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FINAL SITE MANAGEMENT PLAN FISCAL YEAR 2021 MCAS CHERRY POINT NC

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CH2M HILL

Naval Facilities Engineering Systems Command Mid-Atlantic
Norfolk, Virginia

Final

Site Management Plan
Fiscal Year 2021

Marine Corps Air Station Cherry Point
Cherry Point, North Carolina

March 2021

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

µg/L	microgram per liter
°F	degrees Fahrenheit
AFFF	aqueous film-forming foam
AM	action memorandum
amsl	above mean sea level
AOC	area of concern
AS	air sparge
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIP	Community Involvement Plan
CLEAN	Comprehensive Long-term Environmental Action—Navy
COC	contaminant of concern
COPC	contaminant of potential concern
cVOC	chlorinated volatile organic compound
DD	Decision Document
DDT	dichlorodiphenyltrichloroethane
DERP	Defense Environmental Restoration Program
DNAPL	dense non-aqueous phase liquid
DoD	Department of Defense
DPT	direct-push technology
DRMO	Defense Reutilization and Marketing Office
EAD	Environmental Affairs Department
EE/CA	Engineering Evaluation/Cost Analysis
ERA	Ecological Risk Assessment
ER	Environmental Restoration
ER,N	Environmental Restoration, Navy
ESD	Explanation of Significant Differences
FFA	Federal Facility Agreement
FFS	Focused Feasibility Study
FRCE	Fleet Readiness Center East
FS	Feasibility Study
FY	fiscal year
HHRA	Human Health Risk Assessment
HI	hazard index
HRC	Hydrogen Release Compound
IAS	Initial Assessment Study
IC	institutional control
IR	Installation Restoration
IRACR	Interim Remedial Action Completion Report
IRI	Interim Remedial Investigation
IROD	Interim Record of Decision

IRP	Installation Restoration Program
IWTP	Industrial Wastewater Treatment Plant
LTM	long-term monitoring
LUC	land use control
LUCAP	Land Use Control Assurance Plan
MC	munitions constituents
MCALF	Marine Corps Auxiliary Landing Field
MCAS	Marine Corps Air Station
MCOLF	Marine Corps Outlying Landing Field
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mgd	million gallons per day
MIP	Membrane Interface Probe
MMRP	Military Munitions Response Program
MNA	monitored natural attenuation
MRP	Munitions Response Program
NACIP	Navy Assessment and Control of Installation Pollutants
NADEP	Naval Aviation Depot
NAVFAC	Naval Facilities Engineering Systems Command
Navy	Department of the Navy
NC SSL	North Carolina Soil Screening Levels
NC2L	North Carolina Groundwater Standards
NCDEQ	North Carolina Department of Environmental Quality
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	no further action
No.	number
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NTCRA	Non-Time-Critical Removal Action
O&M	operation and maintenance
OU	Operable Unit
PA/SI	Preliminary Assessment/Site Inspection
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PFAS	per- and polyfluoroalkyl substances
POEI	point of environmental interest
POL	petroleum, oil, and lubricants
PRAP	Proposed Remedial Action Plan
PRB	permeable reactive barrier
PRG	preliminary remediation goal
PSA	Preliminary Screening Area
RA	Remedial Action
RAB	Restoration Advisory Board
RACR	Remedial Action Completion Report
RAO	remedial action objective
RASO	Radiological Affairs Support Office
RC	Response Complete

RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
Rhēa	Rhēa Engineers & Consultants, Inc.
RI	Remedial Investigation
RIP	remedy-in-place
ROD	Record of Decision
RRR	Relative Risk Ranking
SAP	Sampling and Analysis Plan
SAR	SWMU Assessment Report
SARA	Superfund Amendments and Reauthorization Act
SC	Site Closeout
SI	Site Inspection
SLERA	Screening-level Ecological Risk Assessment
SMP	Site Management Plan
SOP	standard operating procedure
S.R.	State Road
SSA	Site Screening Area
SSI	Supplemental Site Investigation
SSP	site screening process
STP	sewage treatment plant
SV	sampling visit
SVE	soil vapor extraction
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TCE	trichloroethene
TCRA	Time-Critical Removal Action
TDM	Technical Direction Memorandum
Tetra Tech	Tetra Tech EC, Inc.
TPH	total petroleum hydrocarbon
TSDF	Treatment, Storage and Disposal Facility
U.S.	United States
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
VGM	voluntary groundwater monitoring
VI	vapor intrusion
VOC	volatile organic compound
VSI	Visual Site Inspection
WCSD	Watershed Contaminated Source Document
ZVI	zero-valent iron

SECTION 1

Introduction

This document presents the Site Management Plan (SMP) for Marine Corps Air Station (MCAS) Cherry Point, North Carolina, for fiscal year (FY) 2021. The SMP presents planned activities to be conducted at MCAS Cherry Point during FY 2021 and beyond and provides projections for long-term progress in accordance with the Department of Defense (DoD) Environmental Restoration (ER) Program. The ER Program consists of the Installation Restoration Program (IRP) for non-munitions-related sites and the Munitions Response Program (MRP) for sites containing military munitions.

This document has been prepared for the Naval Facilities Engineering Systems Command (NAVFAC), Mid-Atlantic Division, under the Comprehensive Long-term Environmental Action—Navy (CLEAN) 9000 Contract N62470-16-D-9000, Contract Task Order WE08, by CH2M HILL (CH2M). The SMP will also be submitted to representatives of the MCAS Cherry Point Environmental Affairs Department (EAD), the North Carolina Department of Environmental Quality (NCDEQ), and the United States Environmental Protection Agency (USEPA) Region 4 and meets the requirements of the Federal Facility Agreement (FFA) signed in 2005 by NAVFAC, EAD, NCDEQ, and USEPA. In the event of any actual or apparent conflict between any term(s) of this SMP and any term(s) of the FFA, the term(s) of the FFA will control. ER activities that are associated with MCAS Cherry Point are covered under the FFA, for which USEPA is the lead regulatory agency. The outlying and auxiliary landing fields (Marine Corps Outlying Landing Field [MCOLF] Atlantic, MCOLF Oak Grove, and Marine Corps Auxiliary Landing Field [MCALF] Bogue) are not included in the FAA. NCDEQ is the lead regulatory agency for non-FFA sites associated with MCAS Cherry Point.

The purpose of the SMP is to provide a management tool for the MCAS Cherry Point ER Partnering Team, which includes representatives from NAVFAC Mid-Atlantic, MCAS Cherry Point EAD, NCDEQ, USEPA, CH2M, HANA Engineers & Consultants, LLC (HANA), Tetra Tech EC, Inc. (Tetra Tech), and Bethel-Tech Atlantic JV (Bethel Tech). It is intended to be used in the planning and scheduling of environmental remedial response activities to be conducted at MCAS Cherry Point under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The SMP provides brief site descriptions and summaries of previous investigations, establishes activity schedules, and provides proposed deadlines for completion of deliverables. The SMP is a working document that will be revised yearly to maintain up-to-date documentation and a current summary of environmental actions at MCAS Cherry Point. This SMP updates and supersedes the FY 2020 SMP finalized in April 2020.

The MCAS Cherry Point ER Partnering Team prioritized activities and proposed schedules based on the following factors:

- Addressing those sites with highest potential risk to human health and the environment first.
- Meeting requirements of USEPA, NCDEQ, NAVFAC Mid-Atlantic, and MCAS Cherry Point EAD.

The SMP consists of 12 sections:

- **Section 1** establishes its purpose.
- **Section 2** describes MCAS Cherry Point and its environmental history.
- **Sections 3 through 8** present brief site descriptions and histories, summaries of previous investigations, and planned activities for FY 2021 for each of the IRP and MRP sites listed in the FFA or identified more recently for additional investigation under CERCLA. Each section is organized according to its corresponding phase of the CERCLA process and includes associated tables and figures. Section 8 includes other sites (Preliminary Screening Areas [PSAs] and Site Screening Areas [SSAs]) that have been identified as requiring either desktop audits (PSAs) or screening-level investigations (SSAs) for possible inclusion in the CERCLA Remedial Investigation/Feasibility Study (RI/FS) process.
- **Section 9** presents the historical and proposed removal and remedial actions (RAs) at MCAS Cherry Point.

- **Section 10** presents the major conclusions of Five-Year Reviews at MCAS Cherry Point.
- **Section 11** presents 5-year schedules for environmental investigation and remediation activities at those sites where activities are currently planned for FY 2021 through 2025.
- **Section 12** provides the references cited throughout this document.

SECTION 2

MCAS Cherry Point Description and Environmental History

2.1 Base Description

MCAS Cherry Point is a military installation located north of the town of Havelock in southeastern Craven County. The air station and its associated support locations occupy approximately 29,000 acres (**Figure 2-1**). MCAS Cherry Point was commissioned in 1942 and is the world's second largest Marine Corps Air Station. There are approximately 14,000 Marines, Sailors, and civilian employees currently aboard. The mission of MCAS Cherry Point is to maintain and support the facilities, services, and material for the Second Marine Aircraft Wing, the Fleet Readiness Center—East (formerly the Naval Aviation Depot [NADEP]), along with other activities and units as designated by the Commandant of the Marine Corps in coordination with the Chief of Naval Operations. MCAS Cherry Point has facilities for training and support of the Atlantic Fleet Marine Force aviation units and is designated as a primary aviation supply point. The boundaries of MCAS Cherry Point include the Neuse River to the north, Hancock Creek to the east, North Carolina Highway 101 to the south, and an irregular boundary approximately ¾-mile west of Slocum Creek to the west.

MCAS Cherry Point also includes several outlying airfields, including MCOLF Atlantic, MCALF Bogue, and MCOLF Oak Grove. MCOLF Atlantic is approximately 26 miles east of MCAS Cherry Point; MCALF Bogue is approximately 12.5 miles southwest of MCAS Cherry Point; and MCOLF Oak Grove is approximately 16 miles northwest of MCAS Cherry Point (**Figure 2-1**). According to the Initial Assessment Study (IAS), MCOLF Atlantic and MCALF Bogue were established when condemnation actions in December 1942 combined tracts of land for use as an outlying training field (Water and Air Research, Inc., 1983). In 1943, MCOLF Oak Grove was commissioned as a Marine Corps Auxiliary Air Facility (HMM Associates, Inc., 1993).

2.2 Regional Physiography, Climate, and Surface Water Hydrology

MCAS Cherry Point is located in the Atlantic Coastal Plain Physiographic Province. The area encompassing MCAS Cherry Point lies in the Neuse River drainage basin, which is one of two major river basins that flow into Pamlico Sound.

The topography of this portion of the Coastal Plain Province is relatively flat. Surface elevations in the Coastal Plain range from sea level to about 50 feet above mean sea level (amsl), with an average elevation of 20 feet amsl. Coastal areas are swampy and of generally low relief and are characterized by large tidal streams and their tributaries. The land surface across the facility slopes generally east to west toward Slocum Creek. Land-surface elevations range from 25 feet amsl near Roosevelt Boulevard to approximately 1 foot amsl at Slocum Creek. Typical elevations are generally between 20 and 25 feet amsl, with a few local topographic highs between 25 and 29 feet amsl. Elevations along the surface water drainage features that border much of MCAS Cherry Point are generally between 1 and 5 feet amsl.

Stormwater drainage across MCAS Cherry Point is directed to surface water bodies by a series of storm sewers, drainage ditches, and tributaries. Some tidal influences are likely in Slocum Creek and Hancock Creek, which are classified as Class SC estuarine water by the NCDEQ. These waters are suitable for fish and wildlife and for secondary recreation (i.e., not considered suitable for swimming).

Proximity to the Atlantic Ocean significantly influences the climate of MCAS Cherry Point. The climate is warm and humid with short, mild winters and long, hot summers. Winter temperatures average 46 degrees Fahrenheit (°F), and those in summer average 77°F. Precipitation is not evenly distributed, with the greatest monthly precipitation occurring during July, August, and September (6 to 8 inches per month). In the other months, monthly rainfall averages 3 to 4 inches. Recharge to the surficial (water table) aquifer system is from precipitation. Average

precipitation for the Coastal Plain is approximately 50 inches per year (Giese, Eimers, and Coble, 1997). The generalized water budget for the Coastal Plain includes evapotranspiration of about 33 inches per year, recharge to the water table aquifer of about 12 inches per year, and overland runoff to streams of about 5 inches per year. Of the 12 inches per year of recharge to the water table aquifer, approximately 11 inches per year moves laterally and discharges to streams; the remaining 1 inch or less per year moves vertically downward through confining units into deeper confined aquifers (Giese, Eimers, and Coble, 1997). Tropical hurricanes pass offshore twice in an average year, but infrequently strike the coast with full force.

2.3 Geology and Hydrogeology

2.3.1 General Regional Geologic and Hydrogeologic Framework

The regional geologic and hydrogeologic framework for North Carolina presented here is based principally on information compiled and developed as part of the U.S. Geological Survey's (USGS) Regional Aquifer-System Analysis. The Coastal Plain Province of North Carolina is underlain by an eastward-thickening wedge of unconsolidated gravel, sand, silt, and clay with scattered beds of shells and loosely consolidated beds of limestone, sandy limestone, and shell limestone (Winner and Coble, 1996). The sedimentary sequence ranges in age from Quaternary to Cretaceous and reaches a thickness of 10,000 feet at the Atlantic coast. Near MCAS Cherry Point, the Coastal Plain Province sediments are estimated to be approximately 2,500 feet thick (Lloyd and Daniel, 1988). The lower sedimentary sequence is predominantly non-marine deltaic in origin and consists of discontinuous and heterogeneous sand-and-clay sequences. The upper sequences are predominantly marine in origin and include near-shore and estuarine deposits. The sedimentary deposits overlie pre-Cretaceous crystalline basement rock. Historical Coastal Plain Province sedimentation and deposition were controlled by fluctuations in sea level on a subsiding continental margin.

For the outlying fields, the unconsolidated coastal plain sands encountered ranged from fine to medium grained, with some fines present. An exception to this lithology description occurred at MCOLF Atlantic, where an isolated area of fill was encountered from 4 inches to 4.5 feet below ground surface (bgs). In addition, several lithology variations occurred at MCOLF Oak Grove. Specifically, silt was encountered from the surface to 2 feet bgs, a clayey silt was encountered from 2 to 14 feet bgs, and all of this was underlain by a fine to medium grained sand from 14 to 20 feet bgs. An isolated area of sandy gravel was also encountered from the surface to 1 foot bgs and 19.5 to 20 feet bgs, interbedded with a fine to medium grained sand.

MCAS Cherry Point is underlain by 17 hydrostatic units: nine aquifers separated by eight confining units (Eimers, Daniel, and Coble, 1994). Of these regional hydrostratigraphic units, the youngest five aquifers are most relevant to remedial activities at MCAS Cherry Point. These aquifers and associated confining units, from the youngest to the oldest, are: the surficial Aquifer, the Yorktown Confining Unit, the Yorktown Aquifer, the Pungo River Confining Unit, the Pungo River Aquifer, the Upper Castle Hayne Confining Unit, the Upper Castle Hayne Aquifer, the Lower Castle Hayne Confining Unit, and the Lower Castle Hayne Aquifer. These uppermost units are described in the following subsections.

2.3.1.1 Surficial Aquifer

The surficial aquifer is the first-encountered groundwater beneath MCAS Cherry Point, and is the unconfined, water table aquifer. It is exposed at the ground surface and in streambeds throughout MCAS Cherry Point where the water table intersects the ground surface. The aquifer consists of unconsolidated and interfingering beds of fine sand, silt, clay, shell, and peat beds, with scattered deposits of coarser-grained material of relic beach ridges and flood plain alluvium. The average saturated thickness of the aquifer is 40 to 50 feet. The surficial aquifer is recharged from rainfall and is the source of recharge to the underlying confined aquifers as well as the source of base flow to streams. The surficial aquifer has an estimated hydraulic conductivity of 15 to 20 feet per day.

The surficial aquifer has been frequently subdivided for evaluation purposes into two different groundwater zones: the Upper and Lower surficial aquifers. This is, in part, due to minor differences in aquifer properties, but also in order to facilitate spatial delineation of contamination vertically. The Upper surficial aquifer is defined as

the upper 10 to 15 feet of saturated thickness and is generally monitored by wells installed across or near the water table. The Lower surficial aquifer is defined as the lower 20 to 30 feet of the aquifer and is monitored by wells installed just above the Yorktown Confining Unit. The Upper surficial aquifer generally contains finer-grained materials than the Lower surficial aquifer. However, the Upper and Lower surficial aquifers are in direct hydraulic communication and there is no confining unit or geologic boundary between them.

2.3.1.2 Yorktown Confining Unit

The Yorktown Confining Unit underlies the surficial aquifer and serves as a hydrogeologic barrier to the underlying Yorktown Aquifer. The confining unit consists largely of clay and sandy clay that locally includes beds of fine sand or shells. These confining sediments comprise the youngest beds of the Yorktown Formation. The average thickness of the Yorktown Confining Unit is about 22 feet (Winner and Coble, 1996).

2.3.1.3 Yorktown Aquifer

The Yorktown Aquifer comprises predominantly fine sand, silty and clayey sand, and clay; shells and shell beds occur throughout and are reflective of marine and near-marine depositional environments. The fine sand is the dominant aquifer material, making up generally between 70 and 80 percent of the Yorktown Aquifer in Craven County. The estimated average hydraulic conductivity of the aquifer is approximately 22 feet per day. The Yorktown Aquifer ranges in thickness from 20 to 35 feet (Eimers, Daniel, and Coble, 1994).

2.3.1.4 Pungo River Confining Unit

The upper clay beds of the Pungo River Formation and lowermost clays of the Yorktown Formation make up the Pungo River Confining Unit and overlie the Pungo River Aquifer. The confining unit contains less than 10 percent sand and has an average thickness of 55 feet (Winner and Coble, 1996).

2.3.1.5 Pungo River Aquifer

The permeable sediments of the upper and middle Pungo River Formation form the Pungo River Aquifer. The aquifer consists of fine- to medium-grained marine sand with considerable phosphate content. Based on fossil content, these sediments were deposited in an offshore setting, with some coarse sand beds representative of nearshore or estuarine environments. In eastern Craven County, the aquifer is about 90 percent sand. The western extent of the aquifer lies about 10 miles west of MCAS Cherry Point, and its thickness averages about 15 feet near its western limits. In the western portions of Craven County, where the Yorktown aquifer is absent, the Pungo River aquifer is directly overlain by the surficial aquifer. The average estimated hydraulic conductivity of the Pungo River aquifer is 32 feet per day (Winner and Coble, 1996). Recharge to the aquifer is by leakage through the upper confining unit from the Yorktown Aquifer, with upward discharge to major stream valleys. Near the western limits of the aquifer, the Neuse River may cut into the Pungo River Aquifer.

2.3.1.6 Castle Hayne Confining Unit

Regionally, the Castle Hayne confining unit and Aquifer are considered one hydrostratigraphic unit. In the vicinity of the MCAS Cherry Point, the USGS has subdivided this unit into Upper and Lower Castle Hayne Confining Units and Upper and Lower Castle Hayne Aquifers. For the purpose of this regional description of the hydrostratigraphic units of the North Carolina Coastal Plain, the Castle Hayne is not subdivided.

The Castle Hayne confining unit consists of clay, sandy clay, and clay with sandy streaks. The average thickness of the confining clays is 14 feet. In some areas, the confining unit contains sufficient sand to allow significant leakage between the Castle Hayne and the overlying aquifers (Winner and Coble, 1996).

2.3.1.7 Castle Hayne Aquifer

The Castle Hayne Aquifer consists of the Castle Hayne Limestone and rocks of the River Bend Formation. The aquifer is predominantly limestone and sand with minor amounts of clay. These sediments were deposited under marine conditions and include shell, dolomitic, and sandy limestones. The limestone varies from loosely consolidated to hard and recrystallized. The fine- to coarse-grained sand beds vary in carbonate content. Clay marl beds, when present, are generally less than 10 feet thick. Clay is also present as matrix material in sand and

limestone beds. The aquifer typically consists of alternating beds of limestone, sandy limestone, and sand. In the lower part of the aquifer, sand is the dominant aquifer material. The average thickness of the Castle Hayne Aquifer is 178 feet (Winner and Coble, 1996).

The Castle Hayne Aquifer is the most productive aquifer in this area of the North Carolina Coastal Plain. The hydraulic conductivity of the aquifer varies significantly, with a range from 15 feet per day where the aquifer is relatively thin and sandy to 200 feet per day where the aquifer is thick and composed of permeable limestone. The average hydraulic conductivity estimated for the entire aquifer is 65 feet per day (Winner and Coble, 1996).

2.3.1.8 Paleochannel Occurrence

Paleochannels are remnants of former river or stream channels that have been filled and overlain by younger sediments. Studies conducted by the USGS found that Pleistocene age paleochannels eroded the Yorktown and Pungo River Confining Units and deposited younger-aged sediments in some areas beneath MCAS Cherry Point. As a result, the uppermost aquifers may be in direct hydraulic communication with each other at locations where a paleochannel truncates the confining units that normally separate the aquifers physically and hydraulically (USGS, 1994, 1996, 2004).

The USGS identified a paleochannel within the southwestern portion of Operable Unit (OU) 1 at MCAS Cherry Point that truncated the Yorktown and Pungo River Confining Units. The USGS conducted continuous coring from stratigraphic test wells, borehole geophysical logging, and vertical seismic and high-resolution seismic reflection profiling to delineate the extent of the OU1 paleochannel (USGS, 1996, 2004). Investigation activities at OU1 have provided additional evidence of the existence of a paleochannel and have refined the delineation of the paleochannel boundary in this area.

Groundwater levels outside of the paleochannel in the southwestern portion of OU1 show a marked discontinuity across the Yorktown Confining Unit, which acts as an aquitard, and show a downward vertical gradient from the surficial aquifer to the Yorktown Aquifer. Groundwater levels within the paleochannel generally show similar groundwater levels between the surficial and Yorktown Aquifers and show an upward vertical gradient from the surficial aquifer to the Yorktown Aquifer. The fine-grained units within the paleochannel are likely not as effective of an aquitard as the Yorktown Confining Unit or are discontinuous in spatial extent.

2.3.2 Regional Water Usage

The primary source of water for municipal, residential, and agricultural use in the vicinity of MCAS Cherry Point is from the aquifers of the Coastal Plain of North Carolina. Total groundwater withdrawals from the Coastal Plain aquifers in North Carolina are estimated to be more than 250 million gallons per day (mgd) (Giese, Eimers, and Coble, 1997). As a result of the extensive use of groundwater and the potential impacts from over pumping of the aquifers, the North Carolina Division of Water Resources has established Capacity Use Area Number (No.) 1 under the Water Use Act of 1967. Capacity Use Area No. 1 encompasses portions of seven counties in the central North Carolina Coastal Plain, which includes the Cherry Point area of Craven County. The most important aquifer in the vicinity of MCAS Cherry Point in Capacity Use Area No. 1 is the Castle Hayne Aquifer, which can yield very large quantities of potable water. Within Capacity Use Area No. 1, greater than 50 percent of the groundwater use is for mining, followed by use for public supplies.

MCAS Cherry Point uses between 2.5 and 4.5 mgd derived from about 25 wells that range in depth from 195 to 330 feet (Castle Hayne Aquifer). The groundwater in the vicinity of MCAS Cherry Point is classified by the State of North Carolina as Class GA. Class GA groundwater is considered to be existing or potential sources of drinking water.

2.3.3 Soils

MCAS Cherry Point is located on the Talbot Terrace Plain, which was formed by sediments deposited in a lagoon approximately 220,000 years ago. The soils have developed into medium-textured materials that are underlain by beds of sandy sediments. Soil-forming processes have produced different soils mainly because of differences in

natural drainage as influenced by relief and proximity to streams. The well-drained soils near the stream valleys have light-colored topsoils that are low in organic matter and yellowish or brownish subsoils. The poorly drained soils, which are located in the interstream areas and in depressions, have dark topsoils that are higher in organic matter and grayish subsoils. Soils on this landscape are similar in some of their physical properties. They are strongly to very strongly acidic and have good workability, high available water capacity, moderate permeability, and low natural fertility. The better-drained soils are well suited for most uses. A seasonal high water table generally occurs during months of low evapotranspiration (November to March), and ponding in topographic depressions occurs in areas of wetter soils.

Areas of MCAS Cherry Point are in the flood plains along streams dissecting the Talbot Terrace. These poorly to very poorly drained areas flood frequently. The soils are very young and are formed in stratified loamy and sandy alluvium. These flood plains merge with loamy brackish marsh areas as they near the Neuse River. A few areas of stream terrace occur along the Neuse River and the larger creeks. These are mostly sandy soils. Some of the low-lying areas are subject to flooding.

2.4 Ecology

MCAS Cherry Point is located on a peninsula between the Neuse River to the north and Core and Bogue Sounds to the south. The major portion of MCAS Cherry Point is located between Hancock and Slocum Creeks. Loblolly pine dominates much of the forested land on the broad interstream areas at MCAS Cherry Point. These forests are managed for loblolly pine timber production. The lower slope forests contain a mesic mixed hardwood community. Important canopy components of this community include sweetgum, white oak, pignut hickory, and beech. The major understory trees found in the mixed hardwood forest are American holly and flowering dogwood. The inland flood plains of the tributary streams are dominated by the blackwater-swamp-community type. Important components of this community include swamp tupelo, bald cypress, red maple, sweetgum, and a variety of oaks. The mid-canopy of the swamp forest is dominated by ironwood.

According to the document *Threatened and Endangered Species Management Plan* (Appendix C in MCAS, 2001), there are no federally endangered species found on MCAS Cherry Point. MCAS Cherry Point supports one animal species (the bridle shiner) and two plant species (Chapman's Sedge and Springflowering Goldenrod) that are state listed.

MCAS Cherry Point has an active fish and wildlife management program with on-staff foresters, wildlife biologists, and game wardens. The objectives of the management program are to protect all native wildlife resources available on a continuing basis and to enhance fish and wildlife resources. The game warden staff assists federal and state authorities in enforcement of the Endangered Species Act.

2.5 CERCLA Process

The objectives of the CERCLA process are to evaluate the nature and extent of contamination at a site and to identify, develop, and implement appropriate remedial actions to protect human health and the environment. The major elements of the CERCLA process are presented on **Figure 2-2** and discussed in further detail in the subsections below. The documents prepared for the IRP and MRP are maintained in information repositories for public review, as detailed in the CIP. MCAS Cherry Point has developed a Community Involvement Plan (CIP) (CH2M, 2012i) and established a Restoration Advisory Board (RAB) comprised of members of the community, local environment group members, and state and federal officials, who meet periodically when new information is available or as needed to maintain community involvement with environmental restoration activities. An updated CIP is expected to be finalized in FY 2021 that will include an effort to re-establish the currently inactive RAB. Minutes from RAB or other public meetings are available to the public in the administrative record, found on the MCAS Cherry Point ERP Public Web Site (http://go.usa.gov/Dy59).

2.5.1 Preliminary Assessment/Site Investigation or Site Inspection

The IRP and MRP begin with concerns about a site, area, or potential contaminant source. The Preliminary Assessment/Site Investigation or Inspection (PA/SI) phase of the CERCLA process evaluates potential sites to determine if the sites should be eliminated from further consideration (i.e., no further action [NFA]), identified for an action to address actual or imminent threats to human health or the environment, or further evaluated through the performance of an RI/FS.

2.5.1.1 Preliminary Assessment

The PA is a limited-scope assessment designed to distinguish between sites that clearly pose little or no threat to human health or the environment and those that may pose a threat and require further investigation. This stage typically involves a review of historical documents and a visual site inspection. Environmental samples are rarely collected during a PA; rather, a PA is intended to be a relatively quick, low-cost compilation of existing information about a site. The PA may result in a determination of NFA; completion of an SI if there is insufficient information to reach an NFA decision; a removal action if significant threat to human health or the environment exists; or an RI/FS if remediation is deemed necessary.

2.5.1.2 Site Investigation or Site Inspection

The SI is the most common step after a PA is completed and an NFA determination cannot be made. The SI involves an onsite investigation intended to gather more information needed in determining whether there is a release or potential release, and to characterize the nature of the release and associated threats or potential threats to human health and the environment. The SI typically includes the collection of environmental samples to identify if contaminants are present at a site and a screening-level risk assessment to determine if they have been released at levels posing an unacceptable risk to human health to the environment. The sites that do not require further investigation or response are designated as NFA. If there is insufficient information to reach an NFA decision, a removal action or an RI/FS may be recommended. In some cases, if the results of the SI are inconclusive, an Expanded SI phase is initiated to confirm whether there is site-specific contamination or hazards prior to moving forward with an RI.

2.5.2 Remedial Investigation/Feasibility Study

The purpose of the RI/FS is to determine the nature and extent of contamination and, if sufficient need is documented by site sampling and a risk assessment, to evaluate proposed remedies. The RI and FS can be conducted concurrently; data collected in the RI influence the development of remedial alternatives in the FS, which in turn affect the data needs and scope of treatability studies and additional field investigations. This phased approach encourages the continual scoping of the site characterization, thereby minimizing the collection of unnecessary data and maximizing data quality.

2.5.2.1 Remedial Investigation

The RI is the investigative phase of the response action designed to characterize site conditions, determine the nature and extent of contamination, assess the risks to human health and the environment posed by site contamination, and provide a basis for decisions on further response actions or NFA. The RI provides information to refine the conceptual site model and forms the basis for the development of remedial action objectives (RAOs) and remedial strategies that will comprise the FS.

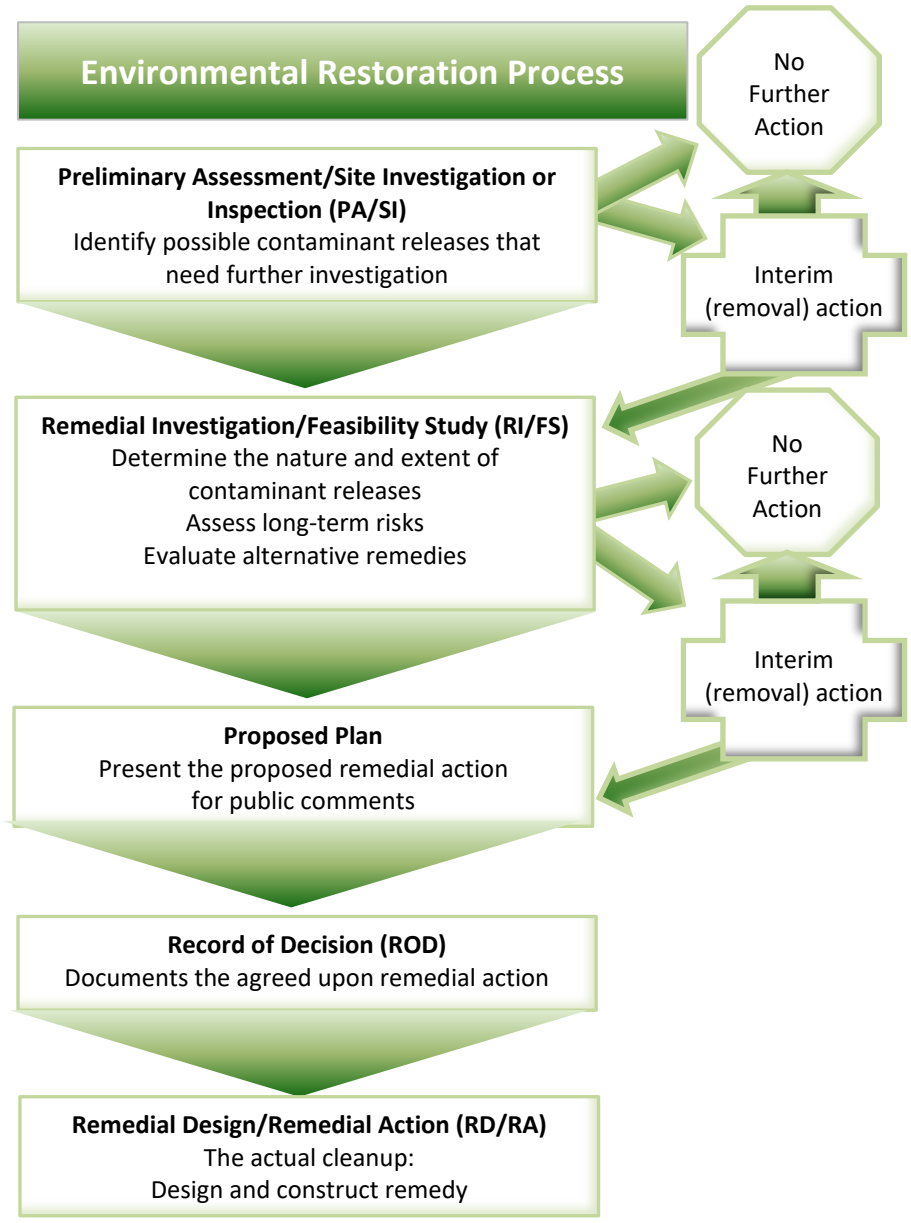


Figure 2-2. CERCLA Process

2.5.2.2 Feasibility Study

The FS is the mechanism for the development, screening, and detailed evaluation of alternative RAs. The overall objectives of an FS are to develop and evaluate potential remedies that permanently and significantly reduce the threat to public health, welfare, and the environment and aid in selection of a cost-effective remedial action alternative that mitigates the threat(s).

2.5.2.3 Removal Action

A removal action is a response implemented in an expedited manner to address releases or threatened releases in order to mitigate the spread of contamination. Removal actions may be implemented at any time during the CERCLA process. Removal actions include Time-Critical Removal Actions (TCRAs) and Non-Time-Critical Removal Actions (NTCRAs). All TCRAs and NTCRAs conducted under the CERCLA program are facilitated by the MCAS Cherry Point Environmental Affairs Department in conjunction with the Navy.

Actions taken immediately to mitigate an imminent threat to human health or the environment, such as the removal of corroded or leaking drums, are classified as TCRAs. The planning period for a TCRA is 6 months or less before fieldwork is initiated. An Engineering Evaluation/Cost Analysis (EE/CA) is not required for a TCRA, although an Action Memorandum (AM) and Work Plan must be completed.

Removal actions that may be delayed for 6 months or more without significant additional harm to human health or the environment are classified as NTCRAs. For an NTCRA, an EE/CA is prepared rather than the more extensive FS. An EE/CA focuses only on the substances to be removed rather than on all contaminated substances at the site. A removal action can become the final remedial action if the risk assessment results indicate that NFA is protective of human health and the environment.

A removal action can be either the final remedy or an interim action followed by a remedial action as the final remedy, based on the extent to which the threats are mitigated by the action. A removal action, when implemented as the final remedy, can be used for fast and significant reductions in risk and to mitigate long-term threats. In cases where the removal action is the final remedy, the removal action may lead to either Response Complete (RC) or Site Closeout (SC). If the RA was accomplished during the RI/FS phase, any final determination of RC and/or SC must be documented in the Record of Decision (ROD). If the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) nine criteria were not addressed as part of the EE/CA or AM, a focused FS would be needed, followed by a ROD.

2.5.2.4 Treatability Study

Treatability studies involve testing and evaluation of a treatment technology to determine the effectiveness of that technology at a particular site or to establish site-specific design parameters. The primary objectives of treatability testing are to provide sufficient data to allow treatment alternatives to be fully developed and evaluated during the FS and to support the remedial design (RD) of a selected alternative. Treatability studies may be conducted at any time during the CERCLA process.

The need for a treatability study generally is identified during the FS. Treatability studies may be classified as either bench-scale (laboratory study) or pilot-scale (field studies). For technologies that are well-developed and tested, bench-scale studies are often sufficient to evaluate performance. For innovative technologies, pilot tests may be required to obtain the desired information. Pilot tests simulate the physical and chemical parameters of the full-scale process and are designed to bridge the gap between bench-scale and full-scale operations.

Treatability studies may also be needed during the RD/RA phase to obtain more detailed information about the unit operations, performance, and cost for designing a full-scale treatment system. Generally, a pilot-scale system is deployed onsite to collect the required information.

2.5.3 Proposed Remedial Action Plan and Record of Decision

The remedy selection process involves identifying a preferred response action strategy from those alternatives evaluated in the FS. The preferred alternative is based first on each alternative's ability to satisfy the threshold criteria, and then on trade-offs among alternatives considering the primary balancing criteria. Further, results of the risk assessment need to be factored into the selection of the remedy. The remedy selection process includes a Proposed Plan, sometimes referred to as a Proposed Remedial Action Plan (PRAP), and ROD.

2.5.3.1 Proposed Plan or PRAP

A Proposed Plan or PRAP presents the remedial alternatives developed in the FS and recommends a preferred remedial method. The public has an opportunity to comment on the Proposed Plan or PRAP during an announced formal public comment period. Site information is compiled in an administrative record for public review. A public meeting is also held to provide supporting information.

2.5.3.2 Record of Decision

At the end of the Proposed Plan or PRAP public comment period, an appropriate remedial alternative is chosen to protect human health and the environment. The ROD document is then issued, describing the remedy selection

process and the remedy selected. All parties directly involved in the ER Program (Department of the Navy [Navy], MCAS Cherry Point, USEPA, NCDEQ, and the public) must agree on the selected alternative. Any public comments received are addressed as part of the responsiveness summary in the ROD. A public notice is issued after the ROD is signed and available for public inspection. A public notice is also published for any significant post-ROD changes. Once the ROD has been signed, the RD/RA process is initiated.

2.5.3.3 Interim Record of Decision

In some cases during earlier points in the CERCLA process, typically the RI/FS stage, it may be determined that an interim remedial action is warranted. Possible reasons for implementing an interim RA might include: (1) taking quick action in the short term from an imminent threat to the environment when developing a final remedy would require additional data collection and a longer time frame to complete, or (2) taking temporary measures to stabilize a site and prevent further migration of contaminants. Such interim actions are documented in an Interim Record of Decision (IROD). The interim remedial action in an IROD may or may not become a component of the remedy in the final ROD, but in all cases a final ROD must be prepared for the site.

2.5.4 Remedial Design and Remedial Action

Following signature of the ROD, the RD and RA phases are implemented. The technical specifications for cleanup remedies and technologies are designed in the RD phase. The RA is the actual construction or implementation phase of the cleanup process.

2.5.4.1 Remedial Design

The purpose of the RD phase is to convert the conceptual design for the selected remedy from the FS into a full-scale, detailed design for implementation. RD includes preparation of technical RD Work Plans, drawings, specifications, and RA Work Plans.

2.5.4.2 Remedial Action

Upon completion of the RD, implementation of the RA (the remedy selected in the ROD) begins. The RA start-date is defined as the date the contractor has mobilized and begun substantial and continuous physical onsite remedial action. The start date is important because it triggers the beginning of the Five-Year Review cycle if one is required. The RA phase involves two main components, remedial action construction and remedial action operation.

Interim RAs are implemented to provide temporary mitigation of human health risks or to mitigate the spread of contamination in the environment. Similar to removal actions, RAs may be implemented at any time during the process. Examples of Interim RAs include installing a pump-and-treat system for groundwater or installing a fence to prevent direct contact with hazardous materials. For Interim RAs, a focused FS is prepared rather than the more-extensive FS. As with the removal action, an interim action may become the final RA if the results of the risk assessment indicate that NFA is required to protect human health and the environment.

2.5.5 Remedy-in-Place and Response Complete

2.5.5.1 Remedy-in-Place

For long-term remedies where it is anticipated that RAOs will be achieved over a long period, the Remedy-in-Place (RIP) milestone signifies the completion of the RA construction phase and that the remedy has been implemented and has been demonstrated to be functioning as designed (i.e., all testing has been accomplished and the remedy will function properly). Once RIP is completed for a site, an Interim Remedial Action Completion Report (IRACR) is prepared to document that the remedy is constructed and operating successfully.

2.5.5.2 Response Complete

At any point during the CERCLA process, a decision can be made that no further response action is required; properly documented (necessary regulatory notification or application for concurrence has occurred), these

decisions constitute RC and/or SC. RC is the point at which the remedy has achieved the required reduction in risk to human health and the environment (cleanup goals/RAOs have been met). Once RC is completed for a site under a ROD, a Remedial Action Completion Report (RACR) is prepared to demonstrate that the remedy is complete and the RAOs are met. RC is followed by individual site closeout.

Once all RIPs and RCs have been documented for every site at the facility and the terms of the FFA have been met, site closeout and National Priorities List (NPL) deletion is requested.

2.5.5.3 Five-Year Reviews

Five-year reviews are generally required by CERCLA or program policy when hazardous substances remain on a site above levels that permit unlimited use and unrestricted exposure. Five-year reviews provide an opportunity to evaluate the implementation and performance of a remedy and whether it still protects human health and the environment. Generally, reviews are performed 5 years after the initiation of a CERCLA response action and are repeated every 5 years as long as future uses remain restricted. USEPA or the lead agency for a site can perform these reviews, but USEPA is responsible for assessing the protectiveness of the remedy.

2.6 Environmental History

2.6.1 Installation Restoration Program History

MCAS Cherry Point has been actively involved with environmental investigations and remediation programs since 1983, beginning with the Navy Assessment and Control of Installation Pollutants (NACIP) Program. The NACIP Program was modeled after the USEPA Superfund Program, authorized by CERCLA in 1980. An IAS was the first investigation of potentially hazardous sites conducted under NACIP in 1983. The purpose of the IAS was to collect and evaluate evidence of pollutants that may have contaminated a site or that pose an imminent human health hazard. Fourteen of the 32 sites identified in the IAS (Sites 1, 2, 4, 5, 6, 7, 10, 13, 15, 16, 17, 18, 19, and 21) were determined to require further investigation (Water and Air Research, 1983).

The Navy's IRP was initiated in 1986, following enactment of the Superfund Amendments and Reauthorization Act (SARA) legislation, and replaced the NACIP.

In 1988, A. T. Kearney, Inc. conducted a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) at MCAS Cherry Point, the first step under the RCRA corrective action process. The RFA included a preliminary review of all available relevant documents, a Visual Site Inspection (VSI), and a Sampling Visit (SV), if appropriate, at the 114 solid waste management units (SWMUs) and two areas of concern (AOCs) identified. The SWMUs were divided into five groups based on their operation purpose: Flight Line, Naval Air Rework Facility, Maintenance and Support, Centralized Storage and Treatment, and Initial Assessment Study Unit. The designations for the SWMUs associated with each group are preceded with F, N, S, C, and I as appropriate. Based on the observations made during the VSI, a RCRA Facility Investigation (RFI) and a more-comprehensive inspection of production and the waste management/handling area were recommended (A. T. Kearney, 1988).

In 1989, the Navy entered into a RCRA Administrative Order of Consent with the USEPA to perform RFIs at 35 of the 114 SWMUs identified in the RFA. On December 16, 1994, MCAS Cherry Point was scored and ranked by USEPA for inclusion on the CERCLA NPL. Under CERCLA, the Navy acts as the lead agency, in partnership with USEPA and NCDEQ, to address environmental investigations at the facility through the IRP. Because of the NPL and Consent Order, ongoing IRP investigations are being conducted to meet the requirements of both RCRA and CERCLA. Since the Consent Order was signed, additional sites have been identified. Module L of the MCAS Cherry Point's current RCRA Part B permit identifies 152 SWMUs and 1 AOC. The initial Part B Permit was finalized and converted from an Interim Part B permit application under 40 Code of Federal Regulations (CFR) Part 265 to a final Treatment, Storage and Disposal Facility (TSDF) Part B permit per 40 CFR Part 264 in December 2004, expiring in December 2014. The renewed (current) Part B Permit was issued by NCDEQ, Division of Waste Management, on November 18, 2016, with a 10-year term, expiring on November 18, 2026.

On May 12, 2005, the Navy, USEPA, and NCDEQ executed an FFA. The FFA effectively terminated the RCRA Administrative Order of Consent. Under the FFA, all past and future work at IRP sites, SWMUs, and AOCs will be reviewed and a course of action for future work requirements at each site will be developed. The FFA includes specific requirements for the preparation and contents of the SMP. The SMP is updated annually and includes the sites currently under investigation following the CERCLA process and the proposed deadlines for completion of deliverables, as specified in the FFA.

