VOL. II – APPENDICES

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Appendix A – Public Information and Outreach

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Draft EA Distribution

Table A-1: Distribution of the Draft EA

Name	Title/Role	Affiliation	Mailing Address
Elected Officials - Federal			
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Timothy M. Kaine	Senator of Virginia	US Senate	231 Russell Senate Office Building Washington, D.C. 20510
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Joe DeCola	Executive Director	The Fairfax	9140 Belvoir Woods Pkwy Fort Belvoir, VA 22060
Hillary Clawson	President	Mason Neck Citizens Association	P.O. Box 505 Mason Neck, VA 22199
Patricia Soriano	Chapter Delegate, Political Chair, Parks and Public Lands	Mount Vernon Group, Sierra Club	5405 Barrister Place Alexandria, VA 22304
Judy Riggin	Director	Alexandria Friends Meeting at Woodlawn	8990 Woodlawn Road Fort Belvoir, VA 22060
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Hedrick Belin	President	Potomac Conservancy	8403 Colesville Road, Suite 805 Silver Spring, MD 20910
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Sonja Caison	Chairman	Mount Vernon Lee Chamber of Commerce	Chamber of Commerce Building 6821 Richmond Highway Alexandria, VA 22306
Dale Rumberger	President	South County Federation	P.O. Box 442 Mason Neck, VA 22199-0442
Chris Soule[1]	Chairman	Lee District Association of Civic Organizations	P.O. Box 10413 Alexandria, Virginia 22310
Kris Unger	Primary Conservator	Friends of Accotink Creek	127 Poplar Road Fredericksburg, VA 22406-5022
Philip Latasa	Chronicler	Friends of Accotink Creek	127 Poplar Road Fredericksburg, VA 22406-5022
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Kingstowne Library	N/A	Fairfax County Public Library	6500 Landsdowne Centre Alexandria, VA 22315-5011
Lorton Library	N/A	Fairfax County Public Library	9520 Richmond Highway Lorton, VA 22079-2124

Note:

1. Draft EA notification letters sent to these recipients were returned to sender by the U.S. Postal Service as undeliverable. USACE has updated the SM-1 EA mailing list accordingly.

Draft EA Agency Comments

January 31, 2020

Brenda M. Barber, P.E.
Baltimore District Project Manager
U.S. Army Corps of Engineers, Environmental and Munitions Design Center
ATTN: CENAB-ENE-C
2 Hopkins Plaza
09-A-10 (Cube)
Baltimore, MD 21201

RE: Environmental Analysis: Draft Environmental Assessment - Fort Belvoir Deactivated SM-1 Nuclear Reactor Facility Decommissioning and Dismantlement

Dear Ms. Barber:

This memorandum provides comments from Fairfax County regarding the Draft Environmental Assessment (EA), the Draft Finding of No Significant Impact (FONSI), and the Draft Finding of No Practicable Alternative (FONPA) for the proposed decommissioning and dismantlement of the Deactivated Stationary Medium Power Model 1 (SM-1) Nuclear Reactor Facility at United States Army Garrison Fort Belvoir (Fort Belvoir).

PROPOSED ACTION

The EA analyzes two alternatives to the Proposed Action: i) the Proposed Action Alternative, which would execute the Deactivated SM-1 Nuclear Reactor Facility Decommissioning Plan; and ii) the No Action Alternative, which would allow the continued maintenance of the Deactivated SM-1 Nuclear Reactor Facility in a safe storage condition and which would allow future Reactor Possession Permit extensions.

The Deactivated SM-1 Nuclear Reactor Facility is located on Fort Belvoir's South Post within the secured 300 Area, on an approximately 3.6-acre site along the shoreline of Gunston Cove, a tidal embayment of the Potomac River. The SM-1 site contains the reactor building, an inactive wastewater lift station, a small warehouse, a water intake pier and pump house, a concrete discharge pipe, and outfall structure. The water intake pier and pump house, concrete discharge pipe, and outfall structure are located in the 100-year floodplain and tidal wetlands associated with Gunston Cove. More importantly, Gunston Cove converges with the Potomac River less than one mile downstream (southeast) of the SM-1 site. The Potomac River discharges to the Chesapeake Bay approximately 64 miles (in a straight line) downstream from Fort Belvoir and is one of the Bay's major tributaries. Due to the proximity of these surface water features, resource protection areas (RPAs) associated with the Gunston Cover shoreline and 100-year floodplain

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cover approximately 45 percent (2.2 acres) of the 3.6 acres SM-1 site. It is also noted the SM-1 Reactor Facility has been determined eligible for listing in the National Register of Historic Places (NRHP) based on its age and exceptional historic importance.

It is staff's understanding that under the Proposed Action Alternative, the Deactivated SM-1 Nuclear Reactor Facility would be decommissioned and dismantled. All radioactive and non-radioactive materials and equipment and remnant structures, including the intake pier and pump house, concrete discharge pipe, and outfall structure, would be removed from the SM-1 site. Removal of in-water structures would require work in the 100-year floodplain and tidal wetlands associated with Gunston Cove. All radioactive and non-radioactive materials and waste associated with the site would be packaged, transported, and disposed of in accordance with applicable laws and regulations. The EA indicates that Fort Belvoir's existing road network would be used to access the SM-1 site, and to transport materials and waste off-post for disposal or recycling. Following decommissioning, the site would be restored, including the placement of clean fill soils and grading to mimic the site's current elevation and topography, and released for unrestricted use. The EA further notes that the 100-year floodplain and tidal wetlands would return to a pre-disturbance condition following the removal of the remnant in-water structures.

The EA and FONSI indicate that implementing the Proposed Action would reduce costs associated with maintaining the Deactivated SM-1 Nuclear Reactor Facility, and would allow the U.S. Army Corps of Engineers (USACE) to meet mission objectives to decommission SM-1 and terminate their possession permit. Upon its completion, the Proposed Action would transfer the responsibility for the site to Fort Belvoir. The No Action Alternative would require USACE to continue bearing the cost of maintenance and would not allow the site to be restored or returned to a natural state.

Fairfax County supports the proposed decommissioning and removal of the facility in order to allow the site to be restored to a more natural state. However, staff from multiple agencies offer the following comments:

Radiation

The Proposed Action would result in the removal of low-level radioactive waste, which would include contaminated concrete, steel, tile, utility pipes, plastic, materials and equipment, soils, and mixed waste. The majority of radioactive material is found in the Vapor Container (VC). The remaining residual contamination is contained in various secondary and waste system components and outside soils. A total of approximately 7,424 cubic yards of radioactive waste would be removed under the Proposed Action.

Staff understands that decommissioning would occur in a controlled manner to minimize both public and occupational radiation exposure. A decommissioning contractor would implement a Radiation Safety Program, an Environmental Monitoring and Control Program, and a Waste Management Program to ensure the safe removal of activated and/or contaminated components in an effort to reduce the risk of potential release to the environment. Given the extent of the contamination, nearly all of the site would be disturbed as the affected soils and building materials are removed. Sampling would occur throughout the process to ensure that the contamination has been removed. County staff appreciates the efforts to remove the

contamination and recommends that all stakeholder agencies be kept aware of the decommissioning process, as it proceeds.

Water, Soil, and Forest Resources

The intake pier, pump house, and wastewater outfall pipe are all located in tidal wetlands and waters. Thus, activities to facilitate removal must occur in tidal wetlands and the 100-year floodplain. Removal of the intake pier/pump house, concrete discharge pipe, and outfall structure would disturb approximately 1.4 acres of tidal wetlands in Gunston Cove, and 0.6-acre of freshwater wetlands immediately inland of Gunston Cove. Activities within the floodplain and wetlands would cease after all remnant structures have been removed.

The EA describes the removal of the water intake pump house and pier, which extends approximately 100 feet from the shoreline into Gunston Cove. Removal would likely require the use of a barge-mounted crane and other vessels to give the dismantlement crew and equipment access to the structure. Superstructures would be removed first, followed by the piles. The piles would be cut at the mudline and the portions below the cut would be left in place. Containment booms and sediment curtains would be used during in-water and nearshore work associated with the removal of the intake pier/pump house, concrete discharge pipe, and outfall structure to contain debris that could inadvertently enter the water column, prevent the migration of disturbed sediment into the water column, minimize turbidity, and ensure disturbed sediments settle near their original location. Disturbance of subaqueous bottomlands during in-water activities would also be minimized to the extent practicable. Spill kits would be kept nearby during all in-water and nearshore work to prevent or reduce the risk from the migration of hazardous substances into receiving water bodies, in the event that an accidental spill occurs. Staff concurs with this approach.

For the more upland areas, vegetation clearing and/or soil disturbance would be necessary to facilitate the removal of existing structures and abandoned utility lines, provide maneuvering and operational space for vehicles and equipment, and create storage and staging space for materials and containerized waste.

As part of site remediation, a loamy top soil seeded with native grasses and shrubs would be applied across the site to promote revegetation. Additionally, in accordance with Policy Memorandum #27, *Tree Removal and Protection,* Fort Belvoir requires the planting of two new trees between 1.5 and 2.5 inches diameter at breast height (dbh) for every tree or sapling 4 inches dbh or greater removed from RPAs during project-related activities. At minimum, the number of trees replanted in the RPA must equal those removed from the RPA during the project; additional trees may be planted outside the RPA to meet this requirement. Additionally, trees and shrubs less than 4 inches dbh that are removed from the RPA during the project must be replaced one-for-one within the RPA in accordance with VDCR's *Riparian Buffers Modification and Mitigation Guidance Manual.* Staff concurs with this remediation proposal.

It should be noted that, as a federal entity, Fort Belvoir is not subject to the provisions of the Fairfax County Chesapeake Bay Preservation Ordinance. As a result, Fort Belvoir does not use RPA maps produced by Fairfax County. Instead, the Army delineates the RPAs on the installation.

Although the site would be restored and maintained in a vegetated condition by Fort Belvoir, given the adjacency of the site to Gunston Cove, the presence of steep slopes, the required removal of nearly all surface soils and site vegetation, and the anticipated exposure of subsoils for an extended period to accommodate the required sampling for radioactive contamination, county staff recommends that a robust erosion and sediment control plan and replanting plan be developed and incorporated throughout all phases of the decommissioning process. Such plans are recommended to preclude the washing of sediment into the adjacent waters, to stabilize the site, and to facilitate the revegetation and regeneration of the site. Further, staff recommends that the project staff consult and coordinate with the Northern Virginia Soil and Water Conservation District and the county Department of Public Works and Environmental Services regarding mitigation procedures. Staff recommends that any mitigation plan consider the following:

- Erosion Control: In addition to straw, which should be used to provide immediate protection of exposed soil, matting and/or netting made of natural materials, such as jute or coir, should be spread across all exposed soil surfaces. Together, these materials would help dissipate the erosive energy of rainwater. At the perimeter of the site, silt fences should be erected to filter sediment from runoff before it flows off-site.
- Steep Slopes: Special erosion control provisions should be incorporated on slopes, such as earthen diversion dikes and coir "logs," placed parallel to steep slopes and perpendicular to rainwater flows.
- Compaction: Exposed subsoils are expected to be compacted by heavy equipment. All subsoils should be decompacted prior to covering with topsoils.
- Soil Horizons: The surface of remnant subsoils should be "roughed up" to create irregular surfaces, to facilitate mixing with the topsoil fill materials, and to ultimately facilitate the growth of plant roots from the topsoils into the subsoils.
- Replanting: Planting should be accomplished through all phases of site disturbance with a combination of native forbs, grasses, shrubs, and trees to minimize exposed soil. Seed mixes and plantings should include a mixture of fast-growing annuals and cover crops for quick surface stabilization and slower-growing but longer-lived perennials for continued stabilization. While plants that require full sun would be appropriate at the beginning of the project, shade-loving species should be considered later in the process, once larger plants have started to create shade. Various species should be included in planting plans to both create vegetative coverage of the soil surface and fill in gaps below the surface through various rooting habits. Unless a new climax vegetative community is desired, the site's existing vegetation should be used to guide the species selection.
- Deer Protection: Deer protection, such as tubes, should be used for woody plantings. Geese protection, such as a network of strings, should be used for plantings of forbs and grasses.
- Invasive Species Control: Weeding and other maintenance should be performed to prevent invasive species from overgrowing the site and outcompeting the desired native species.

Additionally, staff recommends that USACE schedule a briefing before the Fairfax County Wetlands Board regarding any proposed actions affecting tidal wetlands, freshwater wetlands, and floodplains, to include project impacts and remediation measures.

County staff notes that Gunston Cove is part of a long-term on-going aquatic monitoring program conducted by the Potomac Environmental Research and Education Center (PEREC) at

George Mason University and Fairfax County's Environmental Monitoring Branch. The study is a continuation of work which originated in 1984 at the request of the county's Environmental Quality Advisory Council and the Department of Public Works. The original study design utilized monitoring stations in Gunston Cove, the Potomac mainstem, and Dogue Creek. The same stations at Gunston Cove have been tested for more than 25 years, leading to conclusions regarding the present ecological status of the area and recommendations for future needs. Staff notes that some of the sampling locations are proximate to the water intake associated with SM-1. Staff recommends that decommissioning activities be coordinated with the Potomac Environmental Research and Education Center of George Mason University, to ensure that decommissioning activities do not conflict with research activities.

Flora and Fauna

Gunston Cove borders the SM-1 site. This cove contains shallow water with various types of submerged aquatic vegetation (SAV). SAV contributes to the health of estuary systems by providing habitat for many fish and shellfish species, food for waterfowl, erosion control, and excess nutrient absorption.

Two hundred seventy-eight (278) bird species have been documented at Fort Belvoir. Vegetation on the SM-1 site could provide habitat for any number of Fort Belvoir's resident and migrant bird species, particularly those that prefer forested and wooded areas. Additionally, active osprey (*Pandion haliaetus*) nests exist on Building 372, on the intake pier, and in other areas of the SM-1 site. Ospreys typically mate for life and return to the same nesting area each year.

The Proposed Action Alternative would alter existing wildlife habitat at the SM-1 site from proposed site preparation, dismantlement, and restoration activities. Wildlife at and near the SM-1 site would likely be disturbed by construction related noise. Wildlife species that occupy the SM-1 site are those generally tolerant of human activities and presence. These species would be expected to avoid the SM-1 site during decommissioning activities and relocate to undisturbed habitat areas in the vicinity. To prevent or minimize impacts on migratory birds known or having potential to occur on or near the SM-1 site, vegetation clearing would be prohibited between April 1 and July 15 of any year in accordance with Fort Belvoir Policy Memorandum #78, *Conservation of Migratory Birds*. Surveys for birds and/or active nests would be conducted prior to vegetation clearing if such activities could not be avoided during that time period.

The EA notes that active osprey nests (e.g., on Building 372 and the intake pier) would be relocated according to VDGIF's *Removal or Relocation of Osprey Nests in Virginia: A Guideline for Landowners* (VDGIF, 2010). In accordance with Fort Belvoir's Policy Memorandum #78, *Conservation of Migratory Birds*, the nest would be relocated during the period between September 15 and April 16. Relocation of these nests could cause potentially adverse impacts on an active osprey breeding pair.

Staff encourages coordination with appropriate agencies and implementation of management or protection measures to minimize adverse impacts. In order to mitigate the impacts to osprey nests, staff recommends that Fort Belvoir staff consider the construction of alternative osprey nesting platforms in the vicinity of the existing nests and the relocation of those nests to the new

platforms. County staff appreciates the consideration given to the species endemic to the site and the surrounding areas.

Heritage Resources

A previous archaeological survey in 1987 identified one archaeological site (44FX1331) within the project area. A subsequent survey in 2018 was conducted to determine if potentially significant archaeological resources were present. However, the archaeological survey determined that extensive ground disturbance associated with construction of SM-1 severely impacted the landform and may have destroyed much of the site's subsurface integrity. As a result, the site was determined not eligible for listing in the National Register of Historic Places (NRHP) and no further archaeological study of the SM-1 site was recommended. The State Historic Preservation Officer (SHPO) concurred with the findings and recommendations of the Phase I archaeological survey that no further archaeological work at the SM-1 site was required. Fairfax County Park Authority staff concurs with the Virginia Department of Historic Resources (VDHR) that site 44FX1331 is not significant or eligible for inclusion on the NRHP (see attachment).

In 1996, the SM-1 Reactor Facility was evaluated for listing on the NRHP. The study determined that the facility was eligible for listing in NRHP under Criterion A on the national level, with a period of significance between 1955 and 1973 (US Army Package Power Reactor; VDHR ID #029-0193). Because the facility was less than 50 years old at the time, NRHP Criterion Consideration G (for resources less than 50 years old) applied, as the facility met the threshold for "exceptional importance" according to this criterion.

SM-1 was the Army's first nuclear-powered, electricity-generating station and the first pressurized water reactor to be connected to an electrical grid in the United States. It was used to train military nuclear power plant operators and to perform nuclear research and development tasks. As the Army's first prototype nuclear power generating plant, the SM-1 Reactor Facility represented an important step in the use of atomic power. SM-1 operated from 1957 to 1973 and was deactivated between 1973 and 1974. It was placed in a safe storage configuration in 1974. The Deactivated SM-1 Nuclear Reactor Facility is maintained under Reactor Possession Permit Number SM1-1-19 issued by the US Army Nuclear and Countering Weapons of Mass Destruction Agency (USANCA). The Deactivated SM-1 Nuclear Reactor Facility has been part of a routine monitoring program that is implemented by the U.S. Army Corps of Engineers (USACE).

USACE has determined that the Proposed Action Alternative would have an adverse effect on the NRHP-eligible SM-1 Reactor Facility and Fairfax County agrees with this determination. To ensure this adverse effect remains less than significant, USACE has developed mitigation and minimization measures in consultation with VDHR, the Advisory Council on Historic Preservation (ACHP), and other consulting parties, including the Fairfax County Department of Planning and Development. These measures would be detailed in a Memorandum of Agreement (MOA) and finalized once consultation is complete. The current stipulations, although they are subject to change due to comments from consulting parties, are summarized as follows:

- USACE will produce a modified Historic American Engineering Record (HAER) for the SM-1 Reactor Facility, which will document SM-1 operations within its historical context as

a nationally significant nuclear energy resource. This documentation will include information such as location and address, owner, operational and decommissioning narratives, and architectural details, supported by a complete bibliography and electronic repository, including motion picture film, photographs, and documents, as appropriate. Due to the loss of original as-built drawings, the HAER documentation will include a 3-dimensional rendering of the facility using Light Detection and Ranging (LIDAR) scans. Fairfax County Heritage Resources has asked via Section 106 Consultation for further detail on why this level of documentation was chosen and if the National Park Service was involved in the decision, as required, and has asked for further detail on how the information will be made available to the public.

- USACE will conduct interviews with personnel who were closely associated with the construction, operation, and initial closure of the SM-1 Reactor Facility. These interviews will be conducted, recorded, and transcribed in accordance with applicable standards. In addition, research will be conducted at Fort Belvoir, and at repositories elsewhere in Virginia and Washington, DC, including review of historic photographs, training videos, aerials, maps, documents, plans, newspapers, and scientific journals. Digital images will be saved and labeled in accordance with SHPO standards for architectural surveys.
- All field work, photography, and research necessary to produce the HAER of the SM-1 Reactor Facility will be carried out by or under the direct supervision of a Secretary of the Interior-qualified architectural historian, who meets the appropriate *Secretary of the Interior's Professional Qualification Standards* (SOI Standards; 48 *Federal Register* 44738-9, Sept. 29, 1983). All work will be conducted in accordance with *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (36 CFR Part 61); and *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36 CFR Part 68).
- USACE will provide the SHPO with a thirty (30)-day period to review and comment on the HAER documentation.
- USACE will implement other mitigation measures identified in the MOA, such as moving the commemorative plaque affixed to Building 372 to a facility for restoration and display; salvaging historical items to be placed on loan for traveling exhibits; and erecting a historical marker commemorating the SM-1 Reactor Facility.
- USACE will complete the HAER and other mitigation measures identified in the MOA within six months after completion of the decommissioning and demolition of the SM-1 Reactor Facility.

Fairfax County concurs with the measures outlined above and looks forward to continuing Section 106 Consultation and finalizing the MOA.

Air Quality, Fugitive Emissions

County staff notes that the metropolitan Washington, D.C. area is designated by the U.S. Environmental Protection Agency as a marginal non-attainment area for the 2015 eight-hour ozone standard. High ozone concentrations can adversely affect human health. These concentrations result from the interactions of oxides of nitrogen (NOx) and volatile organic compounds (VOCs) with sunlight. Major sources of NOx emissions include motor vehicles,

utilities and other stationary sources, and non-road construction vehicles. Major sources of emissions of VOCs include motor vehicles.

The EA proposes implementation of the following management measures and/or Best Management Practices to further reduce the anticipated less-than-significant, adverse effects:

- Truck beds would be covered while in transit to limit fugitive dust emissions;
- Water would be sprayed on any unpaved roads or stockpiles to limit fugitive dust emissions;
- Ultra-low sulfur diesel would be used as a fuel source where appropriate to minimize oxides of sulfur emissions;
- Clean diesel would be used in construction equipment and vehicles through the implementation of add-on control technologies such as diesel particulate filters and diesel oxidation catalysts, repowers, and/or newer and cleaner equipment. When feasible, electric-powered equipment would be used in lieu of diesel-powered equipment;
- Control measures for heavy construction equipment and vehicles, such as minimizing operating and idling time, would be implemented to limit criteria pollutant emissions; and
- Air quality permits would be obtained for the Proposed Action Alternative, as necessary, in compliance with federal, state, and local standards.

County staff appreciates the consideration of air quality and concurs with the proposed measures to reduce adverse impacts.

Transportation

The Proposed Action Alternative would generate additional vehicle trips on and in the vicinity of Fort Belvoir during the decommissioning process. Vehicle trips would include workers' commuting vehicles as well as heavy trucks hauling materials and equipment needed during decommissioning activities, transporting waste from the SM-1 site, and bringing fill soils to the site during restoration activities. The number of additional trips generated by workers' commuting vehicles on Fort Belvoir roads during the Proposed Action Alternative is anticipated to remain low. It is estimated that the proposed decommissioning would generate 1,150 heavy truck trips over the 5-year on-site decommissioning period, comprising approximately 650 waste shipments from the site and 500 trips to the site to deliver clean fill soils during restoration activities. The number of heavy truck trips equates to approximately 4.4 trips per week during the 5-year decommissioning period. However, it is anticipated that approximately 50 percent of waste shipments would occur during the middle 12 months (i.e., months 19 through 30) of the project, which equates to approximately 11 heavy truck trips per week during that 12-month period.

The EA proposes the following management measures to minimize impacts on the transportation network and/or from the transport of low-level radioactive waste and other waste:

- A project-specific transportation management plan would be implemented identifying approved travel routes to and from the site for decommissioning personnel and heavy trucks transporting materials, equipment, and debris;
- During spill and emergency response planning for the Proposed Action Alternative, the decommissioning contractor would notify on- and off-post emergency responders of the

types of shipments that would be transported to support preparation for potential transportation-related accidents;
- In coordination with Fort Belvoir and other affected organizations, decommissioning-related traffic would be scheduled for off-peak hours to minimize roadway congestion; and
- All radioactive waste and other debris generated at the SM-1 site would be packaged and shipped in accordance with a written Waste Management Plan that is consistent with Nuclear Regulatory Commission and U.S. Department of Transportation regulatory requirements.

County staff agrees with the finding that the transportation impacts would be less than significant. Staff requests that Fort Belvoir include the Virginia Department of Transportation, the Fairfax County Department of Transportation, and the Fairfax County Fire and Rescue Department when notifying local agencies about the movement of materials and the intended transportation routes.

Thank you for the opportunity to comment on this project. If you have any questions regarding these comments, please contact Joseph Gorney at 703-324-1380.

Sincerely,

Leanna H O'Donnell

Leanna O'Donnell, Director, Planning Division
Department of Planning and Development

Attachment: Fairfax County Park Authority Memorandum, dated January 15, 2020.

cc: Board of Supervisors
Bryan Hill, County Executive
Rachel Flynn, Deputy County Executive
Barbara Byron, Director, DPD
Tom Biesiadny, Director, FCDOT
Denise James, Chief, Environment & Development Review Branch, DPD
Joseph Gorney, Senior Environmental Planner, Planning Division, DPD
Catherine Torgersen, Stormwater Planning Division, DPWES
Andrea Dorlester, Fairfax County Park Authority
Nicole Brannan, Heritage Resources Planner, Planning Division, DPD
Felix M. Marini, Chief of Environmental and Natural Resources Division, Fort Belvoir

LO: JCG

ATTACHMENT

FAIRFAX COUNTY PARK AUTHORITY

M E M O R A N D U M

TO: Denise James, Chief
Environment and Development Review Branch
Department of Planning and Development

FROM: Andrea L. Dorlester, Development Review Section Chief
Park Planning Branch, PDD

DATE: January 15, 2020

SUBJECT: EA-USACE SM 1 Reactor Facility; Fort Belvoir Deactivated Nuclear Reactor

The Park Authority staff has reviewed the project update dated December 20, 2019 for the EA-USACE SM-1 Reactor Facility; Fort Belvoir Deactivated Nuclear Reactor Environmental Assessment and has reviewed the Draft Environmental Assessment and concurs with the VDHR that site 44FX1331 is not significant nor Eligible for inclusion onto the National Register of Historic Places. Several structures, however, appear to be eligible or listed onto the National Register of Historic Places. Due to the nature of these structures, Park Authority staff recommends review by Fairfax County's Heritage Resources staff in the Department of Planning and Development.

There are no further archaeological issues and no additional archaeological work is warranted, however architectural comments may be forthcoming.

eCopy: Liz Crowell, Manager, Archaeology & Collections Branch
File Copy

-----Original Message-----
From: Rudnick, Barbara [redacted]]
Sent: Friday, January 31, 2020 12:38 PM
To: Corporate Communication Office-NAB <CENAB-CC@usace.army.mil>
Cc: Traver, Carrie [redacted]
Subject: [Non-DoD Source] SM-1 Decommissioning Draft EA Comment Submission

Re: EPA comments on Deactivated Stationary Medium Power Model 1 (SM-1) Reactor Facility on Fort Belvoir in Fairfax County, Virginia

Thank you for the opportunity to review the Draft Environmental Assessment (EA or Study) for the Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility at U.S. Army Garrison Fort Belvoir, dated December 2019. The U.S. Army Corps of Engineers (USACE) prepared the EA to evaluate the Proposed Action of completing the decommissioning of SM‐1 to a standard that allows for release of the site for unrestricted future use. The Proposed Action would remove all radioactive and non‐radioactive materials (e.g., buildings, underground utility lines, contaminated soil) from the SM‐1 site.

EPA reviewed the EA and is providing comments in accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508):

The EA states that the SM-1 Reactor Facility was determined to be eligible for listing in the National Register of Historic Places and its removal is an adverse effect. The EA indicates that a Memorandum of Agreement (MOA) will be developed with the State Historic Preservation Office (SHPO) to minimize the adverse effect and ensure it remains less than significant. The current status of the MOA is unclear in the EA. We encourage you to continue working with SHPO and other consulting parties to finalize the MOA, take appropriate mitigative measures, and document this coordination prior to moving forward with the Proposed Action.

There are several overlapping time-of-year restrictions for tree clearing and other disturbances to avoid or reduce impacts to species of special concern, including impacts on the northern long-eared bat, migratory birds, and bald eagle nesting and concentration. Removal of osprey nests and in-water work also have associated time of year restrictions. It may be helpful to consider and present how the range of overlapping and potentially conflicting time of year restrictions for the site will be integrated into the plans and how activities may be phased to accommodate these restrictions.

The extent of wetlands onsite has not yet been delineated, but Section 3.3.3.3.3 indicates that removal of the intake pier, pump house, concrete discharge pipe, and outfall structure would disturb an estimated 1.4 acres of tidal wetlands and 0.6-acre of freshwater wetlands. We encourage you to explore ways to avoid potential impacts prior to submitting a joint permit application. As indicated, the wetlands should be delineated, the areal extent of wetland disturbance should be minimized where possible, and best management practices (BMPs) be evaluated to limit disturbances (such as mats, pads, erosion control, timing, etc.). As the extent of resources are identified, we recommend continued coordination with the USACE Regulatory Branch and applicable state regulatory agencies.

Restoration via grading, soils management, or replanting may be needed to ensure that impacts are temporary; some vegetation management during and following construction may be needed to prevent the colonization or spread of invasive species. Best management practices to avoid the introduction and spread of invasive species in wetland areas should be evaluated.

The EA notes that submerged aquatic vegetation (SAV) adjacent to the project area could be damaged or destroyed during the in-water work (removal of the concrete discharge pipe, outfall structure, and pier/pump house.) The SAV identified in the area includes both native and nonnative plants. If native SAV is disturbed, invasive species could become more prevalent; therefore, we recommend that the potential spread of aquatic invasive species also be evaluated.

The EA indicates that noise generated under the Proposed Action would result in minor, short-term, intermittent adverse impacts on water-dependent recreation in Gunston Cove, but these impacts would be minimized by the contractor implementing standard construction-related BMPs for noise control. The EA would benefit from briefly addressing specific examples of the type of BMPs that would be employed.

Site restoration would include the placement of clean fill and soils to backfill excavated areas. Given the potentially large amount of soils required to be replaced, and the need to support suitable vegetation, including trees, we recommend creating a specific plan for soil placement, including segregation, necessary amendments, and depth of topsoil. As part of this plan, potential sources of backfill and topsoil should be evaluated. We suggest the plan address the need for appropriate topsoil depth and amendments including organic matter to assist tree transplant success, as some vegetation may require significant topsoil to survive. We support consideration of native species in the site restoration effort. Please contact us if we could provide additional information.

Again, thank you for providing us with notice to review the EA. The contact for the project is Ms. Carrie Traver, traver.carrie@epa.gov. If you have any questions or would like to discuss these comments, please don't hesitate to contact me or Carrie.

Barbara Rudnick, P.G.
NEPA Program Coordinator
U.S. EPA Region III
Office of Communities, Tribes & Environmental Assessment
[redacted]
CLASSIFICATION: UNCLASSIFIED

-----Original Message-----
From: Warren, Arlene [redacted]]
Sent: Tuesday, January 28, 2020 5:08 PM
To: Corporate Communication Office-NAB <CENAB-CC@usace.army.mil>

Subject: [Non-DoD Source] SM-1 Project Update

Project Name: SM-1 Project Update

Project #: N/A

UPC #: N/A

Location: Fairfax Co.

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to public drinking water sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

There are no public groundwater wells within a 1-mile radius of the project site.

There are no surface water intakes located within a 5-mile radius of the project site.

The project is not within the watershed of any public surface water intakes.

There are no apparent impacts on public drinking water sources due to this project.

No other comments were received.

Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren
GIS Program Support Technician
Office of Drinking Water
Virginia Department of Health
[redacted]

Draft EA Public Comments

-----Original Message-----
From: Lee Hamblin [redacted]
Sent: Wednesday, January 29, 2020 12:40 AM
To: Corporate Communication Office-NAB <CENAB-CC@usace.army.mil>
Subject: [Non-DoD Source] Comments on SM-1 Decommissioning and Building 7304 Vault

Brenda,
"CABRERA designed and performed a characterization survey of the Vault and areas outside of the Vault in the first half of 2003.

Results of the characterization survey radiological analyses indicated the presence of potentially elevated tritium, Carbon-14, Cesium-137, Promethium-147, Americium-241, and Thorium-232. Elevated levels of radioactivity were detected at the interior Vault floor, at wall storage vaults, at floor storage vaults, and the soil beneath floor storage vaults. The highest contamination exceedance of action levels encompasses Cs-137 on the Vault floor and in the soil under the floor storage vaults and also H-3 inside the wall storage vaults.

Contamination exceeding action levels outside the Vault is minimal and is concentrated on the north wall and floor just outside the Vault doorway."

Was there any relationship between the operation of SM-1 and Building

7304 (Vault) and the presence of elevated tritium, Carbon-14, Cesium-137, Promethium-147, Americium-241, and Thorium-232 in the Vault ? Was radiological waste from SM-1 stored in the Vault?

SM-1 was referenced in Cabrerra's 2004 Building 7304 characterization survey report and I wonder why SM-1 was mentioned in the Cabrerra report.

Looking forward to your response.
--
Regards,
Lee Hamblin
[redacted]
CLASSIFICATION: UNCLASSIFIED

Deactivated SM-1 Nuclear Reactor Decommissioning & Dismantlement Draft Environmental Assessment (EA)

Public Meeting – January 8, 2020

Comments will be considered in the Draft EA and become part of the public record.
Personally identifiable information will not be published.

1. Your information (optional):

   Name: C. TOBIAS-NATH

   Title: _____

   Agency/Organization: resident

   Street Address: _____

   City, State, Zip: [redacted]

   E-mail Address: [redacted]

2. Would you like to be notified when the Final EA is published? Yes ☑ No ☐

   If yes, please make sure to provide a mailing address or email address.

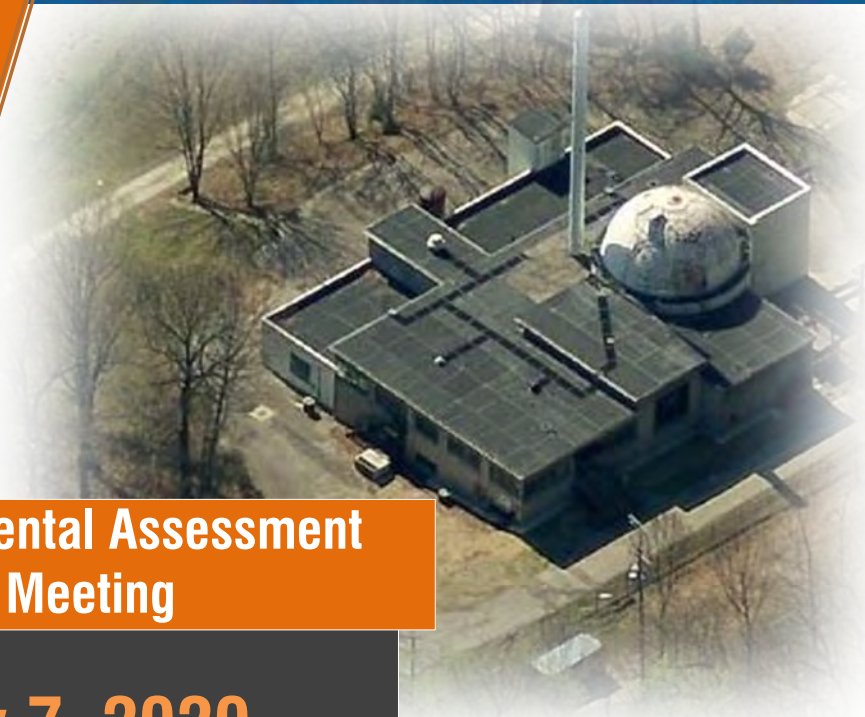
3. Please print your comments and place in the box on the comment table.

As homeowners adjacent to base we were never notified at purchase 10+ years ago. Will there be impacts on home values esp. if we plan to sell in the next years during the work? With children + pets would have been appreciative to know of any risk factors/considerations prior.

Draft EA Public Meeting Materials

WELCOME

SM-1 DECOMMISSIONING PROJECT



Schedule

Draft Environmental Assessment Public Meeting

January 7, 2020

Public review period began on December 20, 2019 and ends on January 31, 2020

1:00 p.m. – 2:00 p.m.

- Open House
- Meet and interact with U.S. Army Corps of Engineers and Fort Belvoir personnel

2:00 p.m. – 3:00 p.m.

- Formal Presentation
- Question & Answer Session
- Poster Availability

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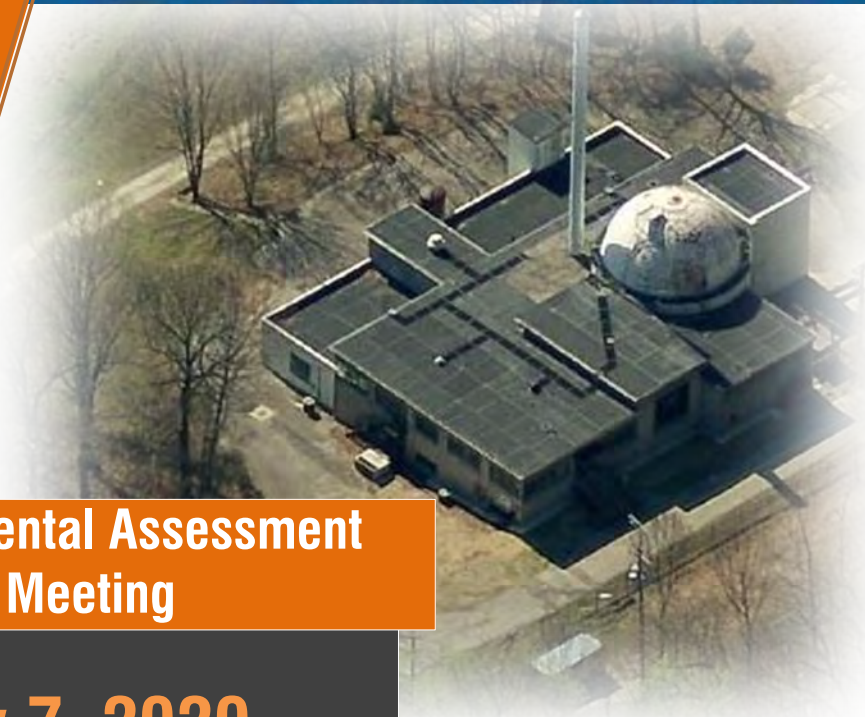
WELCOME

SM-1 DECOMMISSIONING PROJECT



Schedule

Draft Environmental Assessment Public Meeting

6:30 p.m. – 7:30 p.m.

- Open House
- Meet and interact with U.S. Army Corps of Engineers and Fort Belvoir personnel

7:30 p.m. – 8:30 p.m.

- Formal Presentation
- Question & Answer Session
- Poster Availability

January 7, 2020

Public review period began on December 20, 2019 and ends on January 31, 2020

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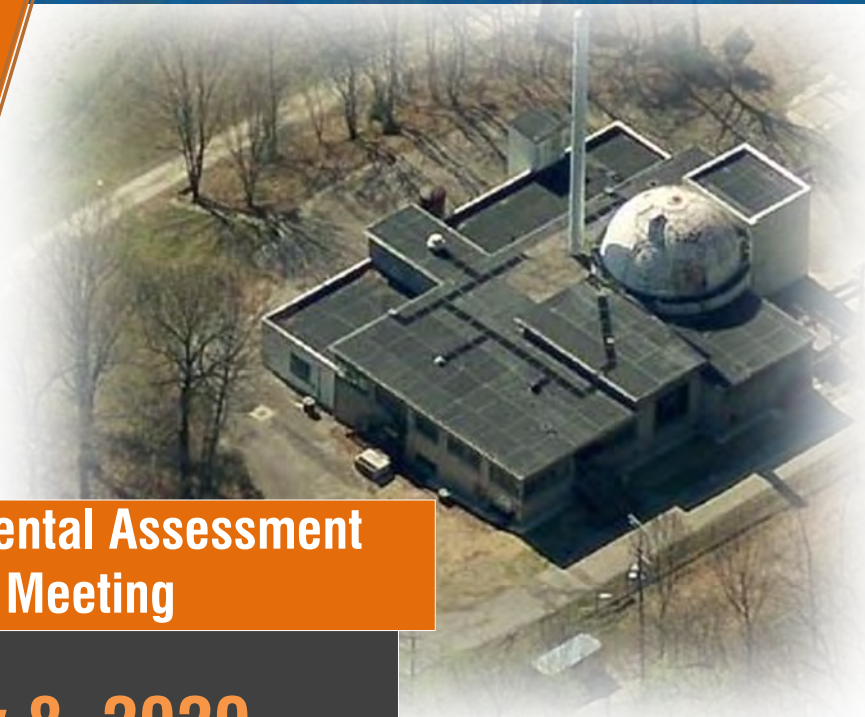
WELCOME

SM-1 DECOMMISSIONING PROJECT



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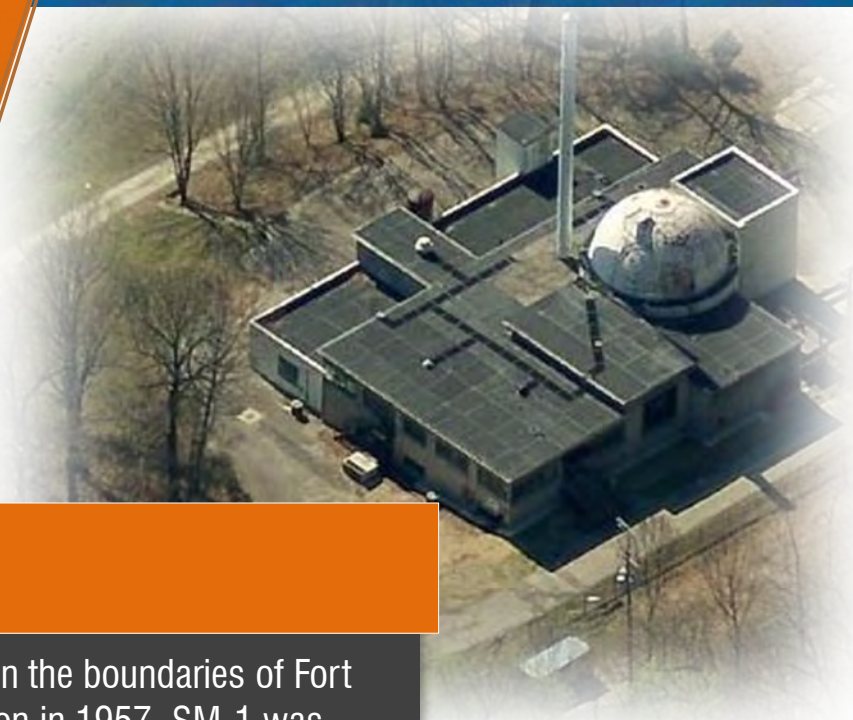
WELCOME

SM-1 DECOMMISSIONING PROJECT



Brief History

The Deactivated SM-1 Nuclear Reactor Facility is situated within the boundaries of Fort Belvoir in Fairfax County, Virginia. After construction completion in 1957, SM-1 was used to train Department of Defense (DOD) power plant operators and was capable of delivering a net 1,750 kilowatts of electrical power. It was the first nuclear power reactor to provide electricity to a commercial power grid in the United States. In 1973, SM-1 was deactivated (shut down). Deactivation included removal of the nuclear fuel and sealing of the reactor pressure vessel, decontamination of building areas to the extent possible, and off-site disposal of radioactive wastes. The site is now referred to as the Deactivated SM-1 Nuclear Reactor Facility. For more than 45 years, the site has been monitored and maintained while the accessible portions of the facility have been used as a museum and storage space.

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NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

- The Army has prepared a Draft Environmental Assessment (EA) to analyze this action in compliance with NEPA
- NEPA is the national charter for protection of the environment (42 U.S.C. Part 4321 et seq.)
- NEPA requires federal agencies to analyze the impacts of their proposed actions
- NEPA requires opportunities for public involvement (e.g., Draft EA public comment period, this meeting)

Resources analyzed in the Draft EA:


Water resources


Air quality


Biological resources


Radiological safety and health


Occupational safety and health


Cultural resources


Transportation and traffic


Non-radiological hazardous materials and non-hazardous solid waste


Geological resources

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DRAFT ENVIRONMENTAL ASSESSMENT ALTERNATIVES

1. PROPOSED ACTION ALTERNATIVE

Complete decommissioning and dismantlement of the Deactivated SM-1 Nuclear Reactor Facility.
This alternative includes:

- Removal of the Deactivated SM-1 Nuclear Reactor Facility and associated buildings and structures
- Removal of residual radioactive contamination exceeding regulatory levels
- Restoration of the SM-1 site to a vegetated condition and return of the site to Fort Belvoir for future use
- Termination of U.S. Army Corps of Engineers Decommissioning Permit

2. NO ACTION ALTERNATIVE

Decommissioning would not be completed and the Deactivated SM-1 Nuclear Reactor Facility would be maintained as it currently is for the foreseeable future.

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SUMMARY OF DRAFT ENVIRONMENTAL ASSESSMENT FINDINGS

- The Proposed Action would have **no significant impacts** on resources analyzed in the Draft Environmental Assessment
- Most **adverse impacts** would be **short-term and temporary**, occurring during decommissioning / dismantling activities
- The Army and/or its contractors would implement management practices and measures to minimize adverse impacts to the extent possible
- Removal of the Deactivated SM-1 Nuclear Reactor Facility would have **long-term beneficial impacts** on some resources

The National Environmental Policy Act (NEPA) process will conclude when the Army issues a Finding of No Significant Impact (FNSI).

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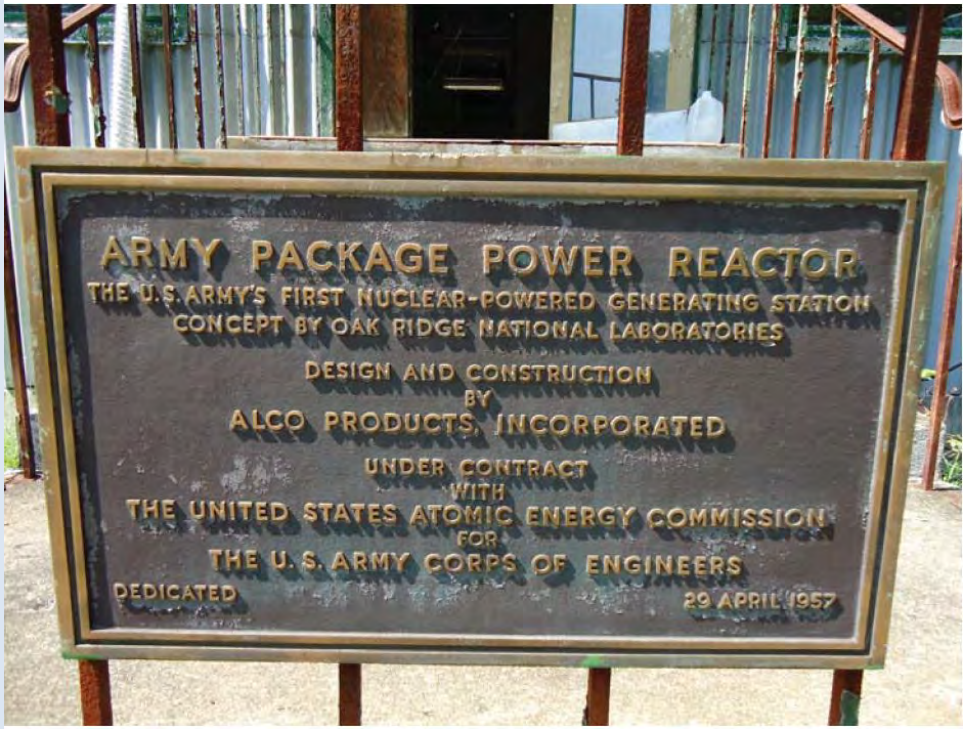
NATIONAL HISTORIC PRESERVATION ACT – SECTION 106

- Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their actions on properties listed, or eligible for listing, in the National Register of Historic Places
- The SM-1 Reactor Facility is eligible for listing in the National Register due to its historic significance
- Under Section 106, the Proposed Action would have an *adverse effect* on the SM-1 Reactor Facility
- The Army is mitigating the Section 106 adverse effect by preparing a modified Historic American Engineering Record document to record SM-1's historic significance, and will implement other measures in consultation with the Virginia Department of Historic Resources



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FLOODPLAIN MANAGEMENT

- Executive Order 11988 requires federal agencies to consider the effects of their actions on floodplains
- The former water intake pier and discharge pipe must be removed as part of the Proposed Action
- Removal of these structures will allow the shoreline to return to a natural condition, resulting in a beneficial long-term impact
- No practicable alternative exists to remove the pier and discharge pipe that would avoid disturbance of floodplains
- The Army has prepared a Draft Finding of No Practicable Alternative (FONPA) to address floodplain disturbance

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FEDERAL OVERSIGHT

- The U.S. Army Corps of Engineers will provide quality assurance over the contractor and their quality control program
- Corps of Engineers National Environmental Center of Expertise
- Army Reactor Office and Reactor Council
- Oak Ridge Associated Universities – Independent Review

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ORAU

DECOMMISSIONING RISKS AND HOW WE REDUCE THEM

- **Safety is the Army's number one priority** – the safety and health of the community and our workers are paramount to the success of our project
- Trained professionals will use proven techniques and precautions to ensure the safety of the workers and the public
- To the greatest extent possible, work will be completed using appropriate engineering controls
- All wastes will be properly packaged in compliance with U.S. Department of Transportation and Nuclear Regulatory Commission requirements
- Wastes will be disposed of at licensed / permitted off-post facilities

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QUESTIONS AND HOW TO LEARN MORE

Learn more about the SM-1 Project online at:
www.nab.usace.army.mil/SM-1/

Sign up for the SM-1 stakeholder update e-mail list by e-mailing:
CENAB-CC@usace.army.mil

Stay engaged with us online:

https://www.facebook.com/USACEBaltimore

@USACEBaltimore

www.nab.usace.army.mil

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HOW TO COMMENT

Tonight: Fill out a comment form or dictate your comment to the stenographer

Send written comments to:

U.S. Mail: Brenda Barber, P.E.
USACE Project Manager
c/o AECOM
4840 Cox Road
Glen Allen, Virginia 23060

E-mail: cenab-cc@usace.army.mil

Written comments must be postmarked by January 31, 2020

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DEACTIVATED SM-1 NUCLEAR REACTOR FACILITY DECOMMISSIONING AND DISMANTLEMENT

DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC MEETING

Brenda Barber, P.E.
Hans Honerlah, CHMM
U.S. Army Corps of Engineers, Baltimore District

January 7 and 8, 2020

"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

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TOPICS

- Introduction
- History of the Deactivated SM-1 Nuclear Reactor Facility
- Residual Radiation and Radiation Fundamentals
- Proposed Action
- National Environmental Policy Act (NEPA)
- Draft Environmental Assessment Findings and Conclusions
- National Historic Preservation Act Section 106
- Executive Orders (EO) 11988 and 11990
- Questions and Opportunities to Comment

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INTRODUCTION

- The U.S. Army Corps of Engineers (USACE) has made the Draft Environmental Assessment (EA), Draft Finding of No Significant Impact (FNSI), and Draft Finding of No Practicable Alternative (FONPA) available for a 6-week public review
- The 6-week public review period began on **December 20, 2019** and will end on **January 31, 2020**
- This meeting is your opportunity to learn about the Proposed Action and how to provide feedback
- You may comment orally or in writing at this meeting or submit written comments via email or U.S. Mail

Your participation in this process is highly encouraged!

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HISTORIC USE

- SM-1 provided partial power to Fort Belvoir (first reactor to power a commercial electric grid in U.S.)
- Primarily used to train nuclear operators/technicians (approximately 800 personnel trained over the 16-year lifespan)
- Served as the prototype for the rest of the reactors designed by the Army
- After deactivation, facility operated as a museum highlighting the Army Nuclear Power Program

Service members from the Army, Air Force and Navy are pictured in the control room of SM-1, which was used for training nuclear technicians from all branches.

