



Mid-Atlantic
Norfolk, Virginia

Final

**Site Management Plan
Fiscal Years 2021 – 2025**

Naval Air Station Oceana Dam Neck Annex
Virginia Beach, Virginia

August 2020



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Prepared for NAVFAC Mid-Atlantic
by CH2M HILL, Inc.
Virginia Beach, Virginia
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Acronyms and Abbreviations

AFFF	aqueous film-forming foam
Army	United States Army
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CH2M	CH2M HILL, Inc.
COPC	constituent of potential concern
DGM	digital geophysical mapping
ERP	Environmental Restoration Program
FY	fiscal year
IAS	Initial Assessment Study
IRP	Installation Restoration Program
MC	munitions constituents
MEC	munitions and explosives of concern
MILCON	military construction
mm	millimeter
MRP	Munitions Response Program
MPPEH	material potentially presenting an explosive hazard
NAS	Naval Air Station
Navy	Department of the Navy
NFA	No Further Action
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbon
PFAS	per- and polyfluoroalkyl substance
POL	petroleum, oil, and lubricants
PRAP	Proposed Remedial Action Plan
QAPP	Quality Assurance Project Plan
RI	Remedial Investigation
SAP	Sampling and Analysis Plan
SI	site Investigation
SMP	Site Management Plan
TCRA	Time-Critical Removal Action
USEPA	United States Environmental Protection Agency
UXO	unexploded ordnance
VDEQ	Virginia Department of Environmental Quality

Introduction

This document presents the fiscal years (FYs) 2021 through 2025 Site Management Plan (SMP) for environmental restoration sites at Dam Neck Annex, Virginia Beach, Virginia, which is under the administrative cognizance of Naval Air Station (NAS) Oceana, Virginia Beach, Virginia. This SMP provides a management tool for Naval Facilities Engineering Command Mid-Atlantic, Virginia Department of Environmental Quality (VDEQ), and activity personnel to be used for planning, scheduling, and determining the future of the NAS Oceana Dam Neck Annex Environmental Restoration Program (ERP) sites, including Installation Restoration Program (IRP) sites, Munitions Response Program (MRP) sites, and possible new sites identified based on the potential presence of known or unknown emerging contaminants. The SMP provides long-term projections for these sites in accordance with the Department of the Navy (Navy) ERP and focuses on upcoming activities that are planned for FY 2021.

The SMP presents the rationale for all ongoing environmental investigations and the estimated schedule for completion of these activities for each active site. Detailed activity schedules for FY 2021 are provided at the end of **Section 4**.

Previous solid waste management unit investigations at the main NAS Oceana installation have been conducted in accordance with the Resource Conservation and Recovery Act 3008(h) Administrative Order on Consent (Consent Order) issued by the United States Environmental Protection Agency (USEPA) in 1991. As of July 1998, cleanup activities at these solid waste management units have been accomplished in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) site management process. A summary of active sites at the main NAS Oceana installation is included in the NAS Oceana Project Management Plan (CH2M, 2020b). ERP sites at Dam Neck Annex were not included in the original 1991 Consent Order, but were previously managed as part of the Navy's ERP. Per a December 2016 NAS Oceana Partnering Team decision, VDEQ will remain as the lead regulatory agency for both IRP and MRP sites.

The SMP is intended to be a working document that is updated regularly to maintain current documentation and summaries of environmental actions at Dam Neck Annex. This SMP updates and supersedes all previous SMPs. Detailed information is provided for active sites located at Dam Neck Annex. Underground and aboveground storage tank closure letters from VDEQ are included in **Appendix A**. Partnering Team Consensus Statements are included in **Appendix B**.

Background and Regulatory Framework

2.1 Dam Neck Annex Description

Dam Neck Annex (**Figure 2-1**) is under the operational control of NAS Oceana and is located approximately 3 miles southeast of NAS Oceana in Virginia Beach, Virginia, covering approximately 1,800 acres. Dam Neck Annex was established in 1941 as an anti-aircraft gunnery range to train fleet personnel in the operation of 20- and 40-millimeter (mm) anti-aircraft guns. The current mission of this installation is to maintain the highest quality facilities in support of the tenant commands that deliver highly trained personnel and state-of-the-art combat systems to the fleet (CNIC, 2018).

2.2 Environmental Restoration Program History

2.2.1 Initial Installation Restoration Program Investigations

Initial IRP support activities at Dam Neck Annex were completed separately from NAS Oceana. Prior to state and federal environmental regulatory involvement, the Navy identified possible environmental contamination caused by operations at the facilities. Three initial investigations were conducted: the Initial Assessment Study (IAS) (Rogers, Golden & Halpern, 1984), the Final Round 1 Verification Study (CH2M, 1986), and the Site Inspection Study (Ebasco, 1991). These investigations are discussed briefly in the following sections. Detailed results of the investigations that specifically pertain to active sites are included in **Section 3**.

Initial Assessment Study (1984)

To identify and assess sites posing a potential threat to human health or the environment as a result of contamination from past operations, the Naval Energy and Environmental Support Activity conducted an IAS at Dam Neck Annex in 1984 (Rogers, Golden & Halpern, 1984). Information from historical records, aerial photographs, field inspections, and personnel interviews was collected and evaluated. A total of six potentially contaminated sites were identified. Each of these six sites was evaluated with respect to contamination characteristics, migration pathways, and pollutant receptors. Following this evaluation, the following sites were recommended for field investigation to evaluate the presence or absence and extent of contamination at the sites:

- Site 1, Regulus Avenue Landfill
- Site 2, Former Polychlorinated Biphenyl Transformer Storage Area
- Site 5, Public Works Disposal Area
- Site 6, Former Pesticide Shop

The Fire Station (Building 525) was not identified as a potential site in the IAS because potential risks associated with per- and polyfluoroalkyl substance (PFAS) chemicals in aqueous film-forming foam (AFFF) were not known at the time of the study. Discharge of AFFF at the Fire Station was documented in the IAS and the site has recently been added into the IRP for investigation of emerging chemicals of environmental concern.

Round 1 Verification Step (1986)

Consistent with the recommendations included in the IAS, a Round 1 Verification Step was conducted in 1986 (CH2M, 1986) to further evaluate Sites 1, 2, 5, and 6. Groundwater, sediment, and soil samples were collected at each of the sites. Additional investigation was recommended at Site 1 due to a lack of information of the quantity, types, and extent of contamination remaining at the site and Site 6 due to elevated levels of volatile organic compounds during monitoring well drilling operations. Results for Site 2 and Site 5 indicated that limited contamination is present at the sites and No Further Action (NFA) was recommended.

Site Inspection Study (1991)

As a result of the IAS and Round 1 Verification Step, additional investigation of Sites 1 and 6 was conducted. Additional groundwater, surface water, and sediment samples were collected from Site 1. Low levels of volatile organic compounds and metals were detected in groundwater, surface water, and sediment. The results indicated that there were no unacceptable human health or ecological risks; however, additional migration of contamination offsite was possible. Annual monitoring of groundwater at Site 1 was recommended for 3 years.

Additional groundwater samples were collected from Site 6 and the results indicated the presence of fuel-related contamination and low-level pesticides. No unacceptable risks to human health or the environment were identified and annual monitoring of groundwater at Site 6 was recommended for 3 years.

2.2.2 CERCLA Process

While Dam Neck Annex is not a CERCLA site, in accordance with Navy ERP procedures investigations after the 1991 Site Inspection Study have been conducted following the CERCLA process, with oversight from VDEQ.

Annual Monitoring

Round one of annual monitoring at Site 1 and Site 6 was completed in 1992 and indicated no significant contaminant migration at either site. The report recommended that no additional monitoring was needed (Ebasco, 1993). However, one additional round of monitoring was proposed by the Navy and completed in March 1997 to support the recommendation of NFA. The results of the monitoring indicated that there was no significant risk to human health or the environment at Site 1 or Site 6 and recommended NFA (CH2M, 1997).

NFA Decision Documents

Based on the recommendations of the groundwater monitoring summarized above, the Navy completed NFA site closure for Site 1 and Site 6 under the *Final Decision Document for Fleet Combat Training Center, Dam Neck, Virginia Beach, Virginia* (CH2M, 1999).

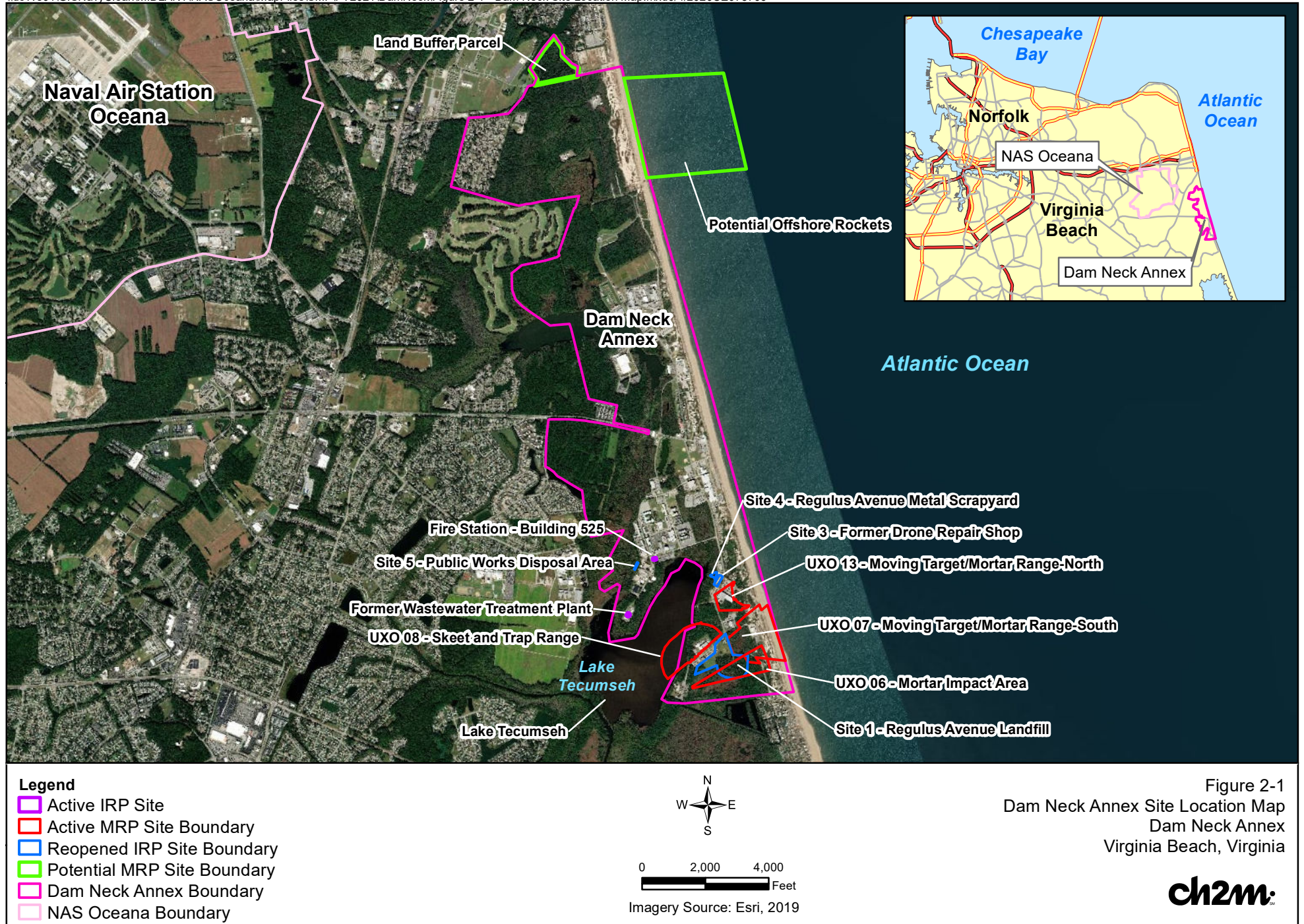
2.2.3 Munitions Response Program Investigations

Ranges associated with Dam Neck Annex were first evaluated as part of the preliminary assessment (PA) conducted by Malcolm Pirnie in 2008. The PA evaluated the history of munitions use at the Annex, and recommended additional investigation for the following sites (Malcolm Pirnie, 2008):

- UXO 6 - Mortar Impact Area
- UXO 7 - Moving Target/Mortar Range – South
- UXO 8 - Skeet and Trap Range
- UXO 11 - Pistol Range (North)
- UXO 12 - Pistol Range (South)
- UXO 13 - Moving Target/Mortar Range – North
- UXO 14 - Rifle Range
- UXO 15 - Machine Gun Range

The unexploded ordnance (UXO) sites presented do not begin as UXO 1, as the labeling nomenclature is shared between NAS Oceana, Naval Auxiliary Landing Field Fentress, and Dam Neck Annex. Information on other UXO sites can be found in the NAS Oceana Project Management Plan (CH2M, 2020b) or the Naval Auxiliary Landing Field Fentress SMP (CH2M, 2020d). The Dam Neck Annex ranges listed above were further evaluated during site investigations (SIs) completed from 2009 to 2012. These investigations are summarized in **Section 3.2**. No additional investigation was determined to be necessary for UXOs 11, 12, 14, or 15. Three potential MRP sites were identified in 2018. A PA for two of these sites, Land Buffer Parcel and Potential Offshore Rockets, was finalized in FY 2020. The subsequent SI activities for the Land Buffer Parcel are anticipated to begin in late 2020 and the Potential Offshore Rockets SI activities are on hold until the site is no longer used for military training. An

SI Munitions and Explosives of Concern Quality Assurance Project Plan (MEC-QAPP) for the third site, Lake Tecumseh, will be submitted for regulatory review in FY 2020.



Environmental Restoration Program

3.1 Installation Restoration Program Sites

Previous investigations indicated NFA was necessary at all previously identified IRP Sites. However, due to potential for PFAS contamination, waste in place without land use controls and debris protruding from the ground surface within the landfill boundary, the Navy initiated an SI at Site 1 in 2017 (**Figure 2-1**). SIs will also be performed at Sites 3, 4, and 5, and the former Main Wastewater Treatment Plant because of observations noted in the Dam Neck Aerial Photographic Analysis Report (CH2M, 2018a). Additionally, the Navy initiated an SI at the Fire Station/Firefighting Training Area due to the potential for PFAS contamination as a result of historical AFFF use (**Figure 2-1**). A brief history and site management status for these sites is provided below and summarized in **Table 3-1**.

In 2016, NAVFAC Headquarters released a directive to conduct a comprehensive compilation of existing information about known or potential releases and potential migration pathways for PFAS at naval facilities (Navy, 2016). In response to this direction, a Preliminary Assessment for PFAS at Dam Neck Annex is being conducted to identify additional potential releases and is anticipated to be finalized in FY 2020.

3.1.1 Site 1 – Regulus Avenue Landfill

Site 1 is a 10-acre, unlined landfill that was operational from 1953 to 1976, and is located in the southern area of Dam Neck Annex (**Figure 3-1**). The exact boundary of the landfill is unknown. The landfill boundary identified in the Round 1 Verification Step included a larger area than the boundary identified in the IAS. Based on a review of aerial photographs, the suspected site boundary was revised to include an additional area to the west. The landfill overlaps a portion of an MRP site (UXO 6) and the overlapping area is included in the total acreage estimation of Site 1.

Site 1 received 3 to 17 tons of solid waste per day during operation. Historical records indicate that wastes disposed of in the landfill consisted of municipal waste, pesticides, asbestos, construction debris, lime, paints, petroleum products, alcohols, sewage sludge, ordnance, and hazardous wastes. Wastes disposed of at the landfill were burned or buried at the site. There is a potential that drums containing AFFF, which was used for firefighting, were disposed of at this site. Use of the landfill by the Navy ended in 1976 and a layer of clean fill with an average thickness of 4 feet was placed over the landfill. The landfill is heavily vegetated with a mixture of grasses, shrubs, and trees typical of the region. The Decision Document for Site 1 recommended NFA (CH2M, 1999). However, in January 2017, a site visit was conducted to determine the observable extent of the landfill at Site 1 in relation to site boundaries, note the condition of the landfill soil cover, and record any visible debris or disturbance. Visible debris was noted protruding from the ground surface within the landfill boundary. Following this inspection, Site 1 was reopened for further investigation due to the possibility of being a potential PFAS release area. Annual inspections at Site 1 were initiated in 2018. Additionally, while reviewing site conditions and comparing historical data to current screening values for other potential contaminants in the landfill, it was noted that previous analytical methods did not allow for reporting limits consistent with current regulatory risk-based screening values. A geophysical investigation to determine the lateral extent of buried wastes was completed as the initial phase of the SI and was documented in the Final Geophysical Investigation and Waste Survey Technical Memorandum submitted in April 2019 (CH2M, 2019a). Following the geophysical investigation, an SI sampling and analysis plan (SAP) including surface water, sediment, surface and subsurface soil, monitoring well installation, and groundwater sampling from monitoring wells and direct push technology locations was finalized in FY 2019. The SI fieldwork was completed in FY 2020 and the SI Report will be submitted for regulatory review in FY 2021.