As part of the requirements established under CERCLA, an administrative record file has been established for the IRP at MCAS Cherry Point. The administrative record is a compilation of all documents that the DoD uses to select a RA or removal action for a site. Regardless of the nature of the site, an administrative record must be maintained. The administrative record will also serve as the basis for any future legal review of decisions made by the DoD concerning RA taken at a site. Access to the MCAS Cherry Point administrative record file is available via a NAVFAC website: http://go.usa.gov/Dy59. For those without personal access to the internet, a computer terminal that is prioritized for internet access to the MCAS Cherry Point Administrative Record is available at the public library in Havelock, North Carolina.

Five-Year Reviews were completed for MCAS Cherry Point in 2002 (CH2M, 2002c), 2007 (CH2M, 2008d), 2012 (CH2M, 2013a), and 2017 (CH2M, 2018a). In 2017, RAs or Interim RAs at six OUs and associated sites were identified at MCAS Cherry Point for review: OUs 1, 2, 3, 4, 13, and 14. With the exception of OU1, all ongoing RAs were determined to be protective of human health and the environment. A deferred protectiveness statement for human health and the environment was issued for seven sites within OU1, as the RA is currently being implemented at those sites. The next Five-Year Review is scheduled for completion in early 2023.

An update to the MCAS Cherry Point CIP, which provides information on community participation, was completed in FY 2012 (CH2M, 2012i). Preparation of an updated CIP is being performed in 2020. Currently, the MCAS Cherry Point RAB is inactive as public interest in Base environmental activities has waned in recent years. As a part of the CIP update, interest in reestablishing the inactive RAB is being assessed.

2.6.2 Munitions Response Program History

DoD established the Military Munitions Response Program (MMRP), which was shortened to the MRP by the Navy, under the Defense Environmental Restoration Program (DERP) in September 2001. The purpose is to address munitions and explosives of concern (MEC) (i.e., unexploded ordnance and waste military munitions) and munitions constituents (MC) (i.e., chemical residues of munitions) at locations that are not operational ranges. A requirement was established obligating identification, characterization, and the tracking of data on military munitions and military munitions responses at these locations. By September 2002, all locations other than operational ranges requiring a military munitions response were inventoried. DoD set a goal for RIP or RC at all MMRP sites by the end of FY 2020.

DoD and the Navy are establishing policy and guidance for munitions and response actions under the MRP; however, the key program drivers developed to date conclude that munitions response actions will be conducted under the process outlined in the NCP, as authorized by CERCLA. Therefore, the Navy and Marine Corps will work with the MCAS Cherry Point Partnering Team to follow the CERCLA process to address MRP sites identified at the Air Station.

2.6.3 Current Site Status

The status of each site identified in the FFA or sites identified more recently for additional investigation under CERCLA is summarized in **Table 2-1** and **Figure 2-3**. This table and figure also include several additional sites that were identified historically but were subsequently determined to require NFA under CERCLA. The FFA sites were grouped into OUs on the basis of proximity, common waste types, and common activities. All but one of the FFA sites are part of the IRP; the single site associated with the MRP is Former Skeet and Trap Range #1.

FFA site deliverables may be considered either primary or secondary documents. Primary documents identified in the FFA are:

1. RI/FS (including Baseline Risk Assessment for human health and the environment) and FFS Work Plans
2. Remedial Investigation Reports (including Baseline Risk Assessments for human health and the environment)
3. FS and FFS Reports
4. Proposed Plans
5. Records of Decision
6. Final Remedial Designs

Secondary documents identified in the FFA are:

1. Health and Safety Plans
2. Non-Time Critical Removal Action Plans (40 C.F.R. § 300.415(b) (4) (ii))
3. Pilot/Treatability Study Work Plans
4. Pilot/Treatability Study Reports
5. Engineering Evaluation/Cost Analysis Reports
6. Well Closure Methods and Procedures
7. Preliminary/Conceptual Designs, or Equivalents
8. Prefinal Remedial Designs
9. Removal Action Memoranda

The locations of the FFA sites at MCAS Cherry Point are shown on **Figure 2-4**. **Table 2-2** lists each of the studies conducted to date at the sites identified in the FFA as requiring additional investigation. **Table 2-3** lists the document submittals for each OU.

Underground storage tank (UST) sites are addressed under the MCAS Cherry Point UST Program and are not included in this SMP. In accordance with the FFA, if residual groundwater and soil contamination is detected at a UST site that is not related to the UST, the groundwater and soil will be addressed as part of a nearby existing FFA site or as a new site.

Descriptions of each IRP and MRP site are provided in Sections 3 through 8 by phase in the CERCLA process (Section 3: PA/SI, Section 4: RI/FS, Section 5: PRAP/ROD, Section 6: RD/RA, Section 7: RIP/RC, and Section 8: other sites (PSAs and SSAs) that have been identified as requiring either desktop audits [PSAs] or screening-level investigations [SSAs] for possible inclusion in the CERCLA RI/FS process). Section 9 presents the historical and proposed RAs at MCAS Cherry Point. Section 11 presents 5-year schedules for environmental investigation and remediation activities at those sites where activities are currently planned for FY 2021 through 2025.

Table 2-1. Current Status of FFA and Additional Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU	Current Site/SWMU	Description	Other Identifications	Current Status	FY 2021 Activities		FY 2022 Activities		FY 2023 Activities	
CERCLA INSTALLATION RESPONSE PROGRAM (IRP) PA/SI SITES										
	MCAS Cherry Point	Facility-wide PFAS Investigation		PA/SI	Final PFAS PA	November 2020	Draft SI Report	August 2022	Final PFAS SI Report	November 2022
					Draft PFAS SI WP	May 2021				
					Final PFAS SI WP	August 2021				
	MCOLF Bogue	Facility-wide PFAS Investigation		PA/SI	Final PFAS SI WP	November 2020	Draft PFAS SI Report	November 2021		
							Final PFAS SI Report	February 2022		
	MCOLF Oak Grove	Facility-wide PFAS Investigation		PA/SI	Draft PFAS SI Report	July 2021	Final PFAS SI Report	December 2021		
	Site 100 - MCOLF Atlantic	Facility-wide PFAS Investigation		PA/SI	Final Expanded PFAS SI WP	December 2020	Draft PFAS SI Report	October 2021		
							Final PFAS SI Report	January 2022		
CERCLA INSTALLATION RESPONSE PROGRAM (IRP) RD/RA SITES										
OU1	Site 42	Industrial Wastewater Treatment Plant	SWMU C-4	RD/RA (Sites 42, 47, 51, 52, 92 and 98 to be addressed together as the OU1 Central Groundwater Plume in RD and RA)	Draft CGWP IRACR	April 2021	Draft CGWP GW LTM Report	December 2021		
					Final CGWP IRACR	July 2021	Final CGWP GW LTM Report	March 2022		
					Draft CGWP PM Report	November 2020				
					Final CGWP PM Report	February 2021				
OU1	Site 47	Industrial Area Sewer System			Draft Pipeline TM	September 2021	Final Pipeline TM	December 2021		
					Draft CGWP IRACR	April 2021	Final CGWP GW LTM Report	March 2022		
					Final CGWP IRACR	July 2021	Draft BLDG 137 PS Report	July 2022		
					Draft CGWP PM Report	November 2020				
					Final CGWP PM Report	February 2021				
OU1	Site 51	Building 137 Plating Shop			Draft CGWP IRACR	April 2021	Draft CGWP GW LTM Report	December 2021	Final BLDG 137 PS Report	December 2022
					Final CGWP IRACR	July 2021	Final CGWP GW LTM Report	March 2022		
					Draft CGWP PM Report	November 2020				
					Final CGWP PM Report	February 2021				
OU1	Site 52	Building 133 Plating Shop and Ditch			Draft CGWP IRACR	April 2021	Draft CGWP GW LTM Report	December 2021		
					Final CGWP IRACR	July 2021	Final CGWP GW LTM Report	March 2022		
					Draft CGWP PM Report	November 2020				
					Final CGWP PM Report	February 2021				
OU1	Site 92	VOCs in Groundwater near the Stripper Barn			Draft CGWP IRACR	April 2021	Draft CGWP GW LTM Report	December 2021		
					Final CGWP IRACR	July 2021	Final CGWP GW LTM Report	March 2022		
					Draft CGWP PM Report	November 2020				
					Final CGWP PM Report	February 2021				
OU1	Site 98	VOCs in Groundwater near Building 4032			Draft CGWP IRACR	April 2021	Draft CGWP GW LTM Report	December 2021		
					Final CGWP IRACR	July 2021	Final CGWP GW LTM Report	March 2022		
					Draft CGWP PM Report	November 2020				
					Final CGWP PM Report	February 2021				
CERCLA IRP REMEDY-IN-PLACE (RIP) SITES										
OU1	Site 16	Landfill at Sandy Branch	SWMU I-16	RIP (LUCs)						
OU2	Site 10	Old Sanitary Landfill	SWMUs I-10a, I-10b	RIP (LTM and LUCs)	Final GW LTM Report	December 2020	Final GW LTM Report	December 2021	Final GW LTM Report	December 2022
					Draft GW LTM Report	September 2021	Draft GW LTM Report	September 2022	Draft GW LTM Report	September 2023
OU2	Site 76	Vehicle Maintenance Area (Hobby Shop)	Hobby Shop	RIP (LTM and LUCs)	Final GW LTM Report	December 2020	Final GW LTM Report	December 2021	Final GW LTM Report	December 2022
					Draft GW LTM Report	September 2021	Draft GW LTM Report	September 2022	Draft GW LTM Report	September 2023
OU3	Site 6	Fly Ash Ponds	SWMU I-6	RIP (LUCs)						
OU3	Site 7	Old Incinerator and Adjacent Area	SWMU I-7	RIP (LUCs)						
OU4	Site 4	Borrow Pit/Landfill (North of Runway 14)	SWMU I-4	RIP (LTM and LUCs)	Final GW LTM Report	December 2020	Final GW LTM Report	December 2021	Final GW LTM Report	December 2022
					Draft GW LTM Report	September 2021	Draft GW LTM Report	September 2022	Draft GW LTM Report	September 2023
OU14	Site 90	Building 130 VOC-Contaminated Groundwater		RIP (LTM and LUCs)	Final GW LTM Report	December 2020	Final GW LTM Report	December 2021	Final GW LTM Report	December 2022
					Draft GW LTM Report	September 2021	Draft GW LTM Report	September 2022	Draft GW LTM Report	September 2023
					Final RO TM	October 2020				

Table 2-1. Current Status of FFA and Additional Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU	Current Site/SWMU	Description	Other Identifications	Current Status	FY 2021 Activities		FY 2022 Activities		FY 2023 Activities	
MUNITIONS RESPONSE PROGRAM (MRP) SITES REQUIRING NO FURTHER ACTION UNDER CERCLA										
		Former Skeet and Trap Range #1		NFA; Site Closure in 2012						
IRP SITES REQUIRING NO FURTHER ACTION UNDER CERCLA										
OU 1	Site 14	Motor Transportation	SWMU I-14	NFA; Site Closure in 2010 (Sites 14, 15, 17, 18, and 40 were addressed together in a single PRAP document and a NFA ROD)						
OU 1	Site 15	Ditch and Area Behind NADEP	SWMU I-15	NFA; Site Closure in 2010 (Sites 14, 15, 17, 18, and 40 were addressed together in a single PRAP document and a NFA ROD)						
OU1	Site 17	DRMO Drainage Ditch	SWMU 17; SWMU I-17	NFA; Site Closure in 2010 (Sites 14, 15, 17, 18, and 40 were addressed together in a single PRAP document and a NFA ROD)						
OU 1	Site 18	Facilities Maintenance Compound	SWMU I-18	NFA; Site Closure in 2010 (Sites 14, 15, 17, 18, and 40 were addressed together in a single PRAP document and a NFA ROD)						
OU 1	Site 40	NADEP Former Drum Storage Area	Site 40; SWMU N-22	NFA; Site Closure in 2010 (Sites 14, 15, 17, 18, and 40 were addressed together in a single PRAP document and a NFA ROD)						
OU 1	Site 83	Building 96 Former Pesticide Mixing Area		NFA; Site Closure in 2012						
OU5	Site 1	Borrow Pit/Landfill	SWMU I-1	NFA						
	Site 2	Borrow Pit/Landfill	SWMU I-2	NFA; Site Closure in 2012						
OU6	Site 12	Crash Crew Training Area	SWMUs I-12, F-13, F-14	NFA; Site Closure in 2008						
OU6	POEI 35a (SSA 35a)	High Power Engine Run-Up Area and Test Cells		NFA						
OU13	Site 19	Borrow Pit/Landfill (South of Runway 32)		NFA; Site Closure in 2013						
OU13	Site 21	Borrow Pit/Landfill (South of Runway 32)	SWMU I-21	NFA; Site Closure in 2013						
OU13	Site 44B	Former Sludge Application Area	SWMU C-10	NFA; Site Closure in 2013						

Table 2-1. Current Status of FFA and Additional Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU	Current Site/SWMU	Description	Other Identifications	Current Status	FY 2021 Activities		FY 2022 Activities		FY 2023 Activities	
OU15	Site 82	Slocum Creek in the Vicinity of OU2 and OU3		NFA						
	Site 85	Hobby Shop Disposal Area		NFA; Site Closure in 2003						
	POEI 3	Cleaning Vats	Building 137	NFA						
	POEI 5	Lead Foundry	Building 137	NFA						
	POEI 6	Sump	Building 245	NFA						
	POEI 11	Condensate Catch Bucket	Building 4173	NFA						
	POEI 16	Hazardous Waste Accumulation Area	Building 4525	NFA						
	POEI 17	Ditch Next to Coal Storage Yard		NFA						
	POEI 22 (PSA 22)	Radioactive Waste Storage Area #1	Between buildings 133 & 421	NFA						
	POEI 23 (PSA 23)	Radioactive Waste Storage Area #2	Building 134	NFA						
	UST 41	S-A Fuel Line Leak Site	formerly of OU12	NFA; regulated as UST site						
	SWMU 3	EOD Range	Site 3; SWMU I-3; formerly of OU11	NFA						
	SWMU 5	Storage Tank for Waste POL	Site 5; SWMU I-5; formerly of OU8	NFA						
	SWMU 11	MAG 14 Supply Site	Site 11; SWMU I-11	NFA						
	SWMU 20	Training Area Four	Site 20; SWMU I-20	NFA						
	SWMU 33	VMGR 252 Accumulation Area	Site 33; SWMU F-22; formerly of OU10	NFA						
	SWMU 34	Crash Crew Accumulation Area	Site 34; SWMU F-38; formerly of OU10	NFA under CERCLA; managed under RCRA.						
	SWMU 35	MAG 14 Accumulation Area	Site 35; SWMU F-42; formerly of OU10	NFA						
	SWMU 36	H&HS 28 Accumulation Area	Site 36; SWMU S-6; formerly of OU10	NFA under CERCLA; managed under RCRA.						
	SWMU 37	MWCS 28 Accumulation Area	Site 37; SWMU S-11; formerly of OU9	NFA under CERCLA; managed under RCRA.						
OU15	SWMU 38	DRMO Hazardous Waste Storage Facility	Site 38; SWMU C-1; formerly of OU11	NFA						
	SWMU 39	Facilities Maintenance Hazardous Waste Storage Facility	Site 39; SWMU C-2; formerly of OU11	NFA						
	SWMU 43	Sewage Treatment Plant	Site 43; SWMU C-5; formerly of OU11	NFA						
	SWMU 45	Current Sludge Application Areas	Site 45; SWMU C-11; formerly of OU11	NFA						
	SWMU 46	Polishing Ponds No. 1 and No. 2	Site 46; SWMU C-12; formerly of OU2	NFA						
	SWMU 48	MASS 1 Wash Rack	Site 48; SWMU S-10	NFA						
	SWMU 49A	MWCS 28 Oil/Water Separator and Leach Field near Building 4337 (MASS - 1)	Site 49A; SWMU C-17; formerly of OU9	NFA under CERCLA; managed under RCRA.						
	SWMU 49B	MACS 6 Oil/Water Separator and Leach Field near Building 1786	Site 49B; SWMU C-17; formerly of OU9	NFA under CERCLA; managed under RCRA.						

Table 2-1. Current Status of FFA and Additional Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU	Current Site/SWMU	Description	Other Identifications	Current Status	FY 2021 Activities		FY 2022 Activities		FY 2023 Activities	
OU1	SWMU 50	PCB Transformer Spill	Site 50; AOC C-A	NFA						
	SWMU 54	MACS 6 Battery Room Leach Field		NFA under CERCLA; managed under RCRA.						
	SWMU 67	FS Smoke Buildings 1234 and 1235		NFA						
	SWMU 68	Cryogenics Area		NFA						
	SWMU 71	Building 3909 Weapons Cleaning Area		NFA under CERCLA; managed under RCRA.						
	SWMU 80	MALS 14 Gunshop, OWS 10		NFA						
	SWMU 84	Golf Course Maintenance Area		NFA under CERCLA; managed under RCRA.						
	SWMU 99	Old Hospital Area		NFA						
	SWMU C-3	PCB-Contaminated Soil Pile		NFA						
	SWMU C-4	Industrial Wastewater Treatment Plant (Structures)	formerly of OU1	NFA						
	SWMU C-6	Fly Ash Holding Tank		NFA						
	SWMU C-7	Coal Yard Catchment Basin		NFA						
	SWMU C-8	Construction Landfill	formerly of OU4	NFA; regulated under State Solid Waste Program						
	SWMU C-9	Asbestos Disposal Area	formerly of OU4	NFA; regulated under the State Solid Waste Program.						
	SWMU C-13	Drainage System		NFA under CERCLA; managed under RCRA.						
	SWMU C-15	Oil/Water Separators		NFA under CERCLA; managed under RCRA.						
	SWMU C-16	PCB Transformer Storage Area		NFA						
	SWMU F-1	HMS 14 Wash Rack		NFA						
	SWMU F-2	HMS 14 UST		NFA						
	SWMU F-3	Hangar 250 Sump		NFA						
	SWMU F-4	VMGR 252 Aircraft Wash Rack		NFA						
	SWMU F-5	VMAQ 2 Aircraft Wash Rack		NFA						
	SWMU F-6	VMA 332 Aircraft Wash Rack		NFA						
	SWMU F-7	HMS 32 Wash Rack		NFA						
	SWMU F-8	MAG 32 Waste Oil UST		NFA						
	SWMU F-9	MAG 32 Waste Hydraulic Fluid Storage Tank		NFA						
	SWMU F-10	MAG 32 Paint Booth		NFA						

Table 2-1. Current Status of FFA and Additional Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU	Current Site/SWMU	Description	Other Identifications	Current Status	FY 2021 Activities		FY 2022 Activities		FY 2023 Activities	
OU1	SWMU F-11	VMA 542 Waste Oil Aboveground Storage Tank		NFA						
	SWMU F-12	MAG 32 Aircraft Wash Rack and Sump		NFA						
	SWMU F-15	Crash Crew Fuel Tanker		NFA						
	SWMU F-16	HMS 14 Accumulation Area		NFA						
	SWMU F-17	HMS 14 Spent Battery Storage Area		NFA						
	SWMU F-18	HMS GSE #1 Accumulation Area		NFA						
	SWMU F-19	HMS GSE #2 Accumulation Area		NFA						
	SWMU F-20	VMGR 253 #1 Accumulation Area		NFA						
	SWMU F-21	VMGR 253 #2 Accumulation Area		NFA						
	SWMU F-23	VMAQ 2 Accumulation Area		NFA						
	SWMU F-24	HMS 14 Accumulation Area		NFA						
	SWMU F-25	VMA 332 Accumulation Area		NFA						
	SWMU F-26	VMA 533 Accumulation Area		NFA						
	SWMU F-27	SOES Accumulation Area		NFA						
	SWMU F-28	VMAT 203 Accumulation Area		NFA						
	SWMU F-29	HMS 32 #1 Accumulation Area		NFA						
	SWMU F-30	HMS 32 #2 Accumulation Area		NFA						
	SWMU F-31	HMS 32 GSE #1 Accumulation Area		NFA						
	SWMU F-32	HMS 32 GSE #2 Accumulation Area		NFA						
	SWMU F-33	VMA 223 Accumulation Area		NFA						
	SWMU F-34	VMA 542 #1 Accumulation Area		NFA						
	SWMU F-35	VMA 542 #2 Accumulation Area		NFA						
	SWMU F-36	VMA 231 Accumulation Area		NFA						
	SWMU F-37	VMA 332 Accumulation Area		NFA						
	SWMU F-39	HMS 32 Accumulations Area		NFA						
	SWMU F-40	Crash Crew Burn Pit Accumulation Area		NFA						
	SWMU F-41	MAG 32 #1 Accumulation Area		NFA						
	SWMU N-1	Paint Shop Water Curtain	formerly of OU1	NFA						
	SWMU N-2	Plating Shop Cleaning Vats	formerly of OU1	NFA						
	SWMU N-3	Metal Plating Shop Degreaser	formerly of OU1	NFA						
	SWMU N-4	Metal Cleaning Shop Vats	formerly of OU1	NFA						
	SWMU N-5	Cleaning Shop Vats	formerly of OU1	NFA						
	SWMU N-6	Chemical Stripline Cleaning Vats	formerly of OU1	NFA						
	SWMU N-7	Photo Lab and Cleaning Shop Holding Tank	formerly of OU1	NFA						
	SWMU N-8	Silver Recovery Tank in Photo Shop	formerly of OU1	NFA						
	SWMU N-9	Roto Head Repair Shop Parts Cleaner	formerly of OU1	NFA						
	SWMU N-10	Down Draft Paint Sump	formerly of OU1	NFA						
	SWMU N-11	Zinc Rinse Paint Sump	formerly of OU1	NFA						
	SWMU N-12	Plating System Tank	formerly of OU1	NFA						
	SWMU N-13	Anodizing Solution Tank	formerly of OU1	NFA						
	SWMU N-14	Typical Container Accumulation Area	formerly of OU1	NFA						
	SWMU N-15	Electroplating Shop Sump	formerly of OU1	NFA						
	SWMU N-16	Paint Shop Water Curtain	formerly of OU1	NFA						
	SWMU N-17	Cleaning Vats	formerly of OU1	NFA						

Table 2-1. Current Status of FFA and Additional Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU	Current Site/SWMU	Description	Other Identifications	Current Status	FY 2021 Activities		FY 2022 Activities		FY 2023 Activities	
OU1	SWMU N-18	Aircraft Paint Stripping Shop Sump	formerly of OU1	NFA						
	SWMU N-19	Central Transfer Area	formerly of OU1	NFA						
	SWMU N-20	Down Draft Aircraft Paint Booth	formerly of OU1	NFA						
	SWMU N-21	Plastic Media Blasting Cyclone	formerly of OU1	NFA						
	SWMU S-1	Boat Dock Waste Oil Aboveground Storage Tank		NFA						
	SWMU S-2	Navy Boat Dock Accumulation Area	Navy Boat Dock #2 Site	NFA; release regulated under UST program						
	SWMU S-3	Generator Shop Accumulation Area		NFA						
	SWMU S-4	MWSS 271 Accumulation Area		NFA						
	SWMU S-5	MWSS 274 Accumulation Area		NFA						
	SWMU S-7	MACS 6 Accumulation Area		NFA						
	SWMU S-8	MACS 6 Wash Rack		NFA						
	SWMU S-9	MASS 1 Accumulation Area		NFA						
	SWMU S-12	Pesticide Mixing Area New Shop		NFA						

Notes:
FFA site primary documents are in ***Bold*** text.
UST = Underground Storage Tank
SWMU = Solid Waste Management Unit
PM = Performance Monitoring
PS = Pilot Study

Color Coding for Current Status:
Preliminary Assessment/Site Investigation (PA/SI)
Remedial Investigation/Feasibility Study (RI/FS)
Proposed Plan/Record of Decision (PP/ROD)
Remedial Design/Remedial Action (RD/RA)
Remedy In Place (RIP)
No Further Action (NFA)

Table 2-2. Summary of Environmental Studies, Investigations, and Actions Completed to Date at ER Program Sites Identified in the FFA
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No.	Site No.	Preliminary Studies		Preliminary Investigations	PS/TS	Removal Actions	RI/FS	RI	FS	DD	PRAP	Interim ROD	ROD	Remedial Design	Remedial Action	Site Closure
		IAS (1983)	RFA (1988)													
1	Site 14	X	X	SAR - 1994				2002; 2009	N/A	N/A	2010		2010	NFA	NFA	2010
	Site 15	X	X	IRI - 1988 RFI - 1993				2002; 2009	N/A	N/A	2010		2010	NFA	NFA	2010
	Site 16	X	X	IRI - 1988 RFI - 1991 TDM - 1992 & 1994	AS/SVE PS - 1996	Debris Piles - 1997 AS/SVE system installed in 1998 as part of the removal action; system shut down in 2005.	1996	2002; 2009; 2012	N/A	N/A	2015		2017	2017 LUC Remedial Design	2018 LUC Implementation	
	Site 17	X	X	RFI - 1992		PCB-contaminated soil and sediment - 1995		2002; 2009	N/A	N/A	2010		2010	NFA	NFA	2010
	Site 18	X	X	IRI - 1988				2002; 2009	N/A	N/A	2010		2010	NFA	NFA	2010
	Site 42				Pump and Treat System - 1996; Biobarrier PS - 2011-2012; Permeable Reactive Barrier PS - 2012		1996	2002; 2009	2011	N/A	2014	NADEP Groundwater - 1996	2016	Groundwater Pump and Treat System; Interim GW monitoring 2004-2005; 2017 Remedial Design WP; 2019 Remedial Action WP	Installation of GW Pump and Treat System - 1998 (system shut down in 2003); Interim GW monitoring 2004-2005; Installation of ISEB and ZVI barriers 2019; GW monitoring 2018-current	
	Site 47			Infiltration & Leakage Study - 1992	Bioremediation/ HRC TS - 2001; Biobarrier PS - 2011-2012; Permeable Reactive Barrier PS - 2012		1999	2002; 2009	2011	N/A	2014	NADEP Groundwater - 1996	2016	2017 Remedial Design WP; 2019 Remedial Action WP	Installation of ISEB and ZVI barriers 2019; GW monitoring 2018-current	
	Site 51				Bioremediation/ HRC TS - 2005; Biobarrier PS - 2011-2012; Permeable Reactive Barrier PS - 2012			2002; 2009	2011	N/A	2014	NADEP Groundwater - 1996	2016	Building Decontamination and Renovation; 2017 Remedial Design; 2019 Remedial Action WP	Building Decontamination and Renovation - 1994; Installation of ISEB and ZVI barriers 2019; GW monitoring 2018-current	
	Site 52				Bioremediation/ HRC TS - 2005; Biobarrier PS - 2011-2012; Permeable Reactive Barrier PS - 2012			2002; 2009	2011	N/A	2014	NADEP Groundwater - 1996	2016	Building Decontamination and Renovation, Groundwater Pump and Treat System; Interim GW monitoring 2004-2005; 2017 Remedial Design; 2019 Remedial Action WP	Building Decon and Renovation - 1994; Installation of GW Pump and Treat System - 1998 (system shut down in 2003); Interim GW monitoring 2004-2005; Installation of ISEB and ZVI barriers 2019; GW monitoring 2018-current	
	Site 83			SAR - 1998				2002; 2009; 2011	N/A	N/A	2012		2012	NFA	NFA	2012
	Site 92				Biobarrier PS - 2011-2012; Permeable Reactive Barrier PS - 2012		1996	2002; 2009	2011	N/A	2014	NADEP Groundwater - 1996	2016	Groundwater Pump and Treat System; Interim GW monitoring 2004-2005; 2017 Remedial Design WP; 2019 Remedial Action WP	Installation of GW Pump and Treat System - 1998 (system shut down in 2003); Interim GW monitoring 2004-2005; Installation of ISEB and ZVI barriers 2019; GW monitoring 2018-current	

Table 2-2. Summary of Environmental Studies, Investigations, and Actions Completed to Date at ER Program Sites Identified in the FFA
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No.	Site No.	Preliminary Studies		Preliminary Investigations	PS/TS	Removal Actions	RI/FS	RI	FS	DD	PRAP	Interim ROD	ROD	Remedial Design	Remedial Action	Site Closure
		IAS (1983)	RFA (1988)													
1	Site 98			Site Check - 1994 RRR - 1995	Biobarrier PS - 2011-2012; Permeable Reactive Barrier PS - 2012			2002; 2009	2011	N/A	2014	NADEP Groundwater - 1996	2016	Groundwater Pump and Treat System; Interim GW monitoring 2004-2005; 2017 Remedial Design WP; 2019 Remedial Action WP	Installation of GW Pump and Treat System - 1998 (system shut down in 2003); Interim GW monitoring 2004-2005; Installation of ISEB and ZVI barriers 2019; GW monitoring 2018-current	
2	Site 10	X	X	IRI - 1988 RFI - 1991 TDM - 1992 & 1994	SVE PS - 1996		1997	1997	1997; 2010	N/A	1996; 2011	N/A	1999; 2011	1999 - Soil Vapor Extraction System to treat four hot spots; LUCs, LTM of groundwater; 2011 - Add soil cover at Hot Spot 2	Soil Vapor Extraction System - 1997 (shut down in 2003); LUCs implemented - 1996; LTM of groundwater; 2011 - Add soil cover at Hot Spot 2; 2020 - VI LUC implemented	
	Site 46		X				1997	1997	1997	N/A	1996	N/A	1999	LUCs, LTM of groundwater	LUCs implemented - 1996; LTM of groundwater	
	Site 76			RRR - 1995			1997	1997	1997	N/A	1996	N/A	1999	LUCs, LTM of groundwater	LUCs implemented - 1996; LTM of groundwater ; 2020 - VI LUC implemented	
3	Site 6	X	X	IRI - 1988 RFI - 1993			1996	1996	1996	N/A	1996		2000	Record Maintenance; ICs for groundwater and soil; LTM of groundwater; sludge removal and site revegetation	Sludge removal and site revegetation - 1996; ICs for groundwater and soil - 2000; LTM of groundwater (ended 2011)	
	Site 7	X	X	IRI - 1988 RFI - 1993 TDM - 1993		Removal/demolition of AS system scheduled to begin May 2007	1996	1996	1996	N/A	1996		2000	Record Maintenance, LUCs for groundwater and land, fencing and warning signs, in-situ bioremediation (air sparge system), LTM of groundwater	LUCs for groundwater and land - 1996; fencing and warning signs - 1998; in-situ bioremediation (air sparge system) - 2000 (system shut down in 2003, removed in 2007); LTM of groundwater (ended 2011)	
4	Site 4	X	X	IRI - 1988 RFI - 1993 TDM -1993				2001	2004	N/A	2005		2005	LUCs, LTM of groundwater	LUCs being implemented, LTM of groundwater	
5	Site 1	X	X	IRI - 1988 RFI - 1993				2003	2005	N/A	2005		2006	NFA	NFA	2006
	Site 2	X	X	IRI - 1988 RFI - 1993				2003	2005	N/A	2005		2006	LUCs, LTM of groundwater (ended 2011)	LUCs, LTM of groundwater (ended 2011)	2012
6	Site 12	X	X	RFI - 1993 TDM - 1993		Soil removal began March 2007 and was completed in May 2007		2005	2006	N/A	2006		2006	Soil removal, LTM of groundwater, LUCs	Soil removal, LTM of groundwater, LUCs	2008

Table 2-2. Summary of Environmental Studies, Investigations, and Actions Completed to Date at ER Program Sites Identified in the FFA
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No.	Site No.	Preliminary Studies		Preliminary Investigations	PS/TS	Removal Actions	RI/FS	RI	FS	DD	PRAP	Interim ROD	ROD	Remedial Design	Remedial Action	Site Closure
		IAS (1983)	RFA (1988)													
13	Site 19	X	X	IRI - 1988 RFI - 1993				2002	2004	N/A	2005		2005	LUCs, LTM of groundwater (ended 2012)	LUCs, LTM of groundwater (ended 2012)	2013
	Site 21	X	X	IRI - 1988 RFI - 1993 TDM - 1993				2002	2004	N/A	2005		2005	LUCs, LTM of groundwater (ended 2012)	LUCs, LTM of groundwater (ended 2012)	2013
	Site 44B			RFI - 1993				2002	2004	N/A	2005		2005	LUCs, LTM of groundwater (ended 2012)	LUCs, LTM of groundwater (ended 2012)	2013
14	Site 90							2008	2009	N/A	2009		2009	LUCs - 2010 LTM - 2011	LUCs, LTM of groundwater	
15	Site 82										2002		2003	NFA	NFA	2003
	POEIs 22 and 23 (SSAs 22 and 23			Site Visit - 1998						N/A						2008
	POEI 35a (SSA 35a)			Site Evaluation - 2001						2004						2004
	Site 85			SSA - 2003		Solid Waste Removal - 1998				2003						2003
	Former Skeet and Trap Range #1			SI - 2010 Expanded SI - 2012						2013						2012

DD - Decision Document
ERA - Ecological Risk Assessment
FFA - Federal Facilities Assessment
FS - Feasibility Study
IAS - Initial Assessment Study
IRI - Interim Remedial Investigation
POEI - Point of Environmental Interest
PRAP - Proposed Remedial Action Plan
PS - Pilot Study
RFA - RCRA Facility Assessment
RFI - RCRA Facilities Investigation
RI - Remedial Investigation
ROD - Record of Decision
RRR - Relative Risk Ranking
SA - Site Assessment
SAR - SWMU Assessment Report
SI - Site Investigation
SRI - Supplemental Remedial Investigation
SSA - Site Screening Assessment
SSP - Site Screening Process Report
TDM - Technical Direction Memorandum
TS - Treatability Study

Table 2-3. Document Submittals for FFA Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No./Site	Activity	Author	Sites Included	Final Submittal/ Completion Date	ROD/IROD Signature Date
1	Visual Site Inspection	Water and Air Research	15	1982	
	Initial Assessment Study	Water and Air Research	14, 15, 16, 17,18, 42, 51, 52	March 1983	
	RCRA Facility Assessment	A. T. Kearney	14, 15, 16, 17, 18, 42, 51, 52	June 1988	
	Interim Remedial Investigation	NUS Corporation	15, 16, 17, 18	October 1988	
	Wastewater Treatment Facility Assessment	ATEC	42	May 1991	
	RCRA Facilities Investigation	NUS Corporation	16, 17	May 1991	
	RFI Trip Report	Halliburton NUS	51, 52	November 1991	
	Phase I Technical Direction Memorandum	Halliburton NUS	16	November 1992	
	21 Unit RCRA Facilities Investigation	Halliburton NUS	15	June 1993	
	90% Completion Report	Dames & Moore	51, 52	September 1993	
	Infiltration and Leakage Study	Halliburton NUS	47	November 1993	
	SWMU Assessment Report	U.S. Marine Corps	14	May 1994	
	Phase II Technical Direction Memorandum	Halliburton NUS	16	June 1994	
	Site Check	R. E. Wright Associates	98	May 1995	
	Relative Risk Ranking	Baker Environmental	98	November 1995	
	Focused Remedial Investigation/Feasibility Study	Brown & Root Environmental	16, 42, 92	February 1996	
	Remedial Action Report	OHM Remediation Services	51, 52	August 1996	
	Interim Record of Decision for NADEP Groundwater	Brown & Root Environmental	42, 52, 92, 98	August 1996	September 10, 1996
	Basis of Design Report	Brown & Root Environmental	16	April 1997	
	Sampling and Analysis Plan for Air Sparging and SVE	OHM Remediation Services	16	December 1997	
	Debris Pile Time-Critical Removal Action	OHM Remediation Services	16	January 1998	
	SWMU Assessment Report	Brown & Root Environmental	83	March 1998	
	Slocum Creek Fish Ingestion Report	Tetra Tech	OU1, OU2, OU3, OU4	June 1999	
	Remedial Action Report	OHM Remediation Services	42, 92	November 1999	
	Work Plan	CH2M	47	January 2000	
	Long-Term Remedial Action Plan	OHM Remediation Services	42	January 2000	
	4th Quarter O&M Status Report for 1999	OHM Remediation Services	16, 42	February 2000	
	Long-Term Remedial Action Plan	OHM Remediation Services	16	April 2000	
	Remedial Action Report	OHM Remediation Services	16	November 2000	
	Remedial Investigation/Feasibility Study Work Plan	Tetra Tech	14, 15, 16, 17, 18, 42, 47, 51, 52, 83, 92, 98	November 2000	
	O&M Status Report	OHM Remediation Services	16	February 2001	
	Treatability Study Work Plan	CH2M	47	March 2001	
	O&M Status Report	OHM Remediation Services	42	May 2001	
	Slocum Creek Screening Level Ecological Risk Assessment	Tetra Tech	OU1, OU2, OU3, OU4	November 2001	
	Remedial Investigation	Brown & Root Environmental	14, 15, 16, 17, 18, 42, 47, 51, 52, 83, 92, 98	May 2002	
	Annual Report 2001	Shaw	16	March 2002	
	Long Term Remedial Action Plan	Shaw	16	June 2002	
	Long Term Remedial Action Plan P&T/IWTP	Shaw	42, 92	June 2002	
	Annual Report 2002	Shaw	42, 92	June 2002	
	Ecological Risk Assessment Step 3A Addendum	CH2M	14, 15, 16, 18, 42, 47, 51, 52, 83, 92, 98	July 2003	
	Treatability Study Technical Memoranda	CH2M	47	August 2003	
	Baseline Ecological Risk Assessment Work Plan	CH2M	14, 15, 16, 18, 42, 47, 51, 52, 83, 92, 98	May 2004	
	Quarterly O&M Status Report 3rd quarter 2003	CH2M	16	September 2004	
	O&M Status Report, Pump & Treat System, 2nd quarter 2003	CH2M	OU1	December 2004	
	O&M Status Report, 2nd quarter 2004	CH2M	OU1	June 2005	
	O&M Status Report, 3rd quarter 2003	CH2M	16	June 2005	
	O&M Status Report, 1st quarter 2004	CH2M	16	June 2005	
	Annual O&M Status Report, 4th quarter 2003	CH2M	16	June 2005	
	Quarterly O&M Status Report 4th quarter 2003	CH2M	16	June 2005	
	Baseline Ecological Risk Assessment	CH2M	OU1	August 2005	
	Post-BERA Investigation Work Plan for Operable Unit 1	CH2M	OU1	July 2006	
	Technical Memorandum, May 2005, VGM at OU1	AGVIQ CH2M JVI	OU1	July 2006	
	OU1 Treatability Study	CH2M	OU1	December 2007	

Table 2-3. Document Submittals for FFA Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No./Site	Activity	Author	Sites Included	Final Submittal/ Completion Date	ROD/IROD Signature Date
1	Engineering Evaluation/Cost Analysis (EE/CA), Sandy Branch Tributary 2	CH2M	OU1	January 2008	
	Action Memorandum, Sandy Branch Tributary 2	CH2M	OU1	April 2008	
	Technical Memorandum, Additional Investigation at 16GW04	CH2M	16	May 2008	
	Removal Action Work Plan, Sandy Branch Tributary 2	Rhēa	OU1	June 2008	
	Sampling and Analysis Plan, Additional Investigations at OU1, Site 17	CH2M	17	July 2008	
	OU1 Remedial Investigation Addendum	CH2M	OU1	April 2009	
	Remedial Action Closeout Report, Sandy Branch Tributary 2	Rhēa	OU1	June 2009	
	AS/SVE System Removal Work Plan	Rhēa	16	June 2009	
	Sampling and Analysis Plan, Site 83	Rhēa	83	June 2009	
	Sampling and Analysis Plan, Vapor Intrusion Investigation	CH2M	OU1	August 2009	
	Supplemental Investigation Report, OU1 Site 17	CH2M	17	September 2009	
	AS/SVE System Decommission Report	Rhēa	16	February 2010	
	NFA Proposed Plan	Rhēa	14, 15, 17, 18, 40	March 2010	
	Supplemental Investigation Report, OU1 Site 83	Rhēa	83	June 2010	
	NFA Record of Decision	CH2M	14, 15, 17, 18, 40	September 2010	September 29, 2010
	Vapor Intrusion Investigation Report (Phase I)	CH2M	OU1	January 2011	
	AS/SVE System Decommission Work Plan	Rhēa	16	February 2011	
	Sampling and Analysis Plan, OU1 Central Groundwater Plume Pilot Study	CH2M	OU1	March 2011	
	Implementation Plan, OU1 Central Groundwater Plume Pilot Study	CH2M	OU1	March 2011	
	Supplemental Remedial Investigation Report, OU1 Site 83	CH2M	83	May 2011	
	Sampling and Analysis Plan, Vapor Intrusion Investigation (Phase 2)	CH2M	OU1	May 2011	
	Technical Memorandum, Site 16 Human Health Risk Assessment	CH2M	16	June 2011	
	OU1 Central Groundwater Plume FS	CH2M	OU1	September 2011	
	OU1 Biobarrier Pilot Study Report	CH2M	OU1	January 2012	
	Supplemental Remedial Investigation Report, OU1 Site 16	CH2M	16	March 2012	
	Proposed Plan, OU1 Site 83	Rhēa	83	March 2012	
	Restoration Work Plan, Site 83	Rhēa	83	April 2012	
	Vapor Intrusion Investigation Report (Phase II)	CH2M	OU1	May 2012	
	Sampling and Analysis Plan, Permeable Reactive Barrier Pilot Study	CH2M	OU1	May 2012	
	Work Plan, Permeable Reactive Barrier Pilot Study	CH2M	OU1	May 2012	
	Record of Decision, OU1 Site 83	Rhēa	83	August 2012	October 16, 2012
	Technical Memorandum, Biobarrier Pilot Study 12-month Results	CH2M	OU1	December 2012	
	Construction Closeout Report, OU1 Site 83 Restoration	Rhēa	83	March 2013	
	Sampling and Analysis Plan, OU1 Central Groundwater Plume Pre-Remedial Design Groundwater Monitoring	CH2M	OU1	November 2013	
	Work Plan, Decommission of OU1 Pump and Treat System	Rhēa	OU1	March 2014	
	Technical Memorandum, Biobarrier Pilot Study 24-month Results	CH2M	OU1	March 2014	
	Proposed Plan, OU1 Central Groundwater Plume Sites 42, 47, 51, 52, 92, and 98	CH2M	42, 47, 51, 52, 92, 98	April 2014	
	Implementation Report, Permeable Reactive Barrier Pilot Study	CH2M	OU1	May 2015	
	Proposed Plan, OU1 Site 16	Rhēa	16	September 2015	
	Record of Decision, OU1 Central Groundwater Plume Sites 42, 47, 51, 52, 92, and 98	CH2M	OU1	September 2016	September 21, 2016
	Summary of the Updated Human Healt Risk Assessment, OU1 Site 16	CH2M	16	May 2017	
	Site 16 ROD	CH2M	16	September 2017	January 10, 2018
	Operable Unit 1 Vapor Intrusion, 2016 Baseline Long-Term Monitoring Report, and Building 137 Additional Investigation	CH2M	OU1	October 2017	
	Remedial Design for Land Use Controls, Operable Unit 1, Site 16	CH2M	16	March 2018	
	Remedial Design for Operable Unit 1, Central Groundwater Plume – Sites 42, 47, 51, 52, 92, and 98,	CH2M	OU1	March 2018	
	Interim Remedial Action Completion Report, OU1 Site 16	CH2M	16	January 2020	