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SM-1 TIMELINE: DETAILS

1952
DoD studies development of reactor plants

1955
SM-1 construction begins

1957
SM-1 reactor startup

1973
SM-1 deactivated

1973-1974
Partial decommissioning
- Remaining low-level radioactivity placed in SAFSTOR with majority of remaining radioactivity allowed to decay over the years

2014
Corps of Engineers awards decommissioning planning contract for SM-1
- Planning is ongoing; includes EA preparation & NEPA compliance

Fort Belvoir, Virginia
U.S. Army Engineer Reactors Group

US Army Corps of Engineers ®

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1973-74 PARTIAL DECOMMISSIONING ACTIVITIES AND SAFSTOR

- Removal of the nuclear fuel
- Shipment of the radioactive waste
- Minor decontamination
- Sealing of the reactor containment vessel (which includes the Reactor Pressure Vessel, Steam Generator, Pressurizer, Reactor Coolant Pumps and primary system piping)
- Installing appropriate security, warning signs and monitoring devices
- Remaining radioactivity was contained and has been sealed in safe storage (SAFSTOR) mode for the past 40-plus years
  - Safe storage is a radiological industry practice where radioactive materials are safely stored to allow the shorter-lived radionuclides to decay
- USACE conducts quarterly environmental monitoring to ensure the site does not pose any hazards to the surrounding installation tenants, the community or the environment

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Proposed Action & Environmental Assessment

DRAFT EA ANALYZES TWO ALTERNATIVES

1 Proposed Action Alternative:

Complete decommissioning and dismantlement of the Deactivated SM-1 Nuclear Reactor Facility. This alternative includes:

- Removal of the Deactivated SM-1 Nuclear Reactor Facility and associated buildings and structures
- Removal of residual radioactive contamination exceeding regulatory levels
- Restoration of the SM-1 site to a vegetated condition and return of the site to Fort Belvoir for future use
- Termination of USACE's Decommissioning Permit

2 No Action Alternative:

Decommissioning would not be completed and the Deactivated SM-1 Nuclear Reactor Facility would be maintained as it currently is for the foreseeable future

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NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA)

- USACE has prepared a Draft EA to analyze this action in compliance with NEPA
- NEPA is the national charter for protection of the environment (42 U.S.C. Part 4321 et seq.)
- NEPA requires federal agencies to analyze the impacts of their proposed actions
- NEPA requires opportunities for public involvement (e.g., Draft EA public comment period, this meeting)

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NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA)

- In parallel with NEPA, federal agencies are also required to analyze the effects of their actions on:
  - Wetlands and floodplains
  - Threatened and endangered species
  - Cultural resources

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DRAFT EA ANALYZES THE FOLLOWING RESOURCES

- Water resources
- Air quality
- Biological resources
- Radiological safety and health
- Occupational safety and health
- Cultural resources
- Transportation and traffic
- Non-radiological hazardous materials and non-hazardous solid waste
- Geological resources

Resources that would not be affected by the Proposed Action are not analyzed in the Draft EA

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SUMMARY OF DRAFT EA FINDINGS

- The Proposed Action would have **no significant impacts** on resources analyzed in the Draft EA
- Most **adverse impacts** would be short-term and temporary, occur during decommissioning / dismantling activities
- The Army and/or its contractors would implement management practices and measures to minimize adverse impacts to the extent possible
- Removal of the Deactivated SM-1 Nuclear Reactor Facility would have **long-term beneficial impacts** on some resources

The NEPA process will conclude when the Army issues a Finding of No Significant Impact (FNSI).

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DRAFT EA – POTENTIAL IMPACTS

Water Resources

- *Short-term adverse impacts* from stormwater runoff, increased sedimentation, and/or decommissioning-related disturbances
- Adverse impacts would be minimized through adherence to appropriate management measures and practices
  - Erosion & Sediment Control Plan
  - Stormwater Pollution Prevention Plan

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Water Resources (continued)

- The Proposed Action would have *long-term beneficial impacts* on water resources by restoring the site to a vegetated condition
- USACE has prepared a Draft FONPA in accordance with EOs 11988 and 11990 to address proposed activities affecting floodplains and wetlands

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Air Quality

- *Short-term adverse impacts* from pollutant emissions by construction vehicles and equipment. Emissions would vary throughout the project and be comparable to similar types of construction and demolition projects
- Temporary emissions would not degrade regional air quality
- *No long-term impacts*

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Biological Resources

- *Short-term adverse impacts* from clearing of vegetation and displacement of common wildlife species. Wildlife would relocate to nearby areas offering similar habitat
- Best management practices would be used to minimize impacts on vegetation and wildlife
- *Long-term beneficial impacts* on vegetation and wildlife from site restoration

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Biological Resources (continued)

The Proposed Action:

- is *not likely to adversely affect* federally listed threatened and endangered terrestrial species
- may affect, but is *unlikely to adversely affect* federally listed fish species
- would have *no effect* on critical habitat

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)

Northern long-eared bat (*Myotis septentrionalis*)

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Biological Resources (continued)

- The Proposed Action *may affect, but is unlikely to adversely affect* Essential Fish Habitat
- USACE has consulted with the U.S. Fish & Wildlife Service and National Marine Fisheries Service

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Radiological Safety and Health

Short-term adverse impacts from potential exposure to low levels of residual radiation, and the generation of debris containing low levels of residual radiation

- Current levels of radioactivity at the Deactivated SM-1 Nuclear Reactor Facility are **very low**
- Radioactive waste and debris generated by the Proposed Action would be classified as Low Level Radioactive Waste (LLRW)
- All LLRW would be packaged and transported for disposal in compliance with U.S. Department of Transportation (USDOT) and Nuclear Regulatory Commission (NRC) regulatory requirements

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Radiological Safety and Health (continued)

- A **Radiation Safety Program**, an **Environmental Monitoring and Control Program**, and a **Waste Management Program** would ensure the safe removal of contaminated components and reduce the risk of release to the environment
- Appropriate monitoring of occupational radiation exposure would be provided to staff entering and working in the restricted area
- A **Waste Management Plan** (WMP) would safely guide the handling and management of LLRW
- Removal of the facility would have a *long-term beneficial impact*

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Occupational Safety and Health

- *Short-term adverse impacts* from decommissioning activities
- *Long-term adverse impacts* from ongoing site maintenance

- The contractor would prepare, implement, and adhere to an **Accident Prevention Plan** (APP) before performing work. The APP would be reviewed and updated throughout the project as phases and/or conditions change
  - USACE would provide continuous oversight of the APP
- USACE would enter into agreements with on- and off-post first response services and hospitals to ensure any needed support is available.

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Cultural Resources

- The SM-1 Reactor Facility is eligible for listing in the National Register of Historic Places due to its historic significance
- USACE is consulting with the Virginia Department of Historic Resources to record the history and operation of SM-1
- Adherence to mitigation measures will ensure that effects on this National Register-eligible resource remain *less than significant*
- *No effects* on traditional cultural resources

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Transportation and Traffic

- *Short-term adverse impacts* on the on- and off-post transportation networks
- The Proposed Action would generate an estimated 1,150 truck trips over the 5-year project to remove debris and deliver clean fill soils during site restoration
- All debris would be packaged and transported in accordance with USDOT and NRC requirements

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Non-Radiological Hazardous Materials / Non-Hazardous Solid Waste

- *Short-term adverse impacts* from waste generated during decommissioning activities
- All waste generated by the Proposed Action would be managed, handled responsibly
- *No long-term impacts*

Most adverse impacts would occur during demolition activities and would be temporary.

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DRAFT EA – POTENTIAL IMPACTS

Geology, topography, and soils

- *Short-term adverse impacts* on topography, soils, bathymetry, and sediments
- *Long-term beneficial impacts* from site restoration and removal of soils with low levels of residual contaminants

Most adverse impacts would occur during demolition activities and would be temporary.

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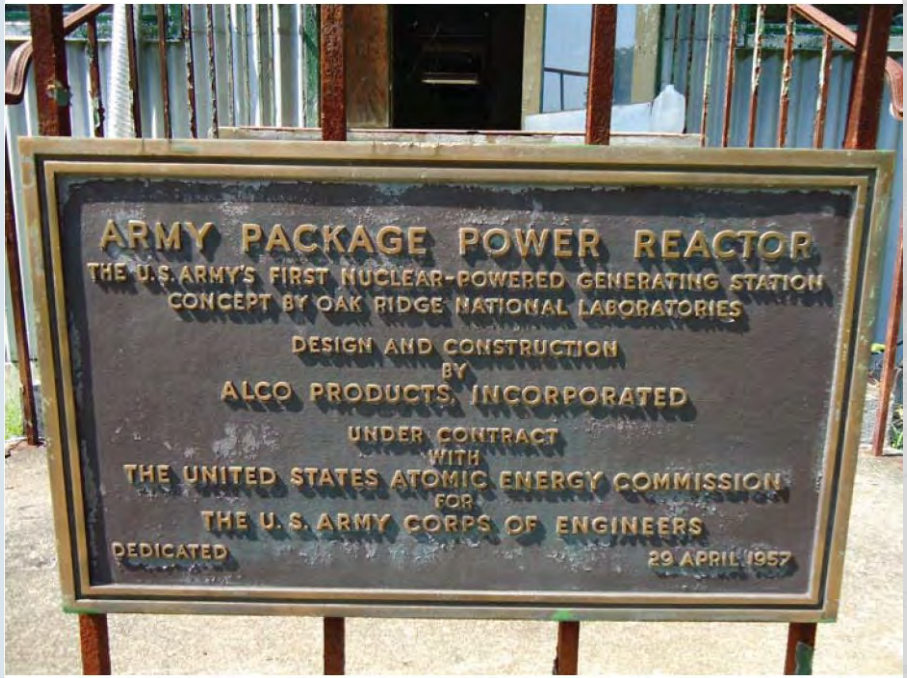
SECTION 106

- Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their actions on properties listed, or eligible for listing, in the National Register of Historic Places
- The SM-1 Reactor Facility is eligible for listing in the National Register due to its historic significance
- Under Section 106, the Proposed Action would have an *adverse effect* on the SM-1 Reactor Facility
- USACE is mitigating the Section 106 adverse effect by preparing a modified Historical American Engineering Record (HAER) document to record SM-1's historic significance, and will implement other measures in consultation with Virginia Department of Historic Resources (VDHR)



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FLOODPLAIN MANAGEMENT AND PROTECTION OF WETLANDS

- The former water intake pier and discharge pipe must be removed as part of the Proposed Action
- Removal of these structures will allow the shoreline to return to a natural condition, resulting in a beneficial long-term impact
- No practicable alternative exists to remove the pier and discharge pipe that would avoid disturbance of floodplains and wetlands
- USACE has prepared a Draft Finding of No Practicable Alternative (FONPA) to address floodplain disturbance

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DECOMMISSIONING RISKS AND HOW WE REDUCE THEM

- Safety is the Army's number one priority—the safety and health of the community and our workers are paramount to the success of our project
- Trained professionals will use proven techniques and precautions to ensure the safety of the workers and the public
- Work will be completed using appropriate engineering controls
- All wastes will be properly packaged in compliance with USDOT and NRC requirements
- Wastes will be disposed of at permitted off-post facilities with adequate capacity to handle and manage them

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FEDERAL OVERSIGHT

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ORAU

- U.S. Army Corps of Engineers will provide quality assurance over the contractor and their quality control program
- Corps of Engineers National Environmental Center of Expertise
- Army Reactor Office and Reactor Council
- Oak Ridge Associated Universities – Independent Review

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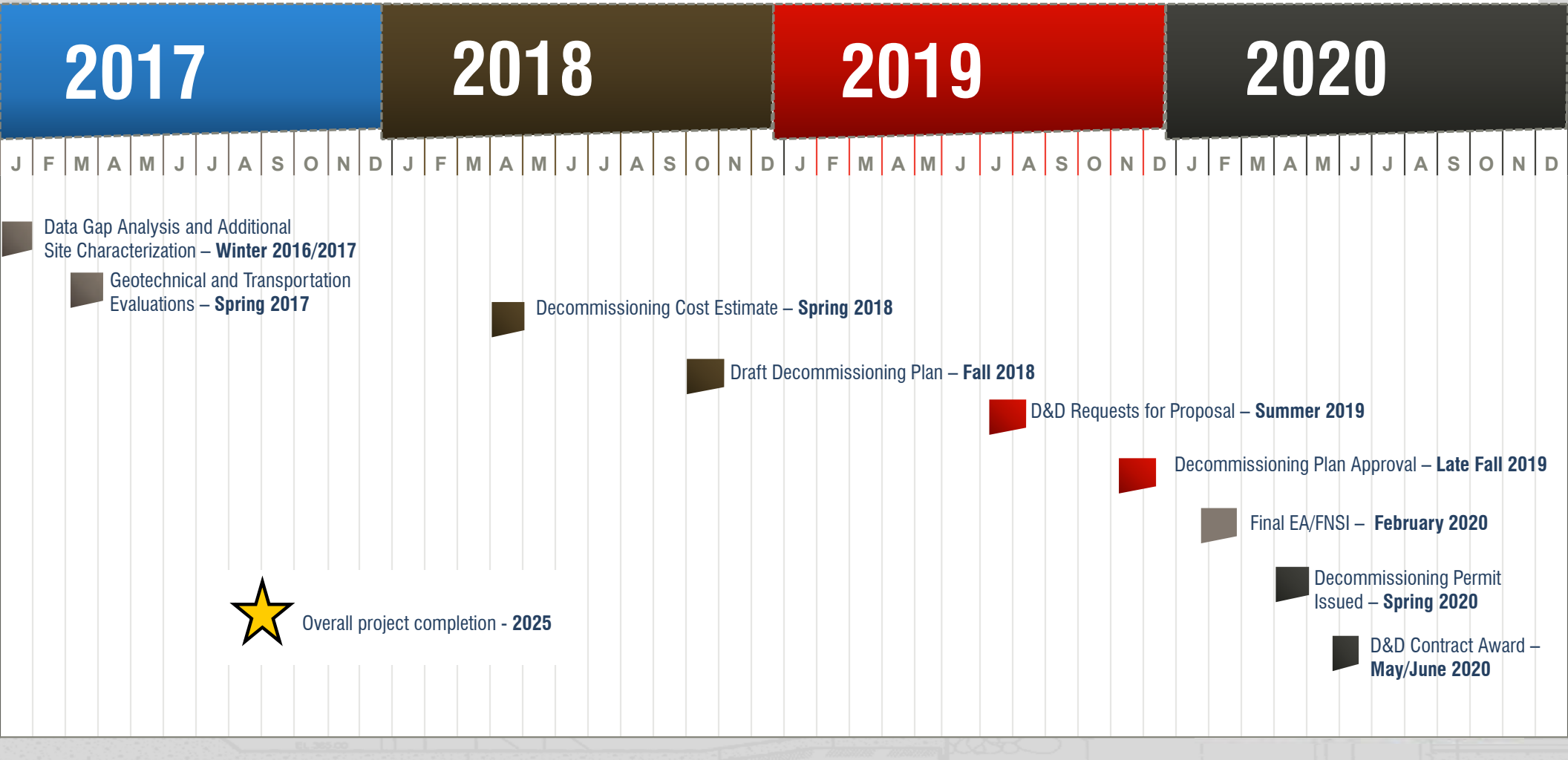
TIMELINE / SCHEDULE



QUESTIONS AND HOW TO LEARN MORE

Learn more about the SM-1 Project online at:

www.nab.usace.army.mil/SM-1/

Sign up for the SM-1 stakeholder update e-mail list by e-mailing:

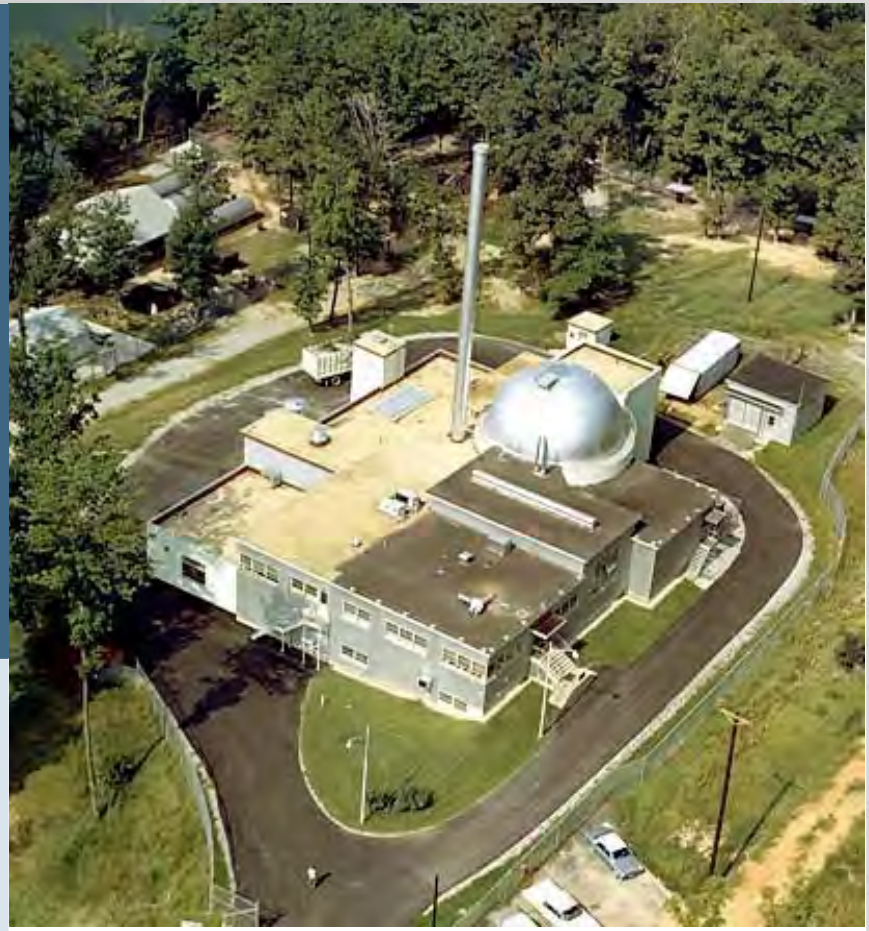
CENAB-CC@usace.army.mil

Stay engaged with us online:

https://www.facebook.com/USACEBaltimore

@USACEBaltimore

www.nab.usace.army.mil



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HOW TO COMMENT ON THE DRAFT EA, DRAFT FNSI, AND DRAFT FONPA

Tonight: Fill out a comment form or dictate your comment to the stenographer

Send written comments to:

U.S. Mail: Brenda Barber, P.E.
USACE Project Manager
c/o AECOM
4840 Cox Road
Glen Allen, Virginia 23060

E-mail: cenab-cc@usace.army.mil

Written comments must be postmarked by January 31, 2020

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Notice of Availability and Public Meeting for Draft EA, Draft FNSI, and Draft FONPA

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

20 December 2019

SUBJECT: Notice of Availability and Public Meeting for the Draft Environmental Assessment, Draft Finding of No Significant Impact, and Draft Finding of No Practicable Alternative for the Proposed Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility, US Army Garrison Fort Belvoir, Fairfax County, Virginia

Dear Sir or Madam:

The US Army Corps of Engineers (USACE) announces the availability of the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) for the proposed decommissioning and dismantlement of the Deactivated Stationary Medium Power Model 1 (SM-1) Nuclear Reactor Facility at US Army Garrison Fort Belvoir in Fairfax County, Virginia for public review and comment. This notice also announces the availability of the Draft Finding of No Practicable Alternative (FONPA) in accordance with Executive Order (EO) 11988, *Floodplain Management*. This notice is being issued to all interested parties in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Army NEPA regulations (32 CFR Part 651).

USACE proposes to decommission the Deactivated SM-1 Nuclear Reactor Facility to a standard that allows for release of the site for unrestricted use (proposed action). Under the proposed action, USACE would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return the site to Fort Belvoir for future use. The Draft EA analyzes the potential environmental impacts of the proposed action and concludes that there would be no significant adverse impacts on the physical, cultural, and natural environment.

Printed copies of the Draft EA, Draft FNSI, and Draft FONPA are available for review at the following local libraries:

Fort Belvoir Library	Kingstowne Library	Lorton Library
9800 Belvoir Rd, Bldg 200	6500 Landsdowne Centre	9520 Richmond Highway
Fort Belvoir, VA 22060	Alexandria, VA 22315-5011	Lorton, VA, 22079-2124

The Draft EA, Draft FNSI, and Draft FONPA are available for view or download online or by request, as follows:

Online www.nab.usace.army.mil/SM-1

https://home.army.mil/belvoir/index.php/about/Garrison/directorate-public-works/environmental-division

Compact Disc **Request by email to:**
cenab-cc@usace.army.mil

Request by mail to:
Brenda Barber, P.E.
USACE Project Manager
c/o AECOM
4840 Cox Road, Glen Allen, VA 23060

USACE invites public agencies and members of the public to participate in its decision-making process. Your comments on the proposed action and environmental review are requested. In accordance with 32 CFR Part 651.14, the Draft EA, Draft FNSI, and Draft FONPA will be available for a 6-week public review and comment period starting 20 December 2019 and ending 31 January 2020. Written comments on the Draft EA, Draft FNSI, and Draft FONPA, or requests for additional information about the proposed action and environmental review, should be sent to USACE at the email or postal mail addresses noted above.

USACE invites interested parties to attend **public meetings** for the Draft EA to learn more about the proposed action and environmental review. The public meetings will be held on January 7 and 8, 2020. Each meeting will be conducted in an open house format to include a short presentation followed by questions and answers from the audience. The public meeting schedule will be:

Tuesday, January 7, 2020 (On-Post*)
Thurman Hall, Building 247, 270 Kuhn Road, Fort Belvoir, VA 22060
(* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.)

- Afternoon Meeting: Open House/Poster Session 1:00 PM – 2:00 PM, Formal Presentation and Audience Questions 2:00 PM – 3:00 PM
- Evening Meeting: Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Wednesday, January 8, 2020 (Off-Post – Open to the General Public)
Fairfax South County Office, Room 221, 8350 Richmond Highway, Alexandria, VA 22309

- Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Interested parties are encouraged to provide written or oral comments at the public meetings. Updates on the SM-1 Decommissioning project and public meeting are available on the USACE project website at: https://www.nab.usace.army.mil/Missions/Environmental/SM-1/.

Should you require special assistance due to a disability, have limited English proficiency, or have other questions or concerns about the public meeting, please contact the USACE Corporate Communication team at 410-962-2809 in advance of the event.

Sincerely,

Brenda M. Barber, P.E.

Brenda M. Barber, P.E.
Project Manager
USACE – Baltimore District

Announcements

Draft Environmental Assessment Release

The US Army Corps of Engineers (USACE), Baltimore District proposes to fully decommission and dismantle the Deactivated Stationary Medium Power Model 1 (SM-1) Reactor Facility on Fort Belvoir in Fairfax County, Virginia to a standard that allows for release of the site for unrestricted use (proposed action). Under the proposed action, USACE would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the Deactivated SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return the site to Fort Belvoir for future use. Through analysis and evaluation of the proposed action's potential environmental impacts, USACE concludes that there would be no significant adverse impacts on the physical, cultural, and natural environment.

USACE has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) regarding the proposed action as well as a Draft Finding of No Practicable Alternative (FONPA), prepared by USACE to comply with Executive Order (EO) 11988, Floodplain Management.

These documents are available online here for review and USACE is accepting comments from the public through January 31st (which includes extra time to account for the holiday time being in the middle of the comment period). Comments can be submitted via e-mail to cenab-cc@usace.army.mil or by written mail to:

Brenda Barber, P.E.
USACE Project Manager
c/o AECOM
4840 Cox Road, Glen Allen, VA 23060

Draft EA, FNSI, FONPA and associated documents:

- Notice of Availability and Public Meeting
- Draft Environmental Assessment (EA)
- Draft Environmental Assessment Compiled Appendices
  - Appendix A - Public Information and Outreach
  - Appendix B - Agency Correspondence
  - Appendix C - Draft Finding of No Practicable Alternative (FONPA)
  - Appendix D - Federal Consistency Determination
  - Appendix E - Record of Non-Applicability (RONA) and Air Quality Emissions Estimates
- Draft Finding of No Significant Impact (FNSI)

Upcoming Public Information Sessions Regarding Draft EA

Contact Information

To join our stakeholder list and receive email updates, please call or email us:

Phone: 410-962-2809
E-mail: cenab-cc@usace.army.mil

Or if you have questions, please don't hesitate to reach out to us.

Please direct any inquiries regarding contracting opportunities to Brian Richardson via email to Brian.L.Richardson@usace.army.mil.

Project Documents

This section includes the project documents to date.
Collapse All Expand All

⊟ Documents
Project Fact Sheet

NRC EIS Executive Summary

Presentations

- Jan. 8 and 9, 2020 Draft EA Public Meeting Presentation
- Jan. 8 and 9, 2020 Draft EA Public Meetings Posters
- March 12, 2019 Public Info Session Presentation
- March 12, 2019 Public Info Session Posters
- January 28, 2019 Public Meeting Presentation
- SM-1 Decommissioning Overview for Waste Management 2018 Conference (March 2018)
- Contract Acquisition Approach for Industry - SM-1 and SM-1A (March 2018)

Links of Historical Interest

On-Post Public Info Sessions **January 9, 2019** Wood Theater (6050 Abbot Road) Fort Belvoir, VA **Afternoon Meeting:** Open House/Poster Session: 1:00PM – 2:00 PM Formal Presentation: and Audience Questions: 2:00 PM – 3:00 PM **Evening Meeting:** Open House/Poster Session: 6:30 PM – 7:30 PM Formal Presentation and Audience Questions: 7:30 PM - 8:30 PM	Fairfax County's South County Government Center (Room 221, 8350 Richmond Highway, Alexandria, VA 22309) **Evening Meeting:** Open House/Poster Session: 6:30 PM – 7:30 PM Formal Presentation and Audience Questions: 7:30 PM - 8:30 PM
Click here to download the presentation given at the meetings Click here to download the posters displayed at the meetings	

SM-1: January 7, 2020 Stakeholder Update

Dear Stakeholders,

Due to impending inclement weather in the Fort Belvoir area and the associated Office of Personnel Management-dictated closure of offices on post, we are postponing both on-post Deactivated SM-1 Nuclear Reactor public meetings scheduled for today, Jan. 7, and will be holding them the afternoon and evening of Thursday, Jan. 9 in Wood Theater.

We appreciate your understanding of this change. The safety of the public and our team is paramount in everything we do.

The new schedule for the on-post meetings will be as follows:

- Thursday, January 9, 2020 (On-Post*) – Wood Theater (Bldg. 2120), 6050 Abbot Road, Fort Belvoir, VA 22060
(* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.)

- Afternoon Meeting: Open House/Poster Session 1:00 PM – 2:00 PM, Formal Presentation and Audience Questions 2:00 PM – 3:00 PM
- Evening Meeting: Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Tomorrow evening's off-post public meeting is not impacted by this announcement. Stakeholders that planned to attend today's on-post meetings are welcome to attend tomorrow evening's meeting. Tomorrow's meeting schedule is as follows:

- Wednesday, January 8, 2020 (Off-Post – Open to the General Public) – Gerry Hyland Government Center (formerly known as the Fairfax South County Office), Room 221, 8350 Richmond Highway, Alexandria, VA 22309

- Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Thank you for your continued support and participation as we continue through the planning phase of the deactivated SM-1 decommissioning and dismantling.

If you have any questions, feedback or information you'd like to share with us, please feel free to e-mail or call our Corporate Communication team at 410-962-2809.

- Article - Pioneer in military use of nuclear power provides insight on facility...
- Video - Army Nuclear Power Program (1963)

Join Our Stakeholder List

SM-1 Stakeholder List
Receive the latest updates regarding the former SM-1 Nuclear Power Plant by entering your information below to join our stakeholder list.

Your Name
First Last Suffix

Your Email
Email Confirm *

I'm not a robot
reCAPTCHA
Privacy - Terms

Submit

SM-1 Former Nuclear Power Plant Overview

The SM-1 Former Nuclear Power Plant is located on the western shore of the Potomac River within the boundaries of Fort Belvoir in Fairfax County, Virginia. It is approximately 17 miles south by southwest from the center of Washington D.C.

The construction of the SM-1 at Fort Belvoir was completed in 1957, and it achieved its first criticality in April 1957. The SM-1 was a single-loop 10 megawatt-thermal (MWt) pressurized water reactor delivering a net 1,750 kilowatts of electrical power. It was the first nuclear power reactor to provide electricity to a commercial power grid in the United States. The SM-1 Reactor operated from April 1957 to March 1973. Fort Belvoir was home to the U.S. Army Engineer Reactors Group (USAERG), and the SM-1 was used for training the multi-service crews that would operate the various plants in the program. The reactor was stationary with a medium power range, which was between 1,000 and 10,000 kilowatt-electric (kWe).

Deactivation was performed on the SM-1 Reactor from 1973-1974, in accordance with the SM-1 Decommissioning and Conversion Plan as approved by the Army Reactor Systems Health and Safety Review Committee (ARCHS). This consisted of removal of the nuclear fuel, minor decontamination, shipment of necessary radioactive waste, sealing the pressure vessel, and installing appropriate warning signs and monitoring devices.

After the completion of the facility deactivation and conversion, a third party radiological survey by the U.S. Army Environmental Hygiene Agency verified that known areas of radioactive contamination had been decontaminated to acceptable levels or were properly controlled. The ARCHS approved the SM-1 Post-Decommissioning Environmental Monitoring Plan, which has been used to provide on-going surveillance of the decommissioned facility.

In October 1996, the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) took extensive surveys of the SM-1 and surrounding environment to determine the radiological status of the facility at that time. In 2005, a Historical Site Assessment was developed using operational records and data collected from the 1996 USACHPPM Surveys. In 2009/2010 Characterization Surveys were completed and the Report was finalized in 2013.

The Historical Site Assessment and Characterization Surveys support the decommissioning study process outlined in Army Regulation 50-7. This process is performed by USACE, at the direction of the Army Reactor Office, to better define disposal activity costs.

The decommissioning strategy that was developed in the 1970's recommended that the deactivated reactors be placed into a safe storage mode that would allow the shorter-lived radionuclides to decay. It was expected that delaying decommissioning would reduce radioactive waste volumes and worker exposures. However, subsequent studies indicated that the levels of contamination present within the reactors would not be reduced by decay sufficiently to allow for release of the facilities without significant decontamination being performed. Additionally, concern regarding the increasing cost and

USACE developed a management plan for conducting an All Hazards Assessment, which contained provisions for four phases of work to be performed. Phase I included a Historical Records Review and Disposal Alternatives Investigation. Phase II, included performing a characterization survey and decommissioning cost estimate. Phases III and IV deal with decommissioning planning, design, and execution.

NOA Proof of Publication

NOTICE OF AVAILABILITY AND PUBLIC MEETING DRAFT

Notice of Availability and Public Meeting

Draft Environmental Assessment, Draft Finding of No Significant Impact, and Draft Finding of No Practicable Alternative for the
Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility
Fort Belvoir, Fairfax County, Virginia

Proposed Action. The US Army Corps of Engineers (USACE), Baltimore District proposes to fully decommission and dismantle the Deactivated Stationary Medium Power Model 1 (SM-1) Reactor Facility on Fort Belvoir in Fairfax County, Virginia to a standard that allows for release of the site for unrestricted use (proposed action). Under the proposed action, USACE would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the Deactivated SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return the site to Fort Belvoir for future use. Through analysis and evaluation of the proposed action's potential environmental impacts, USACE concludes that there would be no significant adverse impacts on the physical, cultural, and natural environment.

Public Notice. Interested parties are hereby notified that USACE has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) regarding the proposed action. Notice is also made for a Draft Finding of No Practicable Alternative (FONPA), prepared by USACE to comply with Executive Order (EO) 11988, Floodplain Management.

Statutory Authority. This notice is being issued to all interested parties in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Army NEPA regulations (32 CFR Part 651).

Public Review. In accordance with 32 CFR Part 651.14, the Draft EA, Draft FNSI, and Draft FONPA will be available for a six-week public review and comment period starting December 20, 2019 and concluding on January 31, 2020. The public may submit comments on these documents during this time.

Printed copies of the Draft EA, Draft FNSI, and Draft FONPA are available for review at the following local libraries:

Fort Belvoir Library Kingstowne Library Lorton Library
9800 Belvoir Rd, Bldg 200 6500 Landsdowne Centre 9520 Richmond Highway
Fort Belvoir, VA 22060 Alexandria, VA 22315-5011 Lorton, VA, 22079-2124

The Draft EA, Draft FNSI, and Draft FONPA are available for view or download online or by request, as follows:

Online **www.nab.usace.army.mil/SM-1**

https://home.army.mil/belvoir/index.php/about/Garrison/directorate-public-works/environmental-division

Compact Disc **Request by email to:**
cenab-cc@usace.army.mil
Request by mail to:
Brenda Barber, P.E.
USACE Project Manager
c/o AECOM
4840 Cox Road, Glen Allen, VA 23060

Comments. Written comments on the Draft EA, Draft FNSI, and Draft FONPA, or requests for additional information about the proposed action and environmental review, should be sent to USACE at the email or postal mail addresses noted above.

Public Meetings. USACE invites interested parties and the local community to attend public meetings for the Draft EA to learn more about the proposed action and environmental review. The public meetings will be held on January 7 and 8, 2020. Each meeting will be conducted in an open house format to include a short presentation followed by questions and answers from the audience. In accordance with NEPA, the participation of military personnel, federal, state, and local agencies, federally recognized tribes, organizations, and individuals with an interest in the proposed action is strongly encouraged.

The public meeting schedule will be:
Tuesday, January 7, 2020 (On-Post*)
Thurman Hall, Building 247, 270 Kuhn Road, Fort Belvoir, VA 22060
(* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.)

• Afternoon Meeting: Open House/Poster Session 1:00 PM - 2:00 PM, Formal Presentation and Audience Questions 2:00 PM - 3:00 PM
• Evening Meeting: Open House/Poster Session 6:30 PM - 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Wednesday, January 8, 2020 (Off-Post - Open to the General Public)
Fairfax South County Office, Room 221, 8350 Richmond Highway, Alexandria, VA 22309

• Open House/Poster Session 6:30 PM - 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Interested parties are encouraged to provide written or oral comments at the meetings. Should you require special assistance due to a disability, have limited English proficiency, or have other questions or concerns about the public meeting, please contact the USACE Corporate Communication team at 410-962-2809 in advance of the event. Please note that presentations at the different sessions will all be the same and will be shared online following the meetings.

Updates regarding the Deactivated SM-1 Decommissioning project, how to join the stakeholder updates list and public meeting information are available on the USACE project website at:
www.nab.usace.army.mil/SM-1/.

Appeared in: ***Washington Post*** on Friday, 12/20/2019

Ad # 12290720 Name AECOM Size 285 Lines T0001
Class 820 PO# Authorized by Account 2010263154

PROOF OF PUBLICATION

District of Columbia, ss., Personally appeared before me, a Notary Public in and for the said District, Sandra Broadstone well known to me to be ASSISTANT MANAGER BILLING of The Washington Post, a daily newspaper published in the City of Washington, District of Columbia, and making oath in due form of law that an advertisement containing the language annexed hereto was published in said newspaper on the dates mentioned in the certificate herein.

I Hereby Certify that the attached advertisement was published in The Washington Post, a daily newspaper, upon the following date(s) at a cost of $3,415.80 and was circulated in the Washington metropolitan area.

Published 1 time(s). Date(s):20 of December 2019

Account 2010263154

Sandra Broadstone

Witness my hand and official seal this 8th day of January 2020

JENNIFER A. MITCHELL-JOHNSON NOTARY PUBLIC DISTRICT OF COLUMBIA MY COMMISSION EXPIRES 10/31/2024

My commission expires 10/31/2024

Notice of Availability and Public Meeting Draft Environmental Assessment, Draft Finding of No Significant Impact, and Draft Finding of No Practicable Alternative for the Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility Fort Belvoir, Fairfax County, Virginia Proposed Action. The US Army Corps of Engineers (USACE), Baltimore District proposes to fully decommission and dismantle the Deactivated Stationary Medium Power Model 1 (SM-1) Reactor Facility on Fort Belvoir in Fairfax County, Virginia to a standard that allows for release of the site for unrestricted use (proposed action). Under the proposed action, USACE would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the Deactivated SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return
the site to Fort Belvoir for future use. Through analysis and evaluation of the proposed action's potential environmental impacts, USACE concludes that there would be no significant adverse impacts
on the physical, cultural, and natural environment. Public Notice. Interested parties are hereby
notified that USACE has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) regarding the proposed action. Notice is also made for a Draft Finding of
No Practicable Alternative (FONPA), prepared by USACE to comply with Executive Order (EO) 11988, Floodplain Management. Statutory Authority. This notice is being issued to all interested parties
in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Army NEPA
regulations (32 CFR Part 651). Public Review. In accordance with 32 CFR Part 651.14, the Draft EA,
Draft FNSI, and Draft FONPA will be available for a six-week public review and comment period starting December 20, 2019 and concluding on January 31, 2020. The public may submit comments on these documents during this time. Printed copies of the Draft EA, Draft FNSI, and Draft FONPA are
available for review at the following local libraries: Fort Belvoir Library
Kingstowne Library Lorton Library

Ad # 12290720 Name AECOM Size 285 Lines T0002
Class 820 PO# Authorized by Account 2010263154

9800 Belvoir Rd, Bldg 200 6500 Landsdowne Centre
9520 Richmond Highway Fort Belvoir, VA 22060
Alexandria, VA 22315-5011 Lorton, VA, 22079-2124 The Draft EA, Draft
FNSI, and Draft FONPA are available for view or download online or by request, as follows: Online
www.nab.usace.army.mil/SM-1
https://home.army.mil/belvoir/index.php/about/Garrison/
directorate-public-works/ environmental-division Compact Disc Request by email
to: cenab-cc@usace.army.mil
Request by mail to: Brenda Barber, P.E.
USACE Project Manager c/o AECOM
4840 Cox Road, Glen Allen, VA 23060 Comments. Written comments on the Draft EA, Draft FNSI, and Draft FONPA, or requests for additional information about the proposed action and environmental review, should be sent to USACE at the email or postal mail addresses noted above.
Public Meetings. USACE invites interested parties and the local community to attend public meetings for the Draft EA to learn more about the proposed action and environmental review. The public meetings will be held on January 7 and 8, 2020. Each meeting will be conducted in an open house format to include a short presentation followed by questions and answers from the audience. In
accordance with NEPA, the participation of military personnel, federal, state, and local agencies,
federally recognized tribes, organizations, and individuals with an interest in the proposed action
is strongly encouraged. The public meeting schedule will be: Tuesday, January 7, 2020 (On-
Post*) Thurman Hall, Building 247, 270 Kuhn Road, Fort Belvoir, VA 22060 (* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.) # Afternoon Meeting: Open House/Poster Session 1:00 PM # 2:00 PM, Formal Presentation and Audience Questions 2:00 PM # 3:00 PM # Evening Meeting: Open House/Poster Session
6:30 PM # 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM Wednesday, January
8, 2020 (Off-Post # Open to the General Public) Fairfax South County Office, Room 221, 8350 Richmond
Highway, Alexandria, VA 22309 # Open House/Poster Session 6:30 PM # 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM Interested parties are encouraged to provide written or oral comments at the meetings. Should you require special assistance due to a disability, have limited English proficiency, or have other questions or concerns about the public meeting, please contact the USACE Corporate Communication team at 410-962-2809 in advance of the event. Please note
that presentations at the different sessions will all be the same and will be shared online following the meetings. Updates regarding the Deactivated SM-1 Decommissioning project, how to join
the stakeholder updates list and public meeting information are available on the USACE project website at: www.nab.usace.army.mil/SM-1/.

Children's

Day of the Dead Sugar Skull Painting

T.C. Williams High School Minnie Howard Campus

Acrylic paintings from the Day of the Dead Sugar Skull Painting unit. The students are 9th graders in Art I from T.C. Williams High School Minnie Howard.
Anna Davila, Visual Arts Teacher

Leila Abarca

Legals

Legals

Notice of Availability and Public Hearing

Draft Environmental Assessment, Draft Finding of No Significant Impact, and Draft Finding of No Practicable Alternative for the

Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility
Fort Belvoir, Fairfax County, Virginia

Proposed Action. The US Army Corps of Engineers (USACE), Baltimore District proposes to fully decommission and dismantle the Deactivated Stationary Medium Power Model 1 (SM-1) Reactor Facility on Fort Belvoir in Fairfax County, Virginia to a standard that allows for release of the site for unrestricted use (proposed action). Under the proposed action, USACE would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the Deactivated SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return the site to Fort Belvoir for future use. Through analysis and evaluation of the proposed action's potential environmental impacts, USACE concludes that there would be no significant adverse impacts on the physical, cultural, and natural environment.

Public Notice. Interested parties are hereby notified that USACE has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) regarding the proposed action. Notice is also made for a Draft Finding of No Practicable Alternative (FONPA), prepared by USACE to comply with Executive Order (EO) 11988, Floodplain Management.

Statutory Authority. This notice is being issued to all interested parties in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Army NEPA regulations (32 CFR Part 651).

Public Review. In accordance with 32 CFR Part 651.14, the Draft EA, Draft FNSI, and Draft FONPA will be available for a six-week public review and comment period starting December 20, 2019 and concluding on January 31, 2020. The public may submit comments on these documents during this time.
Printed copies of the Draft EA, Draft FNSI, and Draft FONPA are available for review at the following local libraries:

Fort Belvoir Library 9800 Belvoir Rd, Bldg 200 Fort Belvoir, VA 22060	Kingstowne Library 6500 Landsdowne Centre Alexandria, VA 22315-5011	Lorton Library 9520 Richmond Highway Lorton, VA, 22079-2124

The Draft EA, Draft FNSI, and Draft FONPA are available for view or download online or by request, as follows:

Online www.nab.usace.army.mil/SM-1
https://home.army.mil/belvoir/index.php/about/Garrison/directorate-public-works/environmental-division

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-Werner Heisenberg

Employment

Announcements

Announcements

Kathryn Rutherford

Evelyn Ipsen

Frank Agama Perez

cenab-cc@usace.army.mil

Request by mail to:

Brenda Barber, P.E.
USACE Project Manager
c/o AECOM
4840 Cox Road, Glen Allen, VA 23060

Comments. Written comments on the Draft EA, Draft FNSI, and Draft FONPA, or requests for additional information about the proposed action and environmental review, should be sent to USACE at the email or postal mail addresses noted above.

Public Meetings. USACE invites interested parties and the local community to attend public meetings for the Draft EA to learn more about the proposed action and environmental review. The public meetings will be held on January 7 and 8, 2020. Each meeting will be conducted in an open-house format to include a short presentation followed by questions and answers from the audience. In accordance with NEPA, the participation of military personnel, federal, state, and local agencies, federally recognized tribes, organizations, and individuals with an interest in the proposed action is strongly encouraged.

The public meeting schedule will be:

Tuesday, January 7, 2020 (On-Post*)
Thurman Hall, Building 247, 270 Kuhn Road, Fort Belvoir, VA 22060
(* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.)

- Afternoon Meeting: Open House/Poster Session 1:00 PM – 2:00 PM, Formal Presentation and Audience Questions 2:00 PM – 3:00 PM

- Evening Meeting: Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Wednesday, January 8, 2020 (Off-Post – Open to the General Public)
Fairfax South County Office, Room 221, 8350 Richmond Highway, Alexandria, VA 22309

- Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Interested parties are encouraged to provide written or oral comments at the meetings. Should you require special assistance due to a disability, have limited English proficiency, or have other questions or concerns about the public meeting, please contact the USACE Corporate Communication team at 410-962-2809 in advance of the event. Please note that presentations at the different sessions will all be the same and will be shared online following the meetings.
Updates regarding the Deactivated SM-1 Decommissioning project, how to join the stakeholder updates list and public meeting information are available on the USACE project website at: www.nab.usace.army.mil/SM-1/.

Notice of Availability, Public Meeting: SM-1 Nuclear Reactor Facility Decommissioning, Dismantle

December 20, 2019 Contributor

Notice of Availability and Public Meeting

Draft Environmental Assessment, Draft Finding of No Significant Impact, and Draft Finding of No Practicable Alternative for the Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility, Fort Belvoir, Fairfax County, Virginia

Proposed Action. The US Army Corps of Engineers (USACE), Baltimore District proposes to fully decommission and dismantle the Deactivated Stationary Medium Power Model 1 (SM-1) Reactor Facility on Fort Belvoir in Fairfax County, Virginia to a standard that allows for release of the site for unrestricted use (proposed action). Under the proposed action, USACE would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the Deactivated SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return

the site to Fort Belvoir for future use. Through analysis and evaluation of the proposed action's potential environmental impacts, USACE concludes that there would be no significant adverse impacts on the physical, cultural, and natural environment.

Public Notice. Interested parties are hereby notified that USACE has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) regarding the proposed action. Notice is also made for a Draft Finding of No Practicable Alternative (FONPA), prepared by USACE to comply with Executive Order (EO) 11988, *Floodplain Management*.

Statutory Authority. This notice is being issued to all interested parties in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Army NEPA regulations (32 CFR Part 651).

Public Review. In accordance with 32 CFR Part 651.14, the Draft EA, Draft FNSI, and Draft FONPA will be available for a six-week public review and comment period starting December 20, 2019 and concluding on January 31, 2020. The public may submit comments on these documents during this time.

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Fort Belvoir Library
9800 Belvoir Rd, Bldg 200
Fort Belvoir, VA 22060

Kingstowne Library
6500 Landsdowne Centre
Alexandria, VA 22315-5011

Lorton Library
9520 Richmond Highway
Lorton, VA, 22079-2124

The Draft EA, Draft FNSI, and Draft FONPA are available for view or download online or by request, as follows:

Online

nab.usace.army.mil/SM-1

home.army.mil/belvoir/index.php/about/Garrison/directorate-public-works/environmental-division

Compact Disc

Request by email to: cenab-cc@usace.army.mil

Request by mail to:

Brenda Barber, P.E.
USACE Project Manager
c/o AECOM
4840 Cox Road, Glen Allen, VA 23060

Comments. Written comments on the Draft EA, Draft FNSI, and Draft FONPA, or requests for additional information about the proposed action and environmental review, should be sent to USACE at the email or postal mail addresses noted above.

Public Meetings. USACE invites interested parties and the local community to attend public meetings for the Draft EA to learn more about the proposed action and environmental review. The public meetings will be held on January 7 and 8, 2020. Each meeting will be conducted in an open house format to include a short presentation followed by questions and answers from the audience. In accordance with NEPA, the participation of military personnel, federal, state, and local agencies, federally recognized tribes, organizations, and individuals with an interest in the proposed action is strongly encouraged.

The public meeting schedule will be:

Tuesday, January 7, 2020 (On-Post*)
Thurman Hall, Building 247, 270 Kuhn Road, Fort Belvoir, VA 22060
(* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.)

- Afternoon Meeting: Open House/Poster Session 1–2 PM, Formal Presentation and Audience Questions 2–3 PM
- Evening Meeting: Open House/Poster Session 6:30–7:30 PM Formal Presentation and Audience Questions 7:30–8:30 PM

Wednesday, January 8, 2020 (Off-Post – Open to the General Public)
Fairfax South County Office, Room 221, 8350 Richmond Highway, Alexandria, VA 22309

- Open House/Poster Session 6:30–7:30 PM, Formal Presentation and Audience Questions 7:30–8:30 PM

Interested parties are encouraged to provide written or oral comments at the meetings. Should you require special assistance due to a disability, have limited English proficiency, or have other questions or concerns about the public meeting, please contact the USACE Corporate Communication team at 410-962-2809 in advance of the event. Please note that presentations at the different sessions will all be the same and will be shared online following the meetings.

Updates regarding the Deactivated SM-1 Decommissioning project, how to join the stakeholder updates list and public meeting information are available on the USACE project website at: nab.usace.army.mil/SM-1.

Notices Fort Belvoir, SM-1, U.S. Army Corps of Engineers permalink Edit

HEART OF THE MOUNT VERNON REGION

FORT HUNT HERALD

Updated on SM-1 decommissioning, dismantlement project public meetings

January 8, 2020 Fort Hunt Herald

The inclement weather on Tuesday, Jan. 7, 2020, caused the U.S. Army to postpone its on-post public meeting at Fort Belvoir regarding the decommissioning and dismantlement of the local deactivated SM-1 nuclear reactor facility to Thursday, Jan. 9. But the separate, off-post Wednesday, Jan. 8, session at the Gerry Hyland Government Center on Richmond Highway will go ahead as planned.

The on-post meeting to review and comment on the SM-1 decommissioning and dismantlement project's recently released draft environmental assessment is limited to Defense Department military and civilian personnel, as well as Fort Belvoir residents, contractors and civilian employees. The rescheduled meeting will still take place at the Wood Theater (Building 2120), 6050 Abbot Road, Fort Belvoir, on Jan. 9, with an afternoon meeting from 1-3 p.m. and an evening session from 6:30 p.m. to 8:30 p.m.

"Due to impending inclement weather in the Fort Belvoir area and the associated Office of Personnel Management-dictated closure of offices on post, we are postponing both on-post deactivated SM-1 nuclear reactor public meetings scheduled for today, Jan. 7, and will instead be holding them the afternoon and evening of Thursday, Jan. 9 in the Wood Theater," the U.S. Army Corps of Engineers, Baltimore District, project manager at the environmental and munitions design center said in an email.

"We appreciate your understanding of this change. The safety of the public and our team is paramount in everything we do."

According to the project manager, the Jan. 8 off-post public meeting at Room 221 of the Gerry Hyland Government Center, 8350 Richmond Highway, Alexandria, is not impacted and will go ahead as planned.

"Stakeholders that planned to attend today's on-post meetings are welcome to attend tomorrow evening's meeting," the project manager said. "Thank you for your continued support and participation as we continue through the planning phase of the deactivated SM-1 decommissioning and dismantling."

The Jan. 8 open house and poster session will take place from 6:30 p.m. to 7:30 p.m. followed by a presentation and audience question and answer session from 7:30 p.m. to 8:30 p.m.

For information about the SM-1 decommissioning and dismantling project, visit: **nab.usace.army.mil/Missions/Environmental/SM-1**

In compliance with the law, stakeholders and the general public have six weeks to review and comment on the project's Draft Environmental Assessment, Draft Finding of No Significant Impact, and Draft Finding of No Practicable Alternative. That period started on Dec. 20, 2019, and concludes Jan. 31, 2020. For information, see the official notice of availability: **forthuntherald.com/notice-of-availability-public-meeting-sm-1-nuclear-reactor-facility-decommissioning-dismantle**

*Visit us on **Twitter**, **Facebook**, **YouTube**, **LinkedIn**, **Apple News** and **Google News**.*

 Events Deactivated Nuclear Power Plant, Fairfax County, Fort Belvoir, SM-1, U.S. Army Corps of Engineers permalink

Attend West Potomac High School's girls basketball youth night on Jan. 17

**Celebrate Black History Month Feb. 9 with 'the poetry and works of Langston Hughes' **

Road salt overuse can harm environment

Directorate of Public Works

Many of our local streams suffer the effects of too much salt. Road salt (sodium chloride) is most commonly used to remove ice from roads, parking lots, and sidewalks. As snow and ice melt, road salt is carried into our lakes, streams, and wetlands, where just one teaspoon can permanently pollute five gallons of water. Chloride from road salt is a major threat to water quality in Accotink Creek, the Potomac River, and other areas of the country where de-icing occurs. Since chloride is not easily filtered from water in the natural environment, it builds up over time in the soil and water. Because of this, chloride levels in streams can remain elevated throughout the year – even in the summer.

Road salt provides benefits by preventing roadway accidents, but can also have negative impacts on the environment and drinking water sources. When large amounts of road salt get into our drinking water sources it can contaminate it so that we can't drink it. An excessive amount of salt is hard and expensive for water treatment facilities to remove.

With winter weather on its way, we will all be breaking out the road salt, so it is extremely important to control salt at the source by being strategic about when, where, and how salt is applied.

Tips for Winter Snow Removal

We can protect our drinking water resources, the environment, and local habitats by following these snow removal tips:

SHOVEL

Limit the Need for Salt

Salt works best when applied before the snow and should never be applied when rain is in the forecast. After the snow be sure to clear all snow from driveways and sidewalks before it turns into ice. Salt should only be applied after the snow is removed and only in areas needed for safety.

