM 4 During the Next 12 Months

The measureable goals under MCM 4 that must be implemented during calendar year 2020 are provided below, with anticipated milestone dates, and the responsible party/parties for respective actions.

1. **Develop and conduct another training session for the FWA construction, design, and engineering audience related to the construction ordinance and BMP requirements.**

The 2018 Annual Report identified a goal for PWE staff and environmental contractor to update the MS4 Construction training and conduct another training session for the FWA construction/design/engineering audience related to the construction ordinance and BMP requirements referenced in Parts 3.4.3 and 3.4.4 of the MS4 Permit. However, this goal was not completed in 2019 and will remain as an open goal for 2020. The audience invited will include DPW Engineering Division, Master Planning Division, Business Operations Division, and Utilities and Privatization staff, USACE staff, Lend Lease (development for NHC) personnel, Doyon Utilities personnel, and 1-25 Stryker Brigade Combat Team personnel. This training will occur sometime during the 2020 calendar year when the appropriate audience is available. The permit requirements have already been met for this MCM, but PWE believes an additional training would be helpful for changing contractors and staff.

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Ø The PWE WPM will ensure that the MS4 Construction training for the construction, design, and engineering audience described above by a target date of December 31, 2020.

2. **During 2020, FWA will track and include all required items listed in Part 3.4.10 of the MS4 Permit, as applicable, for inclusion in FWA's next MS4 Annual Report.**

The 2020 Annual report will include the following components for MCM 5: A summary of the number of sanctions and enforcement actions taken by the permittee to ensure compliance with the construction site ordinance during the previous 12-month period; An updated copy of the written requirements for appropriate erosion, sediment and waste control BMPs at construction sites; A summary of the number of site plan reviews conducted; A description of the procedures for receipt and consideration of information submitted by the public; A summary of the number of sites inspected during the previous 12-month period, including a description of the site inspection procedures, how sites will be prioritized for inspection, and when and how often a site will be inspected; A list of measurable goals for the construction site runoff control program, including dates by which the permittee will achieve each of the measurable goals; and the name and title of the person(s) responsible for coordination and implementation of the construction site runoff control program

Ø The PWE WPM will ensure that all above components are tracked included in the 2020 Annual Report by 15 February 2021.

3. **Implement and enforce a construction site runoff control program to reduce pollutants in any storm water runoff to the MS4, and include revisions, planned improvements, and interim implementation schedules in the Annual Report.**

The current program is documented in the SWMP in Section 3.4.3.1. FWA intends to adopt, where applicable, the construction program detailed in the *Army Low Impact Development Technical User Guide*. Within the fourth MS4 Permit year, the document will be finalized to include language that is specific to FWA construction activity. When completed, the final letter will be inserted as an attachment of the FWA SWMP and will be provided in the 2020 Annual Report.

Ø The PWE WPM and environmental contractor will update the Construction Site Runoff Control Program by a target date of November 22, 2020 and a deadline of December 31, 2020.

4. **The permittee shall inspect all construction sites in their jurisdiction for appropriate erosion/sediment/waste control at least once per year.**

Inspection of construction sites is a recurring annual requirement.

Ø The PWE WPM will ensure that trained PWE personnel and/or environmental contractors inspect each construction site once per year. Target date is within the window of active construction.

2.4.4 Responsible Parties for MCM 4

The USAG Alaska Garrison Commander has ultimate responsibility for all regulatory compliance at Fort Wainwright; the USAG Alaska chain of command below the USAG Alaska Garrison Commander has compliance responsibilities as dictated by position, and the WPM has direct responsibility for day-to-day compliance with the MS4 Permit and SWMP, including reviewing work orders, coordinating with construction contractors, performing inspections, and performing follow-on inspection and enforcement. The PWE Chief has responsibility for overseeing the WPM, assisted by the PWE Compliance Branch Chief, and has been delegated authority by the Garrison Commander to sign and submit documents related to the MS4 Permit and MSGP. The Delegation of Authority letter is provided in Appendix G.

The DPW Master Planning Division oversees the Garrison's real property Master Plan. The DPW Business Operations Division, Engineering Division, and RCI & Housing Division all have responsibilities related to the design, construction, and maintenance of structures on the installation, depending on the size, scope and application of the project. The USACE is also involved in design, construction, and maintenance of structures on the installation. The U.S. Army Alaska (USARAK) Command, which includes the 1-25 SBCT, works with DPW and the USACE to plan construction projects to meet the needs of the mission.

North Haven Communities, the Army's housing partner, works with PWE to review storm water plans and address environmental concerns related to their projects and operations. NHC and Doyon Utilities are regularly in attendance at Storm Water Steering Committee Meetings and Water Quality meetings.

BLM staff is in regular contact with PWE staff during MSGP inspections and training. Continued communication regarding planned construction activities and environmental concerns will assist in ensuring MS4 requirements are met.