3.1.2 Site 3 – Former Drone Repair Shop

Site 3 is located in the southern portion of Dam Neck Annex west of Regulus Avenue near the entrance to the drone launch pad (**Figure 3-2**). The Drone Repair Shop operated from 1942 until the building was demolished in

1972 and repaired drones, resulting in the generation of petroleum, oils, and lubricants (POL). A subsurface tank possibly connected to a leach field located north of the shop was used for disposal of waste POL. An estimated 460 gallons of POL may have been discharged if 10 percent of the waste POL generated by the Drone Repair Shop were disposed of through the leach field (Rogers, Golden & Halpern, 1984). The IAS completed in 1984 did not recommend further investigations at the site; however, an SI was initiated in FY 2020 to determine if contaminants associated with operations at the former Drone Repair Shop are present. The SI Report will be submitted for regulatory review in FY 2021.

3.1.3 Site 4 – Regulus Avenue Metal Scrapyard

Site 4 is located in the southern portion of Dam Neck Annex, east of Lake Tecumseh, and west of Regulus Avenue (**Figure 3-3**). Site 4 was used primarily as a scrapyard for the disposal of lumber, metal, solvents, paints, and sulfuric acid lead batteries from 1978 to 1981 and continued to unofficially receive waste until 1984. Most liquid wastes were probably residues remaining in empty or unused cans. The IAS estimated approximately 20 gallons of paints and solvents were discharged over a 4-year period (Rogers, Golden & Halpern, 1984). The IAS completed in 1984 did not recommend further investigations at the site; however, an SI was initiated in FY 2020 to determine if contaminants associated with operations at the Regulus Avenue Metal Scrapyard are present. The SI Report will be submitted for regulatory review in FY 2021.

3.1.4 Site 5 – Public Works Disposal Area

Site 5 is located west of Building 526 on the west side of Lake Tecumseh (**Figure 3-4**). Site 5 consisted of wastes from the metal shop, including cutting oils, solvents, lead carbonate cutting oil lubricant, paint thinner, and motor oil, that were poured on the ground behind the Public Works area. Disposal activities were reported from 1954 to 1979 (Rogers, Golden & Halpern, 1984). Soil sample results analyzed during the Round 1 Verification Step suggested that little contamination was present at Site 5 and no further action was recommended (CH2M, 1986). Observations noted in the Dam Neck Aerial Photographic Analysis Report suggest that the area sampled during the Round 1 Verification Step does not match the area of disturbed land noted in the aerial imagery, which may be associated with the Public Works Disposal Area (CH2M, 2018a). An SI was initiated in FY 2020 to determine if contaminants associated with the Public Works Disposal Area are present in the disturbed area noted on the aerial imagery. The SI Report will be submitted for regulatory review in FY 2021.

3.1.5 Fire Station – Building 525

The Fire Station (Building 525) was constructed in 1956 and is located at the intersection of Polaris Street and Tartar Avenue, northwest of Lake Tecumseh (**Figure 3-5**). The training area was identified as a potential PFAS source area because of firefighting training activities that were reported to have occurred on the concrete pad south of the building. According to the IAS, approximately 30 gallons of AFFF was used annually and washed off the concrete pad into the grass (Rogers, Golden & Halpern, 1984). A drainage ditch south of this area drains into Lake Tecumseh. The training area had not been previously investigated and was opened as a potential new site in 2017. An SI Sampling and Analysis Plan (SAP), including PFAS investigations, was finalized in July 2018 (CH2M, 2018c). The SI consisted of the installation and groundwater sampling of five new monitoring wells in 2018. The SI Report, documenting the results of the investigation, was finalized in FY 2020. Based on the results of the SI, additional PFAS investigations at the site are recommended.

3.1.6 Basewide PFAS

In response to a NAVFAC Headquarters directive, a PA for PFAS at Dam Neck Annex was conducted to identify additional potential releases and is anticipated to be finalized in FY 2020. The PA identifies additional potential source areas that are not already under investigation at Dam Neck Annex. A Basewide PFAS SI will be conducted in FY 2021.

3.1.7 Main Wastewater Treatment Plant

The Main Wastewater Treatment Plant operated from 1954 to 1976 and was located on the southern terminus of Tartar Avenue (**Figure 3-6**). This plant had a normal operating capacity of 432,000 gallons per day. Sludge from the plant was dried in beds located adjacent to the treatment plant, where the majority of the sludge was also disposed of. The Main Wastewater Treatment Plant discharged into Lake Tecumseh and operated under a National Pollutant Discharge Elimination System permit (Rogers, Golden & Halpern, 1984). No environmental investigations were previously conducted at the Main Wastewater Treatment Plant. An SI was initiated in FY 2020 to determine if contaminants associated with the operations conducted at the Main Wastewater Treatment Plant are present. The SI Report will be submitted for regulatory review in FY 2021.

3.2 Munitions Response Program Sites

MRP sites at Dam Neck Annex were initially investigated during the 2008 PA and subsequent SIs; NFA sites are identified in **Section 2**. Three additional potential MRP sites are being investigated: Land Buffer Parcel, Potential Offshore Rockets, and Lake Tecumseh. **Table 3-2** summarizes the current status of all active MRP sites. **Figure 2-1** shows the locations of active MRP sites.

3.2.1 UXO 6 – Mortar Impact Area

UXO 6 (**Figure 3-7**) is located in the southeastern portion of Dam Neck Annex, south of the Regulus Avenue and South Bullpup Street intersection. UXO 6 was identified on an archival map dated 1950. Maps from 1942, 1945, 1948, and 1955 did not show any evidence of this range. Based on orientation of the range fan as depicted on the historical map, it is assumed that mortars were fired from west to east (towards the Atlantic Ocean). Regulus Avenue crosses through the eastern portion of the fan. The portion of the site west of Regulus Avenue is an undeveloped wetland area. The historical range fan also partially overlaps another MRP site (UXO 7) and IRP site (Site 1). Site 1 began operation over a portion of this site in 1953.

There are no known MEC areas associated with this site. Therefore, MEC is considered suspect rather than known at UXO 6 (Malcolm Pirnie, 2008).

In support of the SI, a digital geophysical mapping (DGM) survey was performed in undeveloped but accessible areas (portions of the site were heavily vegetated) in the eastern portion of both UXOs 6 and 7; approximately 2.2 acres were surveyed. In total, 125 anomalies were identified in these areas (CH2M, 2011). Of these anomalies, 58 were found within the boundaries of UXO 6, and 47 were found in the overlap of area between UXOs 6 and 7. The SI recommended further investigation of the portion of UXO 7 and UXO 6 east of Regulus Avenue. A subsurface investigation to inspect and identify a selected subset of the anomalies located during the SI was completed in June 2012 and identified several 81- mm mortar fragments. No MEC items were discovered at UXO 6 during the subsurface investigation. However, an Expanded SI MEC-QAPP was submitted to VDEQ in June 2018 and a geophysical investigation was conducted in September/October 2018 to identify subsurface metallic anomalies that have the potential to be MEC in other areas of the site. The distribution of the anomalies identified during the DGM of this area did not appear to be in a pattern that indicates an impact area. An intrusive investigation and management of approximately 800 anomalies identified from the geophysical investigation at the Mortar Impact Area was conducted in late FY 2019. The SI Addendum Report is expected to be finalized in FY 2020.

A Time-Critical Removal Action (TCRA) to install informational kiosks and explosive hazard warning signs to inform the public using the Dam Neck Annex beach about potential explosive hazards related to the MIA was completed in June 2018.

3.2.2 UXO 7 – Moving Target/Mortar Range – South

UXO 7 (**Figure 3-7**) is located in the southeastern portion of Dam Neck Annex, east of the Regulus Avenue and South Bullpup Street intersection. The range was used in the 1940s and 1950s. Approximately 10 percent of the of the site is developed and covered by parking lots and buildings. The remainder of the site is undeveloped and

consists of heavily wooded areas to the west, and coastal features such as sand dunes spanning the length of the eastern portion of the site. The historical range boundary overlaps a small portion of both another MRP-eligible site, UXO 6 and Site 1. The acreage shared by the overlapping MRP sites is assigned to UXO 7. As such, the resulting MRP-eligible portion of UXO 7 is approximately 17 acres. Based on the range boundaries and period of use, probable munitions used at UXO 7 were determined to include .30- and .50-caliber small-arms projectiles and 60- and 81-mm mortars.

In support of the SI, a DGM survey was performed in undeveloped but accessible areas (portions of the site were heavily vegetated) in the eastern portion of both UXOs 6 and 7; approximately 2.2 acres were surveyed in all. A total of 125 anomalies that potentially portrayed MEC were discovered at the site. However, non-munitions-related metallic items can create similar responses in the geophysical data (CH2M, 2011). Of these anomalies, 20 were found within the boundaries of UXO 7, and 47 were found in the overlap of area between UXOs 6 and 7. A subsurface investigation to inspect and identify a selected subset of the anomalies located during the SI was completed in June 2012 and identified several 81-mm mortar fragments (CH2M, 2012b). Consequently, remedial investigation (RI) activities were required at UXO 7 and the site moved to the RI phase in December 2012.

An RI of MEC was conducted in December 2013. Ninety pounds of non-munitions-related metal scrap and about 10 pounds of small arms classified as material documented as safe were removed from the site. No MEC or material potentially presenting an explosive hazard (MPPEH) were found during surface removal activities.

A subsurface investigation of DGM-identified anomalies was completed in March 2014. Based on the December 2013 DGM survey data (CH2M, 2013) and the results of the statistical analysis, 735 anomalies were intrusively investigated at the site. The following munitions related items were found:

- Six mortar tail fin segments
- One expended 25-pound practice bomb (demilitarized)
- Spent .50-caliber cartridges
- Three 60-mm mortar tail fin segments
- One 81-mm mortar tail fin segment
- Partially fused, intact 60-mm mortar (demolition successfully completed in February 2014)
- Three pounds of munitions debris
- One munitions debris fragment

In addition, narrow trenches were hand-dug through 11 high anomaly density areas identified from the DGM survey in the firing line and grassy dune areas. No MEC, MPPEH, or material documented as safe were found during the investigation of these areas.

Based on the result of the Expanded SI and RI, UXO 7 contains MEC and munitions constituents (MC) as a result of the historical range operations at the site. Although MC is present at the site, conservative risk screenings conducted during the Expanded SI indicate that it does not pose unacceptable risk to human health or the environment for small arms ammunition MC (CH2M, 2012b).

The completion of the RI and feasibility study, as well as an Expanded RI to include a DGM survey and subsurface investigation, were postponed due to a military construction (MILCON) project that started in 2015 and was completed in April 2020. That project, the P-815 Consolidate Aerial Target Operations, consisted of replacing the existing facilities with new and upgraded buildings, drop pad, helicopter pad, and ready service lockers. A TCRA for MEC was conducted in conjunction with the MILCON P-815 Project to address practice and high explosive mortars remaining onsite. MEC subsurface operations were performed within the limits of the MILCON P-815 Project Boundary. Additional RI activities to further delineate the nature and extent of MPPEH/MEC was completed in September 2018. Intrusive fieldwork to manage 136 Type 1 anomalies potentially representing subsurface MEC/MPPEH identified during the DGM was completed in August 2019. The RI Report outlining the findings is anticipated to be submitted for regulatory review in FY 2020. A Proposed Remedial Action Plan (PRAP) documenting the planned course of action is anticipated to be submitted in FY 2022.

A TCRA to install informational kiosks and explosive hazard warning signs to inform the public using the Dam Neck Annex beach about potential explosive hazards related to UXO 7 was completed in June 2018.

3.2.3 UXO 8—Skeet and Trap Range

UXO 8 (**Figure 3-8**), located on the southwestern portion of Dam Neck Annex on the eastern shore of Lake Tecumseh, was composed of four skeet ranges and four trap ranges, with approximately half of the former range area extending into Lake Tecumseh. Based on historical documents, this range was in use between 1942 and 1978. The site area covers approximately 39 acres and was identified as the Surface Danger Zone, with a direction of fire toward the northwest, along South Bullpup Street and over Lake Tecumseh (Malcolm Pirnie, 2008). The southeastern portion of the site along South Bullpup Street has been developed into Building 470 and an associated parking lot. The remaining portion is composed of undeveloped forest and open water and features the foundation of an abandoned building believed to have been used as a target-launching shed for the skeet range.

Ammunition used at UXO 8 was expected to be 12-gauge or smaller shotgun ammunition. Thus, potential sources of contamination present at the former range are debris related to small-arms firing range ammunition. The primary contaminant associated with shotgun ammunition is lead. Polycyclic aromatic hydrocarbons (PAHs) were also identified as potential contaminants because of their association with clay targets (Malcolm Pirnie, 2008).

An SI was completed in 2011 and initially included only soil sampling. Based on the human health risk screening evaluation, potential unacceptable risks were identified for surface soil associated with PAHs and lead. Additionally, lead in soil was identified as a constituent of potential concern (COPC) because of the potential for this contaminant to pose unacceptable ecological risks.

The SI concluded that potentially unacceptable human health and ecological risks may extend into Lake Tecumseh given the magnitude of the lead and PAH concentrations found in site surface soil and the expected shot and clay target distribution over the entire site. Based on the COPC concentrations detected in soil and the target distribution for the site from the SI, a sediment investigation was completed to supplement the SI. A Revised SI report incorporating the sediment data was finalized in January 2012 and concluded that lead was a COPC in sediment for direct exposure to lower trophic receptors; however, the potential risks would likely be spatially restricted based on the distribution of lead and pellets in the sediment (CH2M, 2012a).

The SI Report recommended an RI to achieve the following objectives:

- Delineate the lateral and vertical extent of soil contamination
- Further investigate and evaluate the limited potential risks from lead in the sediment
- Establish site-specific background levels for the COPCs
- Quantitatively assess risks

The RI phase was conducted from 2012 to 2019. A lead pellet and clay target fragment survey was conducted in the onsite soil and sediment in June 2013. Samples were collected and sieved by hand in the field. Based on findings from the June survey, an additional round of sampling was completed in August 2014. Lead and PAHs were determined to be present in soil, sediment, and groundwater at concentrations posing potential unacceptable risks to either or both human and ecological receptors. An additional round of groundwater investigation sampling was recommended based on the findings from the August 2014 investigation and was conducted in FY 2018. An RI report was completed in September 2019 (CH2M, 2019b). Feasibility studies for sediment and terrestrial portions of the site are planned to be submitted for regulatory review in FY 2021. Two PRAPs documenting the planned course of action for sediment and the terrestrial portion of the site, are anticipated to be submitted in early FY 2021.

3.2.4 UXO 13—Moving Target/Mortar Range—North

UXO 13 (**Figure 3-9**) is located in the southeastern portion of Dam Neck Annex, east of the Regulus Avenue and Loon Court intersection. The range was used in the 1940s and 1950s. Approximately 60 percent of the northern portion of the site is developed and covered by parking lots and buildings, while the remainder of the site is

undeveloped and heavily vegetated. An historic graveyard is also located within the area believed to represent the footprint of the former gun platform and firing line. The suspected target/impact area of the former range lies within the active operational range area and is not eligible for investigation under the MRP. Based on the range boundaries and period of use, probable munitions used at UXO 13 were determined to include .30- and .50-caliber small-arms projectiles and 60- and 81-mm mortars.

In support of an ongoing SI, a limited hand-held magnetometer survey was performed in the accessible areas of the former range located outside of the current operational range area. No surface MEC or subsurface anomalies were detected during the survey. However, based on the presence of MEC at UXO 13, an Expanded SI MEC-QAPP was submitted to VDEQ in FY 2018 to determine the potential for MEC in the area (CH2M, 2018b). Expanded SI field activities began in late September 2018. Findings of the DGM investigation included identifying a total of 861 metallic anomalies potentially representing subsurface MEC/MPPEH. Intrusive work to identify the anomalies will be conducted in late FY 2019. The SI Addendum Report outlining the findings was completed in June 2020 (CH2M, 2020c) RI field activities are anticipated to be completed in FY 2021 and an RI report is anticipated to be completed in FY 2022.