SPREAD

Follow Salt Application Directions

1 lb of salt fits in a 12oz coffee mug and is enough to treat 10 sidewalk squares or 20 feet of driveway. The salt also needs to be spread a few inches apart and should not be laid down in piles or clumps.

SWEEP

More Salt Does Not Mean More Melting

Excess salt does not help melt ice! If you see leftover salt on the ground after the ice melts, then you have used too much. Sweep up any leftover salt to be reused and to keep it away from our rivers and streams

STORE

Prevent Damage

Avoid storing salts outdoors to prevent direct contact with grass, plants, trees, stormwater, and even infrastructure. Salt can slow plant growth, contaminate water, produce rusting, and weaken the concrete, brick, and stone that make up our homes.

Stakeholder Engagement Communications

Carver, Craig

From: Barber, Brenda M CIV USARMY CENAB (USA) [redacted]
Sent: Friday, January 03, 2020 10:51 AM
Cc: Gardner, Christopher P CIV USARMY CENAB (USA); Mitchell, Cynthia M CIV USARMY CENAB (USA); Falls, Eva E CIV (USA); Schuster, Michael J CIV USARMY CENAB (US); Honerlah, Hans B CIV USARMY CENAB (USA); Lazo, Carlos J CIV USARMY CENAB (USA); Roblyer, Griffin D K CIV USARMY CENAB (USA)
Subject: SM-1 Project Update, January 3, 2020

Importance: High

Happy New Year SM-1 Stakeholders,
Since our last stakeholder update was just before the holidays, I wanted to send a reminder that the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) for the proposed decommissioning and dismantling of the Deactivated SM-1 Nuclear Reactor Facility at Fort Belvoir is available for public review and comment.

You can review the documents online at https://urldefense.proofpoint.com/v2/url?u=http-3A__www.nab.usace.army.mil_Missions_Environmental_SM-2D1_&d=DwIGaQ&c=TQzoP61-bYDBLzNd0XmHrw&r=Ilpvm9bVT1EdvFcKpRS4wpyohoTtoB6f2UJyGU6jBj8&m=I5gO4xNUBBisv2dCRAFxGGD1OnCRBImEWEI5nhYxBz4&s=5yjtsQsbKf1Mu4ZszEGC51OBXUZxR1fpiYnt2hTg88Y&e= along with the formal public notice regarding their availability. There are also details online about next week's public meetings as well January 7 and 8.
We understand the release came just before the holiday season so we went ahead and extended the traditional 30-day window for public review and comment to 6 weeks, meaning stakeholders still have through the entire month of January to provide feedback.

The U.S. Army Corps of Engineers proposes to decommission the SM‐1 facility to a standard that allows for release of the site for unrestricted use (the proposed action in the Draft EA). Under the proposed action, USACE would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return the site to Fort Belvoir for future use. The Draft EA analyzes the potential environmental impacts of the proposed action and concludes that there would be no significant adverse impacts on the physical, cultural, and natural environment.
The team appreciates the feedback we have already received from members of the community, both on-post and off-post, during our outreach efforts over the course of last year. We have used your feedback to inform our planning efforts and the preparing of the documents available for review.

The project team invites stakeholders to attend public meetings for the Draft EA to learn more about the proposed action and environmental review. The public meetings will be held on January 7 and 8, 2020. Each meeting will be conducted in an open house format to include a short presentation followed by questions and answers from the audience. The public meeting schedule will be:

- Tuesday, January 7, 2020 (On-Post*) - Thurman Hall, Building 247, 270 Kuhn Road, Fort Belvoir, VA 22060
(* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.)
- Afternoon Meeting: Open House/Poster Session 1:00 PM – 2:00 PM, Formal Presentation and Audience Questions 2:00 PM – 3:00 PM
- Evening Meeting: Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

- Wednesday, January 8, 2020 (Off-Post – Open to the General Public) - Fairfax South County Office, Room 221, 8350 Richmond Highway, Alexandria, VA 22309

- Open House/Poster Session 6:30 PM – 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

More information about the release of the Draft EA and associated documents, public meetings and the SM-1 decommissioning effort in general can all be found on the USACE project website at: https://urldefense.proofpoint.com/v2/url?u=http-3A__www.nab.usace.army.mil_Missions_Environmental_SM-2D1_&d=DwIGaQ&c=TQzoP61-bYDBLzNd0XmHrw&r=Ilpvm9bVT1EdvFcKpRS4wpyohoTtoB6f2UJyGU6jBj8&m=I5gO4xNUBBisv2dCRAFxGGD1OnCRBImEWEI5nhYxBz4&s=5yjtsQsbKf1Mu4ZszEGC51OBXUZxR1fpiYnt2hTg88Y&e= .
Thank you all again for choosing to be a part of this process with us as we continue working through the planning phase of the decommissioning and dismantling of the deactivated SM-1. The team anticipates awarding a decommissioning contract for the work around summer 2020, with mobilization work on site beginning later in 2021.

If you have any questions, feedback or information you'd like to share with us, please feel free to e-mail me or call our Corporate Communication team at 410-962-2809.

Thanks

Brenda M. Barber, P.E.
U.S. Army Corps of Engineers - Baltimore District Project Manager - Environmental and Munitions Design Center
ATTN: CENAB-ENE-C
2 Hopkins Plaza
09-A-10 (Cube)
Baltimore, MD 21201
[redacted]

Carver, Craig

From: Barber, Brenda M CIV USARMY CENAB (USA) [redacted]
Sent: Tuesday, January 07, 2020 12:53 PM
Cc: Gardner, Christopher P CIV USARMY CENAB (USA); Mitchell, Cynthia M CIV USARMY CENAB (USA); Falls, Eva E CIV (USA); Schuster, Michael J CIV USARMY CENAB (US); Honerlah, Hans B CIV USARMY CENAB (USA); Lazo, Carlos J CIV USARMY CENAB (USA); Roblyer, Griffin D K CIV USARMY CENAB (USA)
Subject: SM-1 Project Update for January 7, 2020

Importance: High

Dear Stakeholders,
Due to impending inclement weather in the Fort Belvoir area and the associated Office of Personnel Management-dictated closure of offices on post, we are postponing both on-post Deactivated SM-1 Nuclear Reactor public meetings scheduled for today, Jan. 7, and will be holding them the afternoon and evening of Thursday, Jan. 9 in Wood Theater.

We appreciate your understanding of this change. The safety of the public and our team is paramount in everything we do.

The new schedule for the on-post meetings will be as follows:
- Thursday, January 9, 2020 (On-Post*) ? Wood Theater (Bldg. 2120), 6050 Abbot Road, Fort Belvoir, VA 22060
(* Due to Fort Belvoir security requirements, attendance at the on-post meetings is limited to Department of Defense military and civilian personnel, Fort Belvoir residents, and Fort Belvoir contractors/civilian employees.)
? Afternoon Meeting: Open House/Poster Session 1:00 PM ? 2:00 PM, Formal Presentation and Audience Questions 2:00 PM ? 3:00 PM
? Evening Meeting: Open House/Poster Session 6:30 PM ? 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Tomorrow evening's off-post public meeting is not impacted by this announcement. Stakeholders that planned to attend today's on-post meetings are welcome to attend tomorrow evening's meeting. Tomorrow's meeting schedule is as follows:
- Wednesday, January 8, 2020 (Off-Post ? Open to the General Public) ? Gerry Hyland Government Center (formerly known as the Fairfax South County Office), Room 221, 8350 Richmond Highway, Alexandria, VA 22309
? Open House/Poster Session 6:30 PM ? 7:30 PM, Formal Presentation and Audience Questions 7:30 PM - 8:30 PM

Thank you for your continued support and participation as we continue through the planning phase of the deactivated SM-1 decommissioning and dismantling.

If you have any questions, feedback or information you'd like to share with us, please feel free to e-mail or call our Corporate Communication team at 410-962-2809.

Thanks

Brenda M. Barber, P.E.
U.S. Army Corps of Engineers - Baltimore District Project Manager - Environmental and Munitions Design Center
ATTN: CENAB-ENE-C
2 Hopkins Plaza
09-A-10 (Cube)
Baltimore, MD 21201

SM-1 Project Update, January 10, 2018

Dear SM-1 Stakeholders,

Thank you for signing up to receive periodic updates regarding the ongoing efforts to decommission and dismantle the deactivated SM-1 former nuclear power plant at Fort Belvoir. This is the first of what will be several stakeholder updates that we'll be sending over the course of this project.

We are still in the early planning stages of this project, but as part of our commitment to open and transparent communication, we will be sending stakeholder updates as we reach major project milestones and especially when there are opportunities for stakeholders to interact with the project team and provide feedback.

Our first opportunity for stakeholders to meet with team members, ask questions and provide direct feedback will be later this month. We'll be hosting information sessions both on- and off-post and look forward to hearing from the community.

The project team will be on-post at Thurman Hall (Building 247) during the afternoon and evening of January 28 to discuss the project, get feedback and answer questions from interested members of the Fort Belvoir community who work and live on post. The afternoon session will consist of an open house period with information posters where the public can meet and interact with USACE and Fort Belvoir personnel working on the project from 1pm to 3pm, with a formal presentation scheduled to be given at 2pm followed by questions and answers. The evening session will begin with another open house session from 6:30pm to 7:30pm, which will be followed by a formal presentation about the SM-1's history and ongoing decommissioning planning and a subsequent question and answer session and additional poster availability from 7:30pm to 8:30pm.

The following evening, January 29, the project team will be hosting a similar information session off-post at Fairfax County's South County Government Center (8350 Richmond Hwy, Alexandria) for anyone on- or off-post interested in providing feedback and learning more about the project. The session will consist of an open house period with information posters where the public can meet and interact with USACE and Fort Belvoir personnel working on the project from 6:30pm to 7:30pm, which will be followed by a formal presentation about the SM-1's history and ongoing decommissioning planning and a subsequent question and answer session and additional poster availability from 7:30pm to 8:30pm.

Our team wants to understand any concerns the community may have as we move forward with our planning, and also provide vital project information, as well.

The SM-1 project team is also committed to a fair, open and transparent contracting process. As part of that commitment, we are hosting an Industry Day on February 8, also at Fairfax County's South County Government Center. Contractors interested in more information regarding this Industry Day, including instructions on how to RSVP, can see the full official notice on FedBizOpps.gov at https://go.usa.gov/xEbrQ.

As a reminder, the deactivated SM-1 former nuclear power plant on Fort Belvoir has been deactivated since the early 1970s. The U.S. Army Corps of Engineers, Baltimore District is a Regional Radiological Center of Expertise and has been designated to carry the SM-1 decommissioning and dismantlement.

Completed in 1957, the SM-1 nuclear reactor at Fort Belvoir was the first nuclear power facility in the United States to be connected to a public utility grid. Over several years, it provided power primarily to Fort Belvoir and served as a training facility for nuclear technicians from all military branches before being deactivated and partially decommissioned in the early 1970s.

The initial dismantlement and decommissioning involved the removal of a majority of the radioactivity from the site, including the removal of the nuclear fuel and control rods, decontamination work around the facility, radioactive waste removal, and the sealing of the Reactor Containment Vessel which holds the Reactor Pressure Vessel and other reactor components.

USACE is working to develop and finalize the various planning documents for the final decommissioning and dismantling of the facility.

We want to take this opportunity to emphasize that safety is the team's number one priority for this project. The safety and health of the installation, the local community and our workers are paramount to the success of our project. We will be using proven controls and precautions to address safety and other engineering details during all stages of the decommissioning of the SM-1.

Just recently, the Baltimore District's expert team safely completed the decommissioning of another one of the Army's deactivated nuclear reactors – the MH-1A on the STURGIS barge in Galveston, Texas. We are excited to build on that record of success and safety as planning moves forward for the SM-1 decommissioning and dismantlement.

As the team continues through the planning phase, we have begun initial market research to assess what companies may be able to implement this large, unique and complex project. This is just the first of many steps our team will be taking to ensure a fair, open and transparent contracting process. We anticipate issuing a draft request for proposals for a decommissioning contract in the first half of calendar year 2019 to solicit industry feedback with a formal RFP later in the year and an anticipated contract award date around the middle of calendar year 2020.

You can read more about the project and the SM-1's unique history in this feature online that is also in the current edition of Fort Belvoir's garrison newspaper, the Belvoir Eagle - http://www.belvoireagleonline.com/.

We have also recently launched a web site for the SM-1 project where additional information is available - www.nab.usace.army.mil/Missions/Environmental/SM-1/

And, as always, feel free to e-mail any questions or concerns you may have to Baltimore District's Corporate Communication Office at CENAB-CC@usace.army.mil.

SM-1 Industry Day Special Notice

The U.S. Army Corps of Engineers (USACE), Baltimore District, will hold an Industry Day on 8 February 2019 located at the Fairfax County's South County Government Center (Room 221). The Industry event will be hosted by USACE - Baltimore District for the purpose of discussing the plan for the Decommissioning and Disposal Activities for the SM-1 Deactivated Nuclear Power Plant Facility located at Fort Belvoir, Va. The Industry Day will be conducted in two parts, as described below:

Part I will consist of a presentation by USACE - Baltimore District in the morning from 0900-1100 hours. This presentation will focus specifically on the Decommissioning and Disposal Activities for the SM-1 Deactivated Nuclear Power Plant Facility located at Fort Belvoir, Va. Interested parties shall follow the RSVP instructions below if you are interested in attending this presentation

Part II will consist of one-on-one sessions for those companies interested in discussing alternatives, concerns, and suggestions relative to a future Request for Proposal (RFP) for this project. Sessions will be 30 minutes in length. Companies interested in participating in a one-on-one session shall notify James Greer, in their RSVP, as instructed below. The schedule for the one-on-one visits will be made available on 28 January 2019 and specific slots will be confirmed on a first come - first serve basis with all times being confirmed no later than 01 February 2019.

INFORMATION PRESENTED DURING THE ABOVE SESSIONS IS FOR PLANNING PURPOSES ONLY, DOES **NOT** CONSTITUTE AN INVITATION FOR BID OR REQUEST FOR PROPOSAL, AND IS **NOT** A COMMITMENT BY THE GOVERNMENT TO PURCHASE DESIRED SERVICES.

USACE - Baltimore District requests that parties interested in attending SM-1 Deactivated Nuclear Power Plant Decommissioning and Disposal Activities Industry Day submit company names and attendee lists no later than **2 PM EST, 25 January 2019** via e-mail to James Greer, Contract Specialist (james.a.greer@usace.army.mil). Parties are limited to no more than four attendees, including subcontractors. The subject line of the RSVP email shall be limited to: SM-1 Industry Day RSVP from (Company Name). The body of the email shall include each attendee's name, Position/Title, email address, phone number, and indicate whether they wish to participate in a one-on-one session. Parties are encouraged to submit any additional questions via email to James Greer no later than 31 January 2019, in order for the briefing to be as informative as possible. The project website with presentations can be found at: https://www.nab.usace.army.mil/Missions/Environmental/SM-1/

The U.S. Army Corp of Engineers (USACE) holds the right to cancel and/or change the event time, date and location for any reason up to and including the day of the event. Circumstances for cancellation and/or rescheduling may include, but are not limited to: inclement weather, event venue cancellation or rescheduling, speaker cancellation or rescheduling, and insufficient number of participants for the event. In the event that the USACE must cancel or reschedule the event, the USACE will not be responsible for costs incurred in preparation. In the event of predicted inclement weather, a decision will be made by 5pm on the prior day. If the event is cancelled, an email will be sent to all registered participants.

This Special Notice does not constitute a Request for Proposal (RFP) and is not to be construed as a commitment by the Government to issue a contract or order.

Carver, Craig

From: Barber, Brenda M CIV USARMY CENAB (US) [redacted]
Sent: Sunday, August 25, 2019 12:02 PM
Cc: Nappi, Rebecca (Becca) CIV USARMY CENAB (USA); Gardner, Christopher P CIV USARMY CENAB (US); Honerlah, Hans B CIV USARMY CENAB (USA); Lazo, Carlos J CIV USARMY CENAB (USA); Bonomolo, Tamara C CIV USARMY CENAB (USA)
Subject: SM-1 Project Update, August 25, 2019

Dear SM-1 Stakeholders,

The U.S. Army Corps of Engineers released the Request for Proposal (RFP) notice earlier today for the contract for the decommissioning and dismantling of the SM-1 deactivated nuclear power plant at Fort Belvoir. With the release of the RFP, the team remains on schedule to award a contract for this work in the latter half of 2020.

A site visit will be held for all potential bidders on September 16, 2019. Additional information pertaining to this RFP and how potential bidders can participate in the site visit can be found on FedBizOpps at ? https://urldefense.proofpoint.com/v2/url?u=https-3A__www.fbo.gov_spg_USA_COE_DACA31_W912DR18R0021_listing.html&d=DwIGIw&c=TQzoP61-bYDBLzNd0XmHrw&r=Ilpvm9bVT1EdvFcKpRS4wpyohoTtoB6f2UJyGU6jBj8&m=oxjNKY55hu0M2fXl2ld0ljVSbbZliVZ2V4WVQ3npEgw&s=jOlytqaQDyqdZiAi4uVlwanZznRUUK_WK2UpIR8BNnk&e=

Additionally, the project team continues to work on the Decommissioning Planning documents, to include the Decommissioning Plan and the Environmental Assessment. The team appreciates the feedback we received from members of the community, both on-post and off-post, earlier this year. We anticipate publicly releasing the draft Environmental Assessment later this fall and having a public comment period to allow stakeholders to provide additional feedback.

Thank you all again for choosing to be a part of this process with us as we continue working through the planning phase of the decommissioning and dismantling of the deactivated SM-1.

As always, additional project information, historical photos, and previous stakeholder updates regarding the SM-1 project can be found on our website: https://urldefense.proofpoint.com/v2/url?u=http-3A__www.nab.usace.army.mil_SM-2D1_&d=DwIGIw&c=TQzoP61-bYDBLzNd0XmHrw&r=Ilpvm9bVT1EdvFcKpRS4wpyohoTtoB6f2UJyGU6jBj8&m=oxjNKY55hu0M2fXl2ld0ljVSbbZliVZ2V4WVQ3npEgw&s=MBYKxD0nN05XaUPRmW2VTEVsNXGhK6QQTOvdTD-C9Vg&e= .

If you have any questions, feedback or information you'd like to share with us, please feel free to e-mail me or call our Corporate Communication team at 410-962-2809.

Thanks

Brenda M. Barber, P.E.
U.S. Army Corps of Engineers - Baltimore District Project Manager - Environmental and Munitions Design Center
ATTN: CENAB-ENE-C
2 Hopkins Plaza
09-A-10 (Cube)
Baltimore, MD 21201
[redacted]

General SM-1 Project Information Public Meetings

WELCOME

SM-1 DECOMMISSIONING PROJECT

Schedule

Public Info Session

6:30 PM - 7:30 PM

- Open House
- Meet and interact with USACE and Fort Belvoir personnel

7:30PM - 8:30 PM

- Formal Presentation
- Q/A Session
- Poster Availability

March 12, 2019

Off-Post
Fairfax County South
County Government Center
8350 Richmond Hwy,
Alexandria, VA
(Room 221)

A-107

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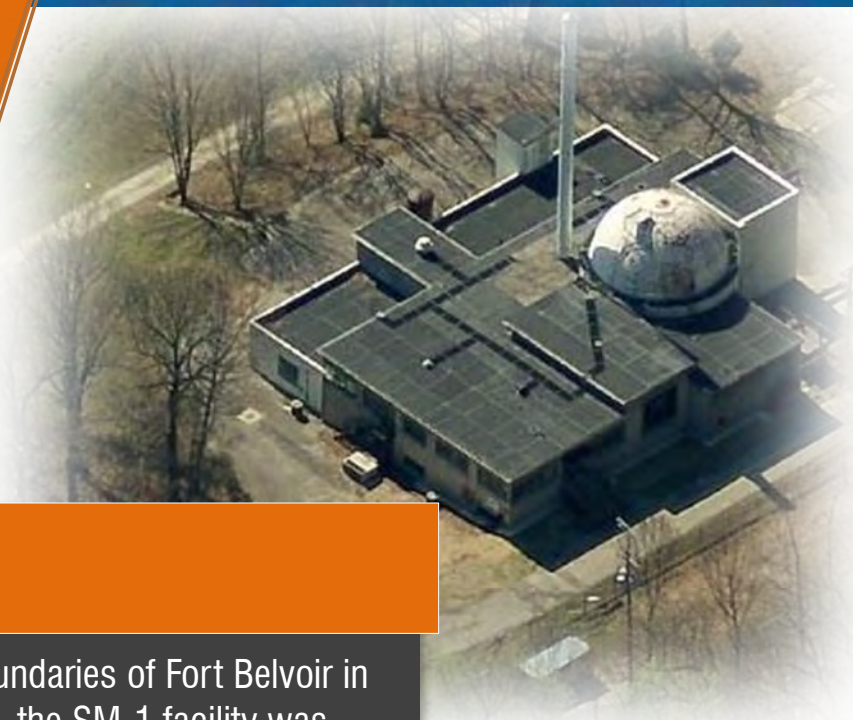
WELCOME

SM-1 DECOMMISSIONING PROJECT



Brief History

The former SM-1 nuclear power plant is situated within the boundaries of Fort Belvoir in Fairfax County, Virginia. After construction completion in 1957, the SM-1 facility was used to train U.S Army power plant operators and was capable of delivering a net 1,750 kilowatts of electrical power. It was the first nuclear power reactor to provide electricity to a commercial power grid in the United States. In 1973, the reactor facility was deactivated (shutdown) and deactivation included removal of the nuclear fuel and sealing of the reactor pressure vessel, decontamination of building areas to the extent possible, and off-site disposal of radioactive wastes. The site is now referred to as the SM-1 Deactivated Nuclear Power Plant. For more than 45 years, the site has been monitored and maintained while the accessible portions of the SM-1 facility have been used as a museum and storage space.

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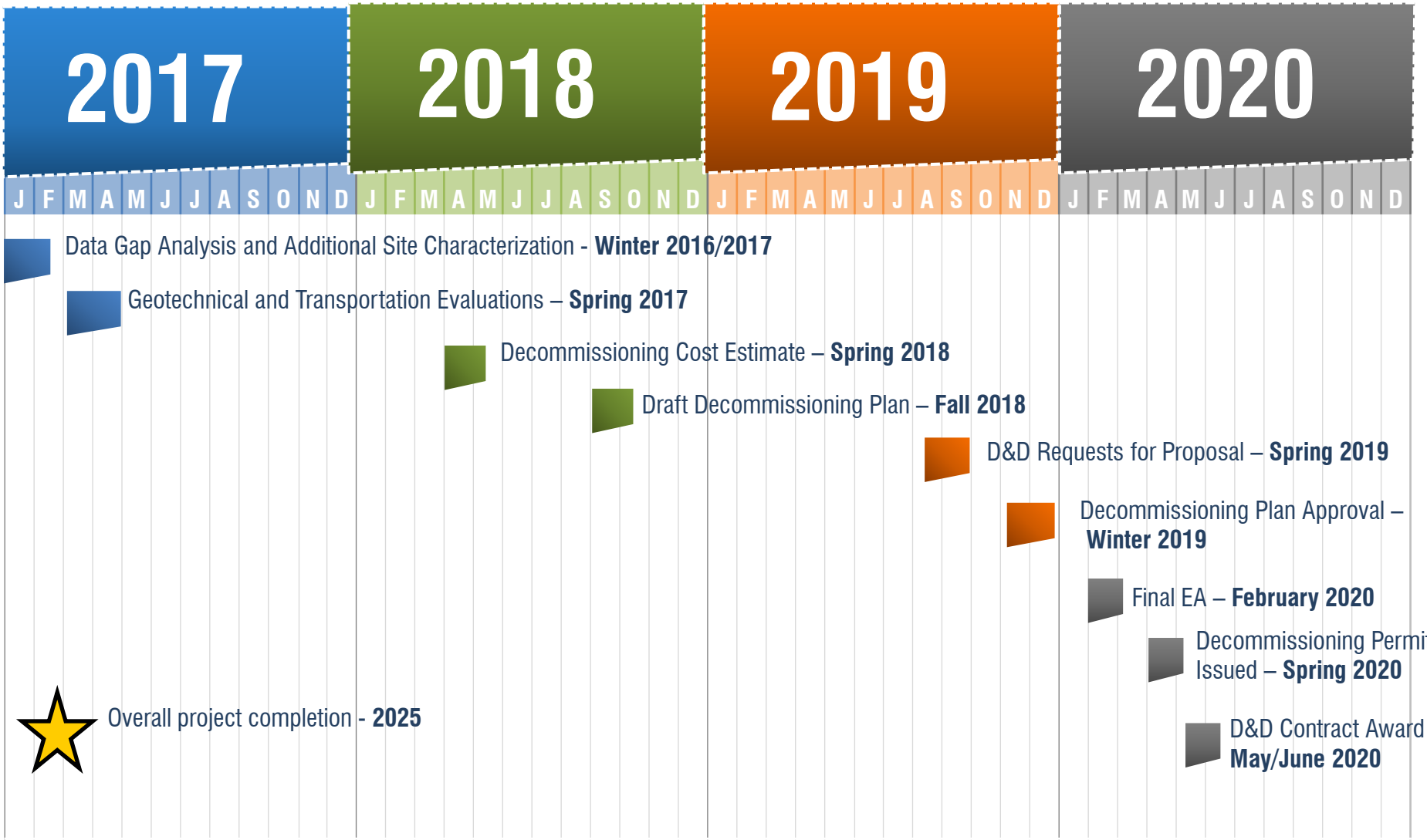
SM-1 TIMELINE/SCHEDULE



TIMELINE FOR THE SM-1 REACTOR FACILITY

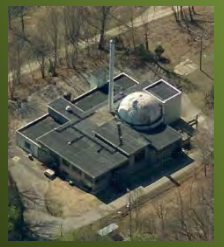
1954
U.S Army Engineer Reactors Group Established

1957-1973
SM-1 served as the Army's primary training facility to train reactor operations personnel

1996
U.S. Army Center for Health Promotion and Preventive Medicine performed extensive surveys of the SM-1 Reactor Facility and surrounding environment to provide an independent review of the environmental monitoring program

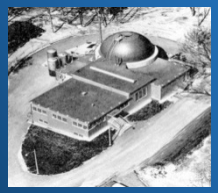
2005
Historical Site Assessment complete

2013
Site Characterization and Survey Report Finalized



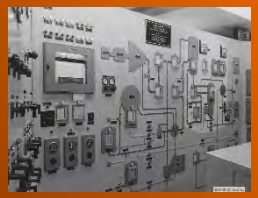
1950s | 1960s | 1970s | 1980s | 1990s | 2000s | 2010s

1957 Construction and start-up of SM-1



1962
SM-1A Reactor startup in Alaska using SM-1 prototype designs

1973-1974
Deactivation and initial decommissioning of SM-1 Reactor



LEGEND

- SM-1 Reactor in use
- Reactor deactivation and initial decommissioning
- Decommissioning planning
- Other

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WASTE SEGREGATION PROCESS

WHERE DOES IT ALL GO?

>50%

CLEAN MATERIAL & EQUIPMENT AND DEMOLITION DEBRIS FOR DISPOSAL OR RECYCLING

- ELECTRICAL DISTRIBUTION EQUIPMENT
- CONTROL ROOM CONSOLES
- BUILDING DEBRIS
  - STEEL
  - CONCRETE

TRUCKS and TRAINS TRANSPORT WASTE

<25%

<25%

HAZARDOUS WASTE FORMS TO PERMITTED LANDFILLS

- SOIL AND DEBRIS CONTAMINATED WITH VERY LOW LEVELS OF RADIOACTIVITY
- ASBESTOS INSULATION, FLOOR TILES, ADHESIVES, ETC.
- LEAD-CONTAMINATED SOILS
- UNIVERSAL WASTE (fluorescent bulbs, mercury-containing equipment, etc.)

LOW-LEVEL RADIOACTIVE WASTE TO A LICENSED DISPOSAL FACILITY

- **RADIOLOGICALLY ACTIVATED**
  - REACTOR PRESSURE VESSEL (RPV)
  - OTHER REACTOR COMPONENTS
- **RADIOLOGICALLY CONTAMINATED**
  - PRIMARY and SECONDARY REACTOR SYSTEMS
  - LIQUID WASTE MANAGEMENT SYSTEM
  - CONTAMINATED SOIL AND DEBRIS

FORT BELVOIR LEADERS IN EXCELLENCE

US Army Corps of Engineers®

RADIATION, RADIOACTIVITY, AND RISK

WHAT IS RADIATION?

RADIATION
- Invisible energy moving through space

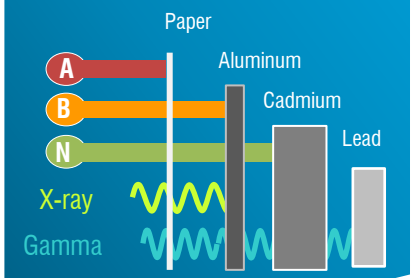
NON–IONIZING RADIATION
- Light, sound, heat or infrared waves, microwaves, radio waves, low frequency power line radiation

IONIZING RADIATION
- A: Alpha particles (fast moving helium nucleus)
- B: Beta particles (fast moving electron)
- N: Neutrons
- Gamma, X-ray

QUANTIFYING RADIATION EXPOSURE
- REM (millirem – 1/1000 REM)

Unit of absorbed dose in the body that measures the impact of deposited energy.

DIFFERENT TYPES OF RADIATION HAVE DIFFERENT PENETRATING POWERS



WHAT IS RADIOACTIVITY?

RADIOACTIVITY
- Spontaneous emission of radiation
- Is reduced as radioactive atoms decay

RADIOACTIVE ATOMS
- Are unstable
- Change or decay until they become stable
- Give off surplus energy by emitting radiation

HALF LIFE
- The time it takes for decay to half the previous radioactivity

QUANTIFYING RADIACTIVITY
- Disintegration per second (d/s)
- The number of atomic nuclei that decay each second

SOME HALF LIVES

5.27 years	Cobalt-60
100.1 years	Nickel-63
4.5 billion years	Uranium-238

WHAT IS RISK ASSESSMENT?

RISK ASSESMENT
- Evaluating benefits versus risk
- Is a smoke detector worth its radiation risk?

NO ANSWER TO THE QUESTION:
- What is a safe level of radiation exposure?

(What is a safe driving speed?)

APPROPRIATE QUESTION TO ASK IS:
- What is the risk associated with a given exposure? (What is the risk of injury for this situation and speed?)

HEALTH RISKS FROM RADIATION COMPARED WITH OTHER SITUATIONS

	Days Life Lost
Unmarried Male	3500
Smoke 20 cigarettes per day	2370
Unmarried Female	1600
Overweight by 20%	985
All accidents combined	435
Auto Accidents	200
Alcohol Consumption (U.S. averages)	130
1000 millirem per year for 30 years, calculated	30
Natural background radiation calculated	8
Medical Diagnostic X-rays	6
Coffee drinker	6

ANNUAL RADIATION DOSES IN MILLIREM - VARIOUS EXPOSURES

5,000 mrem	US OCCUPATIONAL DOSE LIMIT
2,000 mrem	TOBACCO SMOKING
1,500 mrem	UNDERGROUND URANIUM MINES
620 mrem	AVERAGE ANNUAL RADIATION PUBLIC DOSE
200 mrem	RADON IN THE AIR
100 mrem	NUCLEAR REGULATORY COMMISSION PUBLIC DOSE LIMIT
40 mrem	FOOD AND WATER
26 mrem	TERRESTRIAL RADIATION - US AVERAGE
25 mrem	SM-1 SITE RELEASE CRITERIA
10 mrem	CHEST X-RAY
1 mrem	SM-1 MATERIAL RELEASE CRITERIA

mrem =
MILLIREM=1/1000 REM.
UNIT OF ABSORBED DOSE IN THE BODY THAT MEASURES THE IMPACT OF DEPOSITED ENERGY

USACE COMMITMENT – SM-1

RISKS?

Safety is our number one priority. There will be minimal risk to the public as we implement this project. USACE will have a highly skilled team of engineers, scientists, and contractors dedicated to the project. SM-1's nuclear fuel was removed more than 40 years ago.

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WELCOME

SM-1 DECOMMISSIONING PROJECT

Schedule

Public Info Session

Afternoon Session

1:00 PM - 2:00 PM

- Open House
- Meet and interact with USACE and Fort Belvoir personnel

2:00 PM - 3:00 PM

- Formal Presentation
- Q/A Session
- Poster Availability

January 28, 2019

On-Post
Thurman Hall
Building 247
Fort Belvoir, VA

US Army Corps of Engineers®

WELCOME

SM-1 DECOMMISSIONING PROJECT

Schedule

Public Info Session

6:30 PM - 7:30 PM

- Open House
- Meet and interact with USACE and Fort Belvoir personnel

7:30PM - 8:30 PM

- Formal Presentation
- Q/A Session
- Poster Availability

January 29, 2019

Off-Post
Fairfax County South
County Government Center
8350 Richmond Hwy,
Alexandria, VA
(Room 221)

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DEACTIVATED NUCLEAR POWER PLANT PROGRAM SM-1, FT BELVOIR, VA

WM2018
Session 097b US Army Corps of Engineers - Deactivated NPP Program D&D Contracting Opportunities

Brenda Barber, P.E.
Hans Honerlah, CHMM
Baltimore District, CENAB-ENE

March 2018

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TOPICS

- History
- Decommissioning Planning

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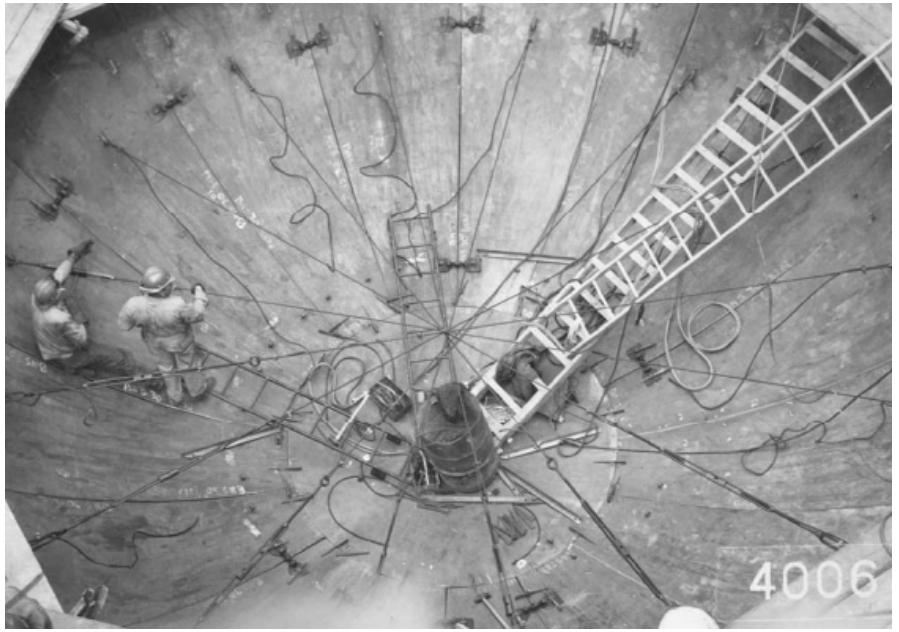
SM-1 TIMELINE: DETAILS

- SM-1 Reactor Startup: April 1957
  - Core II installed, June 1961
  - Core III installed, July 1968
- Last operation: March 1973
- Minimal Decommissioning: 1973 – November 1974
- USACHPPM Survey: October 1996
- Contractor Gamma Surveys: 1997 and 2009
- Core Component Activation Analysis: 2003
- Contractor Historical Site Assessment: 2003
- Contractor Characterization Survey Report: 2013
- Contractor Dap Gap Analysis: 2015
- Archeological Survey: 2016
- Supplemental Field Characterization: 2016



1956
Construction Photos

US Army Corps of Engineers ®

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PRE-SHUTDOWN DECOMMISSIONING ACTIVITIES

- Cleaned out Diesel Building
- Cleaned up Retention Building and Waste Facility
- Cleaned up “Hot Maintenance Area”
- Cleaned up secondary system
- Dug up old piping not in use
  - including discharge from retention sump (seal pit)
- Dug up selected “hot dirt areas”

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POST-SHUTDOWN DECOMMISSIONING ACTIVITIES

- Laid up systems; generally drained of oil and filled with preservative or air dried
- Shipped absorbers, fuel, and neutron sources
- Drained and flushed primary systems, including spent fuel pit
- Cut and welded penetrations to Vapor Container
- Removed contaminated piping outside of the Vapor Container (VC), including decontamination of vent and blowdown systems
- Peeled out liner, decontaminated, welded shut spent chute, installed cover on Spent fuel pit

POST-SHUTDOWN DECOMMISSIONING ACTIVITIES

- Conducted final survey of Gunston Cove
- Cleaned and sealed VC door with chain lock system
- Filled pipe pit with concrete
- Removed Waste Facility tanks, building, and pad
- Removed Retention Building
- Removed contaminated underground piping
- Secured and posted restricted areas: Modification (MOD) area, VC, primary make-up tank room, spent fuel pit area, demineralizer room, fan loft
- Demolished Guard House (Building 373)
- Demolished Flammable Storage Building (Building 376)
- Demolished Tree House Mockup (Building A390)
- Decontaminated underground liquid radioactive waste tanks outside Training Building (Building 358) and filled them with concrete

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U.S.ARMY

PRIOR CHARACTERIZATION EFFORTS TO SUPPORT DECOMMISSIONING PLANNING

- Gamma walkover surveys inside the fenced area
  - Completed in 2009; small area surveyed in 2016
- Biased and systematic soil sampling
  - Executed in 2010 and 2016
- In-plant survey to determine H-3 and alpha isotopic activity
  - Considered complete outside the VC
  - Additional samples for HTD isotopes (including H-3) collected in 2016
  - Alpha false-positive/radon analysis conducted in 2016
- Scoping surveys of buildings/sites associated with SM-1
  - Completed in 2010

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PRIOR CHARACTERIZATION EFFORTS TO SUPPORT DECOMMISSIONING PLANNING

- More extensive survey of Gunston Cove sediment
  - Completed in 2010 (20 samples collected between Whitestone Pt. and discharge pipe)
- Sampling of underground pipes
  - All pipe waste and outfall pipes assumed to be contaminated
  - Geophysical surveys to verify pipes present in 2010 and 2016
  - Investigation of sewer pipes still to be planned/executed
- Soil under SM-1 to be sampled
  - Soil is assumed to be impacted and require disposal as LLRW
  - Sampling not considered to have a significant impact on cost estimates or planning efforts

DECOMMISSIONING PLANNING EFFORTS

- Decommissioning Planning is underway – anticipate completion by 2019
  - Contract was awarded in 2014
  - Scope includes:
    - review historical documents associated with the All Hazards Analysis
    - prepare planning documents that will support the Army Reactor Office issuing the USACE a decommissioning permit for the SM-1 reactor
    - comply with other relevant Federal and State requirements that will support the long term decommissioning planning
    - Ensure adherence of project activities to NRC, Army, and Federal standards and guidance , as well as, other Federal standards and guidance where relevant, and
    - coordinate with appropriate federal, state, and public parties to support issuance of decommissioning permit and other NEPA requirements.

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MAJOR DECOMMISSIONING PLANNING DOCUMENTS

- Final Disposal Plan, Schedule and Cost Estimate
- Waste Management Plan
- Environmental Assessment
- Section 106 Effects Assessment and agreement document
- Decommissioning Plan

DECOMMISSIONING CHALLENGES

- Site has a small footprint and limited area for infrastructure
- Limited transportation routes off installation
- Coordination with the installation staff
- Proximity to base housing
- Proximity to the U.S. Capital

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Appendix B – Agency Correspondence

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Section 106 Consultation and
Memorandum of Agreement (MOA)

MEMORANDUM OF AGREEMENT
BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS – BALTIMORE DISTRICT,
THE VIRGINIA STATE HISTORIC PRESERVATION OFFICE,
U.S. ARMY GARRISON FORT BELVOIR
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE DECOMMISSIONING OF
THE STATIONARY MEDIUM POWER PLANT NUMBER 1 (SM-1),
FORT BELVOIR, FAIRFAX COUNTY, VIRGINIA

WHEREAS, the U.S. Army Corps of Engineers (hereinafter "USACE") – Baltimore District is proposing to radiologically decommission and subsequently dismantle and demolish the deactivated Stationary Medium Power Plant Number 1 (hereinafter "SM-1") Reactor Facility (hereinafter "undertaking"; Virginia Department of Historic Resources [hereinafter "DHR"] project file number 2015-1247), located at U.S. Army Garrison Fort Belvoir (hereinafter "Fort Belvoir") in Fairfax County, Virginia, as shown as Attachment A to this Memorandum of Agreement (hereinafter "MOA"); and

WHEREAS, the SM-1 decommissioning is authorized by Section 91(b) of the Atomic Energy Act of 1954, as amended, which authorized the SM-1 Reactor Facility to be designed, built, and operated as part of the Army Nuclear Power Program under authority granted by the Department of Defense (hereinafter "DOD"). Section 91(b) authorizes the DOD to procure and utilize special nuclear materials in the interest of national defense and to acquire utilization facilities, i.e., reactors for military purposes. Section 110(b) of the Atomic Energy Act excludes such utilization facilities acquired by DOD from any of the licensing requirements of the Atomic Energy Act. The decommissioning is within the Atomic Energy Act authorities granted to the DOD, specifically Section 91(b) and 110(b) which give DOD the authority to regulate the radioactive materials, and is consistent with relevant guidance identified in 10 Code of Federal Regulations (C.F.R.) § 20.1402, the radiological criteria for unrestricted use; and

WHEREAS, although the SM-1 is located on Fort Belvoir's fee title land, Army Regulation 50-7 assigns USACE the responsibility to act as the lead Army component and is the single point of contact at Headquarters Department of the Army for nuclear reactor decommissioning to ensure compliance with environmental requirements for decommissioning Army nuclear reactors, and

WHEREAS, in accordance with 36 C.F.R. § 800.2(a)(2) the Department of the Army and Fort Belvoir have designated USACE as lead federal agency for purposes of Section 106; and

WHEREAS, the decommissioning will involve the demolition and disposal of the SM-1 Reactor Facility Building (also known as Building 372), removal and disposal of the remaining primary and secondary reactor systems, and demolition and disposal of associated structures (including a warehouse, the water intake pier, and pump house); the removal and disposal of contaminated

soils; restoration of the SM-1 Reactor Facility site to green space; and the termination of the permit under which the facility is currently being maintained by USACE; and

WHEREAS, USACE determined that the decommissioning is considered an undertaking under Section 106 of the National Historic Preservation Act of 1966 (hereinafter "NHPA"), as amended, (54 U.S.C. § 306108) and its implementing regulations, *Protection of Historic Properties* (36 C.F.R. § 800) (hereinafter known collectively as "Section 106") and is therefore subject to that act; and

WHEREAS, USACE has determined that the proposed demolition and removal of buildings, removal of site infrastructure improvements, removal of contaminated soils, and site restoration have the potential to affect historic properties (defined as listed in or eligible for listing in the National Register of Historic Places [hereinafter "NRHP"]); and

WHEREAS, USACE, as the lead federal agency responsible for compliance with Section 106, has initiated consultation with the DHR, which acts as the Virginia State Historic Preservation Office (hereinafter "SHPO") pursuant to 36 C.F.R. § 800.14(b)(1)(iii); and

WHEREAS, by a letter to SHPO dated October 29, 2015, USACE defined the undertaking and the area of potential effect (hereinafter "APE"), in accordance with 36 C.F.R. § 800.6(d). For direct effects on above-ground resources, the APE is coterminous with the 10.76-acre area surrounding the SM-1 compound. Building 371 (Lab/Test Building, built in 1957) and Building 380 (Lab/Test Building, built in 1965) are outside the SM-1 compound but still subject to possible visual and/or cumulative effects from demolition activity (Neither Building 371 nor Building 380 is proposed for demolition). For direct effects on archaeological resources, the APE is coterminous with the boundaries of ground disturbance related to demolition, site cleanup, and staging activities (Attachment B); and

WHEREAS, in February 2018, AECOM-Tidewater Joint Venture, under contract to USACE, conducted a Phase I archaeological survey at the SM-1 Reactor Facility site and within its 1.84-hectare (4.54-acre) area of ground disturbance to determine if potentially significant archaeological resources were present; and

WHEREAS, USACE determined and the SHPO concurred in a letter dated March 21, 2018, that the one (1) previously identified archaeological resource in the APE, Site # 44FX1331, was not eligible for listing in the NRHP and that no further archaeological study of the SM-1 site was recommended; and

WHEREAS, in 1996, the U.S. Army Package Power Reactor (DHR ID# 029-0193), known by its current name as the SM-1 Reactor Facility, was determined eligible for listing in the NRHP under Criterion A on the national level with a period of significance between 1955 and 1973; and

WHEREAS, because the SM-1 Reactor Facility was less than fifty (50) years old at the time, NRHP Criteria Consideration G (for resources less than fifty [50] years old) applied, as the facility met the threshold for "exceptional importance" according to NRHP Criteria Consideration G; and

WHEREAS, due to prior demolitions, only four (4) of the eight (8) buildings/structures within the NRHP boundary of the SM-1 Reactor Facility are still extant; and

WHEREAS, these four (4) extant buildings/structures at the SM-1 Reactor Facility include Building 372 (SM-1 Reactor Building); Building 350 (Sewage Lift Station, now Building 7350); Building 349 (Warehouse/Storage Building); and Building 375 (Pump House and small pier connecting it to the shore); and

WHEREAS, in 2009, Fort Belvoir identified two (2) buildings located outside the SM-1 Reactor Facility boundary – Building 371, the Nuclear Physics Chemical Lab, and Building 380, the Nuclear Power Simulator Building – as contributing resources to the SM-1 Facility multiple property listing. The SHPO concurred with Fort Belvoir's determination (DHR File No. 2009-1868). (Neither Building 371 nor Building 380 is proposed for demolition as part of this undertaking); and

WHEREAS, in accordance with 36 C.F.R. § 800.2(c)(2) and by letters dated August 28, 2018, USACE contacted federally recognized Indian Tribes to participate in Section 106 as consulting parties for the above-described undertaking. Tribes contacted include Chickahominy Indians Eastern Division, Nansemond Indian Tribe, Rappahannock Tribe, Upper Mattaponi Indian Tribe, United Keetoowah Band of Cherokee Indians in Oklahoma, Tuscarora Nation of New York, Pamunkey Indian Tribe, Monacan Indian Nation, Catawba Indian Nation, Eastern Band of Cherokee Indians, and Chickahominy Indian Tribe; and

WHEREAS, none of the above-referenced Indian Tribes has responded to USACE's invitation to participate in Section 106 consultation; and

WHEREAS, in accordance with 36 C.F.R. § 800.2(c)(3) through (5) and § 800.3(f), USACE identified consulting parties during the Section 106 process and invited them to participate in the SM-1 decommissioning process as consulting parties (Attachment C); and

WHEREAS, the following individuals/parties have accepted USACE's invitation to participate as consulting parties, and therefore USACE has invited them to be concurring parties to this MOA: Fairfax County (VA) Department of Planning and Development; Fairfax County Architectural Review Board; Pohick Episcopal Church; and Mr. Charles Harmon, Nuke Digest; and

WHEREAS, USACE has also carefully considered the views of the public in accordance with the NHPA and the National Environmental Policy Act (hereinafter "NEPA") (42 U.S.C. § 4231 et seq.) and has held public meetings at various locations to explain the decommissioning process and solicit views from the public; and

WHEREAS, based on an Environmental Assessment conducted as part of NEPA review, USACE has determined that there is no feasible and prudent alternative to the demolition of the SM-1 Reactor Facility (Building 372) and three ancillary buildings/structures (Buildings 349, 350, and 379); and

WHEREAS, USACE has assessed possible adverse effects on historic properties within the APE in accordance with 36 C.F.R. § 800.5 and has determined that the undertaking will have an adverse effect on SM-1 Reactor Facility (Building 372) and three ancillary buildings/structures (Buildings 349, 350, and 379). The decommissioning of the SM-1 complex will also have an adverse effect on Buildings 371 and 380, as they will lose their historical significance from being associated with the SM-1 Facility; and

WHEREAS, SHPO concurred with USACE's determination of adverse effect for the undertaking in a letter dated January 30, 2020; and

WHEREAS, USACE has carefully considered alternatives to the decommissioning and has sought to avoid, minimize, or mitigate any possible adverse effects on historic properties within the APE, from the undertaking, in accordance with 36 C.F.R. § 800.5; and

WHEREAS, on April 12, 2019, USACE held a telephone conference call meeting with the invited consulting parties to discuss measures to avoid, minimize, and resolve the adverse effects on historic properties; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), USACE has notified the Advisory Council on Historic Preservation (hereinafter "ACHP") of its adverse effect determination with specified documentation, and the ACHP has chosen to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, USACE has invited Fort Belvoir to be a signatory to this MOA pursuant to 36 C.F.R. § 800.6(c)(1) and Fort Belvoir has accepted; and

WHEREAS, USACE, the ACHP, the SHPO, and Fort Belvoir are therefore Signatories of this MOA pursuant to 36 C.F.R. § 800.6(c)(1) and have authority to execute, amend, or terminate this MOA; and

WHEREAS, USACE has a statutory obligation, as the federal agency, to fulfill the requirements of Section 106 and shall ensure that the measures in the following stipulations are carried out;

NOW, THERFORE, USACE, SHPO, Fort Belvoir, and ACHP (hereinafter "Signatories") agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

STIPULATIONS

USACE shall ensure the following stipulations are carried out:

I. DOCUMENTATION AND PUBLIC INTERPRETATION OF THE SM-1 REACTOR FACILITY (SHPO ID #029-0193)

A. *Historic American Engineering Record (HAER), Level II Documentation:* HAER Level II documentation is appropriate to mitigate the adverse effect on the SM-1 Reactor Facility, a historic property eligible for listing in the NRHP at the level of national significance. USACE shall prepare, or direct to be prepared, documentation to HAER Level II standards as defined in the *Secretary of the Interior Standards and Guidelines for Architectural and Engineering Documentation.* Due to the loss of records over time, security restrictions, health and safety concerns, specifically radiation within the interior of the reactor building (Building 372), and the dangerous structural condition of the pier (Building 375), HAER Level II documentation was determined to be the appropriate level of mitigative documentation.

The HAER Level II documentation shall include the entire SM-1 Reactor Facility consisting of Buildings 372, 350, 349, 375, 371, and 380. This documentation will include information obtained from USACE's Office of History, including motion picture film, photographs, and documents, as appropriate.

1. The HAER documentation will include extensive detailed written historical and descriptive data about the facility. It will include physical descriptions of the facility, detailed discussion of the facility's historic significance, a discussion of how the facility was operated, and a description of the decommissioning and demolition process. Within six (6) months of this MOA's enactment, the draft historical narrative, omitting the detailed decommissioning and demolition sections, will be submitted to the Signatories and other consulting parties for their review and comment prior to demolition.

2. As part of the HAER Level II documentation, USACE will include scanned copies of the available, original as-built drawings of Building 372. Selected drawings will be scanned, digitally enhanced, and converted into Computer Aided Design (CAD) formatting. Selected drawings will be reproduced on vellum. USACE will also prepare additional drawings, on vellum, based on recent 3D Light Detection and

Ranging (LIDAR) scans of Building 372 to supplement the as-built drawings.

3. Due to safety restrictions, photographs with large-format negatives will document the exterior and currently accessible interior areas of Building 372. Photographs with large-format negatives will document the exterior and interior of Building 349 and Building 350. Photographs with large-format negatives will document the exterior only of Building 375, the Pump House, as the approach pier is structurally unsound and the building cannot be accessed. Photographs with large-format negatives will document the exterior only of Buildings 371 and 380, due to security restrictions, as these buildings are currently occupied. Photographs with large-format negatives will also document general views of the SM-1 Reactor Facility. Photography of the existing facility conditions will be submitted to the Signatories, and other consulting parties for their review and comment before demolition begins.