2.5 MCM 5 – Post Construction Storm Water Management in New Development and Redevelopment

2.5.1 Annual Report Requirements for MCM 5

Section 3.5.7 of the MS4 Permit requires the following information be included in the Annual Report regarding MCM 5:

a) A copy of the BMP design manual containing structural and non-structural BMPs that will be used to manage post-construction runoff from new development and redevelopment projects within the MS4. Include any specific priority areas for this program.

b) An explanation of the design and performance features of the chosen BMPs intended to minimize water quality impacts.

c) A copy of the established ordinance or other regulatory mechanism used to address post-construction runoff control. If FWA has yet to develop the required regulatory mechanism, a plan and schedule for implementation must be included.

d) A description of how long-term operation and maintenance of the selected BMPs will be ensured, including the organizations responsible and their expected operation and maintenance schedule.

e) A description of the plans to inform and educate developers and the public about appropriate project designs that minimize water quality impacts.

f) A list of measureable goals for the post-construction runoff control program, including dates by which FWA will achieve each of the measureable goals.

g) The name and/or title of the person(s) responsible for coordination and implementation of the post-construction storm water management program. (See Section 2.5.8, below.)

2.5.2 MCM 5 Compliance Discussion

The USAG Alaska Post-Construction Storm Water Management program is detailed in SWMP Section 3.5. All MCM 5 requirements in the FWA MS4 Permit are due for completion in Year 3 or Year 4 of the permit cycle. However, FWA has already addressed some of the items listed above, which are required to be included in the Annual Report as completed; those items are described below.

1. Within three years of the effective date of this permit, the permittee must develop, implement and enforce a program to address post-construction storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre that discharge into the MS4, including projects less than one acre that are part of a larger plan of development or sale that exceed one acre of disturbance.

The program is operated in cooperation with the NEPA program at Fort Wainwright. Early consultation during project planning allows the Water Program to ensure planning complies with Energy

Independence and Security Act Section 438 and Army Green Infrastructure and Low Impact Development (GI/LID) requirements. Most military construction projects on Fort Wainwright greater than one acre are additionally required to follow United Facilities Criteria (UFC) 3-210-10 Low Impact Development.

The privatized housing partner is not contractually required to adhere to all of the above references. The WPM has been discussing GI/LID with LendLease and North Haven Communities to encourage use of these measures and a holistic view of storm water drainage in the housing areas.

2. Within three years from the effective date of this permit, the permittee must adopt a regulatory mechanism, such as a Garrison Policy letter, to the extent allowable under federal, state, or local law to address post-construction runoff from new development and redevelopment projects. If such a mechanism did not previously exist, development and adoption of a mechanism must be part of the program. The permittee must evaluate existing procedures, policies, and authorities pertaining to activities occurring on their property that may be used to assist in the development of the required regulatory mechanism.

Garrison Policy Letter #35 mandates compliance with the six MCMs identified in the MS4 Permit, including post-construction runoff control. The policy states that all applicable user groups must comply with provisions outlined in the installation's SWMP. Section 3.5 of the FWA SWMP details compliance with MCM 5. The policy letter is discussed in more detail in Sections 2.3.2 and 2.4.2 of this Annual Report.

3. A copy of the BMP design manual containing structural and non-structural BMPs that will be used to manage post-construction runoff from new development and redevelopment projects within the MS4. List any specific priority areas for this program;

The BMP Design Manual is required to be adopted and developed in the fourth year of the permit. Because the Army, its partners, and tenants all have unique requirements agreements regarding construction, there are several design manuals and mechanisms currently used to manage post-construction runoff at Fort Wainwright:

Army Requirements: PWE references two primary documents for post-construction runoff control BMPs: Department of the Army memorandum, *2017 Implementing Guidance, Army Storm Water Management Using Low Impact Development*, and *Army Low Impact Development Technical User Guide, January 2013*. These documents are included in Appendix F of this report, respectively. The *Army Low Impact Development Technical User Guide*, contains structural and non-structural BMPs that the Army uses to manage post-construction runoff from new development and redevelopment projects in addition to the construction applications listed in section 2.4.3 above. These documents are also available online, along with the design tools referenced, articles and case studies, and training resources, at the following web address: https://mrsi.erdc.dren.mil/sustain/cx/lid/

Department of Defense Requirements: The UFC 3-210-10 Low Impact Development, with Change 2 is applicable to DoD projects in the United States. This criteria do not necessarily apply to privatized projects such as housing and utilities on Fort Wainwright. This UFC provides technical criteria,

technical requirements, and references for the planning and design of applicable DoD projects to comply with storm water requirements under Section 438 of the Energy Independence and Security Act (EISA) enacted in December 2007 (hereafter referred to as EISA Section 438) and the Deputy Under Secretary of Defense DoD policy on implementation of storm water requirements under EISA section 438.