In December 2017, a TCRA was completed within a 0.18-acre area, mostly located in the former UXO 13 firing line, to support an Energy Savings Performance Contract to install utilities. No munitions were identified during the TCRA.

A TCRA to install informational kiosks and explosive hazard warning signs to inform the public using the Dam Neck Annex beach about potential explosive hazards related to UXO 13 was completed in June 2018.

3.2.5 Lake Tecumseh

Lake Tecumseh is a 261-acre lake located along the southwestern boundary of Dam Neck Annex (**Figure 2-1**). A 1984 Dam Neck IAS indicated that munitions may have been disposed of in the lake. An SI is currently being developed to evaluate the potential for munitions to be released in the lake. An SI MEC-QAPP is anticipated to be completed in FY 2020. SI field activities and an SI Report are anticipated to be completed in FY 2021 and FY 2022, respectively.

3.2.6 Potential Land Buffer Parcel

The potential Land Buffer Parcel consists of 27.5 acres located in the northern portion of Dam Neck Annex (**Figure 2-1**). Since 1945, the parcel has been used by the Virginia National Guard for military activities. It was part of Naval Amphibious Base, Norfolk, until 1977 when it was transferred to the United States Army (Army). In 2005, citing the need for a land buffer between private development and military operations, the Navy commenced planning activities to support reacquiring the parcel. A Finding of Suitability to Transfer evaluation was completed determining that site conditions on the property posed no risk to current or future users (Army, 2005). The property was transferred back to the Navy in 2008. A PA was conducted to determine if MPPEH/MEC are potentially present due to historical activities. The PA included data collected from historical records reviews from local and national archives, review of site-specific in-house files, and interviews conducted with Department of Defense personnel capable of providing pertinent information regarding the past use of the potential land buffer parcel. The PA was completed in March 2020 and recommended an SI to confirm the presence or absence of potential MEC at the site (CH2M, 2020a). The MEC-QAPP is anticipated to be submitted for regulatory review in FY 2021.

3.2.7 Potential Offshore Rockets

The Potential Offshore Rockets site, consisting of approximately 210 acres, is located offshore within the Atlantic Ocean of the northern portion of Dam Neck Annex (**Figure 2-1**). A PA for this site was conducted in conjunction with the PA for the Potential Land Buffer Parcel completed in March 2020 (CH2M, 2020a). Additional information regarding the historical use of this site obtained from the interviews and archives search was included in the PA Report. The subsequent SI activities are currently on hold because the site is used for military training.

Table 3-1. Current Status Summary of Active Installation Restoration Program Sites

NAS Oceana Dam Neck Annex Site Management Plan for FY 2021

Site Number	IRP Site Name	IAS	RVS	PA	SI	DD	Closure Status	Path Forward
1	Regulus Avenue Landfill	1984	1986	NA	1991, 2021*	1999	NFA/reopened	SI Report anticipated in FY 2021.
3	Drone Repair Shop	1984	NA	NA	2021*	TBD	NFA [†] /reopened	SI Report anticipated in FY 2021.
4	Regulus Avenue Metal Scrapyard	1984	NA	NA	2021*	TBD	NFA [†] /reopened	SI Report anticipated in FY 2021.
5	Public Works Disposal Area	1984	1986	NA	2021*	TBD	NFA/reopened	SI Report anticipated in FY 2021.
--	Fire Station	1984	NA	NA	2020	TBD	Not previously identified as a site	PFAS will be addressed under the Basewide PFAS SI anticipated in FY 2021.
--	Basewide PFAS	NA	NA	2020*	TBD	TBD	Not previously identified as a site	Preliminary Assessment anticipated to be finalized in FY 2020. SI fieldwork anticipated in FY 2021.
--	Former Wastewater Treatment Plant	1984	NA	NA	2021*	TBD	Not previously identified as a site	SI Report anticipated in FY 2021.

Notes:

DD = Decision Document

IAS = Initial Assessment Study

NA = Not Applicable

NFA = No Further Action

PA = Preliminary Assessment

PFAS = per- and polyfluoroalkyl substances

RVS = Round 1 Verification Step

SAP = Sampling and Analysis Plan

SI = Site Inspection

TBD = To Be Determined

* = Activities Ongoing

[†] = Not recommended for Confirmation Study in IAS

Table 3-2. Current Status Summary of Active Munitions Response Program Sites

NAS Oceana Dam Neck Annex, Site Management Plan for FY 2021

Site Number	MRP Site Name	PA	SI	TCRA	Expanded SI	RI/FS	PRAP	DD/ROD	Path Forward
UXO 6	Mortar Impact Area	2008	2011	2018	2020*	TBD	TBD	TBD	SI Addendum Report anticipated to be submitted in 2020; future activities based on the results of the SI Addendum.
UXO 7	Moving Target/Mortar Range (South)	2008	2011	2018, 2020	NA	RI 2020* FS 2021*	TBD	TBD	Currently in RI/FS stage. PRAP and ROD anticipated 2022.
UXO 8	Skeet and Trap Range	2008	2011	NA	NA	RI 2019 FS 2021*	TBD	TBD	Currently in RI/FS stage. PRAP and ROD anticipated 2021 and 2022, respectively.
UXO 13	Moving Target/Mortar Range (North)	2008	2011	2017, 2018	2020	2022*	TBD	TBD	Currently in RI/FS stage.
Potential MRP Sites									
--	Land Buffer Parcel	2020	2021*	NA	TBD	TBD	TBD	TBD	Currently in SI phase.
--	Potential Offshore Rockets	2020	2021*	NA	TBD	TBD	TBD	TBD	Currently in SI phase.
--	Lake Tecumseh	NA	2021*	NA	TBD	TBD	TBD	TBD	Currently in SI phase.

Notes:

PA = Preliminary Assessment

SI = Site Inspection

TCRA = Time Critical Removal Action

RI = Remedial Investigation

FS = Feasibility Study

MRP = Munitions Response Program

PRAP = Proposed Remedial Action Plan

DD = Decision Document

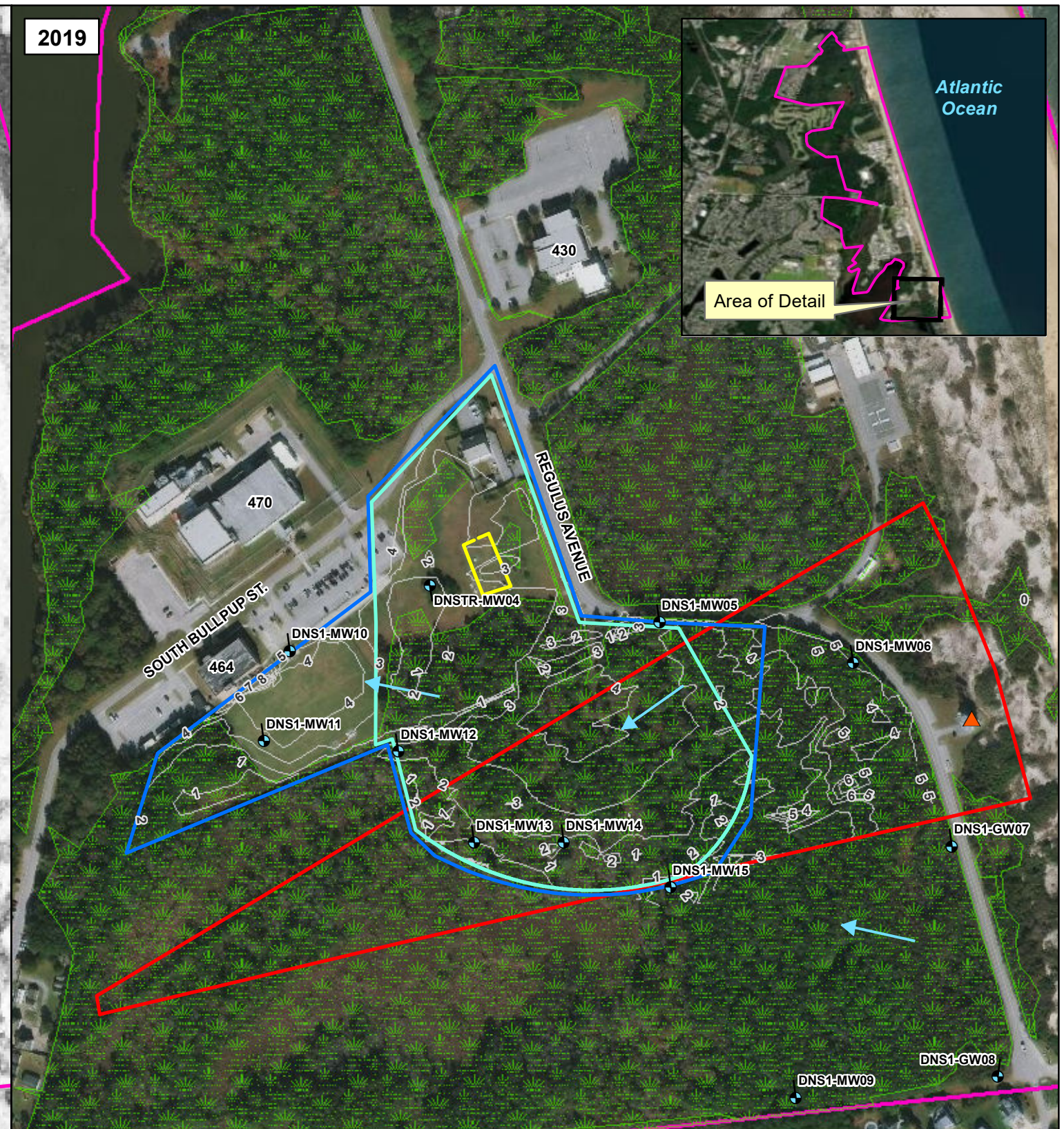
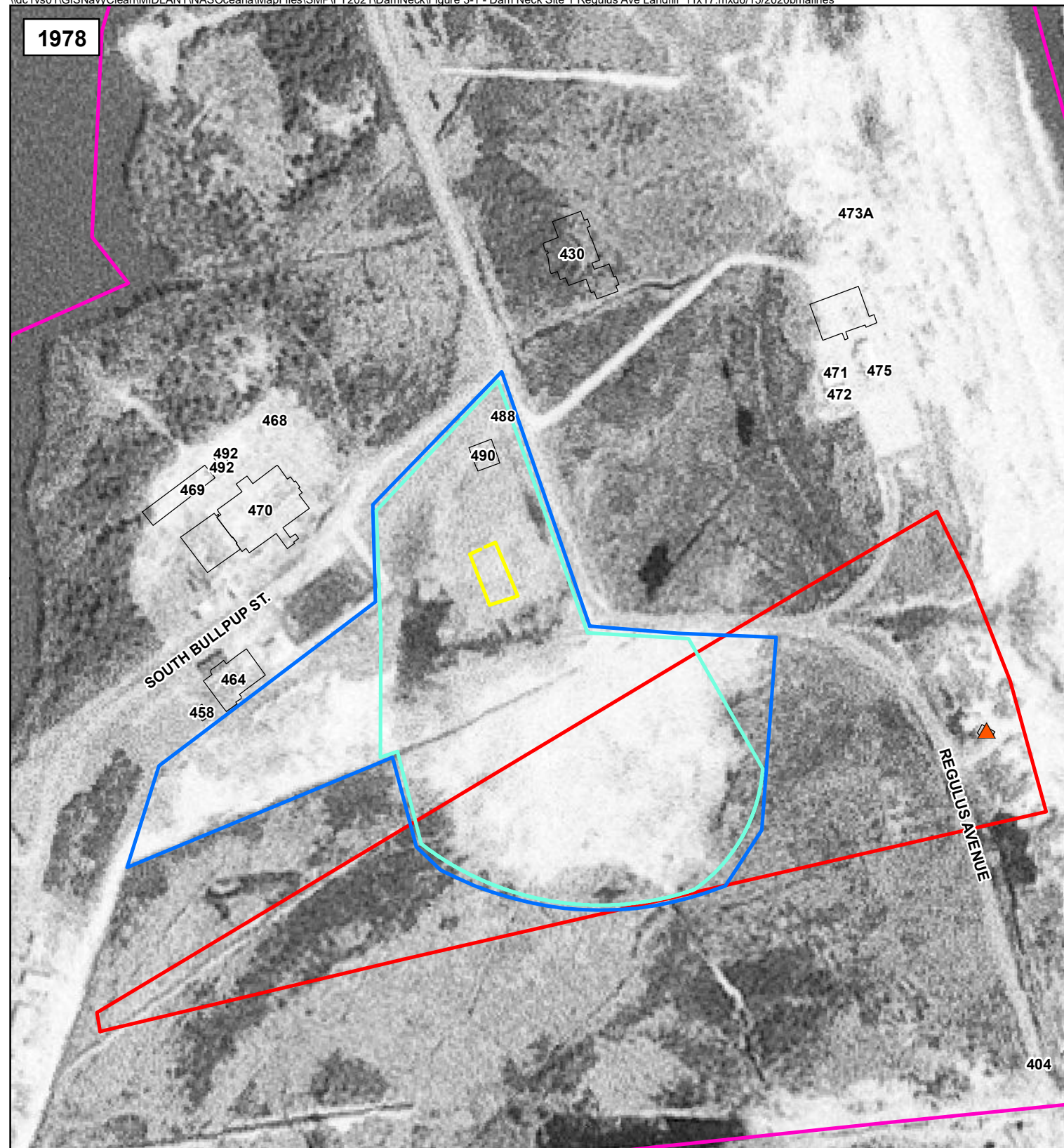
ROD = Record of Decision

FY = Fiscal Year

TBD = To Be Determined

NA = Not Applicable

* = Activities Ongoing



Legend

- Monitoring Well Location
- ▲ Air Observation Tower
- Elevation Contour (1ft Interval)
- Groundwater Flow Direction
- ▭ Dog Training Area
- Future Building
- Suspected Site Boundary Based on Historic Aerial Photos
- Estimated Extent of Waste from DGM Survey - October 2018
- Mortar Impact Area Site Boundary
- Wetland
- Dam Neck Annex Boundary

Elevation Contours: Professional Land Surveyor October 2019

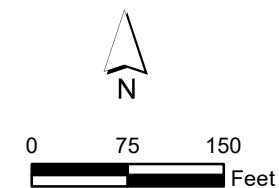
0 175 350
 Feet
 1 inch = 350 feet
 Imagery Source: Esri, 2019

Figure 3-1
 Site 1 - Regulus Avenue Landfill Site Layout
 Dam Neck Annex
 Virginia Beach, Virginia



- Legend**
- Elevation Contour (2 ft interval)
 - Site 3 IRP Boundary
 - Historic Range Boundary
 - Operational Range Area
 - Wetland
 - Dam Neck Annex Boundary

Elevation Contours: GeoReadiness Center



1 inch = 150 feet

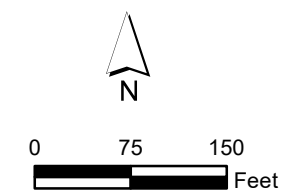
Imagery Source: Esri, 2019

Figure 3-2
Site 3 - Former Drone Repair Shop
Dam Neck Annex
Virginia Beach, Virginia



- Legend**
- Elevation Contour (2 ft interval)
 - Site 4 IRP Boundary
 - Historic Range Boundary
 - Operational Range Area
 - Wetland
 - Dam Neck Annex Boundary

Elevation Contours: GeoReadiness Center



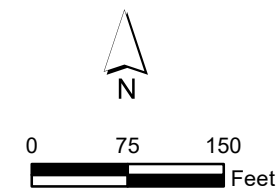
1 inch = 150 feet

Imagery Source: Esri, 2019

Figure 3-3
Site 4 - Regulus Avenue Metal Scrapyard
Dam Neck Annex
Virginia Beach, Virginia



- Legend**
- Elevation Contour (2 ft interval)
 - Wetland
 - Site 5 IRP Boundary
 - 1986 Round 1 Verification Step Boundary
 - Dam Neck Annex Boundary