Table 2-3. Document Submittals for FFA Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No./Site	Activity	Author	Sites Included	Final Submittal/ Completion Date	ROD/IROD Signature Date
2	Hydrogeologic and Geotechnical Analysis	Schnabel Engineering	10	December 1981	
	Initial Assessment Study	Water and Air Research	10	March 1983	
	RCRA Facility Assessment	A. T. Kearney	10, 44A, 46	June 1988	
	Interim Remedial Investigation	NUS Corporation	10	October 1988	
	Groundwater Assessment	Ensafe	10	December 1988	
	Evaluation of Sludge Impoundment Area	Halliburton NUS	10	December 1991	
	RCRA Facility Investigation	NUS Corporation	10	May 1991	
	Phase I Technical Direction Memorandum	Halliburton NUS	10	November 1992	
	21 Unit RCRA Facilities Investigation	Halliburton NUS	44A	June 1993	
	Phase II Technical Direction Memorandum	Halliburton NUS	10	June 1994	
	Relative Risk Ranking	Baker Environmental	76	November 1995	
	Proposed Remedial Action Plan	Brown & Root Environmental	10, 44A, 46, 76	June 1996	
	Basis of Design Report for Air Sparging System	Brown & Root Environmental	10	April 1997	
	Remedial Investigation	Brown & Root Environmental	10, 44A, 46, 76	April 1997	
	Feasibility Study	Brown & Root Environmental	10, 44A, 46, 76	July 1997	
	Sampling and Analysis Plan	OHM Remediation Services	10, 44A, 46, 76	November 1997	
	Air Sparge Work Plan	OHM Remediation Services	10	December 1997	
	O&M Plan for SVE	OHM Remediation Services	10, 44A, 46, 76	June 1998	
	Record of Decision	Tetra Tech	10, 44A, 46, 76	March 1999	September 29, 1999
	LTM Remedial Action Plan	OHM Remediation Services	10, 44A, 46, 76	May 1999	
	Remedial Action Report	OHM Remediation Services	10, 44A, 46, 76	May 1999	
	Remedial Design Work Plan for Baseline LTM	CH2M	10, 44A, 46, 76	May 1999	
	Slocum Creek Fish Ingestion Report	Tetra Tech	OU1, OU2, OU3, OU4	June 1999	
	Land Use Control Assurance Plan	U.S. Marine Corps	10, 44A, 46, 76	October 2000	
	O&M Status Report	OHM Remediation Services	10, 44A, 46, 76	December 2000	
	O&M Status Report	OHM Remediation Services	10, 44A, 46, 76	January 2001	
	Remedial Design/Remedial Action Report	CH2M	10, 44A, 46, 76	October 2001	
	Slocum Creek Screening Level Ecological Risk Assessment	Tetra Tech	OU1, OU2, OU3, OU4	November 2001	
	Remedial Action Report	Shaw	10	January 2002	
	Long Term Remedial Action Report	Shaw	10	May 2002	
	LTM Work Plan	CH2M	10, 44A, 46, 76	October 2002	
	LTM Annual Report	CH2M	10, 44A, 46, 76	July 2003	
	O&M Status Report, 2nd quarter 2003	CH2M	10	September 2004	
	Final Technical Memorandum re: January 2004 SVE Hot Spot Area sampling	Rhēa	10	January 2004	
	2003 LTM Report	CH2M	OU2	June 2005	
	Final Technical Memorandum re: April 2005 SVE Hot Spot Area sampling	Rhēa	10	August 2005	
	2004 LTM Report	Rhēa	OU2	December 2005	
	Technical Memorandum re: April 2005 SVE Hot Spot Area sampling	Rhēa	10	May 2006	
	2005 LTM Report	Rhēa	OU2	June 2006	
	2006 LTM Report	Rhēa	OU2	October 2007	
	OU2 Site 10 Proposed Sampling Tech Memo	Rhēa	10	June 2008	
	2007 LTM Report	Rhēa	OU2	October 2008	
	2008 LTM Report	Rhēa	OU2	September 2009	
	Work Plan, OU2 Site 10 SVE System Decommission	Rhēa	10	April 2010	
	Construction Closeout Report, OU2 Site 10 SVE System Decommission	Rhēa	10	July 2010	
	2009 LTM Report	Rhēa	OU2	August 2010	
	Focused Feasibility Study, OU2 Site 10	Rhēa	10	February 2011	
	Proposed Plan, OU2 Site 10	Rhēa	10	March 2011	
	OU2 LTM Optimization Report	CH2M	OU2	May 2011	
	Amended Record of Decision, OU2 Site 10	Rhēa	10	July 2011	September 26, 2011
	2010 LTM Report	Rhēa	OU2	September 2011	
	Remedial Design, OU2 Site 10	Rhēa	10	December 2011	
	2011 LTM Report	Rhēa	OU2	December 2011	

Table 2-3. Document Submittals for FFA Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No./Site	Activity	Author	Sites Included	Final Submittal/ Completion Date	ROD/IROD Signature Date
2	Sampling and Analysis Plan, OU2 LTM	CH2M	OU2	June 2012	
	Construction Closeout Report, OU2 Site 10, Hotspot 2	Rhēa	10	August 2012	
	Interim Remedial Action Completion Report	Rhēa	10	December 2012	
	2012 LTM Report	Rhēa	OU2	June 2013	
	2013 LTM Report	Rhēa	OU2	January 2014	
	2014 LTM Report	Rhēa	OU2	October 2014	
	2015 LTM Report	Rhēa	OU2	November 2015	
	2016 LTM Report	Rhēa	OU2	May 2017	
	2017 LTM Report	Rhēa	OU2	February 2018	
	2018 LTM Report	Rhēa	OU2	September 2018	
	ROD Explanation of Significant Differences	CH2M	OU2	February 2020	
3	Initial Assessment Study	Water and Air Research	6, 7	March 1983	
	RCRA Facility Assessment	A. T. Kearney	6, 7	June 1988	
	Interim Remedial Investigation	NUS Corporation	6, 7	October 1988	
	21 Unit RCRA Facilities Investigation	Halliburton NUS	6, 7	June 1993	
	10 Unit Technical Direction Memorandum	Halliburton NUS	6, 7	August 1993	
	Proposed Remedial Action Plan	Brown & Root Environmental	6, 7	June 1996	
	Remedial Investigation	Brown & Root Environmental	6, 7	December 1996	
	Feasibility Study	Brown & Root Environmental	6, 7	December 1996	
	Remedial Action Report	OHM Remediation Services	6, 7	January 1998	
	Sampling and Analysis Plan	OHM Remediation Services	6, 7	January 1999	
	Work Plan for Air Sparge System	OHM Remediation Services	7	January 1999	
	Remedial Design Work Plan for Baseline LTM	CH2M	6, 7	May 1999	
	Slocum Creek Fish Ingestion Report	Tetra Tech	OU1, OU2, OU3, OU4	June 1999	
	O&M Plan	OHM Remediation Services	6, 7	May 2000	
	LTM Remedial Action Plan	OHM Remediation Services	6, 7	June 2000	
	Remedial Action Report	OHM Remediation Services	6, 7	August 2000	
	Record of Decision	Tetra Tech	6, 7	August 2000	October 24, 2000
	Land Use Control Assurance Plan	U.S. Marine Corps	6, 7	October 2000	
	O&M Status Report	OHM Remediation Services	6, 7	April 2001	
	Remedial Design/Remedial Action Report	CH2M	6, 7	October 2001	
	Slocum Creek Screening Level Ecological Risk Assessment	Tetra Tech	OU1, OU2, OU3, OU4	November 2001	
	LTM Remedial Action Report - Air Sparging	Shaw	7	April 2002	
	Remedial Action Report	Shaw	7	May 2002	
	LTM Work Plan	CH2M	6, 7	September 2002	
	Annual Report	Shaw	7	February 2003	
	LTM Monitoring Report	CH2M	6, 7	October 2003	
	LTM Annual Report	CH2M	6, 7	October 2003	
	LTM Quarterly Sampling Tech Memo	CH2M	6,7	January 2004	
	Quarterly LTM Report	CH2M	6,7	March 2004	
	2003 LTM Report	CH2M	6,7	June 2005	
	2004 LTM Report	Rhēa	OU3	December 2005	
	2005 LTM Report	Rhēa	OU3	June 2006	
	Site 7 System Removal After Action Report	Rhēa	7	July 2007	
	Interim Remedial Action Completion Report	CH2M	6,7	September 2007	
	2006 LTM Report	Rhēa	OU3	October 2007	
	2007 LTM Report	Rhēa	OU3	September 2008	
	2008 LTM Report	Rhēa	OU3	September 2009	
	2009 LTM Report	Rhēa	OU3	July 2010	
	2010 LTM Report	Rhēa	OU3	September 2011	
	Remedial Action Completion Report	CH2M	OU3	May 2012	

Table 2-3. Document Submittals for FFA Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

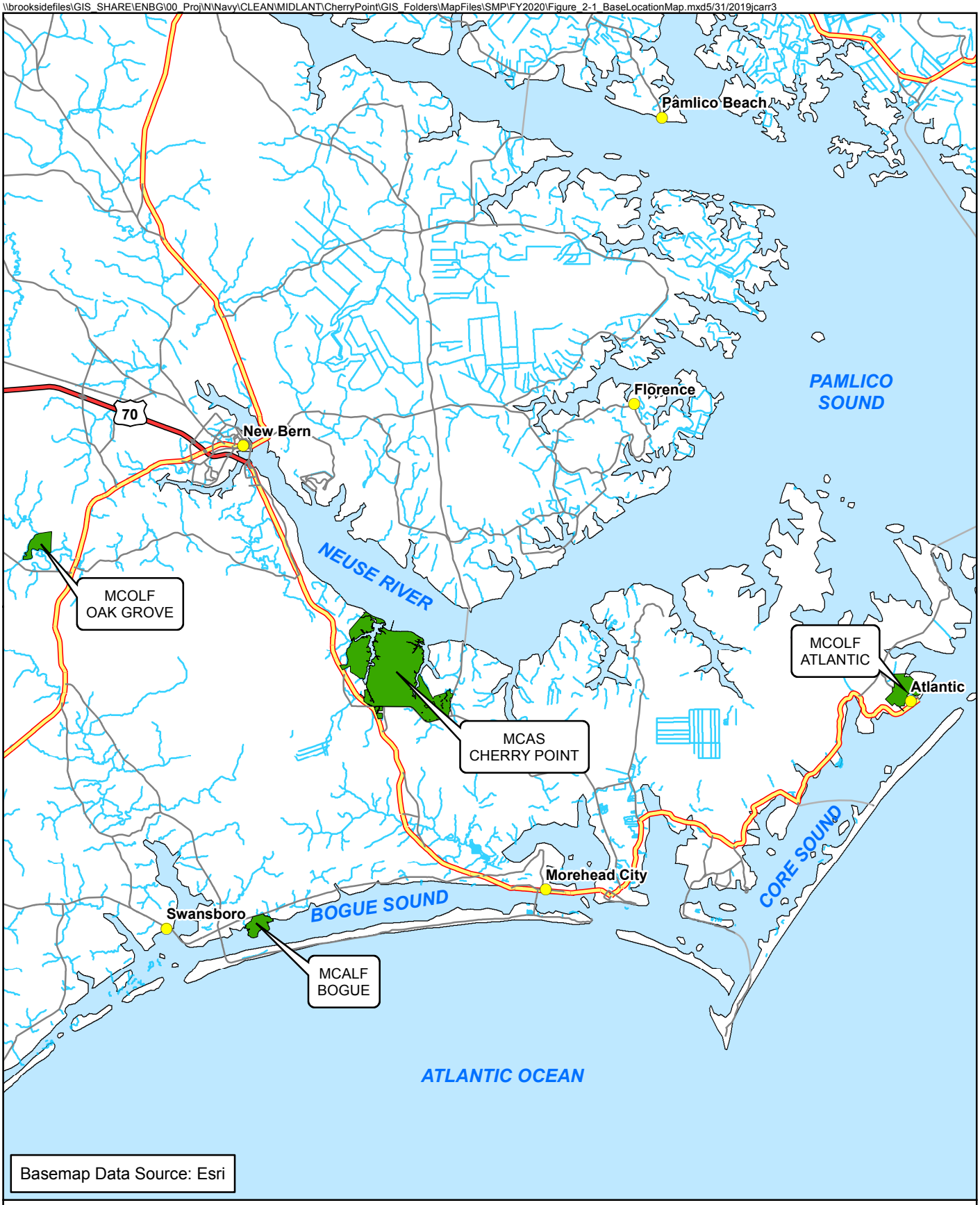
OU No./Site	Activity	Author	Sites Included	Final Submittal/ Completion Date	ROD/IROD Signature Date
4	Initial Assessment Study	Water and Air Research	4	March 1983	
	RCRA Facility Assessment	A. T. Kearney	4	June 1988	
	Interim Remedial Investigation	NUS Corporation	4	October 1988	
	21 Unit RCRA Facilities Investigation	Halliburton NUS	4	June 1993	
	10 Unit Technical Direction Memorandum	Halliburton NUS	4	August 1993	
	Slocum Creek Fish Ingestion Report	Tetra Tech	OU1, OU2, OU3, OU4	June 1999	
	Remedial Investigation/Feasibility Study Work Plan	Tetra Tech	4	June 1999	
	Slocum Creek Screening Level Ecological Risk Assessment	Tetra Tech	OU1, OU2, OU3, OU4	November 2001	
	Remedial Investigation	Tetra Tech	4	June 2002	
	Focused Feasibility Study	CH2M	4	June 2004	
	Proposed Remedial Action Plan	CH2M	4	April 2005	
	Record of Decision	CH2M	4	September 2005	September 14, 2005
	Remedial Design	CH2M	4	April 2006	
	Interim Remedial Action Completion Report	CH2M	4	October 2006	
	2006 LTM Report	CH2M	OU4	April 2007	
	2007 LTM Report	CH2M	OU4, OU5, OU6, OU13	August 2008	
	2008 LTM Report	Rhēa	OU4, OU5, OU6, OU13	September 2009	
	Sampling and Analysis Plan, Additional Investigation Activities	Rhēa	OU4	June 2010	
	2009 LTM Report	Rhēa	OU4, OU5, OU13	July 2010	
	2010 LTM Report	Rhēa	OU4, OU5, OU13	July 2011	
	Technical Memorandum, Supplemental Investigation	Rhēa	OU4	September 2011	
	2011 LTM Report	Rhēa	OU4, OU5, OU13	June 2012	
	2012 LTM Report	Rhēa	OU4, OU13	June 2013	
	2013 LTM Report	Rhēa	OU4	April 2014	
	2014 LTM Report	Rhēa	OU4	March 2015	
	2015 LTM Report	Rhēa	OU4	August 2016	
	2016 LTM Report	Rhēa	OU4	June 2017	
	2017 LTM Report	Rhēa	OU4	August 2018	
	2018 LTM Report	Rhēa	OU4	March 2019	
5	Initial Assessment Study	Water and Air Research	1, 2	March 1983	
	RCRA Facility Assessment	A. T. Kearney	1, 2	June 1988	
	Interim Remedial Investigation	NUS Corporation	1, 2	October 1988	
	21 Unit RCRA Facilities Investigation	Halliburton NUS	1, 2	June 1993	
	Work Plan	CH2M	1, 2	February 2002	
	Remedial Investigation	CH2M	OU5	August 2005	
	Focused Feasibility Study	CH2M	OU5	October 2005	
	Proposed Remedial Action Plan	CH2M	OU5	November 2005	
	Record of Decision	CH2M	OU5	May 2006	July 21, 2006
	Remedial Design	CH2M	OU5	October 2006	
	Interim Remedial Action Completion Report	CH2M	OU5	September 2008	
	2007 LTM Report	CH2M	OU4, OU5, OU6, OU13	August 2008	
	2008 LTM Report	Rhēa	OU4, OU5, OU6, OU13	September 2009	
	2009 LTM Report	Rhēa	OU4, OU5, OU13	July 2010	
	2010 LTM Report	Rhēa	OU4, OU5, OU13	July 2011	
	Remedial Action Completion Report	CH2M	OU5	January 2012	
	2011 LTM Report	Rhēa	OU4, OU5, OU13	June 2012	

Table 2-3. Document Submittals for FFA Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No./Site	Activity	Author	Sites Included	Final Submittal/ Completion Date	ROD/IROD Signature Date
6	Initial Assessment Study	Water and Air Research	12	March 1983	
	RCRA Facility Assessment	A. T. Kearney	12	June 1988	
	21 Unit RCRA Facilities Investigation	Halliburton NUS	12	June 1993	
	Work Plan	CH2M	12	January 1999	
	Supplemental Investigation Plan	AGVIQ/CH2M	12	September 2003	
	Remedial Investigation	CH2M	12	May 2005	
	Focused Feasibility Study	CH2M	OU6	January 2006	
	Record of Decision	CH2M	12	August 2006	September 28, 2006
	Remedial Design	CH2M	OU6	June 2007	
	Remedial Action Work Plan	CH2M	OU6	February 2007	
	Remedial Action Completion Report	CH2M	OU6	August 2008	
	2007 LTM Report	CH2M	OU4, OU5, OU6, OU13	August 2008	
	2008 LTM Report	Rhēa	OU4, OU5, OU6, OU13	September 2009	
13	Initial Assessment Study	Water and Air Research	19, 21	March 1983	
	RCRA Facility Assessment	A. T. Kearney	19, 21	June 1988	
	Interim Remedial Investigation	NUS Corporation	19, 21	October 1988	
	21 Unit RCRA Facilities Investigation	Halliburton NUS	19, 21, 44B	June 1993	
	10 Unit Technical Direction Memorandum	Halliburton NUS	21	August 1993	
	Remedial Investigation/Feasibility Study Work Plan	Tetra Tech	19, 21, 44B	June 1999	
	Remedial Investigation	Tetra Tech	19, 21, 44B	March 2002	
	Focused Feasibility Study	CH2M	19, 21, 44B	July 2004	
	Proposed Remedial Action Plan	CH2M	19, 21, 44B	March 2005	
	Record of Decision	CH2M	19, 21, 44B	September 2005	September 14, 2005
	Remedial Design	CH2M	19, 21, 44B	April 2006	
	May and November 2005 VGM Report	CH2M	OU13	2006	
	Remedial Design	CH2M	OU13	April 2006	
	Interim Remedial Action Completion Report	CH2M	OU13	October 2, 2006	
	2006 LTM Report	CH2M	OU13	April 2007	
	2007 LTM Report	CH2M	OU4, OU5, OU6, OU13	August 2008	
	2008 LTM Report	Rhēa	OU4, OU5, OU6, OU13	September 2009	
	2009 LTM Report	Rhēa	OU4, OU5, OU13	July 2010	
	2010 LTM Report	Rhēa	OU4, OU5, OU13	July 2011	
	2011 LTM Report	Rhēa	OU4, OU5, OU13	June 2012	
	Remedial Action Completion Report	Rhēa	OU13	May 2013	
	2012 LTM Report	Rhēa	OU4, OU13	June 2013	

Table 2-3. Document Submittals for FFA Sites
FY 2021 Site Management Plan
MCAS Cherry Point, North Carolina

OU No./Site	Activity	Author	Sites Included	Final Submittal/ Completion Date	ROD/IROD Signature Date
14	Site Characterization and Evaluation Report for BRAC	Halliburton NUS	90	December 1994	
	Site Assessment Report	Law Engineering	90	June 1995	
	Site Assessment Addendum	Law Engineering	90	March 1996	
	Corrective Action Plan	Law Engineering	90	January 1997	
	RAC Action Work Plan	J.A. Jones Environmental	90	June 2000	
	Remedial Investigation Work Plan	CH2M	90	August 2002	
	Phase I Remedial Investigation Interim Report	CH2M	90	October 2003	
	Phase II Remedial Investigation Interim Report	CH2M	90	June 2005	
	Phase III Remedial Investigation Interim Report	CH2M	90	December 2007	
	Remedial Investigation Report	CH2M	90	December 2008	
	Feasibility Study Report	CH2M	90	April 2009	
	Proposed Plan	CH2M	90	April 2009	
	Record Of Decision	CH2M	90	August 2009	September 28, 2009
	Remedial Design for Land Use Controls	CH2M	90	March 2010	
	Sampling and Analysis Plan for Baseline LTM Sampling	CH2M	90	September 2010	
	Sampling and Analysis Plan, LTM	CH2M	90	July 2011	
	Interim Remedial Action Completion Report	CH2M	90	June 2011	
	2011 LTM Report	CH2M	90	May 2012	
	2012 LTM Report	CH2M	90	June 2013	
	2013 LTM Report	Rhēa	90	October 2014	
	2014 LTM Report	Rhēa	90	September 2015	
	2015 LTM Report	Rhēa	90	August 2016	
	2016 LTM Report	Rhēa	90	December 2017	
	2017 LTM Report	Rhēa	90	September 2018	
	2018 LTM Report	Rhēa	90	March 2019	
15	Proposed Remedial Action Plan	Tetra Tech	82	October 2002	
	Record of Decision	Tetra Tech	82	March 2003	June 11, 2003
Site 85	Wetland Delineation report for Site 85	Brown & Root Environmental	85	February 1998	
	Action Memorandum, Debris Removal	OHM Remediation Services	85	November 1998	
	Site Screening Process Work Plan	CH2M	85	April 2001	
	Site Screening Process Report	CH2M	85	November 2002	
	Site Screening Area Decision Document	CH2M	85	September 2003	
POEI 35a	Soil/Groundwater Study	R. E. Wright Associates	35a	September 1996	
	Evaluation Report	CH2M	35a	June 2004	
	Decision Document	CH2M	35a	June 2004	
Former Skeet & Trap Range #1	Site Inspection Work Plan	CH2M		November 2008	
	Site Inspection Report	CH2M		October 2010	
	Sampling and Analysis Plan, Expanded Site Inspection	CH2M		December 2011	
	Expanded Site Inspection Report	CH2M		November 2012	
	Decision Document	CH2M		March 2013	



Legend
- City
- Freeway or Other Major Road
- Major Road
- Secondary Road
- Water Body
- Base Boundary

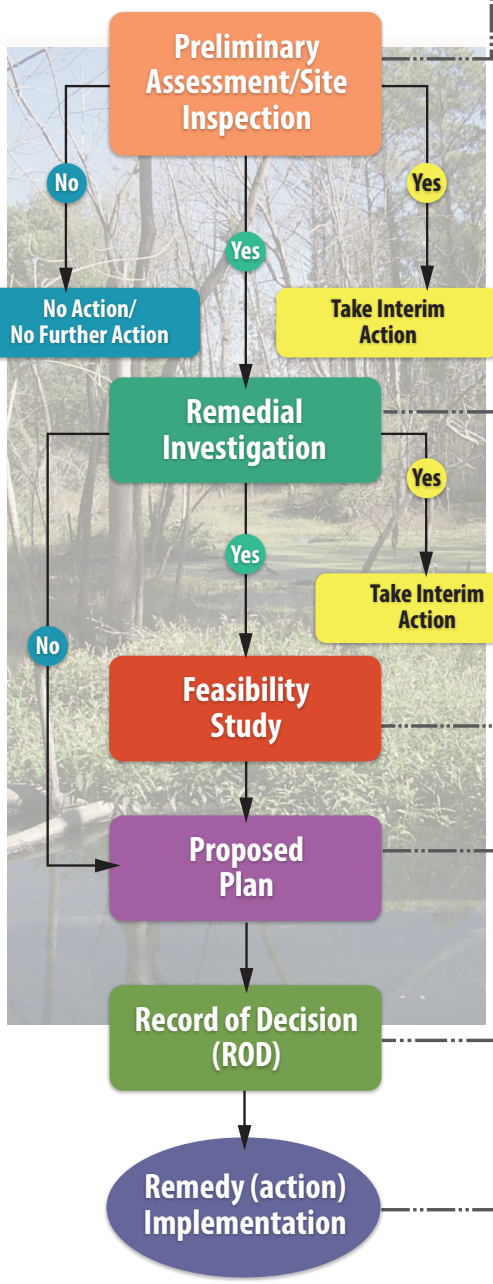
N

0 4 8 Miles

1 inch = 8 miles

Figure 2-1
Base Location Map
MCAS Cherry Point, North Carolina

ch2m



No Action/No Further Action	
Operable Unit	Site Name
	Former Skeet and Trap Range #1
OU 1	Site 14
OU 1	Site 15
OU 1	Site 17
OU 1	Site 18
OU 1	Site 40
OU 1	Site 83
OU 5	Site 1
OU 5	Site 2
OU 6	Site 12
OU 6	POEI 35a (SSA 35a)
OU 13	Site 19
OU 13	Site 21
OU 13	Site 44B
OU 15	Site 82
	Site 85
	POEI 3
	POEI 5
	POEI 6
	POEI 11
	POEI 16
	POEI 17
	POEI 22 (PSA 22)
	POEI 23 (PSA 23)
	UST 41
	SWMU 3
	SWMU 5
	SWMU 11
	SWMU 20
	SWMU 33
	SWMU 34
	SWMU 35
	SWMU 36
	SWMU 37
	SWMU 38
	SWMU 39
	SWMU 43
	SWMU 45
	SWMU 46
	SWMU 48
	SWMU 49A
	SWMU 49B
OU 1	SWMU 50
	SWMU 54
	SWMU 67
	SWMU 68
OU 1	SWMU 71
	SWMU 80
	SWMU 84
	SWMU 99
	SWMU C-3
	SWMU C-4
	SWMU C-6
	SWMU C-7
	SWMU C-8
	SWMU C-9
	SWMU C-13
	SWMU C-15
	SWMU C-16
	SWMU F-1
	SWMU F-2
	SWMU F-3
	SWMU F-4
	SWMU F-5
	SWMU F-6
	SWMU F-7

Operable Unit	Site Name
	SWMU F-8
	SWMU F-9
	SWMU F-10
	SWMU F-11
	SWMU F-12
	SWMU F-15
	SWMU F-16
	SWMU F-17
	SWMU F-18
	SWMU F-19
	SWMU F-20
	SWMU F-21
	SWMU F-23
	SWMU F-24
	SWMU F-25
	SWMU F-26
	SWMU F-27
	SWMU F-28
	SWMU F-29
	SWMU F-30
	SWMU F-31
	SWMU F-32
	SWMU F-33
	SWMU F-34
	SWMU F-35
	SWMU F-36
	SWMU F-37
	SWMU F-39
	SWMU F-40
	SWMU F-41
	SWMU N-1
	SWMU N-2
	SWMU N-3
	SWMU N-4
	SWMU N-5
	SWMU N-6
	SWMU N-7
	SWMU N-8
	SWMU N-9
	SWMU N-10
	SWMU N-11
	SWMU N-12
	SWMU N-13
	SWMU N-14
	SWMU N-15
	SWMU N-16
	SWMU N-17
	SWMU N-18
	SWMU N-19
	SWMU N-20
	SWMU N-21
	SWMU S-1
	SWMU S-2
	SWMU S-3
	SWMU S-4
	SWMU S-5
	SWMU S-7
	SWMU S-8
	SWMU S-9
	SWMU S-12

Preliminary Assessment (PA) /Site Inspection (SI)	
Operable Unit	Site Name
	MCAS Cherry Point
	Site 100 - MCOLF Atlantic
	MCALF Bogue
	MCOLF Oak Grove

Remedial Investigation (RI)	
Interim Action	
Operable Unit	Site Name
No sites are currently at this stage.	

Feasibility Study (FS)	
Operable Unit	Site Name
No sites are currently at this stage.	

Proposed Remedial Action Plan (PRAP)	
Operable Unit	Site Name
No sites are currently at this stage.	

ROD	
Operable Unit	Site Name
No sites are currently at this stage.	

Remedy (action) Implementation	
Operable Unit	Site Name
OU 1	Site 16
OU 1	Site 42
OU 1	Site 47
OU 1	Site 51
OU 1	Site 52
OU 1	Site 92
OU 1	Site 98
OU 2	Site 10
OU 2	Site 76
OU 3	Site 6
OU 3	Site 7
OU 4	Site 4
OU 14	Site 90

Legend:

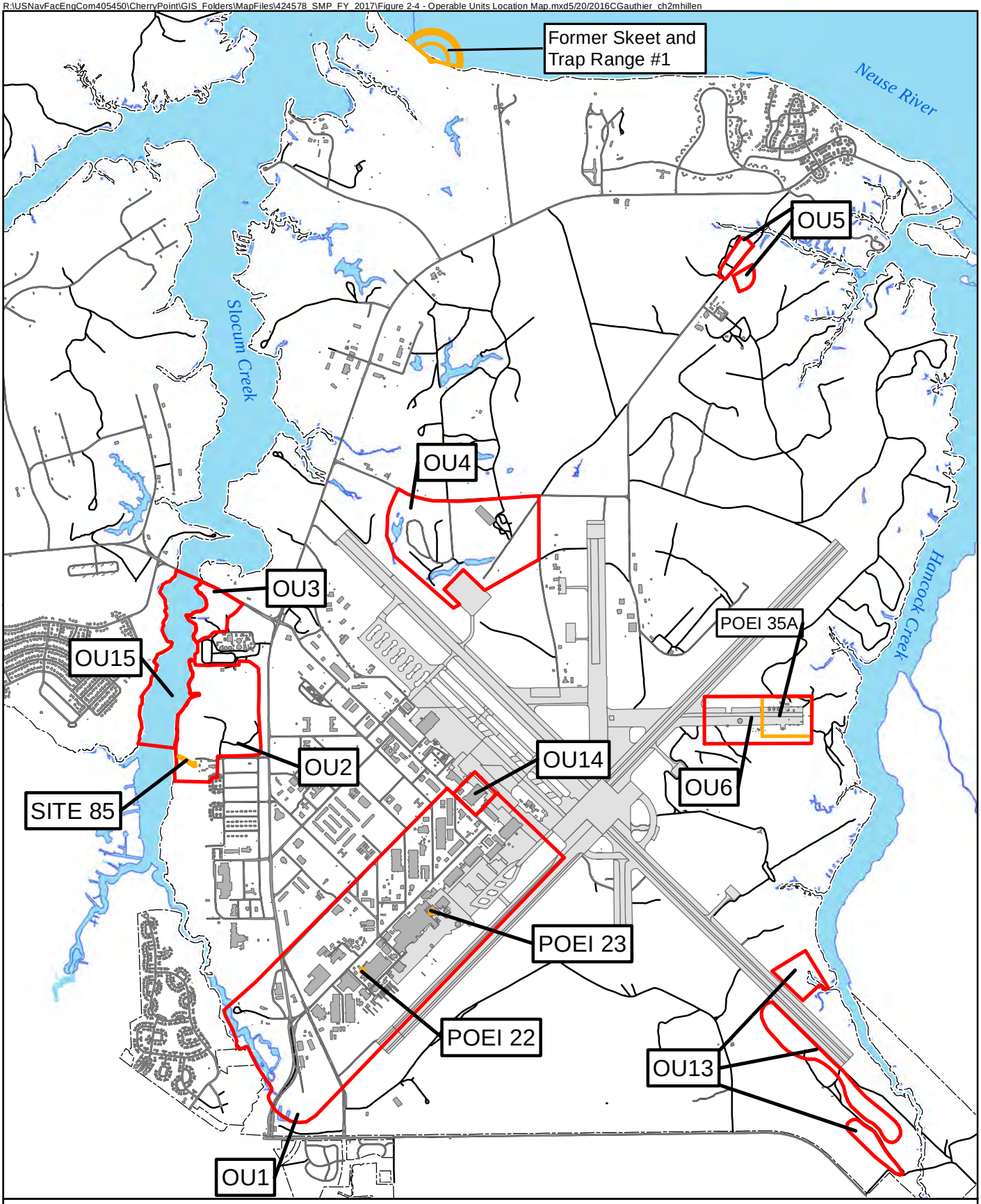
- **No** — No contamination warranting additional study or action identified.
- **Yes** — Contamination and/or risk warranting further investigation or action identified.
- **Yes** — Significant contamination and imminent/ substantial risk identified.

Notes:

1. Formal public input solicited during Proposed Plan and Interim Action steps of the CERCLA process.
2. Sites in blue have been addressed under the RCRA or UST Programs at MCAS Cherry Point.

FIGURE 2-3
Current Status of FFA and Additional Sites
MCAS Cherry Point, North Carolina

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 2-4 - Operable Units Location Map.mxd5/20/2016CGauthier_ch2mhillen



Legend

- OU Boundary
- Site Boundary
- Buildings
- Runway
- Road
- Base Boundary
- Surface Water

N
W E
S

0 1,500 3,000
Feet

Figure 2-4
Operable Units Location Map
MCAS Cherry Point, North Carolina

ch2m

SECTION 3

Descriptions of PA/SI Sites

This section discusses the site history, summarizes previous investigations, and presents future activities for the portions of MCAS Cherry Point, including the outlying fields, that are in the PA/SI phase of the CERCLA process. PA/SI activities are underway for these locations since it is likely that aqueous film-forming foam (AFFF) containing per- and polyfluoroalkyl substances (PFAS) was stored and potentially used at these facilities during mission-related activities. Specifically, this includes portions of MCAS Cherry Point and three outlying fields: Site 100 – MCOLF Atlantic, MCALF Bogue, and MCOLF Oak Grove. See **Figure 3-1** for the locations of the PA/SI sites.

There are currently no other sites in the PA/SI phase of the CERCLA process.

History – MCAS Cherry Point and Outlying Fields, PFAS

Event	Site	Date
Desktop Evaluation to Verify Off-Base Drinking Water Sources	Navy Priority 1 PFAS Sites	2016
Sampling and Analysis Plan for Investigation of Per- and Polyfluoroalkyl Substances in Drinking Water	Site 100, MCOLF Atlantic	2017
Preliminary Assessment for Per- and Polyfluoroalkyl Substances	Site 100, MCOLF Atlantic	2019
Sampling and Analysis Plan, Site Inspection for Per- and Polyfluoroalkyl Substances	Site 100, MCOLF Atlantic	2019
Preliminary Assessment for Per- and Polyfluoroalkyl Substances	MCOLF Oak Grove	2019
Preliminary Assessment for Per- and Polyfluoroalkyl Substances	MCALF Bogue	2020

3.1 MCAS Cherry Point

Future Activities

AFFF has likely been used at numerous locations across MCAS Cherry Point during mission-related activities; therefore, a PA/SI is underway to identify potential sites within the Air Station where a potential release of PFAS may have occurred, and to evaluate the presence of PFAS in site media. The Cherry Point PA report is anticipated to be finalized in FY 2021.

3.2 Site 100 – Marine Corps Outlying Landing Field (MCOLF) Atlantic

MCOLF Atlantic occupies 1,477 acres of land adjacent to the Town of Atlantic, North Carolina in northeastern Carteret County (**Figure 3-1**). The facility has been in operation intermittently since December 1942 and supports training operations for MCAS Cherry Point, which is approximately 26 miles to the west. The facility has three approximately 3,500-foot runways and two helicopter landing zones and provides facilities for air-to-ground exercises and limited ground operations (USMC, 2009). Past and current operations at the facility include rotary-wing operations in support of nearby target ranges and training activities (including tactical, air-to-ground, electronic warfare, and low altitude exercises) (USMC, 2009). The facility is also used as a Forward Arming and Refueling Point for MCAS Cherry Point and other Navy and Army facilities.

MCOLF Atlantic, designated as Site 100, was identified as an outlying field where historical environmental releases of PFAS potentially occurred during mission-related activities (CH2M, 2016b). Based on the historical activities at Site 100 – MCOLF Atlantic, a PA was conducted to identify areas where AFFF containing PFAS was potentially used during mission-related activities. The PA was finalized for MCOLF Atlantic in May 2019 (CH2M, 2019a) and 11 out of 22 evaluated areas were recommended for further investigation during the SI (**Figure 3-2**).

The SI field activities were performed in accordance with the Atlantic PFAS SAP (CH2M, 2019b). Field activities were conducted in three phases:

- Phase 1 – Exploratory borings—February 2019
- Phase 2 – Monitoring well installation—June-July 2019
- Phase 3 – Groundwater, surface water, and sediment sampling—August 2019

Based on the SI sample results, an Expanded SI was recommended by the Tier I Partnering Team.

Future Activities

A PFAS Expanded SI SAP is planned to be finalized in FY 2021. Following the Expanded SI sampling event planned for FY 2021, an SI report will be written to summarize all SI field events. The SI report is planned to be finalized in FY 2022.

3.3 Marine Corps Auxiliary Landing Field Bogue

MCALF Bogue encompasses 837 acres and is located approximately 12.5 miles southwest of MCAS Cherry Point (**Figure 3-1**). This outlying field was established by condemnation actions in December 1942 (Water and Air Research, 1983).

MCALF Bogue includes a main runway that lies within the center of the outlying field. It is bordered by Route 24 to the north; the Hunting Island Creek to the west; Guthrie Point, Taylor Bay and Shelly Point to the south, and Goose Creek to the east. Access to MCALF Bogue is via an access road that connects to Route 24 along the northern boundary of the outlying field.

Based on the historical activities at MCALF Bogue, a PA was conducted to identify areas where AFFF containing PFAS was potentially used during mission-related activities. The PA was finalized for MCALF Bogue in March 2020 (CH2M, 2020c) and 14 out of 34 evaluated areas were recommended for further investigation during an upcoming SI (Figure 3-3).Future Activities

A PFAS SI SAP is planned to be finalized in FY 2021. Following the SI sampling event planned for FY 2021, an SI report will be written to summarize the field event and laboratory analytical results. The SI report is planned to be finalized in FY 2022.

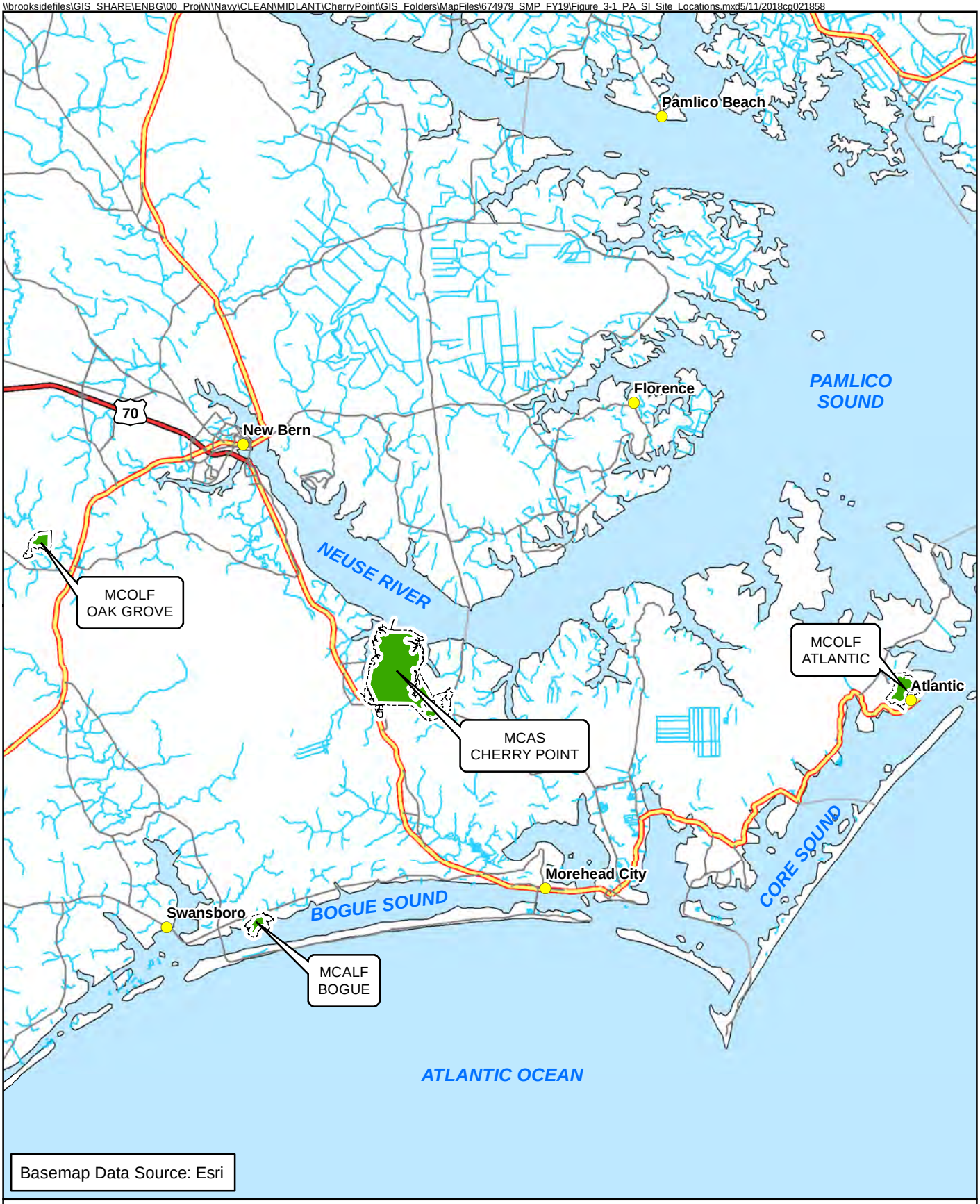
3.4 Marine Corps Outlying Landing Field Oak Grove

MCOLF Oak Grove encompasses 976 acres and is located approximately 16 miles northwest of MCAS Cherry Point (**Figure 3-1**). In 1943, MCOLF Oak Grove was commissioned as a Marine Corps Auxiliary Air Facility (HMM Associates, Inc., 1993). Prior to this time, Oak Grove was undeveloped agricultural property. MCOLF Oak Grove consists of a main runway that lies within the center of the outlying field. It is bordered to the south and west by the Trent River, to the north by Hargett Road (State Road [S.R.] 1121), and to the east by private property (HMM Associates, Inc., 1993). Access to MCOLF Oak Grove is via an access road that connects to S.R. 1121 along the northern boundary.

Based on the historical activities at MCOLF Oak Grove, a PA was conducted to identify areas where AFFF containing PFAS was potentially used during mission-related activities. The PA was finalized for MCOLF Oak Grove in October 2019 (CH2M, 2019c) and 7 out of 22 evaluated areas were recommended for further investigation during an upcoming SI (**Figure 3-4**).

Future Activities

A PFAS SI SAP is planned to be finalized in FY 2020. Following the SI sampling event planned for FY 2020, an SI report will be written to summarize the field event and laboratory analytical results. The SI report is planned to be finalized in FY 2021.



Legend

- City
- Freeway or Other Major Road
- Major Road
- Secondary Road
- Water Body
- PA/SI Site Location Boundary

N

0 4 8 Miles

1 inch = 8 miles

Figure 3-1
PFAS PA/SI Site Locations
MCAS Cherry Point, North Carolina

ch2m

\\dc1vs01\GISNavyClean\MIDLANT\CherryPoint\GIS_Folders\MapFiles\SMP\FY2020\Figure_3-2_Atlantic_AreasEvaluatedForPFAS.mxd5/7/2020jcarr3

Legend

- On-Base Supply Well
- Potential PFAS Release Area
- Other Areas Evaluated
- Stormwater Utility Line
- Wastewater Utility Line
- Rivers
- Drainage Ditch, Stream, or Creek
- Former Building or Structure
- Creek or Stream
- Base Boundary

Parcels

- Parcel with drinking water supply well
- Parcel without drinking water supply well
- Unknown

N

0 0.1 0.2 Miles

1 inch = 0.2 mile

Imagery: Esri 2017

Figure 3-2
Areas Evaluated for Potential PFAS Releases
Marine Corps Outlying Landing Field Atlantic
MCAS Cherry Point, North Carolina

ch2m

\\dc1vs01\GISNavyClean\MIDLANT\CherryPoint\GIS_Folders\MapFiles\SMP\FY2020\Figure_3-3_Bogue_AreasEvaluatedForPFAS.mxd5/7/2020jcarr3

BUILDING 8118 - POL OPERATIONS BUILDING
CRASH CREW STAGING AREA #2
CRASH CREW STAGING AREA #3
SITE 28 - OLD FUEL BLADDER STORAGE AREA
BUILDING 8029 - MWSS-271 STORAGE BUILDING
FORESTRY VEHICLE PARKING AREA
BUILDING 8053 - MWSS-271 FLAMMABLE STORAGE
SITE 27 - FORMER INCINERATOR
BOGUE ACCESS ROAD
BEECH
CRASH CREW OPERATIONS GROUP
RED OAK ROAD
8048
8053
8074
8049
8080
BUILDING 8080 - GENERAL STORAGE BUILDING
BUILDING 8074 - MWSS-271 CRASH CREW BUILDING
BUILDING 8049 - MWSS-271 AUTO VEHICLE MAINTENANCE SHOP
BUILDING 8087 - MWSS-271 HAZARDOUS WASTE CONTAINMENT AREA
AFFF SPRAY TEST AREA
WASH RACK WITH OIL/WATER SEPARATOR
CRASH CREW STAGING AREA #1
BULK AFFF STORAGE AREA
SITE 29 - CRASH CREW TRAINING AREA
HISTORICAL BALD CYPRESS ROAD DISPOSAL AREA
BUILDING 8088 - GENERAL STORAGE BUILDING
RED OAK ROAD
CHESTNUT ROAD
HAWTHORN ROAD
ELM CIRCLE
BUILDING 8052 - DUMPSTER FIRE
CRASH CREW OPERATIONS GROUP
FORMER BUILDINGS 8107 AND 8108 - TRAINING AREA
RECREATION ROAD
AIRFIELD RUNWAYS
MAPLE LANE/LANES
AIRFIELD RUNWAYS GROUP
Goose Creek
WASTEWATER TREATMENT PLANT (WWTP) GROUP
SASSAFRAS ROAD
EXPEDITIONARY FIREFIGHTING RESCUE (EFR) TRAINING AREA
EMERGENCY RESPONSE TRAINING AREA #2
CHINKAPIN ROAD
WHITE OAK ROAD
HEMLOCK TRAIL/TRAILS
ASPEN ROAD
SITE 30 - OLD LANDFILL
SOURGUM TRAIL/TRAILS
1997 AV-8B HARRIER AIRCRAFT CRASH LOCATION
SITE 31 - SHELLY POINT LANDFILL
Hunting Island Creek
BIRCH TRAIL/TRAILS
Taylor Bay
SHELLY POINT CRASH VEHICLE PARKING AREA
COMBAT ARMS LOADING AREA (CALA)
HICKORY TRAIL/TRAILS
EMERGENCY RESPONSE TRAINING AREA #1
1982 A-6 INTRUDER AIRCRAFT CRASH LOCATION
WASTEWATER TREATMENT PLANT (WWTP) GROUP
SANITARY WWTP IRRIGATION AREA
SASSAFRAS ROAD
REFUELER TRUCK STAGING AREA
SANITARY WWTP LAGOONS
Bogue Sound

Legend

- Potential PFAS Source Areas
- No Further Action Areas
- Approximate Groundwater Flow Direction
- River/Creek Centerline
- Stormwater Utility Line/Drainage Ditch
- Road
- Building
- Base Boundary

Notes:
Groundwater flow direction is assumed based on ground surface topography.