Federal Requirements: EISA Section 438

4. An explanation of the design and performance features of the chosen BMPs that are intended to minimize water quality impacts;

Explanation of design and performance features of BMPs is a task that falls under Permit section 3.5.3, and is required within four years from the effective date of the permit. However, the *Army Low Impact Development Technical User Guide*, included in this report as Appendix F, contains detailed descriptions of the definition, purpose, and use on Army Installations of each BMP. Each BMP has also been evaluated for application, storm water quantity and quality functions, and additional considerations, including winter performance. Additionally, common structural BMPs are further evaluated for design and construction considerations including underlying hydrology, materials, equipment, maintenance, and inspection requirements.

5. A description of how long-term operation and maintenance of the selected BMPs will be ensured, including the organizations responsible and their expected operation and maintenance schedule;

The long term operation and maintenance of selected BMPs is a task that falls under Permit section 3.5.4, and is required within four years from the effective date of the permit. However, the *Army Low Impact Development Technical User Guide* includes long-term operation and maintenance considerations for common structural BMPs.

Within USAG Alaska, buildings and grounds are maintained by the DPW and associated contractors. Maintenance is required under various methods, including contracting and Army guidance. When the inspection schedule and long term operation and maintenance plan for post-construction BMPs is complete by the end of Permit year 4, these requirements will be included in detail.

6. A description of the plans to inform and educate developers and the public about appropriate project designs that minimize water quality impacts;

The training session for FWA developers, engineers, tenants, and the public regarding requirements of the regulatory mechanism and the BMP design manual is a task that falls under Permit section 3.5.4, and is required within four years from the effective date of the permit.

Currently, plants to inform and educate developers and the public are to perform a training session within the first four MS4 Permit years. The training will include education on the scope of the Garrison Policy letter and the implementation of the Army Low Impact Development Technical User Guide, relevant to post-construction BMPs.

7. Develop a strategy for evaluating Green Infrastructure/LID projects.

Within four years from the effective MS4 Permit date, FWA must develop a written strategy for planning, constructing, and evaluating GI/LID projects within FWA. The strategy is to be included in the fourth year Annual Report. The strategy will evaluate the effectiveness of individual LID techniques: green roofs, rain gardens, rain barrels, bio-swales, permeable piping, drywells, and permeable pavement that mimic natural processes and direct storm water to areas where it can be infiltrated, evapotranspirated, or reused. The strategy must discuss the benefits and costs of such techniques and provide guidance to the base on how to implement them.

FWA will provide ADEC with a written strategy for planning, constructing, and evaluating GI/LID projects within the FWA MS4 in the fourth Annual Report.

2.5.3 Measurable Goals for MCM 5 During the Next 12 Months

The measureable goals under MCM 5 that must be implemented during calendar year 2019 and the actions USAG Alaska will implement are listed below, with anticipated milestone dates, and the responsible party/parties for the respective actions.

1. Adopt or develop and then distribute a BMP design manual for post-construction storm water management, which includes a list of strategies reflecting a combination of structural and/or non-structural BMPs appropriate to the MS4. This design manual must include, but is not limited to, requirements for the appropriate design of construction of snow disposal sites, Low Impact Development (LID) methods, and parking lots.

Ø The PWE WPM and PWE staff will develop and distribute the BMP Design Manual for post-construction storm water management with a target date of November 20, 2020. A description of these efforts will be included in the next Annual Report.

2. Develop and implement an inspection schedule and a long-term operation and maintenance plan for postconstruction BMPs.

Ø The PWE WPM and DPW Base Operations will develop and implement the inspection schedule and operations and maintenance plan with a target date of October 20, 2020. A description of these efforts will be included in the next Annual Report.

3. Develop and conduct at least one training session for FWA developers, engineers, tenants, and the public regarding requirements of the regulatory mechanism and the plans referenced in Parts 3.5.2 and 3.5.3 of the MS4 Permit.

Ø The PWE WPM and environmental contractor will develop and conduct a training on post-construction storm water management with a target date of December 11, 2020.

4. Develop a written strategy for planning, constructing, and evaluating Green Infrastructure/LID projects within the MS4. The strategy is to be included in the fourth Annual Report. The strategy will evaluate the effectiveness of individual LID techniques: green roofs, rain gardens, rain barrels, bioswales, permeable piping, dry wells, and permeable pavement that mimic natural processes and direct storm water to areas where it can be infiltrated, evapotranspirated, or reused. The strategy must discuss the benefits and costs of such techniques and provide guidance to the FWA on how to implement them.

Ø The PWE WPM will work with DPW Engineering to develop and write the GI/LID strategy with a target date of December, 31 2020.