1 inch = 150 feet

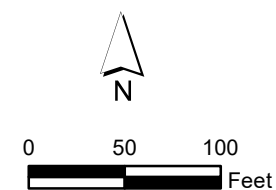
Imagery Source: Esri, 2019

Elevation Contours: GeoReadiness Center

Figure 3-4
Site 5 - Public Works Disposal Area
Dam Neck Annex
Virginia Beach, Virginia



- Legend**
- Monitoring Well Location
 - Groundwater Flow Direction - August 2018
 - Drainage Ditch
 - Storm Drain
 - Elevation Contour (2 ft interval)
 - Building Location
 - Wetland
 - Dam Neck Annex Boundary



1 inch = 100 feet

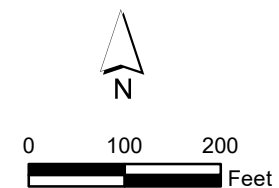
Imagery Source: Esri, 2019

Elevation Contours: GeoReadiness Center

Figure 3-5
Fire Station - Building 525 Site Layout
Dam Neck Annex
Virginia Beach, Virginia



- Legend**
- Anticipated Groundwater Flow Direction
 - Elevation Contour (2 ft interval)
 - Wetland
 - Dam Neck Annex Boundary



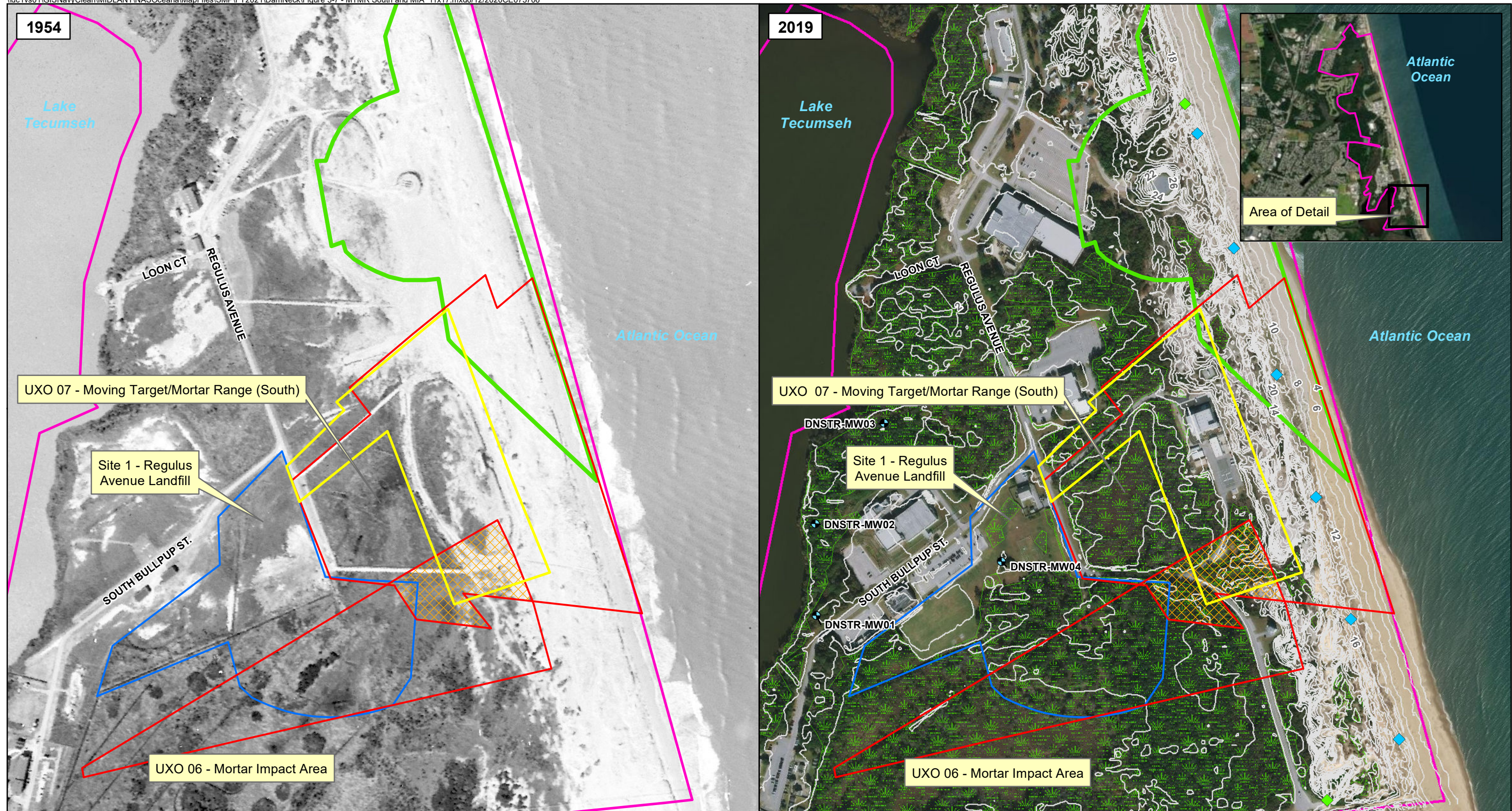
1 inch = 200 feet

Imagery Source: Esri, 2019

Figure 3-6
Main Wastewater Treatment Plant
Dam Neck Annex
Virginia Beach, Virginia

Elevation Contours: GeoReadiness Center

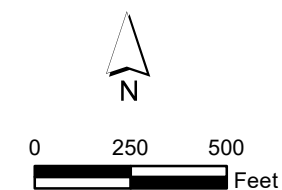
ch2m



- Legend**
- Monitoring Well Location
 - ◆ Hazard Warning Sign Installation TCRA
 - ◆ Informational Kiosk Installation TCRA
 - Elevation Contour (2 ft interval)
 - ▭ Active MRP Site Boundary
 - ▭ Suspected Site 1 Boundary Based on Historic Aerial Photos
 - ▨ Overlapping MRP Sites
 - ▨ Wetland

- ▭ MILCON P-815 TCRA Boundary
- ▭ Operational Range Area
- ▭ Dam Neck Annex Boundary

Elevation Contours: GeoReadiness Center



1 inch = 500 feet

Imagery Source: Esri, 2019

Figure 3-7
UXO 06 - Mortar Impact Area and UXO 07 - Moving Target/Mortar Range (South) Site Layout
Dam Neck Annex
Virginia Beach, Virginia



- Legend**
- Monitoring Well Location
 - Firing Point (Skeet)
 - Firing Point (Trap)
 - Elevation Contour (2 ft interval)
 - Future Building
 - Active MRP Site Boundary
 - Wetland
 - Dam Neck Annex Boundary

Elevation Contours: GeoReadiness Center

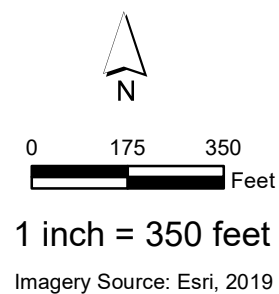
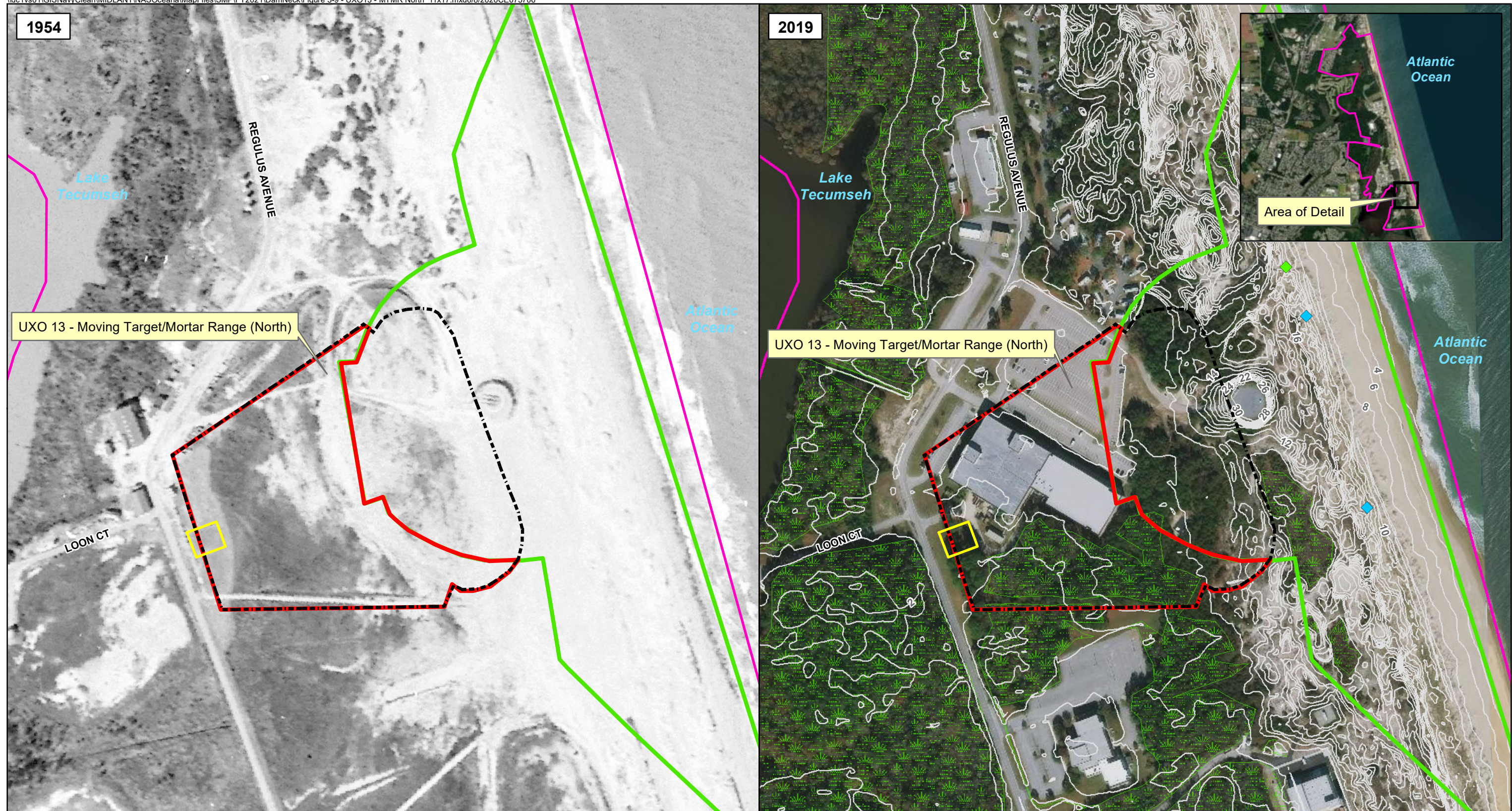
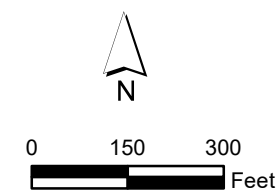


Figure 3-8
UXO 08 - Skeet and Trap Range Site Layout
Dam Neck Annex
Virginia Beach, Virginia



- Legend**
- ◆ Hazard Warning Sign Installation TCRA
 - ◆ Informational Kiosk Installation TCRA
 - Elevation Contour (2 ft interval)
 - ▬ Active MRP Site Boundary
 - ▬ Historic Range Boundary
 - ▬ Operational Range Area
 - ▬ Wetland
 - ▭ Historic Graveyard
 - ▬ Dam Neck Annex Boundary

Elevation Contours: GeoReadiness Center



1 inch = 300 feet

Imagery Source: Esri, 2019

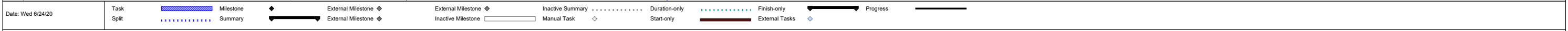
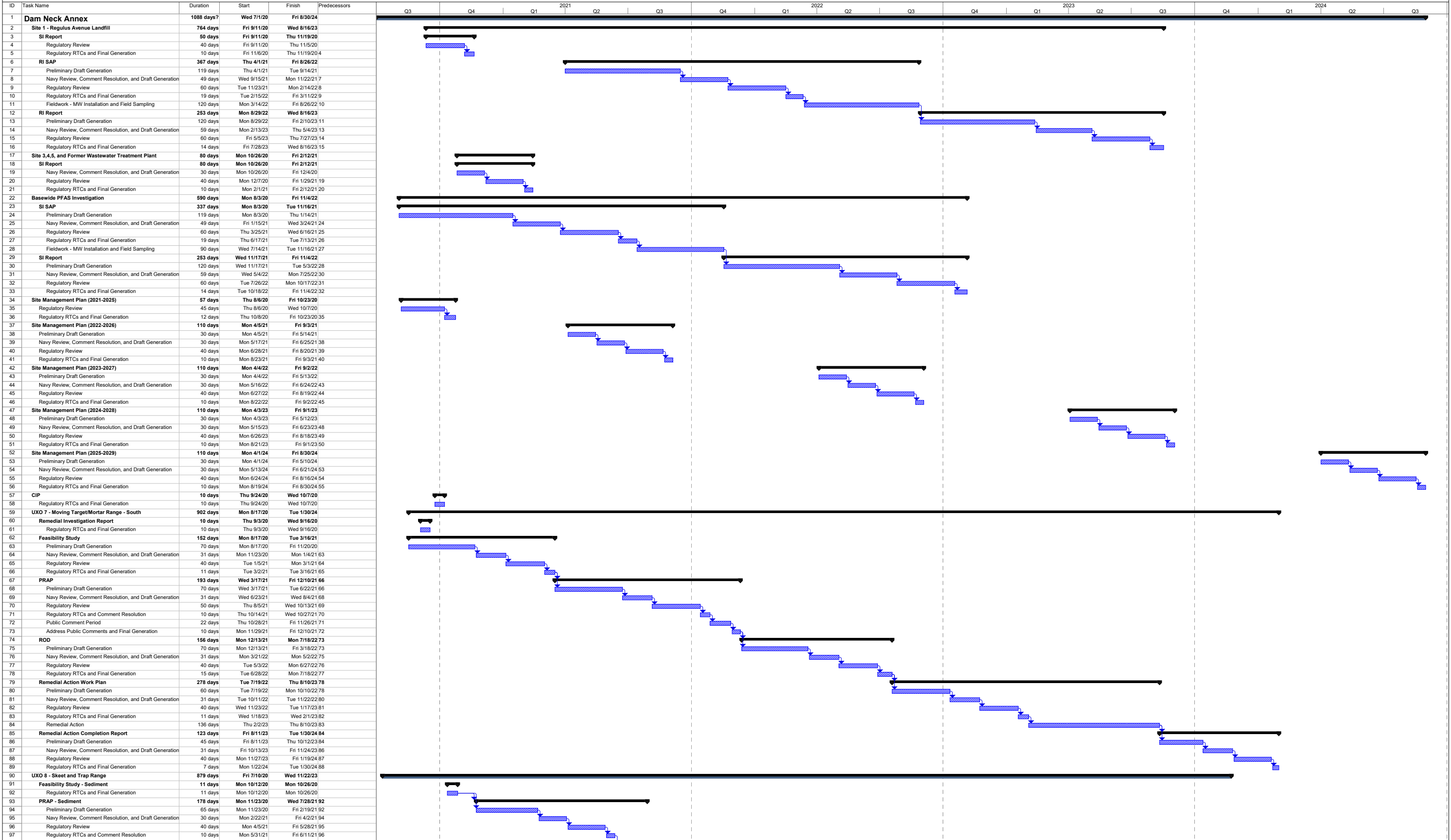
Figure 3-9
UXO 13 - Moving Target/Mortar Range (North) Site Layout
Dam Neck Annex
Virginia Beach, Virginia

SECTION 4

Management Schedules for Active Sites

The projected schedules for current active IRP and MRP sites are shown on **Figure 4-1**.