4. During the demolition process, USACE shall document the dismantling of the facility through video and photography. Within one (1) year following the demobilization of decommissioning operations and personnel from the SM-1 Reactor Facility site, the video and photography will be compiled into a professional video with appropriate context, narration, and labeling. The video will be submitted to the Signatories and other consulting parties for their review and comment before the video is finalized. The video will be submitted to SHPO for their records as a supplemental addition to the HAER Level II documentation. USACE shall maximize the use of large format photography as much as possible. If USACE is unable to utilize large format photography, photographs shall be included as an appendix to include both old historical photos, as well as demolition photographs.

B. USACE has notified the National Park Service (hereinafter "NPS") and received its concurrence to prepare HAER Level II documentation of the SM-1 Reactor Facility.

C. Upon completion, USACE will submit the draft HAER documentation to the Signatories and other consulting parties for their thirty (30) day review. USACE shall incorporate and/or respond to all submitted comments prior to submitting the documentation to the NPS-HAER office for its review and acceptance. USACE shall ensure the resulting documentation is suitable for archiving at the Library of Congress (hereinafter "LOC"), and shall follow all applicable HAER standards and guidelines. USACE will notify the Signatories and other

consulting parties of NPS-HAER acceptance of the HAER documentation for the SM-1 Reactor Facility.

D. In addition to the LOC, USACE shall provide copies of the final documentation to SHPO, Fort Belvoir, and the USACE Office of History. USACE will identify other appropriate repositories for the documentation in consultation with the Signatories and other consulting parties. USACE shall ensure the resulting documentation is suitable for dissemination to the public with the goal of creating awareness for the historical and engineering significance of the SM-1 Reactor Facility. USACE shall provide copies of the documentation to the other consulting parties upon written request.

E. Within one (1) year of this MOA's enactment, USACE will carefully remove the commemorative plaque currently affixed to Building 372, and move it to a facility to be restored and displayed at an as-yet-undetermined facility in Virginia. USACE will consult with the Signatories and other consulting parties regarding this action, as well as the appropriate facility for curation/display of the plaque.

F. Within two (2) years of this MOA's enactment, a draft version of a proposed historical plaque / marker shall be distributed to the Signatories and other consulting parties. This historical plaque's / marker's design shall be agreed upon by the Signatories with input from the other consulting parties prior to installation. Within one (1) year after completion of decommissioning and demolition, USACE / Ft. Belvoir shall erect the agreed upon plaque / marker at the previous site of SM-1. Up to two (2) additional plaques / markers shall be installed at publicly accessible sites. These additional plaques / markers shall have their designs and locations agreed upon by the Signatories and consulting parties prior to installation. Upon final installation of these historical plaques / markers, USACE / Ft. Belvoir shall photograph the installed plaques / markers and distribute to all the Signatories and consulting parties.

G. USACE shall salvage historical items from the SM-1 Reactor Facility that may be placed on loan to appropriate repositories for traveling exhibits. Within one (1) year of this MOA's enactment, USACE will develop a detailed plan for the identification, curation, storage, transportation, along with specific steps for consultation, and shall submit this plan for review and comment by the Signatories and other consulting parties.

Salvaged items will remain under the control of USACE; items shall be salvaged from SM-1 and sent to USACE, Humphreys Engineering Center (hereinafter "HECSA") in Virginia for storage or a similar facility. Once all salvaged items are compiled at HECSA, USACE will distribute a letter to the

Signatories and other consulting parties with an item inventory and location, as well as a POC to help retrieve items for future exhibits. USACE shall inform the Signatories and other consulting parties of circumstances that will prevent salvage and display of these items.

H. Since the HAER Level II documentation will document the decommissioning process through demolition, USACE shall complete the requirements of Stipulations I.A, I.C, and I.D within twelve (12) months after completion of the decommissioning and demolition of the SM-1 Reactor Facility (currently estimated completion by 2025).

I. Within one (1) year of this MOA's enactment, USACE will reach out to former SM-1 operators and employees and shall invite them to be interviewed about their experiences with the facility. The oral interviews will be recorded and relevant information will be incorporated into the final HAER documentation package.

II. DECOMMISSIONING AND DEMOLITION

USACE may proceed with the decommissioning and dismantling activities associated with the decommissioning of the SM-1 Reactor facility, provided that those activities do not interfere with the completion of the stipulations in this MOA.

III. PERFORMANCE STANDARDS AND REVIEW

A. Professional Qualifications

USACE will ensure all actions prescribed by this MOA that involve the identification, evaluation, analysis, recording, treatment, monitoring, or disposition of historic properties, or involve reporting or documentation of such actions in the form of reports, forms, or other records, are carried out by or under the direct supervision of a person who meets the appropriate *Secretary of the Interior's Professional Qualification Standards* (SOI Standards; 48 *Federal Register* 44738-9, Sept. 29, 1983) as an Historian or Architectural Historian.

B. Standards and Guidelines

All work performed under the provisions of this MOA shall be conducted in accordance with the following standards and guidelines, as relevant:

1. *Recording Historic Structures and Sites for the Historic American Engineering Record* (48 *Federal Register* 44731-34, September 29, 1983)

2. *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (36 C.F.R. § 61)

3. *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36 C.F.R. § 68)

C. Review of Submitted Materials

1. The Signatories and other consulting parties agree to respond to USACE in writing to all materials submitted for their review and comment within thirty (30) days of receipt of all information.

2. USACE shall take into account written comments it receives within the thirty (30)-day review period from the Signatories and other consulting parties.

3. If a Signatory or other consulting party fails to respond in writing to USACE's request for review and comment, USACE may assume the non-responding party(ies) has/have no comment.

D. Upon completion of all stipulations under this MOA, USACE shall provide the Signatories and other consulting parties a written memorandum acknowledging it has fulfilled its responsibilities under this MOA.

IV. DISPUTE RESOLUTION

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, USACE shall consult with such party to resolve the objection. If USACE determines that such objection cannot be resolved, USACE will:

A. Forward all documentation relevant to the dispute, including USACE's proposed resolution, to the ACHP. The ACHP shall provide USACE with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. USACE will then proceed according to its final decision

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, USACE may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, USACE shall prepare a written response that takes into account any timely comments

regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. USACE's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

V. RESOLUTION OF OBJECTIONS BY THE PUBLIC

At any time during implementation of the measures stipulated in this MOA, should any objections pertaining to any such measures or its manner of implementation be raised by any member of the public in writing, USACE shall notify the parties in this MOA and take the objection into account, consulting with the objector, and should the objector so request, consult with parties in the MOA to resolve the objection.

VI. POST-REVIEW DISCOVERIES

A. USACE shall ensure that the following provision is included in all construction contracts: "If previously unidentified historic properties or unanticipated effects to historic properties are discovered during construction, the construction contractor shall immediately halt all activity within the immediate area of the discovery and in any adjacent areas where additional or related resources may reasonably be expected to be present, notify USACE of the discovery and implement interim measures to protect the discovery from looting and vandalism. Work in all areas not subject of the discovery may continue."

B. Upon receipt of a notification required by the contract provision described in Stipulation VI.A, USACE shall:

1. Inspect the construction site to determine the extent of the discovery and ensure that construction activities have halted; and

2. Clearly mark the area of the discovery; and

3. Implement additional measures, to the extent deemed necessary by USACE, in its reasonable discretion acting in good faith, to minimize the risk to the discovery from looting and vandalism; and

4. Have a professional archeologist inspect the construction site to determine the extent of the discovery and provide recommendations regarding its NRHP eligibility and treatment, which shall be limited to sampling and documentation in lieu of preservation in place or full data recovery; and

5. Notify the NPS, the SHPO and other consulting parties of the discovery and describe the measures that have been implemented to comply with this Stipulation.

C. Upon receipt of the information required in Stipulation VI.B.5, the NPS shall provide USACE, the SHPO, and other consulting parties with its assessment of the NRHP eligibility of the discovery and the measures proposed to resolve adverse effects within twenty-four (24) hours of receipt of information of the discovery. In making its evaluation, the NPS, in consultation with the SHPO, may assume the discovery to be NRHP eligible for the purposes of Section 106 pursuant to 36 CFR § 800.13(c). USACE, the SHPO and other consulting parties shall respond to the NPS's assessment within twenty-four (24) hours of receipt.

D. The NPS shall take into account the SHPO's, and other consulting parties' recommendations on eligibility and treatment of the discovery and determine which actions, if any, are appropriate for USACE to take with regard to the discovery. The NPS shall notify and provide documentation to USACE regarding any such appropriate actions that are required within twenty-four (24) hours of receiving recommendations. USACE must comply with the required actions and provide the NPS and consulting parties with a report on the actions after completion.

E. Data recovery activities will not extend outside the support of excavation for SM-1 Reactor facility demolition activities.

F. Construction activities may proceed in the area of the discovery, when the NPS has determined that implementation of the actions undertaken to address the discovery pursuant to Stipulations VI, A through D are complete.

VII. HUMAN REMAINS

A. In the event gravesites are unexpectedly discovered, USACE shall make all reasonable efforts to avoid disturbing gravesites, including those containing Native American human remains and associated funerary artifacts. USACE shall treat all human remains in a manner consistent with the ACHP's *Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects* (February 23, 2007; http://www.achp.gov/docs/hrpolicy0207.pdf).

B. If removal is proposed, USACE shall apply for a permit from the SHPO for the removal of human remains in accordance with the regulations stated above. USACE shall ensure that any removed human skeletal remains and associated funerary objects encountered during the course of actions taken as a result of this undertaking shall be treated in accordance with the *Regulations Governing*

Permits for the Archaeological Removal of Human Remains (Virginia Register 390-01-02) found in the Code of Virginia (10.1-2305, et seq., Virginia Antiquities Act)

C. USACE shall make a good faith effort to ensure that the general public is excluded from viewing any Native American burial site or associated funerary artifacts. The consulting parties shall release no photographs of any Native American burial site or associated funerary artifacts to the press or general public. The NPS shall notify the appropriate federally recognized tribe(s), and/or appropriate State-recognized tribal leaders when Native American burials, human skeletal remains, or funerary artifacts are encountered on the project, prior to any analysis or recovery.

USACE shall deliver any removed Native American human skeletal remains and associated funerary artifacts recovered to the appropriate tribe to be reinterred. The disposition of any other human skeletal remains and associated funerary artifacts shall be governed as specified in any permit issued by the SHPO or any order of the local court authorizing their removal. USACE will be responsible for all reasonable costs associated with treatment of human remains and associated funerary objects.

VIII. AMMENDMENT PROCESS

This MOA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by all of the Signatories is filed with the ACHP.

IX. TERMINATION

A. If any Signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation VIII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

B. Once the MOA is terminated, and prior to work continuing on the undertaking, USACE must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. USACE shall notify the signatories as to the course of action it will pursue.

X. DURATION

This MOA will be considered null and void if its terms are not implemented within six (6) years of the effective date. The Signatories to this MOA will consult six (6) months prior to expiration to determine if there is a need to extend or amend this MOA. Upon completion of the Stipulations set forth above, USACE will provide a letter (with attached documentation) of completion to SHPO, with a copy to the Signatories to this MOA. If SHPO concurs the Stipulations are complete within thirty (30) calendar days, USACE will notify the Signatories and Consulting Parties in writing and this MOA will expire, at which time the Signatories will have no further obligations hereunder.

XI. DEFINITIONS

A. Unless otherwise specified herein, the term "days" means Federal business days.

B. The term "date of this signed MOA" means the date of the last Signatory's signature affixed thereto.

XII. IMPLEMENTATION OF MOA

This MOA may be implemented in counterparts, with a separate page for each Signatory, and USACE shall ensure that each party is provided with a complete copy. This MOA shall become effective on the date of the last Signatory's signature.

Execution of this MOA by USACE, Fort Belvoir, SHPO, and the ACHP and implementation of its terms evidence that USACE has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT

By: _____ Date: 08 MAY 20

John T. Litz
Colonel, U.S. Army
Commander and District Engineer

VIRGINIA STATE HISTORIC PRESERVATION OFFICER

By: Julie V Langan Date: 5-14-2020

Julie V. Langan
Director, Department of Historic Resources

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: _____
John M. Fowler
Executive Director

U.S. ARMY GARRISON FORT BELVOIR

By: Michael H Greenberg Date: 30 Apr 20

Col. Michael H. Greenberg
Garrison Commander
U.S. Army Garrison Fort Belvoir

Concurring Parties:

FAIRFAX COUNTY DEPARTMENT OF PLANNING AND DEVELOPMENT

By: Nicole Brown Date: 4/8/20

For: Barbara Byron
Director, Fairfax County Department of Planning and Development

FAIRFAX COUNTY ARCHITECTURAL REVIEW BOARD

By: _____ Date: April 9, 2020

John A. Burns
Chairman, Fairfax County Architectural Review Board

NUKE DIGEST

By: Charles D. Harmon Date: 4/8/2020
Charlie Harmon
Editor

POHICK EPISCOPAL CHURCH, FAIRFAX COUNTY, VIRGINIA

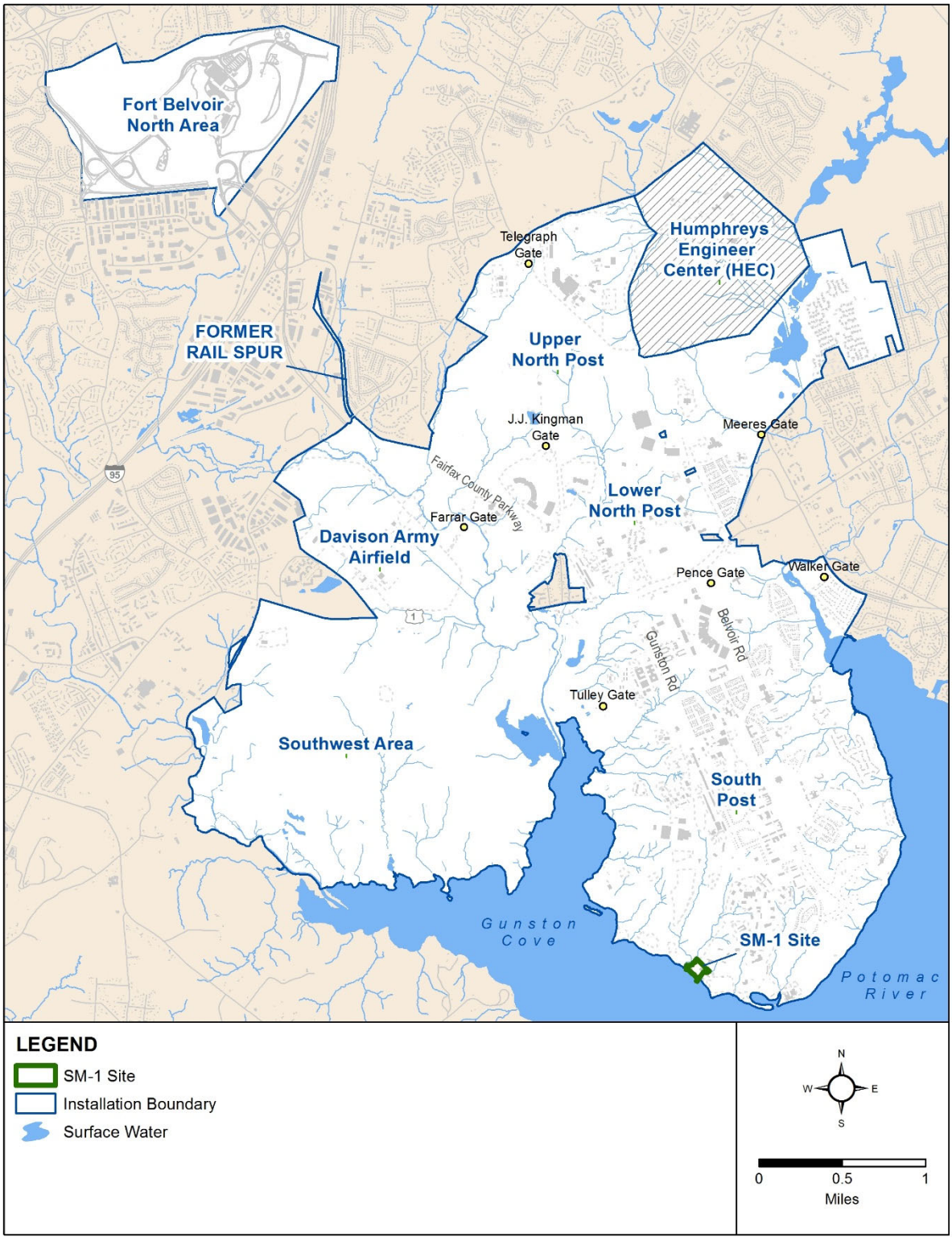
By: Rev Dr. Lynn Ronaldi+ Date: 1-30-20

Lynn P. Ronaldi
Priest in Charge, Pohick Episcopal Church

ATTACHMENT A

LOCATION OF SM-1 REACTOR FACILITY

FORT BELVOIR, FAIRFAX COUNTY, VIRGINIA

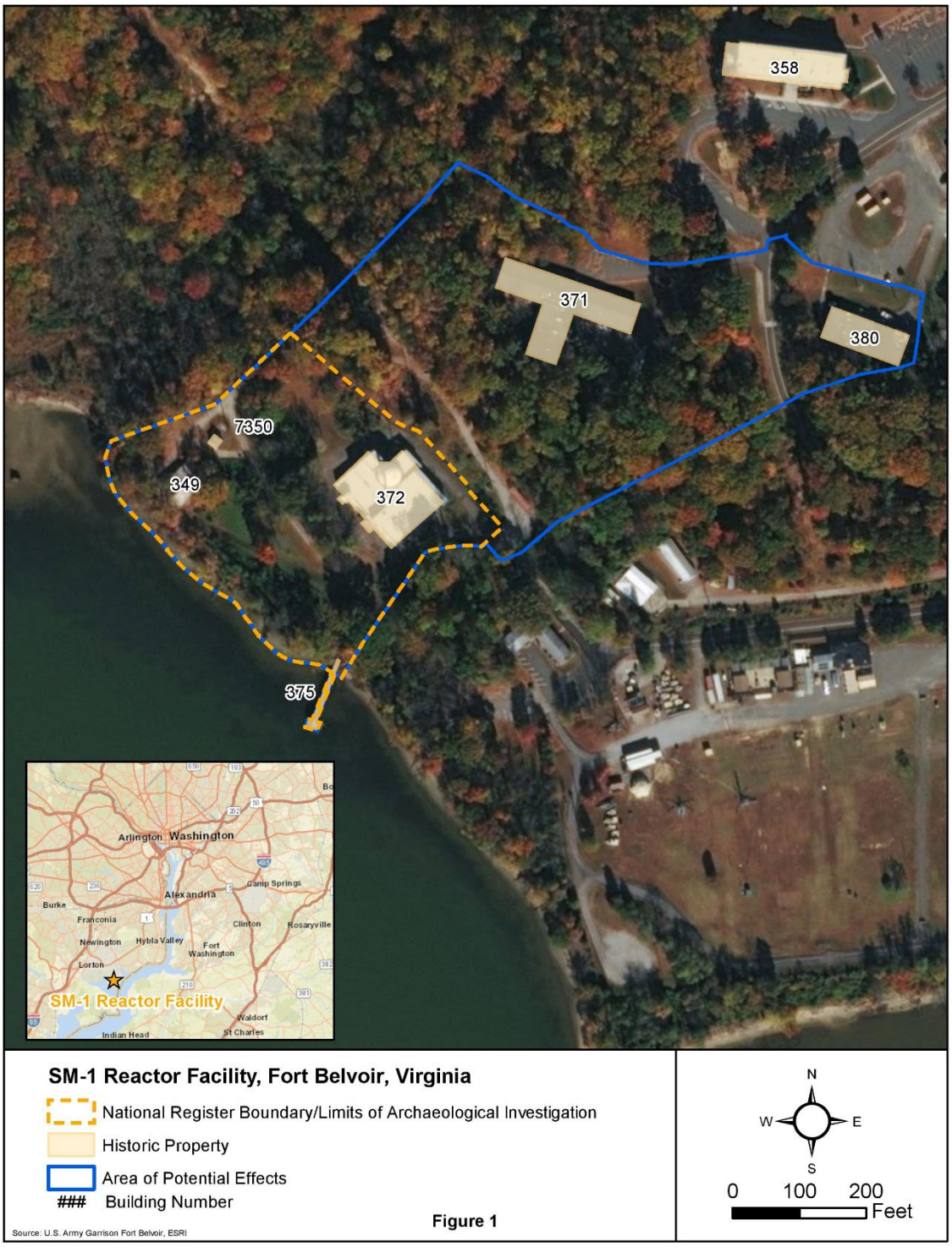


Location of the SM-1 Reactor Facility (SM-1 Site) at Fort Belvoir, Virginia

ATTACHMENT B

AREA OF POTENTIAL EFFECTS

SM-1 REACTOR FACILITY DECOMMISSIONING PROJECT



SM-1 Reactor Facility Decommissioning Project Area of Potential Effects, Fort Belvoir, Virginia

ATTACHMENT C

USACE-IDENTIFIED CONSULTING PARTIES FOR SECTION 106 CONSULTATION

SM-1 DECOMMISSIONING

USACE-Identified Potentially Interested Parties for Section 106 Consultation for the SM-1 Reactor Facility Decommissioning, Fort Belvoir, VA

USACE has identified the following potential consulting parties and federally recognized Indian Tribes:

Proposed Consulting Parties:

- Fairfax County Planning & Development
- Fairfax County Architectural Review Board
- Fairfax County Park Authority
- Fairfax County History Commission
- National Capital Planning Commission
- National Park Service: Potomac Heritage Scenic Trail
- Council of Virginia Archaeologists
- National Trust for Historic Preservation
- Woodlawn NHL
- Woodlawn Baptist Church
- Gunston Hall Plantation
- Woodlawn-Faith United Methodist Church
- Historical Society of Fairfax County
- Pohick Episcopal Church
- Ms. Martha Catlin (Interested Person)
- US Armed Forces Nuclear Energy Association
- American Nuclear Society
- The Nuke Digest (publication)

Federally Recognized Native American Tribes with Historic or Cultural Ties to Virginia:

- Eastern Band of Cherokee Indians
- Tuscarora Nation of New York
- United Keetoowah Band of Cherokee Indians in Oklahoma
- Catawba Indian Nation
- Pamunkey Indian Tribe
- Chickahominy Indian Tribe
- Chickahominy Indian Tribe – Eastern Division
- Upper Mattaponi Tribe
- Rappahannock Tribe
- Monacan Indian Nation
- Nansemond Indian Nation

COMMONWEALTH of VIRGINIA

Department of Historic Resources

Matt Strickler
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

30 January 2020

Ms Brenda M. Barber
Department of the Army
Corps of Engineers, Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201

RE: Decommissioning of SM-1 Nuclear Reactor Facility—Effects Determination
Fort Belvoir, Fairfax County, Virginia
DHR File No. 2015-1247

Dear Ms. Barber:

The Department of Historic Resources (DHR) has received your letter of 27 January 2020 requesting our concurrence on the United States Army Corps of Engineers—Baltimore District's (Corps) adverse effect determination for the above referenced project. The undertaking involves the decommissioning of the Stationary Medium Power Plant Number 1 (SM-1) Nuclear Reactor Facility (DHR Inventory No. 029-0193) located at Fort Belvoir, Fairfax County, Virginia. The decommissioning activities will involve demolition of the Reactor Building and Stack (Building 372), Sewage Lift Station (Building 7350), Warehouse/Storage Building (Building 349), and Pump Station and small pier connecting it to shore (Building 375); removal of underground pipes and other utilities; evacuation and removal of contaminated soils; removal of paved areas and building slabs; and site restoration. As you are aware, the SM-1 Reactor Facility (Building 372) and associated buildings are eligible for listing in the National Register of Historic Places (NRHP) under Criterion A as the first water-pressurized nuclear reactor in the United States and for its role as the first prototype nuclear power plant developed as a training facility for military personnel. The DHR listed the reactor and its dependencies in the Virginia Landmarks Register.

We concur with the Corps that the planned decommissioning of the SM-1 Reactor Facility will have an adverse effect on the historic property. The DHR is in the process of reviewing on the draft Memorandum of Agreement (MOA) for the undertaking. We will forward our comments to the Corps as soon as our review of the draft MOA is complete.

If you have any questions about our comments, please contact me at [redacted]

Sincerely,

Marc Holma, Architectural Historian
Division of Review and Compliance

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6196

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

C: Ms Kate Cline, Fort Belvoir
Mr. Chris Daniel, ACHP
Mr. Jordan Tannenbaum, Fairfax County Historical Commission
Ms Laura Arseneau, Fairfax County
Ms Nicole Brannan, Fairfax County

Preserving America's Heritage

January 7, 2020

The Honorable R.D. James
Assistant Secretary for the Army for Civil Works
Office of the Assistant Secretary of the Army (Civil Works)
108 Army Pentagon
Washington, DC 20310-0108

Ref: *Decommissioning of the Stationary Medium Power Plant Number 1 (SM-1) Reactor Facility*
Fairfax County, Virginia
ACHPConnect Log Number: 013997

Dear Mr. James:

In response to the recent notification by the United States Army Corps of Engineers, the Advisory Council on Historic Preservation (ACHP) will participate in consultation to develop a Section 106 agreement document for the referenced undertaking. Our decision to participate in this consultation is based on the *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, contained within the regulations, "Protection of Historic Properties" (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act. The criteria are met for this proposed undertaking because it has substantial impacts on important historic properties and the potential for procedural problems.

Section 800.6(a)(1)(iii) of our regulations requires that we notify you, as the head of the agency, of our decision to participate in consultation. By copy of this letter, we are also notifying Ms. Brenda M. Barber, Baltimore District Project Manager, of this decision.

Our participation in this consultation will be handled by Mr. Christopher Daniel, who can be reached at [redacted] or via e-mail at [redacted]. We look forward to working with your agency and other consulting parties to reach agreement on alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties.

Sincerely,

John M. Fowler
Executive Director

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

April 17, 2019

Reid Nelson
Director, Office of Federal Agency Programs
Advisory Council on Historic Preservation
401 F Street, NW, Suite 308
Washington, DC 20001

RE: Invitation to Participate in Section 106 Consultation for the Stationary Medium Power Plant Number 1 (SM-1) Reactor Facility, Fort Belvoir, Fairfax County, Virginia.

Dear Mr. Nelson:

The U.S. Army Corps of Engineers - Baltimore District (USACE) has proposed the decommissioning of the Stationary Medium Power Plant Number 1 (SM-1) Reactor Facility located at Fort Belvoir in Fairfax County, Virginia. The SM-1 Reactor Facility (Building 372), along with four secondary resources (Buildings 7350, 375, 371, and 380), was determined eligible for listing on the National Register of Historic Places (NRHP) in 1996 and is also listed on the Virginia Landmarks Register.

The proposed decommissioning is a federal "undertaking" as defined in Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation, 36 CFR Part 800, "Protection of Historic Properties." In accordance with Section 106, USACE initiated consultation with the Virginia Department of Historic Resources (VDHR) by letter dated October 28, 2015 (Attachment A) which gives a fuller description of the undertaking, the Area of Potential Effects (APE), and the historic properties affected.

USACE's proposed action alternative consists of the removal of all radiologically contaminated structures, equipment, and media from the SM-1 site, as needed to allow for the termination of the permit under which the SM-1 Reactor Facility is currently maintained and the release of the site for unrestricted use. This action involves removal of materials and equipment from Building 372, demolition of Building 372, and the demolition and removal of the other three buildings (Buildings 349, 350, and 375) on the SM-1 Reactor Facility Site. Because USACE's Proposed Action Alternative will include the demolition and removal of buildings, removal of site infrastructure improvements, the removal of contaminated soils, and site restoration, the proposed action has the potential to affect historic properties (defined as listed in or eligible for listing in the NRHP.

In accordance with both Section 106 and with the provisions of the National Environmental Protection Act (NEPA), USACE has identified potential consulting parties that may have an interest in the proposed undertaking and its effects on historic properties. In a follow-up letter to VDHR dated August 22, 2018, USACE submitted its list of potential consulting parties (Attachment B) for the SM-1 Facility decommissioning project. As specified in 36 CFR Part 800, consulting parties may include other federal, state, regional, or local agencies as well as historical groups that may have responsibilities for historic properties.

These groups may want to review reports and findings for an undertaking within or near their jurisdiction. USACE also has identified specialized groups and organizations that may have a scientific interest in the SM-1 reactor and its history. Additionally, in accordance with 36 CFR 800.2(c)(2), USACE has identified federally recognized Native American tribes in Virginia as consulting parties who may comment on the undertaking and on any measures to mitigate possible adverse effects from the project on NRHP-eligible resources. To date, five parties/individuals (including VDHR) have accepted USACE's invitation to become consulting parties and they are copied on this communication.

In a teleconference held on April 12, 2019, USACE consulted with VDHR and other consulting parties in accordance with Section 106 with respect to its efforts to avoid or minimize any adverse effects on historic properties within the APE. The USACE has determined that its Proposed Action Alternative would have an Adverse Effect on the NRHP-eligible SM-1 Reactor Facility (Buildings #372, #350/7350, and #375) and the two associated NRHP-eligible buildings (Building #371 and #380). Measures to mitigate the adverse effect will be developed by USACE in consultation with VDHR, the Advisory Council on Historic Preservation (ACHP), and other consulting parties and will be memorialized in the form of a Memorandum of Agreement.

In accordance with 36 CFR § 800.6(a)(1), FRA is hereby inviting the ACHP to participate in further Section 106 consultation. USACE is available to meet with you or your staff to discuss both the Project and the ACHP's participation in Section 106 consultation going forward.

Sincerely,

Brenda M. Barber, P.E.
U.S. Army Corps of Engineers - Baltimore District
Project Manager - Environmental and Munitions Design Center
ATTN: CENAB-ENE-C
2 Hopkins Plaza
09-A-10 (Cube)
Baltimore, MD 21201
[redacted]

CC Hans Honerlah, USACE

Kevin Taylor, AECOM
Craig Carver, AECOM
Charlene Wu, AECOM
Michael Robertson, AECOM
Geoffrey Henry, AECOM

Section 106 Consulting Parties:
Marc Holma, VDHR, [redacted]
Christine Heacock, Department of Public Works, Fort Belvoir, [redacted]
Nicole Brannan, Fairfax County (VA) Department of Planning, [redacted]
Charlie Brannon (Nuke Digest), [redacted]
Fred Crawford, Primary Representative, Pohick Episcopal Church, Virginia , [redacted]

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

January 25, 2019

Ms. Martha Catlin
8324 Mount Vernon Hwy.
Alexandria, VA 22309

RE: Initiation of Section 106 Consultation and Invitation to be a Consulting Party in SM-1 Nuclear Reactor Facility Decommissioning Planning, Fort Belvoir, Fairfax County, Virginia

Dear Ms. Catlin,

The U.S. Army Corps of Engineers - Baltimore District (USACE) has proposed the decommissioning of the Stationary Medium Power Plant Number 1 (SM-1) Nuclear Reactor Facility located at Fort Belvoir in Fairfax County, Virginia. The SM-1 Reactor Facility (Building 372), along with four secondary resources (Buildings 7350, 375, 371, and 380), was determined eligible for listing in the National Register of Historic Places (NRHP) in 1996. The reactor building is also listed in the Virginia Landmarks Register. These resources are shown on **Figure 1**.

The proposed decommissioning is a federal "undertaking," as defined in Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations, 36 CFR Part 800, "Protection of Historic Properties." In accordance with Section 106, USACE has initiated consultation with the Virginia Department of Historic Resources (VDHR) by letter dated October 28, 2015 (Attachment A). This letter provides a more comprehensive description of the undertaking, the Area of Potential Effects (APE), and the historic properties affected.

In accordance with both Section 106 and with the provisions of the National Environmental Policy Act (NEPA), USACE has identified potential consulting parties that may have an interest in the proposed undertaking and its effects on historic properties. In a follow-up letter to VDHR dated August 22, 2018, USACE submitted a list of potential consulting parties (Attachment B) for the ***SM-1 Nuclear Reactor Facility Decommissioning*** project. As specified in 36 CFR Part 800, consulting parties may include other federal, state, regional, or local agencies as well as historical groups that may have responsibilities for historic properties. These groups may want to review reports and findings for an undertaking within or near their jurisdiction. USACE also has identified specialized groups and organizations that may have a scientific interest in the SM-1 nuclear reactor facility and its history. Additionally, in accordance with 36 CFR 800.2(c)(2), USACE has identified federally recognized Indian tribes in Virginia as consulting parties that may comment

on the undertaking and on any measures to mitigate possible adverse effects resulting from the project on NRHP listed or eligible resources.

Per the requirements of the Section 106 process, USACE extends an invitation to your group to participate as a consulting party for the ***SM-1 Nuclear Reactor Facility Decommissioning*** project. Please notify USACE within 30 days of receipt of this letter if you have any questions or concerns about the project's effects on historic properties or if you are interested in participating in consultation as the project moves forward. USACE intends to schedule and host a meeting at a future date at the Fairfax County South County Center near Fort Belvoir to discuss the project and the Section 106 process, including assessment of any effects on historic properties from the undertaking. Pursuant to 36 CFR 800.11(e) through (g), views of the public will be included in documentation of project effects on historic properties.

Please respond at the mailing and/or email address on the above letterhead.

Sincerely,

Brenda M. Barber, P.E.

Brenda M. Barber, P.E.
U.S. Army Corps of Engineers - Baltimore District
Project Manager Environmental and Munitions Design Center

cc: Hans Honerlah, USACE – Baltimore District
Patrick Read, USACE – Baltimore District
Scott Watson, USACE – Baltimore District
Jeff Lorenz, USACE – Baltimore District
Christine Heacock, Fort Belvoir - Cultural Resources

SM-1 Reactor Facility, Fort Belvoir, Virginia

National Register Boundary/Limits of Archaeological Investigation

Historic Property

Area of Potential Effects

Building Number

N
W E
S

0 100 200 Feet

Figure 1

Source: U.S. Army Garrison Fort Belvoir, ESRI

ATTACHMENT B

USACE has identified the following potential consulting parties and federally recognized Native American Tribes:

Proposed Consulting Parties:

- Virginia Department of Historic Resources
- Fairfax County Planning & Zoning
- Fairfax County Park Authority
- Fairfax County History Commission
- National Capital Planning Commission
- National Park Service: Potomac Heritage Scenic Trail
- Council of Virginia Archaeologists
- National Trust for Historic Preservation
- Woodlawn NHL
- Woodlawn Baptist Church
- Fairfax County Architectural Review Board
- Gunston Hall Plantation
- Woodlawn-Faith United Methodist Church
- Historical Society of Fairfax County
- Pohick Episcopal Church
- Ms. Martha Catlin (Interested Person)
- US Armed Forces Nuclear Energy Association
- American Nuclear Society
- The Nuke Digest (publication)

Federally Recognized Native American Tribes in Virginia:

- Eastern Band of Cherokee Indians
- Tuscarora Nation of New York
- United Keetowah Band of Cherokee Indians in Oklahoma
- Catawba Indian Nation
- Pamunkey Indian Tribe
- Chickahominy Indian Tribe
- Chickahominy Indian Tribe – Eastern Division
- Upper Mattaponi Tribe
- Rappahannock Tribe
- Monacan Indian Nation
- Nansemond Indian Nation

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

August 22, 2018

Mr. Marc Holma
Architectural Historian
Project Review
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Dear Mr. Holma:

RE: SM-1 Reactor Facility Decommissioning Planning, Fort Belvoir, Fairfax County, VA
VDHR File No. 2015-1247

By this letter, the U.S. Army Corps of Engineers - Baltimore District (USACE), is continuing consultation with your office regarding the proposed Stationary Medium Power Nuclear Power Reactor Prototype Number 1 (SM-1) Facility decommissioning at Fort Belvoir in Fairfax County, Virginia, in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation, 36 CFR Part 800, "Protection of Historic Properties." The SM-1 Reactor Facility (Building 372) (VDHR ID # 029-0193) was determined eligible for listing in the National Register of Historic Places (NRHP) and is also listed in the Virginia Landmarks Register.

USACE previously has communicated with your office by letter dated October 28, 2015 to initiate Section 106 consultation and has met with your staff at VDHR headquarters in Richmond on December 2, 2015 to discuss the project and its potential to affect historic properties. The October 28, 2015 consultation letter described the undertaking (as defined by Section 106), the project purpose and need, and defined the project's Area of Potential Effect (APE).

Since the December 2, 2015 meeting with VDHR, USACE has completed several additional tasks in compliance with Section 106, which are described below:

1. Archaeology

One archaeological site, 44FX1331, was identified in 1987 during a pedestrian survey of the area by former Fairfax County Archaeologist, Michael Johnson. In February 2018, AECOM-Tidewater Joint Venture conducted a Phase I archaeological survey at the SM-1 site and its 1.84-hectare (4.54-acre) archaeological APE to determine if other potentially significant archaeological resources were present. The survey determined that extensive ground disturbances associated with construction of the SM-1 Reactor Facility severely impacted the landform and may have destroyed much of the site's subsurface integrity. As a result, the site was recommended not eligible for listing in the NRHP and no further archaeological study of the SM-1 site was recommended. The results of the survey were reported in *Phase I Archaeological Survey of the SM-1 Reactor Facility, US Army Garrison Fort Belvoir, Fairfax County, VA* (Boyd et al 2018), submitted to your office in February, 2018. By letter dated March 21, 2018, VDHR concurred with the findings and recommendations of the archaeological survey by AECOM that no further archaeology work at the SM-1 site is required (VDHR File No. 2015-1247).

2. Consulting Parties and Native American Consultation

In accordance with Section 106 and with the provisions of the National Environmental Protection Act (NEPA), USACE has identified potential consulting parties that may have an interest in the proposed undertaking and its effects on historic properties. As specified in 36 CFR Part 800, consulting parties may include other federal, state, regional, or local agencies as well as historical groups that may have responsibilities for historic properties. These groups may want to review reports and findings for an undertaking within or near their jurisdiction. USACE has also considered interested individuals' written requests to participate as consulting parties in the development of measures to avoid, minimize, and mitigate adverse effects on historic properties. Additionally, USACE has identified specialized groups and organizations that may have a scientific interest in the SM-1 reactor and its history. USACE intends to schedule and host a meeting at the Fairfax County South County Center near Fort Belvoir to discuss the project and the Section 106 process, including assessment of any effects on historic properties from the undertaking. Pursuant to 36 CFR 800.11(e) through (g), views of the public will be included in documentation of project effects on historic properties and any resulting MOAs (if required).

Additionally, in accordance with 36 CFR 800.2(c)(2), USACE has identified federally recognized Native American tribes in Virginia as consulting parties who may comment on the undertaking and on any measures to mitigate possible adverse effects from the project on NRHP-eligible resources.

To date, USACE has identified the following potential consulting parties and welcomes review and comment by your office on the following list:

Proposed Consulting Parties:

- Virginia Department of Historic Resources
- Fairfax County Planning & Zoning
- Fairfax County Park Authority
- Fairfax County History Commission
- National Capital Planning Commission
- National Park Service: Potomac Heritage Scenic Trail
- Council of Virginia Archaeologists
- National Trust for Historic Preservation
- Woodlawn NHL
- Woodlawn Baptist Church
- Fairfax County Architectural Review Board
- Gunston Hall Plantation
- Woodlawn-Faith United Methodist Church
- Historical Society of Fairfax County
- Pohick Episcopal Church
- Ms. Martha Catlin (Interested Person)
- US Armed Forces Nuclear Energy Association
- American Nuclear Society
- The Nuke Digest (publication)

Federally Recognized Native American Tribes in Virginia:

- Eastern Band of Cherokee Indians
- Tuscarora Nation of New York
- United Keetowah Band of Cherokee Indians in Oklahoma
- Catawba Indian Nation
- Pamunkey Indian Tribe
- Chickahominy Indian Tribe
- Chickahominy Indian Tribe – Eastern Division
- Upper Mattaponi Tribe
- Rappahannock Tribe
- Monacan Indian Nation
- Nansemond Indian Nation

3. *Assessment of Effects from SM-1 Decommissioning*

In accordance with Section 106, USACE has sought to identify measures to avoid or minimize adverse effects that would result from the SM-1 decommissioning process. Nuclear Regulatory Commission (NRC) regulations for decommissioning licensed nuclear facilities such as the SM-1 Reactor Facility are provided in 10 CFR Part 20 Subpart E, and Parts 30, 50, and 51. NRC does not license the SM-1 Reactor; however, the Army Reactor Office (ARO) adheres to NRC regulations to the maximum extent possible with the exception of reporting requirements to the NRC.

The NRC's 1988 *Final Generic Environmental Impact Statement of Decommissioning Nuclear Facilities* (NUREG-0586) offers the choice of three decommissioning methods:

- DECON – Soon after the nuclear facility closes, equipment, structures, and portions of the facility containing radioactive contaminants are removed or decontaminated to a level that permits release of the property and termination of the license.
- SAFSTOR – Often considered "deferred dismantling," the nuclear facility is maintained and monitored in a condition that allows the radioactivity to decay; afterwards, the plant is dismantled and the property is decontaminated to a level that permits release of the property and termination of the license.

  ENTOMB – Radioactive contaminants are permanently encased on site in structurally-sound material such as concrete; the facility is maintained and monitored until the radioactivity decays to a level permitting restricted release of the property.

As required by 10 CFR 50.82(a)(3), decommissioning must be completed within 60 years of the plant ceasing operations. To date, the SM-1 Reactor has been in a SAFSTOR condition for 44 years. Recent radiological surveys and data have shown that, within the time left before the 60-year deadline is reached, natural radiological decay would not sufficiently reduce residual radioactivity to allow for release of the facility without significant decontamination being performed. Additionally, the increasing cost and decreasing availability of radioactive waste disposal facilities raise concerns about the continuing feasibility of decontamination beyond the next few years.

USACE has determined that demolition of SM-1 and the following ancillary features, along with disposal of the contaminated soil, is the only feasible and prudent alternative for decommissioning:

- Building 372, Reactor Building and Stack;
- Building 7350, Sewage Lift Station;
- Building 349, Warehouse/Storage Building (non-contributing);
- Building 375, Pump Station and small pier connecting it to the shore (non-contributing);
- Underground pipes and other unused utilities.

In compliance with Section 106, USACE applied the Criteria of Adverse Effect to the historic property (SM-1 and ancillary buildings/structures) according to § 800.5 "Assessment of adverse effects" and has determined that the undertaking will cause "physical destruction or damage to all of the property" and will therefore have an adverse effect.

USACE seeks comment from your office on USACE's efforts to date to avoid or minimize adverse effects on the historic property from the undertaking, and concurrence with USACE's determination that the proposed demolition activity at the SM-1 site is an adverse effect, as defined by Section 106. By separate letter, and in accordance with 36 CFR § 800.6(a)(1), USACE will notify the Advisory Council on Historic Preservation (ACHP) of the adverse effect determination, provide the documentation specified in 36 CFR 800.11(e), and invite them to participate in the Section 106 process. USACE will also notify each of the identified consulting parties and federally recognized tribes of the adverse effect determination and solicit their input to develop possible mitigation measures. These measures will be codified in a Memorandum of Agreement, which will be sent to your office and any signing consulting parties for concurrence and signature.

Sincerely,

Brenda M. Barber, P.E.

Brenda M. Barber, P.E.
U.S. Army Corps of Engineers - Baltimore District
Project Manager Environmental and Munitions Design Center

cc: Hans Honerlah, USACE – Baltimore District
Patrick Read, USACE – Baltimore District
Scott Watson, USACE – Baltimore District
Jeff Lorenz, USACE – Baltimore District
Christine Heacock, Fort Belvoir - Cultural Resources

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

October 28, 2015

Mr. Marc Holma
Architectural Historian
Project Review
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Dear Mr. Holma:

Re: SM-1 Reactor Facility Decommissioning Planning, Fort Belvoir, Fairfax County, VA

This letter is to initiate consultation with your office regarding the proposed Stationary Medium Power Plant Number 1 (SM-1) Reactor Facility decommissioning at Fort Belvoir in Fairfax County, VA (Figure 1) in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation, 36 CFR 800, "Protection of Historic Properties."

The SM-1 Reactor Facility (historically known as the U.S. Army Package Power Reactor) was built in 1957 to generate electricity for commercial use and cut back on the Department of Defense's dependency on fossil fuels (Figure 2). Additional buildings and structures were added to the compound through the 1950s, 1960s, and into 1970. The compound sits on a terrace overlooking Gunston Cove. Portions of the compound were graded and leveled in the 1950s to provide suitable sites for the buildings and structures.

The SM-1 Reactor Facility (Building 372), along with six secondary resources (Buildings 7350, 373, 375, 376, 384, and the emergency siren), was determined eligible for listing on the National Register of Historic Places (NRHP) under Criterion A because it was the first water-pressurized reactor in the U.S. and due to its role as the first prototype nuclear power plant developed as a training facility for military personnel (DHR File No. 029-193 and NRHP Nomination Form 1996). It is also listed on the Virginia Landmarks Register (VLR No. 06-19-1996). Two additional buildings, 371 and 380, were associated with the SM-1 compound, though not included in the NRHP nomination. The SM-1 Reactor Facility was shut down by 1973. Buildings 373, 376, 384, and the emergency siren structure were demolished in the late 1990s as part of a separate, independent action.

One archaeological site, 44FX1331, has been identified within the proposed project area. Site 44FX1331 was identified in 1987 during a pedestrian survey of the area by former

Fairfax County Archaeologist, Michael Johnson, Ph.D. Numerous quartz and quartzite debitage, one quartz lanceolate point, and one quartz Piscataway point were recovered, suggesting a Late Archaic to Early Woodland Period occupation in the project area. Dr. Johnson noted on the site form that the majority of the site appeared to be severely disturbed by construction; however, no subsurface testing was conducted as part of the survey. The location of the site varies slightly between the V-CRIS file, the Fairfax County site form, and the Fort Belvoir GIS system (Figure 3). The site acreage was not listed, but is estimated at approximately 3 acres (allowing for overlapping site boundaries from the different systems).

Details on the undertaking and the proposed Area of Potential Effect (APE) are provided below. A Project Review Form is also attached for your review.

Description of the Undertaking

It is anticipated that the decommissioning of the SM-1 Reactor Facility will include the demolition and removal of buildings, removal of site infrastructure improvements (e.g., roads, fence), the removal of contaminated soils, and site restoration. Some potential significant activities expected to decommission the SM-1 Reactor Facility include:

- Construction of temporary facilities and/or modification of existing facilities to support the decommissioning effort. This phase includes preparation of lay-down areas and installation of office trailers, waste storage, and sanitary facilities.
- Reconfiguration and modification of site structures and facilities as needed to support the decommissioning effort. This may include the upgrading of roads (on and off site) to facilitate hauling and transport and/or the installation of a barge slip and concrete pad to support a temporary/mobile crane.
- Interior work including decontamination or fixing of loose contamination, removal of asbestos containing materials, removal of radioactive material and equipment (M&E), and radiation surveys of clean areas.
- Modification of the Vapor Container (domed structure of Building 372) to allow removal of the reactor and other large components prior to demolition of the structure.
- Demolition of the following buildings:
    - Building 372, Reactor Building and Stack
    - Building 7350, Sewage Lift Station
    - Building 349, Warehouse/Storage Building
    - Building 375, Pump Station and small pier connecting it to the shore
- Removal of underground pipes and other unused utilities
- Excavation and removal of contaminated soils
- Removal of paved areas and building slabs
- Site restoration

Waste generated from the decommissioning will include low-level radioactive waste (e.g., soil, building materials, and M&E), non-radioactive hazardous materials, clean M&E, and building demolition waste. The wastes will go to various licensed disposal facilities

dependent upon the specific waste stream. Following demonstration that the site meets the radiological release criteria, site restoration will be performed. Stockpiled clean soil from the excavations may be used as clean fill. Clean fill may also be imported to complete backfilling of the excavated areas. Once final grade is achieved, the soil will be loamed and seeded with an approved vegetative cover.

Area of Potential Effect

The total proposed APE is 10.76 acres (Figures 4 and 5). The architectural history APE for this proposed project is coterminous with the 10.76 acres surrounding the SM-1 compound and Buildings 371 and 380. The archaeological APE is coterminous with the boundaries of ground disturbance related to the demolition, site cleanup, and staging activities.

It is anticipated that the proposed decommissioning activities will have an adverse effect on the NRHP-eligible SM-1 Reactor Facility and may affect archaeological resources associated with site 44FX1331. As a result, we request a meeting with you and Mr. Gregg LaBudde to discuss the decommissioning of SM-1 and future steps to further determine the extent of, and address, these potential adverse effects.

If you need additional information, please contact me at [redacted] or via email at [redacted]

Sincerely,

Brenda M. Barber, P.E.

Brenda M. Barber, P.E.
U.S. Army Corps of Engineers - Baltimore District
Project Manager Environmental and Munitions Design Center

cc: Hans Honerlah, U.S. Army Corps of Engineers - Baltimore District
Scott Watson, U.S. Army Corps of Engineers - Baltimore District
Alison Talbot, U.S. Army Garrison Fort Belvoir
Kevin Taylor, AECOM
Laurent Cartayrade, AECOM
Varna Boyd, AECOM

Section 7 Consultation

NOAA FISHERIES
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Greater Atlantic Region

US Army Corps of Engineers ®

GARFO ESA Section 7: 2017 NLAA Program Verification Form
(Please submit a signed version of this form, together with any project plans, maps, supporting analyses, etc., to nmfs.gar.esa.section7@noaa.gov with "2017 NLAA Program" in the subject line)

Section 1: General Project Details

Application Number:	N/A
Applicant(s):	U.S. Army Corps of Engineers - Baltimore District
Permit Type (e.g. NWP, LOP, RGP, IP, Permit Modification):	N/A
Anticipated project start date (e.g., 9/1/2017)	06/01/2020
Anticipated project end date (e.g., 3/14/2018 – if there is no permit expiration date, write "N/A")	12/31/2025

Project Type/Category (check all that apply to entire action):

☐	Aquaculture (shellfish) and artificial reef creation	☐	Transportation and development (e.g., culvert construction, bridge repair)
☐	Routine maintenance dredging and disposal/beach nourishment	☐	Mitigation (fish/wildlife enhancement or restoration)
☑	Piers, ramps, floats, and other structures	☐	Bank stabilization and dam maintenance
☑	If other, describe project type/category: Demolition of an existing pier, pump house, and inactive wastewater discharge outfall pip		

Project/Action Description and Purpose (*include town/city/state and water body where project is occurring; relevant permit conditions that aren't captured elsewhere on form*):

The US Army Corps of Engineers, Baltimore District (USACE) proposes to complete decommissioning and dismantlement of the Deactivated SM-1 Nuclear Reactor at Fort Belvoir in Fairfax County, Virginia (Proposed Action). SM-1 is located on Fort Belvoir's South Post adjacent to Gunston Cove, a tidal embayment of the Potomac River.