2.5.4 Responsible Parties for MCM 5

The USAG Alaska Garrison Commander has ultimate responsibility for all regulatory compliance at Fort Wainwright; the USAG Alaska chain of command below the USAG Alaska Garrison Commander has compliance responsibilities as dictated by position, and the WPM has direct responsibility for day-to-day compliance with the MS4 Permit and SWMP, including coordinating the post-construction site runoff control program at FWA. The PWE Chief has responsibility for overseeing the WPM, assisted by the PWE Compliance Branch Chief, and has been delegated authority by the Garrison Commander to sign and submit documents related to the MS4 Permit and MSGP. The Delegation of Authority letter is provided in Appendix G.

The DPW Master Planning Division oversees the Garrison's Master Plan. The DPW Business Operations Division, Engineering Division, and RCI & Housing Division all have responsibilities related to the design, construction, and maintenance of structures and/or BMPs, including oversight of the partnership with LendLease/North Haven Communities and agreements with privatized utility contractors. The USACE is also involved in design, construction, and maintenance of structures on the installation.

2.6 MCM 6 – Pollution Prevention and Good Housekeeping

2.6.1 Annual Report Requirements for MCM 6

Section 3.6.6 of the MS4 Permit requires the following information be included in the Annual Report regarding MCM 6:

a) A description of the activities, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to the MS4.

b) A description of the employee-training program used to prevent and reduce storm water pollution, including the targeted department personnel, frequency of such training, and a copy of training materials.

c) A summary description of the controls for reducing or eliminating the discharge of pollutants from areas owned or operated by FWA, including but not limited to streets, roads, and highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations, and snow disposal sites operated by FWA.

d) A description of procedures to ensure proper disposal of waste removed from the MS4 and MS4 operations including dredge spoil, accumulated sediments, floatables, and other debris.

e) A description of procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices.

f) A list of all industrial facilities owned or operated by FWA that discharge to the MS4, including industrial facilities that are subject to the APDES MSGP or individual APDES permits for discharges of storm water associated with industrial activity, and/or facilities as identified as part of the inventory required by Part 3.3.1 of the MS4 Permit. FWA must include the permit tracking number(s) or a copy of the Notice of Intent(s) (NOI) for each facility, as appropriate.

g) A list of measureable goals for the pollution prevention and good housekeeping program, including dates by which FWA will achieve each of the measureable goals.

h) The name and title of the person(s) responsible for coordination and implementation of the pollution prevention and good housekeeping program.

2.6.2 MCM 6 Compliance Discussion

The Pollution Prevention and Good Housekeeping program at FWA is detailed in SWMP Section 3.6. Four measureable goals were required to be implemented for MCM 6 during the second year of permit coverage:

1. FWA must conduct annual SWPP inspections, including: wet-weather outfall inspections (100% each year), snow disposal areas (100% each year), and catch basins (50% each year).

MCM 6 – Pollution Prevention and Good Housekeeping

Wet weather outfall inspections were performed at all outfall locations during 2019. An outfall not previously documented in the SWMP, from the Birchwood Homes subdivision, was identified for coverage under the SWMP.

Snow disposal areas utilized by the installation roads and grounds contractor and the privatized housing contractor were inspected quarterly in 2019. These inspections included post-season inspections to look for any indication of contamination, such as spills, loose trash, and other debris; where present.

Catch basins were inspected between June and August 2018. Of the 271 catch basins and drop inlets identified in the 2018 inventory, 135 were inspected in 2019. Storm water inlets are categorized by a Condition Rating of green, yellow, or red:

Green: storm water inlet has no visible damage to the grate, vault, or adjacent concrete.

108 storm water inlets were characterized as “green” in 2019.

Yellow: storm water inlet has a minor structural fault that may impact performance. Stormwater inlets with a ‘yellow’ condition rating should be monitored seasonally.

25 storm water inlets were characterized as “yellow” in 2019.

Red: storm water inlet has a major structural fault that is impacting performance. Perform maintenance on these inlets as soon as possible.

2 storm water inlets were characterized as “red” in 2019.

In 2018, six catch basins were identified as “red,” however these were not repaired in 2019 and will continue to be monitored and submitted for repair.

Catch basins in the Birchwood Homes subdivision will be added to the master list in 2020.

Other municipals areas were inspected during the second calendar quarter of 2018. Inspectors visited areas where the potential exists for storm water contamination as follows:

- Bassett hospital: parking areas, fats, oil, and grease (FOG) accumulation area, parking lots, trash management areas
- Post Exchange (PX): parking areas, FOG accumulation area, parking lots, trash management areas
- Residential areas: random selection of housing units and associated yards, playground areas, trash management areas, storm drains and conveyance channels they discharge to
- Post eateries: outdoor trash and FOG management areas at PX, Burger King, FWA dining facilities, and associated parking lots

- River Road Soil Stockpile

Industrial Facilities

As required by the MSGP, all facilities identified in the installation's industrial SWPPP were inspected quarterly, at a minimum. Facilities identified as unoccupied and unused were inspected during Quarters 1 and 2.