Figure 4-1
Schedule for IRP and MRP Active Sites
Site Management Plan for Fiscal Years 2020 through 2024
Dam Neck Annex



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- CH2M. 2018b. *Final Munitions and Explosives of Concern Quality Assurance Project Plan Moving Target/Mortar Range – North (UXO-13) Expanded Site Inspection, Dam Neck Annex, Virginia Beach, Virginia*. July.
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- CH2M. 2020a. *Final Preliminary Assessment for Potential Munitions Response Sites: Land Buffer Parcel and Potential Offshore Rockets Site, Naval Air Station Oceana, Virginia Beach, Virginia*. March.
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- CH2M. 2020c. *Final Site Inspection Report Addendum Moving Target Mortar Range – North, Munitions Response Program Site UXO 13, Dam Neck Annex, Naval Air Station Oceana, Virginia Beach, Virginia*. June.
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Appendix A

Storage Tank Closure Letters



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt
Director

Larry S. McBride
Regional Director

Water Regional Office
287 Pembroke Office Park
Pembroke 2, Suite 310
Virginia Beach, Virginia 23462
(804) 552-1840
FAX (804) 552-1849

August 17, 1994

Commanding Officer
Fleet Combat Training Center-Dam Neck
1912 Regulus Avenue, Building 585
Attn: Ann Stephenson, Code N622
Virginia Beach, Virginia 23461

re: Site Characterization Report and Corrective Action Plan in Response to a
Confirmed Petroleum Release from an Underground Storage Tank
Facility/Location: Building 190 (UST 190), Auto Hobby Shop, Dam Neck
Naval Base, Virginia Beach
PC Number: 92-0825

Dear Sir:

Thank you for providing the Department of Environmental Quality with the subject reports for the above referenced site. Based on these assessments and reported current site conditions, no further assessment or remedial action is necessary at this site. However, should additional evidence of environmental contamination be discovered in the future, further assessment and remediation may be required.

If you have questions regarding this matter, please contact me at (804) 552-1157.

Sincerely,

A handwritten signature in cursive script, reading "Amy T. Webster".

Amy T. Webster
Geologist Senior
Ground Water Section

cc: DEQ-Water Div.-TRO-OE

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Pow W. 3chmWt watw R"W" omrA
Direct" 297 Punbrom office P"
Pombmko 2, SuPA 210
Mrglnia Bowh. Vlrginis 23492
LaM S. McOrkle (111414) U2-11140
Regional okmaor FAX (604) 11112.1"S

August 17, 1994

Commanding Officer
Fleet Combat Training Center-Dam Neck
1912 Regulus Avenue, Building 585
Attne Ann Stephenson, Code N622
Virginia Beach, Virginia 23461

rei Site Characterization Report and Corrective Action Plan in Response to a
Confirmed Petroleum Release from an Underground Storage Tank
Facility/Locations Building 190 (UST 190), Auto Hobby Shop, Dan Neck
Naval Base, Virginia Beach
PC Numbers 92-0825

Dear Sir,

Thank you for providing the Department of Environmental Quality with the
subject reports for the above referenced site. Based on theoe assessments and

reported current site conditionis, no further asseament or remedial action in
necessary at this site. However, should additional evidence of enviromental
contamination be discovered in the future, furLher aBsesownt and resediation
may be required.

If you have queBtions regarding this matter, please contact me at (804)
552-1157.

Sincerely,

beter
Geologist Senior
Ground Water Section

DEQ-Water Div.-TRO-OE



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt
Director

Larry S. McBride
Regional Director

Water Regional Office
287 Pembroke Office Park
Pembroke 2, Suite 310
Virginia Beach, Virginia 23462
(804) 552-1840
FAX (804) 552-1848

August 17, 1994

Commanding Officer
Fleet Combat Training Center-Dam Neck
1912 Regulus Avenue, Building 585
Attn: Ann Stephenson, Code N622
Virginia Beach, Virginia 23461

re: Site Characterization Report, Dated August 1992, in Response to a
Confirmed Petroleum Release from Underground Storage Tanks
Facility/Location: Building 575, Dam Neck Naval Base, Virginia Beach
PC Number: 92-0926

Dear Sir:

Thank you for providing the Department of Environmental Quality with the subject report for the above referenced site. Based on these assessments and reported current site conditions, no further assessment or remedial action is necessary at this site. However, should additional evidence of environmental contamination be discovered in the future, further assessment and remediation may be required.

If you have questions regarding this matter, please contact me at (804) 552-1157.

Sincerely,

A handwritten signature in cursive script, reading "Amy T. Webster".

Amy T. Webster
Geologist Senior
Ground Water Section

cc: DEQ-Water Div.-TRO-OE

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Director 297 PeaLbmm Offte Pwk
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AUCiUst 17, 1994

Commanding Officer
Fleet Combat Training Center-Dan Neck
1912 Regulus Avenue, Building 585
Attni Ann Stephenson, Code N622
Virginia Beach, Virginia 23461

rei Site Characterization Report, Dated August 1992, in Response to a
Confirmed Petroleum Release from Underground Storage Tanks
Facility/Locations Building 575, Dan Neck Naval Base, Virginia Beach
PC Numbers 92-0926

Dear Sir%

Thank you for providing the Department of Environmental Quality with the
subject report for the above referenced site. Baned on these assexamnts and
reported current site conditions, no further assenownt or remedial action is
necessary at this site. However, should additional evidence of onvironmntal
contamination be discovered in the future, further anneament and remediation
may be required.

If you have questions regarding this matter, please contact me at (804)
552-1157.

Sincerely,

Amy T.
Geologist Senior
Ground Water Section

cci DEQ-Water Div.-TRO-OE



file

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt
Director

Larry S. McBride
Regional Director

August 21, 1994

Water Regional Office
287 Pembroke Office Park
Pembroke 2, Suite 310
Virginia Beach, Virginia 23462
(804) 582-1840
FAX (804) 582-1849

Commander
Department of the Navy
Fleet Combat Training Center, Atlantic
Base Command Engineer
Attn: Ann Stephenson
1912 Regulus Avenue
Virginia Beach, Virginia 23461-2098

Re: Three Well Site Check and Unsolicited Site Characterization Report in
Response to a Suspected Petroleum Release from an Underground
Storage Tank (UST)
Site Name/Location: UST 527D, Fleet Combat Training Center, Dam Neck, Virginia
Beach
DEQ Tracking Number: PC 93-1004

Dear Sir:

Thank you for providing the Department of Environmental Quality (DEQ) with the information concerning the subsurface investigation at Building 527. Based on this information and reported site conditions, no further assessment or remedial action is necessary at this site. However, should additional evidence of environmental contamination be discovered in the future, further assessment and remediation may be required.

You indicated that the waste oil UST is scheduled to be removed in September 1994. Please note that you will need to follow closure requirements in accordance with our UST regulations and guidelines (enclosed). After you have removed your tank, please send an updated UST notification form and closure documentation to our headquarters (notification form is enclosed).

If you have any questions regarding this matter, please contact me at 804/552-1156.

Sincerely,

LeAnn Moran
Geologist, Ground Water Section

cc: DEQ-Water Div.-TRO-OE
File ref PC 93-1004

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Paw W. 3ehn" Vfttm "W" ORIN
Ovemc 2u Pwnbmm Offke fta
Pembroke 2, 3uft 310
August 21, 1994 Vfrginis Bewh. Vlronla 23462
La" S. McBride (04) 562-1140
itegional 0lrwcWr FAX (04) SU-180

Commander
Department of the Navy
Fleet Combat Training Center, Atlantic
Base Command Engineer
Attn: Ann Stephenson
1912 Regulus Avenue
Virginia Beach, Virginia 23461-2098

Re: Three Well Site Check and Unsolicited Site Characterization Report in
Response to a Suspected Petroleum Release from an Underground
Storage Tank (UST)
Site Name/Location: UST 527D, Fleet Combat Training Center, Dam Neck, Virginia

Beach
DEQ Tracking Number: PC 93-1004

Dear Sir:

Thank you for providing the Department of Environmental Quality (DEQ) with the
information concerning the subsurface investigation at Building 527. Based on
this information and reported site conditions, no further assessment or remedial ac
tion is necessary at this site. However, should additional evidence of environmental
contamination be discovered in the future, further assessment and remediation
may be required.

You indicated that the waste oil UST is scheduled to be removed in September 1
994.
Please note that you will need to follow closure requirements in accordance wi
th our UST regulations and guidelines (enclosed). After you have removed your tank, pleas
e send an updated UST notification form and closure documentation to our headquarters
(notification form is enclosed).

If you have any questions regarding this matter, please contact nie at 804/552
-1156.

Sincerely,

I
eAnn Moran
Geologist, Ground Water Section

cc: DEQ-Water Div.-TRO-OE
File ref PC 93-100.4



file

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt
Director

Larry S. McBride
Regional Director

Water Regional Office
287 Pembroke Office Park
Pembroke 2, Suite 310
Virginia Beach, Virginia 23462
(804) 552-1840
FAX (804) 552-1849

June 9, 1994

Commanding Officer
FCTCLANT
Attn: Ann Stephenson, Code N622
1912 Regulus Avenue
Virginia Beach, Virginia 23461-5200

re: Initial Abatement Measures/Site Check Report and Closure Assessment in
Response to a Suspected Petroleum Release from an Underground
Storage Tank (UST)
Site Name/Location: Near Bldg. 313, Dam Neck Naval Base, Virginia Beach
DEQ Tracking Number: PC 94-0629

Dear Sir:

Thank you for providing the Department of Environmental Quality (DEQ) with the information concerning the subsurface investigation at the above referenced site. Based on this information and reported current site conditions, no further assessment or remedial action is necessary at this site. However, should additional evidence of environmental contamination be discovered in the future, further assessment and remediation may be required.

If you have any questions regarding this matter, please contact me at (804) 552-1156.

Sincerely,

A handwritten signature in cursive script that reads "LeAnn Moran".

LeAnn Moran
Geologist
Ground Water Section

cc: DEQ-Water Div.-TRO-OE
File ref PC 94-0629



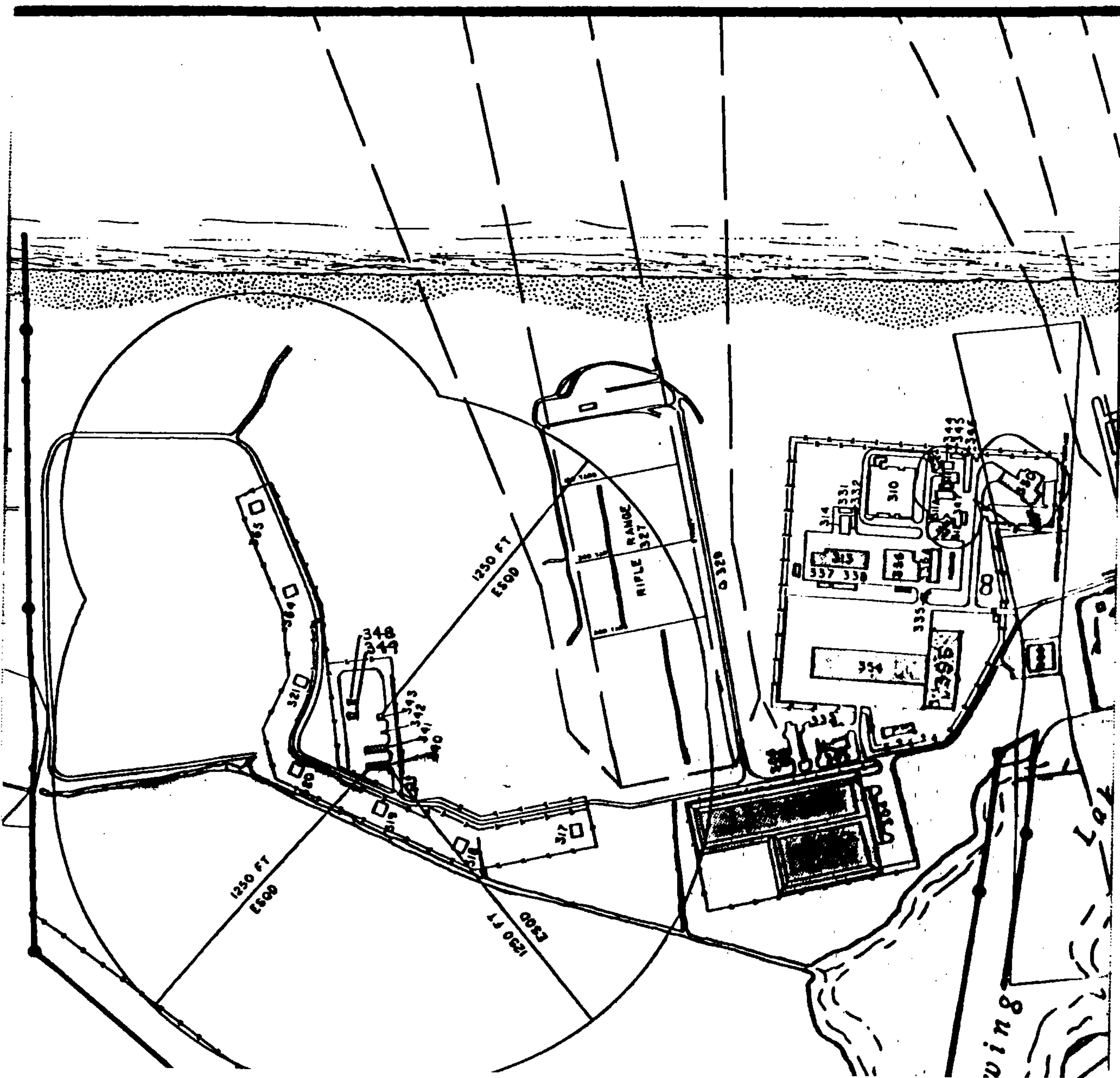
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US NAVAL RESERVATION
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TRAINING CENTER

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The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
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Mr. Sewell 227 ftmbn" Offt Pwk
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R991W.0 Okedw FAX (SU) "2-1"9

June 9, 1994

Commanding Officer
FCTCIAVT
Attn. Ann Stephenson, Code N622
1912 Regulus Avenue
Virginia Beach, Virginia 23461-5200
re: Initial Abatement Measures/Site Check Report and Closure Assessment in
Response to a Suspected Petroleum Release from an Underground
Storage Tank (UST)

Site Name/Location. Near Bldg. 313, Dam Neck Naval Base, Virginia Beach
DEQ Tracking Humber- PC 94--0629

Dear Sir:

Thank you for providing the Department of Environmental Quality (DEQ)
with the information concerning the subsurface investigation at, the above
referenced site. Based on this information and reported current site
conditions, no further assessment or remedial action is necessary at this
site. However, should additional evidence of environmental contamination be
discovered in the future, further assessment and remediation may be required.
If you have any questions regarding this matter, please contact me at
(804) 552-1156.

Sincerely,

Moran
Geologist
Ground Water Section
CC: DEQ-Water Div.-TRO-OE
File ref PC 94-"29

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Xref PC94-8629

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt
Director

Larry S. McBride
Regional Director

Water Regional Office
287 Pembroke Office Park
Pembroke 2, Suite 310
Virginia Beach, Virginia 23462
(804) 552-1840
FAX (804) 552-1849

June 9, 1994

Commanding Officer
PCTCLANT
Attn: Ann Stephenson, Code N622
1912 Regulus Avenue
Virginia Beach, Virginia 23461-5200

RE: Underground Storage Tank (UST) Notification of Permanent Closure
Facility/Location: Near Bldg. 310, Dam Neck Naval Base, Virginia Beach
Tank #s: 310-1/027 (5,000-gallon heating oil)

Dear Sir:

Thank you for submitting to the Department of Environmental Quality (DEQ) your amended UST notification form and supporting information documenting the permanent closure of your tank.

The laboratory results for total petroleum hydrocarbons (TPH) attached to the notification form indicate that there is little or no contamination at the site. Therefore, no further action is required at this time. However, if environmental problems develop in this area in the future, additional testing and corrective actions may be required in accordance with applicable state and federal regulations for underground storage tanks.

If you have any questions regarding this matter, please contact me at (804) 552-1156.

Sincerely,

LeAnn Moran
Geologist
Ground Water Section

cc: file ref DEQ CLS-0995 (Fac ID 5-019390)

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Pdw W. 3chmMi Vfttor Rogional Offlce
Director 287 PombroM Ofte Pwk
Pembroke 2, Suke 310
Vkgintik 8mh. Vkljinla 23462
Lwry & wArme (\$04) 652-180
Rag"M Of actm FAX (04) U2-16"

June 9, 1994

ComBanding Officer
PCTCIANT
Attnt Ann Stephenson, Code M622
1912 Regulus Avenue
Virginia Beach, Virginia 23461-5200

RE: Underground Storage Tank (UST) Notification of Permanent Closure
Facility/Locations Near Bldg. 310, Dam Meck Naval Base, Virginia Beach
Tank #ss 310-1/027 (5,000-gallon heating oil)

Dear Sir:

Thank you for mlbmitting to the Department of Environmental Quality
(DEQ) your amended UST notification form and supporting information
documenting the perommat clomLm of your tank.