The locations of the following areas are unknown:
Mobile Aircraft Fire Training Device (MAFT-D),
1980 AV-8A Harrier Aircraft Crash,
1992 AV-8B Harrier Hard Landing, and
1969 TA-4F Skyhawk Mishap.

N

0 350 700 1,400 Feet

Imagery: Esri 2017

Figure 3-3
Areas Evaluated for Potential PFAS Releases
Marine Corps Auxiliary Landing Field Bogue
MCAS Cherry Point, North Carolina

ch2m

\\dc1vs01\GISNavyClean\MIDLANT\CherryPoint\GIS_Folders\MapFiles\SMP\FY2020\Figure_3-4_OakGrove_AreasEvaluatedForPFAS.mxd5/7/2020jcarr3

Note:
Groundwater flow direction is assumed based on ground surface topography.
Locations for the MV-22 Osprey Emergency Landing and MV-22 Osprey Incident – 2010 or 2011 are unknown and therefore not shown on this figure.

Legend

- No Further Action Area
- Potential PFAS Source Area
- No Further Action Area
- Stormwater Utility Inlet
- Stormwater Utility Line
- River/Creek Centerline
- Approximate Groundwater Flow Direction
- Road
- Elevation Contour (5ft Interval)
- Base Boundary

N

0 500 1,000 2,000 Feet

1 inch = 1,000 feet

Imagery: Esri, 2017

Figure 3-4
Areas Evaluated for Potential PFAS Releases
Marine Corps Outlying Landing Field Oak Grove
MCAS Cherry Point, North Carolina

ch2m:

SECTION 4

Descriptions of RI/FS Sites

There are currently no IRP or MRP sites in the RI/FS phase of the CERCLA process.

SECTION 5

Descriptions of PRAP and ROD Sites

There are currently no IRP or MRP sites in the PRAP or ROD phase of the CERCLA process.

SECTION 6

Descriptions of RD and RA Sites

This section discusses the site histories, summarizes previous investigations, and presents future activities for the six IRP sites within OU1 that are in the RD and RA phase of the CERCLA process.

A complete description of OU1, a listing of its 12 associated FFA sites, and the environmental history of OU1 is presented in the following subsection before focusing on the 6 IRP sites within OU1 that are in the RD and RA phase of the CERCLA process and that have been identified as contributing to the OU1 Central Groundwater Plume. The remaining 6 OU1 sites are in the RIP/RC phase of the CERCLA process (see Section 7.2.1).

There are currently no MRP sites in the RD and RA phase of the CERCLA process.

6.1 Operable Unit 1

OU1 is an industrial area in the southern portion of MCAS Cherry Point that covers approximately 565 acres. There are 12 FFA sites within OU1 (Sites 14, 15, 16, 17, 18, 42, 47, 51, 52, 83, 92, and 98), assigned on the basis of their proximity to each other within the industrialized section of MCAS Cherry Point. Six of these sites have been identified as contributing chlorinated volatile organic compound (cVOC) contamination to groundwater (Sites 42, 47, 51, 52, 92, and 98) and constitute the OU1 Central Groundwater Plume[1]. The boundaries of OU1 and the site locations within OU1 are shown on **Figure 6-1**.

Eight sites within OU1 were identified in the IAS and RFA, including Sites 14, 15, 16, 17, 18, 42, 51, and 52. The remaining four sites, 47, 83, 92, and 98, were identified during various subsequent studies conducted at OU1. Between January 1985 and February 1987, an Interim Remedial Investigation (IRI) was conducted at OU1 to identify contaminated sites, and included Sites 15, 16, 17, and 18. An RI and FS were recommended (NUS, 1988). An RFI was conducted for Sites 16 and 17 in 1991.

A Focused RI/FS was conducted for OU1 groundwater in 1996 and identified data gaps and recommended a treatability study at Sites 16, 42, and 92, such as a bench-scale enhanced oxidation study (B&R, 1996a). An IROD for the OU1 Central Groundwater Plume (B&R, 1996c) documented that a groundwater extraction and treatment (commonly called “pump-and-treat”) system be installed for groundwater remediation. This pump-and-treat system was installed in 1998. As a result of decreasing efficiency and the potential for interference with ongoing attempts to further define the nature and extent of groundwater contamination beneath OU1 by altering local groundwater gradients, the pump-and-treat system was shut down in February 2005. Quarterly and annual reports of system status and routine monitoring were submitted during the period of operation. The system components were initially left in place to allow for later reuse. Decommissioning of the system consisted of removing treatment system components, capping underground lines, and converting extraction wells into monitoring wells, and was completed in April 2014.

In 1996, a pilot-scale air sparge/soil vapor extraction (AS/SVE) system was installed at Site 16 to perform groundwater remediation (B&R, 1997c). In 1997, a TCRA was conducted at Site 16 that included removal of debris piles containing asbestos, steel storage tanks, and soil contaminated with petroleum hydrocarbons (OHM, 1998a). A full-scale AS/SVE system was installed in 1998 as part of an NTCRA. The MCAS Cherry Point ER Program Partnering Team agreed to shut down the AS/SVE system in February 2005 because it was not achieving the RAOs. The system components were initially left in place to allow for later reuse. In 2008, an evaluation was performed to determine the condition of the system components and the actions necessary to restore the system to operation. The evaluation revealed that the system components had degraded such that reuse without

[1] The OU1 Central Groundwater Plume has been referred to in previous documents as the “OU1 Central NADEP Groundwater Plume,” the “OU1 Central Hotspot Groundwater Plume,” or variations of both.

substantial equipment replacement and rehabilitation would not be possible. The major system components were removed in 2009 and the remainder of the system was decommissioned (including well abandonment) in 2011.

An RI was completed in 2002 and included all of the sites within OU1. The 2002 RI Report recommended an FS and additional ecological evaluation for OU1 (Tetra Tech, 2002b).

Voluntary groundwater monitoring (VGM) was conducted at select OU1 monitoring wells on a semiannual basis in 2004 and 2005. The objectives of the VGM program were to track potential plume migration and to maintain awareness of plume configuration. The Final 2005 OU1 VGM Report was submitted in July 2006 (AGVIQ/CH2M, 2006a). A more comprehensive groundwater sampling event involving most of the monitoring wells at OU1 was conducted in April 2006. Data from this event have been reported in an OU1 RI Addendum (CH2M, 2009a).

Fish tissue samples were collected from Slocum Creek adjacent to OUs 1, 2, 3, and 4 in 1998, and the results indicated no potential unacceptable risk to human health from fish tissue ingestion (Tetra Tech, 1999b). In 1999, surface water and sediment samples were collected adjacent to OUs 1, 2, 3, and 4 as part of a Screening-level Ecological Risk Assessment (SLERA) in Slocum Creek (Tetra Tech, 2001). No consistent patterns of contamination were observed. The results indicated that ecological risks in Slocum Creek surface water and sediments from organic chemicals were low, while risks from some metals in sediments were higher. However, a decline in metals concentrations over time was noted and it was also suggested that the locations of elevated concentrations of some metals in sediments were correlated with the outfalls of the former MCAS Cherry Point sewage treatment plant (STP) as well as the Havelock STP, neither of which are part of any OUs. The SLERA Report concluded that further detailed ecological study in Slocum Creek was not necessary.

The results of Step 3A of the Ecological Risk Assessment (ERA) presented in the 2002 OU1 RI Report (Tetra Tech, 2002b) indicated that ecological risks were present from a few organic chemicals and metals in surface soil and sediment in specific areas at OU1. A Step 3A Addendum Report was prepared in 2003 (CH2M, 2003b), and refined the ERA results from the earlier RI Report. The Step 3A Addendum identified several inorganic and organic contaminants of potential concern (COPCs) for both terrestrial and aquatic receptors and recommended that potential risk from these contaminants be evaluated in a Baseline Ecological Risk Assessment (BERA) for OU1. The Step 3A Addendum Report also identified Site 17 as a potential source of COPCs to School House Branch. It was recommended that Site 17 be excluded from the BERA and that investigation activities be conducted separately. The BERA, which was executed in May 2004 and finalized in August 2005 (CH2M, 2005c), concluded that significant ecological risk was present for aquatic, lower trophic level receptors (benthic macroinvertebrates) in Sandy Branch Tributary #2 and its adjacent flood plain areas from exposure to inorganic and organic COPCs.

As recommended in the BERA, additional sampling within Sandy Branch Tributary #2 and adjacent flood plain areas was performed in March 2006 in accordance with the plan presented in the technical memorandum titled, *Post-BERA Investigation Work Plan for Operable Unit 1, Marine Corps Air Station Cherry Point, North Carolina* (CH2M, 2005b). The purpose of the sampling activities was to delineate the spatial extent of COPCs. Furthermore, the memorandum focused the BERA-identified COPC list to 10 chemicals or chemical groups and established preliminary remediation goals (PRGs) to apply toward an eventual sediment cleanup in the Tributary #2 system.

The March 2006 Post-BERA sampling results were discussed by the MCAS Cherry Point ER Partnering Team at several meetings in 2006 and 2007. Through these discussions, a “clean-up” strategy for Sandy Branch Tributary #2 and adjacent flood plain areas was planned that would be carried out as an NTCRA. The NTCRA was intended to remove COPC-contaminated media to levels protective of at-risk ecological receptors (i.e., benthic macroinvertebrates). In preparation for the NTCRA, an EE/CA was prepared and finalized in January 2008 (CH2M, 2008a). The EE/CA compared and evaluated several removal action alternatives and formed the basis of the selection of a sediment and soil removal technique for the NTCRA. The Removal Action Work Plan was completed in May 2008 (Rhēa, 2008) and the NTCRA was conducted in June to August 2008. The Final Construction Closeout Report was submitted in June 2009 (Rhēa, 2009).

A Final RI Addendum Report submitted in April 2009 updates the OU1 site conceptual model and presents the results of additional investigation activities related to the OU1 Central Groundwater Plume that have been conducted since the 2002 RI Report. A key element of the RI Addendum is better delineation of the nature and

extent of cVOC groundwater contamination beneath and near Building 133. A baseline groundwater sampling event at Building 133, which was performed in advance of a treatability study to evaluate an enhanced biodegradation technology for treating cVOCs in groundwater, indicated that the cVOC plume within Building 133 extended beyond previously delineated boundaries and had concentrations significantly higher than previously found.

FS activities began for the OU1 Central Groundwater Plume following the completion of the OU1 RI Addendum in April 2009; the OU1 Central Groundwater Plume FS was finalized in August 2011 (CH2M, 2011g).

A vapor intrusion (VI) investigation was conducted for the Central Groundwater Plume portion of OU1 to determine if vapors emanating from the plume pose an indoor air human health risk to potential occupants of buildings situated above the plume. The VI investigation began in 2008 and was multi-phased in nature. The VI Evaluation report detailing the results of the first phase of the investigation was finalized in January 2011 (CH2M, 2011a). Based on the findings and recommendations for further investigation activities from the Phase I evaluation, the Phase II VI investigation activities were completed in May and June 2011 and the Phase II VI Investigation Report was finalized in May 2012 (CH2M, 2012d). The conclusions of the VI investigation indicated that vapor mitigation is not required for existing buildings within OU1 based on current conditions. However, the final report recommended that a performance monitoring program be included as part of the selected remedy for the OU1 Central Groundwater Plume. The performance monitoring program would consist of the routine collection of subslab and indoor air samples at selected buildings in the vicinity of the plume and routine building survey updates. In addition, the final report recommended that additional VI investigation activities be conducted if either new construction is planned or if construction activities involving penetration of the foundation slab is implemented at existing buildings in the plume area.

The Proposed Plan for the OU1 Central Groundwater Plume sites was finalized in April 2014 (CH2M, 2014a). Two separate groundwater zones were defined as part of remedial alternative evaluation and selection: The Source Zone corresponds to areas with the highest dissolved-phase contaminant of concern (COC) concentrations (concentrations greater than 1,000 micrograms per liter [µg/L]) and the Downgradient Zone corresponds to areas with lower dissolved phase COC concentrations. The preferred remedy in the Proposed Plan consists of:

- In situ enhanced bioremediation in the Source Zone
- Zero-valent iron (ZVI) permeable reactive barriers (PRBs) in the Downgradient Zone
- Monitored Natural Attenuation (MNA) and land use controls (LUCs) across both Source and Downgradient Zones
- Subslab soil vapor and indoor air monitoring in selected buildings

The public meeting to present the OU1 Central Groundwater Plume Sites Proposed Plan was held in May 2014 and the public review and comment period extended into June 2014. The ROD was signed on September 21, 2016. The OU1 RD was finalized in March 2018.

The first OU1 Central Groundwater Plume VI long-term monitoring (LTM) field event took place in early 2016. A report documenting the results of the VI LTM field event was finalized in October 2017. Based on conclusions drawn from the VI LTM report and a recommendation in the 2017 Five-Year Review, a VI mitigation pilot study is planned for the Building 137 autoclave room. The baseline OU1 Central Groundwater Plume groundwater LTM field event took place in early 2018 and will be documented in an LTM Report.

The other FFA sites at OU1, which are not source areas for the OU1 Central Groundwater Plume (Sites 14, 15, 16, 17, 18, and 83), are at the RA and RIP/RC stages in the CERCLA process. An NFA ROD was signed for Sites 14, 15, 17, 18, and 40 (CH2M, 2010c) in September 2010 (see Section 7.2.1). An NFA ROD for Site 83 (Rhēa, 2012c) was signed in October 2012 (see Section 7.2.1.5). An IRACR was completed in FY 2020 for the RIP Site 16 (see Section 6.2).

History – Operable Unit 1

Event	Site	Date
IAS	14, 15, 16, 17, 18, 42, 51, 52	1983
RFA	14, 15, 16, 17, 18, 42, 51, 52	1988
IRI	15, 16, 17, 18	1988
Focused RI/FS	16, 42, 92	1996
Interim ROD	42,52, 92, 98	1996
Slocum Creek Fish Ingestion Report	OU1	1999
RI/FS Work Plan	OU1	2000
Slocum Creek SLERA	OU1	2001
RI	OU1	2002
ERA Step 3A	OU1	2003
BERA	OU1	2005
VGM	OU1	2004 to 2005
EE/CA for Sandy Branch Tributary #2		2008
Action Memorandum for Sandy Branch Tributary #2		2008
Removal Action Work Plan, Sandy Branch Tributary #2		2008
RI Addendum	OU1	2009
SAP – OU1 VI Investigation	OU1	2009
RA Closeout Report for Sandy Branch Tributary #2		2009
Proposed Plan for Sites 14, 15, 17, 18, and 40	OU1	2010
NFA ROD for Sites 14, 15, 17, 18, and 40	OU1	2010
VI Evaluation Report (Phase I)	OU1	2011
SAP – OU1 VI Investigation (Phase 2)	OU1	2011
Implementation Plan – Near Source In Situ Enhanced Bioremediation Pilot Study	OU1	2011
SAP – Near Source In Situ Enhanced Bioremediation Pilot Study	OU1	2011
FS	OU1	2011
VI Evaluation Report (Phase II)	OU1	2012
Implementation Plan – Permeable Reactive Barrier Pilot Study	OU1	2012
SAP – Permeable Reactive Barrier Pilot Study	OU1	2012
Technical Memorandum: Near Source In Situ Enhanced Bioremediation Pilot Study Results	OU1	2014
Proposed Plan for the OU1 Central Groundwater Plume Sites 42, 47, 51, 52, 92, and 98	OU1	2014
Implementation Report – Permeable Reactive Barrier Pilot Study	OU1	2015
SAP – VI LTM	OU1	2015
Central Groundwater Plume ROD (Sites 42, 47, 51, 52, 92, 98)	OU1	2016
Summary of the Updated HHRA – Site 16	OU1	2017

History – Operable Unit 1

Event	Site	Date
OU 1 VI, 2016 Baseline LTM Report, and Building 137 Additional Investigation	OU1	2017
Site 16 ROD	OU1	2017
RD for LUCs, OU1, Site 16	OU1	2018
RDWP for OU1, Central Groundwater Plume Sites 42, 47, 51, 52, 92, and 98	OU1	2018
Completion of Remedial Action Construction for OU1, Central Groundwater Plume – Sites 42, 47, 51, 52, 92, and 98	OU1	2019
RAWP for OU1, Central Groundwater Plume Sites 42, 47, 51, 52, 92, and 98	OU1	2020
IRACR for OU1 Site 16	OU1	2020

6.2 Sites Contributing to the OU1 Central Groundwater Plume (Sites 42, 47, 51, 52, 92, and 98)

The 1996 Focused RI/FS report identified a volatile organic compound (VOC) plume at OU1. At that time, the plume had been delineated to include the majority of the southern portion of OU1, including a small portion of Building 133.

Six sites within OU1 have been identified as contributing to VOC groundwater contamination within the OU1 Central Groundwater Plume. The locations of these sites are shown on **Figure 6-2**. These sites include:

- Site 42 – Industrial Wastewater Treatment Plant (IWTP)
- Site 47 – Industrial Area Sewer System
- Site 51 – Building 137 Former Plating Shop
- Site 52 – Building 133 Former Plating Shop and Ditch
- Site 92 – VOCs in Groundwater near the Stripper Barn
- Site 98 – VOCs in Groundwater near Building 4032

An enhanced bioremediation treatability study involving the injection of Hydrogen Release Compound (HRC) into surficial aquifer groundwater at Site 51 was initiated in 2001. The work plan for the treatability study also initially included investigation activities in portions of Sites 47 and 92; however, the treatability study targeted Site 51. Groundwater monitoring of VOCs and geotechnical parameters was conducted prior to the HRC injection in late 2001 and during six post-injection monitoring events conducted over a 1-year period. At the end of the 1-year period, the concentration of total cVOCs had been reduced more than 90 percent in the heart of the plume, but individual constituents remained at concentrations that exceeded regulatory screening criteria (CH2M, 2003c). The study concluded that additional treatment would be required to further reduce concentrations.

In addition, an enhanced bioremediation treatability study involving the injection of EHC into surficial aquifer groundwater was initiated in 2005 at Buildings 137 and 133 for Sites 51 and 52, respectively. The purpose of the treatability study was to determine the effectiveness of the technique to remediate what were understood from previous investigations to be relatively small cVOC plume areas in the shallow groundwater beneath each site. The treatability study included four post-injection monitoring events over a 10-month period. The final post-injection performance monitoring event was completed in November 2005. The results are summarized in a December 2007 Treatability Study Report (CH2M, 2007) that indicated that the EHC injection was initially effective in reducing cVOC concentrations in wells located near the injection points and that cVOC mass reduction was achieved. However, the concentrations of some of the contaminants rebounded significantly with time, in part due to under-dosing of the injected substrate as well as the likely presence of contributing cVOC sources such as dense non-aqueous phase liquids (DNAPLs) in the aquifer.

A baseline groundwater sampling event was conducted prior to the EHC injection in December 2004 to establish pre-treatability study conditions. The results of the baseline sampling event showed that the cVOC concentrations beneath Building 133 (Site 52) were significantly higher than had been previously found, and that the cVOC plume at OU1 extended beyond the previously delineated boundaries identified in the 2002 OU1 RI. Based on these results, in spring 2005, a field investigation was conducted at Building 133, using direct-push technology (DPT) and membrane interface probe (MIP) technology to determine the extent of the groundwater plume. Soil and groundwater samples were collected using DPT, and the MIP technology was used to collect instantaneous readings of possible contamination in groundwater. The results indicated the likely presence of trichloroethene (TCE) in DNAPL form beneath Building 133.

In February and March 2006, 65 monitoring wells were installed in and around Building 133, and two monitoring wells were installed near Sandy Branch Tributary #2. In April and May 2006, groundwater samples were collected from 183 monitoring wells, including the newly installed wells. In August 2008, an additional investigation was performed at OU1 to further define the horizontal and vertical extent of cVOC groundwater contamination in the OU1 Central Groundwater Plume. Five new monitoring wells were installed, and groundwater samples were collected from the new wells and five existing monitoring wells. The results from the 2006 and 2008 sampling are presented in the OU1 RI Addendum (CH2M, 2009a).

A VI evaluation was initiated in 2008 to assess potential human health risks from the migration of cVOC vapors from the OU1 Central Groundwater Plume into the interiors of buildings located above the plume. The VI investigation is multi-phased in nature, proceeding in a step-wise approach to evaluate the potential indoor air VI pathway. As part of the VI evaluation, a Sampling and Analysis Plan (SAP) was prepared in 2009 to conduct groundwater and soil gas sampling near selected OU1 buildings (CH2M, 2009b). The Phase 1 OU1 VI field sampling was conducted in November 2009. A VI Evaluation report that included the results of the Phase 1 field sampling was finalized in January 2011 (CH2M, 2011a). In May 2011, the Phase 2 VI Evaluation SAP was finalized (CH2M, 2011c) and Phase 2 field sampling was performed in May and June 2011. The Phase II VI Investigation Report was finalized in May 2012 (CH2M, 2012d) and determined that vapor mitigation is not required for existing buildings based on current conditions. It was recommended that a performance monitoring and construction planning program be incorporated into the selected remedy for the OU1 Central Groundwater Plume to continue VI evaluation in the future. In accordance with this recommendation, performance monitoring began in 2016 to evaluate VI. Previous VI investigations indentified TCE in indoor air within the Building 137 autoclave room. Further investigation indicated that VI in the Building 137 autoclave room was occurring through unsealed cracks in the slab and through the slab matrix (CH2M, 2017), likely due to a source present in soil beneath the slab.

In April and May 2009, additional groundwater investigation activities were conducted within the Central Groundwater Plume at OU1 with two objectives: (1) to further define the horizontal and vertical extent of cVOC groundwater contamination, and (2) to provide data to further evaluate the efficacy of natural attenuation on cVOCs within the Central Groundwater Plume. Fourteen new monitoring wells were installed to address plume delineation data gaps, and a large-scale groundwater sampling event was conducted in which the 14 new wells and 160 existing wells were sampled for VOCs and natural attenuation parameters. The results of the 2009 additional investigation activities were reported in a technical memorandum in January 2010 (CH2M, 2010d) and the data were utilized in the FS for the OU1 Central Groundwater Plume, which was finalized in FY 2011.

Two pilot studies were completed between 2011 and 2013 to investigate the efficacy of potential groundwater remediation options to address the OU1 Central Groundwater Plume. The purpose of these pilot studies was to gather information to aid in the selection of potential remedies to address the plume and also to possibly contribute in the Remedial Design phase. The first was a field-scale pilot study to evaluate the site-specific effectiveness of in situ enhanced bioremediation downgradient of Building 133 near the source of the OU1 Central Groundwater Plume. This pilot study also generated critical data necessary for the optimization of full-scale implementation following remedy selection. It included the installation of 14 injection wells (seven nested pairs, each consisting of one upper surficial and one lower surficial aquifer well) along a “biobarrier” alignment, the installation of five monitoring wells (two upper surficial and three lower surficial aquifer wells), the injection of reagents (i.e., emulsified vegetable oil and a bioaugmentation culture), and post-injection performance

monitoring via five rounds of groundwater sampling and analysis. The Pilot Study Implementation Plan (CH2M, 2011c) and SAP (CH2M, 2011d) were finalized in March 2011, and pilot study field activities were completed in June 2011. Post-injection groundwater monitoring activities were completed in 2013 and the results of the pilot study are documented in a technical memorandum finalized in April 2014 (CH2M, 2014b). The pilot study demonstrated that an in situ enhanced bioremediation biobarrier is a suitable remedy component for the OU1 Central Groundwater Plume. TCE concentration reductions of over 90 percent were achieved at individual wells in the upper surficial aquifer, while TCE reductions in the lower surficial aquifer reached 56 percent. The pilot study also generated critical information regarding full-scale implementation issues such as pH buffering, optimal injection well spacing, and methane gas generation.

A second pilot study began in 2011 to construct a PRB containing ZVI in the downgradient portion of the Central Groundwater Plume near East Prong Slocum Creek. The Implementation Plan and Sampling and Analysis Plan for the PRB pilot study were finalized in May 2012 (CH2M, 2012e, 2012f). The primary objective of the pilot study was to evaluate the site-specific effectiveness of a PRB for reducing COC concentrations in the downgradient portion of the OU1 Central Groundwater Plume in order to be protective of surface water and sediment in East Prong Slocum Creek from discharging groundwater. A secondary objective was to determine if currently available trenching and PRB installation technology could achieve a target depth of 45 feet at MCAS Cherry Point. The PRB installation, site restoration, and installation of additional monitoring wells for PRB performance monitoring were completed in August and September 2012. The PRB is approximately 600 feet in length and consists of a combination of ZVI and sand. Post-PRB installation performance monitoring activities began in fall 2012 and continued through 2013. The results of the PRB pilot study are documented in the Pilot Study Implementation Report finalized in May 2015 (CH2M, 2015). The pilot study demonstrated that a ZVI PRB is a suitable remedy component for protection of downgradient surface water bodies from impacted groundwater of the OU1 Central Groundwater Plume. Significant reductions of COCs were observed downgradient of the PRB in the surficial aquifer. However, the pilot study revealed that 35 feet is the maximum-attainable trenching and installation depth at the site using currently available technology.

The Proposed Plan for the OU1 Central Groundwater Plume sites was finalized in April 2014 (CH2M, 2014a). The selected remedy consists of in situ enhanced bioremediation in the upgradient source zone, two ZVI PRBs in the downgradient zone, MNA and LUCs across the full extent of the plume, and subslab soil vapor and indoor air monitoring in selected buildings for ongoing evaluation of potential VI. The ROD was signed on September 21, 2016 (CH2M, 2016a). The RD for the OU1 Central Groundwater Plume sites was finalized in March 2018 (CH2M, 2018b). LTM of groundwater began in April 2018. The in situ enhanced bioremediation (ISEB) and Northern Lobe ZVI barrier were installed in 2019. The RA Work Plan for the ISEB and Northern Lobe ZVI barrier were finalized in 2020, after implementation of the remedy components (TetraTech, 2020).

During a valve replacement project near Building 423, within OU1 Site 47, that required excavation of the valve and adjacent pipe, it was discovered that a section of the pipeline was corroded. Because of the corrosion, wastewater in the pipeline could have discharged directly to the surrounding soil. A Building 423 pipeline investigation is planned to determine if the corroded section of pipeline caused a release to the soil and/or groundwater.

Future Activities

A Construction Completion Report is anticipated to be completed in FY 2020 to document the ISEB and ZVI installation, followed by an OU1 Central Groundwater Plume IRACR in FY 2021 to document the Central Groundwater Plume RIP. Performance monitoring began in August 2019 after remedy implementation, with the final performance monitoring event having occured in May 2020 in accordance with the RD (CH2M, 2018b). A report discussing the laboratory analytical results is anticipated to be finalized in FY 2021.

A separate pilot study implementation plan and SAP for the Building 137 autoclave room pilot study and follow-on sampling are anticipated to be completed during FY 2020. Pilot study implementation will begin in FY 2021, and a pilot study summary report is anticipated to be finalized in FY 2022.

A pipeline SI is planned for Site 47 to determine the presence or absence of VOCs, SVOCs, and total and dissolved metals (including mercury) in the soil and groundwater near the corroded section of the industrial sewer system

pipeline associated with Building 423. The associated SAP is planned to be finalized in FY 2020, with the field investigation to follow in FY 2021. A technical memorandum discussing the field event and laboratory analytical results of the investigation is planned to be finalized in FY 2021.

Closure of the OU1 Central Groundwater Plume sites will be attained when groundwater and VI concerns at each of the sites and throughout the extent of the plume have been addressed and the RAOs have been achieved.

Individual Site Descriptions

The site history, previous studies, COCs, and RAs that have occurred to date for the OU1 Central Groundwater Plume sites are discussed in the following subsections.

Site 42 – Industrial Wastewater Treatment Plant

The IWTP is near the center of OU1, north of A Street, with a former discharge location south of an unnamed tributary to Sandy Branch. Site 42 specifically consists of the soil and groundwater around the IWTP structure (SWMU C-4). Wastes streams in the Industrial Area Sewer System (Site 47) discharge to the IWTP, which currently discharges treated effluent to the Air Station STP.

Sludge from the IWTP was formerly disposed of by landfilling or lagoon storage (e.g., OU2, Site 10) (Water & Air Research, 1983). The RFA indicated that the IWTP was used to treat wastes from industrial sources such as metal plating, painting, aircraft maintenance, vehicle maintenance, and stormwater from bermed containment areas (A. T. Kearney, 1988).

A pump-and-treat system was installed in 1998 to remediate the OU1 Central Groundwater Plume, and the treatment components of this system were located at the IWTP. As a result of decreasing efficiency and the potential for interference with ongoing attempts to further define the nature and extent of groundwater contamination beneath OU1 by altering local groundwater gradients, the groundwater pump-and-treat system was shut down in February 2005. The system components were initially left in place to allow for later reuse. Decommissioning of the system consisted of removing treatment system components, capping underground lines, and converting extraction wells into monitoring wells, and was completed in April 2014.

Site History – Operable Unit 1, Site 42

Event	Date
Construction of IWTP	1957
Upgrades to IWTP	1968, 1972, 1992, and 1998
Sludge stockpiled or land-applied	1957 to 1980s*
Wastewater Treatment Facility Assessment	1991
Pump-and-treat system installed	1998
RA Report	1999
Shutdown of pump-and-treat system	2005
Decommissioning of pump-and-treat system	2014

Note:

* The end date for the sludge stockpiling/land application activities has not been documented. It is estimated that these activities ended in the 1980s, based on documentation of an IWTP upgrade in the early 1990s. It is also documented that sludge was disposed of offsite as early as 1992.

Site 47 – Industrial Area Sewer System

Site 47 is a system of underground pipes and aboveground drains that transfer industrial wastewater from various parts of the facility to the IWTP or STP (A. T. Kearney, 1988). Portions of the sewer system were constructed in 1942; the system has been expanded several times to connect facilities that formerly discharged to the sanitary or storm sewer systems. Site 47 only includes the industrial sewers within OU1 that currently discharge to the IWTP. These sewers extend along A Street from Building 130 and Tank Farm A northeast of OU1 to Building 4225 in the southwestern portion of OU1. Industrial processes that currently or historically created wastewater discharge to

the sewer system include metal plating, metal finishing, solvent degreasing, paint stripping, painting, fuel storage, fueling, aircraft washing, and general maintenance. Concentrated wastes are no longer discharged to the industrial sewers but are containerized and transported to the IWTP. Leaks have been detected at several locations within the sewer system in the past. Inspections and repairs are conducted as part of the facility's ongoing maintenance process.

An infiltration and leakage study was conducted at Site 47 in 1993 to identify the sewer segments to be repaired or replaced. Soil and groundwater samples were collected to determine if contamination had leaked from the segments (Halliburton NUS, 1993a). As a result of these studies, certain segments of the sewer system have been repaired.

Site History – Operable Unit 1, Site 47

Event	Date
Construction of the industrial sewer system	1942
Leaks detected in pipes and drains, which carried industrial wastewater, from metal plating, metal finishing, solvent degreasing, paint stripping, painting, fuel storage, fueling, aircraft washing and general maintenance activities	Ongoing
Infiltration and Leakage Study	1993

Site 51 – Building 137 Former Plating Shop

Site 51 is a former plating shop that was located within Building 137 inside Fleet Readiness Center East (FRCE), in the central portion of OU1. The Plating Shop operated from 1942 to 1990 and consisted of an area of approximately 4,000 square feet that included a 3-foot-deep sump for containment of spillage and tank overflows. The area has been cleaned and renovated, and an autoclave has been constructed over a portion of the former plating shop.

The wastes generated in the plating shop consisted of plating solution overflow and rinse water containing zinc and chromium that were discharged to the sump. The sump was constructed of steel and set into the concrete pit, which was covered with wooden grating. Concrete piers were present in the sump so that tanks and equipment could be mounted above the sump. The sump discharged to the industrial sewer system (Site 47) until 1987, when the sump was plugged, and the plating shop converted to a closed-loop system. From then until the plating shop was moved in 1990, wastes were transported to the IWTP (Site 42) in containers for batch treatment.

Site History – Operable Unit 1, Site 51

Event	Date
Wastes at the site include plating solution overflow and rinse water containing zinc and chromium.	1942–1990
RFI Trip Report	1991
90% Completion Report	1993
RA Report	1996
HRC Treatability Study Work Plan	2001
HRC Treatability Study (Injection)	2001
HRC Treatability Study Technical Memorandum	2004
EHC Treatability Study Work Plan	2004
EHC Treatability Study (Injection)	2005
EHC Treatability Study Report	2007

Site 52 – Building 133 Former Plating Shop and Ditch

Site 52 is a former plating shop that was located within Building 133 in FRCE, in the central portion of OU1. The plating shop operated from 1942 to 1990 and consisted of an area of approximately 2,000 square feet that included a 2.5-foot-deep sump for containment of spillage and tank overflows. The wastes generated in the plating shop consisted of plating solution overflow and rinse water that discharged to the sump. The sump was constructed of steel and set into the concrete pit, which was covered with wooden grating. Concrete piers were present in the sump so that tanks and equipment could be mounted above the sump. The sump wastes discharged to a former open stormwater ditch behind Building 133 prior to the installation of the industrial sewer system (Site 47). This former ditch was believed to route stormwater and wastewater to the north of Building 133 and discharge into Sandy Branch Tributary #2. An addition constructed on the southeastern side of the building subsequently covered this ditch. Following the construction of the addition, the sump discharged to the industrial sewer system (Site 47) until 1987, when the sump was plugged, and the plating shop converted to a closed-loop system. From then until the plating shop was moved in 1990, wastes were transported to the IWTP (Site 42) in containers for batch treatment. The plating shop area has been cleaned and renovated and is currently used to process and store nonhazardous parts and supplies.

The 1983 IAS identified the drainage ditch along Runway 5 as Site 15 and indicated that it was the ditch described as having received wastewater discharges from Building 133. However, former FRCE employees have indicated that the ditch that received Building 133 wastewater discharges was actually the former ditch that is now covered by an addition to Building 133 and surrounding pavement. The IAS indicated that wastes generated in FRCE were reportedly washed down floor drains in Building 133 that discharged to this drainage ditch; some solid materials were also reportedly dumped along the edge of the ditch. These wastes likely included petroleum, oil, and lubricants (POL), organic solvents, cyanides, and metals.

Site History – Operable Unit 1, Site 52

Event	Date
Approximately 200,000 to 250,000 gallons per day of wastes (POL, organic solvents, cyanides, and metals) generated in FRCE were washed down floor drains that discharged to the drainage ditch	1940s to 1975
Plating solution overflow and rinse water	1942–1990
RFI Trip Report	1991
90% Completion Report	1993
RA Report	1996
EHC Treatability Study Work Plan	2004
EHC Treatability Study (Injection)	2005
EHC Treatability Study Report	2007

Site 92 – VOCs in Groundwater near the Stripper Barn

Site 92 is a plume of cVOC-contaminated groundwater near the Stripper Barn portion of Building 137, in the central portion of OU1. The area around the site is covered with buildings and concrete, and portions of the industrial sewer system (Site 47) are located beneath and around the Stripper Barn.

The Stripper Barn is the area where paint is removed from aircraft. In the past, large quantities of solvent were used to remove paint; during the paint removal process, spent solvent flowed into the industrial sewer system. The current paint removal method requires approximately 90 percent less solvent, and spent solvent is captured for proper disposal. Any historical spills that occurred outside the building may have flowed toward storm drains located northeast of the Stripper Barn.

Site History – Operable Unit 1, Site 92

Event	Date
Leaking underground industrial sewer lines	Unknown
RA Report	1999
Long-term Action Plan Pump-and-Treat/IWTP	2002

Site 98 – VOCs in Groundwater near Building 4032

Site 98 is a small plume of VOC-contaminated groundwater near Building 4032, located southeast of the IWTP in the central portion of OU1. Site 98 was discovered by MCAS Cherry Point during an investigation of USTs at Building 4032 in 1994 and was identified as a new site for inclusion in the FFA in 1999. The area around the site is paved with some grassy areas.

Site History – Operable Unit 1, Site 98

Event	Date
VOC-contaminated groundwater (source unknown)	Unknown
Site Check	1995
Relative Risk Ranking (RRR)	1995

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SITE 47
INDUSTRIAL AREA SEWER SYSTEM

SITE 14
MOTOR TRANSPORTATION

SITE 42
INDUSTRIAL WASTEWATER TREATMENT PLANT

SITE 98
VOCS IN GROUNDWATER NEAR BUILDING 4032

SITE 92
VOCS IN GROUNDWATER NEAR THE STRIPPER BARN

POEI 23
RADIOACTIVE WASTE STORAGE AREA #2

SITE 51
BUILDING 137 FORMER PLATING SHOP

SITE 15
DITCH AND AREA BEHIND NADEP

SITE 16
LANDFILL AT SANDY BRANCH

SITE 52
BUILDING 133 FORMER PLATING SHOP AND DITCH

SITE 83
BUILDING 96 FORMER PESTICIDE MIXING AREA

SITE 17
DRMO DRAINAGE DITCH

SITE 18
FACILITIES MAINTENANCE COMPOUND

POEI 22
RADIOACTIVE WASTE STORAGE AREA #1

Legend

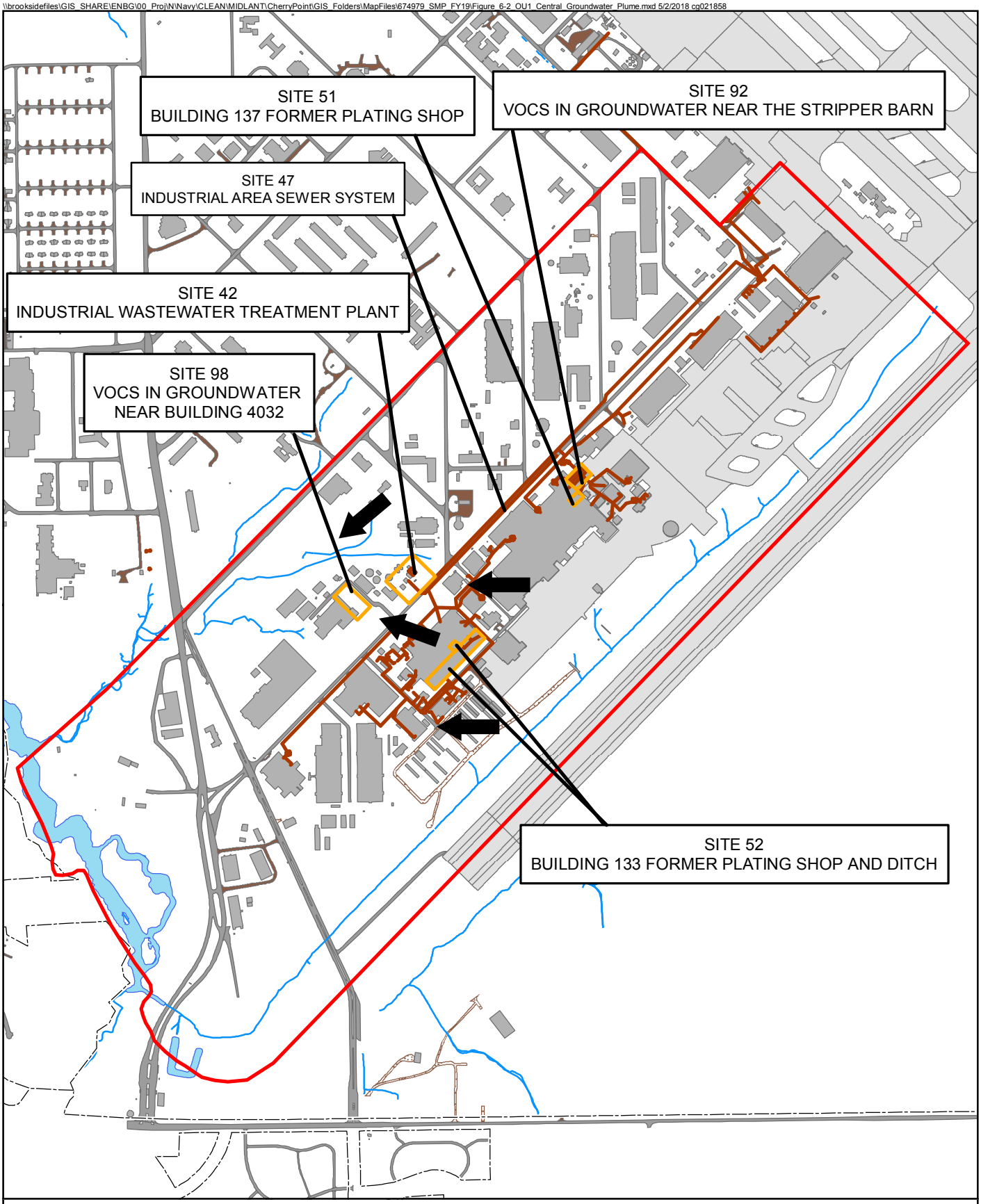
- OU Boundary
- Site Boundary
- Base Boundary
- Buildings
- Road
- Runway
- Railroad
- Surface Water
- Industrial Area Sewer System
- Groundwater Flow Direction

N
W E
S

0 450 900
Feet

Figure 6-1
Operable Unit 1 FFA Sites
MCAS Cherry Point, North Carolina

ch2m



Legend

- OU Boundary
- Site Boundary
- Base Boundary
- Buildings
- Runway
- Road
- Industrial Area Sewer System
- Surface Water
- Groundwater Flow Direction

N
W E
S

0 537.5 1,075
Feet

Figure 6-2
OU1 Central Groundwater Plume FFA Sites
MCAS Cherry Point, North Carolina

ch2m.

SECTION 7

Descriptions of RIP and RC Sites

The following subsections discuss the site histories for the 20 IRP sites and one MRP site that are in the RIP or RC phase of the CERCLA process. Remedies are in-place (e.g., MNA and/or LUCs) for 10 of the IRP sites, which constitute all or portions of 6 OUs (1, 2, 3, 4, 13, and 14). Response is complete with NFA for 10 IRP sites, which form all or portions of five OUs (1, 2, 5, 6, and 15), and one MRP site.

7.1 IRP RIP Sites

7.1.1 Operable Unit 1 (Site 16)

The site described in this subsection is not considered to be contributing to the OU1 Central Groundwater Plume. See **Figure 6-1** for the site location.

Site 16 – Landfill at Sandy Branch

Site 16 is a former borrow pit area that was subsequently used as a dump site. The site is located in the western portion of OU1, and is bounded to the north by Sandy Branch, to the west by East Prong Slocum Creek, to the south by a wetland area and unnamed tributary to East Prong Slocum Creek, and to the east by a road off Roosevelt Boulevard. The site is currently used for storage and solid waste handling (i.e., transfer) and to store bulk materials (e.g., rip-rap, gravel, fill dirt, mulch). It is no longer used for solid waste recycling activities. There are several buildings, a cardboard compactor, and an auto impound lot located on the site. Site 16 was originally identified as being 11 acres, but aerial photographs and site reconnaissance have indicated that the site is larger (approximately 19 acres).