2. Develop and implement maintenance standards for storm water facilities

Requirement: Within two years from the effective date of this permit, the permittee must develop and implement an operation and maintenance program intended to prevent or reduce pollutant runoff from FWA operations. This program must address FWA activities occurring with potential for negative storm water related water quality impacts, including: the use of sand and road deicers; fleet maintenance and vehicle washing operations; street sweeping, cleaning and maintenance; grounds/parks, golf course, and open space maintenance operations; building maintenance; solid waste transfer activities; water treatment plant operations; storm water system maintenance; and snow disposal site operation and maintenance. In addition the permittee must address the following: materials storage; hazardous materials storage; used oil recycling, spill control and prevention measures for refueling facilities; FWA new construction and land disturbances; and snow removal practices.

Discussion: The Operations and Maintenance (O&M) Program is documented in Appendix I of this Annual Report. Currently, the O&M Program has limited input from the PWE Water Program because many of the tasks are covered under contracts not easily modified. Best management practices, training, and inspections will be required for most of the buildings in the O&M Program Document, but at a frequency and extent more appropriate for actual facility uses.

Change of Permit Coverage: Military operations do not always lend themselves to direct comparisons to non-military business and public sector operations. For this reason, there has been a historical ambiguity on which SIC or NAICS code each facility on a military installation applies to and whether they meet the definition of an industrial sector under the MSGP. The Army Environmental Command (AEC) guidance for Army installations provides a stronger reasoning and context for identifying whether or not a facility conducts activities that meet the regulatory definition of "industrial." After considering the AEC *Industrial Stormwater: A guide to Industrial Stormwater Permitting, March 2016, Final*, PWE at FWA concluded that multiple facilities at the installation that were being managed under the MSGP and industrial SWPPP are not defined by SIC Codes identified as requiring coverage under the MSGP.

As a result of this assessment, the following facilities within the FWA MS4 footprint have been removed from the installation's industrial SWPPP, and will instead be managed under Fort Wainwright's MS4 Permit and Operations and Maintenance Program: Buildings 1053, 1185, 2095, 2096, 3018, 3026, 3467, 3470, 3484, 3562, 3730, 4050, and 4058. This became effective on April 1, 2019.

The only other industrial facility at FWA that is not covered under FWA's MSGP is the Central Heat and Power Plant (CHPP). The CHPP is operated by the FWA privatized utility contractor (Doyon Limited), and is managed by a separately permitted MSGP (Permit Tracking #AKR06AE33).

3. Conduct training for employees or contractors whose job functions may impact storm water quality.

Requirement: Within two years from the effective date of this permit, and annually thereafter; the permittee must develop and conduct appropriate training for appropriate FWA personnel related to optimum maintenance practices for the protection of water quality.

One or more individual from each building previously covered under the 2015 SWPPP for the FWA MSGP received storm water pollution prevention training in 2019. This updated training includes MS4 storm water concerns such as illicit discharges. Trainings were conducted between June and December 2019.

DPW Environmental staff maintains all SWPP inspection results and training documentation.

4. Ensure that new flood management projects are assessed for impacts on water quality.

Requirement: Within two years from the effective date of this permit, the permittee must ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices;

All flood management projects are assessed for impacts on water quality through the work order review process discussed in more detail in section 2.4.2. In general, the PWE WPM and PWE Natural Resources Program Manager either originate or are included in the development of a flood management project.

2.6.3 Responsible Parties for MCM 6

The USAG FWA Garrison Commander has ultimate responsibility for all regulatory compliance at Fort Wainwright; the USAG FWA chain of command below the USAG FWA Garrison Commander has compliance responsibilities as dictated by position, and the USAG FWA Water Program Manager has direct responsibility for day-to-day compliance with the MS4 Permit and SWMP, including coordinating and implementing the Pollution Prevention and Good Housekeeping program at FWA.

2.6.4 Measurable Goals for MCM 6 During the Next 12 Months

The measureable goals under MCM 6 that must be implemented during calendar year 2020 are provided below, with anticipated milestone dates, and the responsible party/parties for respective actions.

1. FWA must continue to perform SWPP inspections.

MCM 6 – Pollution Prevention and Good Housekeeping

Six catch basins were identified as having a major structural fault that is impacting performance and work orders will be submitted in 2019 to address these issues. Catch basins that were identified as having a minor structural fault that may impact performance will be inspected again in 2020.

- Ø The PWE WPM and environmental contractor staff will perform wet-weather outfall inspections (100% each year), snow disposal areas (100% each year), and catch basins (50% each year) by a target date of September 30 and a deadline of December 31, 2020.
- Ø The PWE WPM or environmental contactor will coordinate with DPW to submit work orders for catch basin repairs mentioned above by a target date of December 31, 2020.