The laboratory results for total petroleum hydrocarbons (TPH) attached
to the notification form indicate that there is little or no contamination at
the site. Therefore, no further action is required at this time. However, if

environmental problems develop in this area in the future, additional testing
and corrective actions may be required in accordance with applicable state and

federal regulations for underground storage tanks.

If you have any questions regarding this matter, please contact me at
(804) 552-1156.

S' 1

Geologist
Ground Water Section

CC. f ile ref DEQ CLS-0995 (Fac M 5-019390)



File

COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt
Director

Francis L. Daniel
Regional Director

Tidewater Regional Office
287 Pembroke Office Park
Pembroke Two - Suite 310
Virginia Beach, VA 23462
(804) 552-1840
FAX (804) 552-1849

September 15, 1994

Commanding Officer
Fleet Combat Training Center-Dam Neck
Attn: Ann Stephenson, Code N622
1912 Regulus Avenue, Bldg. 585
Virginia Beach, Virginia 23461-2098

re: Tank Tightness Testing Results in Response to a Suspected Petroleum
Release from an Underground Storage Tank (UST) System
Site Name/Location: USTs 469.1 and 469.2, Dam Neck Naval Base, Virginia
Beach
DEQ Tracking Number: PC 94-2888

Dear Sir:

Thank you for providing the Department of Environmental Quality (DEQ) with the additional information concerning the release investigation at the above referenced site. Based on this information and reported current site conditions, no further assessment or remedial action is necessary at this site. However, should additional evidence of environmental contamination be discovered in the future, further assessment and remediation may be required.

If you have any questions regarding this matter, please contact me at (804) 552-1156.

Sincerely,

LeAnn Moran
Geologist

cc: File ref PC 94-2888

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt Tidewater Regional Office
Director 287 Pembroke Office Park
Pembroke Two - Suite 310
Virginia Beach, VA 23462
Francis L. Daniel (804) 552-1840
Regional Director FAX (804) 552-1849

September 15, 1994

Commanding Officer
Fleet Combat Training Center-Dam Neck
Attn: Aileen Stephenson, Code N622
1912 Rectulus Avenue, Bldg. 585
Virginia Beach, Virginia 23461-2098

Re: Tank Tightness Testing Results in Response to a Suspected Petroleum
Release from cLn Underground Storage Tank (UST) System
Site Name/Location: USTs 469.1 and 469.2, Dam Neck Naval Base, Virginia
Beach
DEQ Tracking Number: PC 94-2888

Dear Sir:

Thank you for providing the Department of Environmental Quality (DEQ)
with the additional information concerning the release investigation at the
above referenced site. Based on this information and reported current site
conditions, no further assessment or remedial action is necessary at this
site. However, should additional evidence of environmental contamination be
discovered in the future, further assessment and remediation may be required
.

If you have any questions regarding this matter, please contact me at
(804) 552-1156.

Sincerely,

,j Lan Moran
Geologist

File- ref PC 94-2888



COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

George Allen
Governor

Becky Norton Dunlop
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, Virginia 23462
Fax (757) 518-2103
<http://www.deq.state.va.us>

January 30, 1997

Thomas L. Hopkins
Director

Francis L. Daniel
Tidewater Regional Director
(757) 518-2000

Commander
Dept. of the Navy
FCTCLANT-Damneck
Attn: Ann Stephenson
1912 Regulus Ave.
Virginia Beach, VA 23461

re: **Case Closure**
Tank Closure Report/Soil Sampling Diagram
Site Name/Location: FCTCLANT-Damneck, Bldg. 469 NOPF, 23461
Facility/Tank Identification: 5-019390/8,000 Gal. Diesel UST
DEQ Tracking Number: PC#97-2320

Dear Sir:

Thank you for providing the subject report for the above referenced site to the Department of Environmental Quality (DEQ). Based on the information you have provided regarding current site conditions, the Department believes that contamination levels do not warrant further corrective action. Should future environmental problems occur, which the DEQ determines are related to this release, additional investigation and corrective action may be required in accordance with State Law.

If you have questions regarding this matter, please contact me at (757) 518-2121.

Sincerely,

A handwritten signature in cursive script, reading "Amy T. Webster".

Amy T. Webster
Geologist Senior
Remediation Program

cc: file ref. PC 97-2320

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The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

George Allen 5636 Southern Boulevard Thomas L. Hopkins

Governor Virginia Beach, Virginia 23462 Director

Becky Norton Dunlop Fax (757) 518-2103 Francis L. Daniel

Head of Department, Virginia Beach, Virginia

Secretary of Natural Resources January 1997 Tidewater Regional Director
(757) 518-2000

Commander

Dept. of the Navy

FORT CLAYTON-DAMNECK

Aftn: Ann Stephenson

1912 Regulus Ave.

Virginia Beach, VA 23461

re: Case Closure

Tank Closure Report/Soil Sampling Diagram

Site Name/Location: FORT CLAYTON-DAMNECK, Bldg. 469 NODF, 23461

Facility/Tank Identification: 5-019390/8,000 Gal. Diesel UST

DEQ Tracking Number: PC#97-2320

Dear Sir:

Thank you for providing the subject report for the above referenced site to the

Department of Environmental Quality (DEQ). Based on the information you have provided regarding current site conditions, the Department believes that contamination

levels do not warrant further corrective action. Should future environmental problems

occur, which the DEQ determines are related to this release, additional investigation

and corrective action may be required in accordance with State Law.

If you have questions regarding this matter, please contact me at (757) 518-2121.

Sincerely,

Z

Amy T Webster

Geologist Senior

Remediation Program

cc: file ref. PC 97-2320

An Agency of the Natural Resources Secretariat



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, III
Governor

John Paul Woodley, Jr.
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, VA 23462
Fax (757) 518-2103
<http://www.deq.state.va.us>

February 2, 1998

Thomas L. Hopkins
Director

Francis L. Daniel
Tidewater Regional Director
(757) 518-2000

Commander
Department of the Navy
FCTCA, Dam Neck
1912 Regulus Avenue
Virginia Beach, VA 23461-2098

re: **Case Closure**
Initial Abatement Measures Report
Site Name/Location: Dam Neck FCTCA, Auto Hobby Shop, Bldg. 462
DEQ Tracking Number: PC#98-2270

Dear Sir:

Thank you for providing the subject report for the above referenced site to the Department of Environmental Quality (DEQ). Based on the information you have provided regarding current site conditions, the Department believes that contamination levels do not warrant further corrective action. Should future environmental problems occur, which the DEQ determines are related to this release, additional investigation and corrective action may be required in accordance with State Law.

If you have questions regarding this matter, please contact me at (757) 518-2121.

Sincerely,

A handwritten signature in cursive script, reading "Amy T. Webster".

Amy T. Webster
Geologist Senior
Remediation Program

cc: file ref. PC 98-2270

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, UI 5636 Southern Boulevard Thomas L. Hopkins
Governor Virginia Beach, VA 23462 Director
Fax (757) 518-2103

John Paul Woodicy, Jr. <http://www.deq.state.va.us> Francis L. Daniel
Secretary of Natural Resources February 2, 1998 Tidewater Regional Director
(757)518-2000

Commander
Department of the Navy
FCTCA, Dam Neck
1912 Regulus Avenue
Virginia Beach, VA 23461-2098

re: Case Closure
Initial Abatement Measures Report
Site Name/Location: Dam Neck FCTCA, Auto Hobby Shop, Bldg. 462
DEQ Tracking Number: PC#98-2270

Dear Sir:

Thank you for providing the subject report for the above referenced site to the
Department of Environmental Quality (DEQ). Based on the information you have
provided regarding current site conditions, the Department believes that contamination
levels do not warrant further corrective action. Should future environmental
problems occur, which the DEQ determines are related to this release, additional investigation
and corrective action may be required in accordance with State Law.

If you have questions regarding this matter, please contact me at (757) 518-2121.

Sincerely,

Webster
Geologist Senior
Remediation Program

cc: file ref. PC 98-2270

An Agency of the Natural Resources Secretariat



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE

5636 Southern Boulevard, Virginia Beach, Virginia 23462

(757) 518-2000 Fax (757) 518-2009

www.deq.virginia.gov

April 8, 2011

Doug Domenech
Secretary of Natural Resources

David K. Paylor
Director

Commander
Navy Region Mid-Atlantic
Air and Tank Compliance
1510 Gilbert Street
Norfolk, Virginia 23511-2737

Attn: Nicole Cowand

Re: **Aboveground Storage Tank (AST) Closure**
Site Name/Location: Naval Air Station Oceana, Dam Neck Annex
Tank Identification: DN-442-AST-01, 3,000 Gallon Heating Oil AST
DEQ Tracking Numbers: PC#2011-5102, Facility ID#5019390

Dear Ms. Cowand:

Thank you for providing an Aboveground Storage Tank Closure Report dated January 25, 2011, for the referenced site. Based upon the information you have provided, the State Water Control Board acting through the Department of Environmental Quality (DEQ), as authorized by Virginia Code § 62.1-44.34:14 through 23 has determined that contamination levels at this site do not warrant further corrective action. This pollution complaint case is now closed. Should future environmental problems occur, which the DEQ determines are related to this discharge, additional investigation and corrective action may be required in accordance with State Law.

If you have any questions, please contact me at (757) 518-2121 or by e-mail at amy.webster@deq.virginia.gov.

Sincerely,

Amy T. Webster
Geologist Senior
Remediation Program

cc: Tom Madigan, DEQ-TRO Tank Compliance
File PC#2011-5102



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, VA 23462
www.deq.state.va.us

Robert G. Burnley
Director

Francis L. Daniel
Tidewater Regional Director
(757) 518-2000

August 12, 2004

US Navy - Commander - Navy Region - Mid Atlantic
Regional Environmental Group Code N457
ATTN: Sean S. Heaney
Director, Technical Support
1510 Gilbert Street
Norfolk, VA 23511-2737

Re: Underground Storage Tank (UST) Closure Report for:
DN-127-UST-01, Dam Neck Annex,
1912 Regulus Avenue, Virginia Beach, VA

Dear Mr. Heaney:

Thank you for providing the UST closure report and notification form for the above referenced facility to the Department of Environmental Quality.

Based upon the information you have provided regarding current site conditions, the Department believes that the Total Petroleum Hydrocarbons (TPH) levels at this site do not warrant further assessment. Should future environmental problems occur, which the DEQ determines are related to the tanks removed from this site, additional investigation and corrective action may be required in accordance with State Law.

If you have any questions concerning this closure or need additional information, please contact me at (757) 518-2129 or e-mail me at refox@deq.virginia.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard E. Fox, Jr.", with a stylized flourish at the end.

Richard E. Fox, Jr.
Petroleum Facility Inspector

cc: File 5-019390

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
5636 Southern Boulevard
W. Tayloe Murphy, Jr. Virginia Beach, VA 23462 Robert G. Bumley
Secretary of Natural Resources www.deq.state.va.us Director
Francis L. Daniel
Tidewater Regional Director
(757) 518-2000
August 12, 2004

US Navy - Commander - Navy Region - Mid Atlantic
Regional Environmental Group Code N457
ATTN: Sean S. Heaney
Director, Technical Support
1510 Gilbert Street
Norfolk, VA 23511-2737

Re: Underground Storage Tank- (UST) Closure Report for:
DN- I 27-UST-01, Dam Neck Annex,
1912 Regulus Avenue, Virginia Beach, VA

Dear Mr. Heaney:

Thank you for providing the UST closure report and notification form for the above referenced facility to the Department of Environmental Quality.

Based upon the information you have provided regarding current site conditions, the Department believes that the Total Petroleum Hydrocarbons (TPH) levels at this site do not warrant further assessment. Should future environmental problems occur, which the DEQ determines are related to the tanks removed from this site, additional investigation and corrective action may be required in accordance with State Law.

If you have any questions concerning this closure or need additional information, please contact me at (757) 518-2129 or e-mail me at refox@deq.virginia.gov.

Sincerely,

Richard E. Fox, Jr.
Petroleum Facility Inspector

cc: File 5-019390



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, VA 23462
www.deq.state.va.us

Robert G. Burnley
Director

Francis L. Daniel
Tidewater Regional Director
(757) 518-2000

August 12, 2004

US Navy - Commander - Navy Region - Mid Atlantic
Regional Environmental Group Code N457
ATTN: Sean S. Heaney
Director, Technical Support
1510 Gilbert Street
Norfolk, VA 23511-2737

Re: Underground Storage Tank (UST) Closure Report for:
DN-527-UST-05 and DN-527-UST-06, Dam Neck Annex,
1912 Regulus Avenue, Virginia Beach, VA

Dear Mr. Heaney:

Thank you for providing the UST closure report and notification form for the above referenced facility to the Department of Environmental Quality.

Based upon the information you have provided regarding current site conditions, the Department believes that the Total Petroleum Hydrocarbons (TPH) levels at this site do not warrant further assessment. Should future environmental problems occur, which the DEQ determines are related to the tanks removed from this site, additional investigation and corrective action may be required in accordance with State Law.

If you have any questions concerning this closure or need additional information, please contact me at (757) 518-2129 or e-mail me at refox@deq.virginia.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard E. Fox, Jr.".

Richard E. Fox, Jr.
Petroleum Facility Inspector

cc: File 5-019390

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

%COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

5636 Southern Boulevard

W. Tayloe Murphy, Jr. Virginia Beach, VA 23462 Robert G. Bumley

Secretary of Natural Resources www.deq.state.va.us Director

Francis L. Daniel

Tidewater Regional Director

(757) 518-2000

August 12, 2004

US Navy - Commander - Navy Region - Mid Atlantic

Regional Environmental Group Code N457

ATTN: Sean S. Heaney

Director, Technical Support

1510 Gilbert Street

Norfolk, VA 23511-2737

Re: Underground Storage Tank (UST) Closure Report for:

DN-527-UST-05 and DN-527-UST-06, Dam Neck Annex,

1912 Regulus Avenue, Virginia Beach, VA

Dear Mr. Heaney:

Thank you for providing the UST closure report and notification form for the above referenced facility to the Department of Environmental Quality.

Based upon the information you have provided regarding current site conditions, the Department believes that the Total Petroleum Hydrocarbons (TPH) levels at this site do not warrant further assessment. Should future environmental problems occur, which the DEQ determines are related to the tanks removed from this site, additional investigation and corrective action may be required in accordance with State Law.

If you have any questions concerning this closure or need additional information, please contact me at (757) 518-2129 or e-mail me at refox@deq.virginia.gov.

Sincerely,

Richard E. Fox, Jr.
Petroleum Facility Inspector

cc: File 5-019390



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, VA 23462
www.deq.state.va.us

Robert G. Burnley
Director

Francis L. Daniel
Tidewater Regional Director
(757) 518-2000

January 3, 2005

US Navy - Commander - Navy Region - Mid Atlantic
Regional Environmental Group Code N457
ATTN: Sean S. Heaney
Director, Technical Support
1510 Gilbert Street
Norfolk, VA 23511-2737

Re: Underground Storage Tank (UST) Closure Report for:
DN-470-UST-01, Dam Neck Annex,
1912 Regulus Avenue, Virginia Beach, VA


Dear Mr. Heaney:

Thank you for providing the UST closure report and notification form for the above referenced facility to the Department of Environmental Quality.

Based upon the information you have provided regarding current site conditions, the Department believes that the Total Petroleum Hydrocarbons (TPH) levels at this site do not warrant further assessment. Should future environmental problems occur, which the DEQ determines are related to the tanks removed from this site, additional investigation and corrective action may be required in accordance with State Law.

If you have any questions concerning this closure or need additional information, please contact me at (757) 518-2129 or e-mail me at refox@deq.virginia.gov.

Sincerely,


Richard E. Fox, Jr.
Petroleum Facility Inspector

cc: File 5-019390

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The following pages contain the Optical Character Recognition text of the preceding scanned images.