SM-1 was deactivated in 1973 and has since been maintained in a safe storage (SAFSTOR) condition by USACE. Decommissioning and dismantlement of deactivated nuclear reactors is required within 60 years of deactivation in accordance with US Nuclear Regulatory

Type of Habitat Modified (e.g., sand, cobble, silt/mud/clay):	Area (acres):
Sand / silt	1.30
Project Latitude (e.g., 42.625884)	38.675830
Project Longitude (e.g., -70.646114)	-77.143610

Section 2: ESA-listed species and/or critical habitat in the action area:

☑	Atlantic sturgeon (all DPSs) If not all DPSs, list which here:	☐	Kemp's ridley sea turtle
☑	Atlantic sturgeon critical habitat (proposed or designated) Indicate which DPS (GOM, NYB, Chesapeake Bay DPSs): Chesapeake Bay DPS	☐	Loggerhead sea turtle (NW Atlantic DPS)
☑	Shortnose sturgeon	☐	Leatherback sea turtle
☐	Atlantic salmon (GOM DPS)	☐	North Atlantic right whale
☐	Atlantic salmon critical habitat (GOM DPS)	☐	North Atlantic right whale critical habitat
☐	Green sea turtle (N. Atlantic DPS)	☐	Fin whale

Section 3: NLAA Determination (check all applicable fields):

a) GENERAL PDC	
☐	Yes, my project meets all of the General PDC.
☑	No, my project does not meet all the General PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):
	Information for PDC 8 (if "max extent of stressor" exceeds "width of water body", PDC 8 is NOT met, and a justification in Section 4 is required to proceed with the verification form)

	Width (m) of water body in action area:	Stressor Category (stressor that extends furthest distance into water body – e.g., turbidity plume; sound pressure wave):	Max extent (m) of stressor into the water body:
	1,244.00	Sound pressure wave	328.00

☐	1.	No work will individually or cumulatively have an adverse effect on ESA-listed species or designated critical habitat; no work will cause adverse modification or destruction to proposed critical habitat.
☐	2.	No work will occur in the tidally influenced portion of rivers/streams where Atlantic salmon presence is possible from April 10–November 7.
☐	3.	No work will occur in Atlantic or shortnose sturgeon spawning grounds as follows: i. New England: April 1–Aug. 31 ii. New York/Philadelphia: March 15–August 31 iii. Baltimore/Norfolk: March 15–July 1 and Sept. 15–Nov. 1
☐	4.	No work will occur in shortnose sturgeon overwintering grounds as follows: i. New England District: October 15–April 30 ii. New York/Philadelphia: Nov. 1–March 15 iii. Baltimore: Nov. 1–March 15
☐	5.	Within designated Atlantic salmon critical habitat, no work will affect spawning and rearing areas (PBFs 1-7).
☐	6.	Within proposed/designated Atlantic sturgeon critical habitat, no work will affect hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 parts per thousand) (PBF 1).
☐	7.	Work will not change temperature, water flow, salinity, or dissolved oxygen levels.
☐	8.	If it is possible for ESA-listed species to pass through the action area, a zone of passage with appropriate habitat for ESA-listed species (e.g., depth, water velocity, etc.) must be maintained (i.e., physical or biological stressors such as turbidity and sound pressure must not create barrier to passage).
☐	9.	Any work in designated North Atlantic right whale critical habitat must have no effect on the physical and biological features (PBFs).
☑	10.	The project will not adversely impact any submerged aquatic vegetation (SAV).
☐	11.	No blasting will occur.

b) The following stressors are applicable to the action (check all that apply – use Stressor Category Table for guidance):

☑	Sound Pressure
☐	Impingement/Entrapment/Capture
☑	Turbidity/Water Quality
☐	Entanglement

☐	Habitat Modification
☑	Vessel Traffic

	Stressor Category					
Activity Category	Sound Pressure	Impingement/ Entrapment/ Capture	Turbidity/ Water Quality	Entanglement	Habitat Mod.	Vessel Traffic
Aquaculture (shellfish) and artificial reef creation	N	N	Y	Y	Y	Y
Routine maintenance dredging and disposal/beach nourishment	N	Y	Y	N	Y	Y
Piers, ramps, floats, and other structures	Y	N	Y	Y	Y	Y
Transportation and development (e.g., culvert construction, bridge repair)	Y	N	Y	N	Y	Y
Mitigation (fish/wildlife enhancement or restoration)	N	N	Y	N	Y	Y
Bank stabilization and dam maintenance	Y	N	Y	N	Y	Y

c) SOUND PRESSURE PDC

☑	Yes, my project meets all of the Sound Pressure PDC below.
☐	No, my project does not meet all the Sound Pressure PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):

Information for PDC 14 (refer to SOPs for guidance):

	Pile material (e.g., steel pipe, timber, concrete)	Pile diameter/width (inches)	Number of piles	Installation method (e.g., impact hammer, vibratory start and then impact hammer to depth)
a)				
b)				

	c)				
	d)				

☐	12.	If the pile driving is occurring during a time of year when ESA-listed species may be present, and the anticipated noise is above the behavioral noise threshold of those species (please see SOPs), a 20 minute "soft start" is required to allow for animals to leave the project vicinity before sound pressure increases.
☐	13.	Any new pile supported structure must involve the installation of ≤ 50 piles (below MHW).
☐	14.	All underwater noise (pressure) is below (<) the physiological/injury noise threshold for ESA-listed species in the action area (if project involves steel piles, or non-steel piles > 24-inches in diameter/width, include noise estimate with this form).
d) IMPINGEMENT/ENTRAINMENT/CAPTURE PDC		
☑		Yes, my project meets all of the Impingement/Entrainment/Capture PDC below.
☐		No, my project does not meet all the Impingement/Entrainment/Capture PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):
		Information for Dredging:
		If dredging permit/authorization includes multiple years of maintenance, include estimated number of dredging/disposal events:
		Information for PDC 18 (refer to SOPs for guidance):
		Mesh screen size (mm) for temporary intake:
☐	15.	Only mechanical, cutterhead, and low volume hopper (e.g., CURRITUCK) dredges may be used.
☐	16.	No new dredging in proposed or designated Atlantic sturgeon or Atlantic salmon critical habitat (maintenance dredging still must meet all other PDCs). New dredging outside Atlantic sturgeon or salmon critical habitat is limited to one time dredge events (e.g., burying a utility line) and minor (≤ 2 acres) expansions of areas already subject to maintenance dredging (e.g., marina/harbor expansion).
☐	17.	Work behind cofferdams, turbidity curtains, and other methods to block access of animals to dredge footprint is required when operationally feasible and ESA-listed species may be present.
☐	18.	Temporary intakes related to construction must be equipped with appropriate sized mesh screening (as determined by GARFO section 7 biologist and/or according to Chapter 11 of the NOAA Fisheries Anadromous Salmonid Passage Facility Design) and must not have greater than 0.5 fps intake velocities, to prevent impingement or entrainment of any ESA-listed species life stage.
☐	19.	No new permanent intake structures related to cooling water, or any other inflow at facilities (e.g. water treatment plants, power plants, etc.).
e) TURBIDITY/WATER QUALITY PDC		
☑		Yes, my project meets all of the Turbidity/Water Quality PDC below.

☐	No, my project does not meet all the Turbidity/Water Quality PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):	
☐	20.	Work behind cofferdams, turbidity curtains, or other methods to control turbidity are required when operationally feasible and ESA-listed species may be present.
☐	21.	In-water offshore disposal may only occur at designated disposal sites that have already been consulted on with GARFO.
☐	22.	Any temporary discharges must meet state water quality standards; no discharges of toxic substances.
☐	23.	Only repair of existing discharge pipes allowed; no new construction.
f) ENTANGLEMENT PDC		
☑	Yes, my project meets all of the Entanglement PDC below.	
☐	No, my project does not meet all the Entanglement PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):	
	Information for Aquaculture Projects:	
	Type of Aquaculture (e.g., cage on bottom)	Acreage
	a)	
	b)	
	c)	
☐	24.	Shell on bottom <50 acres with maximum of 4 corner marker buoys;
☐	25.	Cage on bottom with no loose floating lines <5 acres and minimal vertical lines (1 per string of cages, 4 corner marker buoys);
☐	26.	Floating cages in <3 acres in waters and shallower than -10 feet MLLW with no loose lines and minimal vertical lines (1 per string of cages, 4 corner marker buoys);
☐	27.	Floating upweller docks in >10 feet MLLW.
☐	28.	Any in-water lines, ropes, or chains must be made of materials and installed in a manner (properly spaced) to minimize the risk of entanglement by keeping lines taut or using methods to promote rigidity (e.g., sheathed or weighted lines that do not loop or entangle).
g) HABITAT MODIFICATION PDC		
☑	Yes, my project meets all of the Habitat Modification PDC below.	
☐	No, my project does not meet all the Habitat Modification PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):	

☐	29.	No conversion of habitat type (soft bottom to hard, or vice versa) for aquaculture or reef creation.	
h) VESSEL TRAFFIC PDC			
☑	Yes, my project meets all of the Vessel Traffic PDC below.		
☐	No, my project does not meet all the Vessel Traffic PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):		
	Information for PDC 33 (refer to SOPs for guidance):		
		Temporary Project Vessel Type (e.g., work barge, tug, scow, etc.)	Number of Vessels
	a)	Work barge	1
	b)	Barge escort	1
	c)	Support boat(s)	1
		Type of Non-Commercial Vessels Added (e.g., 20' recreational motor boat – *only include if there is a net increase directly/indirectly resulting from project*)	Number of Vessels (*if sum > 2, PDC 33 is not met and justification required in Section 4*)
	a)	None	
	b)		
		Type of Commercial Vessels Added (*only include if there is a net increase directly/indirectly resulting from project*)	Number of Vessels (*if > 0, PDC 33 is not met and justification required in Section 4*)
	a)	None	
	b)		
☐	30.	Speed limits below 10 knots for project vessels with buffers of 150 feet for all listed species (1,500 feet for right whales).	
☐	31.	While dredging, dredge buffers of 300 feet in the vicinity of any listed species (1,500 feet for right whales), with speeds of 4 knots maximum.	
☐	32.	The number of project vessels must be limited to the greatest extent possible, as appropriate to size and scale of project.	
☐	33.	The permanent net increase in vessels resulting from a project (e.g., dock/float/pier/boating facility) must not exceed two non-commercial vessels. A project must not result in the permanent net increase of any commercial vessels (e.g., a ferry terminal).	

Section 4: Justification for Review under the 2017 NLAA Program

If the action is not in compliance with all of the General PDC and appropriate stressor PDC, but you can provide justification and/or special conditions to demonstrate why the project still meets the NLAA determination and is consistent with the aggregate effects considered in the programmatic consultation, you may still certify your project through the NLAA program using

this verification form. Please identify which PDC your project does not meet (e.g., PDC 9, PDC 15, PDC 22, etc.) and provide your rationale and justification for why the project is still eligible for the verification form.

To demonstrate that the project is still NLAA, you must explain why the effects on ESA-listed species or critical habitat are **insignificant** (i.e., too small to be meaningfully measured or detected) or **discountable** (i.e., extremely unlikely to occur). Please use this language in your justification.

PDC#	Justification
10.	Mapped SAV species in Gunston Cove include hydrilla (Hydrilla verticillata) and common reed (Phragmites australis), which are both invasive species, water stargrass (Heteranthera dubia), spiny naiad (Najas marina), coontail (Ceratophyllum demersum), wild celery (Vallisneria americana), and southern naiad (Najas guadalupensis). The presence and extent of SAV adjacent to and near in-water structures associated with SM-1 is not known. SAV adjacent to the concrete discharge pipe, outfall structure, and pier/pump house, if present, could be damaged or destroyed during the proposed in-water activities. These

Section 5: USACE Verification of Determination

☐	In accordance with the 2017 NLAA Programmatic Consultation, the Corps has determined that the action complies with all applicable PDC and is not likely to adversely affect listed species.
☑	In accordance with the 2017 NLAA Programmatic Consultation, the Corps has determined that the action is not likely to adversely affect listed species per the justification and/or special conditions provided in Section 4.
USACE Signature:	Date:
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Section 6: GARFO Concurrence

☐	In accordance with the 2017 NLAA Program, GARFO PRD concurs with USACE's determination that the action complies with all applicable PDC and is not likely to adversely affect listed species or critical habitat.
☑	In accordance with the 2017 NLAA Program, GARFO PRD concurs with USACE's determination that the action is not likely to adversely affect listed species or critical habitat per the justification and/or special conditions provided in Section 4.
☐	GARFO PRD does not concur with USACE's determination that the action complies with the applicable PDC (with or without justification), and recommends an individual Section 7 consultation to be completed independent from the 2017 NLAA Program.
GARFO Signature:	Date:
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Carver, Craig

Subject: SM-1 Decommissioning, Fort Belvoir, VA - Signed Section 7 Programmatic NLAA Form
Attachments: final_SM-1 Reactor Decomm.pdf

From: Brian D Hopper - NOAA Federal [redacted]
Sent: Wednesday, March 04, 2020 3:05 PM
To: Carver, Craig [redacted]
Cc: Barber, Brenda M CIV USARMY CENAB (US) [redacted]); Roblyer, Griffin D K CIV USARMY CENAB (USA) [redacted]; Taylor, Kevin (Greenville) [redacted]; Honerlah, Hans B CIV USARMY CENAB (US) [redacted]; Ray, Diane M CIV USARMY CENAE (US) [redacted]; Christine Vaccaro - NOAA Federal [redacted]
Subject: Re: SM-1 Decommissioning, Fort Belvoir, VA - Signed Section 7 Programmatic NLAA Form

for your records

On Wed, Mar 4, 2020 at 2:29 PM Carver, Craig [redacted] wrote:

> Mr. Hopper,
>
> Attached, please find the signed programmatic Section 7 NLAA form for the US Army Corps of Engineers proposed SM-1 decommissioning project at Fort Belvoir. NMFS's response or requests for additional information should be sent to all of the recipients included on this email.
>
> Please let us know if you have any questions. Thank you for your assistance with this matter.
>
> **Craig Carver**, AICP
> Environmental Compliance Specialist
>
> Southeast
> [redacted]
>
> [redacted]
>
> **AECOM**
> 4840 Cox Road
> Glen Allen, VA 23060, USA
> T +1-804-515-8300
> aecom.com
>
> **Imagine it. Delivered.**
>
> **Safeguard | Collaborate | Inspire | Anticipate | Deliver | Dream**

--
Brian D. Hopper
Protected Resources Division
NOAA Fisheries
Greater Atlantic Regional Fisheries Office
200 Harry S Truman Parkway
Suite 460
Annapolis, MD 21401
[redacted]
http://www.greateratlantic.fisheries.noaa.gov/

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date: 10/15/19

Self-Certification Letter

Project Name: SM-1 Reactor Facility Decommissioning

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA conclusions. These conclusions resulted in:

- "no effect" determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR § 17.40(o) [as determined through the Information, Planning, and Consultation System (IPaC) northern long-eared bat assisted determination key]; and/or
- "may affect, not likely to adversely affect" determinations for proposed/listed species and/or proposed/designated critical habitat.

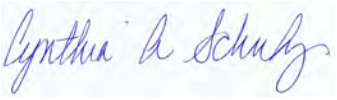
We certify that use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the determinations described above for proposed and listed species and proposed and designated critical habitat. Additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of proposed or listed species, proposed or designated critical habitat becomes available, this determination may be reconsidered. This certification letter is valid for 1 year.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available at our website http://www.fws.gov/northeast/virginiafield/endspecies/project_reviews.html. If you have any questions, please contact Troy Andersen of this office at (804) 824-2428.

Sincerely,



Cindy Schulz
Field Supervisor
Virginia Ecological Services

Enclosures - project review package

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
http://www.fws.gov/northeast/virginiafield/

In Reply Refer To: October 15, 2019
Consultation Code: 05E2VA00-2019-SLI-5695
Event Code: 05E2VA00-2020-E-00561
Project Name: SM-1 Reactor Facility Decommissioning

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2019-SLI-5695

Event Code: 05E2VA00-2020-E-00561

Project Name: SM-1 Reactor Facility Decommissioning

Project Type: ** OTHER **

Project Description: The U.S. Army Corps of Engineers (USACE) is proposing to decommission the deactivated SM-1 Reactor Facility at U.S. Army Garrison Fort Belvoir, Virginia (proposed action). The proposed action would involve the demolition and disposal of the Reactor building (Building 372), removal and disposal of the remaining primary and secondary systems, and demolition and disposal of associated structures (including the water intake pier and pump house); the removal and disposal of contaminated soils; site restoration; and the termination of the permit under which the facility is currently being maintained by the U.S. Army. The proposed action would involve selected ground disturbance and tree clearing within the SM-1 facility's approximately 4-acre site on Fort Belvoir, as well as some localized subsurface disturbance in the waters of Gunston Cove adjacent to the site from the removal of an intake pipe, pier, and outfall associated with the facility.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.676607109490384N77.14488045921414W

Counties: Fairfax, VA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

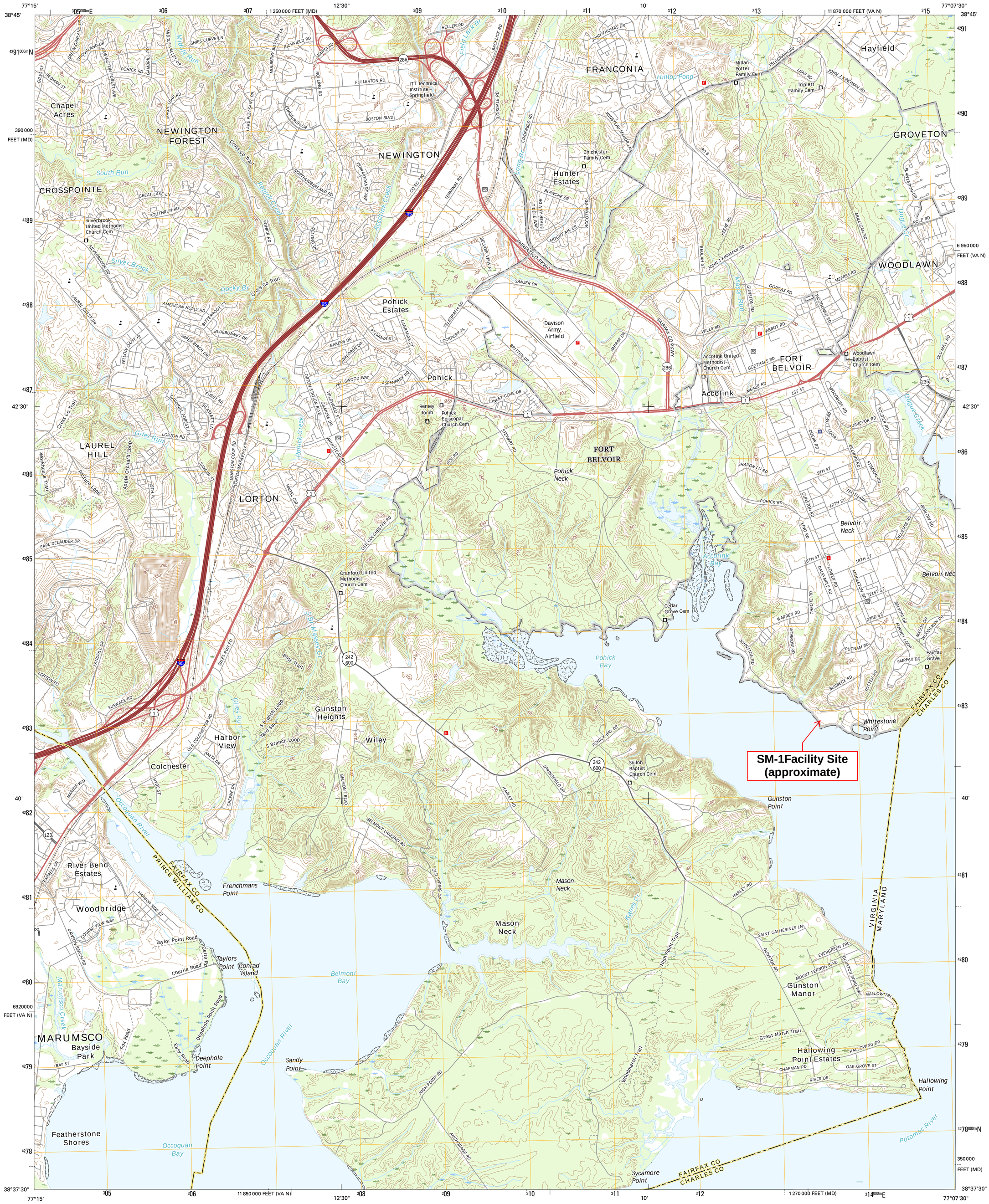
Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

FORT BELVOIR QUADRANGLE
VIRGINIA-MARYLAND
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 18S
10 000-foot ticks: Virginia Coordinate System of 1983 (north zone), Maryland Coordinate System of 1983

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2014
Roads.....U.S. Census Bureau, 2015 - 2016
Names.....GNIS, 2016
Hydrography.....National Hydrography Dataset, 2014
Contours.....National Elevation Dataset, 2015
Boundaries.....Multiple sources; see metadata file 1972 - 2016

Wetlands.....FWS National Wetlands Inventory 1977 - 2014

MN
10° 41′ 190 MILS
GN
1° 22′ 24 MILS
UTM GRID AND 2016 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
UH
Grid Zone Designation
18S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.19

VIRGINIA
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Fairfax
2 Annandale
3 Alexandria
4 Occoquan
5 Mount Vernon
6 Quantico
7 Indian Head
8 Port Tobacco
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

FORT BELVOIR, VA-MD
2016

NSN. 7643016400734
NGA REF NO. USGSX24K15858

Figure 1

LEGEND

- SM-1 Reactor Facility Site
- Fence
- ### Building Number

N
W E
S

0 50 100
Feet

Figure 2

L:\DCS\GIS\GIS_Data\60332951_FB_SM-1_Decom\MXDs\EA Figures\SM1_Site_Map.mxd

Table 1 – Species Conclusions Table

Project Name: SM-1 Reactor Facility Decommissioning

Date: October 15, 2019

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Northern long-eared bat (*Myotis septentrionalis*)	Potential habitat present and no current *site-specific* survey conducted	Not likely to adversely affect	No documented hibernaculum within 0.25 mile of the project site. No documented maternity roost trees on or within 150 feet of the project site. During the implementation of the proposed action, USACE and its contractors would adhere to management policies regarding the northern long-eared bat (NLEB) set forth in Fort Belvoir's *Integrated Natural Resources Management Plan* (INRMP), including a time of year restriction on tree clearing between April 15 and September 15 of any year to minimize impacts on potential NLEB maternity roost habitat.
Critical habitat[1]	No critical habitat present	No effect	Project would not occur in Virginia counties where critical habitat has been documented.

Notes:

1. USACE is consulting separately with NOAA Fisheries to identify potential impacts on the Atlantic sturgeon, its critical habitat, and other aquatic resources under its jurisdiction in Gunston Cove and/or the Potomac River.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

April 19, 2019

Ms. Brenda Barber, P.E.
Project Manager – Environmental and Munitions Design Center
U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
09-A-10 (Cube)
Baltimore, MD 21201

Re: Essential Fish Habitat (EFH) consultation; SM-1 Reactor Facility Decommissioning,
U.S. Army Garrison Fort Belvoir, Fairfax County, Virginia

Dear Ms. Barber:

We have reviewed the information provided in your letter dated March 5, 2019, describing the proposed action to decommission the deactivated SM-1 Reactor Facility located at U.S. Army Garrison Fort Belvoir, Fairfax County, Virginia. The proposed action includes the demolition and disposal of the Reactor Facility (Bldg. 372) and associated infrastructure including three structures which extend into Gunston Cove, which is contiguous to the Potomac River. The three structures sited in intertidal and subtidal areas of Gunston Cove include a water outfall pipe and an approximately 105 ft. long water intake pier which supports a pump house. Gunston Cove is approximately 1,380 yds. wide at the project site.

As stated in your essential fish habitat (EFH) assessment, the Potomac River and Gunston Cove are designated as EFH for seven (7) federally managed species. The project area is also designated an anadromous fish use area by the Virginia Department of Game and Inland Fisheries (VDGIF). As you know, submerged aquatic vegetation (SAV) has been mapped at the project site by the Virginia Institute of Marine Science (VIMS) SAV monitoring program (VIMS, 2012-2017 data). The density of the SAV has been characterized as dense (70-100%) cover in most years and has been characterized as a suite of species including: *Hydrilla verticillata, Heteranthrea dubla, Najas minor, Najas major, Najas guadalupensis, Ceratophyllum demersum, Vallisnerai americana* and *Myriophyllum spicatum*, though the most recent ground-truth survey was conducted over ten years ago (VIMS, 2007 data) and may not be indicative of the current species or species composition.

The proposed removal of the outfall pipe, pier and pump house have the potential to adversely affect EFH, SAV and the migration, spawning and nursery habitat of anadromous fish. As stated in your EFH assessment, removal of the water intake pier and pump house will be conducted using a barge-mounted crane and supporting vessels. Following removal of the superstructures, the piles will be removed in their entirety if structurally sound. If complete extraction of piles is not possible, piles may be cut off below the mudline. During deconstruction of the pier and pile removal, the use of a turbidity curtain is proposed to surround the entire work area. A turbidity

curtain will also be employed during the removal of the subaqueous portion of the water outfall pipe to prevent the migration of re-suspended sediment from the work area. This best management practice will reduce the potential direct and indirect impacts to EFH, SAV and any anadromous fish that may be present depending on the time of year construction occurs. Although the entire decommissioning of the SM-1 Reactor Facility is estimated to take five years to complete, the in-water demolition of the pier, pump house and water outfall pipe will only require approximately 45 days.

Essential Fish Habitat Conservation Recommendations

Based on the width of Gunston Cove and the proposed use of turbidity curtains during in-water construction, we agree with your determination that the proposed demolition activities will not have a substantial adverse effect on EFH, SAV or the migration, spawning or nursery habitat of anadromous fish. However, we are concerned that removal of the piles using other methods, such as jetting or dredging may have adverse impacts to EFH, SAV and other aquatic species. As a result we offer the following EFH conservation recommendation pursuant to Section 305 (b) (4) (A) of the Magnuson Stevens Fishery Conservation and Management Act (MSA):

- Should extraction of piles using the barge-mounted crane become difficult or impossible, piles shall be cut below the mudline. Consultation should be reinitiated if other methods of pile removing such as jetting or dredging become necessary.

Endangered Species Act

Endangered species under the jurisdiction of NOAA Fisheries may be present in the project area. The federal action agency is responsible for determining whether the proposed action may affect these species. If you determine that the proposed action may affect a listed species, your determination of effects along with justification and a request for concurrence should be submitted to the attention of the Section 7 Coordinator, NMFS, Greater Atlantic Regional Fisheries Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930, or at nmfs.gar.esa.section7@noaa.gov. Guidance and tools to assist you in your effects determination are available on our website at: www.greateratlantic.fisheries.noaa.gov/section7. Please contact Brian Hopper of our Protected Resources Division ([redacted]) if you have any questions or to discuss your project and obligations under Section 7 of the Endangered Species Act.

Thank you for the opportunity to review the EFH assessment for the proposed decommission and demolition of the SM-1 Reactor Facility, water intake pier, pump station and water outfall pipe located on Gunston Cove. If you any questions or require additional information, please contact David O'Brien ([redacted]) in our Gloucester Point, VA field office.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat Conservation

cc: B. Hopper - PRD

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

CENAB-ENE-C

March 5, 2019

USACE-Baltimore District

Ms. Karen Green
Mid-Atlantic Field Office Supervisor/EFH Coordinator
55 Great Republic Drive
NOAA Fisheries Service
Gloucester, Massachusetts 01930
[redacted]

Subject: Magnuson-Stevens Fishery Conservation and Management Act Consultation, Environmental Assessment for the SM-1 Reactor Facility Decommissioning EA, U.S. Army Garrison Fort Belvoir, Fairfax County, Virginia

Dear Ms. Greene,

The purpose of this letter is to solicit comments regarding the U.S. Army Corps of Engineers (USACE) Baltimore District's proposed decommissioning of the deactivated SM-1 Reactor Facility at U.S. Army Garrison Fort Belvoir (Fort Belvoir) in Fairfax County, Virginia (proposed action). USACE is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] §4321 et seq.) to analyze the potential impacts and environmental consequences associated with the decommissioning.

The proposed action would involve the demolition and disposal of the Reactor Facility (Building 372), the remaining primary and secondary systems, and associated structures; the removal and disposal of contaminated soils; site restoration; and the termination of the permit under which the facility is currently being maintained by the U.S. Army. Three structures that would be removed under the proposed action extend into Gunston Cove, a shallow embayment of the Potomac River adjacent to the SM-1 Reactor Facility: a water outfall pipe, an intake pier, and a pump house (situated on the pier). The proposed action is described in additional detail below followed by a discussion of potential Essential Fish Habitat (EFH).

The purpose of this letter is to inform your office of the project, its potential to affect EFH under the jurisdiction of your office, and to request concurrence with our determination.

Summary of Proposed Action

The SM-1 Reactor Facility is located on an approximately 5-acre parcel within Fort Belvoir's Main Post in Fairfax County, Virginia, approximately 17 miles southwest of Washington, D.C. (**Figure 1**). Gunston Cove, an embayment of the Potomac River, is located along the southwest side of the parcel and includes a water intake structure and pump house (**Figure 2**).

The proposed action consists of the removal of all radiologically contaminated structures, equipment, and media from the SM-1 Reactor Facility site, as needed, to allow for the termination of the permit under which the facility is currently maintained and the release of the site for unrestricted use. It also includes the removal of additional uncontaminated structures associated with the facility. The proposed action can be broken down into several components, as described below.

Site preparation. Preparatory activities would include the establishment of radiological controls on and around the SM-1 Reactor Facility site; the installation of temporary support facilities or modifications to existing facilities to support field activities throughout the duration of the proposed action; the removal of most vegetation from the site and some non-contaminated structures and equipment; and potential upgrades to the transportation network.

Removal of materials and equipment (M&E) from Building 372. These activities would include the removal of regulated contaminated and clean M&E from the building. Areas where surface contamination has been detected would be decontaminated to the extent practicable to allow open air demolition and minimize the amount of low-level radioactive waste (LLRW) to be transported and disposed of.

Demolition of Building 372. Demolition would occur in two sequential phases starting with structural components situated within the Unrestricted Area. This phase of demolition would include the above ground structure and removal of the remaining floor slab, foundation, and any tanks and piping still present. The resultant debris from these activities would be disposed of as clean waste. The second phase of demolition would occur within the Restricted Area and result in the removal of structures around, and including, the Vapor Container.

Demolition and removal of other structures. This component of the proposed action includes the demolition or removal of the water intake pump house and pier, a sewage pump station, and a storage warehouse. It also includes the removal of the water intake pipe to Building 372, the water discharge piping from Building 372 to the Seal Pit, the Seal Pit and associated manholes, the discharge pipe from the Seal Pit to the Outfall, and the unused sanitary sewer line associated with the sewage pump station.

Removal of the water intake pump house and pier, which extends from the shoreline to approximately 100 feet into Gunston Cove, would likely require the use of a barge-mounted crane and other vessels to give the demolition crew and equipment access to the structures. Superstructures would be removed first, followed by the piles if they are found to be structurally sound. If the piles are found to be in a condition that would not allow for complete removal, they may be cut at the mudline and the portions below the cut would be left in place. A boom/turbidity curtain would be put in place around the work area to limit turbidity increases downstream, to prevent the migration of disturbed sediment into the water column, and to ensure disturbed sediments settle near their original location. A boom/turbidity curtain would also be used to contain sediment disturbed by the removal of the underwater portion of the outfall pipe.

Soils remediation and restoration. Contaminated soils around and below Building 372 would be removed following demolition. In addition to radiological contamination, surveys have shown the presence of lead around the building, likely from the slow deterioration of lead-based paint. Soils around the underground tanks and piping are also assumed to be contaminated and would be removed along with those structures.

Waste disposal and transportation. The proposed decommissioning activities would generate large amounts of waste. All waste would be characterized, segregated, and disposed of as clean waste (no contamination, suitable for recycling or disposal at a regular landfill), LLRW, hazardous waste, or mixed waste. Disposal facilities appropriate for each category of waste would be identified and the waste would be shipped to those facilities in accordance with applicable federal and state regulations.

All waste would be transported off site by trucks, including a 53-foot trailer truck for the Reactor Pressure Vessel (RPV) cask. After leaving Fort Belvoir, the trucks would travel on public roads to either the disposal site or to a road-to-rail transfer location for rail transport to the final destination.

Safety, health, and environmental control measures. The proposed action would involve disturbing, demolishing, and moving materials, structures, and soils that are hazardous or radiologically contaminated. These materials would be handled in a controlled manner that would minimize the risk of exposure to project personnel, the general public, and the environment.

The proposed decommissioning activities would take place over an approximately 5-year time period with primary field activities starting in calendar year 2021. It is anticipated the site would be fully restored and available for unrestricted use by 2026. Work in Gunston Cove is anticipated to occur over approximately 45 days during that period.

Essential Fish Habitat

Removal of the water outfall pipe, water intake pier, and pump house has the potential to affect resources under the jurisdiction of the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). The Magnuson-Stevens Fishery Conservation and Management Act requires Federal agencies to consult with NOAA Fisheries to address activities that may adversely affect EFH, which is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Based on a query of the NOAA EFH Mapper, designated EFH for six species has been mapped in the vicinity of the project area (**Table 1**). Mapping data for the summer flounder was not available in the EFH Mapper tool; however, the species was identified in a non-map query for the Potomac River. No Habitat Areas of Particular Concern (HAPCs) and no EFH Areas Protected from Fishing (EFHA) were identified in the proposed action area.

Table 1. EFH Species and Life Stages Potentially Found in the Project Area

Species	Egg	Larvae	Juvenile	Adult
Atlantic Herring	--	--	✓	✓
Clearnose Skate	--	--	✓	✓
Little Skate	--	--	--	✓
Red Hake	✓	✓	✓	✓
Summer Flounder	--	--	✓	✓
Windowpane Flounder	--	--	✓	
Winter Skate	--	--	--	✓

Mean salinity in the Potomac River near the SM-1 Reactor Facility ranges from approximately 0.08 parts per thousand (ppt) to 0.24 ppt depending on freshwater flows from Accotink and Pohick

Creeks and tidal influence from the Potomac River, with higher salinity during the late summer and fall seasons. Mean water temperatures range from approximately 8 degrees Celsius (^{0}C) during winter months to highs of 30^{0}C during the summer months. Depth in Gunston Cove ranges from approximately 1.0 meter (m) in the northern region to approximately 2.25 m in the center. Given the low salinity, adult and juvenile EFH species are not expected to occur in the proposed action area, or would occur in low densities, as these species prefer high salinity zones (greater than 10 ppt) of the Chesapeake Bay and low water temperatures (below 10 ^{0}C) (New England Fishery Management Council & NMFS, 2017). Water temperatures and salinity levels in Gunston Cove are also anticipated to be outside of ideal conditions for spawning and larval stages of Red Hake (below 10 ^{0}C and above 0.5 ppt).

In-water activities associated with the removal of the three structures in Gunston Cove would result in demolition-related disturbances (including increased turbidity, physical disturbance, and noise/vibration) that may cause short-term adverse impacts on aquatic species and habitats. Removal activities would be temporary and localized to a small area, allowing adult and juvenile individuals to move out of affected areas. More information can be found in the *NOAA Fisheries EFH Assessment Worksheet* (see **Attachment 1**).

Conclusion

Because EFH species are unlikely to be present in the proposed action area and impacts on habitat would be short-term, any potential adverse impacts would be insignificant. Thus, USACE anticipates that the proposed action ***may affect, but is unlikely to adversely affect*** EFH, particularly with the implementation of best management practices (BMPs) during construction. BMPs would include the use of containment booms and turbidity barriers, erosion and sediment control and construction stormwater management measures, and seasonal restrictions, as appropriate, in accordance with permit conditions to further avoid or minimize impacts on aquatic species and habitat.

USACE requests NOAA Fisheries' review and concurrence with the effects determination stated in this letter. Please advise if there are any further actions needed to facilitate the implementation of the proposed action in a manner that avoids or minimizes adverse effects on EFH species or habitat.

Please direct any correspondence regarding this request to my attention at:

Project Manager – Environmental and Munitions Design Center
U.S. Army Corps of Engineers, Baltimore District (CENAB-ENE-C)
2 Hopkins Plaza
09-A-10 (Cube)
Baltimore, Maryland 21201

Should you require any further information concerning this project, feel free to contact me directly at [redacted].

Sincerely,

Brenda M. Barber, P.E.

Brenda M. Barber, P.E.

Enclosures

References:

New England Fishery Management Council & NMFS. (2017). Omnibus Essential Fish Habitat. Amendment 2, Volume 2: EFH and HAPC Designation Alternatives and Environmental Impacts. Retrieved from https://www.habitat.noaa.gov/application/efhmapper/oa2_efh_hapc.pdf#page=36.

Enclosures:

Figure 1: Project Location Map

Figure 2: Proposed Action Map

Attachment 1: EFH Assessment Worksheet

FIGURE 1


Richmond Hwy
Meade Rd
Fort Belvoir
Gunston Rd
Belvoir Rd
Mt Vernon Rd
Old Mill Rd
Gist Mill Park
Washington D.C.
Ponick Rd
Accotink Creek
Accotink Bay
Ponick Bay
Dogue Creek
16th St
21st St
Fort Belvoir
Warren Rd
Gunston Cove
Potomac River
Springfield Dr
Gunston Hall
152 ft
Figure 1: Project Location Map
SM-1 Reactor Facility Site
Fort Belvoir
Surface Water
Source: ESRI, Fairfax County, Ft. Belvoir
N
W
E
S
0
0.3
0.6
Miles

ATTACHMENT 1

NOAA FISHERIES

GREATER ATLANTIC REGIONAL FISHERIES OFFICE

Essential Fish Habitat (EFH) Consultation Guidance

EFH ASSESSMENT WORKSHEET

Introduction:

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) mandates that federal agencies conduct an essential fish habitat (EFH) consultation with NOAA Fisheries regarding any of their actions authorized, funded, or undertaken that may adversely affect EFH. An adverse effect means any impact that reduces the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

This worksheet has been designed to assist in determining whether a consultation is necessary and in preparing EFH assessments. This worksheet should be used as your EFH assessment or as a guideline for the development of your EFH assessment. At a minimum, all the information required to complete this worksheet should be included in your EFH assessment. If the answers in the worksheet do not fully evaluate the adverse effects to EFH, we may request additional information in order to complete the consultation.

An expanded EFH assessment may be required for more complex projects in order to fully characterize the effects of the project and the avoidance and minimization of impacts to EFH. While the EFH worksheet may be used for larger projects, the format may not be sufficient to incorporate the extent of detail required, and a separate EFH assessment may be developed. However, regardless of format, the analysis outlined in this worksheet should be included for an expanded EFH assessment, along with additional information that may be necessary. This additional information includes:

- the results of on-site inspections to evaluate the habitat and site-specific effects
- the views of recognized experts on the habitat or the species that may be affected
- a review of pertinent literature and related information
- an analysis of alternatives to the action that could avoid or minimize the adverse effects on EFH.

Your analysis of adverse effects to EFH under the MSA should focus on impacts to the habitat for all life stages of species with designated EFH, rather than individual responses of fish species. Fish habitat includes the substrate and benthic resources (e.g., submerged aquatic vegetation, shellfish beds, salt marsh wetlands), as well as the water column and prey species.

Consultation with us may also be necessary if a proposed action results in adverse impacts to other NOAA-trust resources. Part 6 of the worksheet is designed to help assess the effects of the action on other NOAA-trust resources. This helps maintain efficiency in our interagency coordination process. In addition, further consultation may be required if a proposed action impacts marine mammals or threatened and endangered species for which we are responsible. Staff from our Greater Atlantic Regional Fisheries Office, Protected Resources Division should be contacted regarding potential impacts to marine mammals or threatened and endangered species.

Instructions for Use:

Federal agencies must submit an EFH assessment to NOAA Fisheries as part of the EFH consultation. Your EFH assessment must include:

1) A description of the proposed action.
2) An analysis of the potential adverse effects of the action on EFH, and the managed species.
3) The federal agency's conclusions regarding the effects of the action on EFH.
4) Proposed mitigation if applicable.

In order for this worksheet to be considered as your EFH assessment, you must answer the questions in this worksheet fully and with as much detail as available. Give brief explanations for each answer.

Federal action agencies or the non-federal designated lead agency should submit the completed worksheet to NOAA Fisheries Greater Atlantic Regional Fisheries Office, Habitat Conservation Division (HCD) with the public notice or project application. Include project plans showing existing and proposed conditions, all waters of the U.S. on the project site, with mean low water (MLW), mean high water (MHW), high tide line (HTL), and water depths clearly marked and sensitive habitats mapped, including special aquatic sites (submerged aquatic vegetation, saltmarsh, mudflats, riffles and pools, coral reefs, and sanctuaries and refuges), hard bottom habitat areas and shellfish beds, as well as any available site photographs.

For most consultations, NOAA Fisheries has 30 days to provide EFH conservation recommendations once we receive a complete EFH assessment. Submitting all necessary information at once minimizes delays in review and keeps review timelines consistent. Delays in providing a complete EFH assessment can result in our consultation review period extending beyond the public comment period for a particular project.

The information contained on the HCD Consultation website and NOAA's EFH Mapper will assist you in completing this worksheet. Please note that the Mapper is currently being up-dated with new designations and EFH maps and text descriptions for many species are temporarily missing. When you open the Mapper, read the WARNING that pops up when you click on the Greater Atlantic Region. It will direct you to a document with maps and text descriptions for each of the missing New England Species and to the Mapper's Data Inventory where a data layer for all the missing species is available for downloading into GIS software. Once the Mapper is up-dated, you can do a Location Query for your project location, but until then, the only way to easily generate a list of the missing species and life stages is to use your own GIS software. Before you fill out the worksheet, we recommend that you check with the appropriate HCD staff member to ensure that your list is complete and accurate. They will be able to answer any questions that you have.

Also note that a number of new Habitat Areas of Particular Concern (HAPCs) have been designated in the Greater Atlantic Region. HAPC maps will also be added to the Mapper the next time it is up-dated. Currently, they can be viewed by following the instructions on the warning page for the region. We expect the Mapper to be fully up-dated and functional later this spring.

EFH ASSESSMENT WORKSHEET FOR FEDERAL AGENCIES (modified 3/2016)

PROJECT NAME: Environmental Assessment for the SM-1 Reactor Facility Decommissioning at U.S. Army Garrison Fort Belvoir, Fairfax County, VA

DATE: 01/31/2019

PROJECT NO.: N/A

LOCATION (Water body, county, physical address):

Gunston Cove of the Potomac River, Building 372, Fort Belvoir, Fairfax County, Virginia

PREPARER: AECOM on behalf of US Army Corps of Engineers Baltimore District

Step 1: Use NOAA's EFH Mapper to generate the list of designated EFH for federally-managed species and life stages for the geographic area of interest. Use this list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. The list can be included as an attachment to the worksheet. Make a preliminary determination on the need to conduct an EFH consultation.

1. INITIAL CONSIDERATIONS		
EFH Designations	**Yes**	**No**
Is the action located in or adjacent to EFH designated for eggs? **List the species:** Red Hake	✓	
Is the action located in or adjacent to EFH designated for larvae? **List the species:** Red Hake	✓	
Is the action located in or adjacent to EFH designated for juveniles? **List the species:** Atlantic Herring Clearnose Skate Red Hake Summer Flounder Windowpane Flounder	✓	

Is the action located in or adjacent to EFH designated for adults or spawning adults? List the species: Atlantic Herring Clearnose Skate Little Skate Red Hake Summer Flounder Windowpane Flounder Winter Skate	✓	
If you answered 'no' to all questions above, then an EFH consultation is not required - go to Section 5. **If you answered 'yes' to any of the above questions, proceed to Section 2 and complete the remainder of the worksheet.**		

Step 2: In order to assess impacts, it is critical to know the habitat characteristics of the site before the activity is undertaken. Use existing information, to the extent possible, in answering these questions. Identify the sources of the information provided and provide as much description as available. These should not be yes or no answers. Please note that there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts. Project plans that show the location and extent of sensitive habitats, as well as water depths, the HTL, MHW and MLW should be provided.

2. SITE CHARACTERISTICS	
Site Characteristics	**Description**
Is the site intertidal, sub-tidal, or water column?	The site is intertidal and subtidal.
What are the sediment characteristics?	The sediment is predominantly silt, sand, and gravel substrates.
Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the SAV species and spatial extent.	SAV has been mapped in the area by the Virginia Institute of Marine Science and USGS. Species identified in surveys include Hydrilla verticillata, Heteranthera dubia, Najas minor, Najas minor, Ceratophyllum demersum, Vallisneria americana, and Najas guadalupensis.
Are there wetlands present on or adjacent to the site? If so, describe the spatial extent and vegetation types.	There are wetlands adjacent to the site along drainages to the northwest of the project site. The dominant classification of wetlands is palustrine forested wetlands. The Proposed Action would not permanently adversely impact any wetlands.

Is there shellfish present at or adjacent to the project site? If so, please describe the spatial extent and species present.	No
Are there mudflats present at or adjacent to the project site? If so please describe the spatial extent.	No.
Is there rocky or cobble bottom habitat present at or adjacent to the project site? If so, please describe the spatial extent.	No
Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so for which species, what type habitat type, size, characteristics?	No.
What is the typical salinity, depth and water temperature regime/range?	Mean salinity in this section of the Potomac River ranges from approximately 0.08 ppt to 0.24 ppt depending on freshwater flows from Accotink and Pohick Creeks and tidal influence from the Potomac River, with higher salinity during the late summer and fall seasons. Mean water temperatures range from approximately 8°C to during winter months to highs of 30°C during the summer months. Depth in Gunston Cove ranges from approximately 1.0 m in the norther region to approximately 2.25 m in the center.
What is the normal frequency of site disturbance, both natural and man-made?	The SM-1 Reactor is no longer operational. As a result, the substrates and habitat around the water outfall pipe, pump house, and pier have not been disturbed for O&M purposes since the mid-1970's.
What is the area of proposed impact (work footprint & far afield)?	The water outfall pipe, pump house, and pier occupy approximately 4,200 square feet. These areas would experience direct impacts from the removal of these structures. Additional disturbance is anticipated within approximately 100 feet of each structure. In addition barge-mounted cranes/heavy equipment would operate within an approximate 8.8-acre area in the water around the structures during removal.

Step 3: This section is used to describe the anticipated impacts from the proposed action on the physical/chemical/biological environment at the project site and areas adjacent to the site that may be affected.

3. DESCRIPTION OF IMPACTS

Impacts	Y	N	Description
Nature and duration of activity(s). Clearly describe the activities proposed and the duration of any disturbances.			The Proposed Action includes removal of a water discharge pipe, pumphouse, and pier. Removal of the water intake pump house and pier, which extends from the shoreline to approximately 100 feet into Gunston Cove, would likely require the use of a barge-mounted crane and other vessels to give the demolition crew and equipment access to the structures. Superstructures would be removed first, followed by the piles if they are found to be structurally sound. If the piles are found to be in a condition that would not allow for complete removal, they may be cut at the mudline and the portions below the cut would be left in place. A boom/turbidity curtain would be put in place around the work area to limit turbidity increases downstream, to prevent the migration of disturbed sediment into the water column, and to ensure disturbed sediments settle near their original location.
Will the benthic community be disturbed? If no, why not? If yes, describe in detail how the benthos will be impacted.	✓		The benthic community adjacent to (within 100 feet of) the water outfall pipe, pump house, and pier would experience short-term impacts from disturbance to sediments by heavy equipment during removal. These structures occupy approximately 4,200 square feet of area. Following removal, the area would be allowed to recover naturally. In addition, the area of available benthic habitat would increase and expand to areas formerly occupied by the structures.
Will SAV be impacted? If no, why not? If yes, describe in detail how the SAV will be impacted. Consider both direct and indirect impacts. Provide details of any SAV survey conducted at the site.	✓		SAV in the proposed project area will experience direct and indirect impacts associated with the removal of the structures. SAV adjacent to (within 100 feet of) the structures could be damaged or killed during the demolition and removal process. SAV in the 8.8-acre work area could be damaged by the movement of barge-mounted equipment in the area. Following removal, the area would be allowed to recover and additional habitat would be available in the area formerly occupied by the structures.
Will salt marsh habitat be impacted? If no, why not? If yes, describe in detail how wetlands will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?		✓	There are no salt marsh wetlands in the proposed project area.

Will mudflat habitat be impacted? If no, why not? If yes, describe in detail how mudflats will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?	☐	☑	None present.
Will shellfish habitat be impacted? If so, provide in detail how the shellfish habitat will be impacted. What is the aerial extent of the impact? Provide details of any shellfish survey conducted at the site.	☐	☑	None present.
Will hard bottom (rocky, cobble, gravel) habitat be impacted at the site? If so, provide in detail how the hard bottom will be impacted. What is the aerial extent of the impact?	☐	☑	None present.
Will sediments be altered and/or sedimentation rates change? If no, why not? If yes, describe how.	☐	☑	Removal/demolition activities will cause a short-term localized disturbance in bottom sediments and cause a temporary increase in suspended sediment and turbidity. A boom/turbidity curtain will be used to limit the spread of suspended materials. Any adverse impacts would be temporary and less-than-significant, and further minimized through BMPs.
Will turbidity increase? If no, why not? If yes, describe the causes, the extent of the effects, and the duration.	☑	☐	See above.

Will water depth change? What are the current and proposed depths?		✓	No change will occur.
Will contaminants be released into sediments or water column? If yes, describe the nature of the contaminants and the extent of the effects.		✓	No.
Will tidal flow, currents, or wave patterns be altered? If no, why not? If yes, describe in detail how.		✓	No.
Will water quality be altered? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration of the impact.	✓		Short-term, less-than-significant, adverse impacts to water quality from increased turbidity during demolition of structures could occur, as previously mentioned. Impacts would be temporary and further minimized through BMPs.
Will ambient noise levels change? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration and degree of impact.	✓		There would be short-term, less-than-significant increases to noise during demolition; however, there would be no long-term changes to noise levels. Noise levels are anticipated to be elevated intermittently during an approximately 45-day period.
Does the action have the potential to impact prey species of federally managed fish with EFH designations?	✓		Prey species may experience temporary displacement during construction activities. However, the Proposed Action area is small in relative to the amount of habitat available to prey species. Further, long-term beneficial impacts could occur from the greater amount of habitat that will be available following demolition.

Step 4: This section is used to evaluate the consequences of the proposed action on the functions and values of EFH as well as the vulnerability of the EFH species and their life stages. Identify which species (from the list generated in Step 1) will be adversely impacted from the action. Assessment of EFH impacts should be based upon the site characteristics identified in Step 2 and the nature of the impacts described within Step 3. NOAA's EFH Mapper should be used during this assessment to determine the ecological parameters/ preferences associated with each species listed and the potential impact to those parameters.

4. EFH ASSESSMENT			
Functions and Values	**Y**	**N**	**Describe habitat type, species and life stages to be adversely impacted**
Will functions and values of EFH be impacted for:			
Spawning If yes, describe in detail how, and for which species. Describe how adverse effects will be avoided and minimized.	✓		The EFH mapper indicates spawning habitat for Red Hake. However, water temperatures in Gunston Cove are anticipated to be above ideal water temperatures for spawning (water temperature below 10°C) during the peak spawning period for the species (May-November).
Nursery If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	✓		The EFH mapper indicates larval fish habitat for Red Hake. However, the ideal salinity in Gunston Cove is typically below the preferred salinity for the larval life stage of this species (0.5 ppt).
Forage If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	✓		The EFH mapper indicated that habitat may be present for juvenile and/or adult Atlantic herring, red hake, clearnose skate, little skate, winter skate, summer flounder, and windowpane flounder. With the implementation of BMPs to minimize impacts and the short duration of disturbance, there would be little to no adverse impact to managed fish species during foraging. Therefore, the Proposed Action may affect but is unlikely to adversely affect managed species during foraging.
Shelter If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	✓		SAV and woody debris are present in the project area and could provide cover for fish species. Disturbance to cover immediately adjacent to the structures being demolished could occur during removal of structures. A boom/turbidity curtain will be used to limit the spread of suspended materials beyond the estimated 8.8-acre work area and 4,200 sq. ft. removal area. Following removal, habitat would be expected to naturally restore to pre-disturbance conditions.