2. FWA must continue to update and conduct training for appropriate FWA personnel related to optimum maintenance practices for the protection of water quality.

Training for facility-level storm water coordinators under the MSGP will continue to be performed annually. As part of the construction training discussed in sections 2.4 and 2.5 for MCMs 4 and 5, optimum maintenance and good housekeeping practices for the protection of water quality will be covered.

NHC personnel were unable to do training during their group “huddle”, however, PWE will continue to be in contact with NHC environmental staff to identify other training opportunities. PWE visited the major food service facility and worked with staff, DPW facilities maintenance contractor, and DPW staff to identify and fix issues. A training specific to food service employees, especially for locations where grease is collected, is still planned to be developed and provided to key personnel.

- Ø PWE WPM, other PWE staff, and/or environmental contractor will conduct the trainings.
- Ø PWE WPM will ensure that all training is complete by a target date of November 15 and a deadline of December 31, 2020.

2.6.5 Responsible Parties for MCM 6

The USAG Alaska Garrison Commander has ultimate responsibility for all regulatory compliance at Fort Wainwright; the USAG Alaska chain of command below the USAG Alaska Garrison Commander has compliance responsibilities as dictated by position, and the WPM has direct responsibility for day-to-day compliance with the MS4 Permit and SWMP, including coordinating and implementing the Public Involvement and Participation program at FWA. The PWE Chief has responsibility for overseeing the WPM, assisted by the PWE Compliance Branch Chief, and has been delegated authority by the Garrison Commander to sign and submit documents related to the MS4 Permit and MSGP. The Delegation of Authority letter is provided in Appendix G.

3.0 ADDITIONAL ANNUAL REPORTING REQUIREMENTS

The MS4 Permit requires FWA to discuss measures that will be implemented over the next 12-month period to achieve compliance with permit provisions. Most of these requirements and associated measures are specific to MCMs and are discussed in Section 2.0 of this report. This section discusses additional requirements that are not specific to the six MCMs, and therefore, were not previously discussed in this report.

3.1 Monitoring Program Plan

Part 4.1.1 of the MS4 Permit states the following:

The permittee must develop, implement, and revise as necessary, a comprehensive Monitoring Program Plan. A description of this plan must be included in the SWMP document… Part 4.1.1.1 continues… *The Monitoring Program Plan must be designed to assess compliance with this permit; measure the effectiveness of the permittee's SWMP; measure the chemical, physical, and biological impacts to the receiving waters resulting from storm water discharges; characterize storm water discharges; identify sources of specific pollutants; and detect and eliminate illicit discharges and illegal connections to the MS4.*

The monitoring requirements in FWA's MS4 Permit have multiple milestones associated with them; the following measures must be implemented during the 2019 calendar year:

1. Within three years from the effective date of this permit, the permittee must begin monitoring the storm water outfalls identified in the Monitoring Plan during wet weather events at least four times per year.

Monitoring of storm water outfalls in accordance with the FWA MPP and QAPP began on April 2, 2019. Due to the variable conditions at and upstream of each outfall, samples cannot always be collected during monitoring events. Access to the actual outfall may also be blocked by the Chena River, as is the case with Outfall FWA-A and Outfall-009.

2. Discharge Monitoring Report. Monitoring results must be recorded on a Discharge Monitoring Report (DMR) form (EPA No. 3320-1) or equivalent, and submitted annually for the previous 12-month period along with the Annual Report required in Part 4.3 of the Permit.

The DMR Forms are included with this 2019 Annual Report as Appendix J. The DPW Environmental Division is responsible for developing and implementing the MS4 monitoring program and associated submittals.

3.2 Evaluation of Overall Program Effectiveness

This is the second reporting cycle under the FWA MS4 Permit, accounting for the 12-month period from January through December 2019. Part 4.2 of the MS4 Permit states the following:

At least annually the permittee must evaluate its compliance with the permit conditions, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals for each of the minimum control measures in Part 3.0. This evaluation of program compliance must be documented in the Annual Report.

3.2.1 Discussion of Sampling Activities

The quantity and nature of runoff was observed during 2019 outfall sampling. It was apparent that some outfalls are only active during certain snowmelt or precipitation events, or accessible above the water level of the Chena River at certain stages.

The amount of runoff at each outfall was highly variable during each sampling event. During the first sampling event, from April 2-10, 2019, only three outfalls were able to be sampled for snowmelt. Outfalls FWA-A, FWA-001, FWA-004, and FWA-009 all had enough flow and were safe to access. Outfalls FWA-C, FWA-007, FWA-010, and Background were either frozen or inaccessible due to river ice or had no discharge.