(.-'0-.#MMONWEALTH of VIRGINIA
DEPARTA,HNT0FEA7-V1RONAENT4L QUALIY'Y
5636 Southern Boulevard
W. Tayloc Murphy, Jr. Virginia Beach, VA 23462 Robert C-L Bumley
Secretaty of Natural Resources www.deq.state.va.us Director
Francis L. Daniel
Tidewater Regional Director
(757) 518-2000
January 3, 2005

US Navy - Commander - Navy Region - Mid Atlantic
Regional Envirommental Group Code N457
ATTN: Sean S. Heaney
Director, Technical Support
15 1 0 Gilbert Street
Norfolk, VA 23511-2737

Re: Underground Storage Tank (UST) Closure Report for:
DN-470-UST-01, Datn Neck Annex,
1912 Regulus Avenue, Virginia Beach, VA

Dear Mr. Heaney:

Thank you for providing the UST closure report and notification fon-n for the
above referenced
facilityto the Department of Envirorimental Quality.

Based upon the infonmtion you have provided regarding cun-ent site conditions,
the Departrnent
believes that the Total Petroleum Hydrocarbons (TPH) levels at this site do no
t warrant further
assessment. Should ftiture envirommental probleenis occur, which the DEQ deter
mines are related to the
tanks removed from this site, additional investigation and corrective action n
iay be required in accordance
with State Law.

If you have any questions conceming this closure or need additional informnati
on, please contact
me at (757) 518-2129 or e-mail me at refox@deq.virginia.gov.

Sincerely,

@chard E. Fox, @Jr+
Petroleum Facility Inspector

cc: File 5-019390



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, III
Governor

John Paul Woodley, Jr.
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, VA 23462
Tel# (757) 518-2000
<http://www.deq.state.va.us>
August 18, 2000

Dennis H. Treacy
Director

Francis L. Daniel
Tidewater Regional Director

Ms. Ann Stephenson
Environmental Engineer
Department of the Army
FCTCLANT
1912 Regulus Ave.
Virginia Beach, VA 23461

Re: Underground Storage Tank (UST) Amended Notification Form for Permanent Tank Closure
Site Name/Location: BLDG 469 NOPF, BLDG 420 NMITE, BLDG 310
SPECWAR/Damneck Rd., Virginia Beach, VA 23461
Tank Identification: 469-1 8,000 gallons Diesel; 420-1 2,000 gallons Gasoline; 310-1 550 gallons Diesel
Tank Case Closure Number: **CLS#1719**

Dear Ms. Stephenson:

Thank you for providing your amended notification form and supporting information documenting the permanent closure of your tanks to the Department of Environmental Quality (DEQ).

Based upon the information you have provided regarding current site conditions, the Department believes that the Total Petroleum Hydrocarbons (TPH) levels at this site do not warrant further assessment. Should future environmental problems occur, which the DEQ determines are related to this site, additional investigation and corrective action may be required in accordance with State Law.

If you have any questions regarding this matter, please contact me at (757) 518-2135.

Sincerely,

A handwritten signature in cursive script, appearing to read "Melinda A. Youngblood".

Melinda A. Youngblood
Remediation Program

cc: CLS-1719 (Facility 5-019390)
An Agency of the Natural Resources Secretariat

OCR

The following pages contain the Optical Character Recognition text of the preceding scanned images.

L"K'JMMONWEALTH of VIRGINIA

Jarnes S. Gilmore, Ili DEPARTMENT OF ENHR ONMENTAL Q UAJ-JTY Dennis H. Treacy
Govemor 5636 Southem Boulevard Director
Virginia Beach, VA 23462
John Paul Woodley, Jr. Tel# (757) 518-2000 Francis L. Daniel
Secretary of Natural Resources htrp:Hwww.deq.state.va.us Tidewater Regional D
irector
August 18, 2000

Ms. Ann Stephenson
Environmental Engineer
Department of the Army
FCTCLANT
1912 Regulus Ave.
Virginia Beach, VA 23461

Re: Underground Storage Tank (UST) Amended Notification Form for Permanent
Tank Closure
Site Name/Location: BLOG 469 NOPF, BLDG 420 NMITE, BLDG 310
SPECWAR/Damneck Rd., Virginia Beach, VA 23461
Tank Identification: 469-1 8,000 gallons Diesel; 420-1 2,000 gallons Gasoline;
310-1 550 gallons Diesel
Tank Case Closure Number: CLS#17119

Dear Ms. Stephenson:

Thank you for providing your amended notification form and supporting informat
ion
documenting the permanent closure of your tanks to the Department of Environme
ntal
Quality (DEQ).

Based upon the information you have provided regarding current site conditions
, the
Department believes that the Total Petroleum Hydrocarbons (TPH) levels at this
site do
not warrant further assessment. Should future environmental problems occur, w
hich
the DEQ determines are related to this site, additional investigation and corr
ective
action may be required in accordance with State Law.

If you have any questions regarding this mafter, please contact me at (757) 51
8-2135.

Sincerely,

Melinda A. Youngblood
Remediation Program

cc: CLS-1719 (Facility 5-019390)
An Agencv of the Natural Resources Secretariat

Appendix B

Partnering Team Consensus Statements

Declaration

Site Name and Location

Former Machine Gun Range (MGR)
Naval Air Station (NAS) Oceana – Dam Neck Annex
Virginia Beach, Virginia

Statement of Basis and Purpose

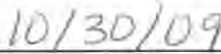
This Statement of Basis and Purpose and stakeholder signatures documents the determination that no further action (NFA) is necessary to ensure protection of human health and the environment at the former MGR at NAS Oceana – Dam Neck Annex in Virginia Beach, Virginia. This determination has been made in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Site Inspection report and information contained in the Administrative Record for the site. The Navy, in partnership with the Virginia Department of Environmental Quality (VDEQ) concurs with the NFA determination.

Rationale for No Further Action Determination

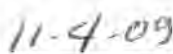
Based on the results of the Site Inspection, no potentially unacceptable human health or ecological risks and no CERCLA releases were identified at the former MGR. As there are no hazardous substances, pollutants, or contaminants remaining onsite above levels that prevent unlimited use and unrestricted exposure no further action is necessary for the site to ensure protectiveness for human health and the environment.

Authorizing Signatures


Mary Margaret Kutz
Remedial Project Manager
Naval Facilities Engineering Command,
Mid-Atlantic


Date


Steve Mihalko
Remedial Project Manager
Virginia Department of Environmental Quality


Date

Declaration

Site Name and Location

Pistol Range North
Naval Air Station (NAS) Oceana - Dam Neck Annex
Virginia Beach, Virginia

Statement of Basis and Purpose

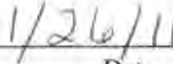
This Statement of Basis and Purpose and stakeholder signatures documents the conclusion that no further action (NFA) is necessary to ensure protection of human health and the environment at the Pistol Range North at NAS Oceana - Dam Neck Annex in Virginia Beach, Virginia. This determination has been made in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Site Inspection report and information contained in the Administrative Record for the site. The Navy, in partnership with the Virginia Department of Environmental Quality, concurs with the NFA determination.

Rationale for No Further Action Determination

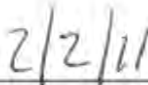
Based on the results of the Site Inspection, no potentially unacceptable human health or ecological risks and no CERCLA releases were identified at the Pistol Range North. Because there are no hazardous substances, pollutants, or contaminants remaining onsite above levels that prevent unlimited use and unrestricted exposure, no further action is necessary for the site to protect human health and the environment.

Authorizing Signatures


Mary Margaret Kutz
Remedial Project Manager
Naval Facilities Engineering Command,
Mid-Atlantic


Date


Steve Mihalko
Remedial Project Manager
Virginia Department of Environmental Quality


Date

Declaration

Site Name and Location

Pistol Range South
Naval Air Station (NAS) Oceana – Dam Neck Annex
Virginia Beach, Virginia

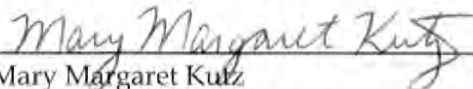
Statement of Basis and Purpose

This Statement of Basis and Purpose and stakeholder signatures documents the conclusion that no further action (NFA) is necessary to ensure protection of human health and the environment at the Pistol Range South at NAS Oceana – Dam Neck Annex in Virginia Beach, Virginia. This determination has been made in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Site Inspection report and information contained in the Administrative Record for the site. The Navy, in partnership with the Virginia Department of Environmental Quality, concurs with the NFA determination.

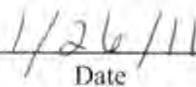
Rationale for No Further Action Determination

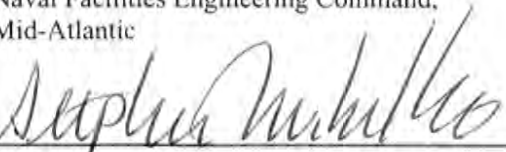
Based on the results of the Site Inspection, no potentially unacceptable human health or ecological risks and no CERCLA releases were identified at the Pistol Range South. Because there are no hazardous substances, pollutants, or contaminants remaining onsite above levels that prevent unlimited use and unrestricted exposure, no further action is necessary for the site to protect human health and the environment.

Authorizing Signatures



Mary Margaret Kutz
Remedial Project Manager
Naval Facilities Engineering Command,
Mid-Atlantic


Date



Steve Mihalko
Remedial Project Manager
Virginia Department of Environmental Quality


Date

Declaration

Site Name and Location

Rifle Range
Naval Air Station (NAS) Oceana – Dam Neck Annex
Virginia Beach, Virginia

Statement of Basis and Purpose

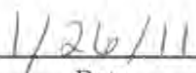
This Statement of Basis and Purpose and stakeholder signatures documents the conclusion that no further action (NFA) is necessary to ensure protection of human health and the environment at the Rifle Range at NAS Oceana – Dam Neck Annex in Virginia Beach, Virginia. This determination has been made in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Site Inspection report and information contained in the Administrative Record for the site. The Navy, in partnership with the Virginia Department of Environmental Quality, concurs with the NFA determination.

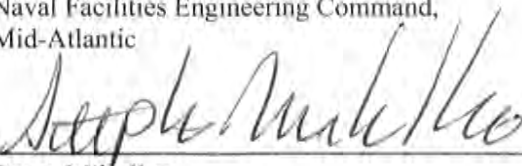
Rationale for No Further Action Determination

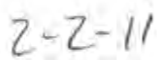
Based on the results of the Site Inspection, no potentially unacceptable human health or ecological risks and no CERCLA releases were identified at the Rifle Range. Because there are no hazardous substances, pollutants, or contaminants remaining onsite above levels that prevent unlimited use and unrestricted exposure no further action is necessary for the site to protect human health and the environment.

Authorizing Signatures


Mary Margaret Kutz
Remedial Project Manager
Naval Facilities Engineering Command,
Mid-Atlantic


Date


Steve Mihalko
Remedial Project Manager
Virginia Department of Environmental Quality


Date

No Further Action Consensus Statement, Fire-Fighting Training Area/Fire Station, Naval Air Station Oceana, Dam Neck Annex, Virginia Beach, Virginia

PREPARED FOR: Jillian Wheeler/Naval Facilities Engineering Command Mid-Atlantic
Steve Mihalko/Virginia Department of Environmental Quality

PREPARED BY: CH2M HILL, Inc.

DATE: June 2020

Background

The Fire Station at Dam Neck Annex, Virginia Beach, Virginia was constructed in 1955 on previously undeveloped land and is located at the intersection of Polaris Street and Tartar Avenue as shown on **Figure 1**. The Fire-Fighting Training Area (FFTA) was identified as a potential per- and polyfluoroalkyl substances (PFAS) source area due to fire-fighting training activities reportedly conducted on the concrete pad behind the Fire Station. According to the Initial Assessment Study (IAS), approximately 30 gallons of aqueous film-forming foam (AFFF) was used annually on the concrete pad behind the Fire Station (Rogers, Golden & Halpern, 1984). After igniting fires and extinguishing them with AFFF, residual AFFF was reportedly washed off the concrete pad into the grass. The IAS did not report what substances were ignited for fire-fighting training exercises; however, fires during this time period typically were started using waste fuel oils. In 2018, CH2M HILL, Inc. (CH2M) conducted a Site Inspection (SI) at the FFTA/Fire Station – Building 525.

The objectives of the SI were:

- To determine if site-related contaminants were present in the groundwater at levels posing potentially unacceptable risks to human health and ecological receptors due to burning activities associated with fire-fighting training operations
- To refine the understanding of hydrogeologic characteristics of the site

Field activities conducted included:

- Installation of five groundwater monitoring wells in the vicinity of the FFTA
- Collection and analysis of groundwater samples for:
 - Constituents potentially contained in waste fuel oils (volatile organic compounds [VOCs], semivolatile organic compounds [SVOCs], polychlorinated biphenyls [PCBs], total metals [including mercury and cyanide], and dissolved metals [including mercury])
 - Constituents associated with potential burning activities (PFAS, dioxins, and furans)
- Water level survey to determine groundwater flow direction
- Slug tests to determine hydraulic conductivity of the aquifer to allow for groundwater velocity calculations

PFAS results were screened against the United States Environmental Protection Agency (USEPA) Lifetime Health Advisory level for drinking water and Regional Screening Levels (RSLs), as shown on **Figure 1**. VOCs, SVOCs, metals including cyanide and mercury, PCBs, dioxins, and furans results were screened against the USEPA Tap Water RSLs, federal maximum contaminant levels (MCLs), and freshwater ecological screening values (ESVs).

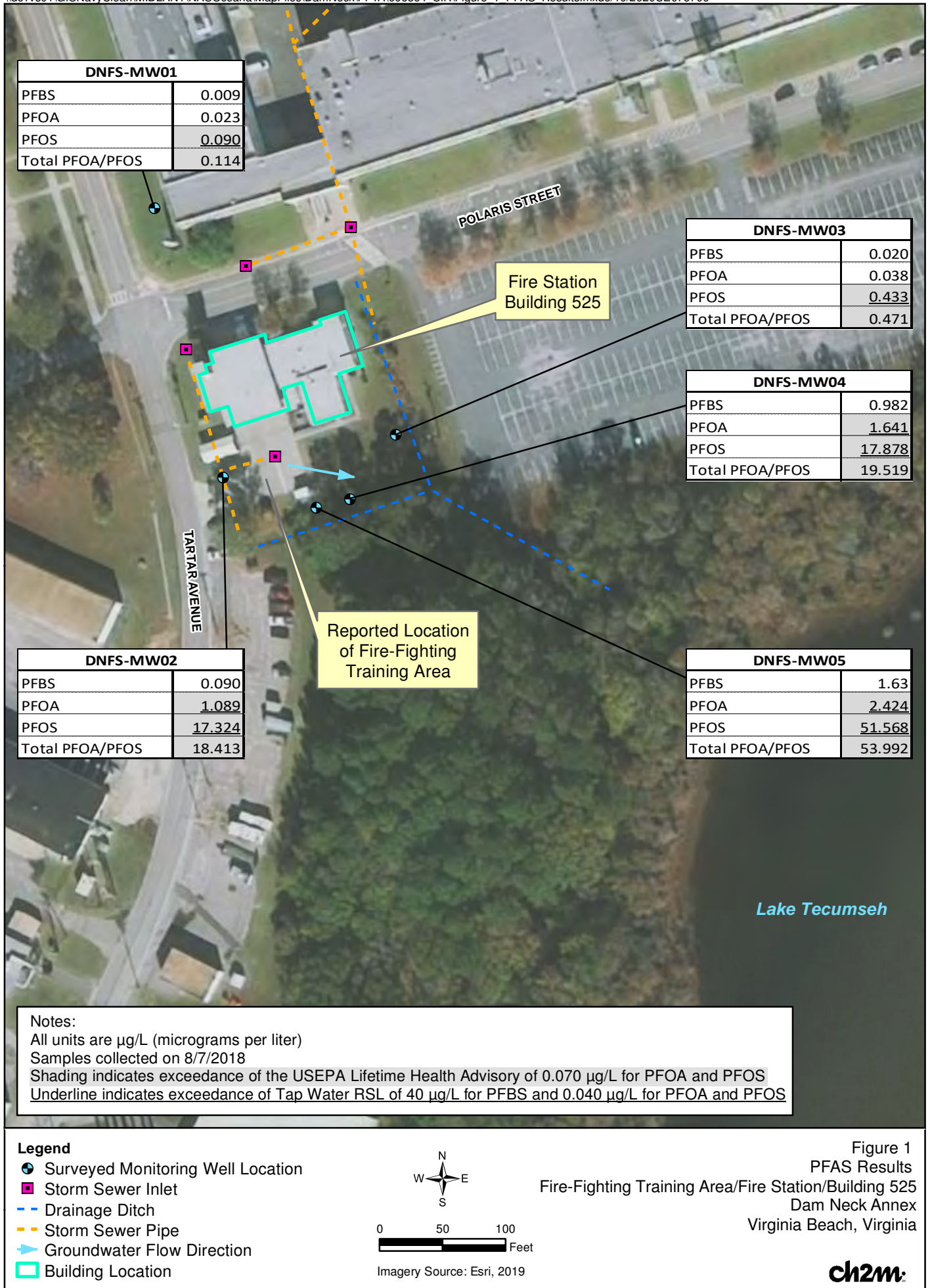
Constituents detected above the screening levels for Non-PFAS constituents are shown on **Figure 2**. There were no detections of any analyte in exceedance of a corresponding MCL.