Will impacts be temporary or permanent? Please indicate in description box and describe the duration of the impacts.			Temporary impacts, such as turbidity and noise increases, would occur during demolition/removal activities of in-water structures. Impacts are anticipated to occur intermittently during an approximately 45-day period.
Will compensatory mitigation be used? If no, why not? Describe plans for mitigation and how this will offset impacts to EFH. Include a conceptual compensatory mitigation plan, if applicable.		✓	No. BMPs will be used to limit the potential for impacts during removal. Impacts to EFH will be short-term and localized. The area will revert to pre-disturbance conditions following completion of the project. In addition, a small amount of new habitat, currently occupied by the structures, will be created.

Step 5: This section provides the federal agency's determination on the degree of impact to EFH from the proposed action. The EFH determination also dictates the type of EFH consultation that will be required with NOAA Fisheries.

Please note: if information provided in the worksheet is insufficient to allow NOAA Fisheries to complete the EFH consultation additional information will be requested.

5. DETERMINATION OF IMPACT

Federal Agency's EFH Determination		
Overall degree of adverse effects on EFH (not including compensatory mitigation) will be: (check the appropriate statement)	☐	There is no adverse effect on EFH or no EFH is designated at the project site. **EFH Consultation is not required.**
	✓	The adverse effect on EFH is not substantial. This means that the adverse effects are either no more than minimal, temporary, or that they can be alleviated with minor project modifications or conservation recommendations. **This is a request for an abbreviated EFH consultation.**
	☐	The adverse effect on EFH is substantial. **This is a request for an expanded EFH consultation.**

Step 6: Consultation with NOAA Fisheries may also be required if the proposed action results in adverse impacts to other NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats as part of the Fish and Wildlife Coordination Act Some examples of other NOAA-trust resources are listed below. Inquiries regarding potential impacts to marine mammals or threatened/endangered species should be directed to NOAA Fisheries' Protected Resources Division.

6. OTHER NOAA-TRUST RESOURCES IMPACT ASSESSMENT	
Species known to occur at site (list others that may apply)	**Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat). Please note, impacts to federally listed species of fish, sea turtles, and marine mammals must be coordinated with the GARFO Protected Resources Division.**
alewife	Potential spawning and larval cover and foraging habitat is present and could be disrupted by removal activities. The species could be present in the spring and summer.
American eel	Potential cover and foraging habitat for adult eel is present and could be disrupted by removal activities.
American shad	Potential spawning and larval cover and foraging habitat is present and could be disrupted by removal activities. The species could be present in the spring and summer.
Atlantic menhaden	Potential forage and cover habitat for juvenile menhaden is present and could be disrupted by removal activities.
blue crab	Potential nursery and juvenile habitat is present for blue crab and could be disrupted by removal activities.
blue mussel	Blue mussel is unlikely to be present given the low salinity in Gunston Cove.
blueback herring	Potential spawning and larval cover and foraging habitat is present and could be disrupted by removal activities. The species could be present in the spring and summer.

Eastern oyster	Oyster is unlikely to be present given the lack of hard substrate and low salinities in the project area.
horseshoe crab	Horseshoe crab is unlikely to be present given the low salinity in Gunston Cove.
quahog	Quahog is unlikely to be present given the low salinity in Gunston Cove.
soft-shell clams	Soft-shell clams are unlikely to be present given the low salinity in Gunston Cove.
striped bass	Striped bass eggs and larvae could occur in the project area and could be disrupted by removal activities.
other species:	N/A

Useful Links

National Wetland Inventory Maps

EPA's National Estuaries Program

Northeast Regional Ocean Council (NROC) Data

Mid-Atlantic Regional Council on the Ocean (MARCO) Data

Resources by State:

Maine

Eelgrass maps

Maine Office of GIS Data Catalog

Casco Bay Estuary Partnership

Maine GIS Stream Habitat Viewer

New Hampshire

New Hampshire's Statewide GIS Clearinghouse, NH GRANIT

New Hampshire Coastal Viewer

Massachusetts

Eelgrass maps

MADMF Recommended Time of Year Restrictions Document

Massachusetts Bays National Estuary Program

Buzzards Bay National Estuary Program

Massachusetts Division of Marine Fisheries

Massachusetts Office of Coastal Zone Management

Rhode Island

Eelgrass maps

Narraganset Bay Estuary Program

Rhode Island Division of Marine Fisheries

Rhode Island Coastal Resources Management Council

Connecticut

Eelgrass Maps

Long Island Sound Study

CT GIS Resources

CT DEEP Office of Long Island Sound Programs and Fisheries

CT Bureau of Aquaculture Shellfish

Maps CT River Watershed Council

New York

Eelgrass report

Peconic Estuary Program

NY/NJ Harbor Estuary

New Jersey

Submerged Aquatic Vegetation mapping

Barnegat Bay Partnership

Delaware

Partnership for the Delaware Estuary

Center for Delaware Inland Bays

Maryland

Submerged Aquatic Vegetation mapping

MERLIN

Maryland Coastal Bays Program

Virginia

Submerged Aquatic Vegetation mapping

Appendix C – Finding of No Practicable Alternative (FONPA)

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FINDING OF NO PRACTICABLE ALTERNATIVE FOR DECOMMISSIONING AND DISMANTLEMENT OF THE DEACTIVATED SM-1 NUCLEAR REACTOR FACILITY

US ARMY GARRISON FORT BELVOIR

FAIRFAX COUNTY, VIRGINIA

1.0 Introduction

The United States Army Corps of Engineers (USACE), Baltimore District proposes to decommission and dismantle the Deactivated SM-1 Nuclear Reactor Facility at United States (US) Army Garrison Fort Belvoir in Fairfax County, Virginia (Proposed Action). SM-1 operated from 1957 to 1973 and was deactivated between 1973 and 1974. Since deactivation, SM-1 has been maintained by USACE under a Reactor Possession Permit issued by the US Army Nuclear and Countering Weapons of Mass Destruction Agency (USANCA) with oversight from the Army Reactor Office (ARO). The Proposed Action would remove all buildings, structures, and equipment from the SM-1 site and restore the site to a standard that allows for unrestricted future use. Although SM-1 is on Fort Belvoir's fee title land, Army Regulation (AR) 50-7, *Army Reactor Program* designates USACE as the lead Army component and the single point of contact at Headquarters, Department of the Army for nuclear reactor decommissioning to ensure compliance with environmental requirements for decommissioning Army nuclear reactors.

USACE has determined that elements of the Proposed Action must occur within portions of the 100-year floodplain on Fort Belvoir. Under Executive Order (EO) 11988, *Floodplain Management*, USACE must find that there is no practicable alternative to development within the 100-year floodplain and take all practicable measures to minimize harm to or within the floodplain.

This Finding of No Practicable Alternative (FONPA) incorporates the analysis and conclusions of the April 2020 *Final Environmental Assessment for the Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility*. In accordance with the EO, the Draft FONPA was made available for public review and comment during the six-week Draft Environmental Assessment (EA) public review period that began on 20 December 2019 and ended on 31 January 2020.

2.0 Notice of Floodplain Involvement

EO 11988 requires federal agencies to determine whether a proposed action would occur within a floodplain and to avoid floodplains to the maximum extent possible when there is a practicable alternative. The 100-year floodplain is defined as an area adjacent to a water body that has a 1 percent or greater chance of inundation in any given year. The Deactivated SM-1 Nuclear Reactor Facility occupies a 3.6-acre site along Gunston Cove, a tidal embayment of the Potomac River (**Figure 1**). The Proposed Action includes the removal of infrastructure associated with the former operation of SM-1 in the 100-year floodplain adjacent to Gunston Cove.

Structures in the 100-year floodplain that would be removed by the Proposed Action consist of a water intake pier and pump house, and a wastewater discharge pipe (**Figure 2**). The water intake pier and pump house extend approximately 100 feet from the shoreline into Gunston Cove. The water discharge pipe extends in a northwest direction from the facility. The end of the pipe is situated in the 100-year floodplain where it previously discharged into Gunston Cove.

Activities associated with the removal of these structures in Gunston Cove would temporarily disturb floodplains, resulting in the loss or degradation of their natural functions such as water storage, infiltration, and filtration. These impacts could extend to the intrinsic value of this resource or the benefits associated with its use, such as wildlife habitat, recreation, and aesthetic enjoyment. Floodplain functions and values are also susceptible to

changes in the volume, rate, and quality of stormwater discharge, particularly as influenced by the amount of impervious surface within a watershed.

Publication of the Notice of Availability (NOA) for the Draft EA commenced the six-week public comment period. The NOA also stated that the six-week public comment period applied to comments on the Draft FONPA. No comments on the Draft FONPA were received during the public review period.

3.0 Description of the Proposed Action and Discussion of Alternatives

The Proposed Action would execute the SM-1 Decommissioning Plan (DP) approved by the Army Reactor Office (ARO). Decommissioning activities under the Proposed Action would begin with site preparation and mobilization of equipment and personnel. As space is limited at the SM-1 site, heavy equipment needed to support the Proposed Action (e.g., cranes, skid loaders, forklifts, boom lifts, excavators) would not be mobilized until needed to support planned decommissioning activities.

Initial decommissioning and dismantlement activities would focus on the safe removal of non-radioactive and radioactive materials and equipment (M&E) from the Deactivated SM-1 Nuclear Reactor Facility. Upon the removal of radioactive M&E from the SM-1 site, remnant structures and foundations would be surveyed to ensure residual radioactivity is below applicable regulatory criteria for release and then demolished. All radioactive and non-radioactive waste generated from decommissioning activities would be packaged in accordance with applicable US Department of Transportation (DOT) and Nuclear Regulatory Commission (NRC) requirements, transported in trucks by licensed contractors, and disposed of or recycled at permitted off-post facilities.

Removal of the water intake pump house and pier would likely require the use of a barge-mounted crane and other vessels to give the demolition crew and equipment access to the structure. Superstructures would be removed first, followed by the piles. To minimize disturbance of sediments and the subaqueous bottom, the piles would be cut below the mudline and the portions below the cut would be left in place.

Site restoration would be the final step in the decommissioning process. These activities would commence upon confirmation of the site's compliance with unrestricted use criteria. Temporary structures or infrastructure used to support the prior phases of the Proposed Action would be dismantled and either removed from the site or broken down for use as backfill. Clean soil stockpiled onsite would be used to backfill excavated areas; however, clean fill materials imported from other sources would also be required.

Finally, the SM-1 site would be regraded to emulate current elevation and topography. Following application of a loamy top soil, the site would be seeded with native grasses or shrubs to promote revegetation. As practicable, native trees and/or shrubs would also be replanted onsite in accordance with Fort Belvoir's Policy Memorandum #27, *Tree Removal and Protection,* to replace vegetation removed during the decommissioning process.

Alternatives Selection Criteria

The practicability of a given alternative is evaluated by considering pertinent factors such as community welfare, environmental impact, and feasibility in light of the overall purpose and need. USACE developed screening criteria to assess whether an alternative would meet its purpose and need and, therefore, could be considered reasonable. The following criteria were used to evaluate a range of reasonable alternatives:

- **Safety.** Protect public and worker safety, to the maximum extent possible, by reducing the probability of accident or injury in all phases of the decommissioning process.
- **Health.** Reduce risk to public and worker health, to the maximum extent possible, including compliance with the radiological criteria for release of the site for unrestricted use.

- **Time.** Select and implement a decommissioning approach that adheres to the 60-year post-deactivation timeframe in accordance with NRC regulations and the program objectives of USACE's Deactivated Nuclear Power Plant Program.
- **Space.** Select and implement a decommissioning option that provides adequate space to safely and efficiently perform all associated work activities.
- **Cost.** Complete the programmatic, technical, and administrative elements of decommissioning at a reasonable cost.
- **Environmental.** Avoid or minimize adverse effects on protected, beneficial, or valued environmental resources, to the maximum extent possible.

Alternatives Considered and Dismissed

USACE considered alternatives to implementing the proposed decommissioning that were subsequently eliminated through a screening process and detailed analysis. These alternatives, as summarized below, failed to meet USACE's screening criteria and would not satisfy the Proposed Action's purpose and need.

In-place decommissioning of the Deactivated SM-1 Nuclear Reactor Facility was an alternative considered and dismissed. Under this alternative, portions of SM-1 would remain intact in the long term. Only radioactive components exceeding the regulatory threshold for unrestricted use would be removed prior to demolition, while M&E with low levels of contamination would be decontaminated to preserve the equipment in place. Selection of this option would likely limit the frequency and extent of final status and confirmatory surveys, potentially leading to improper waste disposal. Such factors increase the risk and cost involved in decommissioning a nuclear reactor. Following removal of key reactor components, the main reactor facility building (Building 372) would require extensive retrofit and modernization to meet current building codes and make it suitable for future human occupancy. Further, if any reactor systems were left in place, the site would not directly support the military mission on-post, nor would the land use be consistent with Fort Belvoir's future land use plans. Therefore, this alternative was eliminated from further consideration.

Alternate transport routes within Fort Belvoir were also considered to provide access to and from the SM-1 site to conduct decommissioning activities. Factors evaluated for this purpose included, but were not limited to, public safety, traffic, roadway conditions and capacity, travel distance and time, and security. None of the alternate routes sufficiently met the varied requirements necessary to support the decommissioning of SM-1. Therefore, alternate transport routes on Fort Belvoir were eliminated.

USACE also considered utilizing a barge to transport demolition debris for disposal. Under this option, waste containers would be delivered via truck to a staging/transfer point along the existing seawall on the north side of Ponton Basin, an inlet on Fort Belvoir approximately 0.3 mile east of the SM-1 Reactor Facility. A land- or barge-based crane would then load the containers onto a moored barge for transport via the Potomac River and Chesapeake Bay to a barge-to-rail transfer facility in Norfolk, Virginia. This alternative would require dredging more than 10,000 cubic yards of spoils in Ponton Basin and portions of Gunston Cove, which would substantially increase time, cost, and impact of decommissioning SM-1 (a barge-mounted crane and associated vessels would still be required to remove the water intake pier as described above for the Proposed Action). Therefore, the barge transport option was eliminated from detailed analysis in the EA.

Alternatives Subject to Further Analysis

Based on the selection criteria, two alternatives were selected for more detailed analysis in the EA: the Proposed Action Alternative and the No Action Alternative.

No Action Alternative

The No Action Alternative would maintain the current safe storage configuration of the Deactivated SM-1 Nuclear Reactor Facility. USACE would continue to maintain the site under the existing Reactor Possession Permit until its expiration or amendment at a later date. Regular inspections and monitoring of site conditions would continue in accordance with the status quo. Under this Alternative, the natural decay of residual radioactivity would continue slowly over the long term. The No Action Alternative would not allow USACE to release SM-1 for unrestricted use in the short term; therefore, USACE program objectives would not be met as ARO would not terminate its permit for the site. While the No Action Alternative does not meet the screening criteria nor the Proposed Action's purpose and need, it is carried forward for analysis in the EA to provide a comparative baseline against which impacts of the Proposed Action Alternative could be measured, as required under the CEQ regulations (40 CFR Part 1502.14). Because it does not meet the Proposed Action's purpose and need, this alternative is not "practicable" within the meaning of EO 11988.

Proposed Action Alternative

The Proposed Action Alternative would implement the ARO-approved SM-1 Reactor Facility DP. Under this Alternative, individual reactor components would be dismantled and removed prior to demolition. To the extent practicable, contaminated radioactive components would be removed intact for disposition, and non-radioactive components verified as uncontaminated would be removed and segregated onsite for recycling or disposal, as appropriate. The Proposed Action Alternative would also excavate and remove subsurface infrastructure and any contaminated media from the SM-1 site (e.g., soils). Following dismantlement and removal of structures, components, and wastes, including the intake pier and pump house and wastewater discharge pipe, all debris would be packaged for transport by licensed contractors to permitted off-post disposal or recycling facilities. Access to and from the site for all personnel, vehicles, and equipment associated with the Proposed Action would be provided by the existing on- and off-post road network.

Following the completion of demolition activities and surveys to verify that radiation levels are below applicable standards for unrestricted release, the site would be restored and revegetated, and returned to Fort Belvoir for future use.

Impacts and Mitigation Measures

Approximately 0.5 acre of the SM-1 site is situated within the 100-year floodplain associated with Gunston Cove (**Figure 3**). The intake pier and pump house and the wastewater outfall pipe associated with SM-1 are located within the 100-year floodplain. The area of the floodplain that would be temporarily occupied and potentially impacted by equipment needed to remove these structures would be exceedingly small relative to the overall 100-year floodplain associated with Gunston Cove; thus, in-water activities would not noticeably impair the floodplain's capacity to absorb or convey floodwaters, nor would they noticeably displace floodwaters further downstream. Because there would be no noticeable displacement of floodwaters, the proposed activities would have no potential in the short term to threaten human life or property downstream of the SM-1 site. In the long term, no permanent structures would be built or operated in the 100-year floodplain under the Proposed Action Alternative. The removal of the structures would result in a long-term beneficial impact by enhancing the capacity and function of the 100-year floodplain and promoting the restoration of the Gunston Cove shoreline and subaqueous bottom to conditions resembling those that existed prior to the development of SM-1.

EO 11988 states that if the only practicable alternative requires action in a floodplain, the agency shall design or modify its action to minimize potential harm to or within the floodplain. Under the Proposed Action Alternative, best management practices (BMPs) and low impact development (LID) measures would be implemented to reduce the potential for adverse impacts on the 100-year floodplain and areas downstream. BMPs and LID measures incorporated into the Proposed Action Alternative to avoid or minimize impacts on floodplains are collectively described, as follows:

- Erosion and sediment controls during decommissioning and demolition activities would function to capture or re-direct stormwater flows for infiltration or evapotranspiration onsite.
- During removal of the intake pier/pump house structure in Gunston Cove, support piles would be cut below the mudline and the portions below the mudline would be left in place to minimize sediment and subaqueous bottom disturbance.
- Containment booms and sediment curtains would be used during in-water and nearshore work to contain debris that inadvertently enter the water, prevent the migration of disturbed sediment into the water column, minimize turbidity, and ensure disturbed sediments settle near their original location.
- As necessary, the decommissioning contractor would delineate wetlands, obtain a jurisdictional determination from USACE, and submit a JPA identifying avoidance, minimization, and/or compensatory mitigation measures to receive permit coverage pursuant to Sections 401/404 of the Clean Water Act.
- Adherence to Fort Belvoir's *Guide for Resource Protection Areas (RPAs) and Stream Buffers* dated 21 September 2016 would help to offset permanent and temporary impacts on riparian buffer zones established to preserve water quality and provide flood and erosion control on the installation. RPAs reduce the velocity and volume of storm and flood waters by encouraging their retention in the soil, allowing sediment and attached nutrients and toxins to filter out and settle.

Taken together, these and other yet to be determined BMPs and LID measures would avoid or minimize the loss of and impacts on floodplains at the SM-1 site. These measures represent all practicable measures to minimize harm to floodplains.

4.0 Finding

During development of the Proposed Action, USACE sought ways to avoid impacts on floodplains while still implementing the DP and adhering to applicable regulations. By necessity of the location of the intake pier, pump house, and wastewater outfall pipe, and the requirement to remove those structures to complete decommissioning and demolition of the SM-1 Reactor Facility, it was determined that avoidance of floodplains was not feasible. As such, USACE has determined there is no practicable alternative to avoiding action within floodplains on the SM-1 site during implementation of the Proposed Action.

Following a thorough evaluation of alternate plans that would satisfy the Proposed Action's purpose and need, I find that there is no practicable alternative to siting elements of the Proposed Action entirely outside of floodplains. Therefore, USACE will ensure that all practicable measures to minimize impacts to and within the floodplain environment are incorporated into the Proposed Action.

26 MAR 20

Date

COL John T. Litz
District Engineer
US Army Corps of Engineers, Baltimore District

Attachments: Figure 1: Location of the SM-1 Reactor Facility on Fort Belvoir
Figure 2: SM-1 Reactor Facility
Figure 3: Water Resources at the SM-1 Site

Figure 1: Location of the SM-1 Reactor Facility on Fort Belvoir

Figure 2: SM-1 Reactor Facility

Figure 3: Water Resources at the SM-1 Site

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Appendix D – Federal Consistency Determination

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VDEQ Concurrence

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
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February 13, 2020

Ms. Brenda Barber, P.E.
U.S. Army Corps of Engineers Baltimore District
ATTN: CENAB-ENE-C
2 Hopkins Plaza/09-A-10 (Cube)
Baltimore, Maryland 21201
Sent via email: [redacted]

RE: U.S. Army Corps of Engineers Draft Environmental Assessment and Federal Consistency Determination: Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility, U.S. Army Garrison Fort Belvoir, Fairfax County (DEQ 19-157F).

Dear Ms. Barber:

The Commonwealth of Virginia has completed its review of the draft Environmental Assessment (EA), which includes a federal consistency determination (FCD), for the above-referenced project. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating state reviews of FCDs submitted under the Coastal Zone Management Act. The following agencies participated in this review:

Department of Environmental Quality
Department of Conservation and Recreation
Department of Game and Inland Fisheries
Department of Health
Department of Historic Resources
Marine Resources Commission

Fairfax County and the Northern Virginia Regional Commission also were invited to comment on the project.

PROJECT DESCRIPTION

The U.S. Army Corps of Engineers (Corps) Baltimore District proposes to fully decommission and dismantle the Deactivated Stationary Medium Power Model 1 (SM-1) Reactor Facility on Fort Belvoir in Fairfax County, Virginia (proposed action). Under the proposed action, the Corps would implement an Army Reactor Office-approved Decommissioning Plan to safely remove, transport, and dispose of remaining structures, equipment, and media from the Deactivated SM-1 site; validate that site conditions meet applicable cleanup standards; restore the site to a vegetated condition; and return the site to Fort Belvoir for future use.

FEDERAL CONSISTENCY PURSUANT TO THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, activities both within and outside of the Commonwealth's designated coastal zone with reasonably foreseeable effects on any coastal uses or resources resulting from a Federal agency activity (15 CFR Part 930, Subpart C) must be consistent to the maximum extent practicable with Virginia's Coastal Zone Management (CZM) Program. The Virginia CZM Program consists of a network of programs administered by several agencies. DEQ coordinates the review of FCDs with agencies administering the enforceable policies of the Virginia CZM Program.

PUBLIC PARTICIPATION

In accordance with 15 CFR §930.2, a public notice with a comment period of January 10, 2020 to February 3, 2020 of this proposed action was published in OEIR's Program Newsletter and on the DEQ website. No public comments were received in response to the notice.

FEDERAL CONSISTENCY CONCURRENCE

The FCD states that the project is consistent to the maximum extent practicable with the enforceable policies of the Virginia CZM Program. The reviewing agencies that are responsible for the administration of the enforceable policies generally agree with the FCD. Based on the review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposed project is consistent to the maximum extent practicable with the Virginia CZM Program provided all applicable permits and approvals are obtained as described. In addition, in accordance with 15 CFR §930.39(c), DEQ recommends that the Corps consider the impacts of the proposed action on the advisory policies of the Virginia CZM Program. However, other state approvals which may apply to this project are not included in this concurrence. Therefore, the responsible agent must also ensure that

this project is constructed and operated in accordance with all applicable federal, state and local laws and regulations.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Wetlands and Water Quality. The EA (Appendix D, FCD, page 5) states that the proposed action would not involve dredging, filling, or other permanent alteration of or impacts on tidal wetlands. The Corps would submit a Joint Permit Application (JPA) for review and/or authorization from applicable regulatory agencies prior to conducting in-water activities associated with the proposed action.

1(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations covering a variety of permits to include the Virginia Pollutant Discharge Elimination System Permit regulating point source discharges to surface waters, Virginia Pollution Abatement Permit regulating sewage sludge, storage and land application of biosolids, industrial wastes (sludge and wastewater), municipal wastewater, and animal wastes, the Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection (VWP) Permit regulating impacts to streams, wetlands, and other surface waters. The VWP Permit is a state permit which governs wetlands, surface water, and surface water withdrawals and impoundments. It also serves as §401 certification of the federal Clean Water Act and §404 permits for dredge and fill activities in waters of the U.S. The VWP Permit Program is under the Office of Wetlands and Stream Protection within the DEQ Division of Water Permitting. In addition to central office staff who review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities:

- Clean Water Act, §401;
- Section 404(b)(i) Guidelines Mitigation Memorandum of Agreement (2/90);
- State Water Control Law, Virginia Code section 62.1-44.15:20 *et seq.*; and
- State Water Control Regulations, 9VAC25-210-10.

Tidal wetlands are regulated by the Virginia Marine Resources Commission (VMRC) under the authority of Virginia Code §28.2-1301 through §28.2-1320.

1(b) Requirements. The DEQ Northern Regional Office (NRO) states that a VWP permit from DEQ may be required. Upon receipt of a JPA, for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and current VWP permit program guidance.

VMRC states that should any changes to the planned work result in work performed in, or construction access through, tidal wetlands, a tidal wetlands permit will be required from the Fairfax County Wetlands Board.

1(c) Agency Recommendations. In general, DEQ recommends that stream and wetland impacts be avoided to the maximum extent practicable. To minimize unavoidable impacts to wetlands and waterways, DEQ recommends the following practices:

- Operate machinery and construction vehicles outside of stream-beds and wetlands; use synthetic mats when in-stream work is unavoidable.
- Preserve the top 12 inches of material removed from wetlands for use as wetland seed and root-stock in the excavated area.
- Design erosion and sedimentation controls in accordance with the most current edition of the *Virginia Erosion and Sediment Control Handbook*. These controls should be in place prior to clearing and grading, and maintained in good working order to minimize impacts to state waters. The controls should remain in place until the area is stabilized.
- Place heavy equipment, located in temporarily impacted wetland areas, on mats, geotextile fabric, or use other suitable measures to minimize soil disturbance, to the maximum extent practicable.
- Restore all temporarily disturbed wetland areas to pre-construction conditions and plant or seed with appropriate wetlands vegetation in accordance with the cover type (emergent, scrub-shrub or forested). The applicant should take all appropriate measures to promote revegetation of these areas. Stabilization and restoration efforts should occur immediately after the temporary disturbance of each wetland area instead of waiting until the entire project has been completed.
- Place all materials which are temporarily stockpiled in wetlands, designated for use for the immediate stabilization of wetlands, on mats or geotextile fabric in order to prevent entry in state waters. These materials should be managed in a manner that prevents leachates from entering state waters and must be entirely removed within thirty days following completion of that construction activity. The disturbed areas should be returned to their original contours, stabilized within thirty days following removal of the stockpile, and restored to the original vegetated state.
- Clearly flag or mark all non-impacted surface waters within the project or right-of-way limits that are within 50 feet of any clearing, grading or filling activities for the life of the construction activity within that area. The project proponent should notify all contractors that these marked areas are surface waters where no activities are to occur.
- Employ measures to prevent spills of fuels or lubricants into state waters.

1(d) Conclusion. Provided the appropriate permits or approvals are obtained if necessary and the requirements are met, the proposed project would be consistent to the maximum extent practicable with the wetlands management enforceable policy of the Virginia CZM Program.

2. Subaqueous Lands. The EA (Appendix D, FCD, page 4) states that the removal of the intake pier and water discharge pipe would have the potential to disturb subaqueous bottomlands in Gunston Cove. Gunston Cove is a tidal embayment of the Potomac River.

2(a) Agency Jurisdiction. The VMRC regulates encroachments in, on or over state-owned subaqueous beds as well as tidal wetlands pursuant to Virginia Code §28.2-1200 through 1400. For nontidal waterways, VMRC states that it has been the policy of the Habitat Management Division to exert jurisdiction only over the beds of perennial streams where the upstream drainage area is 5 square miles or greater. The beds of such waterways are considered public below the ordinary high water line.

2(b) Agency Findings. VMRC states that the proposed project is outside of its jurisdictional areas and will not require a permit from the agency.

2(c) Conclusion. As proposed, the project would be consistent to the maximum extent practicable with the subaqueous lands management enforceable policy of the Virginia CZM Program.

3. Air Pollution Control. The EA (Appendix D, FCD, page 6) states that dismantlement of the Deactivated SM-1 Nuclear Reactor Facility would generate increased emissions from heavy equipment, worker vehicles and fugitive dust. Adverse short-term impacts on air quality would be minimized through the use of standard best management practices such as vegetating soils that would remain exposed for extended periods and sweeping or wetting pavements.

3(a) Agency Jurisdiction. The DEQ Air Division, on behalf of the State Air Pollution Control Board, is responsible for developing regulations that implement Virginia's Air Pollution Control Law (Virginia Code §10.1-1300 *et seq.*). DEQ is charged with carrying out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate DEQ regional office is directly responsible for the issuance of necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance. As a part of this mandate, environmental impact reviews (EIRs) of projects to be undertaken in the state are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

The Air Division regulates emissions of air pollutants from industries and facilities and implements programs designed to ensure that Virginia meets national air quality standards. The most common regulations associated with projects are:

- Open burning: 9VAC5-130 *et seq.*
- Fugitive dust control: 9VAC5-50-60 *et seq.*
- Permits for fuel-burning equipment: 9VAC5-80-1100 *et seq.*

3(b) Ozone Nonattainment Area. According to the DEQ Air Division, the project site is located in an ozone nonattainment area and an emission control area for volatile organic compounds (VOCs) and oxides of nitrogen (NO_X), which are contributors to ozone pollution.

3(c) Requirements. The following requirements may be applicable to the proposed project.

3(c)(i) Fugitive Dust. During land-disturbing activities, fugitive dust must be kept to a minimum by using control methods outlined in 9VAC5-50-60 *et seq.* of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or suitable chemicals for dust control during the proposed demolition and construction operations and from material stockpiles;
- Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

3(c)(ii) Open Burning. If project activities change to include the burning of vegetative debris, this activity must meet the requirements under 9VAC5-130 *et seq.* of the regulations for open burning, and it may require a permit. The regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. Contact officials with the locality to determine what local requirements, if any, exist.

3(c)(iii) Fuel-Burning Equipment. Fuel-burning equipment (generators, compressors, etc.) or any other air-pollution-emitting equipment may be subject to registration or permitting requirements.

3(d) Conclusion. Provided the project adheres to any applicable requirements, the project would be consistent to the maximum extent practicable with the air pollution control enforceable policy of the Virginia CZM Program.

4. Coastal Lands Management. The EA (Appendix D, FCD, page 7) states that the proposed action would occur in Chesapeake Bay Resource Protection Areas (RPAs) that are recognized by Fort Belvoir. All disturbance of the RPA would be limited to the portion of the RPA within the Deactivated SM-1 Nuclear Reactor Facility perimeter. RPA disturbance during the proposed action would be mitigated through the planting of two new trees for the removal of every tree four inches in diameter and breast height (dbh) or greater in accordance with Fort Belvoir Policy Memorandum #27, *Tree Removal and Protection*. Vegetation replacement in the RPA would also adhere to the requirements of the Department of Conservation and Recreation's *Riparian Buffers Modification and Mitigation Guidance Manual*. In the long term, restoration and re-vegetation of the site following the completion of ground-disturbing activities would have a beneficial effect on RPAs in this part of Fort Belvoir. No ongoing or permanent activities with potential to disturb RPAs would be established by the proposed action.

4(a) Agency Jurisdiction. The DEQ Local Government Assistance Programs (LGAP) administers the Chesapeake Bay Preservation Act (Virginia Code §62.1-44.15:67 *et seq*.) (Bay Act) and Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830-10 *et seq*.). Each Tidewater locality must adopt a program based on the Chesapeake Bay Preservation Act and the Chesapeake Bay Preservation Area Designation and Management Regulations. The Act and regulations recognize local government responsibility for land use decisions and are designed to establish a framework for compliance without dictating precisely what local programs must look like. Local governments have flexibility to develop water quality preservation programs that reflect unique local characteristics and embody other community goals. Such flexibility also facilitates innovative and creative approaches in achieving program objectives. The regulations address nonpoint source pollution by identifying and protecting certain lands called Chesapeake Bay Preservation Areas. The regulations use a resource-based approach that recognizes differences between various land forms and treats them differently.

4(b) Chesapeake Bay Preservation Area. In Fairfax County, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include RPAs and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include those areas of the County not included in the RPAs.

4(c) Requirements. Under the Federal Consistency Regulations of the *Coastal Zone Management Act of 1972*, federal actions in Virginia must be conducted in a manner consistent to the maximum extent practicable with the enforceable policies of the

Virginia CZM Program. Those enforceable policies are administered through the Chesapeake Bay Preservation Act and Regulations.

Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated RPAs and RMAs, as provided in 9VAC25-830-130 and 140 of the Regulations, including the requirement to minimize land disturbance (including access and staging areas), retain existing vegetation and minimize impervious cover as well as including compliance with the requirements of the *Virginia Erosion and Sediment Control Handbook,* and stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*. For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion and Sediment Control Handbook.*

RPA disturbance resulting from the proposed project would consist of vegetation clearing and soil excavation, fill, and compaction. Vegetation clearing and soil disturbance would be temporary and limited to that needed to complete the proposed decommissioning activities. All disturbance in the RPA would be limited to that portion of the RPA within the Deactivated SM-1 Nuclear Reactor Facility perimeter. Adherence to requirements of the CGP and associated SWPPP, ESC and SWM plans during ground-disturbing activities would minimize or prevent the erosion of exposed soils and manage the quantity and quality of stormwater generated on the site, which would be ultimately discharged to Gunston Cove and further downstream, the Potomac River and Chesapeake Bay. The extent and intensity of RPA disturbance would vary over the five-year decommissioning process and not all ground disturbance would occur simultaneously, further minimizing adverse effects.

RPA disturbance would be mitigated through the planting of two new trees for the removal of every tree four inches in diameter and breast height or greater in accordance with Fort Belvoir Policy Memorandum #27, Tree Removal and Protection. Vegetation replacement in the RPA would also adhere to the requirements of the DCR's Riparian Buffers Modification and Mitigation Guidance Manual. In the long term, restoration and re-vegetation of the site following the completion of the proposed ground-disturbing activities would have a beneficial effect on RPAs in this part of Fort Belvoir. No ongoing or permanent activities with potential to disturb RPAs would be established by the proposed action.

4(d) Conclusion. Provided adherence to the above requirements, the proposed activity would be consistent to the maximum extent practicable with the coastal lands management enforceable policy of the Virginia CZM Program.

5. Erosion and Sediment Control and Stormwater Management. According to the EA (Appendix D, FCD, page 5), the proposed action would involve more than 1 acre of

land disturbance. An erosion and sediment control plan and stormwater management plan will be prepared. The decommissioning contractor would also obtain coverage under Virginia's General Permit for Discharges of Stormwater from Construction Activities.

5(a) Agency Jurisdiction. The DEQ Office of Stormwater Management (OSM) administers the following laws and regulations governing construction activities:

- Virginia Erosion and Sediment Control Law (VESCL) (§ 62.1-44.15:51 *et seq.*) and Regulations (VESCL&R) (9VAC25-840);
- Virginia Stormwater Management Act (VSMA) (§ 62.1-44.15:24 *et seq.*);
- Virginia Stormwater Management Program (VSMP) regulation (9VAC25-870); and
- 2014 General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities (9VAC25-880).

In addition, DEQ is responsible for the VSMP General Permit for Stormwater Discharges from Construction Activities related to Municipal Separate Storm Sewer Systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program (9VAC25-890-40).

5(b) Requirements.

5(b)(i) Erosion and Sediment Control and Stormwater Management Plans. The applicant and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with VESCL&R and VSMA and regulations, including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, federal consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbing activities that result in the total land disturbance of equal to or greater than 2,500 square feet in Chesapeake Bay Preservation Area would be regulated by *VESCL&R*. Accordingly, the applicant must prepare and implement an erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. Land-disturbing activities that result in the total land disturbance of equal to or greater than 2,500 square feet in Chesapeake Bay Preservation Area would be regulated by VSMA and regulations. Accordingly, the applicant must prepare and implement a Stormwater Management (SWM) plan to ensure compliance with state law and regulations. The ESC/SWM plan is submitted to the DEQ regional office that serves the area where the project is located for review for compliance. The applicant is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field

inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy (VESCL 62.1-44.15 *et seq*.) (Reference: VESCL 62.1-44.15 *et seq*.).

5(b)(ii) General Permit for Stormwater Discharges from Construction Activities (VAR10). The operator or owner of a construction project involving land-disturbing activities equal to or greater than one acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific SWPPP. The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the VSMP Permit Regulations. General information and registration forms for the General Permit are available on DEQ's website at http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/ConstructionGeneralPermit.aspx (Reference: VSMA 62.1-44.15 *et seq*.; VSMP Permit Regulations 9VAC 25-870-10 *et seq*.).

5(c) Conclusion. Provided the above requirements are satisfied, the project would be consistent to the maximum extent practicable with the nonpoint pollution control enforceable policy of the Virginia CZM Program.

6. Solid and Hazardous Waste Management. The EA (page 3-73) states that hazardous waste would be properly packaged, removed and transported to the final disposal location in accordance with federal, state and local regulations. Best management practices would be implemented to ensure none of the dismantled or removed materials are placed in areas that could impact the surrounding environment (e.g., wetland or other coastal resources). Possible hazardous materials that may be removed include PCBs (mainly in electrical cables, gaskets, grout/caulking, other electrical components, and paint), asbestos-containing materials (insulation materials and wallboard), lead-based paint, mercury in electrical switches and other components, fuels, oils, lubricants, and some ozone depleting substances in refrigerants.

In addition, the EA (page 2-3) states that decontamination of some surfaces would occur to meet the release criteria prior to dismantlement. Power washing, scabbling, and other methods would be employed to remove contamination from the metal and concrete surfaces. All residual solid and liquid wastes would be captured, containerized, characterized, and, as necessary, treated and disposed of at an appropriate permitted facility.

6(a) Agency Jurisdiction. On behalf of the Virginia Waste Management Board, the DEQ Division of Land Protection and Revitalization is responsible for carrying out the mandates of the Virginia Waste Management Act (Virginia Code §10.1-1400 *et seq*.), as well as meeting Virginia's federal obligations under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation Liability Act (CERCLA), commonly known as Superfund. The DEQ Division of Land

Protection and Revitalization also administers those laws and regulations on behalf of the State Water Control Board that govern Petroleum Storage Tanks (Virginia Code §62.1-44.34:8 *et seq*.), including Aboveground Storage Tanks (9VAC25-91 *et seq*.) and Underground Storage Tanks (9VAC25-580 *et seq*. and 9VAC25-580-370 *et seq*.), also known as Virginia Tank Regulations, and § 62.1-44.34:14 *et seq*. which covers oil spills. Virginia:

- Virginia Waste Management Act, Virginia Code § 10.1-1400 *et seq*.
- Virginia Solid Waste Management Regulations, 9VAC20-81
    - (9VAC20-81-620 applies to asbestos-containing materials)
- Virginia Hazardous Waste Management Regulations, 9VAC20-60
    - (9VAC20-60-261 applies to lead-based paints)
- Virginia Regulations for the Transportation of Hazardous Materials, 9VAC20-110.

Federal:

- Resource Conservation and Recovery Act (RCRA), 42 U.S. Code sections 6901 *et seq*.
- U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 Code of Federal Regulations, Part 107
- Applicable rules contained in Title 40, Code of Federal Regulations.

6(b) Database Search. The DEQ Division of Land Protection and Revitalization (DLPR) conducted a search (500-foot radius) of the project area of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR identified two petroleum release sites within the project area which might impact the project:

- PC Number 20023029, Fort Belvoir – Building 07350, Routes 1 and 611, Telegraph and Potomac River Rds, Fort Belvoir, Virginia 22060, Release Date: 07/06/2001, Status: Closed.
- PC Number 19973110, Fort Belvoir – Building 00371, Routes 1 and 611, Telegraph and Potomac River Rds, Fort Belvoir, Virginia 22060, Release Date: 12/27/1996, Status: Closed.

6(c) Agency Recommendations. Evaluate the identified petroleum releases to determine their ability to affect the project site. DEQ encourages all projects to implement pollution prevention principles, including:

- the reduction, reuse and recycling of all solid wastes generated; and
- the minimization and proper handling of generated hazardous wastes.

6(d) Requirements.

- Test and dispose of any soil/sediment that is suspected of contamination (including petroleum contamination) or wastes that are generated during construction-related activities in accordance with applicable federal, state, and local laws and regulations.
- All structures being demolished or removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM and LBP are found, in addition to the federal waste-related regulations mentioned above, state regulations 9VAC20-81-640 for ACM and 9VAC20-60-261 for LBP must be followed.

7. Natural Heritage Resources. The EA (page 3-36) states that project activities would have the potential to disturb and/or remove vegetation. Tree clearing would be limited to those areas necessitating clearing. During the site restoration, trees would be replanted on the site. Other disturbed areas would be reseeded with native grasses and/or shrubs to promote revegetation of the site. Therefore, impacts on terrestrial vegetation and plant communities would be short-term and less than significant.

7(a) Agency Jurisdiction.

7(a)(i) The Virginia Department of Conservation and Recreation's (DCR) Division of Natural Heritage (DNH): DNH's mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act (Virginia Code §10.1-209 through 217), authorized DCR to maintain a statewide database for conservation planning and project review, protect land for the conservation of biodiversity, and to protect and ecologically manage the natural heritage resources of Virginia (the habitats of rare, threatened and endangered species, significant natural communities, geologic sites, and other natural features).

7(a)(ii) The Virginia Department of Agriculture and Consumer Services (VDACS): The Endangered Plant and Insect Species Act of 1979 (Virginia Code Chapter 39 §3.1-1020 through 1030) authorizes VDACS to conserve, protect and manage endangered and threatened species of plants and insects. Under a Memorandum of Agreement established between VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

7(b) Agency Findings – Natural Heritage Resources and Forest Fragmentation. The Biotics Data System documents the presence of natural heritage resources within the project boundary, including a 100-foot buffer. However, due to the scope of the activity, DCR does not anticipate that this project will adversely impact these natural heritage resources.

7(c) Agency Findings – State-listed Plant and Insect Species. DCR states that the proposed project will not affect any documented state-listed plants or insects.

7(d) Agency Findings – Natural Area Preserves. There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

7(e) Agency Recommendations. Contact the DCR DNH and re-submit project information and a map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

8. Floodplain Management. According to the EA (page 3-16), the intake pier/pump house, concrete discharge pipe, and outfall structure are in the 100-year floodplain. The EA (page 3-17) states that the removal of these structures would have beneficial impacts on the 100-year floodplain and associated functions and values by promoting the return of the Gunston Cove shoreline and subaqueous bottom to conditions resembling those that existed prior to the development of the facility.

8(a) Agency Jurisdiction. DCR is the lead coordinating agency for the Commonwealth's floodplain management program and the National Flood Insurance Program (Executive Memorandum 2-97). Pursuant to §10.1-603 of the Virginia Code and in accordance with 44 CFR section 60.12 of the National Flood Insurance Program Regulations for Floodplain Management and Flood Hazard Identification, all construction or land-disturbing activities initiated by an agency of the Commonwealth, or by its contractor, in floodplains shall be submitted to the locality and comply with the locally adopted floodplain management ordinance.

8(b) Agency Comments. The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), and communities who elect to participate in this voluntary program manage and enforce the program on the local level through that community's local floodplain ordinance. Each local floodplain ordinance must comply with the minimum standards of the NFIP, outlined in 44 CFR 60.3; however, local communities may adopt more restrictive requirements in their local floodplain ordinance, such as regulating the 0.2% annual chance flood zone (Shaded X Zone).

All development within a Special Flood Hazard Area (SFHA), as shown on the locality's Flood Insurance Rate Map (FIRM), must be permitted and comply with the requirements of the local floodplain ordinance.

The DCR Floodplain Management Program does not have regulatory authority for projects in the SFHA. The applicant/developer must contact the local floodplain administrator for an official floodplain determination and comply with the community's local floodplain ordinance, including receiving a local permit. Failure to comply with the local floodplain ordinance could result in enforcement action from the locality.

8(c) Agency Recommendation. DCR recommends that Fort Belvoir contact the local floodplain administrator and comply with the community's local floodplain ordinance. To find community NFIP participation and local floodplain administrator contact information, use DCR's Local Floodplain Management Directory: www.dcr.virginia.gov/dam-safety-and-floodplains/floodplain-directory.

8(d) Requirement. Projects conducted by federal agencies within the SFHA must comply with Executive Order 11988: Floodplain Management.

9. Water Supply. The EA (page 3-4) states that the proposed action would install and operate temporary utilities for power and water necessary to support decommissioning activities; however, this demand would be accommodated under existing private sector contracts held by Fort Belvoir. No local service disruptions are anticipated to result from the proposed action.

9(a) Agency Jurisdiction. The Virginia Department of Health (VDH) Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells, springs and surface water intakes). The VDH ODW administers both federal and state laws governing waterworks operation.

9(b) Agency Finding. VDH states that there are no apparent impacts to public drinking water sources due to this project.

9(c) Requirement. Potential impacts to public water distribution systems must be verified by the local utility, according to VDH.

10. Historic Resources. The EA (page 3-63) states that the proposed action would not affect traditional cultural resources.

10(a) Agency Jurisdiction. The Virginia Department of Historic Resources (DHR) conducts reviews of both federal and state projects to determine their effect on historic properties. Under the federal process, DHR is the State Historic Preservation Office, and ensures that federal undertakings – including licenses, permits, or funding – comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. Section 106 requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places.

10(b) Requirements. Continued coordination with DHR on this undertaking pursuant to Section 106 of the National Historic Preservation Act, as amended, and its implementing regulation 36 CFR Part 800 is required.

11. Pesticides and Herbicides. In general, when pesticides or herbicides must be used, their use should be strictly in accordance with manufacturers' recommendations. In addition, we recommend that the applicable use the least toxic pesticides or herbicides effective in controlling the target species to the extent feasible. For more information on pesticide or herbicide use, contact VDACS (804-371-6560).

12. Energy Conservation. Architectural and engineering designers should consider incorporating the energy, environmental, and sustainability concepts listed in the Leadership in Energy and Environmental Design (LEED) Green Building Rating System into the development and procurement of their projects.

Please contact Department of Mines, Minerals and Energy (David Spears at 434-951-6350) for additional information on energy conservation measures. For more information on the LEED rating system, visit www.leedbuilding.org.

13. Pollution Prevention. DEQ advocates that principles of pollution prevention and sustainability be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention and sustainability techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

13(a) Recommendations. We have several pollution prevention recommendations that may be helpful in constructing or operating this facility:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to complying with environmental regulations, reducing risk, minimizing environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.

- Choose sustainable materials and practices for building construction and design.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. If interested, please contact DEQ (Meghann Quinn at 804-698-4021).

14. Fisheries Management. The FCD (Appendix D, FCD, page 3) states that this enforceable policy is not applicable to the proposed project.

14(a) Agency Jurisdiction. The fisheries management enforceable policy is administered by the Virginia Marine Resources Commission (VMRC) (Virginia Code § 28.2-200 to § 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Virginia Code § 29.1-100 to § 29.1-570). In addition, the Virginia Department of Health (VDH) Division of Shellfish Sanitation (DSS) is responsible for protecting the health of the consumers of molluscan shellfish and crustacea by ensuring that shellfish growing waters are properly classified for harvesting, and that molluscan shellfish and crustacea processing facilities meet sanitation standards.

14(b) Agency Finding. DGIF states that Gunston Cove, its tributaries, and the Potomac River downstream have been designated Confirmed Anadromous Fish Use Areas.

14(c) Agency Recommendation. DGIF has the following recommendations:

- To best protect anadromous fishes from harm associated with instream work, ensure that such work adhere to a time-of-year restriction from February 15 through June 30 of any year.
- Conduct any in-stream activities during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures.
- To minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting, use matting made from natural/organic materials such as coir fiber, jute, and/or burlap.
- To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, ensure that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water.
- Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, construct stream crossings via clear-span bridges. However,

if this is not possible, countersink any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms.
- Install floodplain culverts to carry bankfull discharges.

VMRC recommends that erosion and run-off controls be in place to prevent impacts to marine fisheries.

14(d) Conclusion. Assuming adherence to erosion and sediment controls during instream work and land disturbances, and placement of waste in appropriate receptacles, the project would be consistent with the fisheries management enforceable policy of the Virginia CZM Program.

REGULATORY AND COORDINATION NEEDS

1. Wetlands and Water Quality. The project must adhere to the requirements of any DEQ permit or authorization issued pursuant to Virginia Code § 62.1-44.15:20 *et seq*. and 9VAC25-210 *et seq*. and a tidal wetlands permit if issued from the Fairfax County Wetlands Board pursuant to Virginia Code §28.2-1301 through 28.2-1320 for consistency with the wetlands management enforceable policy. A VWP Permit or approval may be required. Contact DEQ NRO (Trisha Beasley at [redacted]) for coordination. Submit a JPA application to VMRC (Mark Eversole at [redacted]) for proposed impacts to surface waters, including wetlands.

2. Air Quality. The following sections of Virginia Administrative Code may be applicable:

- fugitive dust and emissions control (9VAC5-50-60 *et seq*.);
- permits for fuel-burning equipment (9VAC5-80-110 *et seq.*); and
- open burning restrictions (9VAC5-130 *et seq*.).

Contact DEQ NRO (Justin Wilkinson at Justin.Wilkinson@deq.virginia.gov) for additional information about air quality regulations and to determine air permitting or registration needs for fuel-burning equipment.

3. Coastal Lands Management. The project must be conducted in a manner that is consistent with the coastal lands management enforceable policy of the Virginia CZM Program as administered by DEQ pursuant to the Chesapeake Bay Preservation Act (Virginia Code 62.1-44.15 *et seq*.) and the Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830 *et. seq.*). For additional information about DEQ's comments, contact DEQ OLGP (Daniel Moore at [redacted]).

4. Erosion and Sediment Control and Stormwater Management. This project must comply with Virginia's Erosion and Sediment Control Law (Virginia Code § 62.1-44.15:61) and Regulations (9VAC25-840-30 *et seq*.) and Stormwater Management Law (Virginia Code § 62.1-44.15:31) and Regulations (9VAC25-870-210 *et seq*.) as administered by DEQ. Erosion and sediment control, and stormwater management requirements should be coordinated with the DEQ NRO (Kelly Vanover at [redacted]).

5. General Permit for Stormwater Discharges from Construction Activities (VAR10). The operator or owner of a construction activity involving land disturbance of equal to or greater than 1 acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). Specific questions regarding the Stormwater Management Program requirements should be directed to DEQ (Holly Sepety at [redacted]) (Reference: VSMA §62.1-44.15 *et seq*.).

6. Solid and Hazardous Wastes. Contact DEQ NRO (Richard Doucette at 703-583-3813 or [redacted]) for additional information about waste management if necessary. All solid waste, hazardous waste and hazardous materials must be managed in accordance with all applicable federal, state and local environmental regulations.

6(a) Asbestos-Containing Material. It is the responsibility of the owner or operator of a renovation or demolition activity, prior to the commencement of the renovation or demolition, to thoroughly inspect the affected part of the facility where the operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos-containing material (as applicable). Upon classification as friable or non-friable, all asbestos-containing material shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9VAC20-81-640) and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9VAC20-110-10 *et seq.*). Contact the DEQ Division of Land Protection and Revitalization (Carlos Martinez at [redacted]) and the Department of Labor and Industry (804-371- 2327) for additional information.

6(b) Lead-Based Paint. If applicable, this project must comply with the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements, contact the Department of Professional and Occupational Regulation (804-367-8500).