The second sampling event was performed August 1, 2019. Samples were collected from Outfall FWA-009 and the background point. There was not flow at the other outfalls in the MPP. Precipitation measurements from the Fairbanks International Airport show there was approximately 0.41 inches of precipitation in this time period, preceded by 0.45 inches of precipitation in the previous 4 days.

The third sampling event was performed August 13-14, 2019. Once again, samples were collected from Outfall FWA-009 and the background point and either there was not flow at the other outfalls in the MPP, or they were blocked by the high stage of the river. Precipitation measurements from the Fairbanks International Airport show there was approximately 1.12 inches of precipitation in this time period.

The fourth sampling event was attempted September 18-19, 2019 during a storm event, but there was no measurable flow at any outfall. Precipitation measurements from the Fairbanks International Airport show there was approximately 0.33 inches of precipitation in this time period.

Collected samples were field measured for temperature, dissolved oxygen, and turbidity as well as analyzed by laboratory measurements for chemical oxygen demand (COD), 5-day biochemical oxygen demand (BOD5), total suspended solids (TSS), total aromatic hydrocarbons (TAH), and total aqueous hydrocarbons (TAqH). Samples collected from FWA-A were also analyzed for E. coli and total coliform.

Values for comparison, where applicable, were taken from Water Quality Standards listed in 18 AAC 70 for Fresh water uses: Water recreation: contact recreation. For turbidity[4] and temperature[5], values were compared to suggestions for salmon in fresh water. Values for COD, BOD5, and TSS were compared to typical values for the Chena River provided in the Alaska Army Lands Withdrawal Renewal EIS (1999).

3.2.2 Discussion of Sampling Results

Appendix J presents the discharge monitoring reports and a results summary for outfall sampling at Fort Wainwright. A general discussion of observations and results is presented in this section.

The sample results may not pinpoint the exact sources of each chemical, but can be used to infer potential sources and issues that may lead to pollution.

Spring snowmelt samples

Measurement of field parameters from 2019 snowmelts samples showed that in general, pH at sampled outfalls was slightly acidic, and lower than results from the 2018 snowmelt samples. Results were either at the low end of the normal range, or slightly below. Turbidity was also lower in 2019 compared to 2018, and temperature was slightly higher.

Notably, dissolved oxygen was generally higher than in 2018, with the measurement at FWA-004 being oversaturated at 15.89 mg/L.

On average, COD, BOD5, and TSS were lower in spring 2019 than 2018. Discharge at outfall FWA-004 had a COD of 50 mg/L, which is higher than the typical range for the Chena River. This outfall conveys water from the airfield, and the largest portion of the south post where most MSGP facilities are located. The total drainage area contributing to FWA-004 is nearly 1,000 acres, so pinpointing a source is difficult. COD results are generally an order of magnitude greater than BOD results during this sampling event, indicating that the main source is likely not microbial.

Fecal coliform was present at FWA-A, likely due to pet waste from the residential area, but no e. coli was detected. COD and BOD5 results are likely less attributable to pet waste than in previous years, and COD levels may potentially reflect use of lawn care products, fertilizer, or pest deterrents.

Summer rainwater samples

[4] Effects of Chronic Turbidity on Density and Growth of Steelheads and Coho Salmon, John W. Sigler, T.C. Bjornn, and Fred H. Everest, American Fisheries Society (1984)

[5] US Fish and Wildlife Service Instream Flow Information Paper 27 (1991)

During the Quarter 2 and 3 sampling events, only outfalls FWA-009 and the background point were able to be sampled. During the Quarter 4 event, no outfalls were sampled due to lack of flow.

Relative to the background samples, results from Outfall FWA-009 showed that pH, dissolved oxygen were slightly lower, and turbidity, temperature, COD, TSS, and TAqH were slightly higher. In fact, TaqH was detected at FWA-009 for the first time since beginning MS4 sampling, but were well below the ADEC Water Quality Standards. COD results from Quarter 2 at FWA-009 were above the typical Chena River values and greater than the background sample results, but reduced to normal range in Quarter 3. Neither BOD nor TAH were detected at either location.

Because outfalls FWA-A and FWA-C were not sampled, there was no sampling and analysis for fecal coliform and E.coli in summer rainwater.

Primary pollutants

The notable parameters from 2019 sampling are pH, COD, and TAqH.

The slightly acidic pH and elevated COD of water coming from the airfield outfalls is potentially due to management of grass and weeds or operation of aircraft. The drainage basins leading to FWA-004, FWA-007, and FWA-009 include parts of the airfield, which is mostly open grass and asphalt or concrete taxiways and runways. Use of fertilizers, mulched grass (which is left in place), and occasional use of weed control chemicals, may be sources of lower pH and COD. Occasional drips, exhaust from aircraft may be the source of hydrocarbons. It should be noted that the presence of aqueous hydrocarbons is not inherently concerning, but PWE will continue to monitor and evaluate the levels of TAqH for any changes.