Between 1946 and 1948, up to 20,000 gallons of waste oil, one or more 55-gallon drums of potassium cyanide, and unspecified quantities of other wastes (municipal-type refuse) were reportedly disposed of at Site 16 (Water & Air Research, 1983). Aerial photographs reportedly indicate possible dumping after 1949. Shallow groundwater contamination from VOCs and metals, found during the Technical Direction Memorandum (TDM) Phase I study, was attributed to the landfill and upgradient leaking industrial sewer lines (Halliburton NUS, 1992). The TDM Phase II study was conducted in 1994, and results indicated organic compound contamination in soil. In shallow groundwater, VOC contamination was identified in four areas (Halliburton NUS, 1994a).

In 1996, a pilot-scale AS/SVE system was installed for groundwater remediation (B&R, 1997a). In 1997, a TCRA was conducted that included removal of debris piles containing asbestos, steel storage tanks, and soil contaminated with petroleum hydrocarbons (OHM, 1998a). A full-scale AS/SVE system was installed in 1998 as part of an NTCRA. The Partnering Team agreed to shut down the AS/SVE system in February 2005 because it was not achieving the RAOs. In March 2005, the AS/SVE system was shut down and the Site 16 AS/SVE system closeout report was finalized in August 2006 (AGVIQ/CH2M, 2006b). The major equipment components of the AS/SVE system were removed in October 2009, with the wells retained for possible future use. The remainder of the system was decommissioned (including well abandonment) in 2011. Closeout reports for the AS/SVE system were submitted in February 2010 (Rhēa, 2010d) and May 2011 (Rhēa, 2011c).

During the October 2006 meeting, the MCAS Cherry Point Partnering Team discussed the results of an analysis performed for Site 16 using the screening-level contaminant fate and transport model BIOCHLOR. The results indicated that concentration of TCE at monitoring well 16GW04 may be of concern should impacted groundwater discharge to the adjacent surface water body (East Prong Slocum Creek). To determine if the high concentration of TCE is restricted to the area around 16GW04, and whether or not the concentration is related to onsite sources, the Partnering Team agreed to conduct additional soil and groundwater sampling in the vicinity of 16GW04. The sampling event was conducted in June 2007. The results of the sampling event were included in a technical memorandum, which concluded that no potential sources of the cVOCs in groundwater had been found in soil in the vicinity of monitoring well 16GW04 (CH2M, 2008b). Beginning in August 2007, the Partnering Team

agreed to sample monitoring well 16GW04 on a quarterly basis to monitor the levels of VOCs in the groundwater in the vicinity of the well. Subsequent to the 2007 Monitoring Well 16GW04 area investigation, the OU1 RI Addendum (CH2M, 2009a) concluded that the cVOC contamination found in 16GW04 and other areas of Site 16 was the result of the downgradient migration of cVOC contamination that is part of the OU1 Central Groundwater Plume. In June 2008, quarterly monitoring of 16GW04 was discontinued at the direction of the Partnering Team, as the well was to be further sampled as part of additional investigation activities planned for the Central Groundwater Plume.

The Partnering Team also agreed in 2008 to initiate an FS for Site 16 (as part of an FS for Sites 16 and 83) to address the human health risks from polycyclic aromatic hydrocarbons (PAHs) in surface soil identified in the 2002 OU1 RI (Tetra Tech, 2002a). During preliminary Site 16 and 83 FS activities, it was determined that additional investigation activities were warranted at Site 83 and the Partnering Team decided to address Site 16 separately. A Site 16 human health risk evaluation for soil was completed in May 2011 to update the HHRA performed as part of the 2002 OU1 RI that included Site 16 as part of a larger soil grouping. The 2011 risk evaluation included the earlier Site 16 soil data from the 2002 OU1 RI along with more recent soil data collected as part of the 2005 BERA. The evaluation concluded that the only scenario with potentially unacceptable risks was the future residential scenario, with arsenic being one of the major drivers of carcinogenic risk. However, arsenic concentrations in soil at Site 16 are consistent with MCAS Cherry Point background concentrations and are attributable to natural conditions. By adjusting the risk calculations to account for the naturally occurring arsenic, the hypothetical carcinogenic risk to a future resident was within the target acceptable risk range. A Supplemental RI Report prepared for Site 16 in 2012 included a summary of the investigation results and human health and ecological risk evaluations performed at Site 16. The Supplemental RI Report concluded that no further action is warranted for Site 16 and recommended that the site proceed to an NFA Proposed Plan and ROD (CH2M, 2012b).

Although investigation activities at Site 16 have not revealed specific evidence of potentially unacceptable human health or ecological risks, the MCAS Cherry Point ER Partnering Team acknowledged that the full extent of potential subsurface debris at Site 16 had not been and could not be feasibly evaluated. Consequently, the Partnering Team selected a preferred remedy of LUCs for Site 16, and the Proposed Plan was finalized in September 2015 (Rhēa, 2015). A 2017 Updated HHRA recommended no further evaluation or action for soil at Site 16 (CH2M, 2017a), which was consistent with the findings of the HHRA included in the Site 16 Supplemental RI. Risk associated with soil contact by future residents is slightly above acceptable levels but is not likely considering the industrial nature of the site. The Site 16 ROD was finalized in September 2017 and signed on January 10, 2018 (Rhea, 2017). The LUC RD for Site 16 was finalized in March 2018, and the LUCs were implemented and will be maintained by the Navy and MCAS Cherry Point. The IRACR for Site 16 was finalized in 2020, documenting successful implementation of the LUC remedy (CH2M, 2020a). Existing LUCs include restricting land use to industrial purposes only and prohibiting intrusive activities below ground surface unless permitted by regulatory authorities.

Site History – Operable Unit 1, Site 16

Event	Date
Reported disposal of waste oils (~20,000 gallons), 55-gallon drums of potassium cyanide and municipal-type refuse at the dump area	1946-1948
Phase I/Phase II TDM	1992/1994
Installation of pilot AS/SVE system	1996
Debris pile TCRA	1997
NTCRA	1998
Installation of full-scale AS/SVE system	1998
RA Report	2000
Shutdown of AS/SVE system	2005
Site 16 AS/SVE System Shutdown Report	2006

Site History – Operable Unit 1, Site 16

Event	Date
Technical Memorandum for the Results of Additional Sampling near Monitoring Well 16GW04	2008
Site 16 AS/SVE System Removal Work Plan	2009
Site 16 AS/SVE System Removal/Closeout Report	2010
Supplemental RI Report	2012
Proposed Plan for Site 16	2015
Summary of the Updated Human Health Risk Assessment – Site 16	2017
Site 16 ROD	2017
RD for LUCs,	2018
IRACR for Site 16 LUCs	2020

Future Activities

The cVOCs in groundwater beneath Site 16 are being addressed as part of the OU1 Central Groundwater Plume sites since the cVOC contamination found beneath Site 16 was the result of the downgradient migration of cVOC contamination that is part of the OU1 Central Groundwater Plume rather than onsite sources. Site 16 will be within the LUC boundary for LUCs implemented as part of the remedy for the OU1 Central Groundwater Plume. As a result, these additional LUCs not specific to Site 16 are anticipated to prohibit all uses of groundwater from the surficial aquifer beneath Site 16 (except for monitoring and remediation purposes) and prohibit unauthorized intrusive activities below the water table unless prior written approval is obtained from the USEPA and NCDEQ. The LUCs at Site 16 will continue to be in effect and will remain unchanged as part of the long-term management of OU1.

7.1.2 Operable Unit 2

Background

OU2 is located in the west-central portion of MCAS Cherry Point and covers approximately 104 acres. OU2 is bounded by the STP and OU3 to the north, Roosevelt Boulevard to the east, a residential area to the south, and Slocum Creek to the west. There are three FFA sites grouped within OU2 because of their proximity to the Old Sanitary Landfill (Site 10):

- Site 10 – Old Sanitary Landfill
- Site 46 – Polishing Ponds No. 1 and No. 2
- Site 76 – Vehicle Maintenance Area (Hobby Shop)

The location and boundaries of OU2 and the site locations within OU2 are shown on **Figure 7-1**.

The IAS conducted in 1983 identified Site 10. Site 46 (Polishing Ponds No.1 and No. 2) was identified in the RFA conducted in 1988, and the RRR identified Site 76 (Vehicle Maintenance Area [Hobby Shop]) in 1995.

Between 1984 and 1987, an IRI was conducted to identify contaminated sites and included the collection of soil, groundwater, surface water, sediment, and leachate seep samples and aquifer testing at Site 10. Contamination, primarily VOCs, was verified in the shallow groundwater, soil, and sediment. For the RFI conducted between 1989 and 1991, soil, groundwater, surface water, and sediment samples were collected, and a soil-gas survey and aquifer testing were conducted at Site 10 based on data gaps identified from previous investigations (NUS, 1991).

The Phase I TDM conducted in 1992 included magnetometer survey, soil sampling, and the excavation of test pits (Halliburton NUS, 1992). Additional test pits and/or soil borings were recommended to further delineate the horizontal and vertical extent of soil contamination, primarily VOCs and metals, in the area just south of Turkey Gut. During the Phase II TDM, a terrain conductivity survey, additional test pit excavation, and soil sampling were

conducted. No further investigation of soils was recommended just south of Turkey Gut based on low concentrations and localized contamination found in soil. Additional soil borings were recommended in the central portion of the landfill to further delineate the horizontal and vertical extent of soil contamination, primarily VOCs and metals (Halliburton NUS, 1994a).

An RI for OU2 was conducted in 1994 and 1995, and included borehole geophysical logging; soil, groundwater, surface water, leachate seep, and sediment sample collection; and surface water level monitoring (B&R, 1997c). The RI concluded that groundwater in the surficial aquifer was contaminated with a wide range of organic contaminants (VOCs, semivolatile organic compounds [SVOCs], and pesticides) and metals. In addition, there were several VOC "hot spot" areas of soil contamination identified. An FS was recommended to evaluate potential RAs.

Remedial alternatives for OU2 were evaluated in the FS (B&R, 1997c), presented in the PRAP (B&R, 1996b), and finalized in the ROD for OU2 (Tetra Tech, 1999a). The selected remedy included natural attenuation of groundwater, SVE at four Site 10 soil "hot spots," institutional controls (ICs), and LTM of groundwater, surface water, and sediment to ensure the effectiveness of natural attenuation. LUCs were established for all or portions of the three sites, which restrict site use to industrial use only, restrict access to certain areas with installed fences and signs, prohibit intrusive activities, and prohibit groundwater use (CH2M, 2002c). The Land Use Control Assurance Plan (LUCAP) elements in place at OU2 are listed in **Table 7-1** and shown on **Figure 7-1**. In 1996, an SVE pilot study was conducted, and in 1997 a full-scale SVE system to treat soil at four Site 10 soil "hot spot" areas was installed. According to the Five-Year Review conducted at MCAS Cherry Point in 2002, the SVE system had been operating as designed since March 1998; VOC mass removal continued to occur at significant rates in Hot Spots 1 and 3, while little to no removal was observed at Hot Spots 2 and 4 (CH2M, 2002c). The Five-Year Review also indicated that soil hot spots existed outside of the area of influence of the system and recommended that additional investigation activities be conducted, and alternate remedial technologies be evaluated. The SVE treatment of the soil hot spots was discontinued in August 2003 because the system was no longer removing significant contaminant mass and was not performing as a cost-effective remedial approach. Quarterly and annual reports of system status and routine monitoring were submitted during the period of operation. A Work Plan was finalized in April 2010 for the removal of the equipment and components of the SVE system (Rhēa, 2010c). The system removal was completed in April 2010 and a Construction Closeout Report was finalized in July 2010 (Rhēa, 2010e).

Fish tissue samples were collected from Slocum Creek adjacent to OUs 1, 2, 3, and 4 in 1998, and the results indicated no unacceptable risk to human health from fish tissue ingestion (Tetra Tech, 1999b). In 1999, surface water and sediment samples were collected adjacent to OUs 1, 2, 3, and 4 as part of a SLERA in Slocum Creek (Tetra Tech, 2001). No consistent patterns of contamination were observed. The results indicated that ecological risks in Slocum Creek surface water and sediments from organic chemicals were low, while risks from some metals in sediments were higher. However, a decline in metals concentrations over time was noted and it was also suggested that the locations of elevated concentrations of some metals in sediments were correlated with the outfalls of the former MCAS Cherry Point STP as well as the Havelock STP, neither of which are part of any OUs. The SLERA report concluded that further detailed ecological study in Slocum Creek was not necessary.

In December 2006, the Cherry Point Partnering Team agreed that there was no CERCLA contamination related to Site 46 within OU2. Consequently, the polishing ponds were removed from the LUC boundaries for OU2 (see Section 7.2.2).

As discussed in Section 7.1.1.2, soil sampling conducted at the Site 10 hot spots between 2004 and 2008 revealed that the soil in Hot Spots 1, 3, and 4 were below the applicable screening criteria. However, an area of soil contamination remained at Hot Spot 2 above North Carolina Soil Screening Levels (NC SSLs). A Focused FS that evaluated additional remedial alternatives for soil at Hot Spot 2 and a Proposed Plan were both finalized in 2011. The preferred alternative included the installation of a soil cover over the portion of Hot Spot 2 where soil concentrations exceeded screening criteria. An OU2 ROD Amendment was signed in September 2011 documenting the remedy selection, and the soil cover was installed in early 2012.

Annual LTM of groundwater began in October 2002. In 2007, LTM sampling at OU2 was changed from an annual to a quarterly basis. An effort to evaluate and optimize the OU2 LTM program based on the findings to date was completed in May 2011. The LTM Evaluation recommended changes to the OU2 LTM program for groundwater and surface water monitoring for team consideration. A new LTM SAP documenting the changes to the OU2 LTM program was finalized in May 2012 (CH2M, 2012g), and the new OU2 LTM program began in late FY 2012.

During the 2017 Five-Year Review (CH2M, 2018a) the following issues were identified for OU2:

- Chlorobenzene exceeded the residential groundwater North Carolina VI screening level during groundwater LTM sampling events at OU2.
- The selected remedy for OU2 does not address potential VI concerns related to future building construction.

A recommendation was made to amend the LUCs to include the evaluation of VI potential prior to beginning any construction or building modification and to document this LUC amendment in a ROD Explanation of Significant Differences (ESD). A ROD ESD was finalized in FY 2020 to document the modified LUC boundaries (CH2M, 2020b).

Site History – Operable Unit 2

Event	Site	Date
POL, solvents, and sludge disposed of at Old Sanitary Landfill	10	1950s to 1980s
Hydrogeologic and Geotechnical Analysis	OU2	1981
IAS	OU2	1983
RFA	10, 46	1988
IRI	OU2	1988
Groundwater Assessment	OU2	1988
Evaluation of Sludge Impoundment Area	OU2	1991
RFI	OU2	1991
Phase I TDM	OU2	1992
Phase II TDE	OU2	1994
PRAP	OU2	1996
RI	OU2	1997
FS	OU2	1997
SAP	OU2	1997
Basis of Design Report for SVE System	10	1997
SVE Work Plan	10	1997
O&M Plan for SVE	10	1998
ROD	OU2	1999
LTM RA Plan	OU2	1999
RA Report	OU2	1999
RD Work Plan for Baseline LTM	OU2	1999
Slocum Creek Fish Ingestion Report	OU2	1999
LUCAP	OU2	2003
Operation and Maintenance (O&M) Status Report	OU2	2000, 2001
RD/RA Report	OU2	2001
Slocum Creek SLERA	OU2	2001
RA Report	OU2	2002
Long-term RA Report	OU2	2002
LTM Work Plan	OU2	2002

Site History – Operable Unit 2

Event	Site	Date
LTM Annual Report	OU2	2003
Site 10 SVE System shut down	10	2003
Technical Memorandum, January 2004 SVE Hot Spot Area sampling	10	2004
2003 LTM Report	OU2	2005
Technical Memorandum, April 2005 SVE Hot Spot Area sampling	10	2005
2004 LTM Report	OU2	2005
Technical Memorandum, January 2006 SVE Hot Spot Area sampling	10	2006
2005 LTM Report	OU2	2006
Technical Memorandum, November 2006 re: Site 10 Hot Spot 2 Soil Delineation	10	2007
2006 LTM Report	OU2	2007
2007 LTM Report	OU2	2008
2008 LTM Report	OU2	2009
2009 LTM Report	OU2	2010
Site 10 SVE System Decommission Work Plan	10	2010
LTM Evaluation	OU2	2011
2010 LTM Report	OU2	2011
2011 LTM Report	OU2	2011
OU2 ROD Amendment	10 – Hot Spot 2	2011
LTM SAP	OU2	2012
2012 LTM Report	OU2	2013
2013 LTM Report	OU2	2014
2014 LTM Report	OU2	2014
2015 LTM Report	OU2	2015
2016 LTM Report	OU2	2017
2017 LTM Report	OU2	2018
2018 LTM Report	OU2	2018
OU2 ROD ESD	OU2	2020

Future Activities

LTM will continue until it is confirmed that the constituents detected in groundwater do not exceed the performance standards identified in the ROD (CH2M, 2002b). A summary of the wells sampled at OU2 as part of the ongoing LTM program is included in **Table 7-2**. An updated groundwater LTM SAP, which includes OU2, OU4, and OU14, is expected to be finalized in FY 2020.

LUCs remain in place across the area of OU2, as documented in **Table 7-1** and shown on **Figure 7-1**.

7.1.2.1 Site 10 – Old Sanitary Landfill

Site 10, the Old Sanitary Landfill, is approximately 40 acres and is located west of Roosevelt Boulevard, south of the STP (Site 43), and east of Slocum Creek. Site 10 is divided by Turkey Gut, a small perennial stream that flows northwest into Slocum Creek. The site consists of a sanitary landfill, former sludge impoundments, and a former

drum storage area that was used to store petroleum products. The former drum storage area is currently used to store miscellaneous equipment and is fenced and covered with gravel.

Site 10 served as the primary landfill at MCAS Cherry Point beginning in 1955. Before the late 1970s, all landfilling activities were carried out south of Turkey Gut. Subsequently, landfilling operations also occurred north of Turkey Gut. Landfill operations ceased at Site 10 in the early to mid-1980s. Industrial wastes reportedly disposed of in the landfill included POLs, solvents, and sludge. The quantity of wastes is unknown but is estimated to be thousands of tons. Hazardous liquids and POLs were also spread on the landfill surface and burned, deposited in unlined pits on the south side of Turkey Gut, and buried at the landfill.

After the OU2 SVE system was shut down in 2003, periodic (roughly annual) soil sampling commenced at Site 10, Hot Spots 1, 2, 3, and 4. Soil sampling occurred in January 2004, April 2005, January 2006, and November 2006. The January 2004 sampling results indicated that soil VOC concentrations at Hot Spots 1 and 4 were below the screening criteria and these hot spots were removed from further annual sampling. The April 2005 sampling results indicated that VOCs in soils at Hot Spot 3 were below the screening criteria, and this hot spot was also removed from the annual sampling. The January 2006 sampling results defined specific VOCs that exceeded the screening criteria at Hot Spot 2, and further sample analyses at Hot Spot 2 were restricted to these analytes. The November 2006 Hot Spot 2 sampling results indicated several VOCs that exceeded screening criteria. Based on these results, the MCAS Cherry Point ER Program Partnering Team agreed to conduct additional soil sampling in order to further delineate the soil contamination within Hot Spot 2. Samples were collected in July and December 2007. These samples did not successfully delineate the contamination, and additional samples were collected in 2008 to complete Hot Spot 2 investigation activities.

Since OU2 has a ROD in place, a Focused FS (FFS) that evaluated additional remedial alternatives for soil at Site 10, Hot Spot 2 was finalized in February 2011 (Rhēa, 2011a). The Proposed Plan for Site 10, Hot Spot 2 was finalized in April 2011 (Rhēa, 2011b). The preferred alternative presented in the Proposed Plan included the installation of a soil cover over areas of Hot Spot 2 where soil concentrations exceeded NC SSLs to prevent direct exposure and limit infiltration and migration of soil/waste contamination to groundwater. The preferred alternative also included groundwater monitoring to ensure protection of Slocum Creek from groundwater discharge to surface water. The OU2 ROD Amendment was signed in September 2011 (Rhēa, 2011d). LUCs established under the 1999 ROD for OU2, which restrict site use to industrial use only, restrict access to certain areas with installed fences and signs, prohibit intrusive activities, and prohibit groundwater use, apply to the entire area of Site 10 and were not changed by the 2011 Amended ROD.

In preparation for the implementation of the soil cover remedy at Hot Spot 2, a RD/RA Work Plan was prepared and finalized in December 2011 (Rhēa, 2011e). The soil cover was successfully installed at Site 10, Hot Spot 2, in January and February 2012. The Construction Closeout Report documenting the soil cover installation was finalized in August 2012 (Rhēa, 2012b). The IRACR documenting the soil cover remedy for Site 10, Hot Spot 2 was finalized in December 2012 (Rhēa, 2012d).

Site History – Site 10, Hot Spot 2

Event	Date
Focused FS	2010
Site 10 SVE System Construction Closeout Report	2010
Proposed Plan	2011
Amended ROD	2011
RD/RA Work Plan	2011
Soil Cover Installation	2012
Construction Closeout Report – Site 10 RA	2012
IRACR	2012

Future Activities

LUCs that include all of Site 10 remain in place. LTM activities at OU2 will continue until it is confirmed that the constituents detected in groundwater do not exceed the performance standards identified in the ROD (CH2M, 2002b).

7.1.2.2 Site 76 – Vehicle Maintenance Area (Hobby Shop)

Site 76 is a fenced area located south of Site 10 and consists of a garage building and parking lot where personal vehicles are repaired. The area covers approximately 250 feet by 250 feet and is bounded to the west by a wooded area adjacent to Slocum Creek, a residential area to the east, Site 10 to the north, and a wooded area to the south. Site 76 is the only site at OU2 that is currently active. Ongoing site activities include general auto maintenance and auto body repair. Based on a review of historical aerial photographs, the Site 76 area was developed between 1958 and 1964.

LUCs established under the 1999 ROD for OU2, which restrict site use to industrial use only, restrict access to certain areas with installed fences and signs, prohibit intrusive activities, and prohibit groundwater use, apply to the entire area of Site 76 with the exception of the area restricted with fences and signs.

Site History – Operable Unit 2, Site 76

Event	Date
General Auto Maintenance	1960s to present
RRR	1995

Future Activities

LUCs that include the area of Site 76 remain in place. LTM activities at OU2 will continue until it is confirmed that the constituents detected in groundwater do not exceed the performance standards identified in the ROD (CH2M, 2002b).

7.1.3 Operable Unit 3

7.1.3.1 Background

OU3 is located in the west-central portion of MCAS Cherry Point and covers approximately 19 acres. OU3 is bounded by Slocum Road to the north, the STP and OU2 to the south, Slocum Creek to the west, and an adjacent wooded area to the east. OU3 consists of two FFA sites (Site 6 – Fly Ash Ponds and Site 7 – Old Incinerator and Adjacent Area) that were grouped into one OU because of their proximity and common waste types. The location and boundaries of OU3 and the site locations within OU3 are shown on **Figure 7-2**.

Sites 6 and 7 were identified in the IAS conducted in 1983. Between 1984 and 1987, an IRI was conducted that included groundwater sampling at Site 6. In 1991 and 1993, soil, groundwater, surface water, and sediment samples were collected at Sites 6 and 7 as part of the 21-unit RFI. During 1992, soil and groundwater samples were collected as part of the 10-Unit TDM. Recommendations included additional soil sampling to evaluate the presence or absence of combustion byproducts such as PAHs; groundwater, surface water, and sediment sampling; and evaluation of the interaction between groundwater, surface water, and sediment and the lime/alum ponds (Halliburton NUS, 1993b).

An RI was conducted from 1994 to 1996, and included the collection of soil, groundwater, surface water, and sediment samples; borehole geophysical logging; and surface water level monitoring. Analytical results for Site 6 indicated that this area has been relatively unaffected by fly ash disposal activities or incineration/burning at Site 7; however, minimal residual material remained onsite. The COCs at OU3, as documented in the IROD signed

in 1996 (B&R, 1996f), are PAHs and metals in soil, and benzene, bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, and metals in groundwater.

Fish tissue samples were collected from Slocum Creek adjacent to OUs 1, 2, 3, and 4 in 1998; the results indicated no unacceptable risk to human health from fish tissue ingestion (Tetra Tech, 1999b). In 1999, surface water and sediment samples were collected adjacent to OUs 1, 2, 3, and 4 as part of a SLERA in Slocum Creek (Tetra Tech, 2001). No consistent patterns of contamination were observed. The results indicated that ecological risks in Slocum Creek surface water and sediments from organic chemicals were low, while risks from some metals in sediments were higher. However, a decline in metals concentrations over time was noted and it was also suggested that the locations of elevated concentrations of some metals in sediments were correlated with the outfalls of the former MCAS Cherry Point STP as well as the Havelock STP, neither of which are part of any OUs. The SLERA report concluded that further detailed ecological study in Slocum Creek was not necessary. Remedial alternatives for OU3 were evaluated in the FS (B&R, 1996d), presented in the PRAP (B&R, 1996b), and finalized in the ROD for OU3 (Tetra Tech, 2000). The selected sitewide RA for OU3 was monitored natural attenuation (MNA) and ICs for groundwater, and air sparge and ICs for soil (OHM, 1998b). The boundaries of the various LUCs in place at OU3 are listed in **Table 7-1**. A final IRACR was submitted in September 2007 and documented the attainment of the soil remedial goals.

Annual LTM of groundwater began in October 2002. In 2007, the LTM sampling frequency at OU3 was increased to a quarterly basis and in 2010 the sampling frequency was reduced to every third quarter (9 months). In 2011, LTM sampling was discontinued when the constituents detected in groundwater no longer exceeded the performance standards identified in the ROD for four consecutive sampling events (CH2M, 2002a). The final RACR was submitted in April 2012 (CH2M, 2012c) and documented that the RA for OU3 has met the RAOs stated in the ROD.

Site History – Operable Unit 3

Event	Date
IAS	1983
RFA	1988
IRI	1988
21-unit RFI	1993
10-unit TDM	1993
PRAP	1996
RI	1996
FS	1996
IROD	1996
RA Report	1998
SAP	1999
RD Work Plan for Baseline LTM	1999
Slocum Creel Fish Ingestion Report	1999
O&M Plan	2000
LTM RA Plan	2000
RA Report	2000
ROD	2000
LUCAP	2003
O&M Status Report	2001
RD/RA Report	2001
Slocum Creek (SLERA)	2001
LTM Work Plan	2002
LTM Report	2003

Site History – Operable Unit 3

Event	Date
LTM Annual Report	2003
LTM Quarterly Sampling Tech Memo	2004
2003 LTM Report	2005
2004 LTM Report	2005
2005 LTM Report	2006
2006 LTM Report	2007
IRACR	2007
2007 LTM Report	2008
2008 LTM Report	2009
2009 LTM Report	2010
2010 LTM Report	2011
RACR	2012

Future Activities

The LUCs at OU3 will continue to be in effect and will remain unchanged as part of the long-term management of OU3.

7.1.3.2 Site 6 – Fly Ash Ponds

Site 6 formerly consisted of three unlined ponds bounded by Slocum Creek to the west, Luke Rowe's Gut to the south, and Slocum Creek Road to the north and east. The ponds covered approximately 2.5 acres and were approximately 10 to 15 feet deep. The ground surface west of the former pond locations slopes steeply to approximately 5 feet amsl, giving way to a flat and heavily vegetated area adjacent to Slocum Creek. There are wetland areas adjacent to Slocum Creek and Luke Rowe's Gut, and a portion of the site lies within the 100-year flood plain of Slocum Creek. Fly ash and cinders from the old power plant were disposed of in the ponds from the 1940s until about 1970. The ponds were then reportedly used for the disposal of lime/alum sludge from the potable water treatment plant from December 1980 until the new water treatment plant became operational in mid-1994. It was also reported that up to 5,000 gallons of waste POLs were disposed of in the ponds (Water & Air Research, 1983). A review of historical aerial photographs indicated that the ponds were not constructed until the late 1950s. Earlier aerial photographs indicate the presence of a natural pond and/or shallow depressions. The third pond appeared in an aerial photograph from 1978 (B&R, 1996e).

In 1996, as part of the closure of the Air Station water treatment plant, the ponds at Site 6 were removed. This non-Environmental Restoration, Navy (ER,N) funded effort was accomplished by solidifying and excavating the pond sludge, removing piping and debris, leveling the berms, and re-vegetating the site. The site was revegetated with pine seedlings in 1996 by MCAS Cherry Point personnel as part of a "Longleaf Pine Initiative" to return the land to its natural state (OHM, 1998b). LTM began in October 2002 and was discontinued in 2011 when it was confirmed that the constituents detected in groundwater no longer exceeded the performance standards defined in the OU3 ROD.

Site History – Operable Unit 3, Site 6

Event	Date
Disposal of fly ash and cinders	1940s to 1970
Solidification and excavation of pond sludge, removal of piping and debris, berm leveling	1996
Re-vegetation of site	1996

Future Activities

The LUCs at Site 6 will continue to be in effect and will remain unchanged as part of the long-term management of OU3.

7.1.3.3 Site 7 – Old Incinerator and Adjacent Area

Site 7 formerly consisted of an incinerator and open burning ground that covered approximately 5 acres. It is bounded by the STP to the south and east, Luke Rowe's Gut to the north, and Slocum Creek to the west. The former incinerator was reportedly located adjacent to Luke Rowe's Gut in the eastern part of the site. The open burning area was reportedly south of Luke Rowe's Gut near its confluence with Slocum Creek.

From the 1940s until approximately 1955, waste POLs, FRCE wastes, and other wastes (including municipal refuse) were burned in the incinerator or on the adjacent open burning grounds. Fly ash disposal and open burning were suspected in the western portion of Site 7. The fly ash is believed to have originated from the incinerator and was reportedly mixed with other wastes. Fly ash was also found in the eastern portion of the site in some places. Aerial photographs indicate that the incinerator was removed between 1981 and 1984.

As part of the selected remedy at Site 7, a fence and warning signs were installed, and soil samples were collected (OHM, 1998b). In 2000, an air sparge system was installed for enhanced bioremediation of a localized area of soil contamination. According to the 2002 Five-Year Review, the AS system at Site 7 was in operation 90 percent of the time and was generally functioning as designed. Based on the February 2001 soil sampling results, it was noted that the extent of benzene contamination in soil at Site 7 extended beyond the radius of influence of the current AS system to the southwest and northeast (OHM, 2000). As a result, additional AS points were installed to address the extended area of contamination. Based on soil and groundwater monitoring results indicating that the AS system had effectively remediated the soil hot spot, the AS system was shut down in mid-2003 (CH2M, 2003a). The MCAS Cherry Point Partnering Team agreed in October 2006 to remove the components of the AS system at Site 7, as it was not anticipated that any future use would be required. The AS system was removed in May 2007.

LTM began in October 2002 and was discontinued in 2011 when it was confirmed that the constituents detected in groundwater no longer exceeded the performance standards defined in the OU3 ROD.

Site History – Operable Unit 3, Site 7

Event	Date
Waste POLs, FRCE wastes and municipal wastes burned in incinerator and in open burning grounds	1940s to 1953
Work Plan for AS System	1999
AS System Installation	2000
LTM RA Report—AS	2002
RA Report	2002
Annual Report	2003
Shutdown of AS System	2003
Removal/Demolition of AS System	2007
Site 7 AS System Removal After Action Report	2007

Future Activities

The LUCs at Site 7 will continue to be in effect and will remain unchanged as part of the long-term management of OU3.

7.1.4 Operable Unit 4

7.1.4.1 Site 4 – Borrow Pit/Landfill

OU4 consists of one FFA site, Site 4, and is located in the northwest-central portion of MCAS Cherry Point and covers approximately 130 acres. Site 4 is a Borrow Pit/Landfill North of Runway 14 and is bounded by Mill Creek to the south and west, Access Road to the north, and Duffy Road to the east. The location and boundaries of OU4 are shown on **Figure 7-3**.

Site 4 consists of several borrow pits that were used for waste disposal, as well as a fenced and lined drum storage area that is located in the north-central portion of the site. Site 4 was identified in the IAS and RFA, which indicated that the borrow pits were initially excavated in the 1940s. The borrow pits had been excavated to a depth below the water table, and a drain was reportedly cut to Slocum Creek. The disposal of construction and demolition debris and asbestos waste began in the 1950s. Other wastes, including wastes from FRCE, may have also been disposed of at Site 4; however, no records were maintained on the types or amounts of wastes. The date that disposal activities ceased at the site is not known (Water & Air Research, 1983). The majority of historical activities at Site 4 took place in the western portion of the site, where the borrow pits used for waste disposal were located. The area was permitted in 1997 as an active land clearing and inert debris landfill and is currently used for recycling of unpainted/untreated wood, yard waste, and inert construction debris. The drum storage area, located in the northeastern corner of OU4, was visible in the 1988 aerial photograph. The area is now used for the storage of new material for FRCE.

Sampling was conducted between 1984 and 1987 as part of an IRI. During the 21-unit RFI, VOCs were found in groundwater. A 10-Unit TDM was conducted in 1992. Elevated lead concentrations were found during the RI in Mill Creek sediments in the eastern part of Site 4. Subsequent investigation revealed that the lead concentrations increased upstream from OU4 and were greatest near an inactive skeet and trap range located to the northeast. It was concluded that the lead in Mill Creek sediments did not originate from site activities at OU4, but from the skeet and trap range. Because the lead originated from military munitions at an operational military range, it was determined that the lead was not a RCRA solid waste or the result of a release regulated under CERCLA. The range is being addressed by the MCAS Cherry Point EAD, and an investigation of lead contamination on the inactive range has been performed. Therefore, USEPA and NCDEQ agreed to remove the lead from consideration as a COC in the OU4 remedy selection process.

Fish tissue samples were collected from Slocum Creek adjacent to OUs 1, 2, 3, and 4 in 1998 and the results indicated no unacceptable risk to human health from fish tissue ingestion (Tetra Tech, 1999b). In 1999, surface water and sediment samples were collected adjacent to OUs 1, 2, 3, and 4 as part of a SLERA in Slocum Creek (Tetra Tech, 2001). No consistent patterns of contamination were observed. The results indicated that ecological risks in Slocum Creek surface water and sediments from organic chemicals were low, while risks from some metals in sediments were higher. However, a decline in metals concentrations over time was noted and it was also suggested that the locations of elevated concentrations of some metals in sediments were correlated with the outfalls of the former MCAS Cherry Point STP as well as the Havelock STP, neither of which are part of any OUs. The SLERA report concluded that further detailed ecological study in Slocum Creek was not necessary.

The Navy and MCAS Cherry Point initiated VGM in October 2003 to monitor VOC and SVOC concentrations that were found to exceed State groundwater quality standards during the RI. VGM was conducted on a semiannual basis in 2004 and 2005 and continued beginning in 2006 as LTM as part of the selected remedy in the OU4 ROD. In 2007, the LTM sampling frequency changed to a quarterly basis. In 2012, the sampling frequency was returned to semiannual.

The Final FFS for OU4 was submitted in May 2004. The OU4 PRAP was finalized in April 2005, followed by the Final OU4 ROD, which was signed in September 2005 (CH2M, 2005d). The OU4 ROD identified two COCs: 1,1,2,2-tetrachloroethane and benzene (CH2M, 2006a). The Selected Remedy includes MNA and LUCs for groundwater. The LUCs limit exposure to groundwater by prohibiting the use of surficial aquifer groundwater, except for monitoring. The RD was finalized in April 2006. The LUC elements implemented at OU4 are listed in **Table 7-1** and

are shown on **Figure 7-3**. A summary of the wells that are sampled at OU4 as part of the LTM program is included in **Table 7-2**.

An IRACR for OU4 was signed in October 2006, which signified that the LUCS are in place and have been recorded in the appropriate documents. The RA includes both LUCs and MNA of groundwater for wells that have shown concentrations of COCs above North Carolina Groundwater Quality Standards (NC2L).

To address persistent benzene concentrations detected above North Carolina Groundwater Quality Standards in the monitoring well that is sampled as part of LTM activities at OU4, the Navy conducted additional investigation activities in the vicinity of this monitoring well to delineate the extent of benzene in groundwater and to collect some soil samples. A SAP for this investigation was finalized in June 2010 (Rhēa, 2010f) and the investigation activities were conducted in three phases between July 2010 and March 2011. Benzene was detected in groundwater above the NC2L during all three events but was not detected in any of the soil samples. The results of the investigation were reported in a Technical Memorandum submitted in September 2011 (Rhēa, 2011f) that recommended investigating the feasibility of in situ groundwater treatment via sulfate injection to accelerate the anaerobic degradation of benzene. Additional soil and groundwater samples were collected from the site in November 2011 for use in a bench-scale treatability study to evaluate the injection substrate Electron Acceptor Solution (EAS) as a means to stimulate anaerobic biodegradation of dissolved-phase benzene at OU4. Target iron and sulfate reducing bacteria that are necessary for a successful bench-scale treatability study were not detected in groundwater or soil samples. During the January 2012 partnering meeting, the Partnering Team decided to discontinue the bench-scale study and continue with the original MNA remedy, given that the maximum benzene concentrations were relatively low, and the plume did not appear to be migrating based on the LTM data. The team also decided to add a newly installed monitoring well, 4GW10, to the current LTM well network and to reduce the sampling frequency from quarterly to semiannually.

Site History – Operable Unit 4, Site 4

Event	Date
Disposal of demolition and asbestos wastes	1950s, 1982 to mid-1990s
Permitted landfill, used for recycling of untreated wood, yard waste and inert construction waste	1997 to present
IAS	1983
RFA	1988
IRI	1988
21-unit RFI	1993
10-unit TDM	1993
Slocum Creek Fish Ingestion Report	1999
RI/FS Work Plan	1999
Slocum Creek SLERA	2001
RI	2002
VGM	2003 to 2005
FS	2004
PRAP	2005
ROD	2005
RD	2006
LTM Sampling	2006 to present
May 2006 LTM Report	2006
IRACR	2006
Annual 2006 LTM Report	2007

Site History – Operable Unit 4, Site 4

Event	Date
Annual 2007 LTM Report	2008
Annual 2008 LTM Report	2009
2009 LTM Report	2010
Sampling and Analysis Plan, Additional Investigation Activities	2010
2010 LTM Report	2011
Additional Investigation Activities Technical Memorandum	2011
2011 LTM Report	2012
2012 LTM Report	2013
2013 LTM Report	2014
2014 LTM Report	2015
2015 LTM Report	2016
2016 LTM Report	2017
2017 LTM Report	2018
2018 LTM Report	2019

Future Activities

The LUC elements implemented at OU4 (**Table 7-1**) remain in place and are shown on **Figure 7-3**.

Ongoing LTM will continue until it is confirmed that the constituents detected in groundwater do not exceed the performance standards defined in the OU4 ROD (CH2M, 2006a). A summary of the wells that are sampled at OU4 as part of the LTM program is included in **Table 7-2**. An updated groundwater LTM SAP, which includes OU2, OU4, and OU14, is expected to be finalized in FY 2020. A groundwater LTM Remedy Optimization technical memorandum is anticipated to be completed in FY 2020 for OU4.

7.1.5 Operable Unit 14

7.1.5.1 Site 90 – Building 130 VOC-contaminated Groundwater

OU14 consists of one FFA site, Site 90, and consists of a plume of groundwater contaminated with cVOCs that was first identified near Building 130, which is used as a hangar. It is located in the west-central portion of the MCAS Cherry Point flightline complex, and consists of a broad expanse of concrete tarmac, buildings, taxiways, and some grassy areas adjacent to Runway 14L. The location and boundaries of OU14, Site 90, are shown on **Figure 7-4**.

Prior to the RI completed in 2008 (CH2M, 2008c), there had been no ER Program investigations or remedial activities specific to Site 90; however, numerous groundwater samples were collected as part of investigations of the abandoned aviation fuel pipelines in the Building 130 area. All releases from pipelines and associated USTs and above-ground storage tanks are managed by and under investigation by the MCAS Cherry Point UST Program.

In July 1994, soil and groundwater samples were collected in the Site 90 area to support a Base Realignment and Closure (BRAC) project. The purpose of the investigation was to identify contamination that may require cleanup before the demolition of existing structures and site preparation required for construction of facilities in support of anticipated base realignment; Building 130 was designated as BRAC Site 7. The study indicated that VOCs, SVOCs, pesticides, metals, and low levels of total petroleum hydrocarbons (TPH) were present in soil and groundwater near Building 130. No significant risks were identified; however, the report stated that remediation was needed for soils impacted with TPH above State criteria (Halliburton NUS, 1994b).

Between January and March 1995, soil and groundwater samples were collected as part of a Site Assessment. The focus of the study was the abandoned underground aviation fuel line system. The results indicated TPH contamination in soil and a broader distribution of contamination types in groundwater. The data appeared to indicate that multiple releases of jet and gasoline-grade fuels had occurred at several different locations over time in the area. The presence of free product petroleum was also observed beneath the western end of Building 130 (Law Engineering, 1995).

In June 1995, soil and groundwater samples were collected and aquifer testing was performed as part of a Site Assessment addendum. The study was conducted to further evaluate the extent of petroleum free-product accumulation, the extent of soil and groundwater contamination, and to assess the potential for human exposure to subsurface contaminants. TPH and VOC contamination in the soil was found. The groundwater data suggested that while most of the contamination was located along the abandoned fuel piping along Sixth Avenue, multiple releases of jet and gasoline-grade fuels had occurred at several different locations over time in the area. Further investigation of the extent of dissolved-phase groundwater contamination upgradient and downgradient of Building 130 was recommended.

In 2000, groundwater samples were collected at Site 90 as part of the OU1 RI, and petroleum-related compounds and cVOCs were detected in groundwater (Tetra Tech, 2002b). Based on these groundwater results, it was decided that Site 90 be addressed separately from OU1 as part of a new Operable Unit, OU14, and an RI for OU14, Site 90 was initiated in 2001 with the preparation and regulatory approval of the RI Work Plan. Phase I fieldwork for the RI was completed in October 2002 and included groundwater and soil sampling. The Phase I results, and the results of independent groundwater sampling for cVOCs conducted by the UST Program, indicated that the cVOC plume in the Hangar 130 area extended further downgradient than previously thought. Consequently, a Phase I RI Interim Report was prepared that recommended that a Phase II investigation be performed to determine the full extent of the cVOC plume in the surficial aquifer (CH2M, 2003e). The Phase II RI investigation consisted of the sampling of approximately 60 monitoring wells along the flightline area extending from Site 90 to the northwest and was performed in October 2003. Based on the results of the Phase II investigation findings, a Phase III investigation was recommended. The Phase III investigation was conducted in April 2005, which included monitoring well installation and additional sampling. The Final Phase II Interim Report was submitted in June 2005.

During initial examination of the Phase III RI results, it was determined that data gaps still existed with regard to potential surface water and sediment contamination in the drainage ditch to the northwest of OU14. Based on the data gaps, a SLERA was conducted for OU14 (Site 90) as part of the ongoing Phase III RI. Because the area that includes Site 90 is industrialized and is comprised of paved surfaces (e.g., runways, taxiways, aircraft parking areas) and buildings, there was no habitat or ecological resources present within the site boundaries that were addressed as part of the SLERA. Instead, aquatic receptors in a downgradient stream (water column biota and benthic macroinvertebrates) were evaluated for potential risk from exposure to cVOC-contaminated groundwater originating from Site 90 that could possibly discharge to surface water and sediment of the stream. This perennial stream, which is an unnamed tributary of Mill Creek, is approximately 1,400 feet long and 1,000 feet northwest of Site 90. Surface water and sediment samples were collected in April 2006, and the SLERA was performed in June 2006 in accordance with *NCDENR Guidelines for Performing Screening Level Ecological Risk Assessments within the North Carolina Division of Waste Management* (NCDENR, 2003), as well as applicable USEPA and Navy guidance (USEPA, 1997; CNO, 2003; NAVFAC, 2004). The SLERA concluded that contaminated groundwater is not contributing significant levels of contaminants of potential ecological concern to the downgradient aquatic habitat and no further ecological investigation is warranted for OU14.