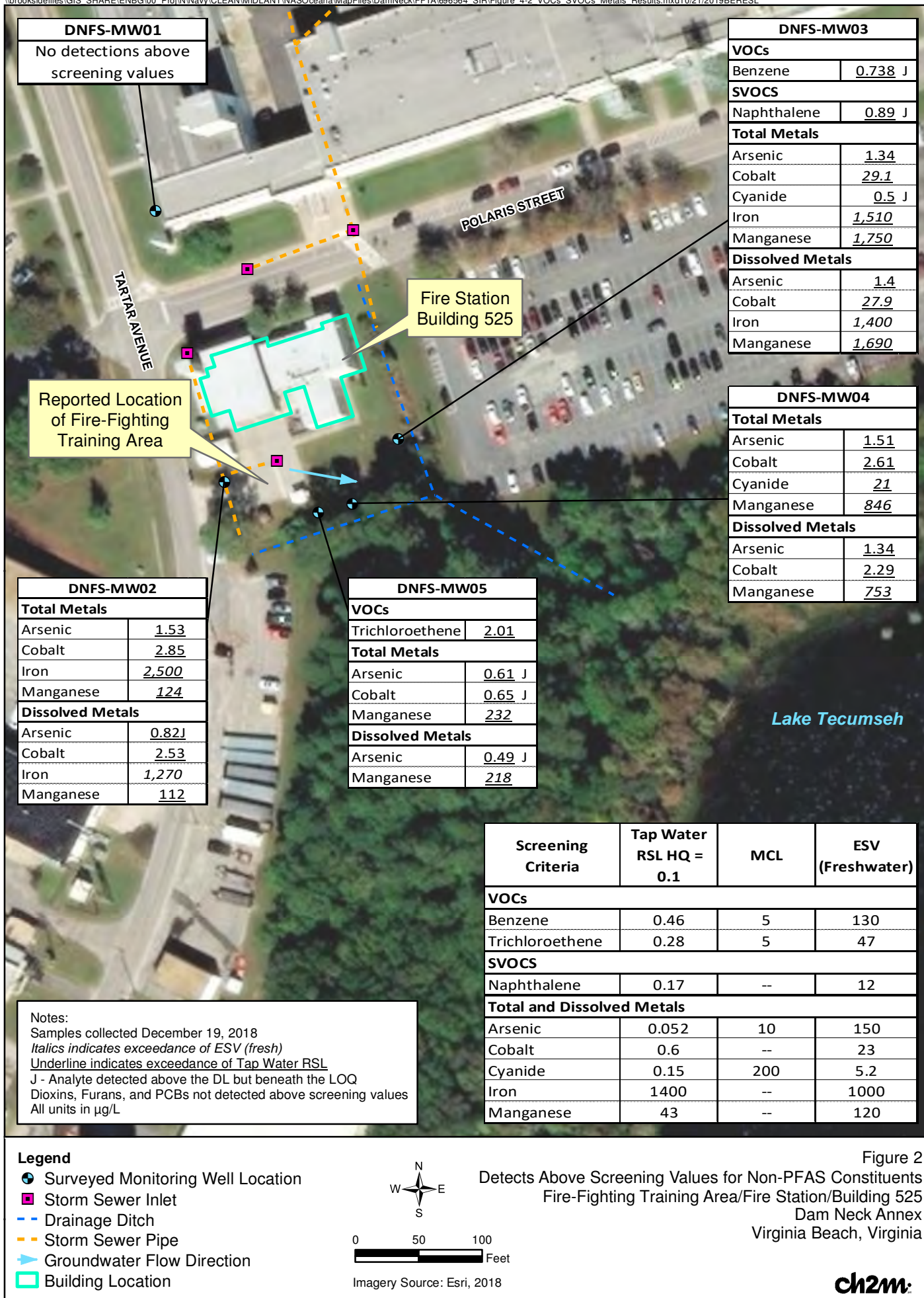
An ecological risk evaluation of the sample data collected (VOCs, SVOCs, metals including cyanide and mercury, PCBs, dioxins, and furans) concluded that no constituents of potential concern (COPCs) were present in groundwater. However, there was some uncertainty related to cyanide. Bioavailable cyanide could be measured; however, this was not required since cyanide was only detected in one well at an order of magnitude below the MCL. PFAS compounds were not screened in the ecological risk evaluation because established criteria were not available.

A human health risk screening of the sample data collected identified PFOS, PFOA, and cobalt as COPCs for groundwater. However, the cobalt detection was potentially associated with the drainage of offsite parking areas, Polaris Street, and Building 586 (used as a training facility and contractor's shop), which infiltrates into the groundwater at this location, and was not related to site activities since the detections of cobalt adjacent to the source area are an order of magnitude lower than the drainage ditch area. Additional details can be found in the Site Inspection Report (CH2M, 2020).

The FFTA/Fire Station was listed as a potential source of PFAS in the Dam Neck Annex Preliminary Assessment (CH2M, 2020) and additional PFAS investigations at the site will be conducted following finalization of the preliminary assessment.

Surface water, sediment, and soil were not sampled during the SI. Because the primary goal of the SI was to confirm the presence or absence of PFAS and the site history indicated burning was conducted on a concrete pad and foam was washed off the pad, groundwater was determined to be a good indicator of a release for the SI phase. The concentrations of COPCs in soil, surface water, and sediment were not evaluated.





Team Consensus Statement

The Dam Neck Annex Tier I Partnering Team reviewed the Fire-Fighting Training Area/Fire Station – Building 525 Site Inspection Report and agrees that, with the exception of PFAS, no further action is necessary for groundwater constituents at this site. The Dam Neck Annex Tier 1 Partnering Team agrees that additional PFAS investigations at the Fire-Fighting Training Area/Fire Station – Building 525 will be conducted as part of ongoing PFAS studies at the facility.

 6/25/20
Jillian Wheeler Date

Project Manager
Naval Facilities Engineering Command, Mid-Atlantic



Steve Mihalko Date
Project Manager

6-25-20
Virginia Department of Environmental Quality

References

CH2M HILL, Inc. (CH2M). 2020. *Site Inspection Report Fire-Fighting Training Area/Fire Station – Building 525. Naval Air Station Oceana – Dam Neck Annex, Virginia Beach, Virginia*. Final. February.

CH2M. 2020. *Dam Neck Annex Preliminary Assessment for Per- and polyfluoroalkyl Substances. Naval Air Station Oceana – Dam Neck Annex, Virginia Beach, Virginia*. Draft. June.

Rogers, Golden & Halpern. 1984. *Initial Assessment Study, Fleet Combat Training Center Atlantic, Dam Neck, Virginia Beach, Virginia*. December.

No Further Action Consensus Statement, Laundry Facility, Naval Air Station Oceana, Dam Neck Annex, Virginia Beach, Virginia

PREPARED FOR: Jillian Wheeler/Naval Facilities Engineering Command Mid-Atlantic
Steve Mihalko/Virginia Department of Environmental Quality

PREPARED BY: CH2M HILL, Inc.

DATE: June 2020

Background

CH2M HILL, Inc. conducted research to determine if the Laundry Facility shown on historical planning documents of Dam Neck Annex was constructed and required a Site Inspection under the Installation Restoration Program at Dam Neck Annex. The Laundry Facility was first noted on the undated General Layout Key Plan shown on **Figure 1**. This plan appears to be from the early 1950s based on known construction dates of surrounding buildings. The plan indicated that the Laundry Facility was to be constructed; however, the Laundry Facility was not shown in this location on subsequent maps and was not identified on aerial photographs.

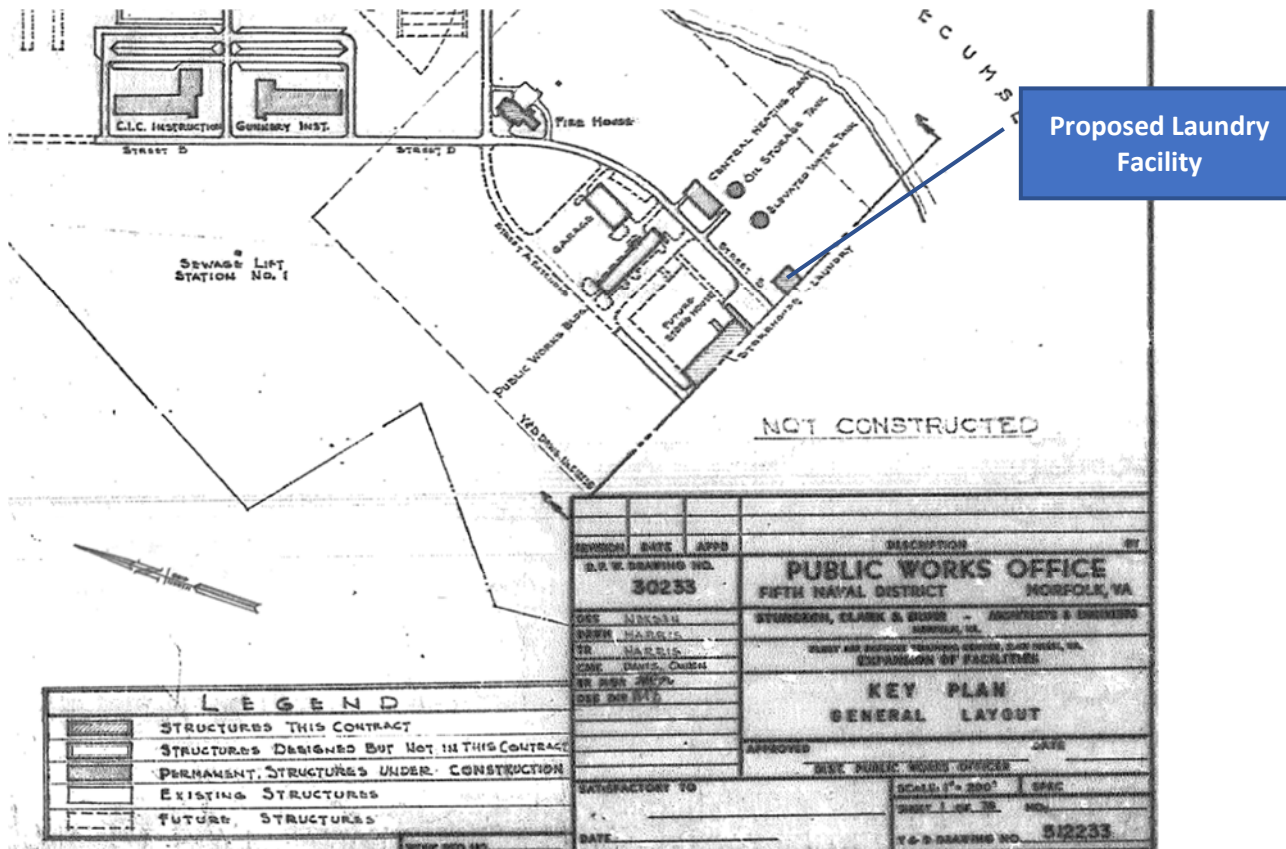


Figure 1. Excerpt from undated General Layout Key Plan for Dam Neck Annex showing planned location of the Laundry Facility

A proposed Laundry Facility did not appear again on planning or development maps until 1969, as shown on **Figure 2**. The proposed location of the Laundry Facility in 1969 was located north of the originally proposed location. The Laundry Facility does not appear again on any Dam Neck Annex maps or index of structures after 1969 and is not visible on historical aerial photographs.

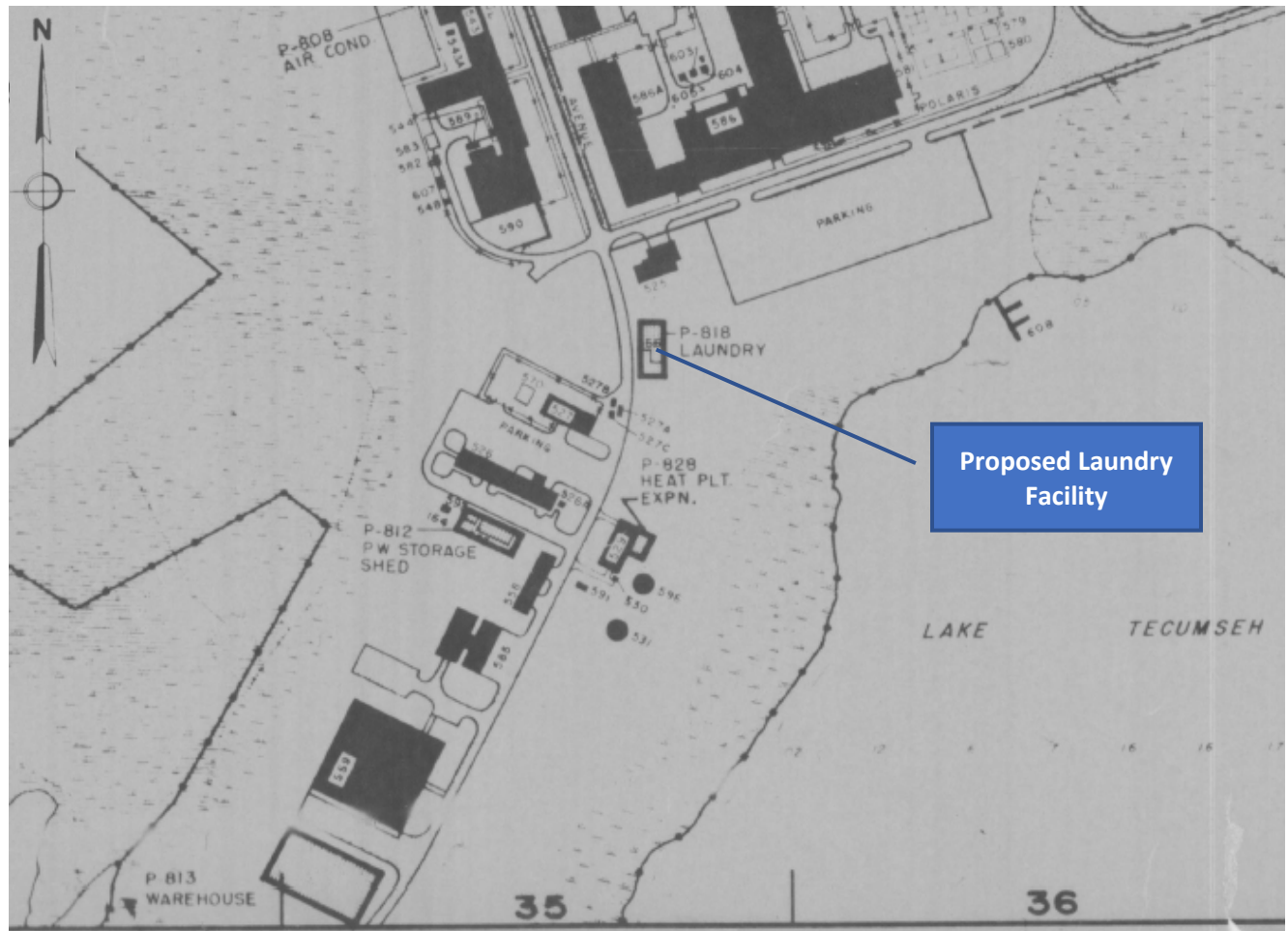


Figure 2. Excerpt from the 1969 Dam Neck General Development Map, Existing and Planned

Historical Data Review

To determine the path forward at the Laundry Facility, the Dam Neck Annex Tier I Partnering Team reviewed the available historical documents, maps, and photographs. No evidence was identified that indicated the Laundry Facility at Dam Neck Annex was constructed. Therefore, the Dam Neck Annex Tier 1 Partnering Team agrees that no further action is necessary for the Dam Neck Annex Laundry Facility.

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Jillian Wheeler
Project Manager
Naval Facilities Engineering Command, Mid-Atlantic

Date



Steve Mihalko
Project Manager
Virginia Department of Environmental Quality

6/30/20

Date