Storm water at the southeast end of the airfield has a shorter lag time and higher runoff volume of water leading to Outfall FWA-009, relative to outfalls. This configuration means that rainwater, which is typically slightly acidic, does not have as much time or interaction with natural buffers to become more neutral before exiting the outfall and entering the Chena River. Continued monitoring will be used to evaluate the potential causes of slightly acidic conditions, including episodic acidification from natural or human sources.

Fecal coliform was detected in the Quarter 1 sampling event, so pet waste continues to be an issue to watch and manage. Scat from wild animals or bird droppings could also contribute to COD, BOD5, fecal coliform, and E. coli. Potential pollutants may be due to improper management of pet waste, grounds maintenance, road maintenance, construction, naturally decaying organic material in drainages and culverts, or deicer added to road gravel at near-freezing temperatures. The MAG deicer contains magnesium chloride, calcium chloride, sodium chloride, and potassium chloride, and is generally considered an environmentally-safer alternative to other traditional ice control products.

3.2.3 Control Measures Relative to Identified Pollutants

4.2.1.1 Use the monitoring and assessment data described in Part 4.1 to specifically assess the effectiveness of each significant activity/control measure or type of activity/control measure implemented;

The primary pollutants suspected of impacting quality of surface runoff are sediment, nutrients, and biological organisms. The potential source activities are residential, construction and industrial.

Residential activities include improper management of pet waste and causing erosion by parking and driving off designated areas, and road maintenance. The control measures of educating residents and enforcing existing pet waste policies will be able to be evaluated in the coming years. The spring runoff event is especially telling of how well policies work, since pet waste may accumulate in the snow over the winter if not cleaned up promptly.

The issue of vehicles driving and parking off designated areas and eroding soil continues to be a visible problem on the installation, although it is unclear what the direct impact on water quality is.

Construction activities include a construction project next to the airfield at the BLM Alaska Fire Service compound. The control measure of performing a site inspection on this project, in addition to the contractor's SWPPP requirements, did not indicate any obvious major source of sediment, but several BMPs were put in place as a result to prevent track-out and sediment entering the MS4 at Gaffney Road.

Industrial activities include proper vehicle and aircraft washing and maintenance and cleaning up spills. The control measures already in place are policies, standard operating procedures, and training. These control measures continue to be a challenge to incorporate and training and communication with storm water coordinators will remain a priority.

3.2.4 Implementation of the SWMP

The effectiveness of implementation of each major component of the SWMP (Public Education/Involvement, Illicit Discharges, Construction, Post-Construction, Pollution Prevention and Good Housekeeping) based on monitoring and sampling results is discussed in this section.

MCMs 1 and 2: Based on fecal coliform, E. coli, and turbidity results, public education and involvement efforts have not adequately addressed or informed residents and workers about properly managing pet waste, driving and parking in designated areas, and only washing vehicles in designated locations.

MCM 3: The IDDE program was instituted in 2018 after outfall samples were collected, so sample results from Year 2 were expected to serve as a baseline for IDDE performance. No point sources of pollutants were identified based on 2019 sample results, so the IDDE program will continue to observe and monitor to identify particular sources of pollutants.

MCM 4: Construction procedures outlined in the SWMP have been effective, based on construction site inspections.

MCM 5: Post-construction low impact development policies have been instituted by the Army and updated in 2017. No conclusions have been drawn for the effectiveness of its implementation based on the sample results

MCM 6: Pollution prevention and good housekeeping have a broad and ongoing impact on storm water quality. The O&M program has been effective in addressing certain pollutants and maintenance of storm water features, but does not encompass or enforce all the activities that could affect storm water quality and cause the turbidity observed in outfalls during 2018 monitoring and sampling or the pH and COD observed during 2019 monitoring and sampling. PWE will continue to work with the Base Operations contractor and North Haven Communities to ensure best management practices are being followed, and improved where necessary, going forward.

4.0 CERTIFICATION

Appendix A, Part 1.12.3 of the FWA MS4 Permit states the following:

Any report required by an APDES permit, and a submittal with any other information requested by the Department, must be signed by a person described in Appendix A, Part 1.12.2, or by a duly authorized representative of that person.

I certify under penalty of law that this Annual Report, and all attachments, were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Authorized Representative: _____

Title: _____

Signature: _____

Date Signed: _____

Email: _____

Appendix A

MS4 Summary Annual Report

Appendix B

Storm Water Pollution Prevention Newspaper Article

Appendix C

Storm Water Pollution Prevention Outreach Material

Appendix D

Garrison Policy 35

Appendix E

Storm Water Management Plan

Appendix F

Reference Documents for MCM 5

Appendix G

Delegation of Authority

Appendix H

Flow Direction Maps

Appendix I

O&M Program Document

Appendix J

Discharge Monitoring Report Forms and Results Summary