7. Natural Heritage Resources. Contact the DCR DNH (804-371-2708) to re-submit project information and a map for an update on natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

8. Floodplain Management. Contact the local floodplain administrator for an official floodplain determination to comply with the community's local floodplain ordinance. To find local floodplain administrator contact information, use DCR's Local Floodplain Management Directory: www.dcr.virginia.gov/dam-safety-and-floodplains/floodplain-directory.

9. Historic Resources. Continue to coordinate with DHR (Marc Holma at [redacted] or [redacted]) on this undertaking pursuant to Section 106 of the National Historic Preservation Act, as amended, and its implementing regulation 36 CFR Part 800.

Thank you for the opportunity to comment on this EA and FCD. The detailed comments of reviewers are attached. If you have questions, please do not hesitate to call me at [redacted] or Julia Wellman at [redacted].

Sincerely,

Bettina Rayfield, Manager
Environmental Impact Review and Long Range Priorities Program

Enclosures

ec: Amy Ewing, DGIF
Robbie Rhur, DCR
Arlene Warren, VDH
Roger Kirchen, DHR
Tony Watkinson, VMRC
Robert Lazaro, NRVC
Bryan J. Hill, Fairfax County
Kevin Taylor, Aecom
Craig Carver, Aecom

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: Julia H. Wellman

We thank **OEIR** for providing DEQ-AIR an opportunity to review the following project:

Document Type: Federal Consistency Determination
Project Sponsor: Army Corps of Engineers
Project Title: Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility, U. S. Army Garrison Fort Belvoir
Location: Fairfax County
Project Number: DEQ #19-157F

Accordingly, I am providing following comments for consideration.

PROJECT LOCATION: **X OZONE NON ATTAINMENT AND EMISSION CONTROL AREA FOR NOX & VOC**

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: **X DECOMMISSIONING**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. ☐ 9 VAC 5-45-760 et seq. – Asphalt Paving operations
3. **X 9 VAC 5-130 et seq. – Open Burning**
4. **X 9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
5. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to_____
6. ☐ 9 VAC 5-60-300 et seq. – Standards of Performance for Toxic Pollutants
7. ☐ 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the_____
8. ☐ 9 VAC 5-80-1100 et seq. of the regulations – Permits for Stationary Sources
9. ☐ 9 VAC 5-80-1605 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
10. ☐ 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
11. ☐ 9 VAC 5-80-800 et seq. Of the regulations – State Operating Permits. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

All precautions are necessary to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_x).

(Kotur S. Narasimhan)
Office of Air Data Analysis **DATE: January 13, 2020**

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith
Deputy Director of Operations

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

MEMORANDUM

DATE: January 21, 2020

TO: Julia Wellman, DEQ

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 19-157F, Deactivated SM-1 Nuclear Reactor Facility Decommissioning and Dismantlement

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources within the project boundary including a 100ft buffer. However, due to the scope of the activity we do not anticipate that this project will adversely impact these natural heritage resources.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at [redacted] or [redacted].

Division of Dam Safety and Floodplain Management

Floodplain Management Program:
The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), and communities who elect to participate in this voluntary program manage and enforce the program on the local level through that community's local floodplain ordinance. Each local floodplain

ordinance must comply with the minimum standards of the NFIP, outlined in 44 CFR 60.3; however, local communities may adopt more restrictive requirements in their local floodplain ordinance, such as regulating the 0.2% annual chance flood zone (Shaded X Zone).

All development within a Special Flood Hazard Area (SFHA), as shown on the locality's Flood Insurance Rate Map (FIRM), must be permitted and comply with the requirements of the local floodplain ordinance.

State Agency Projects Only

Executive Order 45, signed by Governor Northam and effective on November 15, 2019, establishes mandatory standards for development of state-owned properties in Flood-Prone Areas, which include Special Flood Hazard Areas, Shaded X Zones, and the Sea Level Rise Inundation Area. These standards shall apply to all state agencies.

1. Development in Special Flood Hazard Areas and Shaded X Zones
    A. All development, including buildings, on state-owned property shall comply with the locally-adopted floodplain management ordinance of the community in which the state-owned property is located and any flood-related standards identified in the Virginia Uniform Statewide Building Code.
    B. If any state-owned property is located in a community that does not participate in the NFIP, all development, including buildings, on such state-owned property shall comply with the NFIP requirements as defined in 44 CFR §§ 60.3, 60.4, and 60.5 and any flood-related standards identified in the Virginia Uniform Statewide Building Code.
        (1) These projects shall be submitted to the Department of General Services (DGS), for review and approval.
        (2) DGS shall not approve any project until the State NFIP Coordinator has reviewed and approved the application for NFIP compliance.
        (3) DGS shall provide a written determination on project requests to the applicant and the State NFIP Coordinator. The State NFIP Coordinator shall maintain all documentation associated with the project in perpetuity.
    C. No new state-owned buildings, or buildings constructed on state-owned property, shall be constructed, reconstructed, purchased, or acquired by the Commonwealth within a Special Flood Hazard Area or Shaded X Zone in any community unless a variance is granted by the Director of DGS, as outlined in this Order.

The following definitions are from Executive Order 45:

Development for NFIP purposes is defined in 44 CFR § 59.1 as "Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials."

The Special Flood Hazard Area may also be referred to as the 1% annual chance floodplain or the 100-year floodplain, as identified on the effective Flood Insurance Rate Map and Flood Insurance Study. This includes the following flood zones: A, AO, AH, AE, A99, AR, AR/AE, AR/AO, AR/AH, AR/A, VO, VE, or V.

The Shaded X Zone may also be referred to as the 0.2% annual chance floodplain or the 500- year floodplain, as identified on the effective Flood Insurance Rate Map and Flood Insurance Study.

The Sea Level Rise Inundation Area referenced in this Order shall be mapped based on the National Oceanic and Atmospheric Administration Intermediate-High scenario curve for 2100, last updated in 2017, and is intended to denote the maximum inland boundary of anticipated sea level rise.

"State agency" shall mean all entities in the executive branch, including agencies, offices, authorities, commissions, departments, and all institutions of higher education.

"Reconstructed" means a building that has been substantially damaged or substantially improved, as defined by the NFIP and the Virginia Uniform Statewide Building Code.

Federal Agency Projects Only
Projects conducted by federal agencies within the SFHA must comply with federal Executive Order 11988: Floodplain Management.

DCR's Floodplain Management Program does not have regulatory authority for projects in the SFHA. The applicant/developer must contact the local floodplain administrator for an official floodplain determination and comply with the community's local floodplain ordinance, including receiving a local permit. Failure to comply with the local floodplain ordinance could result in enforcement action from the locality. For state projects, DCR recommends that compliance documentation be provided prior to the project being funded. For federal projects, the applicant/developer is encouraged reach out to the local floodplain administrator and comply with the community's local floodplain ordinance.

To find flood zone information, use the Virginia Flood Risk Information System (VFRIS): www.dcr.virginia.gov/vfris

To find community NFIP participation and local floodplain administrator contact information, use DCR's Local Floodplain Management Directory: www.dcr.virginia.gov/dam-safety-and-floodplains/floodplain-directory

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Commonwealth of Virginia

Wellman, Julia [redacted]

ESSLog# 40303_19-157F_FtBelvoirNuclearReactorRemoval_DGIF_AME20200124

1 message

Ewing, Amy [redacted] Fri, Jan 24, 2020 at 4:04 PM
To: Julia Wellman [redacted]
Cc: Stephen Reeser [redacted]

Julia,
We have reviewed the subject project that proposes to dismantle and remove the nuclear reactor located on the installation but which was decommissioned years ago. This will include removal of structures in Gunston Bay along with those located on land. Gunston Cove, its tributaries, and the Potomac River downstream have been designated Confirmed Anadromous Fish Use Areas. To best protect anadromous fishes from harm associated with instream work, we recommend that such work adhere to a time of year restriction from February 15 through June 30 of any year. We recommend conducting any in-stream activities during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. To minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting, we recommend use of matting made from natural/organic materials such as coir fiber, jute, and/or burlap. To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, we recommend that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings to be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

Assuming adherence to erosion and sediment controls during instream work and land disturbances, and placement of waste in appropriate receptacles, we find this project consistent with the Fisheries Enforceable Policies of the CZMA.

Thanks, Amy

Amy Ewing
Environmental Services Biologist
Manager, Fish and Wildlife Information Services
P [redacted]
Virginia Department of Game & Inland Fisheries
CONSERVE. CONNECT. PROTECT.
A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228
www.dgif.virginia.gov

Commonwealth of Virginia

Wellman, Julia [redacted]

SM-1 Nuclear Reactor decommissioning and deactivation, Fort Belvoir (DHR #2015-1247/DEQ #19-157F)

1 message

Holma, Marc [redacted] Mon, Jan 6, 2020 at 3:39 PM
To: Julia Wellman [redacted]

Julia,

Please accept this email as DHR's official response to DEQ's request for our review and comment regarding the above referenced project. The Army Corps of Engineers and Fort Belvoir have been in consultation with DHR on this undertaking pursuant to Section 106 of the National Historic Preservation Act, as amended, and its implementing regulation 36 CFR Part 800. We anticipate these agencies will continue to consult with DHR, but request DEQ remind them to do so in its response.

Sincerely,
Marc

--
Marc Holma
Architectural Historian
Division of Review and Compliance
[redacted]

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: Julia Wellman, DEQ/EIR Environmental Program Planner

FROM: Carlos A. Martinez, Division of Land Protection & Revitalization Review Coordinator

DATE: January 13, 2020

COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; file

SUBJECT: Environmental Impact Review: 2020-01-13 Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility US Army Garrison at Fort Belvoir in Fort Belvoir, Virginia.

The Division of Land Protection & Revitalization (DLPR) has completed its review of the Army Corps of Engineers' December 27, 2019 EIR for Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility US Army Garrison at Fort Belvoir in Fort Belvoir, Virginia.

Solid and hazardous waste were not addressed in the submittal. The submittal did not indicate that a search of Federal or State environmental databases was conducted. DLPR staff conducted a search (500 ft. radius) of the project area of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR identified two (2) petroleum release sites within the project area which might impact the project.

DLPR staff has reviewed the submittal and offers the following comments:

***Hazardous Waste/RCRA Facilities* – none in close proximity to the project area**

***CERCLA Sites* – none in close proximity to the project area**

***Formerly Used Defense Sites (FUDS)* – none in close proximity to the project area.**

***Solid Waste* – none in close proximity to the project area**

***Virginia Remediation Program (VRP)* – none in close proximity to the project area**

<u>Petroleum Releases</u> – Two (2) found in close proximity to the project area.

1. ***PC Number 20023029, Fort Belvoir – Building 07350, Routes 1 and 611, Telegraph and Potomac River Rds, Fort Belvoir, Virginia 22060, Release Date: 07/06/2001, Status: Closed.***

2. ***PC Number 19973110, Fort Belvoir – Building 00371, Routes 1 and 611, Telegraph and Potomac River Rds, Fort Belvoir, Virginia 22060, Release Date: 12/27/1996, Status: Closed.***

Please note that the DEQ's Pollution Complaint (PC) cases identified should be further evaluated by the project engineer or manager to establish the exact location, nature and extent of the petroleum release and the potential to impact the proposed project. In addition, the project engineer or manager should contact the DEQ's Northern Regional Office at (703) 583-3800 (Tanks Program) for further information about the PC cases.

PROJECT SPECIFIC COMMENTS

None

GENERAL COMMENTS

<u>Soil, Sediment, Groundwater, and Waste Management</u>

Any soil, sediment or groundwater that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Part 107.

<u>Pollution Prevention – Reuse - Recycling</u>

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Carlos A. Martinez by phone at ([redacted] or email [redacted].

Commonwealth of Virginia

Wellman, Julia [redacted]

Re: EXPEDITED REVIEW - NEW PROJECT ACOE Decommissioning of Deactivated SM-1 Nuclear Reactor, DEQ #19-157F

1 message

Holland, Benjamin [redacted] Sat, Dec 28, 2019 at 10:05 AM
To: Julia Wellman [redacted]

Julia - basically the standard language. They cover pretty much everything in their FCD document, so there's not many additional comments that need to be said.

Northern Regional Office comments regarding the FCD for *Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility, U. S. Army Garrison Fort Belvoir, DEQ #19-157F*, are as follows:

Land Protection Division – The project manager is reminded that if any solid or hazardous waste is generated/encountered during construction/demolition, including the lead and radioactive wastes alluded to in the FCD document, the project manager would follow applicable federal, state, and local regulations for their disposal.

Air Compliance/Permitting - The project manager is reminded that during the construction phases that occur with this project; the project is subject to the Fugitive Dust/Fugitive Emissions Rule 9 VAC 5-50-60 through 9 VAC 5-50-120. In addition, should any open burning or use of special incineration devices be employed in the disposal of land clearing debris during demolition and construction, the operation would be subject to the Open Burning Regulation 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100.

Virginia Water Protection Permit (VWPP) Program – The project manager is reminded that a VWP permit from DEQ may be required should impacts to surface waters be necessary. DEQ VWP staff recommends that the avoidance and minimization of surface water impacts to the maximum extent practicable as well as coordination with the US Army Corps of Engineers. Upon receipt of a Joint Permit Application for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and current VWP permit program guidance. VWPP staff reserve the right to provide comment upon receipt of a permit application requesting authorization to impact state surface waters, and at such time that a wetland delineation has been conducted and associated jurisdiction determination made by the U.S. Army Corps of Engineers.

Erosion and Sediment Control and Storm Water Management – DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local ordinances and State regulations. Additional information is available at http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality.

On Fri, Dec 27, 2019 at 1:42 PM Fulcher, Valerie [redacted] wrote:

> **Good a. ernoon - this is a new OEIR review request/project:**
>
> **Document Type: Federal Consistency Determinaon**

Project Sponsor: Army Corps of Engineers
Project Title: Decommissioning and Dismantlement of the Deacv ated SM-1 Nuclear Reactor Facility, U. S. Army Garrison Fort Belvoir
Locaon: Fairfax County
Project Number: DEQ #19-157F

The documents are a ached.

The due date for comments is JANUARY 21, 2020. You can send your comments either directly to JULIA WELLMAN by email ([redacted]), or you can send your comments by regular interagency/U.S. mail to the Department of Environmental Quality, Office of Environmental Impact Review, 1111 East Main St., Richmond, VA 23219.

NOTE: The deadline is expedited due to the federal deadline.

If you cannot meet the deadline, please nof y the project coordinator prior to the comment due date. Arrangements may be made to extend the deadline for comments if possible. An agency will be considered to have no concerns if comments are not received (or contact is made) within the review period. However, it is important that agencies consistently parcipa te in accordance with Virginia Code Secon 10.1-1192.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been previously reviewed (e.g. as a dra EIS or a P art 1 EIR), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency (agency staonar y or email) and include the project number on all correspondence.

If you have any quesons, please email Julia.

Thanks!

--

Valerie A. Fulcher, CAP, OM, Environmental Program Specialist

Department of Environmental Quality

Environmental Enhancement - Office of Environmental Impact Review

1111 East Main Street

Richmond, VA 23219

[redacted]

[redacted]

[redacted]

http://www.deq.virginia.gov/Programs/EnvironmentalImpactReview.aspx

> For program updates and public notices please subscribe to Constant Contact: hp s://lp.constantcontact.com/su/MVcCump/EIR

--

BENJAMIN D. HOLLAND, MPH
DEQ Regional Enforcement Specialist

VA Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193

[redacted]
Website: www.deq.virginia.gov

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 1111 East Main Street, Suite 1400, Richmond, VA 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

MEMORANDUM

TO: Julia Wellman, DEQ Environmental Program Planner

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: January 12, 2020

SUBJECT: DEQ #19-157F: US Army, Ft. Belvoir Decommissioning and Dismantlement of Deactivated SM-1 Nuclear Reactor, Fairfax County

We have reviewed the Federal Consistency Determination for the above-referenced project at Fort Belvoir in Fairfax County and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

In Fairfax County, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include those areas of the County not included in the RPAs.

Under the Federal Consistency Regulations of the *Coastal Zone Management Act of 1972*, federal actions in Virginia must be conducted in a manner "consistent to the maximum extent practicable" with the enforceable policies of the Virginia Coastal Zone Management Program. Those enforceable policies are administered through the Chesapeake Bay Preservation Act and Regulations.

Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated RPAs and RMAs, as provided in §9VAC25-830-130 and 140 of the Regulations, including the requirement to minimize land disturbance (including access and staging areas), retain existing

vegetation and minimize impervious cover as well as including compliance with the requirements of the *Virginia Erosion and Sediment Control Handbook,* and stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*." For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion and Sediment Control Handbook.*

RPA disturbance resulting from the proposed project would consist of vegetation clearing and soil excavation, fill, and compaction. Vegetation clearing and soil disturbance would be temporary and limited to that needed to complete the proposed decommissioning activities. All disturbance in the RPA would be limited to that portion of the RPA within the Deactivated SM-1 Nuclear Reactor Facility perimeter. Adherence to requirements of the CGP and associated SWPPP, E&SC, and SWM plans during ground-disturbing activities would minimize or prevent the erosion of exposed soils and manage the quantity and quality of stormwater generated on the site, which would be ultimately discharged to Gunston Cove and further downstream, the Potomac River and Chesapeake Bay. The extent and intensity of RPA disturbance would vary over the five-year decommissioning process and not all ground disturbance would occur simultaneously, further minimizing adverse effects.

RPA disturbance would be mitigated through the planting of two new trees for the removal of every tree four inches in diameter and breast height (dbh) or greater in accordance with Fort Belvoir Policy Memorandum #27, Tree Removal and Protection. Vegetation replacement in the RPA would also adhere to the requirements of the Virginia Department of Conservation and Recreation's Riparian Buffers Modification and Mitigation Guidance Manual. In the long term, restoration and re-vegetation of the site following the completion of the proposed ground-disturbing activities would have a beneficial effect on RPAs in this part of Fort Belvoir. No ongoing or permanent activities with potential to disturb RPAs would be established by the Proposed Action.

Provided adherence to the above requirements, the proposed activity would be consistent with the *Chesapeake Bay Preservation Act* and the Regulations.

Commonwealth of Virginia

Wellman, Julia [redacted]

Re: EXPEDITED REVIEW - NEW PROJECT ACOE Decommissioning of Deactivated SM-1 Nuclear Reactor, DEQ #19-157F

1 message

Gavan, Lawrence [redacted] Tue, Jan 14, 2020 at 3:14 PM
To: "Wellman, Julia" [redacted]

(a) Agency Jurisdiction. The Department of Environmental Quality (DEQ) administers the *Virginia Erosion and Sediment Control Law and Regulations* (*VESCL&R*) and *Virginia Stormwater Management Law and Regulations* (*VSWML&R*).

(b) Erosion and Sediment Control and Stormwater Management Plans. The Applicant and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with *VESCL&R* and *VSWML&R*, including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, federal consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbing activities that result in the total land disturbance of equal to or greater than 10,000 square feet (2,500 square feet in Chesapeake Bay Preservation Area) would be regulated by *VESCL&R*. Accordingly, the Applicant must prepare and implement an erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. Land-disturbing activities that result in the total land disturbance of equal to or greater than 1 acre (2,500 square feet in Chesapeake Bay Preservation Area) would be regulated by *VSWML&R*. Accordingly, the Applicant must prepare and implement a Stormwater Management (SWM) plan to ensure compliance with state law and regulations. The ESC/SWM plan is submitted to the DEQ Regional Office that serves the area where the project is located for review for compliance. The Applicant is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL 62.1-44.15 et seq.]

(c) General Permit for Stormwater Discharges from Construction Activities (VAR10). DEQ is responsible for the issuance, denial, revocation, termination and enforcement of the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to municipal separate storm sewer systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program.

The owner or operator of projects involving land-disturbing activities of equal to or greater than 1 acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific Stormwater Pollution Prevention Plan. Construction activities requiring registration also include land disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan of development will collectively disturb equal to or greater than one acre The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the *VSMP Permit Regulations*. General information and registration forms for the General Permit are available at: http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/ConstructionGeneralPermit.aspx

[Reference: Virginia Stormwater Management Act 62.1-44.15 et seq.; VSMP Permit Regulations *9*VAC25-880 *et seq.]*

On Fri, Dec 27, 2019 at 1:42 PM Fulcher, Valerie [redacted] wrote:

Good a. ernoon - this is a new OEIR review request/project:

Document Type: Federal Consistency Determinaon
Project Sponsor: Army Corps of Engineers
Project Title: Decommissioning and Dismantlement of the Deacv ated SM-1 Nuclear Reactor Facility, U. S. Army Garrison Fort Belvoir
Locaon: Fairfax County
Project Number: DEQ #19-157F

The documents are a□ached.

The due date for comments is JANUARY 21, 2020. You can send your comments either directly to JULIA WELLMAN by email ([redacted]), or you can send your comments by regular interagency/U.S. mail to the Department of Environmental Quality, Office of Environmental Impact Review, 1111 East Main St., Richmond, VA 23219.

NOTE: The deadline is expedited due to the federal deadline.

If you cannot meet the deadline, please nof y the project coordinator prior to the comment due date. Arrangements may be made to extend the deadline for comments if possible. An agency will be considered to have no concerns if comments are not received (or contact is made) within the review period. However, it is important that agencies consistently parcipa te in accordance with Virginia Code Secon 10.1-1192.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been previously reviewed (e.g. as a dra EIS or a P art 1 EIR), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency (agency staonar y or email) and include the project number on all correspondence.

If you have any quesons, please email Julia.

Thanks!

--

Valerie A. Fulcher, CAP, OM, Environmental Program Specialist

Department of Environmental Quality

Environmental Enhancement - Office of Environmental Impact Review

1111 East Main Street

Richmond, VA 23219

[redacted]

[redacted]

[redacted]

http://www.deq.virginia.gov/Programs/EnvironmentalImpactReview.aspx

For program updates and public notices please subscribe to Constant Contact: hp s://lp.constantcontact.com/su/MVcCump/EIR

Commonwealth of Virginia

Wellman, Julia [redacted]

Fwd: EXPEDITED REVIEW - NEW PROJECT ACOE Decommissioning of Deactivated SM-1 Nuclear Reactor, DEQ #19-157F

1 message

Fulcher, Valerie [redacted] Tue, Jan 14, 2020 at 1:23 PM
To: "Wellman, Julia" [redacted]

VDH Comments.

---------- Forwarded message ---------
From: **Warren, Arlene** [redacted]
Date: Tue, Jan 14, 2020 at 12:22 PM
Subject: Re: EXPEDITED REVIEW - NEW PROJECT ACOE Decommissioning of Deactivated SM-1 Nuclear Reactor, DEQ #19-157F
To: Fulcher, Valerie [redacted]

Project Name: Decommissioning and Dismantlement of the Deacv ated SM-1 Nuclear Reactor Facility, U. S. Army Garrison Fort Belvoir
Project #: 19-157 F
UPC #: N/A
Locaon: F airfax County

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potenal impacts t o public water distribuon s ystems or sanitary sewage collecon s ystems **must be verified by the local ulity .**

There are no public groundwater wells within a 1-mile radius of the project site.

There are no surface water intakes located within a 5-mile radius of the project site.

The project is not within the watershed of any public surface water intakes.

There are no apparent impacts to public drinking water sources due to this project.

Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any quesons, please le t me know.

Best Regards,

Arlene Fields Warren

GIS Program Support Technician

Office of Drinking Water

Virginia Department of Health

109 Governor Street

Richmond, VA 23219

[redacted]

On Fri, Dec 27, 2019 at 1:43 PM Fulcher, Valerie [redacted] wrote:

Good a. ernoon - this is a new OEIR review request/project:

Document Type: Federal Consistency Determinaon
Project Sponsor: Army Corps of Engineers
Project Title: Decommissioning and Dismantlement of the Deacv ated SM-1 Nuclear Reactor Facility, U. S. Army Garrison Fort Belvoir
Locaon: Fairfax County
Project Number: DEQ #19-157F

The documents are a ached.

The due date for comments is JANUARY 21, 2020. You can send your comments either directly to JULIA WELLMAN by email ([redacted]), or you can send your comments by regular interagency/U.S. mail to the Department of Environmental Quality, Office of Environmental Impact Review, 1111 East Main St., Richmond, VA 23219.

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B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency (agency staonar y or email) and include the project number on all correspondence.

If you have any quesons, please email Julia.

Thanks!

--

Valerie A. Fulcher, CAP, OM, Environmental Program Specialist

Department of Environmental Quality

Environmental Enhancement - Office of Environmental Impact Review

1111 East Main Street

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[redacted]

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--

Valerie A. Fulcher, CAP, OM, Environmental Program Specialist

Department of Environmental Quality

Environmental Enhancement - Office of Environmental Impact Review

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[redacted]

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COMMONWEALTH of VIRGINIA

Marine Resources Commission
380 Fenwick Road
Bldg 96
Fort Monroe, VA 23651-1064

Matthew J. Strickler
Secretary of Natural Resources

Steven G. Bowman
Commissioner

January 2, 2020

Department of Environmental Quality
Attn: Julia Wellman
Office of Environmental Impact Review
1111 East Main St.
Richmond, VA 23219

Re: Federal Consistency Determination
Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility, U. S. Army Garrison Fort Belvoir
DEQ #19-157F

Dear Ms. Wellman:

This will respond to the request for comments regarding the Federal Consistency Determination for the Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility project (DEQ #19-157F), prepared by AECOM, on behalf of US Army Corps of Engineers (USACE), Baltimore District. Specifically, the USACE has proposed to safely remove, transport, and dispose of any remaining structures and equipment from the site. The project is located in Fairfax County, Virginia.

We reviewed the provided documents and found the proposed project is outside the jurisdictional areas of the Marine Resources Commission (VMRC) and will not require a permit from this agency. Should any changes to the planned work result in work performed in, or construction access through, tidal wetlands, a tidal wetlands permit will be required from the Fairfax County Wetlands Board.

Please be advised that the Virginia Marine Resources Commission (VMRC) pursuant to Chapter 12, 13, & 14 of Title 28.2 of the Code of Virginia administers permits required for submerged lands, tidal wetlands, and beaches and dunes. The VMRC administers the enforceable policies of fisheries management, subaqueous lands, tidal wetlands, and coastal primary sand dunes and beaches which comprise some of Virginia's Coastal Zone Management Program. VMRC staff has reviewed the submittal and offers the following comments:

Fisheries and Shellfish: Erosion and run-off controls should be in place to prevent any impacts to marine fisheries.

State-owned Submerged Lands: No impacts expected.

Tidal Wetlands: If the planned work results in impacts to tidal wetlands, either in, on, or through, a permit will be required from the Fairfax County Wetlands Board.

Beaches and Coastal Primary Sand Dunes: None in close proximity to the project area.

As such, this project has no foreseeable impact on the VMRC's enforceable policies. As proposed, we have no objection to the consistency findings provided by the applicant. Should the proposed project change, a new review by this agency may be required relative to these jurisdictional areas.

If you have any questions please contact me at [redacted] or by email at [redacted]. Thank you for the opportunity to comment.

Sincerely,

Mark Eversole
Environmental Engineer, Habitat Management

MCE/keb
HM

USACE Federal Consistency Determination

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Federal Consistency Determination
Decommissioning and Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility
U.S. Army Garrison Fort Belvoir
Fairfax County, Virginia

Pursuant to Section 307 of the Coastal Zone Management Act of 1972, as amended, and 15 Code of Federal Regulations (CFR) Subpart C, this Federal Consistency Determination has been prepared for the United States Army Corps of Engineers (USACE) Baltimore District's Proposed Action to decommission and dismantle the Deactivated SM-1 Nuclear Reactor Facility at U.S. Army Garrison Fort Belvoir (Fort Belvoir) in Fairfax County, Virginia. USACE is required to determine the consistency of the Proposed Action and potential effects on Virginia's coastal resources or coastal uses with the enforceable policies of the Virginia Coastal Zone Management Program (VCP).

This consistency determination represents an analysis of the Proposed Action in light of established VCP Enforceable Policies and Programs. Submission of this consistency determination reflects the commitment of USACE to comply to the maximum extent practicable with those Enforceable Policies and Programs. The Proposed Action would be implemented in a manner consistent with the VCP. USACE has determined that the effects of the Proposed Action would be less than significant on land and water uses as well as natural resources of the Commonwealth of Virginia's coastal zone and is consistent to the maximum extent practicable with the enforceable policies of the VCP.

Background

The Deactivated SM-1 Nuclear Reactor Facility occupies an approximately five-acre site on Fort Belvoir's South Post along the shoreline of Gunston Cove, an embayment of the Potomac River (**Figures 1** and **2**). SM-1 began operation in 1957 and was deactivated in 1973. Following removal of the nuclear fuel and limited decontamination, SM-1 was placed into a safe storage (SAFSTOR) condition to allow for natural decay of residual radionuclides. U.S Nuclear Regulatory Commission (NRC) and Army Reactor Office (ARO) regulations require nuclear facility decommissioning to be completed within 60 years of the facility's deactivation; thus, decommissioning of the Deactivated SM-1 Nuclear Reactor Facility must occur by 2033.

Proposed Action

USACE's Proposed Action is to decommission and dismantle the Deactivated SM-1 Nuclear Reactor Facility at Fort Belvoir. Decommissioning the facility consists of removing all radiologically and non-radiologically contaminated structures, equipment, and media associated with the operation of the reactor; restoration of the site to allow for unrestricted release and future use; and termination of the Army's reactor possession permit under which the facility is currently maintained. Three structures that extend into Gunston Cove would be removed under the Proposed Action: a water outfall pipe, an intake pier, and a pump house (situated on the pier).

Following the completion of decommissioning and restoration activities, the SM-1 site would be maintained as open/vegetated space. Any future development of the site would be at the discretion of Fort Belvoir and is not included in the Proposed Action.

The Proposed Action can be broken down into several components, as described below (some variability in the sequence of these activities is anticipated).

- **Site preparation.** Preparatory activities would include the establishment of radiological controls on and around the SM-1 site; the installation of temporary support facilities or modifications to existing facilities to support field activities throughout the duration of the Proposed Action; the removal of most vegetation

from the site and some non-contaminated structures and equipment; and potential upgrades and repairs to onsite roadways.

- **Removal of materials and equipment (M&E) from Building 372.** These activities would include the removal of regulated contaminated and clean M&E from the building. Areas where surface contamination has been detected would be decontaminated to the extent practicable to allow for open air dismantlement and minimize the amount of low-level radioactive waste (LLRW) to be transported and disposed of.

- **Dismantlement of Building 372.** Dismantlement would occur in two sequential phases starting with structural components in the Unrestricted Area (i.e., the area of the facility where residual radioactivity is below applicable regulatory thresholds). This phase of dismantlement would include the above ground structure and removal of the remaining floor slab, foundation, and any tanks and piping still present. The resultant debris from these activities would be disposed of as clean waste. The second phase of dismantlement would occur within the Restricted Area (i.e., the area of the facility with low levels of residual radioactivity above applicable regulatory thresholds) and result in the removal of structures around, and including, the Vapor Container (VC).

- **Dismantlement and removal of other structures.** This component includes the dismantlement or removal of the water intake pump house and pier, a sewage pump station, and a storage warehouse. It also includes the removal of the water intake pipe to Building 372, the water discharge piping from Building 372 to associated infrastructure on the site, including the water outfall pipe, and the unused sanitary sewer line associated with the sewage pump station.

  Removal of the water intake pump house and pier, which extends into Gunston Cove approximately 100 feet from the shoreline, would likely require the use of a barge-mounted crane and other vessels to provide the dismantlement crew and equipment with access to the structures. Superstructures would be removed first, followed by the piles if they are determined to be structurally sound. If the piles are determined to be in a condition that would not allow for complete removal, they may be cut at the mudline and the portions below the cut would be left in place. A containment boom and turbidity curtain would be placed around the work area to prevent the migration of disturbed sediment into the water, minimize turbidity, and ensure disturbed sediments settle near their original location. A containment boom and turbidity curtain would also be used to contain sediment disturbed by the removal of the underwater portion of the outfall pipe.

- **Soil remediation and restoration.** Contaminated soils around and below Building 372 would be removed following dismantlement. In addition to radiological contamination, surveys have shown the presence of lead around the building, likely from the deterioration of lead-based paint over time. Soils around the underground tanks and piping are also assumed to be contaminated and would be removed along with those structures.

- **Waste disposal and transportation.** The Proposed Action would generate large quantities of waste. All waste would be characterized, segregated, and disposed of as clean waste (i.e., no contamination and suitable for recycling or disposal at a regular landfill), LLRW, hazardous waste, or mixed waste. Permitted off-post disposal facilities appropriate for each category of waste would be identified and the waste would be shipped to those facilities by licensed contractors in accordance with applicable federal and state regulations.

  All waste would be transported off post by trucks, including a 53-foot trailer truck for the Reactor Pressure Vessel (RPV) cask, which would be the most radioactive element of the SM-1 reactor and the

most significant in terms of weight. After leaving Fort Belvoir, the trucks would travel on public roads to either the disposal site or to a road-to-rail transfer location for rail transport to the final destination.

- **Safety, health, and environmental control measures.** The Proposed Action would involve disturbing, dismantling, and moving materials, structures, and soils that are hazardous or radiologically contaminated. These materials would be handled in a controlled manner that would minimize the risk of exposure to project personnel, the general public, and the environment.

Enforceable Policies

The Commonwealth of Virginia has developed and implemented the federally approved VCP encompassing nine enforceable policies for the coastal area pertaining to:

- Fisheries management
- Subaqueous lands management
- Wetlands management
- Dunes management
- Non-point source pollution control
- Point source pollution control
- Shoreline sanitation
- Air pollution control
- Coastal lands management

A summary analysis of how the Proposed Action would affect each of the enforceable policies is presented below. This analysis is based on the more detailed analyses presented in the environmental assessment (EA) being prepared by USACE in accordance with the National Environmental Policy Act of 1969 (NEPA).

Fisheries Management

The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Marine Resources Commission (MRC) (Virginia Code §28.2-200 through §28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Virginia Code §29.1-100 through §29.1-570).

The State Tributyltin (TBT) Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing TBT. The use of TBT in boat paint constitutes a serious threat to important marine animal species. The TBT program monitors boating activities and boat painting activities to ensure compliance with TBT regulations promulgated pursuant to the amendment. The MRC, DGIF, and Virginia Department of Agriculture and Consumer Services share enforcement responsibilities (Virginia Code §3.1-249.59 through §3.1-249.62).

Consistent to the Maximum Extent Practicable? **Not Applicable (NA)**

Analysis

The Proposed Action does not involve the use of TBT. In-water dismantlement activities associated with the Proposed Action would have no potential to affect finfish or shellfish resources or commercial and recreational fisheries. Therefore, this enforceable policy is not applicable.

Subaqueous Lands Management

The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the DEQ Water Division. The program is administered by the MRC (Virginia Code §28.2-1200 through §28.2-1213).

Consistent to the Maximum Extent Practicable? **YES**

Analysis

Removal of the intake pier and water discharge pipe under the Proposed Action would have the potential to disturb subaqueous bottomlands in Gunston Cove. Gunston Cove is a tidal embayment of the Potomac River. Water depths in Gunston Cove vary from approximately 1 meter (m) in the northern portion to approximately 2.25 m in the center. The mean tidal range is approximately 0.64 m.

The area where in-water work associated with the Proposed Action would occur includes the portion of Gunston Cove that contains the water outfall pipe, pump house, and water intake pier footprint (390 square meters [m^2]); adjacent work areas; and the estimated extent of the turbidity plumes that would result from removal of the structures (3.6 hectares [ha]) (**Figure 2**). This area is expected to encompass all of the direct and indirect effects of the Proposed Action.

USACE and its contractors would minimize disturbance of subaqueous bottomlands during in-water activities to the extent practicable. As noted above, containment booms and sediment curtains would be used during in-water and nearshore work to prevent the migration of disturbed sediment into the water column, minimize turbidity, and ensure disturbed sediments settle near their original location.

As determined necessary through continued project planning and ongoing consultation with the Virginia Department of Environmental Quality (VDEQ) and other applicable regulatory agencies, USACE would submit a Joint Permit Application (JPA) for review and/or authorization from the Virginia Marine Resources Commission (VMRC), VDEQ, and/or the Fairfax County Local Wetlands Board (LWB) to work in the tidal waters and wetlands of Gunston Cove. Work would be conducted in accordance with the applicable requirements of permits issued by applicable regulatory agencies.

For these reasons, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Wetlands Management

The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation.

(i) The tidal wetlands program is administered by the MRC (Virginia Code §28.2-1301 through §28.2-1320).

(ii) *The Virginia Water Protection Permit program administered by the DEQ includes protection of wetlands – both tidal and non-tidal. This program is authorized by Virginia Code § 62.1-44.15.5 and the Water Quality Certification requirements of §401 of the Clean Water Act of 1972.*

Consistent to the Maximum Extent Practicable? **YES**

Analysis

The Proposed Action would not involve dredging, filling, or other permanent alteration of or impacts on tidal wetlands. As noted above, USACE would submit a JPA for review and/or authorization from applicable regulatory agencies prior to conducting in-water activities associated with the Proposed Action. USACE and its contractors would limit in-water activity and disturbance to that necessary to remove structures associated with SM-1. Measures would also be implemented voluntarily as well as in accordance with applicable permit requirements to minimize temporary impacts on tidal wetlands. Following completion of the Proposed Action, tidal wetlands in Gunston Cove adjacent to the SM-1 site would naturally return to a pre-disturbance condition.

Therefore, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Dunes Management

Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the Marine Resources Commission (Virginia Code §28.2-1400 through §28.2-1420).

Consistent to the Maximum Extent Practicable? **NA**

Analysis

The Proposed Action has no potential to affect sand dunes, as none are located on or in the vicinity of the project site. Thus, this enforceable policy is not applicable.

Non-point Source Pollution Control

Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by DEQ (Virginia Code §62.1-44.15:51 et seq.).

Consistent to the Maximum Extent Practicable? **YES**

Analysis

The Proposed Action would involve more than 2,500 square feet of land disturbance. Therefore, as required by Fort Belvoir's Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), the decommissioning contractor would be required to prepare and adhere to an erosion and sediment control (E&SC) plan in accordance with 9VAC25-840-40, as well as a stormwater management (SWM) plan in accordance with 9VAC25-870-55. Because the Proposed Action would also disturb more than one acre of land, the decommissioning contractor would also obtain coverage under Virginia's General Permit for Discharges of Stormwater from Construction Activities (Construction General Permit [CGP]). Coverage under the CGP would require the contractor to submit a Registration Statement to VDEQ and prepare and adhere to a site-specific SWPPP. Adherence to the requirements of the CGP and E&SC and SWM plans would manage the quantity and quality of stormwater discharged from land-disturbing activities associated with the Proposed Action and would minimize adverse effects on water quality in receiving water bodies.

Thus, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Point Source Pollution Control

The point source program is administered by the State Water Control Board pursuant to Virginia Code §62.1-44.15. Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to §402 of the federal Clean Water Act and administered in Virginia as the VPDES permit program. The Water Quality Certification requirements of §401 of the Clean Water Act of 1972 is administered under the Virginia Water Protection Permit program.

Consistent to the Maximum Extent Practicable? **YES**

Analysis

No new point source discharges of stormwater would be created as a result of the Proposed Action. The water outfall pipe at the Deactivated SM-1 Nuclear Reactor Facility that would be removed by the Proposed Action has not been active since the facility was deactivated in 1973. As determined necessary, Fort Belvoir would amend its VPDES permit following completion of the proposed decommissioning to reflect the removal of this outfall.

Therefore, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Shoreline Sanitation

The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Virginia Code §32.1-164 through §32.1-165).

Consistent to the Maximum Extent Practicable? **YES**

Analysis

An inactive septic tank and associated leach field are suspected to be present immediately southwest of Building 372. If present, the septic tank would be removed during the Proposed Action in accordance with applicable state and Fort Belvoir requirements. Soils in the area of the septic tank and leach field would be replaced with clean fill soils during site restoration activities. No new septic tanks would be installed as part of the Proposed Action.

Thus, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Air Pollution Control

The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Virginia Code §10.1-1300 through 10.1-1320).

Consistent to the Maximum Extent Practicable? **YES**

Analysis

Dismantlement of the Deactivated SM-1 Nuclear Reactor Facility would generate increased emissions from heavy equipment, worker vehicles and fugitive dust. Adverse short-term impacts on air quality would be minimized through the use of standard best management practices (BMP) such as vegetating soils that would remain exposed for extended periods and sweeping or wetting pavements.

Dismantlement-related emissions would remain below thresholds for General Conformity Applicability, and no formal conformity determination is required. In the long term, the implementation of the Proposed Action would not involve the installation of new generators or boilers, nor would it result in an increase of vehicle trips to Fort

Belvoir. No new sources of emissions would be created and thus, no exceedances of applicable *de minimis* limits for criteria pollutants regulated under the Clean Air Act would occur. Short-term adverse impacts on air quality would be minor, and there would be no long-term impacts.

Therefore, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Coastal Lands Management

Coastal Lands Management is a state-local cooperative program administered by DEQ's Water Division and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act (Virginia Code §§ 62.1-44.15:67 through 62.1-44.15:79) and Chesapeake Bay Preservation Area Designation and Management Regulations (Virginia Administrative Code 9 VAC 25-830-10 et seq.).

Consistent to the Maximum Extent Practicable? **YES**

Analysis

Consistent with the Deactivated SM-1 Nuclear Reactor Facility's location adjacent to Gunston Cove, a tidal embayment of the Potomac River, the Proposed Action would occur in Chesapeake Bay Resource Protection Areas (RPAs) recognized by Fort Belvoir. Fort Belvoir defines RPAs as vegetated buffers no less than 100 feet wide located adjacent to and landward of all tidal shores and tidal wetlands. RPAs on the installation also include 100-year floodplains and 35-foot buffers adjacent to all intermittent streams.

RPA disturbance resulting from the Proposed Action would consist of vegetation clearing and soil excavation, fill, and compaction. Vegetation clearing and soil disturbance would be temporary and limited to that needed to complete the proposed decommissioning activities. All disturbance of the RPA would be limited to the portion of the RPA within the Deactivated SM-1 Nuclear Reactor Facility perimeter.

Adherence to requirements of the CGP and associated SWPPP, E&SC, and SWM plans during ground-disturbing activities would minimize or prevent the erosion of exposed soils and manage the quantity and quality of stormwater generated on the site, which would be ultimately discharged to Gunston Cove and further downstream, the Potomac River and Chesapeake Bay. The extent and intensity of RPA disturbance would vary over the five-year decommissioning process and not all ground disturbance would occur simultaneously, further minimizing adverse effects.

RPA disturbance during the Proposed Action would be mitigated through the planting of two new trees for the removal of every tree four inches in diameter and breast height (dbh) or greater in accordance with Fort Belvoir Policy Memorandum #27, *Tree Removal and Protection*. Vegetation replacement in the RPA would also adhere to the requirements of VDCR's *Riparian Buffers Modification and Mitigation Guidance Manual*.

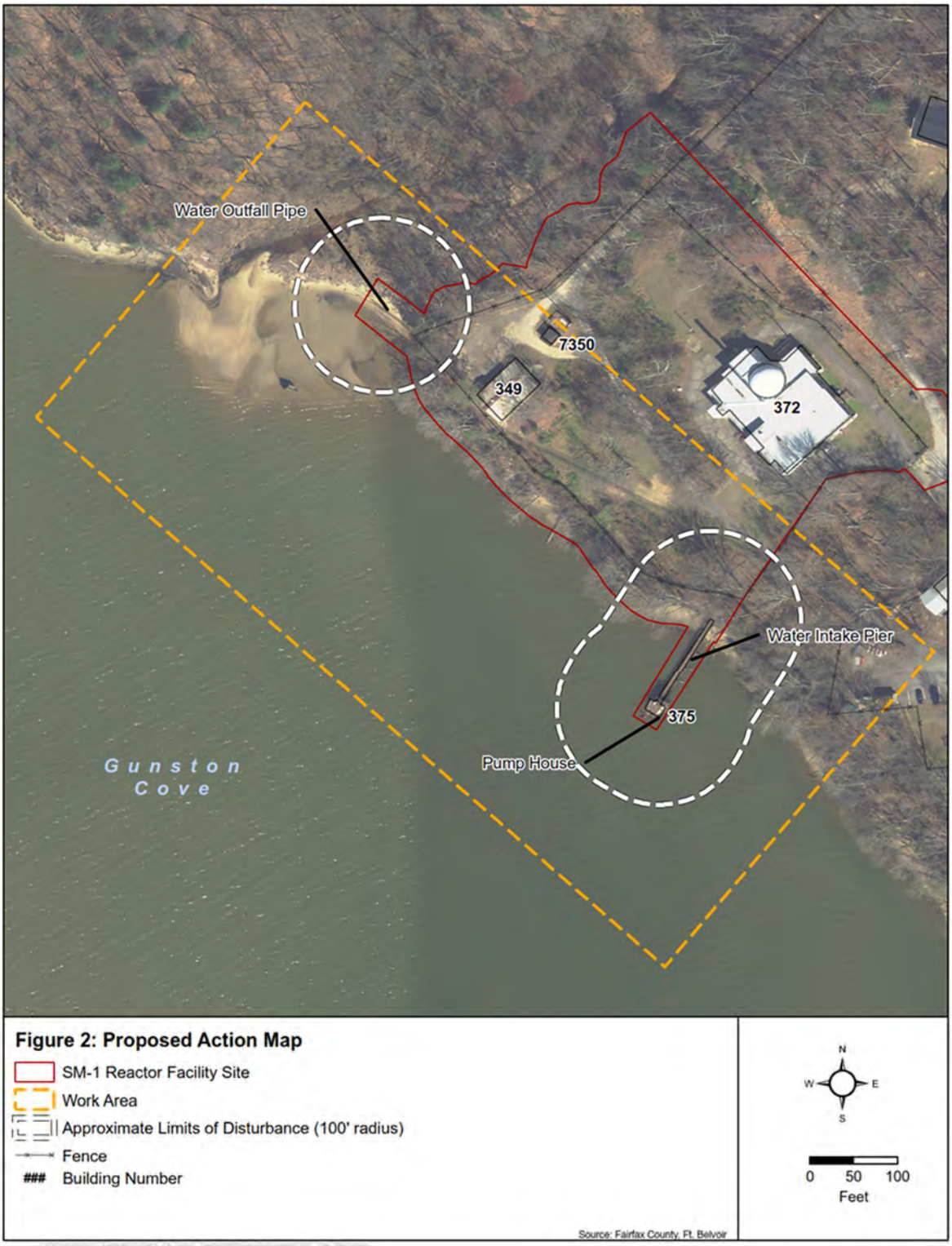
In the long term, restoration and re-vegetation of the site following the completion of ground-disturbing activities in the Proposed Action would have a beneficial effect on RPAs in this part of Fort Belvoir. No ongoing or permanent activities with potential to disturb RPAs would be established by the Proposed Action.

For these reasons, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Figure 1


Washington D.C.
Fort Belvoir
Richmond Hwy
Meade Rd
Old Mill Rd
Mt Vernon Memorial Hwy
Grist Mill Park
Gunston Rd
Belvoir Rd
Doerr Rd
Mt Vernon Rd
Pohick Rd
Accotink Creek
Accotink Bay
Pohick Bay
Dogue Creek
Troth Way
16th St
Thiele Rd
Lowen Rd
21st St
Jadwin Loop
Warren Rd
McCrillan Loop
Putnam Rd
Eubeck Rd
Totten Rd
Forney Loop
Wilson Rd
Gunston Cove
Potomac River
VIRGINIA
MARYLAND
Springfield Dr
Gunston Hall
152 ft
Fort Belvoir
Figure 1: Project Location Map
SM-1 Reactor Facility Site
Fort Belvoir
Surface Water
N
W
E
S
0
0.3
0.6
Miles
Source: ESRI, Fairfax County, Ft. Belvoir

Figure 2


Water Outfall Pipe
7350
349
372
Water Intake Pier
375
Pump House
Gunston Cove
Figure 2: Proposed Action Map
SM-1 Reactor Facility Site
Work Area
Approximate Limits of Disturbance (100' radius)
Fence
Building Number
Source: Fairfax County, Ft. Belvoir
N
W
E
S
0 50 100
Feet

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Appendix E – Record of Non-Applicability (RONA) and Air Quality Emissions Estimates

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RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY

UNITED STATES ARMY CORPS OF ENGINEERS

PROPOSED DECOMMISSIONING AND DEMOLITION OF THE SM-1 REACTOR FACILITY AT FORT BELVOIR IN FAIRFAX COUNTY, VIRGINIA

Introduction

The United States Environmental Protection Agency's (USEPA's) *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (40 Code of Federal Regulations (CFR) Parts 51 and 93) provides the implementing guidance to document Clean Air Act (CAA) Conformity Determination requirements. The General Conformity Rule requires federal actions or federally funded actions planned to occur in a non-attainment or maintenance area to be reviewed prior to their implementation to ensure that the actions would not interfere with State's plans to meet or maintain the National Ambient Air Quality Standards (NAAQS). It is the responsibility of the federal agency to determine whether a Federal action conforms to the applicable implementation plan before the action is taken (40 CFR §51.850(a)).

Federal actions may be exempt from a formal Conformity Determination if: (1) the actions fit within one of the exemption categories or (2) their emissions do not exceed designated *de minimis* levels for criteria pollutants (40 CFR §93.153(c)). The exemption categories apply to actions that would result in no emission increase or an increase in emission that is clearly *de minimis*.

Proposed Action

Action Proponent: United States Army Corps of Engineers (USACE)

Location: Stationary Medium Power Model 1 (SM-1) Reactor Facility, United States (US) Army Garrison Fort Belvoir, Fairfax County, Virginia

Proposed Action Name: Decommissioning and Demolition of the SM-1 Reactor Facility

Proposed Action and Emission Summary: USACE maintains the SM-1 Reactor Facility in accordance with Army Regulation (AR) 50-7, *Army Reactor Program*, and Reactor Possession Permit No. SM1-1-09 issued by the US Army Nuclear and Countering Weapons of Mass Destruction Agency (USANCA). The Army Reactor Office (ARO), established by USANCA, oversees the Army Reactor Program (ARP) and designates the ARP Manager. USACE proposes to complete the decommissioning and demolition of SM-1 (Proposed Action). Prior to the removal of contaminated structures, equipment, and media from the SM-1 site, USANCA would transition the SM-1 Reactor Possession Permit Number SM1-1-09 to a Reactor Decommissioning Permit following ARO approval of a Decommissioning Plan (DP). USACE proposes to complete the decommissioning and demolition of SM-1 to a standard that allows for release of the SM-1 site for unrestricted use and terminate the ARO Reactor Decommissioning Permit (also referred to as the "Proposed Action"). The proposed decommissioning of SM-1 would occur over an approximately 5-year period from 2020 to 2025. Upon completion of the Proposed Action, the restored site would be returned to Fort Belvoir for future use.

Under USACE's Deactivated Nuclear Power Plant Program, decommissioning a nuclear reactor is required within 60 years of its deactivation to be consistent with US Nuclear Regulatory Commission (NRC) regulations (as adopted by the ARP in AR 50-7). The deactivated and defueled SM-1 Reactor Facility has been in a safe storage (SAFSTOR) condition and subject to regular inspection and monitoring for more than 46 years. Accordingly, the purpose of the

Proposed Action is to safely remove, transport, and dispose of all materials and equipment (M&E) and structures associated with the SM-1 Reactor Facility such that residual radioactivity levels meet the applicable criteria for unrestricted use. This action will eliminate any minor on-going direct or indirect emissions inherent in maintaining the present building and facilities.

The Proposed Action is needed to complete the decommissioning of the SM-1 Reactor Facility with the regulatory authority granted to DOD under the Atomic Energy Act (AEA). Additionally, implementing the Proposed Action would result in a cost savings to USACE as maintenance of the site would no longer be required. USACE maintenance of the SM-1 Reactor Facility is costly and not sustainable over the long-term. Further, the Proposed Action allows USACE to meet mission objectives to decommission their nuclear reactors and terminate their possession permit. In its current state, the SM-1 site will not support the military mission on Fort Belvoir, now or in the future.