The Final OU14 RI Report was submitted in December 2008 and includes the results of the human health and ecological risk assessments. Based on an evaluation of the data collected during all phases of the RI, including historical data, cVOC contamination is limited to surficial aquifer groundwater, while petroleum UST-related contamination is prevalent throughout the site in soil and surficial aquifer groundwater.

The Baseline Human Health Risk Assessment (HHRA) results showed no risks above acceptable ranges from exposure to surface water, sediment, or groundwater from the Yorktown Aquifer. With respect to surficial aquifer

groundwater, the HHRA results indicated potentially unacceptable risks for hypothetical future potable water use by an adult resident (iron), future child resident (benzene, arsenic, iron, and manganese), and lifetime resident (vinyl chloride and arsenic). No risks or hazards above acceptable ranges were identified for the construction worker, current/future industrial worker, or an adult/ adolescent trespasser/visitor.

The results of the VI screening showed no indication of the need to mitigate vapor issues under current industrial exposures, based on a comparison of estimated indoor air concentrations to occupational exposure limits. The evaluation showed a potential risk (potential carcinogenic risk greater than 1×10^{-6}) from inhalation of estimated vapor concentrations of 1,2-dichloroethane, benzene, TCE, and vinyl chloride vapors by the current/future industrial worker (onsite workers) and the future resident. However, only estimated benzene vapor concentrations exceeded the upper limit of the acceptable carcinogenic risk range of 1×10^{-4} and non-carcinogenic hazard index (HI) of 1. Not considering vapor concentrations of chemicals currently used at Site 90 and its vicinity, estimated potential benzene and vinyl chloride vapor concentrations resulting from groundwater contamination are expected to exceed North Carolina's Ambient Air Quality Limits (North Carolina Administrative Code Title 15A, Subchapter 2D; NC2D) for annual exposure to carcinogens in all scenarios. However, because of the nature of screening vapor evaluations, the exceedances were qualified as potentially overstated. No COPCs exceeded the occupational exposure limits—that is, no immediate action is needed for current OU14 site workers or for future workers at any location under current occupational exposure conditions.

Based on the results documented in the RI Report, it was recommended that an FS be completed to evaluate remedial alternatives to address potential human health risks (calculated in HHRA and exceedances of NC2L Groundwater Standards) related to cVOCs in the surficial aquifer groundwater. Remedial alternatives for petroleum contamination are under the purview of the UST Program. The OU14 FS report was submitted and finalized in 2009 (CH2M, 2009c).

The VI screening indicated a need for further evaluation of the VI pathway to refine the understanding of the potential pathway for future onsite industrial workers and future residents if new buildings or structures are to be built. Therefore, indoor air vapor issues will be evaluated in the future, if necessary, prior to construction of new buildings. Remedial alternatives for groundwater would indirectly address vapor issues.

The Proposed Plan for OU14 was completed in April 2009 (CH2M, 2009d); the selected remedy was MNA for groundwater and LUCs to address groundwater and potential VI issues. The public meeting to present the OU14 Proposed Plan was held in May 2009 and the public review and comment period extended into June 2009. The Final ROD for OU14 was submitted in August 2009 (CH2M, 2009e) and was signed on September 28, 2009.

The RD for the LUC portion of the selected remedy was finalized in March 2010 (CH2M, 2010a). This RD defines the LUC boundaries for OU14 and describes how LUCs will be implemented and enforced. The LUC elements implemented at OU14, Site 90, are listed in **Table 7-1** and are shown on **Figure 7-4**.

The MNA portion of the remedy was implemented in stages, commencing with a baseline round of groundwater monitoring to establish initial groundwater conditions at the time of remedy implementation and to provide additional data to allow the optimal placement of additional monitoring wells to complete the network for LTM going forward. The SAP for the baseline round of LTM was finalized in September 2010 (CH2M, 2010e) and the sampling activities were completed in June 2010. Following the evaluation of the data from this sampling event, additional LTM monitoring well locations were recommended and an LTM SAP for OU14 was finalized in June 2011 (CH2M, 2011f) and revised in April 2014 (CH2M, 2014c). The LTM program at OU14 consists of annual groundwater sampling from 70 surficial aquifer monitoring wells to evaluate the progress of the MNA groundwater remedy (**Table 7-2**). The first annual round of LTM groundwater sampling was conducted in June 2011. The LTM Report presenting the first round of LTM results was finalized in May 2012 (CH2M, 2012h).

An IRACR for OU14 was prepared to document the implementation of the RA (LUCs and MNA of groundwater) and the establishment of RIP. The IRACR was finalized in June 2011 (CH2M, 2011e). Groundwater plume status and indoor air/VI issues were evaluated in 2015. Since then, the LUC boundaries have been updated and are shown on **Figure 7-4**.

Site History – Operable Unit 14, Site 90

Event	Date
VOC-contaminated groundwater	Unknown
Site Characterization and Evaluation Report for BRAC	1994
Site Assessment Report	1995
Site Assessment Addendum	1996
RI Work Plan	2002
Phase I RI Interim Report	2003
Phase II RI Interim Report	2005
RI	2008
FS	2009
Proposed Plan	2009
ROD	2009
RD for LUCs	2010
SAP for Baseline Round of LTM	2010
LTM SAP	2011
IRACR	2011
2011 LTM Report	2012
2012 LTM Report	2013
2013 LTM Report	2014
SAP Revision 1 for Groundwater LTM	2014
2014 LTM Report	2015
2015 LTM Report	2016
2016 LTM Report	2017
2017 LTM Report	2018
2018 LTM Report	2019

Future Activities

Ongoing LTM will continue until it is confirmed that the constituents detected in groundwater do not exceed the performance standards defined in the OU14 ROD. A summary of the wells that are sampled at OU14 as part of the LTM program is included in **Table 7-2**. A groundwater LTM remedy optimization report is expected to be finalized in FY 2020 for OU14. An updated groundwater LTM SAP, which includes OU2, OU4, and OU14, is expected to be finalized in FY 2020. Note that there are ongoing and future facility funded military construction projects within the OU14 LUC boundary which have the potential to impact the LTM activites along with their associated deliverables.

7.2 IRP RC Sites

7.2.1 OU1 NFA Sites (Sites 14, 15, 17, 18, and 83)

A complete description of OU1, a listing of its 12 associated FFA sites, and the environmental history of OU1 is presented in Section 6.1. The sites described in the following subsections are the remaining five FFA sites within OU1 for which the MCAS Cherry Point Partnering Team agreed that NFA was required. Four of these sites (14, 15, 17, and 18) were addressed in an NFA Proposed Plan (Rhēa, 2010a) and an NFA ROD (CH2M, 2010c) that was

signed in September 2010. The NFA Proposed Plan for Site 83 was finalized in March 2012 (Rhēa, 2012a) and the NFA ROD (Rhēa, 2012c) was signed in October 2012. See **Figure 6-1** for the site locations.

7.2.1.1 Site 14 – Motor Transportation

Site 14 is located in the central portion of OU1 at the intersection of C Street and Second Avenue (**Figure 6-1**) and is bisected by Curtis Road. Site 14 is approximately 9 acres and is flat and covered with asphalt and gravel. The area and buildings are used for parking lots, wash racks, and vehicle maintenance. The unpaved area adjacent to Building 157 is used for heavy equipment storage and the paved area adjacent to Building 160 is used to store motor pool vehicles.

According to an employee, waste oil was applied to the unpaved parking lots for dust control in the 1950s and 1960s. In 1977, a spill of approximately 2,000 gallons of aviation fuel, most likely JP-5, occurred at Building 160. In April 1994, as part of a SWMU Assessment Report (SAR), MCAS Cherry Point collected soil samples for oil and grease analysis in response to the previously unreported release of waste oil to the unpaved parking lots (USMC, 1994). Two additional soil samples were collected in 1997 and analyzed for organic compounds (except pesticides/polychlorinated biphenyls [PCBs]) and metals. The SAR recommended surfactant placement on the ground surface.

The results of the 2002 OU1 RI activities included the detection of lead in soil at concentrations above background, which may have been the result of the application of waste oil on the site for dust control or related to the UST sites (Tank Farm C) within the Site 14 boundary. Lead was found in groundwater; however, it was likely the result of leaking gasoline storage tanks and not the result of lead leaching from the soil.

A site closure request letter, dated October 4, 2002, was sent to NCDEQ, which stated that the CERCLA program would address cVOC compounds at Tank Farm C. The MCAS Cherry Point Partnering Team agreed in December 2006 that the area within the boundary of Site 14 had been closed under the UST program. Additionally, it was agreed that the cVOC groundwater contamination below the area of a former UST program remediation system, south of the ER Program Site 14 boundary and outside the Tank Farm C boundary, would be addressed under CERCLA.

In 2007, the MCAS Cherry Point Partnering Team agreed that no further investigation activities were required for Site 14. Site 14 was addressed in an NFA Proposed Plan (Rhēa, 2010a) and NFA ROD (CH2M, 2010c) that included Sites 14, 15, 17, 18, and 40. The NFA ROD for these sites was signed in September 2010.

Site History – Operable Unit 1, Site 14

Event	Date
Application of waste oil to unpaved parking lots	1950s and 1960s
Spill of ~2,000 gallons of aviation fuel (most likely JP-5) at Building 160	1977
Removal of fuel and contaminated soil	1977
SAR	1994
Proposed Plan for Sites 14, 15, 17, 18, and 40	2010
NFA ROD for Sites 14, 15, 17, 18, and 40	2010

7.2.1.2 Site 15 – Ditch and Area Behind FRCE (Formerly Naval Aviation Depot)

Site 15 is located along the southeastern edge of OU1 and was described in the IAS as an unpaved 25-acre area between FRCE and a drainage ditch adjacent to Runway 5 (**Figure 6-1**).

In 2008, the MCAS Cherry Point Partnering Team agreed that no further investigation activities were required for Site 15. Site 15 was addressed in an NFA Proposed Plan (Rhēa, 2010a) and NFA ROD (CH2M, 2010c) that included Sites 14, 15, 17, 18, and 40. The NFA ROD for these sites was signed in September 2010.

Site History – Operable Unit 1, Site 15

Event	Date
VSI	1983
Proposed Plan for Sites 14, 15, 17, 18, and 40	2010
NFA ROD for Sites 14, 15, 17, 18, and 40	2010

7.2.1.3 Site 17—DRMO Drainage Ditch

Site 17 is a drainage ditch, approximately 300 feet long, located in the southeastern portion of OU1, next to the Defense Reutilization and Marketing Office (DRMO) (**Figure 6-1**). The ditch discharges to the storm sewer drainage system. Water flows to the east toward the Runway 5 Ditch then southwest to Schoolhouse Branch and ultimately into East Prong Slocum Creek. The adjacent 1-acre area was historically used for material storage that included dichlorodiphenyltrichloroethane (DDT), spent photographic fluid after silver recovery, and PCB-containing transformers. POL was reportedly used for dust control in the storage yard.

It was reported that transformers were infrequently drained into the ditch from 1961 to 1968 (Water & Air Research, 1983). A removal action was conducted in 1995 to remove PCB-contaminated soil and sediment. Confirmation samples collected during the removal action indicated that the PCB-contaminated soil had been excavated. However, the 2002 OU1 RI indicated the possibility that PCB-contaminated soil above the 10 milligrams per kilogram (mg/kg) action level still existed at Site 17 (Tetra Tech, 2002b).

Additional investigation activities were conducted in August 2008 to either confirm that concentrations of PCBs and the pesticide dieldrin are below regulatory screening criteria or indicate that the earlier removal action was inadequate and additional remedial action is warranted. The results indicated that PCB concentrations in soil were below the 10 mg/kg action level. For dieldrin, soil concentrations were below earlier results from the same locations, but 4 out of 6 samples exceeded the NC SSL of 1.13 micrograms per kilogram. In groundwater, 4 of 10 temporary well samples contained Aroclor-1260 in excess of the federal Maximum Contaminant Level of 0.5 µg/L and 2 of 6 samples contained dieldrin in excess of the NC2L of 0.0022 µg/L. It was concluded that the dieldrin in soil and groundwater was the result of Basewide pesticide applications rather than a site-specific release. With regard to PCBs, a new, permanent monitoring well was installed at Site 17 in April 2009, and a groundwater sample was collected in May 2009 and analyzed for PCBs. No PCBs were detected in the sample, and the MCAS Cherry Point Partnering Team agreed at the May 2009 partnering meeting that no further action was necessary at Site 17. Site 17 was addressed in an NFA Proposed Plan (Rhēa, 2010a) and NFA ROD (CH2M, 2010c) that included Sites 14, 15, 17, 18, and 40. The NFA ROD for these sites was signed in September 2010.

Site History – Operable Unit 1, Site 17

Event	Date
300-ft drainage ditch located adjacent to a 1-acre storage area adjacent where DDT, photographic fluid (after silver recovery), and transformers containing PCBs were stored. Transformers were drained into the ditch, and PCB spills occurred at the site when transformers were drained. POL was reportedly used for dust control at the site.	1961 to 1968
Removal Action	1995
Supplemental Investigation Field Activities	2008
Supplemental Investigation Report	2009
Proposed Plan for Sites 14, 15, 17, 18, and 40	2010
NFA ROD for Sites 14, 15, 17, 18, and 40	2010

7.2.1.4 Site 18—Facilities Maintenance Compound

Site 18 is a fenced outdoor storage area approximately 0.5-acre in size located in the southwest corner of OU1 (**Figure 6-1**). The site is bounded by Schoolhouse Branch to the south, a railroad track to the west and north, and Cunningham Boulevard to the east. The area was historically used for transformer storage. Minor occasional leaks of PCB-laden fluid had been reported, but no specific quantities were documented (Water & Air Research, 1983). Transformers were stored on a bermed concrete pad. During the field investigation for the Remedial Investigation Interim Report (NUS, 1988), no PCBs were detected in the soils. NFA was recommended at Site 18 (NUS, 1988).

In 2007, the MCAS Cherry Point Partnering Team agreed that no further investigation activities were required for Site 18. Site 18 was addressed in an NFA Proposed Plan (Rhēa, 2010a) and NFA ROD (CH2M, 2010c) that included Sites 14, 15, 17, 18, and 40. The NFA ROD for these sites was signed in September 2010. A small area of cVOC groundwater contamination north of Site 18 is not related to the site and is being addressed as part of the OU1 Central Groundwater Plume.

Site History – Operable Unit 1, Site 18

Event	Date
Transformer storage area – occasional leaks of PCB-laden fluid at the site	Not specified
Proposed Plan for Sites 14, 15, 17, 18, and 40	2010
NFA ROD for Sites 14, 15, 17, 18, and 40	2010

7.2.1.5 Site 83 – Building 96 Former Pesticide Mixing Area

Site 83 is a former pesticide mixing area, approximately 1 acre in size, located in the southwest portion of OU1, near Site 16 (**Figure 6-1**). Two former buildings were located at the site, Building 96 (former pesticide shop) and Building 418, with a corrugated metal roof joining the two buildings. A bermed concrete wash rack was located adjacent to Building 418. A drain from the wash rack and a nearby catch basin drain formerly discharged in the area of a steep bank to the west that leads to a wetland located in Site 16 and adjacent to East Prong Slocum Creek. The area around former Building 96 is covered by asphalt/concrete with a grassy area to the west. This area is relatively flat until the edge of the steep slope to the west leading to the wetland. Building 96 was constructed before 1948 and was reportedly used as a pesticide mixing and storage area from 1965 to 1981, when a new pesticide shop (SWMU S-12) was built across Roosevelt Boulevard. Building 96 was subsequently used for equipment storage and administrative space until 1997. The buildings have since been removed, and in early 2006 the concrete foundation and pad of Building 96 were removed during a non-CERCLA demolition project. Geotextile was placed over the former foundation location and covered with gravel.

Site 83 was first identified by MCAS Cherry Point in 1997. A SAR was conducted in 1998 that included the collection of soil, groundwater, and sediment samples. Groundwater and soil contamination was identified, and additional investigation of Site 83 was recommended as part of the comprehensive evaluation of OU1 (B&R, 1998).

Soil samples that were collected from the Site 83 area during the 2002 OU1 RI were found to have elevated levels of inorganics, PAHs, and pesticides. In early 2009, the MCAS Cherry Point Partnering Team agreed to conduct additional investigation activities at Site 83 to confirm earlier results and to further delineate the extent of pesticide contamination in soil and groundwater. Following the finalization of an approved SAP for the additional investigation activities, the field investigation was conducted in August 2009. A report of the findings of this investigation was finalized in May 2010 (Rhēa, 2010b).

An additional assessment of human health risk based on the findings of the Site 83 supplemental investigation was conducted in 2010 and concluded that for both current and potential future land use, Site 83 does not pose unacceptable health risks to the any of the evaluated receptors. Subsequently, a Supplemental RI Report was prepared that included a summary of the investigation results and human health and ecological risk evaluations performed at Site 83. The Site 83 Supplemental RI Report was finalized in May 2011 (CH2M, 2011b) and

concluded that no further action is warranted for Site 83 and recommended that the site proceed to an NFA Proposed Plan and ROD. The NFA Proposed Plan for Site 83 was finalized in March 2012 (Rhēa, 2012a) and the NFA ROD (Rhēa, 2012c) was signed in October 2012.

Vegetation clearance during the 2009 supplemental investigation exposed significant erosion caused by stormwater flow on the steep bank leading from the former pesticide shop location down toward the wetland area adjacent to East Prong Slocum Creek. Gullies and erosion channels had developed at various points along the slope of the bank, creating an ongoing erosion problem. In October 2012, an erosion control and vegetation restoration project was completed at Site 83. Approximately 2,600 tons of fill material was placed along the bank to create a slope ratio of 2.5 horizontal to 1 vertical. Nearly half of the fill material was reclaimed from soil excavated during the OU1 PRB pilot study in August 2012 (see Section 5.1.1.2), after chemical testing of the excavated soil to determine its suitability for use as fill material. Three shallow swales to transport stormwater flow from the top to the base of the restored bank were created, and a soil berm was constructed between the swales to restrict stormwater flow to these channels. The bank as well as the swales were underlain with a synthetic cellular confinement material (i.e., geogrid) for reinforcement. The swales were topped with erosion-resistant gravel and energy-dissipating rip rap was placed at the bottom of each swale at the toe of the bank. Outside of the swales, the berm and the slope of the bank were topped with topsoil and re-seeded; approximately 115 trees were also planted on the slope. The Construction Closeout Report documenting the bank restoration activities was finalized in March 2013 (Rhēa, 2013a).

Site History – Operable Unit 1, Site 83

Event	Date
Use as a pesticide mixing area	1965-1981
SAR	1998
SAP – OU1, Site 83 Additional Investigation Activities	2009
Field Investigation	2009
Site Soil Investigation Report	2010
Supplemental RI Report	2011
Proposed Plan	2012
ROD	2012
Construction Closeout Report – OU1, Site 83 Restoration	2013

7.2.2 OU2 Site 46 – Polishing Ponds No.1 and No. 2

A complete description of OU2 is presented in Section 7.1.2. OU2 Site 46 is located to the north of Site 10, and consists of two inactive, unlined ponds (**Figure 7-1**). The ponds are approximately 12 feet deep and formerly served as wastewater aeration basins for the STP from 1942 until 1996. The treated wastewater was discharged to Slocum Creek via a National Pollutant Discharge Elimination System (NPDES)-permitted outfall. The STP was upgraded and no longer requires the use of the ponds for aeration. The ponds have been retained for potential stormwater management in the future, and concurrence will be obtained from the USEPA and NCDEQ before use of these inactive ponds. MCAS Cherry Point submitted a Closure Plan for this site to the State of North Carolina in December 1988. USEPA Region 4, which formerly had primacy, agreed to waive the closure requirements, allowing the ponds to be addressed under the NCDEQ RCRA authority.

Due to the previous RCRA activities at Site 46 and its proximity to other sites, Site 46 was incorporated into the ER Program LUCs for OU2. In December 2006, the Cherry Point Partnering Team agreed that there was no CERCLA contamination related to Site 46 and that the polishing pond footprints could be removed from the LUC boundaries for OU2. The LUC related to prohibition of groundwater use was retained for the small land area in

between the polishing ponds and Slocum Creek (see **Figure 7-1**), as documented in a letter from NAVFAC Mid-Atlantic to USEPA dated May 19, 2008.

Site History – Operable Unit 2, Site 46

Event	Date
Wastewater aeration basins	1942-1996
Removal of polishing ponds from OU2 LUC boundaries; retention of the small area in between the polishing ponds and Slocum Creek within the LUC boundaries for the prohibition of groundwater use	2008

7.2.3 Operable Unit 5

7.2.3.1 Background

OU5 is located in the northeastern portion of MCAS Cherry Point. OU5 consists of two FFA sites, 1 and 2, that were grouped into one operable unit because of their proximity, history, and common waste types. Site 19 (Borrow Pit/Landfill North of Runway 32) was formerly part of OU5 but was transferred to OU13 because the site is closer to the other OU13 sites. The location and boundaries of OU5 are shown on **Figure 7-5**.

Sites 1 and 2 were identified in the IAS and RFA. Between 1985 and 1987, groundwater samples were collected at Site 1 as part of an IRI to identify contaminated sites. The IRI concluded that groundwater had not been affected by historical waste practices at Sites 1 and 2, and that no further investigation was recommended (NUS, 1988). A 21 Unit RFI was conducted in 1991 that included groundwater sampling. No releases to groundwater were confirmed; however, seepage was observed, and as a result, it was not possible to conclude that there had not been any releases from the borrow pits. Therefore, additional groundwater monitoring and sampling of surface water and sediment surrounding the sites were recommended (Halliburton NUS, 1993a).

During the OU5 RI investigation, soil, groundwater, surface water, and sediment samples were collected. The RI results did not indicate any significant risks to human health or the environment; however, VOC concentrations slightly exceeded State groundwater standards in several monitoring wells. The RI was finalized in August 2005.

The Navy and MCAS Cherry Point initiated VGM in October 2003 at OU5 to monitor VOC concentrations found to exceed State groundwater quality standards during the RI field investigation. VGM was conducted on a semiannual basis into 2006, when the LTM program that is part of the remedy specified in the OU5 ROD replaced it. In 2007, the sampling frequency for LTM changed to a quarterly basis.

The Final RI for OU5 was submitted in August 2005. The FFS was finalized in October 2005. The Final OU5 PRAP was submitted in November 2005. The OU5 ROD was finalized in May 2006 and signed July 21, 2006. It was determined that NFA was necessary at Site 1; therefore, the ROD only addresses an RA at Site 2. Three COCs were identified at OU5 in a single monitoring well: TCE, vinyl chloride, and benzene (CH2M, 2006b). The Selected Remedy for Site 2 included MNA for groundwater and LUCs to limit exposure to and prohibit the use of surficial aquifer groundwater, except for monitoring. Upon finalization of the ROD, the RD for OU5 was completed in October 2006 and outlined the implementation of MNA and LUCs at Site 2. An IRACR for OU5 was signed in September 2008, which documented that the LUCS were in place and were recorded in the appropriate documents.

LTM was discontinued in 2011 after all COC concentrations in four consecutive rounds of sampling were below their respective performance standards. As a result, all RAOs for OU5 had been achieved. A RACR establishing RC for OU5 was finalized in January 2012 (CH2M, 2012a) and site closure activities have been completed, including well abandonment and the removal of established LUCs.

Site History – Operable Unit 5

Event	Date
IAS	1983
RFA	1988
IRI	1988
21-unit RFI	1993
Work Plan	2002
VGM	2003 to 2006
RI	2005
FFS	2005
PRAP	2005
ROD	2006
LTM	2006 to present
RD	2007
2006 LTM Report	2007
2007 LTM Report	2008
IRACR	2008
2008 LTM Report	2009
2009 LTM Report	2010
2010 LTM Report	2011
2011 LTM Report	2012
RACR	2012

7.2.3.2 Site 1 – Borrow Pit/Landfill

Site 1 is located west of an unpaved access road in the northeastern portion of MCAS Cherry Point. It is a former borrow pit area that was later used for waste disposal. The total disturbed area of Site 1 was estimated to be approximately 4 acres. The northern boundary of Site 1 is approximately 100 feet south of Reed's Gut, and the other boundaries include an unnamed tributary to the west, a line 200 feet north of an unpaved road to the south, and the unpaved access road to the east.

The area was originally used as a borrow pit area but was later used as a disposal site. Site use reportedly began in the mid- to late-1950s and continued for an unknown period of time. No records were kept detailing the quantities or types of wastes that were disposed of at the site. Some chemical waste, crushed 55-gallon drums, and construction and demolition debris were reported to have been disposed of at the site, but only small amounts of rubble and trash were seen onsite during the IAS (Water & Air Research, 1983).

Site History – Operable Unit 5, Site 1

Event	Date
Former borrow pit and disposal area	Late 1950s to unknown

7.2.3.3 Site 2 – Borrow Pit/Landfill

Site 2 is located east of an unpaved access road in the northeastern portion of MCAS Cherry Point, directly opposite Site 1. Like Site 1, it is a former borrow pit area that was later used for waste disposal. The total

disturbed area of Site 2 was estimated to be approximately 6 acres. Site 2 is bounded on the east and northeast by an unnamed tributary to Reed's Gut, an unpaved road to the south and southwest, and the unpaved access road to the west.

The area was originally used as a borrow pit area but was later used as a disposal site. Site use reportedly began in the mid- to late 1950s and continued for an unknown period of time. No records were kept detailing the quantities or types of wastes that were disposed of at the site. Some chemical waste, crushed 55-gallon drums, and construction and demolition debris were reported to have been disposed of at the site, but only small amounts of rubble and trash were seen onsite during the IAS (Water & Air Research, 1983).

Site History – Operable Unit 5, Site 2

Event	Date
Former borrow pit and disposal area	Late 1950s to unknown

7.2.4 Operable Unit 6

7.2.4.1 Site 12 – Crash Crew Training Area

OU6 includes one FFA site, Site 12, the Crash Crew Training Area, and consists of the eastern portion of Runway 28, an east-west trending runway along the eastern edge of MCAS Cherry Point. A second site, Site 35, was initially included in OU6 because of its proximity to Site 12. However, Site 35 was identified as a RCRA SWMU and therefore was remediated under the provisions of RCRA. The boundaries and location of OU6 are shown on **Figure 7-6**. Site 12 is located along the south-central portion of Runway 28. The runway is bordered by grassy areas to the north, south, and east, with dense woods beyond the extent of the grass. Hancock Creek is located approximately 700 feet east of the eastern end of Runway 28.

The Crash Crew Burn Pit is a circular concrete pad currently used to burn waste JP-5 to train crash crews to extinguish fires. The concrete burn pit was reportedly constructed in 1985 and is approximately 100 feet in diameter with a 5-inch-high curb around the circumference (Halliburton NUS, 1993a). The burn pit itself is drained through subsurface piping to a nearby oil-water separator, as is a circular trench drain that rings the outside of the burn pit to capture fire water not contained within the burn pit. After training exercises or a heavy rainfall, facilities maintenance personnel pump all liquids from the oil-water separator and transport them to the IWTP.

Site 12 was identified in the IAS and RFA, which indicated that Site 12 had been used for crash crew training activities since the mid-1960s. According to the IAS, waste POLs and waste burnable (i.e., likely nonchlorinated) solvents were formerly burned in one of two circular bermed areas on Runway 28, but that only contaminated fuel was burned at the time the report was written. The IAS also indicated that spills and leaks from the burn pits were evident at the time of the report, and that stained and oily soil was present in the drainage swale south of Runway 28. Between 1985 and 1990, effluent from the oil-water separator was discharged through a NPDES-permitted outfall to the nearby drainage swale (Halliburton NUS, 1993a). Around 1990, the effluent pipe of the separator was welded shut.

Sampling was conducted during a 21-unit RFI in 1991. TPH contamination was detected in the soil and sediment samples, and additional sampling of all media was recommended (Halliburton NUS, 1993a). Additional samples were collected in 1993 as part of the 10-unit TDM. TPH contamination was found to be limited in area and depth; however, further investigation of inorganic constituents in soil and groundwater was recommended at Site 12 (Halliburton NUS, 1993b).

During a 1999 site visit, some clarification was obtained regarding the nature of the burn pits that pre-dated the current concrete burn pit constructed in 1985. According to interviewed crash crew personnel, the former burn pits were constructed of dirt placed on top of the asphalt runway surface and shaped into circular berms. The crash crew personnel recalled the existence of two dirt burn pits of this type and indicated that fuels (including

gas and diesel) and magnesium aircraft parts were formerly burned in the pits. A review of historical aerial photographs revealed five separate locations where earthen burn pits had once been located since the early 1960s, with either two or three of the burn pits being present at any one time.

The Final RI conducted for OU6 concluded that, based on the limited number of constituents that pose potential human health risk only within an unrealistic exposure pathway, an FS did not appear to be warranted for OU6, and NFA was recommended (CH2M, 2005c). However, regulator concerns regarding the extent of sampling beneath historical burn pit locations were expressed, and a Supplemental Site Investigation (SSI) was initiated in October 2003. The investigation included additional soil and groundwater sampling beneath the former burn pit locations. The final SSI was submitted in May 2005.

The Final RI was submitted in August 2005 and concluded that an FS addressing all exceedances of North Carolina standards was not warranted at OU6. No definitive connection was drawn between Site 12 activities and the constituents identified during the RI, except at former Burn Pit E. Based on infrequent detections of constituents exceeding North Carolina standards, the minimal extent of groundwater contamination, and the lack of human health or ecological risk for realistic exposure pathways, it was recommended that a FFS be prepared for Site 12, addressing only the delineated areas of arsenic, benzene, naphthalene and 2-methylnaphthalene contamination in subsurface soil and groundwater beneath the former location of Burn Pit E. The final FFS was submitted in January 2006.

The PRAP for OU6 was submitted for public review and comment in May 2006. The Remedial Alternative selected in the PRAP was excavation and offsite disposal of contaminated soil, along with MNA and LUCs for groundwater. The ROD was signed September 28, 2006 (CH2M, 2006c). The draft RD was submitted on February 20, 2007.

In February 2007, the RA Work Plan (AGVIQ/CH2M, 2007b) was submitted and the removal of contaminated soils at OU6 began in March 2007 and was completed in May 2007. The Draft IRACR was submitted in July 2007, but finalization of the document was suspended after successful completion of the remediation and the likely closure of OU6 was found to be imminent in early 2008. The RA completed at Site 12 is discussed in Section 4.3.

The Navy and MCAS Cherry Point initiated VGM at OU6 in May 2005 to monitor VOC concentrations found to exceed State groundwater quality standards identified in the FS. VGM was conducted on a semiannual basis until 2007, when the OU6 LTM program established in the ROD replaced it.

In late 2008, LTM activities were terminated at OU6, as all organic compound COCs were found during four or more consecutive quarterly sampling events to either be no longer detected or at concentrations below the performance standards specified in the OU6 ROD. In addition, the recurring elevated arsenic concentrations in a single monitoring well were found to be the result of a damaged well screen; upon retrofit of the monitoring well, the arsenic concentrations were found to be below regulatory screening criteria in multiple sampling events. A RACR establishing RC for OU6 was finalized in August 2008.

Site History – Operable Unit 6

Event	Date
Crash Crew Training activities—burning of waste POLs, solvents, and contaminated fuels	mid-1960s to unknown
IAS	1983
RFA	1988
21-unit RFI	1993
10-unit TDM	1993
Work Plan	1999
Supplemental Investigation Plan	2003
SSI	2005
RI	2005
VGM	2005 to 2006
FFS	2006

Site History – Operable Unit 6

Event	Date
PRAP	2006
ROD	2006
RD	2007
RA Work Plan	2007
Completed Removal Action	2007
LTM Sampling	2007 to 2008
2007 LTM Report	2008
RACR	2008
2008 LTM Report	2009

7.2.5 Operable Unit 13

7.2.5.1 Background

OU13 is located in the southeastern portion of MCAS Cherry Point near Runway 32 and covers approximately 61 acres. Several sites were grouped within OU13 because of their proximity to each other. There are two FFA sites (Sites 19 and 21) within the boundaries of OU13. OU13 also includes releases to groundwater from Site 44B, which was a former sludge application area. OU13 is not currently used for any active purpose other than providing a buffer of cleared land adjacent to Runway 32. The location and boundaries of OU13 and the site locations within OU13 are shown on **Figure 7-7**.

Sites 19 and 21 were identified in the IAS and RFA, and Site 44B was identified in the 21-unit RFI. Between 1985 and 1987, groundwater samples were collected at Sites 19 and 21 as part of an IRI to identify contaminated sites. In November 1991, additional groundwater samples were collected at OU13 as part of the 21-unit RFI to support a Corrective Measures Study and to verify releases from various sites. During the RI field activities for OU13 conducted in 1994 and 1999, soil, groundwater, surface water, sediment, and fish tissue samples were collected. An FS was recommended to evaluate remedial alternatives associated with potential unacceptable risks to human health based on concentrations of VOCs, pesticides, and/or inorganic constituents that exceeded screening criteria in groundwater and surface water (Tetra Tech, 2002a).

The Navy and MCAS Cherry Point initiated VGM in October 2003 to monitor VOC concentrations that were found to exceed State groundwater quality standards during the RI. VGM was conducted on a semiannual basis until 2006, when it was supplanted by the LTM program for OU13 specified in the ROD. In 2007, the LTM sampling frequency was increased to quarterly.

The OU13 FFS was submitted in July 2004. The OU13 PRAP was finalized in April 2005, followed by the OU13 ROD, which was signed in September 2005. The COCs identified for OU13 included 1,1-dichloroethene, methylene chloride, vinyl chloride, and bis(2-ethylhexyl)phthalate (CH2M, 2005a). The selected remedy includes MNA for groundwater and LUCs, which will limit exposure to groundwater and will prohibit the use of groundwater except for monitoring. The Final RD was submitted in April 2006. A summary of the wells sampled at OU13 as part of the LTM program is included in **Table 7-2**.

An IRACR for OU13 was prepared to document the completion of the RA and the RIP. Specifically, the RA chosen included both ICs, in the form of LUCs, and MNA of groundwater for wells that have shown concentrations of COCs above NC2L standards. The IRACR was finalized in September 2006.

LTM was discontinued in 2012 after all COC concentrations in four consecutive rounds of sampling were below their respective performance standards. As a result, all RAOs for OU13 had been achieved. A RACR establishing RC for OU13 was finalized in May 2013 (Rhēa, 2013b).

Site History – Operable Unit 13

Event	Date
21-unit RFI	1993
RI/FS Work Plan	1999
RI	2002
VGM	2003 to 2005
FFS	2004
PRAP	2005
ROD	2005
RD	2006
May and November 2005 VGM Report	2006
RD	2006
IRACR	2006
LTM Sampling	2006 to present
May 2006 LTM Report	2006
2006 LTM Report	2007
2007 LTM Report	2008
2008 LTM Report	2009
2009 LTM Report	2010
2010 LTM Report	2011
2011 LTM Report	2012
2012 LTM Report	2013
RACR	2013

7.2.5.2 Site 19 – Borrow Pit/Landfill (North of Runway 32)

Site 19 consists of an area of approximately 16 acres that includes several former borrow pits that were reportedly used for waste disposal. Site 19 is located on the northern side of Runway 32, with Hancock Creek and the tributary Shop Branch to the north and east. There are wetland areas adjacent to Hancock Creek and Shop Branch.

Parts of Site 19 were first disturbed in 1949 and used through the early 1960s. Fly ash from the steam plant, wastes from FRCE, and asbestos-lined piping may have been disposed of in the borrow pits (Water & Air Research, 1983). No records were kept detailing quantities or specific types of wastes.

Site History – Operable Unit 13, Site 19

Event	Date
Several borrow pits used for waste disposal (fly ash from steam plant, wastes from FRCE, asbestos-lined piping)	1949 to early 1960s
IAS	1983
RFA	1988
IRI	1988

7.2.5.3 Site 21 – Borrow Pit/Landfill (South of Runway 32)

Site 21 consists of an area of approximately 36 acres that includes several borrow pits that were reportedly used for waste disposal. Site 21 is located south of Runway 32, and Shop Branch runs through Site 21 before crossing under the runway.

Parts of the area were first disturbed in 1949 and used through the early 1960s. Fly ash from the steam plant, wastes from FRCE, and asbestos-lined piping may have been disposed of in the borrow pits (Water & Air Research, 1983). No records were kept detailing quantities or specific types of wastes.

Site History – Operable Unit 13, Site 21

Event	Date
Several borrow pits used for waste disposal (fly ash from steam plant, wastes from FRCE, asbestos-lined piping)	1949 to early 1960s
IAS	1983
RFA	1988
IRI	1988
10-unit TDM	1993

7.2.5.4 Site 44B – Former Sludge Application Area

Site 44B consists of a relatively flat 11-acre area adjacent to Site 21 where sludge from the STP was applied. The area was reportedly a landfill in the 1950s and 1960s, and the waste reportedly included asbestos pipe. Between September and November 1987, liquid sludge from the STP digesters was reportedly land-applied at Site 44B. The sludge may have contained organic compounds and other constituents that were not digested during the sewage treatment process.

Site History – Operable Unit 13, Site 44B

Event	Date
Sludge and asbestos pipes disposed of in landfill	1950s and 1960s

7.2.6 Operable Unit 15

7.2.6.1 Site 82 – Slocum Creek in the Vicinity of OU2 and OU3

OU15 is defined as Site 82 – Slocum Creek in the vicinity of OU2 and OU3, which is located in the west-central portion of the Air Station. OU15 extends across Slocum Creek from the southern boundary of OU2 to the northern boundary of OU3 and covers an area of approximately 60 acres (**Figure 7-8**). Slocum Creek is a public trust, tidally influenced, tributary of the Neuse River, which in turn flows into Pamlico Sound. It is approximately 6 miles in length from the mouth of Slocum Creek at the Neuse River to the headwaters of its two main branches, Southwest Prong and East Prong. It is fed by several tributaries, including Tucker Creek, Mill Creek, and several smaller feeder creeks.

As part of discussions between the regulatory agencies and the MCAS Cherry Point Partnering Team, it was decided that Slocum Creek would be separated from the individual adjacent OUs. This decision allowed remedial actions to be implemented at OU2 and OU3 while additional investigations and risk assessments were conducted for the adjacent section of Slocum Creek (OU15). The additional studies were conducted to determine potential risks to human health and the environment from any past contaminant migration from OU2 or OU3 into Slocum Creek.

During historical investigations at OU2 and OU3, there were constituents that exceeded State water quality standards in samples collected from Slocum Creek. Chemicals were also detected in sediment at concentrations above ecological screening values. For some chemicals, the standards and screening values were exceeded in samples upstream of OU2 and OU3. Therefore, it was concluded that OU2 and OU3 were not the source (or only source) of these chemicals.

Fish tissue samples were collected from Slocum Creek adjacent to OUs 1, 2, 3, and 4 in 1998 and the results indicated no unacceptable risk to human health from fish tissue ingestion (Tetra Tech, 1999b). In 1999, surface water and sediment samples were collected adjacent to OUs 1, 2, 3, and 4 as part of a SLERA in Slocum Creek (Tetra Tech, 2001). No consistent patterns of contamination were observed. The results suggested a low risk potential, except for metals in sediment at localized areas. A Final PRAP was submitted for OU15 in October 2002, and an NFA ROD was signed in June 2003.

Site History – Operable Unit 15, Site 82

Event	Date
PRAP	2002
ROD	2003

7.3 MRP RC Sites

Former Skeet and Trap Range #1

Former Skeet and Trap Range #1 is located within MCAS Cherry Point along the Neuse River adjacent to the golf course and is a part of the MCAS Cherry Point NPL site (**Figure 7-9**). The former shooting station was located in an area that is currently a forested riparian buffer zone between the golf course greenway and the Neuse River. The shooting station was oriented to the north with almost the entire shotfall zone being in the Neuse River.

According to the *Range Identification and Preliminary Range Assessment* (USACE, 2001), MCAS Cherry Point requested the construction of six skeet or trap sets and two shotgun flexible mounts on September 8, 1943. Both skeet and trap shooting were conducted at the range site. Skeet shooting consisted of a shooter moving through a series of eight stations shooting at clay target disks, which are thrown from elevated towers. Trap shooting consisted of a shooter standing at one location shooting at clay target disks that are thrown from a pithouse. Shooting is done with shotguns using varying sizes of lead shot. The site was in use before the United States Fish and Wildlife Service (USFWS) regulated the use of lead shot to protect waterfowl from the effects of lead poisoning. The Skeet Range appears on maps from 1949 through 1955 and is no longer used for the firing of live ammunition, as the site is now associated with the golf course (USACE, 2001). The *Range Identification and Preliminary Range Assessment* (USACE, 2001) states that the types of munitions used at the range included 12-gauge shotguns and number 7½ shot. No information is available regarding the quantity of munitions that were used.

Field activities for an SI were completed in May 2009 and included the collection of surface water samples that were analyzed for total and dissolved metals, hardness, PAHs, and water quality parameters; sediment samples that were analyzed for metals, PAHs, grain size, and total organic carbon; and surface soil samples that were analyzed for metals, PAHs, and perchlorate. Findings of the field activities are documented in the SI report finalized in October 2010 (CH2M, 2010b). The Navy conducted an Expanded SI to collect additional samples to further characterize PAH concentrations in surface water and sediment in and around the Former Skeet and Trap Range #1. The Expanded SI SAP was finalized in December 2011 (CH2M, 2011h) and the Expanded SI fieldwork was conducted in February 2012.

Based on detections of several PAHs in soil, surface water, and sediment during the SI and Expanded SI, the Navy developed a Watershed Contaminated Source Document (WCSD) to determine whether these detections are related to Former Skeet and Trap Range #1 or the result of non-site-related, anthropogenic sources of

contamination. The WCSD was included as an appendix to the Expanded SI report, which was finalized in November 2012 (CH2M, 2012j). The Expanded SI report concluded that there were no unacceptable risks to human health and ecological receptors at the site, and recommended NFA for Former Skeet and Trap Range #1. The USEPA and NCDEQ documented their concurrence with the NFA determination in correspondence dated November 5, 2012 (CH2M, 2013b).