USACE evaluated the potential direct, indirect, and cumulative physical, environmental, socioeconomic, and cultural effects of implementing the Proposed Action and reasonable alternatives to that scenario in an Environmental Assesstment (EA), prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA; Title 42, United States Code [USC] Part 4321 et seq.); the NEPA-implementing regulations of the Council on Environmental Quality (CEQ) (40 CFR Parts 1500–1508); and the Army's NEPA regulations (32 CFR Part 651, *Environmental Analysis of Army Actions*). The EA is incorporated herein by reference. Each alternative is briefly discussed below.

- **No Action Alternative**. Continue to maintain SM-1 in a SAFSTOR condition with regular inspections and monitoring.
- **Proposed Action Alternative**. Complete the decommissioning and demolition of the SM-1 to a standard that allows for release of the site for unrestricted use and termination of the ARO Reactor Decommissioning Permit.

Pursuant to the NAAQS, Fairfax County is designated by the USEPA as a marginal non-attainment area for the 2008 8-hour ozone (O_3) NAAQS. Fairfax County is located in the ozone transport region where *de minimis* levels of volatile organic compounds (VOCs) and oxides of nitrogen [NO_x] (ozone precursors) are 50 and 100 tons per year (tpy), respectively (40 CFR § 93.153). Fairfax County is currently in attainment for all other criteria pollutants (i.e., carbon monoxide [CO], sulfur dioxide [SO_2], particulate matter 2.5 micrometers or less in diameter [$PM_{2.5}$], PM_{10}, nitrogen dioxide [NO_2], and lead [Pb]) (USEPA, 2019). Further information regarding Fairfax County's attainment status is provided in the EA.

The Proposed Action is subject to the General Conformity Rule because Fort Belvoir is within a nonattainment area and the Proposed Action Alternative would result in air pollutant emissions[1]. All emissions generated by the Proposed Action Alterative would be temporary (i.e., only occurring during construction) and no new emissions sources would be created. Temporary activities under the Proposed Action Alternative that would generate pollutant emissions include, but are not limited to:

- Handling and transport of excavated and imported materials (i.e., soil and concrete) during construction;
- Operation of heavy-duty, diesel-powered trucks and equipment at the site during demolition;
- Operation of heavy-duty, diesel-powered trucks traveling to and from the site to dispose of or deliver materials during demolition;

[1] Under the No Action Alternative, there would be no demolition of buildings or structures at the SM-1 site and existing conditions would continue for the foreseeable future. Therefore, implementation of the No Action Alternative would not result in any changes to existing air quality. Fort Belvoir's contribution to regional air quality would not change. Current ambient air quality trends and regional emissions would continue.

- Operation of workers' commuter vehicles traveling to and from the SM-1 site;
- Storage of excavated and imported materials in stockpiles;
- Use of unpaved areas/roads; and
- Site preparation activities (e.g., clearing, grubbing, tree removal).

In general, activities in the Proposed Action Alternative would have a temporary, less-than-significant impact on air quality. Projected Proposed Action Alternative emissions of applicable nonattainment criteria pollutants would be *de minimis*, as shown in **Table 1**. Detailed emission calculations, assumptions, and estimates for the Proposed Action Alternative are provided as **Attachment 1** to this RONA.

Table 1. Projected Proposed Action Alternative VOC and NO_x Emissions Compared to Applicable *De Minimis* Levels

Pollutant	2021 Proposed Action Alternative Emissions (tpy)	2022 Proposed Action Alternative Emissions (tpy)	2023 Proposed Action Alternative Emissions (tpy)	2024 Proposed Action Alternative Emissions (tpy)	2025 Proposed Action Alternative Emissions (tpy)	*De minimis* level (tpy)
VOCs	0.24	0.43	0.50	0.67	0.27	50
NO_x	2.39	6.48	6.73	7.69	1.74	100
Note: tpy = tons per year						

Activities in the Proposed Action Alternative would comply with applicable regulatory requirements and incorporate appropriate Best Management Practices (BMPs) (as identified in the EA) to further minimize anticipated, less-than-significant adverse effects.

In summary, despite Fort Belvoir's location in a nonattainment area, the USACE is exempt from preparing a Conformity Determination because emissions would not exceed designated *de minimis* levels for criteria pollutants. The Proposed Action would have no significant impacts on regional air quality. Additional details regarding the Proposed Action's impacts on air quality are provided in the EA. Detailed calculations are also provided as **Attachment 1** to this RONA.

Affected Air Basins: Fairfax County, VA

Date RONA prepared: 18 September 2019

Proposed Action Exemption

The Proposed Action is located within a nonattainment area; therefore, the Proposed Action is not exempt from the General Conformity Rule. However, per 40 CFR § 93.153(c), the Proposed Action qualifies as an action where emissions do not exceed designated *de minimis* levels for criteria pollutants and therefore, is consistent with one of the USEPA's exemption categories. The activities could result in temporary, less-than-significant impacts on air quality, but are not expected to change designation of the area with respect to NAAQS. Therefore, the Proposed Action is exempt from a formal Conformity Determination.

Attainment Area Status and Emission Evaluation Conclusion

Fairfax County is in a nonattainment area for 8-hour ozone. However, per 40 CFR § 93.153(c), the Proposed Action qualifies as an action where emissions do not exceed designated *de minimis* levels for criteria pollutants and

therefore, is consistent with one of the USEPA's exemption categories. The projected emissions under the Proposed Action Alternative would be temporary and substantially less than the established *de minimis* emission thresholds (see **Table 1**). Generally, impacts on air quality from the Proposed Action Alternative would be temporary and less-than-significant. Moreover, the activities would comply with applicable regulatory requirements and appropriate BMPs would be incorporated. Therefore, there would be no significant effects to air quality and a change in the designation of the area with respect to NAAQS would not be expected. USACE concludes that further formal Conformity Determination procedures are not required, resulting in this RONA.

RONA Approval

To the best of my knowledge, the information presented in this Record of Non-Applicability is correct and accurate and I concur with the finding that the Proposed Action does not require a formal Conformity Determination.

03 April 2020

DATE

Brenda M. Barber, P.E

Brenda M. Barber, P.E.

USACE Project Manager

Attachment 1: Air Quality Analysis Calculations

Projected Emissions for CY 2021
SM-1
Construction Year 1

Emission Source	Projected Emissions (tons per year)							CY 2021 (metric tons per year)
	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	CO_2e
Construction Equipment Operation	1.24E+00	2.39E+00	2.36E-01	1.40E-01	1.35E-01	1.75E-01	2.55E+02	2.31E+02
POV - Construction Worker Commuting	2.49E-03	2.76E-04	2.42E-04	5.73E-06	5.18E-06	3.64E-06	2.16E-01	1.96E-01
Site Preparation - Fugitive Emissions	-	-	-	1.04E+00	1.04E+00	-	-	-
Rock/Soil Export - Fugitive Emissions	-	-	-	1.59E-04	1.59E-05	-	-	-
Concrete Export - Fugitive Emissions	-	-	-	0.00E+00	0.00E+00	-	-	-
Total	1.24	2.39	0.24	1.18	1.18	0.17	255.01	231.34

Projected Emissions for CY 2022
SM-1
Construction Year 2

Emission Source	Projected Emissions (tons per year)							CY 2022 (metric tons per year)
	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	CO_2e
Construction Equipment Operation	2.21E+00	6.48E+00	4.27E-01	3.71E-01	3.58E-01	4.81E-01	6.97E+02	6.32E+02
POV - Construction Worker Commuting	4.60E-03	4.28E-04	4.20E-04	1.04E-05	8.60E-06	2.65E-06	4.20E-01	3.81E-01
Rock/Soil Export - Fugitive Emissions	-	-	-	0.00E+00	0.00E+00	-	-	-
Concrete Export - Fugitive Emissions	-	-	-	0.00E+00	0.00E+00	-	-	-
Total	2.22	6.48	0.43	0.37	0.36	0.48	697.11	632.41

Projected Emissions for CY 2023
SM-1
Construction Year 3

Emission Source	Projected Emissions (tons per year)							CY 2023 (metric tons per year)
	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	CO_2e
Construction Equipment Operation	2.48E+00	6.73E+00	5.00E-01	4.15E-01	4.00E-01	4.96E-01	7.18E+02	6.52E+02
POV - Construction Worker Commuting	4.32E-03	3.68E-04	3.67E-04	9.48E-06	8.60E-06	2.65E-06	4.08E-01	3.70E-01
Rock/Soil Export - Fugitive Emissions	-	-	-	1.24E-02	1.24E-03	-	-	-
Concrete Export - Fugitive Emissions	-	-	-	1.30E-02	1.62E-03	-	-	-
Total	2.48	6.73	0.50	0.44	0.40	0.50	718.63	651.93

Projected Emissions for CY 2024
SM-1
Construction Year 4

Emission Source	Projected Emissions (tons per year)							CY 2024 (metric tons per year)
	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	CO_2e
Construction Equipment Operation	3.31E+00	7.69E+00	6.72E-01	5.50E-01	5.30E-01	5.77E-01	8.34E+02	7.57E+02
POV - Construction Worker Commuting	4.07E-03	3.18E-04	3.29E-04	8.60E-06	8.60E-06	2.65E-06	3.95E-01	3.58E-01
Rock/Soil Export - Fugitive Emissions	-	-	-	2.47E-02	2.48E-03	-	-	-
Concrete Export - Fugitive Emissions	-	-	-	1.30E-02	1.62E-03	-	-	-
Total	3.31	7.69	0.67	0.59	0.53	0.58	834.85	757.36

Projected Emissions for CY 2025
SM-1
Construction Year 5

Emission Source	Projected Emissions (tons per year)							CY 2025 (metric tons per year)
	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	CO_2e
Construction Equipment Operation	1.11E+00	1.74E+00	2.66E-01	1.81E-01	1.75E-01	1.20E-01	1.75E+02	1.58E+02
POV - Construction Worker Commuting	3.72E-04	2.88E-05	2.61E-05	6.94E-07	5.95E-07	2.87E-07	3.74E-02	3.39E-02
Rock/Soil Export and Import - Fugitive Emissions	-	-	-	5.35E-02	5.35E-03	-	-	-
Concrete Export - Fugitive Emissions	-	-	-	0.00E+00	0.00E+00	-	-	-
Total	1.11	1.74	0.27	0.23	0.18	0.12	174.61	158.40

Construction Equipment Projected Hours of Operation
SM-1

Equipment	Type	Average Rated HP	No. of Units	Days Per Year for Each Unit					Hours Per Year for All Units				
				CY 2021 Days	CY 2022 Days	CY 2023 Days	CY 2024 Days	CY 2025 Days	CY 2021 Hours	CY 2022 Hours	CY 2023 Hours	CY 2024 Hours	CY 2025 Hours
Asphalt paver	Diesel Pavers	130	1	21	0	0	0	0	168	0	0	0	0
Asphalt roller	Diesel Rollers	130	1	21	0	0	0	0	168	0	0	0	0
Grader	Diesel Grader	150	1	10	0	0	0	0	80	0	0	0	0
Chain saws	2 Stroke Chain Saws >6 HP	10	2	10	0	0	0	0	160	0	0	0	0
Crane 25 ton	Diesel Cranes	130	1	7	50	80	0	0	56	400	640	0	0
Crane 350 ton	Diesel Cranes	450	2	0	40	40	0	0	0	640	640	0	0
Dewatering pump, 4-in.	Diesel Pumps	50	1	0	0	0	40	0	0	0	0	320	0
Dozer	Diesel Crawler Tractor/Dozer	200	1	0	0	0	82	0	0	0	0	656	0
Dozer	Diesel Crawler Tractor/Dozer	75	1	19	0	0	0	0	152	0	0	0	0
Brush Chipper	Diesel Chippers/Stump Grinders	130	1	10	0	0	0	0	80	0	0	0	0
Excavator	Diesel Excavators	130	1	0	367	344	624	0	0	2,936	2,752	4,992	0
Backhoe	Diesel Tractors/Loaders/Backhoes	50	1	0	0	0	10	0	0	0	0	80	0
Loader, skid steer	Diesel Skid Steer Loaders	30	1	0	100	100	100	0	0	800	800	800	0
Forklift	Diesel Forklift	50	1	0	100	100	100	0	0	800	800	800	0
Roller, compactor	Diesel Rollers	80	1	0	0	0	82	0	0	0	0	656	0
Dump Truck, 20 cy (soils)	Diesel Dumpers/Tenders	500	1	0.28	0	22	44	98	2	0	175	351	781
Waste Haul Truck, 20 cy (debris)	Diesel Highway Truck	500	1	0	8	20	20	0	0	60	156	156	0
Dump Truck, 8 cy	Diesel Dumpers/Tenders	220	1	0	0	0	82	0	0	0	0	656	0
Pickup Truck	Diesel Off-highway Trucks	400	4	100	200	200	200	50	1,600	3,200	3,200	3,200	800
Pressure Washer	Diesel Pressure Washers	10	1	0	25	50	50	0	0	200	400	400	0

Assumptions:

Field construction is projected to start in mid-2021 and be completed by early 2025.

Estimated hours of construction per working day: 8

Estimated hours for pickup truck per working day: 4 Assume pickup trucks are used for the transport of tools and workers for half of the working day. Assume pickup trucks are "off" when not in use and do not idle.

Estimated equipment, average rated HP, and number of units were provided by this Proposed Project's design team.

For a conservative estimate, equipment fuel was assumed to be diesel.

Truck Trip Tables:

Anticipated Truck Trips and Material Quantity Transported

Materials	Total Quantity (tons each year)					Average Quantity per Truckload		Average No. of Trips to Export/Dispose of Total Quantity					Driving Hours to Disposal or Site		Total Hours Operated					Total Days Operated				
EXPORTS																								
	2021	**2022**	**2023**	**2024**	**2025**			**2021**	**2022**	**2023**	**2024**	**2025**			**2021**	**2022**	**2023**	**2024**	**2025**	**2021**	**2022**	**2023**	**2024**	**2025**
Grubbing and Clearing Debris	30	0	0	0	0	20	Tons	2	0	0	0	0	1.5	Hours	2.25	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
Concrete	0	0	1280	1280	0	20	Tons	0	0	64	64	0	1.5	Hours	0.00	0.00	96.00	96.00	0.00	0.00	0.00	12.00	12.00	0.00
Other Demolition Materials (piping, steel, electrical, etc.)	0	806	806	806	0	20	Tons	0	40	40	40	0	1.5	Hours	0.00	60.45	60.45	60.45	0.00	0.00	7.56	7.56	7.56	0.00
Excavated Soils	0	0	2337	4673	0	20	Tons	0	0	117	234	0	1.5	Hours	0.00	0.00	175.25	350.50	0.00	0.00	0.00	21.91	43.81	0.00
TOTAL EXPORT TRUCKLOADS	**30**	**806**	**4423**	**6759**	**0**	**-**	**-**	**2**	**40**	**221**	**338**	**0**		**-**	**2.25**	**60.45**	**331.70**	**506.95**	**0.00**	**0.28**	**7.56**	**41.46**	**63.37**	**0.00**
IMPORTS																								
	2021	**2022**	**2023**	**2024**	**2025**			**2021**	**2022**	**2023**	**2024**	**2025**			**2021**	**2022**	**2023**	**2024**	**2025**	**2021**	**2022**	**2023**	**2024**	**2025**
Imported Soils and Aggregates	0	0	0	0	7077	14	Tons	-	-	-	-	506	1.5	Hours	-	-	-	-	758.25	-	-	-	-	94.78
Trees and Native Plantings	0	0	0	0	60	4	Units	-	-	-	-	15	1.5	Hours	-	-	-	-	22.50	-	-	-	-	2.81
TOTAL IMPORT TRUCKLOADS	**0**	**0**	**0**	**0**	**7137**	**-**	**-**	**0**	**0**	**0**	**0**	**520.5**		**-**	**0.00**	**0.00**	**0.00**	**0.00**	**780.75**	**0.00**	**0.00**	**0.00**	**0.00**	**97.59**

Assumptions:
Estimated typical hours of construction per day: 8
Estimated a total of 30 tons of grubbing and clearing debris during site preparation.
Estimated 60 tons of trees and plantings would be imported.
Exported materials are estimated to be in 20 cy waste containers on dump trucks. Clean soil is estimated to be imported in a 20 cy dump truck that is able to hold approximatly 14 cy of soil per trip.
Estimates from 'Waste Transportation Assessment Final Redline 12-11-18" are in tables 1-1 to 1-4 below. (\\ARLINGTON\Arlington\DCS\Projects\ENV\60332981_SM-1_Decom\900-Work\930-979-other working documents\Task 9\405-Env-NEPA\Background Info\SM-1 Docs\DP and Related Docs)

Table 1-1, Building Debris Waste Volume Estimate

Area	Material Type	Waste Volume (Cubic Yards)	Waste Containers [a]
Unrestricted Area	Walls, Floors, and Roof	1,060	53

The total volume of backfill soil required for restoration is assumed equal to the waste soil volume from Table 1-3 (7,010 CY) and two-thirds of the concrete waste volume from Table 1-2 (67 CY).

The average commercial dump truck holds up to 14 CY. Therefore, it is possible that restoration of the SM-1 site may require trucking 400 to 500 loads of clean soil through the 300 Area to the SM-1 site. Site restoration activities are expected to take place over a period of approximately 6 months with backfill soil deliveries for at least half of that time. Therefore, during a three–month peak site restoration period, as many as 8 to 10 trucks may be delivering soil to the site per day.

Construction Equipment Air Quality Emission Factors
SM-1

Equipment	Type	Average Rated HP[1]	Loading Factors[2]	Emission Factors (lb/1000 HP-hr)[2]							Emission Factors (lb/hr)[3]						
				CO	NOx	VOC	PM_{10}	$PM_{2.5}$	SOx	CO_2e	CO	NOx	VOC	PM_{10}	$PM_{2.5}$	SOx	CO_2e
Asphalt paver	Diesel Pavers	130	59%	4.76	10.72	0.9	0.88	0.84	0.84	1224	3.65E-01	8.22E-01	6.90E-02	6.75E-02	6.44E-02	6.44E-02	93.85
Asphalt roller	Diesel Rollers	130	59%	5.78	11.09	1.01	0.99	0.97	0.86	1224	4.43E-01	8.51E-01	7.75E-02	7.59E-02	7.44E-02	6.60E-02	93.85
Grader	Diesel Graders	150	59%	3.33	10.05	0.75	0.68	0.66	0.82	1195	2.95E-01	8.89E-01	6.64E-02	6.02E-02	5.84E-02	7.26E-02	105.72
Chain saws	2 Stroke Chain Saws >6 HP	10	70%	779.31	2.12	165.53	21.52	19.80	0.31	1541	5.46E+00	1.48E-02	1.16E+00	1.51E-01	1.39E-01	2.17E-03	10.79
Crane 25 ton	Diesel Cranes	130	43%	3.02	12.06	0.84	0.64	0.62	0.82	1186	1.69E-01	6.74E-01	4.70E-02	3.58E-02	3.47E-02	4.58E-02	66.28
Crane 350 ton	Diesel Cranes	450	43%	3.02	12.06	0.84	0.64	0.62	0.82	1186	5.84E-01	2.33E+00	1.63E-01	1.24E-01	1.20E-01	1.59E-01	229.45
Dewatering pump, 4-in.	Diesel Pumps	50	43%	6.92	14.09	1.76	1.37	1.32	0.88	1261	1.49E-01	3.03E-01	3.78E-02	2.95E-02	2.84E-02	1.89E-02	27.12
Dozer	Diesel Crawler Tractor/Dozer	200	59%	4.50	11.09	0.77	0.73	0.71	0.84	1199	5.31E-01	1.31E+00	9.09E-02	8.61E-02	8.38E-02	9.91E-02	141.48
Dozer	Diesel Crawler Tractor/Dozer	75	59%	4.50	11.09	0.77	0.73	0.71	0.84	1199	1.99E-01	4.91E-01	3.41E-02	3.23E-02	3.14E-02	3.72E-02	53.06
Brush Chipper	Diesel Chippers/Stump Grinders	130	43%	5.67	13.69	1.39	1.08	1.06	0.84	1226	3.17E-01	7.65E-01	7.77E-02	6.04E-02	5.93E-02	4.70E-02	68.52
Excavator	Diesel Excavators	130	59%	3.75	10.03	0.75	0.71	0.68	0.84	1204	2.88E-01	7.69E-01	5.75E-02	5.45E-02	5.22E-02	6.44E-02	92.32
Backhoe	Diesel Tractors/Loaders/Backhoes	50	21%	14.64	15.61	3.42	2.36	2.27	1.01	1473	1.54E-01	1.64E-01	3.59E-02	2.48E-02	2.38E-02	1.06E-02	15.46
Loader, skid steer	Diesel Skid Steer Loaders	30	21%	19.58	16.01	4.85	3.11	3.02	1.06	1533	1.23E-01	1.01E-01	3.06E-02	1.96E-02	1.90E-02	6.68E-03	9.66
Forklift	Diesel Forklifts	50	59%	6.50	9.97	0.90	0.90	0.88	0.88	1275	1.92E-01	2.94E-01	2.66E-02	2.66E-02	2.60E-02	2.60E-02	37.61
Roller, compactor	Diesel Rollers	80	59%	5.78	11.09	1.01	0.99	0.97	0.86	1244	2.73E-01	5.23E-01	4.77E-02	4.67E-02	4.58E-02	4.06E-02	58.70
Dump Truck, 20 cy (soils)	Diesel Dumpers/Tenders	500	21%	18.74	16.43	5.01	3.11	3.00	1.04	1513	1.97E+00	1.73E+00	5.26E-01	3.27E-01	3.15E-01	1.09E-01	158.84
Waste Haul Truck, 20 cy (debris)	Diesel Dumpers/Tenders	500	21%	18.74	16.43	5.01	3.11	3.00	1.04	1513	1.97E+00	1.73E+00	5.26E-01	3.27E-01	3.15E-01	1.09E-01	158.84
Dump Truck, 8 cy	Diesel Dumpers/Tenders	220	21%	18.74	16.43	5.01	3.11	3.00	1.04	1513	8.66E-01	7.59E-01	2.31E-01	1.44E-01	1.39E-01	4.80E-02	69.89
Pickup Truck	Diesel Off-highway Trucks	400	59%	3.66	11.27	0.64	0.57	0.55	0.82	1192	8.64E-01	2.66E+00	1.51E-01	1.35E-01	1.30E-01	1.94E-01	281.40
Pressure Washer	Diesel Pressure Washers	10	43%	6.33	14.18	1.83	1.12	1.1	0.86	1232	2.72E-02	6.10E-02	7.87E-03	4.82E-03	4.73E-03	3.70E-03	5.30

1. Average horsepower ratings were obtained from Proposed Project's design team.
2. Loading factors and emission factors from USAFCEE *Air Emissions Guide For Air Force Mobile Sources* , July 2016, Section 4 and 5.
3. Emission Factors (lbs./hr.) = (Average Rated HP X Loading Factors X Emission Factors (lbs./1000 HP-hr.)) / 1000
4. ND = No Data available

Projected Emissions for CY 2022
Construction Equipment
SM-1

Construction Equipment	Usage (hr)	Emissions (lb)						
		CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e
Asphalt paver	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt roller	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chain saws	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane 25 ton	400	67.53	269.66	18.78	14.31	13.86	18.34	26,513.82
Crane 350 ton	640	374.00	1,493.51	104.03	79.26	76.78	101.55	146,845.76
Dewatering pump, 4-in.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brush Chipper	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavator	2936	844.47	2,258.67	168.89	159.89	153.13	189.16	271,062.65
Backhoe	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader, skid steer	800	98.68	80.69	24.44	15.67	15.22	5.34	7,725.72
Forklift	800	153.40	235.29	21.24	21.24	20.77	20.77	30,085.99
Roller, compactor	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck, 20 cy (soils)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste Haul Truck, 20 cy (debris)	60	118.95	104.29	31.80	19.74	19.04	6.60	9,601.80
Dump Truck, 8 cy	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pickup Truck	3200	2,764.03	8,511.10	483.33	430.46	415.36	619.26	900,492.93
Pressure Washer	200	5.44	12.19	1.57	0.96	0.95	0.74	1,059.83
Total Emissions	**(lb./yr.):**	**4,426.5**	**12,965.4**	**854.1**	**741.5**	**715.1**	**961.8**	**1,393,388.5**
Total Emissions	**(tpy)**	**2.21**	**6.48**	**0.43**	**0.37**	**0.36**	**0.48**	**696.69**
Total Emissions	**(Metric Tons/yr.)**							**632.03**

Projected Emissions for CY 2023
Construction Equipment
SM-1

Construction Equipment	Usage (hr)	Emissions (lb)						
		CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e
Asphalt paver	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt roller	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chain saws	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane 25 ton	640	108.04	431.46	30.05	22.90	22.18	29.34	42,422.11
Crane 350 ton	640	374.00	1,493.51	104.03	79.26	76.78	101.55	146,845.76
Dewatering pump, 4-in.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brush Chipper	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavator	2752	791.54	2,117.12	158.31	149.87	143.53	177.31	254,075.07
Backhoe	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader, skid steer	800	98.68	80.69	24.44	15.67	15.22	5.34	7,725.72
Forklift	800	153.40	235.29	21.24	21.24	20.77	20.77	30,085.99
Roller, compactor	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck, 20 cy (soils)	175	344.84	302.33	92.19	57.23	55.20	19.14	27,836.49
Waste Haul Truck, 20 cy (debris)	156	307.85	269.90	82.30	51.09	49.28	17.08	24,850.32
Dump Truck, 8 cy	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pickup Truck	3200	2,764.03	8,511.10	483.33	430.46	415.36	619.26	900,492.93
Pressure Washer	400	10.89	24.39	3.15	1.93	1.89	1.48	2,119.66
Total Emissions	**(lb./yr.):**	**4,953.3**	**13,465.8**	**999.0**	**829.6**	**800.2**	**991.3**	**1,436,454.0**
Total Emissions	**(tpy)**	**2.48**	**6.73**	**0.50**	**0.41**	**0.40**	**0.50**	**718.23**
Total Emissions	**(Metric Tons/yr.)**							**651.56**

Projected Emissions for CY 2024
Construction Equipment
SM-1

Construction Equipment	Usage (hr)	Emissions (lb)						
		CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e
Asphalt paver	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt roller	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chain saws	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane 25 ton	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane 350 ton	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dewatering pump, 4-in.	320	47.61	96.94	12.11	9.43	9.08	6.05	8,677.81
Dozer	656	348.34	858.45	59.60	56.51	54.96	65.02	92,812.19
Dozer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brush Chipper	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavator	4992	1,435.82	3,840.35	287.16	271.85	260.36	321.62	460,880.36
Backhoe	80	12.30	13.11	2.87	1.98	1.91	0.85	1,237.13
Loader, skid steer	800	98.68	80.69	24.44	15.67	15.22	5.34	7,725.72
Forklift	800	153.40	235.29	21.24	21.24	20.77	20.77	30,085.99
Roller, compactor	656	178.97	343.38	31.27	30.65	30.03	26.63	38,508.00
Dump Truck, 20 cy (soils)	351	689.68	604.67	184.38	114.46	110.41	38.27	55,672.98
Waste Haul Truck, 20 cy (debris)	156	307.85	269.90	82.30	51.09	49.28	17.08	24,850.32
Dump Truck, 8 cy	656	567.96	497.95	151.84	94.26	90.92	31.52	45,847.22
Pickup Truck	3200	2,764.03	8,511.10	483.33	430.46	415.36	619.26	900,492.93
Pressure Washer	400	10.89	24.39	3.15	1.93	1.89	1.48	2,119.66
Total Emissions	**(lb./yr.):**	**6,615.5**	**15,376.2**	**1,343.7**	**1,099.5**	**1,060.2**	**1,153.9**	**1,668,910.3**
Total Emissions	**(tpy)**	**3.31**	**7.69**	**0.67**	**0.55**	**0.53**	**0.58**	**834.46**
Total Emissions	**(Metric Tons/yr.)**							**757.00**

Projected Emissions for CY 2025
Construction Equipment
SM-1

Construction Equipment	Usage (hr)	Emissions (lb)						
		CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e
Asphalt paver	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt roller	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chain saws	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane 25 ton	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane 350 ton	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dewatering pump, 4-in.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brush Chipper	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavator	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader, skid steer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller, compactor	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck, 20 cy (soils)	781	1,536.28	1,346.91	410.71	254.95	245.94	85.26	124,013.35
Waste Haul Truck, 20 cy (debris)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck, 8 cy	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pickup Truck	800	691.01	2,127.78	120.83	107.62	103.84	154.82	225,123.23
Pressure Washer	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions	**(lb./yr.):**	**2,227.3**	**3,474.7**	**531.5**	**362.6**	**349.8**	**240.1**	**349,136.6**
Total Emissions	**(tpy)**	**1.11**	**1.74**	**0.27**	**0.18**	**0.17**	**0.12**	**174.57**
Total Emissions	**(Metric Tons/yr.)**							**158.37**

Projected Emissions for CY 2021 to 2025
Construction Worker POV
SM-1

					Emission Factor (lbs/mile)							Emissions (lbs/year)						
Year (Analysis Year)	Type	No. of POVs	No. of commuting days	Miles per day	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2e
2021 (2016)	light-duty diesel tucks	5	130.5	40	9.24E-04	1.28E-02	1.41E-03	1.10E-05	1.76E-05	1.54E-05	1.18E+00	9.24E-02	1.28E+00	1.41E-01	1.10E-03	1.76E-03	1.54E-03	117.61
	light-duty gas passenger	20	130.5	40	9.77E-04	9.27E-03	1.03E-03	1.54E-05	2.43E-05	2.20E-05	7.88E-01	3.91E-01	3.71E+00	4.11E-01	6.17E-03	9.70E-03	8.82E-03	315.12
										Total 2021 POV Emission (tpy)		**2.42E-04**	**2.49E-03**	**2.76E-04**	**3.64E-06**	**5.73E-06**	**5.18E-06**	**2.16E-01**
2022 (2017)	light-duty diesel tucks	5	261	40	8.05E-04	1.17E-02	1.23E-03	8.82E-06	1.54E-05	1.54E-05	1.12E+00	1.61E-01	2.35E+00	2.45E-01	1.76E-03	3.09E-03	3.09E-03	224.25
	light-duty gas passenger	20	261	40	8.49E-04	8.57E-03	7.63E-04	4.41E-06	2.20E-05	1.76E-05	7.70E-01	6.79E-01	6.86E+00	6.10E-01	3.53E-03	1.76E-02	1.41E-02	616.33
										Total 2022 POV Emission (tpy)		**4.20E-04**	**4.60E-03**	**4.28E-04**	**2.65E-06**	**1.04E-05**	**8.60E-06**	**4.20E-01**
2023 (2018)	light-duty diesel tucks	5	261	40	6.92E-04	1.09E-02	1.08E-03	8.82E-06	1.54E-05	1.54E-05	1.07E+00	1.38E-01	2.19E+00	2.16E-01	1.76E-03	3.09E-03	3.09E-03	213.96
	light-duty gas passenger	20	261	40	7.45E-04	8.08E-03	6.50E-04	4.41E-06	1.98E-05	1.76E-05	7.52E-01	5.96E-01	6.46E+00	5.20E-01	3.53E-03	1.59E-02	1.41E-02	601.47
										Total 2023 POV Emission (tpy)		**3.67E-04**	**4.32E-03**	**3.68E-04**	**2.65E-06**	**9.48E-06**	**8.60E-06**	**4.08E-01**
2024 (2019)	light-duty diesel tucks	5	261	40	6.11E-04	1.02E-02	9.46E-04	8.82E-06	1.54E-05	1.54E-05	1.02E+00	1.22E-01	2.03E+00	1.89E-01	1.76E-03	3.09E-03	3.09E-03	204.58
	light-duty gas passenger	20	261	40	6.70E-04	7.63E-03	5.58E-04	4.41E-06	1.76E-05	1.54E-05	7.32E-01	5.36E-01	6.10E+00	4.46E-01	3.53E-03	1.41E-02	1.23E-02	585.67
										Total 2024 POV Emission (tpy)		**3.29E-04**	**4.07E-03**	**3.18E-04**	**2.65E-06**	**8.60E-06**	**7.72E-06**	**3.95E-01**
2025 (2020)	light-duty diesel tucks	1	261	40	5.42E-04	9.54E-03	8.36E-04	8.82E-06	1.54E-05	1.32E-05	9.80E-01	2.17E-02	3.81E-01	3.34E-02	3.53E-04	6.17E-04	5.29E-04	39.20
	light-duty gas passenger	5	65.25	40	6.08E-04	7.24E-03	4.83E-04	4.41E-06	1.54E-05	1.32E-05	7.11E-01	3.04E-02	3.62E-01	2.41E-02	2.20E-04	7.72E-04	6.61E-04	35.56
										Total 2024 POV Emission (tpy)		**2.61E-05**	**3.72E-04**	**2.88E-05**	**2.87E-07**	**6.94E-07**	**5.95E-07**	**3.74E-02**

Working days/year = 261
g to lbs conversion = 453.592

Assumptions:

To provide conservative estimates, it was assumed no POVs would be new models. Therefore, emisson factors from 5-years prior were used.

Assumed an estimated 25 vehicles (5 diesel trucks and 20 gasoline passenger) would commute to the work site each working day, except in 2025 when the number of required workers decreases.

Assumed workers commute to site 5 days/week for 261 days/year. Assume the workers commute every working day in 2022-2024. Based on predicted constrction start and end dates, assume they commute for six months in 2021 and three months in 2025.

Assumed workers are traveling from home locations that are local and an estimated 20 miles away.

Emission factors are from the 2016 and 2018 USAFCEE *Air Emissions Guide For Air Force Mobile Sources* (Section 5, July 2016 and Section 5, August 2018). Emission factors provided in grams/mile were divided by the conversion factor for pounds/mile.

Fugitive Dust Emissions (Site Preparation)
SM-1

CY 2021	
Description:	
Square feet of land disturbed:	156,800
Total acres of land disturbed:	3.6
Assumed number of 8-hr days:	29
Assumed equivalent acres/day:	0.124

Equation for Fugitive Dust Emissions (PM_{10})[1]

E_{PM10} (lb./yr.) = 20 lb/acre-day * Total Acres Disturbed * Number of 8-Hour Days

Calculation

E_{PM10} (lb./yr.) = 20 * 3.6 acres * 29 days

E_{PM10} = 2087.78 lb./yr.

1.04E+00 tpy

Assumptions:

[1]Emission factors and methodology from USAFCEE *Air Emissions Guide For Air Force Transitory Sources* (Section 4, August 2018).

Note: Assume PM= PM_{10}=$PM_{2.5}$

Fugitive Dust Emissions - Rock/Soil Export in CY 2021
SM-1

Input Parameters:

Soil moved during exporting =	30	cy	
Soil moved during exporting =	49	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4	(Mean, Table 13.2.2-1, Page 13.2.2-3)	
Material moisture content =	14	(Mean, Table 13.2.4, Page 13.2.4-2)	

Emissions from rock/soil handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

3.34E-04	**lbs./ton**	**PM**
1.58E-04	**lbs./ton**	**PM_{10}**
2.39E-05	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from rock/soil handling and storage =

EF * tons/yr. of rock/soil loading/unloading

0.02	lbs./yr.	**8.10E-06**	**tons/yr.**	**PM**	**E1**
0.01	lbs./yr.	**3.83E-06**	**tons/yr.**	**PM_{10}**	**E1**
0.00	lbs./yr.	**5.80E-07**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from rock/soil handling and storage =

uncontrolled emissions * 0.1

8.10E-07	**tons/yr.**	**PM**	**E2**
3.83E-07	**tons/yr.**	**PM_{10}**	**E2**
5.80E-08	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006)

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/year of excavated soil)/(truck load))*(average distance traveled each way)

VMT = ((30 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 1.8 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

12	lbs./yr.	**5.87E-03**	**tons/yr.**	**PM**
3	lbs./yr.	**1.58E-03**	**tons/yr.**	**PM_{10}**
0	lbs./yr.	**1.58E-04**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Export in CY 2021 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

5.87E-04	**tons/yr.**	**PM**	**E2**
1.58E-04	**tons/yr.**	**PM_{10}**	**E2**
1.58E-05	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from soil removal (tons/yr.) =

=E1+E2

5.87E-04	**tons/yr.**	**PM**
1.59E-04	**tons/yr.**	**PM_{10}**
1.59E-05	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Export in CY 2022
SM-1

Input Parameters:

Soil moved during exporting =	-	cy	
Soil moved during exporting =	-	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4	(Mean, Table 13.2.2-1, Page 13.2.2-3)	
Material moisture content =	14	(Mean, Table 13.2.4, Page 13.2.4-2)	

Emissions from rock/soil handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

3.34E-04	**lbs./ton**	**PM**
1.58E-04	**lbs./ton**	**PM_{10}**
2.39E-05	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from rock/soil handling and storage =

EF * tons/yr. of rock/soil loading/unloading

-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM**	**E1**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM_{10}**	**E1**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from rock/soil handling and storage =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 200

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/year of excavated soil)/(truck load))*(average distance traveled each way)

VMT = ((0 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 0 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM_{10}**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Export in CY 2022 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from soil removal (tons/yr.) =

=E1+E2

0.00E+00	**tons/yr.**	**PM**
0.00E+00	**tons/yr.**	**PM_{10}**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Export in CY 2023
SM-1

Input Parameters:

Soil moved during exporting =	2,337	cy	
Soil moved during exporting =	3,785	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4		(Mean, Table 13.2.2-1, Page 13.2.2-3)
Material moisture content =	14		(Mean, Table 13.2.4, Page 13.2.4-2)

Emissions from rock/soil handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

3.34E-04	**lbs./ton**	**PM**
1.58E-04	**lbs./ton**	**PM_{10}**
2.39E-05	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from rock/soil handling and storage =

EF * tons/yr. of rock/soil loading/unloading

1.26	lbs./yr.	**6.31E-04**	**tons/yr.**	**PM**	**E1**
0.60	lbs./yr.	**2.99E-04**	**tons/yr.**	**PM_{10}**	**E1**
0.09	lbs./yr.	**4.52E-05**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from rock/soil handling and storage =

uncontrolled emissions * 0.1

6.31E-05	**tons/yr.**	**PM**	**E2**
2.99E-05	**tons/yr.**	**PM10**	**E2**
4.52E-06	**tons/yr.**	**PM2.5**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006)

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/year of excavated soil)/(truck load))*(average distance traveled each way)

VMT = ((2,337 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 140.22 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

914	lbs./yr.	**4.57E-01**	**tons/yr.**	**PM**
247	lbs./yr.	**1.23E-01**	**tons/yr.**	**PM_{10}**
25	lbs./yr.	**1.23E-02**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Export in CY 2023 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

4.57E-02	**tons/yr.**	**PM**	**E2**
1.23E-02	**tons/yr.**	**PM_{10}**	**E2**
1.23E-03	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from soil removal (tons/yr.) =

=E1+E2

4.58E-02	**tons/yr.**	**PM**
1.24E-02	**tons/yr.**	**PM_{10}**
1.24E-03	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Export in CY 2024
SM-1

Input Parameters:

Soil moved during exporting =	4,673	cy	
Soil moved during exporting =	7,571	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4		(Mean, Table 13.2.2-1, Page 13.2.2-3)
Material moisture content =	14		(Mean, Table 13.2.4, Page 13.2.4-2)

Emissions from rock/soil handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

3.34E-04	**lbs./ton**	**PM**
1.58E-04	**lbs./ton**	**PM_{10}**
2.39E-05	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from rock/soil handling and storage =

EF * tons/yr. of rock/soil loading/unloading

2.52	lbs./yr.	**1.26E-03**	**tons/yr.**	**PM**	**E1**
1.19	lbs./yr.	**5.97E-04**	**tons/yr.**	**PM_{10}**	**E1**
0.18	lbs./yr.	**9.04E-05**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from rock/soil handling and storage =

uncontrolled emissions * 0.1

1.26E-04	**tons/yr.**	**PM**	**E2**
5.97E-05	**tons/yr.**	**PM_{10}**	**E2**
9.04E-06	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006)

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/year of excavated soil)/(truck load))*(average distance traveled each way)

VMT = ((4,673 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 280.38 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

1,827	lbs./yr.	**9.14E-01**	**tons/yr.**	**PM**
493	lbs./yr.	**2.47E-01**	**tons/yr.**	**PM_{10}**
49	lbs./yr.	**2.47E-02**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Export in CY 2024 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

9.14E-02	**tons/yr.**	**PM**	**E2**
2.47E-02	**tons/yr.**	**PM_{10}**	**E2**
2.47E-03	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from soil removal (tons/yr.) =

=E1+E2

9.15E-02	**tons/yr.**	**PM**
2.47E-02	**tons/yr.**	**PM_{10}**
2.48E-03	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Import in CY 2025
SM-1

Input Parameters:

Soil moved during importing =	7,077	cy	
Soil moved during importing =	11,465	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4		(Mean, Table 13.2.2-1, Page 13.2.2-3)
Material moisture content =	14		(Mean, Table 13.2.4, Page 13.2.4-2)

Emissions from rock/soil handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

3.34E-04	**lbs./ton**	**PM**
1.58E-04	**lbs./ton**	**PM_{10}**
2.39E-05	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from rock/soil handling and storage =

EF * tons/yr. of rock/soil loading/unloading

3.82	lbs./yr.	**1.91E-03**	**tons/yr.**	**PM**	**E1**
1.81	lbs./yr.	**9.04E-04**	**tons/yr.**	**PM_{10}**	**E1**
0.27	lbs./yr.	**1.37E-04**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from rock/soil handling and storage =

uncontrolled emissions * 0.1

1.91E-04	**tons/yr.**	**PM**	**E2**
9.04E-05	**tons/yr.**	**PM_{10}**	**E2**
1.37E-05	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006)

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/year of excavated soil)/(truck load))*(average distance traveled each way)

VMT = ((7,077 cy/yr.) / (14 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 606.6 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

3,954	lbs./yr.	**1.98E+00**	**tons/yr.**	**PM**
1,067	lbs./yr.	**5.34E-01**	**tons/yr.**	**PM_{10}**
107	lbs./yr.	**5.34E-02**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Rock/Soil Import in CY 2025 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

1.98E-01	**tons/yr.**	**PM**	**E2**
5.34E-02	**tons/yr.**	**PM_{10}**	**E2**
5.34E-03	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from soil removal and imported backfill (tons/yr.) =

=E1+E2

1.98E-01	**tons/yr.**	**PM**
5.35E-02	**tons/yr.**	**PM_{10}**
5.35E-03	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export CY 2021
SM-1

Input Parameters:

Concrete moved during export =	-	cy	
Concrete moved during export =	-	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4	(Mean, Table 13.2.2-1, Page 13.2.2-3)	
Material moisture content =	0.2	(Mean, Table 13.2.4, Page 13.2.4-2)	

Emissions from concrete handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

EF = k (0.0032) $[U/5)^{1.3}$ / $(M/2)^{1.4}$]

1.28E-01	**lbs./ton**	**PM**
6.04E-02	**lbs./ton**	**PM_{10}**
9.15E-03	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from concrete handling and storage =

EF * tons/yr. of concrete loading/unloading

-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM**	**E1**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM_{10}**	**E1**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from concrete handling and storage =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006

EF = $[k(s/12)^a (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/yr. of concrete/(truck load))*(average distance traveled each way)

VMT = ((0 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 0 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM_{10}**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export CY 2021 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from concrete demolition and import (tons/yr.) =

=E1+E2

0.00E+00	**tons/yr.**	**PM**
0.00E+00	**tons/yr.**	**PM_{10}**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2022
SM-1

Input Parameters:

Concrete moved during export =	-	cy	
Concrete moved during export =	-	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4	(Mean, Table 13.2.2-1, Page 13.2.2-3)	
Material moisture content =	0.2	(Mean, Table 13.2.4, Page 13.2.4-2)	

Emissions from concrete handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

EF = k (0.0032) $[U/5)^{1.3}$ / $(M/2)^{1.4}$]

1.28E-01	**lbs./ton**	**PM**
6.04E-02	**lbs./ton**	**PM_{10}**
9.15E-03	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from concrete handling and storage =

EF * tons/yr. of concrete loading/unloading

-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM**	**E1**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM_{10}**	**E1**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from concrete handling and storage =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006)

EF = $[k(s/12)^a (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/yr. of concrete/(truck load))*(average distance traveled each way)

VMT = ((0 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 0 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM_{10}**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2022 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from concrete demolition (tons/yr.) =

=E1+E2

0.00E+00	**tons/yr.**	**PM**
0.00E+00	**tons/yr.**	**PM_{10}**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2023
SM-1

Input Parameters:

Concrete moved during export =	1,280	cy	
Concrete moved during export =	2,074	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4	(Mean, Table 13.2.2-1, Page 13.2.2-3)	
Material moisture content =	0.2	(Mean, Table 13.2.4, Page 13.2.4-2)	

Emissions from concrete handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

1.28E-01	**lbs./ton**	**PM**
6.04E-02	**lbs./ton**	**PM_{10}**
9.15E-03	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from concrete handling and storage =

EF * tons/yr. of concrete loading/unloading

264.83	lbs./yr.	**1.32E-01**	**tons/yr.**	**PM**	**E1**
125.26	lbs./yr.	**6.26E-02**	**tons/yr.**	**PM_{10}**	**E1**
18.97	lbs./yr.	**9.48E-03**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from concrete handling and storage =

uncontrolled emissions * 0.1

1.32E-02	**tons/yr.**	**PM**	**E2**
6.26E-03	**tons/yr.**	**PM_{10}**	**E2**
9.48E-04	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006)

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/yr. of concrete/(truck load))*(average distance traveled each way)

VMT = ((1,280 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 76.8 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

501	lbs./yr.	**2.50E-01**	**tons/yr.**	**PM**
135	lbs./yr.	**6.76E-02**	**tons/yr.**	**PM_{10}**
14	lbs./yr.	**6.76E-03**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2023 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

2.50E-02	**tons/yr.**	**PM**	**E2**
6.76E-03	**tons/yr.**	**PM_{10}**	**E2**
6.76E-04	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from concrete demolition (tons/yr.) =

=E1+E2

3.83E-02	**tons/yr.**	**PM**
1.30E-02	**tons/yr.**	**PM_{10}**
1.62E-03	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2024
SM-1

Input Parameters:

Concrete moved during export =	1,280	cy	
Concrete moved during export =	2,074	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4		(Mean, Table 13.2.2-1, Page 13.2.2-3)
Material moisture content =	0.2		(Mean, Table 13.2.4, Page 13.2.4-2)

Emissions from concrete handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

1.28E-01	**lbs./ton**	**PM**
6.04E-02	**lbs./ton**	**PM_{10}**
9.15E-03	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from concrete handling and storage =

EF * tons/yr. of concrete loading/unloading

264.83	lbs./yr.	**0.132**	**tons/yr.**	**PM**	**E1**
125.26	lbs./yr.	**0.063**	**tons/yr.**	**PM_{10}**	**E1**
18.97	lbs./yr.	**0.0095**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from concrete handling and storage =

uncontrolled emissions * 0.1

1.32E-02	**tons/yr.**	**PM**	**E2**
6.26E-03	**tons/yr.**	**PM_{10}**	**E2**
9.48E-04	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/365]$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/yr. of concrete/(truck load))*(average distance traveled each way)

VMT = ((1,280 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 76.8 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

501	lbs./yr.	**2.50E-01**	**tons/yr.**	**PM**
135	lbs./yr.	**6.76E-02**	**tons/yr.**	**PM_{10}**
14	lbs./yr.	**6.76E-03**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2024 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

2.50E-02	**tons/yr.**	**PM**	**E2**
6.76E-03	**tons/yr.**	**PM_{10}**	**E2**
6.76E-04	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from concrete export (tons/yr.) =

=E1+E2

3.83E-02	**tons/yr.**	**PM**
1.30E-02	**tons/yr.**	**PM_{10}**
1.62E-03	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2025
SM-1

Input Parameters:

Concrete moved during export =	-	cy	
Concrete moved during export =	-	tons	(1.62 tons/cy)
Mean wind speed =	9.0	mph	(Wilmington, DE)
Material silt content =	6.4	(Mean, Table 13.2.2-1, Page 13.2.2-3)	
Material moisture content =	0.2	(Mean, Table 13.2.4, Page 13.2.4-2)	

Emissions from concrete handling and storage piles (USEPA AP-42, Eq. 1, Section 13.2.4, January 1995)

$EF = k\ (0.0032)\ [U/5)^{1.3} / (M/2)^{1.4}]$

1.28E-01	**lbs./ton**	**PM**
6.04E-02	**lbs./ton**	**PM_{10}**
9.15E-03	**lbs./ton**	**$PM_{2.5}$**

where:

EF = emission factor, lbs./ton

U = mean wind speed, miles/hr. (mph)

M = material moisture content (%)

Therefore, total emissions from concrete handling and storage =

EF * tons/yr. of concrete loading/unloading

-	lbs./yr.	**0.000**	**tons/yr.**	**PM**	**E1**
-	lbs./yr.	**0.000**	**tons/yr.**	**PM_{10}**	**E1**
-	lbs./yr.	**0.0000**	**tons/yr.**	**$PM_{2.5}$**	**E1**

Assume fugitive dust from stockpiles is controlled using water sprays.

Assume 90% control efficiency from water spray.

Therefore, actual controlled emissions from concrete handling and storage =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Emissions from driving dump trucks on unpaved areas (USEPA AP-42, Eqs. 1a and 2, Section 13.2.2, November 2006)

$EF = [k(s/12)^a\ (W/3)^b][(365-p)/36$

6.52	**lbs./VMT/truck**	**PM**
1.76	**lbs./VMT/truck**	**PM_{10}**
0.18	**lbs./VMT/truck**	**$PM_{2.5}$**

where:

k = particle size multiplier = 4.9 lb./VMT (PM), 1.5 lb./VMT (PM_{10}) and 0.15 lb./VMT ($PM_{2.5}$)

s = material silt content (%)

W = Weight of the vehicle (tons) = 40 tons

p = Number of days when precipitation was greater than 0.01 inches = 130 (Figure 13.2.2-1)

a = 0.7 for PM, 0.90 for PM_{10}, and 0.9 for $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

b = 0.45 for PM, PM_{10}, and $PM_{2.5}$ (Table 13.2.2-2, Page 13.2.2-5)

VMT = vehicle miles travelled by loaded & unloaded trucks on unpaved roads

VMT = ((cy/yr. of concrete/(truck load))*(average distance traveled each way)

VMT = ((0 cy/yr.) / (20 cy/truck))*(120 miles/round trip*1% miles/unpaved roads)

VMT = 0 VMT/yr.

Therefore, total emissions from driving dump trucks on unpaved areas =

EF *VMT

-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**PM_{10}**
-	lbs./yr.	**0.00E+00**	**tons/yr.**	**$PM_{2.5}$**

Fugitive Dust Emissions - Concrete Export in CY 2025 (Continued)
SM-1

Assume fugitive dust from unpaved roads is controlled using water sprays.
Assume 90% control efficiency from water spray

Therefore, actual controlled emissions from driving dump trucks on unpaved areas =

uncontrolled emissions * 0.1

0.00E+00	**tons/yr.**	**PM**	**E2**
0.00E+00	**tons/yr.**	**PM_{10}**	**E2**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**	**E2**

Total annual fugitive emissions from concrete export (tons/yr.) =

=E1+E2

0.00E+00	**tons/yr.**	**PM**
0.00E+00	**tons/yr.**	**PM_{10}**
0.00E+00	**tons/yr.**	**$PM_{2.5}$**