Site History – Former Skeet and Trap Range #1

Event	Date
Field Investigation	May 2009
Site Inspection Report	2010
Expanded SI SAP	2011
Expanded SI Report	2012
Decision Document	2013

Table 7-1. Summary of LUCAP Boundaries

FY 2021 Site Management Plan

MCAS Cherry Point, North Carolina

Operable Unit	Sites	LUCAP Controls	Estimated Area (Acres)	Date Implemented
1	16	Intrusive Activities Prohibited - Soil	19	December 13, 2017
		Industrial Use Only	19	
2	10, 76	Industrial Use Only	95	September 29, 1999
		Restricted Access - Fencing/Signs Required	86	
		Intrusive Activities Prohibited	95	
		Aquifer Use Prohibited	100	
		Industrial Use Contol - Vapor Instrusion evaluation required prior to new construction, slab or foundation changes, or land use changes	95	February 19, 2020
3	6, 7	Industrial Use Only	13	October 24, 2000
		No Use Authorized (Site 7 only)	6	
		Restricted Access - Fencing/Signs Required	7	
		Intrusive Activities Prohibited	6	
		Aquifer Use Prohibited	19	
4	4	Intrusive Activities Prohibited - Groundwater	110	May 31, 2007
		Aquifer Use Prohibited	110	
14	90	Aquifer Use Prohibited	189	March 17, 2010; Updated April 26, 2018
		Intrusive Activities Prohibited - Groundwater/Vapor Intrusion evaluation required for building construction or modification	189	

Table 7-2. Summary of Samples Collected as part of the LTM Program

FY 2021 Site Management Plan

MCAS Cherry Point, North Carolina

OU1		OU2	OU4	OU14	
Surficial Aquifer Monitoring Well		Surficial Aquifer Monitoring Well	Surficial Aquifer Monitoring Well	Surficial Aquifer Monitoring Well	
Source Area - ISEB Biobarrier		OU2-10EGW02*	OU4-MW13	OU14-13GW02	OU14-72GW04
OU1-MW53	OU1-52GW101	OU2-10GW09*	4GW10	OU14-13GW10	OU14-72GW06
OU1-16GW11	OU1-52GW102	OU2-10GW10*		OU14-13GW11	OU14-72GW07
OU1-16GW21	OU1-52GW103	OU2-10GW11		OU14-13GW12	OU14-72GW09
OU1-52MW77	OU1-52GW104	OU2-10GW94		OU14-13GW17	OU14-72GW12
OU1-52MW78	OU1-52GW105	OU2-10GW98		OU14-13GW20	OU14-72GW15
OU1-52MW79	OU1-52GW106	OU2-85GW01		OU14-13GW21	OU14-72GW18
OU1-52MW80	OU1-52GW107	OU2-10GW100*		OU14-13GW25	OU14-72GW19
OU1-52MW81	OU1-52GW108			OU14-13GW29	OU14-72GW21
OU1-52GW98	OU1-52GW109			OU14-13GW33	OU14-72GW26
OU1-52GW99	OU1-52GW110			OU14-13GW120A	OU14-72GW27
OU1-52GW100				OU14-13GW135	OU14-72GW28
Downgradient Area - Northern Lobe ZVI PRB				OU14-13GW143	OU14-72GW29
OU1-16GW06	OU1-52GW85			OU14-13GW144	OU14-90GW01
OU1-16GW10	OU1-52GW87			OU14-OU1-52GW02	OU14-90GW02
OU1-16GW36	OU1-52GW88			OU14-56GW07	OU14-90GW03
OU1-16GW37	OU1-52GW89			OU14-56GW09	OU14-90GW04
OU1-MW38	OU1-52GW90			OU14-56GW13	OU14-90GW05
OU1-MW39	OU1-52GW91			OU14-66GW02	OU14-90GW06R
OU1-MW55	OU1-52GW92			OU14-66GW03	OU14-90GW07
OU1-42GW22	OU1-52GW93			OU14-66GW05	OU14-90GW08
OU1-42GW23	OU1-52GW94			OU14-66GW07	OU14-90GW09
OU1-52GW84	OU1-52GW95			OU14-66GW10	OU14-90GW10
Downgradient Area - Southern Lobe ZVI PRB				OU14-66GW14	OU14-90GW11
OU1-16GW28	OU1-16GW59			OU14-66GW28	OU14-90GW13
OU1-16GW29	OU1-16GW60			OU14-66GW29	OU14-90GW14
OU1-16GW34	OU1-16GW61			OU14-66GW33	OU14-90GW15D
OU1-16GW35	OU1-16GW62			OU14-66GW34	OU14-90GW16
OU1-16GW53	OU1-16GW63			OU14-66GW35	OU14-90GW19
OU1-16GW54	OU1-16GW64			OU14-66GW36	OU14-90GW20
OU1-16GW55	OU1-16GW65			OU14-66GW37	OU14-90GW21
OU1-16GW56	OU1-16GW66			OU14-66GW47	OU14-90GW22
OU1-16GW57	OU1-16GW67			OU14-66GW138	OU14-90GW23
OU1-16GW58	OU1-16GW68			OU14-66GW139	OU14-90GW24
SITEWIDE				OU14-72GW02	OU14-90GW25
OU1-MW53	OU1-MW55				
OU1-16GW11	S3W3				
OU1-16GW21	51EX18				
52OU1-MW77	51EX19				
52OU1-MW78	OU1-42GW05				
52OU1-MW79	OU1-42GW08				
52OU1-MW80	OU1-42GW15				
52OU1-MW81	OU1-42GW16				
OU1-52GW98	OU1-42GW17				

Table 7-2. Summary of Samples Collected as part of the LTM Program

FY 2021 Site Management Plan

MCAS Cherry Point, North Carolina

OU1		OU2	OU4	OU14	
Surficial Aquifer Monitoring Well		Surficial Aquifer Monitoring Well	Surficial Aquifer Monitoring Well	Surficial Aquifer Monitoring Well	
OU1-52GW99	OU1-42GW20				
OU1-52GW100	OU1-42GW21				
OU1-52GW101	**OU1-GW75**				
OU1-52GW102	**OU1-GW76**				
OU1-52GW103	OU1-MW01				
OU1-52GW104	**OU1-MW59**				
OU1-52GW105	OU1-MW64				
OU1-52GW106	OU1-51EX10				
OU1-52GW107	**OU1-N2GW15**				
OU1-52GW108	**OU1-N2GW44**				
OU1-52GW109	**OU1-47GW07**				
OU1-52GW110	OU1-47GW08				
OU1-16GW06	OU1-47GW09				
OU1-16GW10	OU1-47GW10				
OU1-16GW36	**OU1-47GW11**				
OU1-16GW37	OU1-47GW12				
OU1-MW38	OU1-47GW25				
OU1-MW39	OU1-MW20				
OU1-MW55	OU1-MW21				
OU1-42GW22	**OU1-MW23**				
OU1-42GW23	**OU1-51EX12**				
OU1-52GW84	OU1-51EX13				
OU1-52GW85	OU1-51EX16				
OU1-52GW87	OU1-51EX17				
OU1-52GW88	**OU1-52GW08**				
OU1-52GW89	OU1-52GW15				
OU1-52GW90	OU1-52GW16				
OU1-52GW91	**OU1-52GW17**				
OU1-52GW92	**OU1-52GW18**				
OU1-52GW93	**OU1-52GW19**				
OU1-52GW94	OU1-52GW22				
OU1-52GW95	OU1-52GW26				
OU1-16GW28	**OU1-52GW30**				
OU1-16GW29	**OU1-52GW31**				
OU1-16GW34	OU1-52GW32				
OU1-16GW35	OU1-52GW33				
OU1-16GW53	**OU1-52GW34**				
OU1-16GW54	**OU1-52GW35**				
OU1-16GW55	OU1-52GW38				
OU1-16GW56	OU1-52GW39				
OU1-16GW57	OU1-52GW43				
OU1-16GW58	OU1-52GW44				
OU1-16GW59	**OU1-52GW46**				
OU1-16GW60	**OU1-52GW47**				
OU1-16GW61	OU1-52GW48				
OU1-16GW62	**OU1-52GW52**				
OU1-16GW63	**OU1-52GW53**				
OU1-16GW64	OU1-52GW57				
OU1-16GW65	**OU1-52GW58**				
OU1-16GW66	OU1-52GW61				
OU1-16GW67	**OU1-52GW62**				
OU1-16GW68	OU1-52GW67				
OU1-14GW18	OU1-52GW68				
OU1-14GW53	**OU1-52GW70**				

Table 7-2. Summary of Samples Collected as part of the LTM Program

FY 2021 Site Management Plan

MCAS Cherry Point, North Carolina

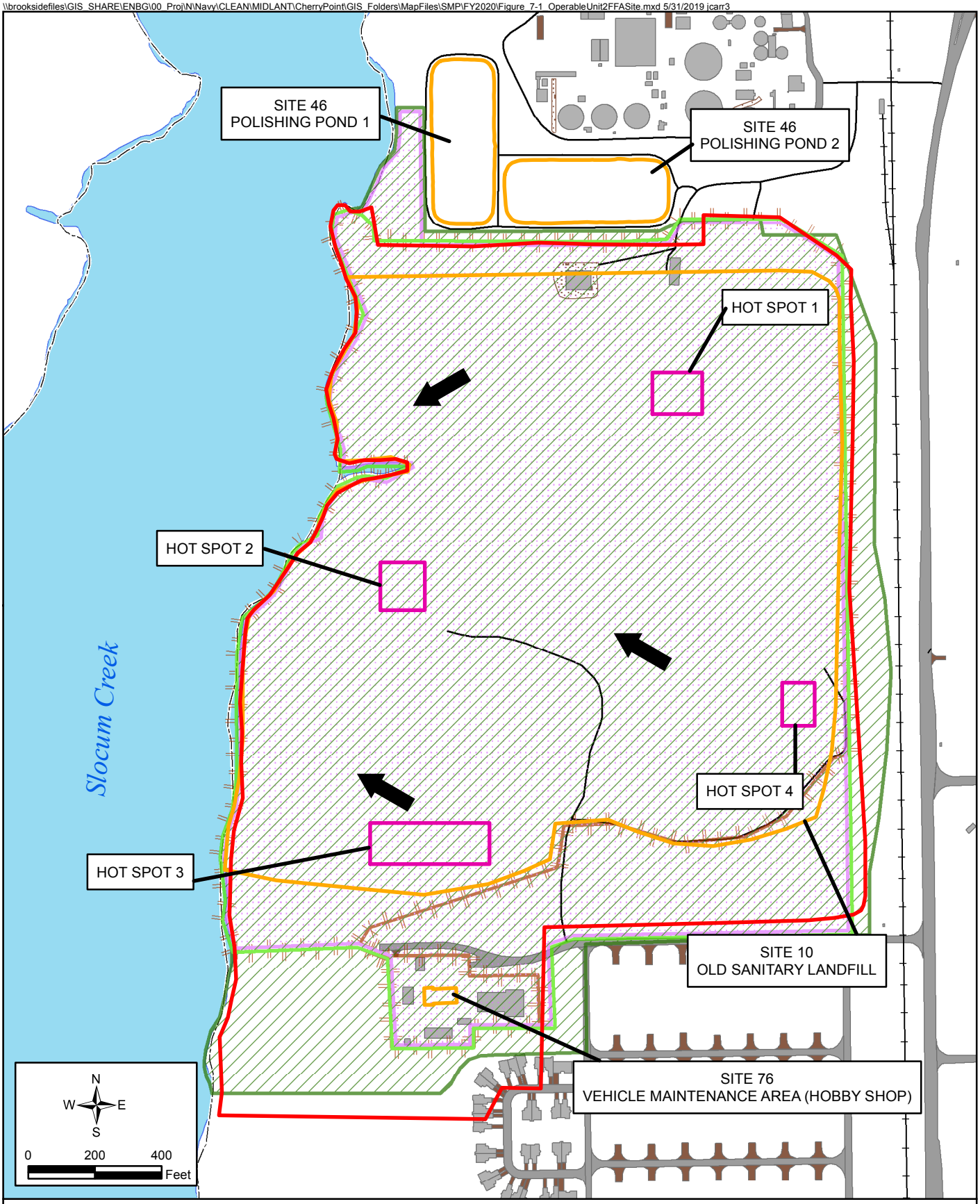
OU1		OU2	OU4	OU14	
Surficial Aquifer Monitoring Well		Surficial Aquifer Monitoring Well	Surficial Aquifer Monitoring Well	Surficial Aquifer Monitoring Well	
OU1-16GW01	OU1-52GW71				
OU1-16GW02	OU1-52GW72				
OU1-16GW03	OU1-52GW73				
OU1-16GW04	OU1-52GW74				
OU1-16GW08	**OU1-52GW76**				
OU1-16GW09	**OU1-52GW82**				
OU1-16GW30	**OU1-52GW83**				
OU1-16GW31	OU1-52GW86				
OU1-16GW41	OU1-52GW96				
OU1-16GW42	OU1-52GW97				
OU1-16GW50	OU1-MW73				
OU1-16GW52	**OU1-N2GW07**				
OU1-MW12	OU1-N2GW17				
OU1-MW28	OU1-N2GW25				
OU1-MW48	OU1-N2GW29				
OU1-MW50	OU1-N2GW41				
OU1-MW51	OU1-N4GW09				
OU1-MW51	OU1-N4GW09				

Blue indicates wells for which samples are analyzed for selected natural attenuation parameters in addition to site contaminants of concern (COCs).

*Four of the sampled wells at OU2 include analyses for natural attenuation parameters in addition to site COCs. The four wells are determined separately for each sampling event.

Green indicates wells for which samples are analyzed for DHC and functional genes, selected natural attenuation parameters, plus site COCs.

LTM at each OU will continue until performance standards listed in the ROD are not exceeded.



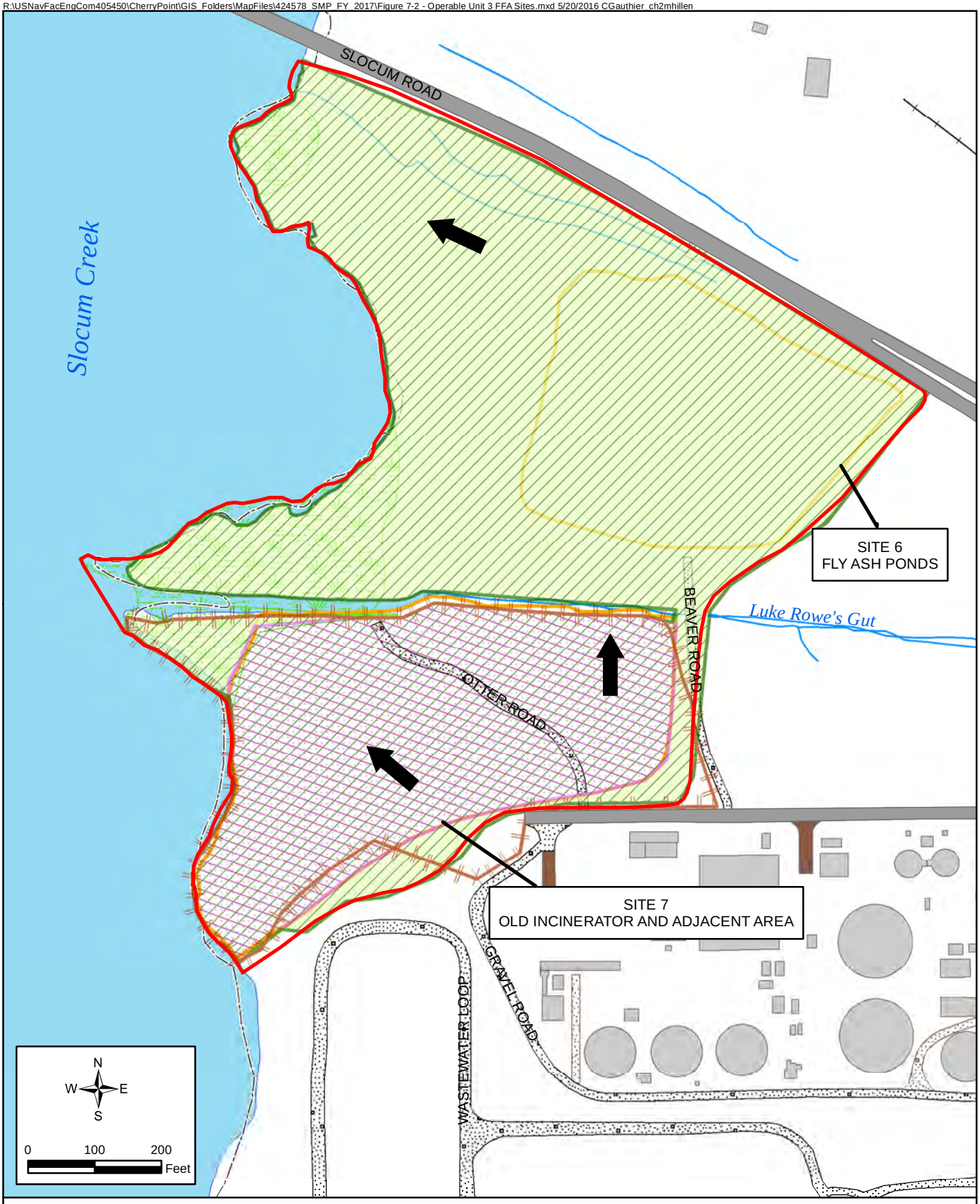
Legend

- OU Boundary
- Site Boundary
- Hot Spots
- Buildings
- Base Boundary
- Road
- Groundwater Use Prohibited
- Intrusive Activities Below Water Table Prohibited
- Restricted Access - Fence & Signs Required
- Industrial Use Control – Site Use Restricted/Vapor Intrusion
- Groundwater Flow Direction

Figure 7-1
Operable Unit 2 FFA Sites
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-2 - Operable Unit 3 FFA Sites.mxd 5/20/2016 CGauthier_ch2mhillen



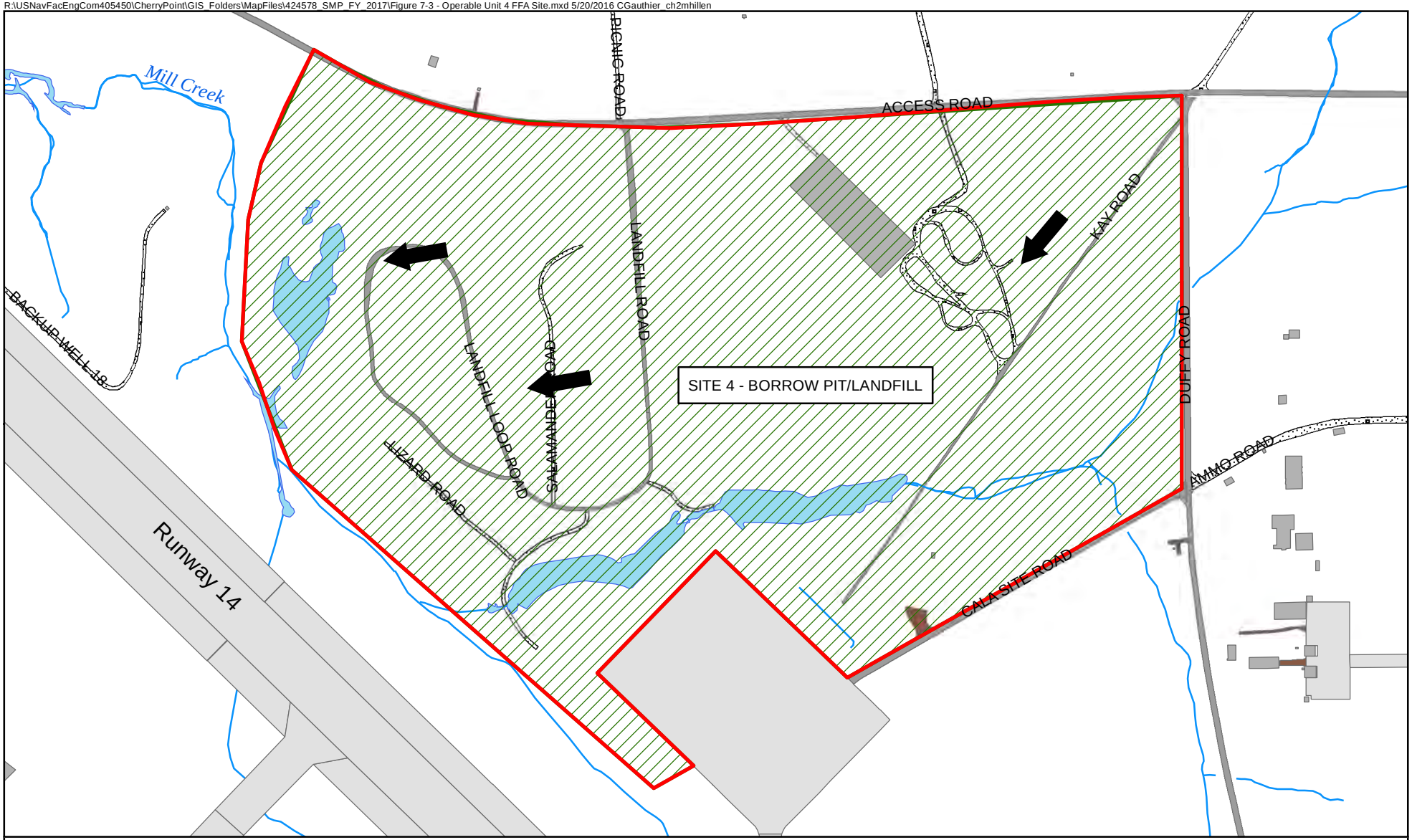
Legend

- OU Boundary
- Site Boundary
- Base Boundary
- Buildings
- Wetlands
- Road
- Surface Water
- Groundwater Use Prohibited
- Intrusive Activities Prohibited
- Restricted Access - Fence & Signs Required
- Site Use Restricted - Industrial Use Only
- Site Use Restricted - No Use Authorized
- Groundwater Flow Direction

Figure 7-2
Operable Unit 3 FFA Sites
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-3 - Operable Unit 4 FFA Site.mxd 5/20/2016 CGauthier_ch2mhillen



Legend

- OU Boundary
- Land Use Control Boundary; Surficial Groundwater Use Prohibited
- Buildings
- Runway
- Road
- Surface Water
- Groundwater Flow Direction

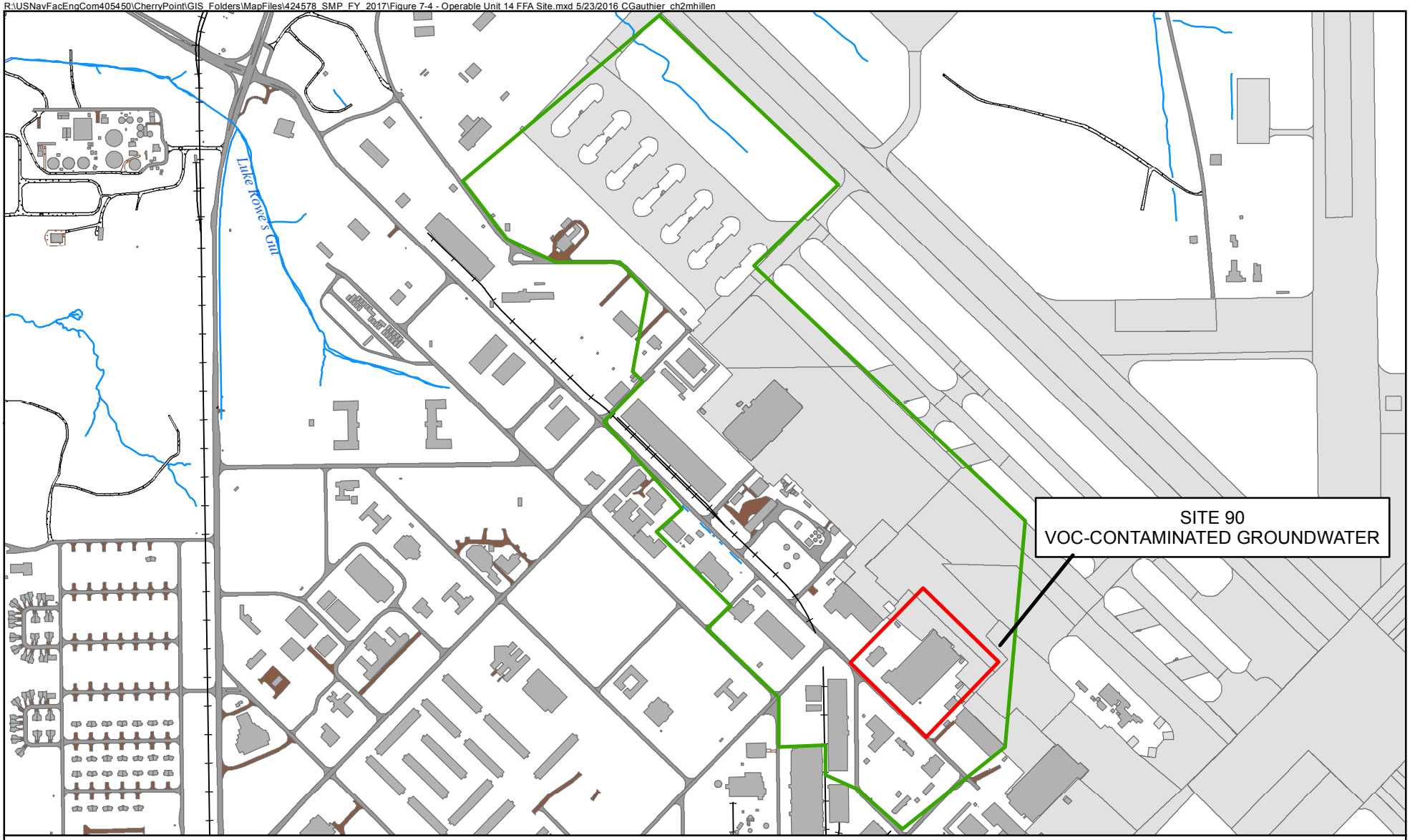
N
W E
S

0 250 500
Feet

Figure 7-3
Operable Unit 4 FFA Site
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-4 - Operable Unit 14 FFA Site.mxd 5/23/2016 CGauthier_ch2mhillen



Legend

- Surface Water
- Railroad
- LUC Boundary
- OU/Site Boundary
- Buildings
- Road
- Runway

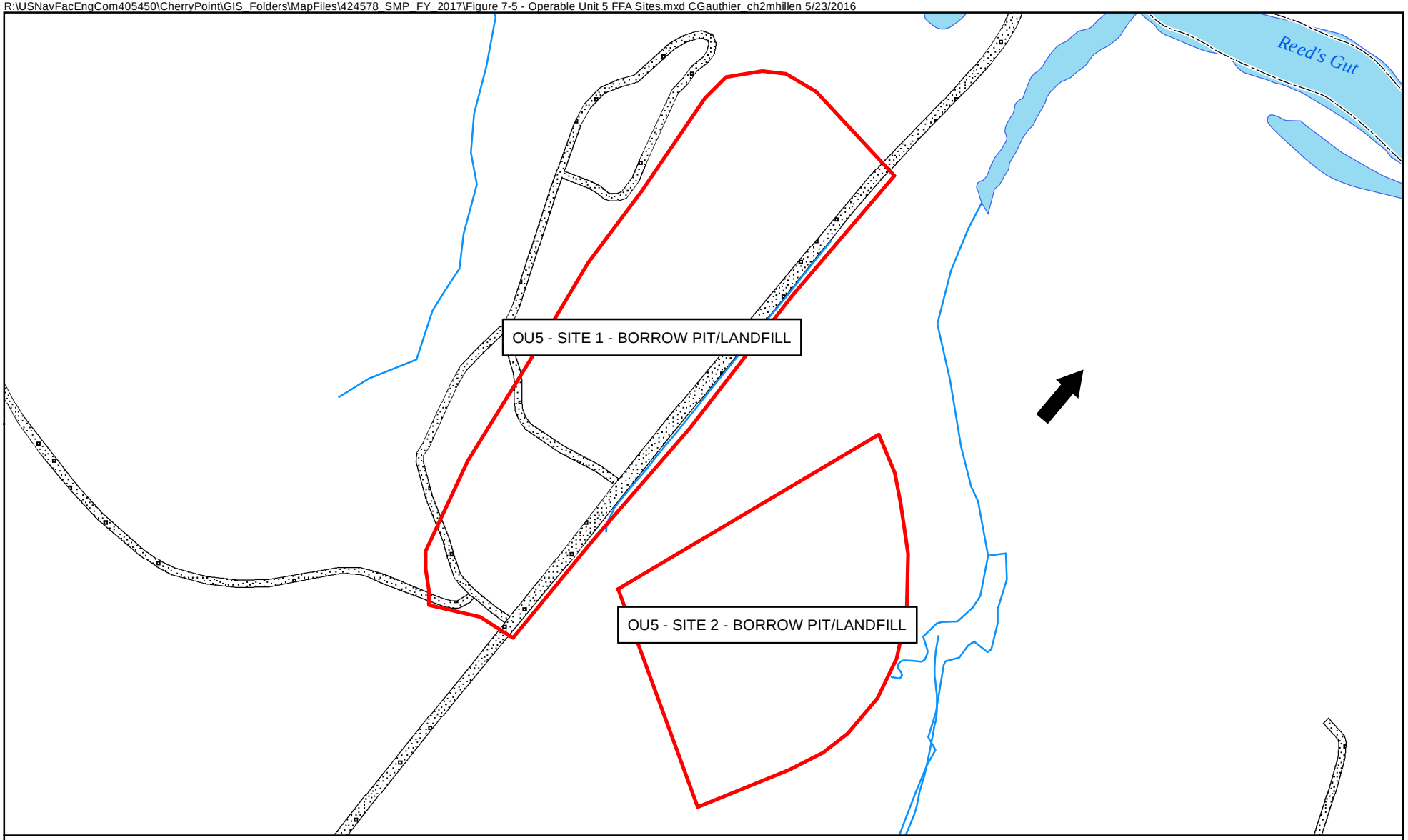
N
W E
S

0 450 900
Feet

Figure 7-4
Operable Unit 14 FFA Site
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-5 - Operable Unit 5 FFA Sites.mxd CGauthier_ch2mhillen 5/23/2016



Legend

- OU/Site Boundary
- Base Boundary
- Road
- Surface Water

Groundwater Flow Direction

N
W E
S

0 112.5 225
Feet

Figure 7-5
Operable Unit 5 FFA Sites
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-6 - Operable Unit 6 FFA Site.mxd CGauthier_ch2mhillen 5/23/2016

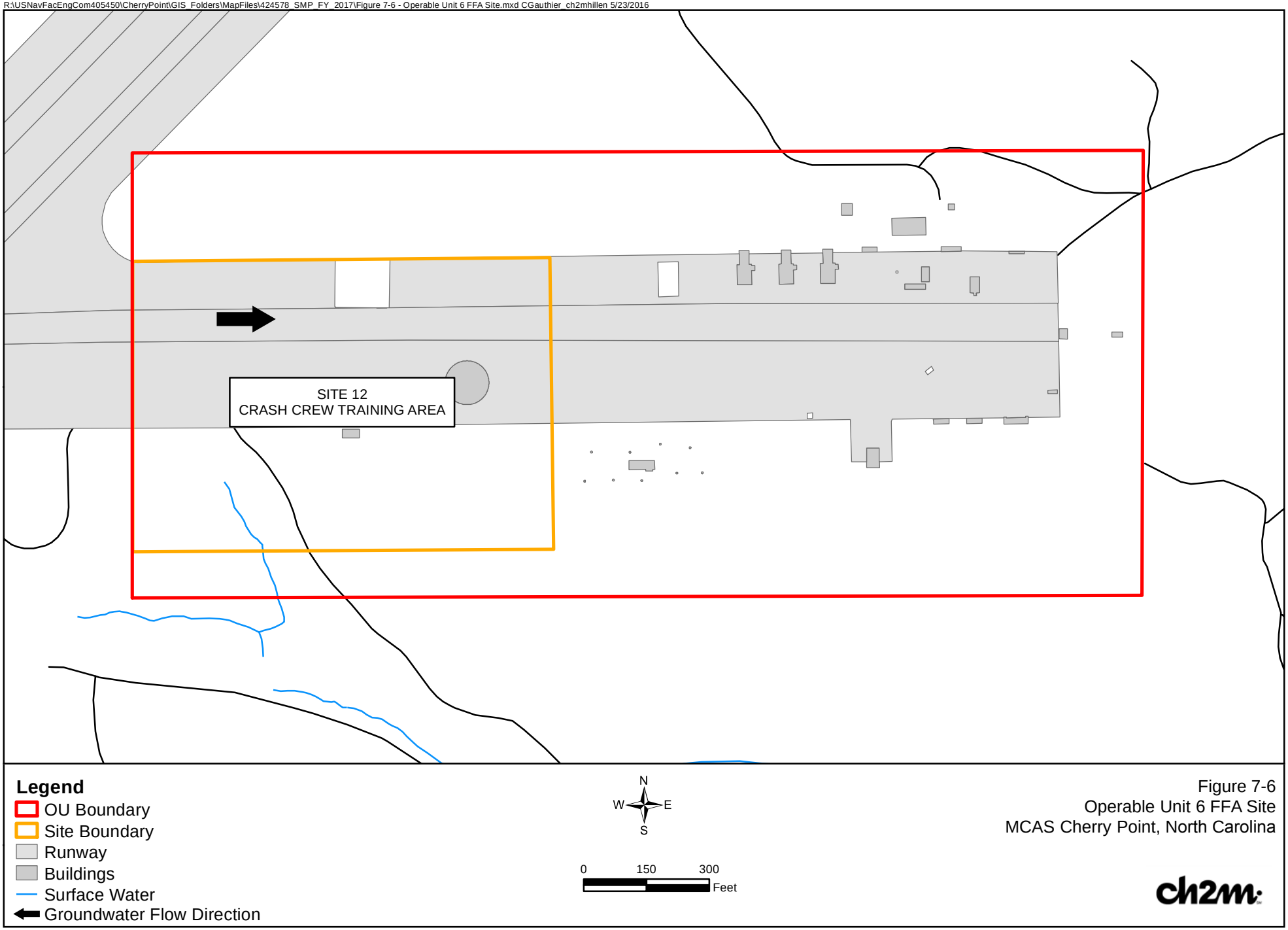
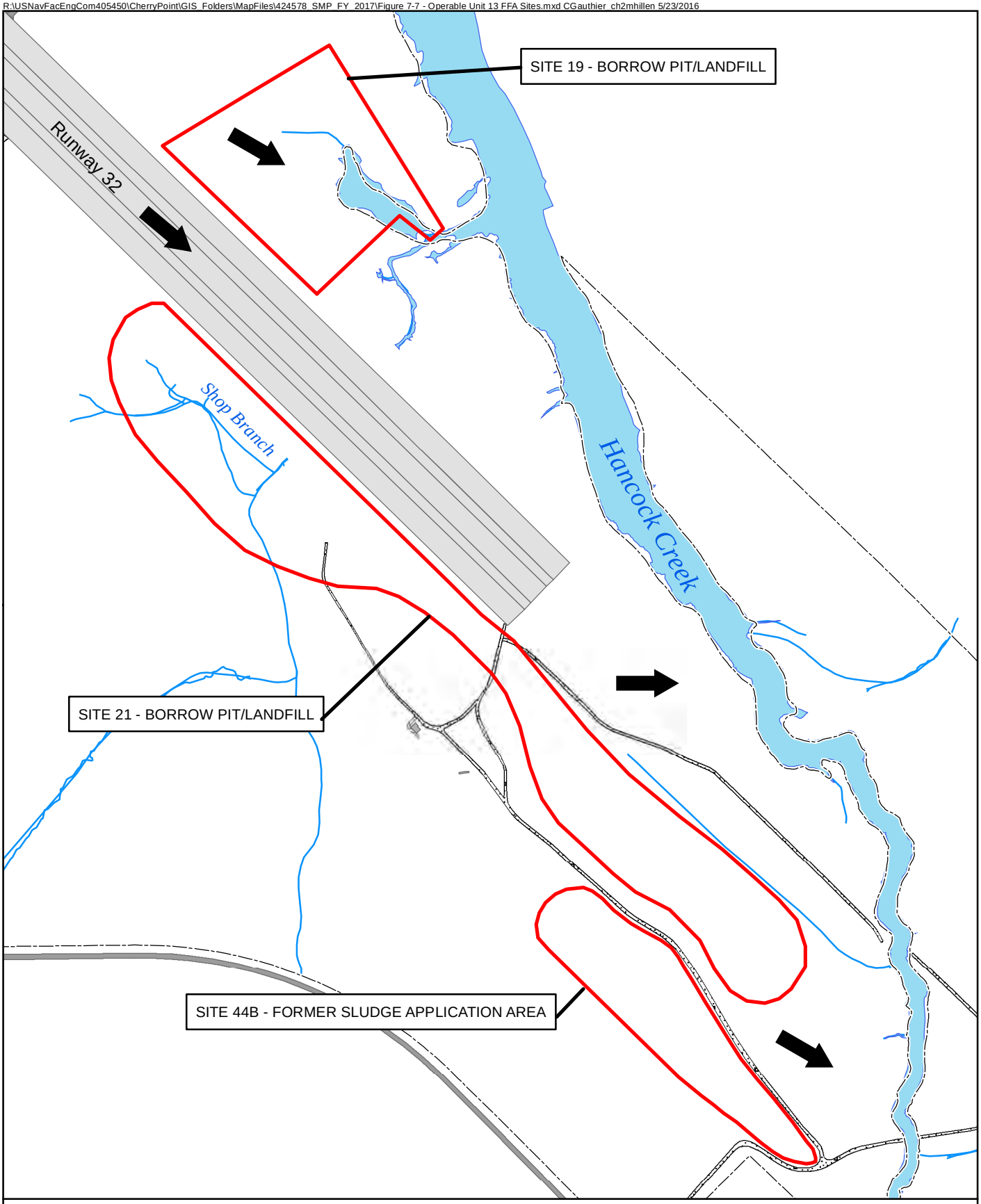


Figure 7-6
Operable Unit 6 FFA Site
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-7 - Operable Unit 13 FFA Sites.mxd CGauthier_ch2mhillen 5/23/2016



Legend

- OU/Site Boundary
- Base Boundary
- Buildings
- Road
- Runway
- Surface Water
- Groundwater Flow Direction

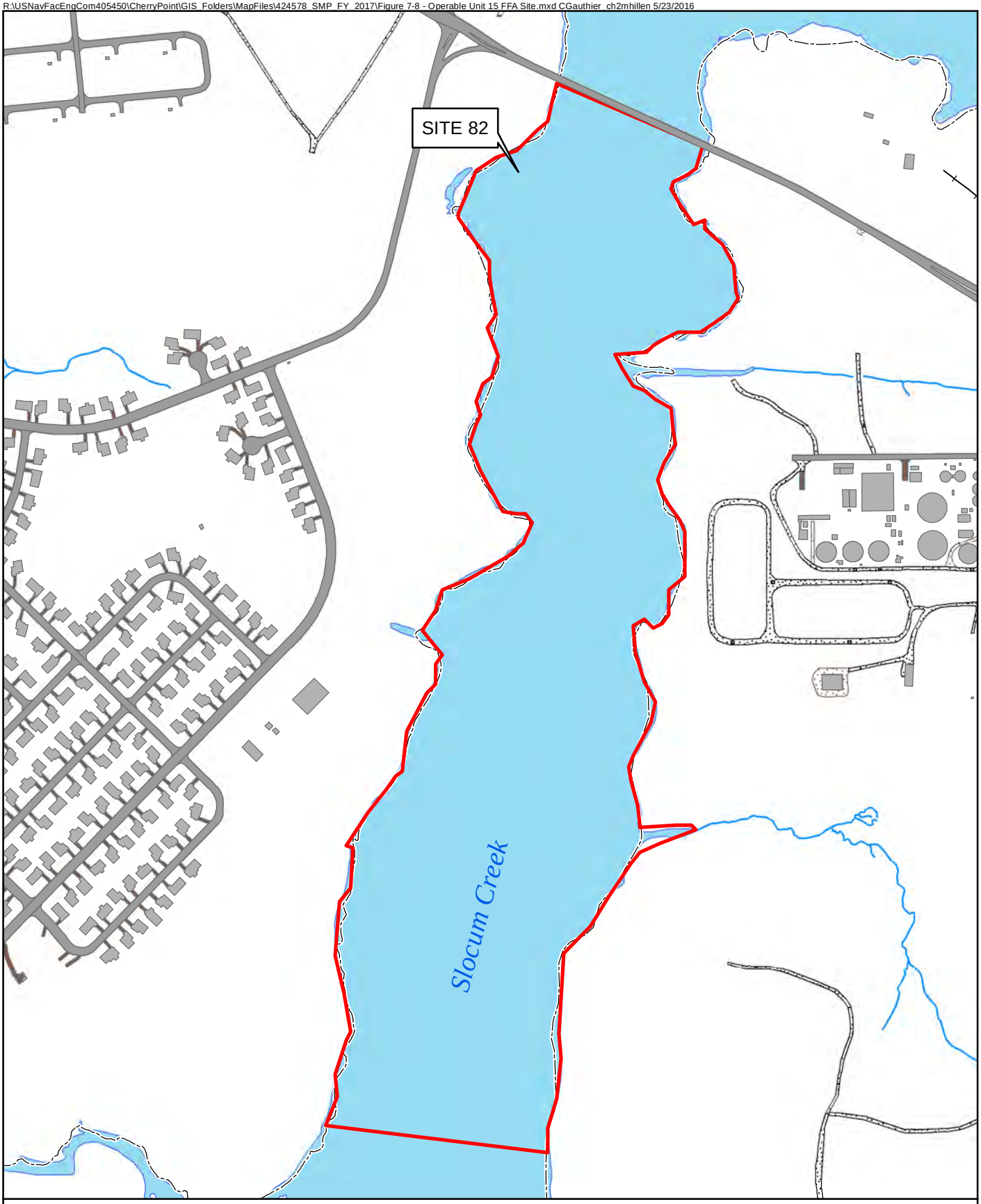
N
W E
S

0 300 600
Feet

Figure 7-7
Operable Unit 13 FFA Sites
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-8 - Operable Unit 15 FFA Site.mxd CGauthier_ch2mhillen 5/23/2016



Legend
- OU/Site Boundary
- Base Boundary
- Buildings
- Road
- Surface Water

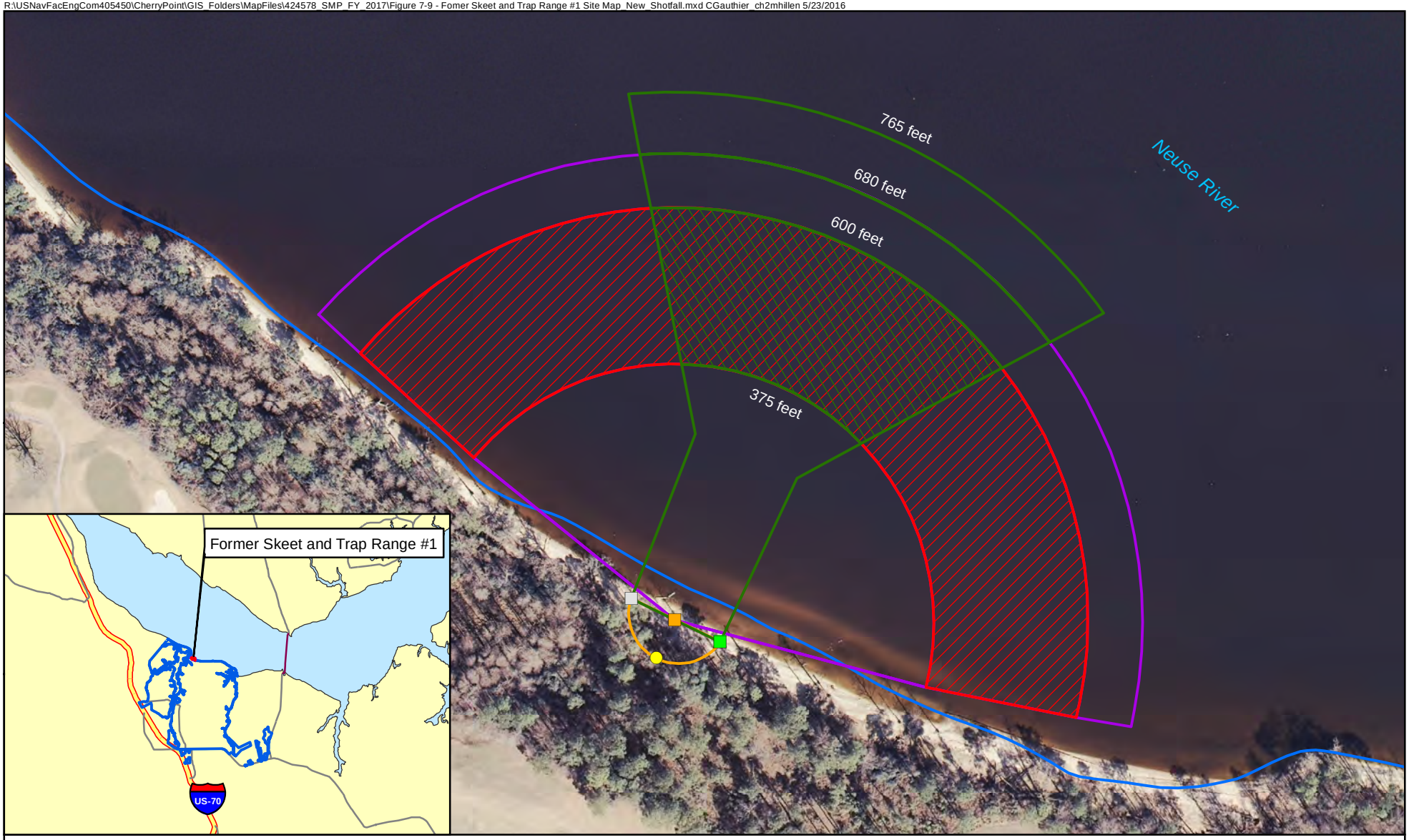
N
W E
S

0 250 500
Feet

Figure 7-8
Operable Unit 15 FFA Site
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 7-9 - Fomer Skeet and Trap Range #1 Site Map_New_Shotfall.mxd CGauthier_ch2mhillen 5/23/2016



Legend

- Installation Boundary
- Former Skeet and Trap Range #1
- Theoretical Skeet Shotfall Zone
- Area of Maximum Skeet Shotfall
- Theoretical Trap Shotfall Zone
- Area of Maximum Trap Shotfall
- High House
- Low House
- Control House
- Pit House

N
W E
S

0 100 200
Feet

Figure 7-9
Former Skeet and Trap Range #1
MCAS Cherry Point, North Carolina

ch2m

SECTION 8

Descriptions of Preliminary Screening Areas and Site Screening Areas

8.1 Preliminary Screening Areas

The sites described in this section were identified in the FFA as PSAs requiring desktop audits. These sites may have been previously referred to as points of environmental interest (POEIs). POEI terminology was retained for documents that had already been produced when the FFA was signed.

8.1.1 POEIs 22 and 23 – Radioactive Waste Storage Areas #1 and #2

POEI 22 is located near Buildings 133 and 421, and POEI 23 is located in Building 134, within FRCE (**Figure 8-1**). POEI 22 consists of a concrete pad and curb covered with an overhead roof that is fenced to control site access, while POEI 23 consists of a room located in the southeast corner of Building 134. These POEIs were identified during February and April 1998 site visits. The areas were historically used to store low-level radioactive solids (aircraft engine and transmission parts).

Consensus was reached by the MCAS Cherry Point Partnering Team in September 2000 to retain these areas as POEIs pending receipt of additional information regarding actual operations at the sites in question. Interviews were conducted with Station Radiological Affairs Support Office personnel and the following information was provided:

- All operations at these sites were conducted in strict adherence to Standard Operating Procedures (SOPs) for Ionizing Radiation (MCAS Cherry Point INST IR-001, published and maintained by Occupational Safety and Health Division, NADEP, MCAS Cherry Point).
- The material stored at these POEIs was very low-level radioactive magnesium thorium and was a byproduct of the manufacture of J79 transfer, rear, and inlet gearbox casings. All parts were machined in Building 133, and waste scrap, millings, etc., were strictly managed in accordance with IAW IR-001 (placed in sealed 55-gallon drums, properly labeled, stored and disposed of by safety office personnel [Code 6.8.810]). By following the SOP, there was extremely low probability for a release at the POEIs. Based on this information, closure of POEIs 22 and 23 was recommended in October 2000 as part of a POEI Closure Document prepared by the Navy.

In January 2001, the USEPA responded by letter to the POEI Closure document (USEPA, 2001). The letter indicated that the USEPA was waiting on feedback from its radiological support staff and was not yet able to provide concurrence on the proposed closure of Radioactive Waste Storage Areas #1 and #2 (P-22 and P-23). The USEPA also requested a copy of the SOPs for Ionizing Radiation. In 2006, the Navy's Radiological Affairs Support Office (RASO) completed a final status survey, which included measurements and sampling at these two storage areas. The survey results showed that there was no residual radiological activity exceeding the Nuclear Regulatory Commission (NRC) release limits. In April 2006, based on the survey report, RASO determined that POEIs 22 and 23 met the NRC criteria for unrestricted use. In April 2008, the Navy submitted a letter to USEPA documenting the findings of the 2006 RASO survey and requesting closure of POEIs 22 and 23. USEPA responded in May 2008 with a concurrence letter approving the designation of NFA for POEIs 22 and 23. As a result, these sites are closed and are no longer active PSAs.

8.2 Site Screening Areas

The sites described in this section have been identified in the FFA as requiring screening for possible inclusion in the CERCLA RI/FS process. Some of the sites on this list may have been previously referred to as POEIs. POEI terminology was retained for documents that had already been produced when the FFA was signed.

8.2.1 POEI 35a – High Power Engine Run-up Area and Test Cells

POEI 35a consists of the eastern end of Runway 28, near OU6 (**Figure 8-2**). The runway surface in this area is mostly asphalt, with a number of relatively small concrete pads. The runway represents a topographic high in the immediate area and is bordered by grassy areas with dense woods beyond. Most of the area is used for engine high power run-up activities and consists of a series of test pads where aircraft engines are mounted on racks and run at high speeds for maintenance purposes. The southwestern portion of POEI 35a is used for experimentation regarding long-term storage and preservation of aircraft. POEI 35a was identified during a 1997 regulator site visit as a potential contaminant source area based on the nature of historical site activities. Shallow groundwater flow at Site 35a generally flows east toward Hancock Creek. The water table is encountered at approximately 11 feet bgs.

In 1996, soil and groundwater samples were collected at POEI 35a, and TPH, oil and grease, and inorganic constituents were detected in the soil samples (R. E. Wright, 1996). Lead and a trace of one VOC were detected in the groundwater. Based on these results, a POEI Evaluation was conducted in 1999 that included the collection of soil, groundwater, surface water, and sediment samples. The POEI Evaluation sampling results were presented in the *Final POEI Evaluation Report* in January 2004 (CH2M, 2004b), which concluded that there had not been a significant release of contaminants to the environment from Site 35a. The detected constituents that exceeded human health screening criteria did not appear to be related to site-specific activities, and NFA was recommended (CH2M, 2004a). A Decision Document (DD) signed in June 2004 documented regulatory concurrence with the NFA recommendation (CH2M, 2004a).

Site History – POEI (SSA) 35a

Event	Date
Aircraft engine maintenance/test area	Present
Soil/Groundwater Study	1996
Work Plan for OU6	1999
Evaluation Report	2004
DD	2004

8.2.2 Site 85 – Hobby Shop Disposal Area

Site 85 was identified as a waste disposal area, approximately 0.33 acre in size, located near the eastern shoreline of Slocum Creek (OHM, 1998c). Site 85 is situated immediately west of the base auto hobby shop (OU2, Site 76) (**Figure 8-3**). Much of Site 85 consists of a relatively flat forested area bordering the tidal open waters of Slocum Creek to the west. In the eastern part of the site, a short slope leads eastward toward the adjoining developed areas (CH2M, 2001a).

Site 85 historically contained a significant amount of surface debris that had been disposed of at the site. No records indicating the quantities or types of wastes disposed of at the site are known to exist, nor is it specifically known when disposal activities occurred. The exposed debris included empty 55-gallon drums, empty 5- to 15-gallon steel pails, automobiles, concrete debris, office equipment, rubber tires, fire hoses, steel matting, pipes, a set of metal spectator bleachers, and various other items (OHM, 1998c).

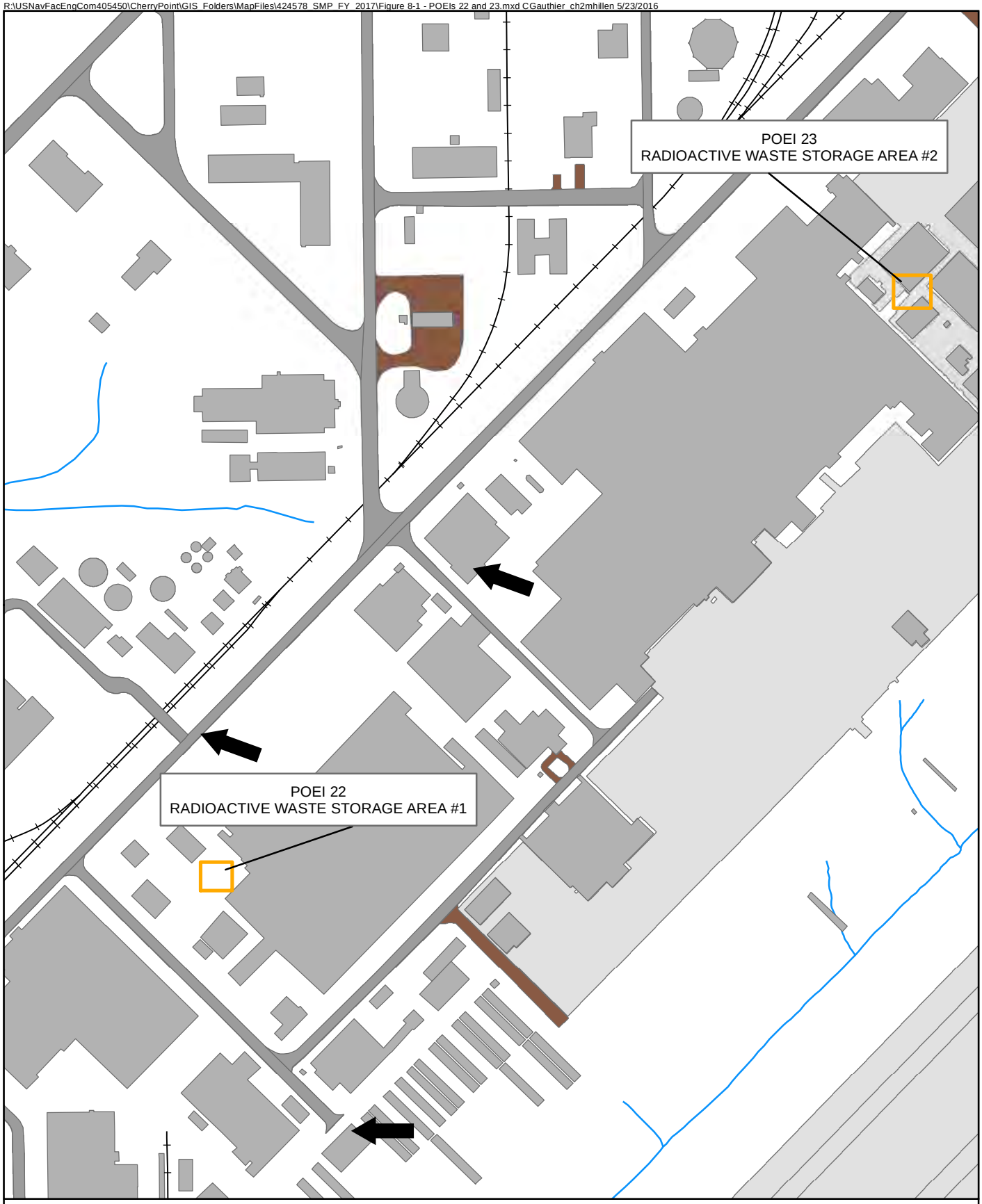
In 1997, site inspections revealed evidence that MCAS Cherry Point residents, including children, had trespassed onto Site 85, and had used the site for play activities. A rope swing was found hanging from a tree. As a result of this discovery, an emergency response action was taken to secure the site with fencing to prevent potential human exposure. A wetlands delineation was completed in 1997 to minimize wetlands impacts during a planned debris removal at Site 85 (B&R, 1998). Debris removal activities were completed in 1998. Approximately 30 to 40 cubic yards of metal and debris were removed from the site (OHM, 1998c).

In 2001, a Site Screening Process (SSP) investigation was conducted at Site 85. The SSP investigation included the collection of soil and groundwater samples to determine if residual contamination remained at the site following the debris removal, and whether groundwater had been impacted by past disposal activities. The SSP Report concluded that there was not significant contamination, and NFA was recommended (CH2M, 2003d). A DD signed in September 2003 documented regulatory concurrence with the NFA recommendation.

Site History – Site 85

Event	Date
Waste Disposal Area—empty drums, automobiles, concrete debris, office equipment, rubber tires, fire hoses, steel matting, pipes and other items were found	Unknown
Wetland Delineation report for Site 85	1998
Action Memorandum, Debris Removal	1998
Site Screening Process Work Plan	2001
Site Screening Process Report	2002
Site Screening Area DD	2003

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 8-1 - POEIs 22 and 23.mxd CGauthier_ch2mhillen 5/23/2016



Legend

- POEI Boundary
- Buildings
- Buildings - Demolition Scheduled
- Road
- Runway
- Groundwater Flow Direction
- Paved Driveway
- Railroad
- Surface Water

N
W E
S

0 150 300
Feet

Figure 8-1
POEIs 22 and 23
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 8-2 - FFA Site POEI 35a SSA 35a.mxd CGauthier_ch2mhillen 5/23/2016

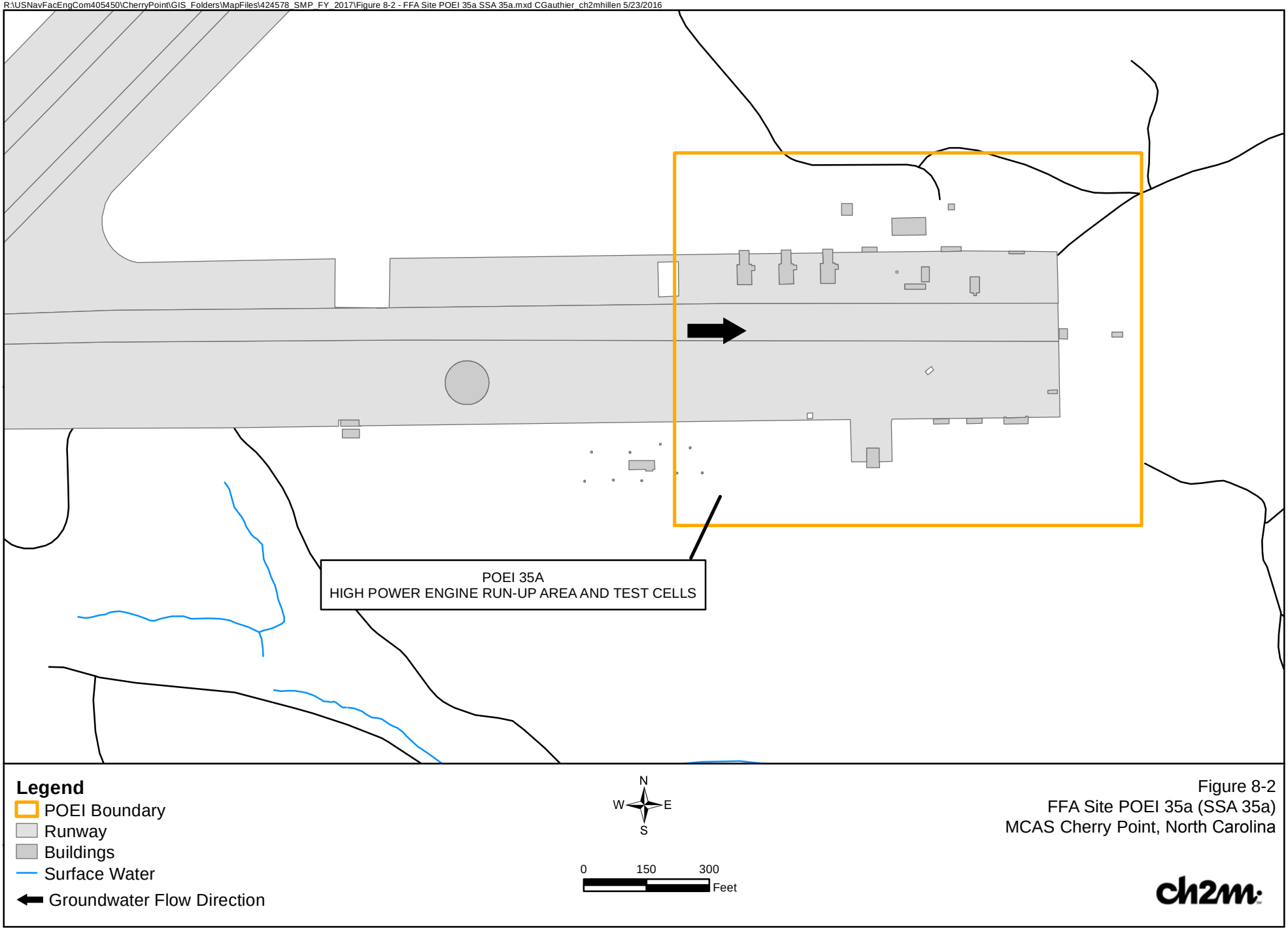
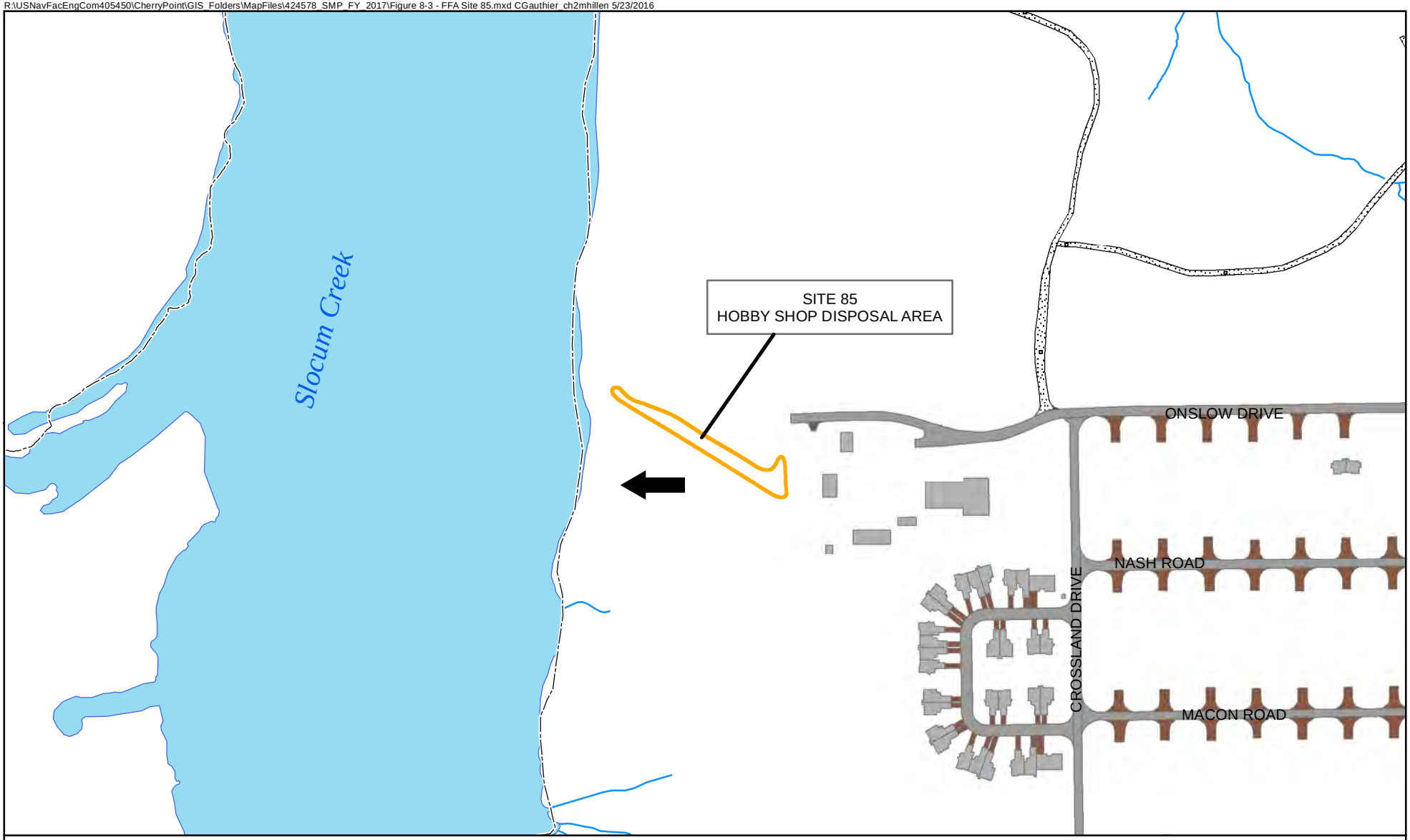


Figure 8-2
FFA Site POEI 35a (SSA 35a)
MCAS Cherry Point, North Carolina

ch2m

R:\USNavFacEngCom405450\CherryPoint\GIS_Folders\MapFiles\424578_SMP_FY_2017\Figure 8-3 - FFA Site 85.mxd CGauthier_ch2mhillen 5/23/2016



Legend
- Site Boundary
- Base Boundary
- Road
- Buildings
- Surface Water
- Groundwater Flow Direction

N
W E
S

0 150 300
Feet

Figure 8-3
FFA Site 85
MCAS Cherry Point, North Carolina

ch2m

SECTION 9

Removal Actions and Remedial Actions

Remediation activities that are conducted as part of the final remedy for a site (i.e., resulting from a ROD or other DD) are defined under CERCLA as RAs. Remediation activities that take place prior to the selection of a final remedy for a site include removal actions and Interim RAs. Removal actions involve the physical removal of site contaminants and are taken to prevent immediate and substantial harm to human health (TCRAs) or to reduce the potential for harm to human health (NTCRAs). Interim RAs are other types of remediation activities intended to prevent a potential release of contaminants, reduce the severity of a contaminant release, or minimize the further migration of contaminants.

Historical removal actions, RAs, and Interim RAs that have been conducted or are pending at MCAS Cherry Point FFA sites are described below, listed according to the OU and site. The Navy will continue to identify potential removal actions and RAs, where warranted, as investigation activities continue.

9.1 Operable Unit 1

9.1.1 Site 16 – Landfill at Sandy Branch

In 1996, a pilot-scale AS/SVE system was installed for groundwater remediation (B&R, 1997b). A full-scale AS/SVE system was installed in 1998 as part of a NTCRA. The Partnering Team agreed to shut down the AS/SVE system in February 2005 because it was not achieving the RAOs. In March 2005, the AS/SVE system was shut down and the Site 16 AS/SVE system closeout report was finalized in August 2006 (AGVIQ/CH2M, 2006b). The major equipment components of the AS/SVE system and the SVE wells were removed in October 2009. The associated Construction Closeout Report was submitted in February 2010 (Rhēa, 2010d). The remaining air sparge wells and conveyance lines were decommissioned in March 2011 and the associated Construction Closeout Report was submitted in May 2011 (Rhēa, 2011c).

In 1997, a TCRA was conducted in the southern portion of Site 16 that included the removal of debris piles containing asbestos, steel storage tanks, and soil contaminated with petroleum hydrocarbons (OHM, 1998a). The following materials were reportedly excavated and disposed:

- 538 tons of TPH-contaminated soil
- 386 tons of asbestos-contaminated soil
- 238 tons of TPH and asbestos-contaminated soil
- 139 tons of lead-contaminated soil
- 790 cubic yards of asbestos pipe material

9.1.2 OU1 Central Groundwater Plume Interim Remedial Action

The Interim ROD for the OU1 Central Groundwater Plume Interim RA (B&R, 1996c) called for the installation of a pump-and-treat system for groundwater remediation. The groundwater extraction wells were installed in 1998 and the system recovered groundwater for discharge to the IWTP for treatment from 1999 until the system was shut down in 2005. Before system startup, an upgrade to the IWTP was implemented to ensure adequate treatment. As a result of decreasing efficiency and the potential for interference with ongoing attempts to further define the nature and extent of OU1 groundwater contamination by altering local groundwater gradients, the groundwater extraction and treatment system was shut down in February 2005. The system components were initially left in place in order to allow for later reuse. Decommissioning of the system consisted of removing treatment system components, capping underground lines, and converting extraction wells into monitoring wells, and was completed in April 2014.

Alternative remediation technologies to address the OU1 Central Groundwater Plume were evaluated as part of the OU1 FS activities (see Section 5.1.1.1).

9.1.3 Site 51 – Building 137 Former Plating Shop

An enhanced bioremediation treatability study involving the injection of the substrate HRC into surficial aquifer groundwater was initiated at Site 51 in May 2001. The work plan for the treatability study also associated the treatability study with portions of Sites 47 and 92; however, the treatability study specifically targeted Site 51. The purpose of the treatability study was to determine the effectiveness of enhanced bioremediation using HRC to remediate a small plume of cVOCs in the shallow groundwater beneath Site 51. Groundwater monitoring of VOCs and geotechnical parameters was conducted before the HRC injection in late 2001 and during six post-injection monitoring events conducted during a 1-year period. At the end of the 1-year period, the concentration of total cVOCs had been reduced more than 90 percent in the heart of the plume, but individual constituents remained at concentrations that exceeded regulatory screening criteria (CH2M, 2003c). The study concluded that additional treatment would be required to further reduce residual concentrations.

9.1.4 Site 51 – Building 137 Former Plating Shop and Site 52—Building 133 Former Plating Shop and Ditch

A second enhanced bioremediation treatability study involving the injection of the substrate EHC into surficial aquifer groundwater was initiated in late 2004. The purpose of the treatability study was to determine the effectiveness of enhanced bioremediation using EHC to remediate areas of cVOC contamination in the shallow groundwater beneath Site 51 and Site 52. Groundwater monitoring of VOCs and geotechnical parameters were conducted before the EHC injection in late 2004. The treatability study included four post-injection monitoring events during an 8-month period. The final post-injection performance monitoring event was completed in November 2005. The results were evaluated to determine the effectiveness of the EHC injection and were summarized in a treatability study report that was finalized in December 2007 (CH2M, 2007). The report concluded that the EHC injection was initially effective in reducing cVOC concentrations in wells located near the injection points and that cVOC mass reduction was achieved. However, the concentrations of some of the contaminants rebounded significantly with time, in part due to under-dosing of the injected substrate as well as the likely presence of contributing cVOC sources such as DNAPLs in the aquifer.

9.1.5 Sandy Branch Tributary #2

In 2007, the MCAS Cherry Point ER Program Partnering Team developed a clean-up strategy for Sandy Branch Tributary #2 and adjacent flood plain areas that would be carried out as a NTCRA. The NTCRA would remove sediments and soil contaminated with various COPCs (several inorganics, pesticides, PAHs, and other SVOCs) to levels protective of at-risk ecological receptors (i.e., benthic macroinvertebrates).

In preparation for the NTCRA, an EE/CA was prepared and finalized in January 2008 (CH2M 2008a). The EE/CA compared and evaluated several removal action alternatives and formed the basis of the selection of a sediment and soil removal technique for the NTCRA. The selected remedial alternative was the mechanical excavation of stream sediments and flood plain soil/sediment followed by backfilling with clean fill material.

The Removal Action Work Plan to implement the NTCRA was finalized in May 2008, and the NTCRA was completed between June and August 2008. Approximately 124 cubic yards of stream sediments and 811 cubic yards of flood plain sediments were excavated and disposed of at a North Carolina-permitted Subtitle D landfill approved by the USEPA to receive CERCLA wastes. The Remedial Action Closeout Report was finalized in June 2009.

9.1.6 OU1 Central Groundwater Plume In Situ Enhanced Bioremediation Pilot Study

In August 2010, the MCAS Cherry Point Partnering Team agreed to conduct a field-scale pilot study at OU1 to evaluate the site-specific effectiveness of in situ enhanced bioremediation downgradient of Building 133 near the source of the Central Groundwater Plume. The purpose of this pilot study was to gather information to aid in the selection of a final remedy to address the plume and also to possibly contribute in the Remedial Design phase. The pilot study included the installation of 14 injection wells (seven nested pairs, each consisting of one upper

surficial and one lower surficial aquifer well) along a "biobarrier" alignment, the installation of five monitoring wells (two upper surficial and three lower surficial aquifer wells), the injection of reagents (i.e., emulsified vegetable oil and a bioaugmentation culture), and post-injection performance monitoring via 5 rounds of groundwater sampling and analysis. The Pilot Study Implementation Plan (CH2M, 2011c) and Sampling and Analysis Plan (CH2M, 2011d) were finalized in March 2011, and pilot study well installation and reagent injection field activities were completed in May and June 2011. Post-injection groundwater monitoring activities were completed in 2013 and the results of the pilot study are documented in a technical memorandum finalized in April 2014 (CH2M, 2014b). The pilot study demonstrated that an in situ enhanced bioremediation biobarrier is a suitable remedy component for the OU1 Central Groundwater Plume. TCE concentration reductions of over 90 percent were achieved at individual wells in the upper surficial aquifer, while TCE reductions in the lower surficial aquifer reached 56 percent. The pilot study also generated critical information regarding full-scale implementation issues such as pH buffering, optimal injection well spacing, and methane gas generation.

9.1.7 OU1 Central Groundwater Plume Permeable Reactive Barrier Pilot Study

In March 2011, the MCAS Cherry Point Partnering Team agreed to move forward on a pilot study to construct a PRB in the downgradient portion of the Central Groundwater Plume near East Prong Slocum Creek. The PRB installation, site restoration, and installation of additional monitoring wells for PRB performance monitoring was completed in August and September 2012. The PRB is approximately 600 feet in length and consists of a combination of ZVI and sand. The primary objective of the pilot study was to evaluate the site-specific effectiveness of a PRB for reducing COC concentrations in the downgradient portion of the OU1 Central Groundwater Plume in order to be protective of surface water and sediment in East Prong Slocum Creek from discharging groundwater. A secondary objective was to determine if currently available trenching and PRB installation technology could achieve a target depth of 45 feet at MCAS Cherry Point. Post-PRB installation performance monitoring activities began in fall 2012 and continued through 2013. The results of the PRB pilot study are documented in the Pilot Study Implementation Report finalized in May 2015 (CH2M, 2015). The pilot study demonstrated that a ZVI PRB is a suitable remedy component for protection of downgradient surface water bodies from impacted groundwater of the OU1 Central Groundwater Plume. Significant reductions of COCs were observed downgradient of the PRB in the surficial aquifer. However, the pilot study revealed that 35 feet is the maximum-attainable trenching and installation depth at the site using currently available technology.

9.2 Operable Unit 2

9.2.1 Site 10 – Old Sanitary Landfill

Prior to the OU2 ROD, a SVE pilot study was conducted in 1996 at Site 10 for the remediation of VOCs in soil. In 1997, a full-scale SVE system was installed to treat soil contaminated with VOCs at four soil hot spot areas within Site 10. The Selected Remedy in the OU2 ROD signed in 1999 included MNA of groundwater, SVE at major soil hot spots within Site 10, LUCs, and LTM of groundwater, surface water, and sediment to ensure the effectiveness of natural attenuation (Tetra Tech, 1999a). The boundaries of the various LUCs in place at OU2 are listed in **Table 7-1**. A fence line repair and replacement was conducted in 2003.

The SVE treatment of the soil hot spots at Site 10 was discontinued in August 2003 because the system was no longer removing a significant mass of contamination and was not performing as a cost-effective remedial approach. After the SVE system was shut down, periodic (roughly annual) soil sampling was conducted at Site 10, Hot Spots 1, 2, 3, and 4 between 2004 and 2006. The sampling results indicated that soil VOC concentrations at Hot Spots 1, 3, and 4 were below the screening criteria and these hot spots were removed from further sampling. Further soil sampling was conducted at Hot Spot 2 in 2007 and 2008 to complete the delineation of contamination.

A Work Plan was finalized in April 2010 for the removal of the equipment and components of the Site 10 SVE system (Rhēa, 2010c). The system removal was completed in April 2010 and a Construction Closeout Report was finalized in July 2010 (Rhēa, 2010e).

Since OU2 has a ROD in place, to address Hot Spot 2 soil contamination an FFS that evaluated additional remedial alternatives for soil at Site 10, Hot Spot 2 was finalized in February 2011 (Rhēa, 2011a). The Proposed Plan for Site 10, Hot Spot 2 was finalized in April 2011 (Rhēa, 2011b). The preferred alternative presented in the Proposed Plan consisted of the installation of a soil cover over areas of Hot Spot 2 where soil concentrations exceed NC SSLs to prevent direct exposure and limit infiltration and migration of soil/waste contamination to groundwater. The preferred alternative also included groundwater monitoring to ensure protection of Slocum Creek from groundwater discharge to surface water. An OU2 ROD Amendment was completed and signed in September 2011 (Rhēa, 2011d).

In preparation for the implementation of the soil cover remedy at Hot Spot 2, a Remedial Design/Remedial Action Work Plan was prepared and finalized in December 2011 (Rhēa, 2011e). The soil cover was successfully installed at Site 10, Hot Spot 2, in January and February 2012. The Construction Closeout Report documenting the soil cover installation was finalized in August 2012 (Rhēa, 2012b). The IRACR documenting the soil cover remedy for Site 10, Hot Spot 2 was finalized in December 2012 (Rhēa, 2012d).

9.3 Operable Unit 3

9.3.1 Site 6 – Fly Ash Ponds

In 1996, as part of the closure of the Air Station water treatment plant, the ponds at Site 6 were removed by solidifying and excavating the pond sludge, removing piping and debris, leveling the berms, and re-vegetating the site. The site was revegetated with pine seedlings in 1996 by MCAS Cherry Point personnel as part of a "Longleaf Pine Initiative" to return the land to its natural state (OHM, 1998b).

9.3.2 Site 7 – Old Incinerator and Adjacent Area

In 2000, an AS system was installed at Site 7 to remediate a localized area of benzene soil contamination. AS was selected in favor of SVE due to the very shallow water table at the site, which would have been problematic for SVE. Based on the results of confirmatory soil samples collected in February 2001, it was noted that the extent of benzene contamination in soil at Site 7 extended beyond the radius of influence of the current AS system to the southwest and northeast (OHM, 2000). As a result, additional AS points were installed to address the extended area of contamination. Based on soil and groundwater monitoring results indicating that the AS system had effectively remediated the soil hot spot, the AS system was shut down in mid-2003 (CH2M, 2003a). The MCAS Cherry Point ER Program Partnering Team agreed in October 2006 to remove the components of the AS system at Site 7, as it was not anticipated that any future use would be required. The AS system was removed in May 2007.

9.4 Operable Unit 6

9.4.1 Site 12 – Crash Crew Training Area

In accordance with the *Remedial Action Work Plan, Operable Unit 6, Marine Corps Air Station, Cherry Point, North Carolina* (AGVIQ/CH2M, 2007a), the removal of contaminated soils in the vicinity of former Burn Pit E began in March 2007 and was completed in May 2007. The purpose of the project was to remove a tar-like layer in subsurface soil that was a potential source of ethylbenzene, naphthalene, and 2-methylnaphthalene to groundwater. The excavation had a total depth of approximately 7.5 feet bgs and the total excavated volume was approximately 2,859 cubic yards, including asphalt.

Excavation was accomplished using a hydraulic excavator. The top 3 feet of soil was stockpiled as anticipated "clean" overburden. Soils excavated from 3 to 7 feet bgs were stockpiled as waste. Verification samples were collected from the potentially clean overburden stockpiles to verify that the overburden could be used as backfill at the site. Due to NC SSL exceedances observed in the verification samples, the stockpiled overburden material was not used as backfill at the site, and additional backfill material from an offsite source was used to fulfill the

deficit in backfill quantities. Characterization sample results indicated that the overburden material could be disposed of at a Subtitle D landfill.

The final limits of excavation were verified by confirmation samples collected at six sidewall and four bed (floor) of excavation locations. The confirmation samples were analyzed for ethylbenzene, 2-methylnaphthalene, and naphthalene. Confirmation sample concentrations were less than NC SSLs, thereby confirming that impacted soil had been removed in accordance with the soil RA requirements. The site was then backfilled with clean fill, compacted, and the surface restored with an asphalt pavement consisting of a stone base, 8 to 12 inches thick, covered by 3 inches of asphalt.

Upon completion of the asphalt installation, a new monitoring well, 12GW08, was installed in the center of the excavation area, in accordance with the RA Work Plan, to allow LTM of groundwater directly beneath the former location of contaminated soils.

LTM of groundwater associated with the MNA component of the remedy began in June 2007. In late 2008, LTM activities were terminated at OU6, as all COCs were found during four or more consecutive quarterly sampling events to either be no longer detected or at concentrations below the performance standards specified in the OU6 ROD. A RACR establishing RC for OU6 was finalized in August 2008.

9.5 Site 85 – Hobby Shop Disposal Area

Site 85 is a Site Screening Area that contained a significant amount of largely surface debris that had been disposed of at the site. The exposed debris included empty 55-gallon drums, empty 5- to 15-gallon steel pails, automobiles, concrete debris, office equipment, rubber tires, fire hoses, steel matting, pipes, and metal spectator bleachers (OHM, 1998c).

In 1997, an emergency response action was taken to secure the site with fencing to prevent potential human exposure after it was determined that the site had been used for play activities by MCAS Cherry Point residents. A wetlands delineation was completed in 1997 to minimize wetlands impacts during a planned debris removal at Site 85 (B&R, 1998). A removal action was conducted in 1998 to remove exposed solid waste and debris. Approximately 30 to 40 cubic yards of metal and debris were removed from the site (OHM, 1998c).

SECTION 10

Five-Year Reviews

Four CERCLA Five-Year Reviews (2002, 2007, 2012, and 2017) have been conducted at MCAS Cherry Point to evaluate the ongoing protectiveness to human health and the environment of the various remedial activities that have been conducted to date. The major conclusions of the Five-Year Reviews are presented in this section. The next Five-Year Review is scheduled to begin in FY 2022 and to be finalized in FY 2023.

10.1 Five-Year Review – 2002

A CERCLA Five-Year Review was first conducted by the Navy at MCAS Cherry Point in 2002. The Five-Year Review Report was finalized in November 2002 (CH2M, 2002c), and addresses remedies and RAs that have been implemented within all OUs for which there is a ROD or action memorandum in place, and at which contaminants remain at concentrations exceeding criteria that allow for unlimited use and unrestricted exposure.

The objectives of the Five-Year Review are to determine whether the remedies or RAs are functioning as designed and whether they remain protective of human health and the environment in accordance with the requirements outlined in the ROD or action memorandum for each OU.

RAs or Interim RAs at three OUs and associated sites were included in the 2002 Five-Year Review:

- OU1 – Central Groundwater Plume and Site 16
- OU2 – Site 10
- OU3 – Site 7

The triggering action for the first Five-Year Review at MCAS Cherry Point was the initiation of the Interim RA at the OU1 Central Groundwater Plume, which was the installation of a groundwater extraction and treatment (pump-and-treat) system.

The Five-Year Review found that, in general, the RAs or Interim RAs were functioning as designed, but it was recommended that chronic operational problems be addressed for the OU1 Central Groundwater Plume pump-and-treat system, the Site 16 AS/SVE system, and the OU2, Site 10 SVE system.

The RAs and Interim RAs were found to be protective of human health and the environment.

10.2 Five-Year Review – 2007

The second CERCLA Five-Year Review was conducted at MCAS Cherry Point in 2007, and the Five-Year Review Report was finalized in February 2008 (CH2M, 2008d).

RAs or Interim RAs at seven OUs and associated sites were included in the 2007 Five-Year Review:

- OU1 – Central Groundwater Plume and Site 16
- OU2 – Site 10
- OU3 – Site 7
- OU4 – Site 4
- OU5 – Site 2
- OU6 – Site 12
- OU13 – Sites 19, 21, and 44B

The Five-Year Review found that, in general, the RAs or Interim RAs were functioning as designed, with the exceptions of the Interim RAs for OU1, both of which were shut down in 2005 due to performance issues, and OU2, Site 10, Soil Hot Spot 2. Potential RAs for OU1 are currently being evaluated, and a Final ROD for OU1 is scheduled to be completed in FY 2013. The RA for OU2, Site 10, Soil Hot Spot 2 has since been completed, in February 2012.

The RAs for the other OUs were found to be functioning as designed and are expected to be protective of human health and the environment as groundwater cleanup goals are achieved over time through MNA. In the interim, exposure pathways that could result in unacceptable risks are being controlled through ICs and LUCs that prevent exposure to site contaminants.

10.3 Five-Year Review – 2012

The third CERCLA Five-Year Review was conducted at MCAS Cherry Point in 2012, and the Five-Year Review Report was finalized in March 2013 (CH2M, 2013c).

RAs or Interim RAs at six OUs and associated sites were evaluated in the 2012 Five-Year Review:

- OU1 – Central Groundwater Plume and Site 16
- OU2 – Site 10
- OU3 – Site 7
- OU4 – Site 4
- OU13 – Sites 19, 21, and 44B
- OU14 – Site 90

In addition, two OUs that had achieved RC since the 2007 Five-Year Review (OUs 5 and 6), were included for discussion to document their attainment of RC.

The Five-Year Review found that the RAs for OUs 2, 3, 4, and 13 were functioning as designed and are expected to be protective of human health and the environment as groundwater cleanup goals are achieved over time through MNA. In the interim, exposure pathways that could result in unacceptable risks are being controlled through ICs and LUCs that prevent exposure to site contaminants. The RA for OU14 was also found to be protective of human health and the environment; however, it was recommended that the LUC boundaries be evaluated in comparison to recent LTM results to determine if revisions to the boundaries are necessary.

For OU1, there is no RA in place and the interim RAs were shut down in 2005 due to performance issues. The Five-Year Review found that human health and the environment are currently protected in the short-term because there are no complete exposure pathways. The only unacceptable risk identified for this OU is to future residents. However, for the remedy to be protective in the long term, LUCs must be established and in effect during the time it takes to select and implement a final remedy that encompasses the entire OU1 groundwater contamination area. The Proposed Plan for the OU1 Central Groundwater Plume sites was finalized in April 2014, the ROD was signed on September 21, 2016, and it is anticipated that the OU1 RD will be finalized in March 2018.

10.4 Five-Year Review – 2017

The fourth CERCLA Five-Year Review was conducted at MCAS Cherry Point in 2017, and the Five-Year Review Report was finalized in April 2018 (CH2M, 2018a).

RAs or Interim RAs at six OUs and associated sites were evaluated in the 2017 Five-Year Review:

- OU1 – Site 16; Central Groundwater Plume sites: Site 42, Site 47, Site 51, Site 52, Site 92, and Site 98
- OU2 – Site 10, Site 46, and Site 76
- OU3 – Site 6 and Site 7
- OU4 – Site 4
- OU13 – Site 19, Site 21, and Site 44B
- OU14 – Site 90

The Five-Year Review found that the RAs for OUs 3, 4, and 13 were functioning as designed and are expected to be protective of human health and the environment as groundwater cleanup goals are achieved over time through MNA. In the interim, exposure pathways that could result in unacceptable risks are being controlled through ICs and LUCs that prevent exposure to site contaminants.

For OU1, the Five-Year Review deferred a statement of protectiveness of human health and the environment, pending implementation of the remedies for OU1 Central Groundwater Plume and OU1 Site 16. For the remedy to be protective in the long term, LUCs must be established and enforced. The RAs for the OU1 Central Groundwater Plume sites and the Site 16 LUCs are now in place.

For OU2, the Five-Year Review stated that the remedy is protective of human health and the environment in the short term. The current LUCs have been effective in protecting human health and the environment by controlling the exposure pathways that could result in potentially unacceptable risks to landfill waste, soil, and groundwater. Current information indicates that the MNA remedy for groundwater is protective, and the protectiveness will continue to be verified through the LTM results. Current monitoring data indicate that the remedy is functioning as required to achieve groundwater cleanup goals. While exposure pathways to the landfill waste, soil, and groundwater that could result in potentially unacceptable risks are controlled by the Site 10, Hot Spot 2 soil cover, LUCs, and the natural attenuation and LTM of groundwater, the potential for a VI pathway to be complete if a building were constructed on or near the site in the future should be considered based on past and current chlorobenzene concentrations in site groundwater. An ESD was finalized in 2020 that added a VI LUC within OU2 to address the short-term protectiveness assessment.

For OU14, the Five-Year Review stated that the remedy is protective in the short term, as the COC plume has travelled outside the LUC boundaries. The LUC boundaries have been revised to encompass all locations with COC exceedances. The MNA/LTM remedy for groundwater is functioning based on current information, and the protectiveness of the remedy will continue to be verified through LTM of groundwater and management of LUCs.

SECTION 11

Site Management Schedules

This section presents the updated project schedules for Basewide activities, for each of the sites discussed in Section 3, and for sites that will begin study, investigation, or remedial activities in FY 2021. These schedules are adjusted annually in the SMP and periodically throughout the fiscal year as future site activities are further defined, Partnering Team priorities shift, and various administrative issues, including funding, are addressed.

Information concerning Basewide activities and the OUs and sites that will be active during FY 2021 is included in this section. A summary table of enforceable and potentially enforceable milestones is included as **Table 11-1** and is appended to the FFA as Appendix B.

The project schedule for Basewide and site-specific activities is presented in **Table 11-2**. The project schedule includes a detailed listing of activities projected for near-term FY 2021 and long-term milestones, the duration of each activity, the deliverables, and submittal dates. The review and comment periods are generally based on the government/agency review times specified in the FFA for MCAS Cherry Point. All draft primary documents have a 45-day review period, with the exception of this SMP, which has a 30-day review period. A 15-day period is allocated to respond to and reach concurrence on review comments as well as to prepare and submit the final document. However, the Cherry Point Partnering Team has the ability to adjust review periods based on team consensus, which may be reflected in **Table 11-1**.

11.1 Multi-site and Basewide Activities for FY 2021

11.1.1 Preparation of the Site Management Plan Update for FY 2022

The SMP will be updated for MCAS Cherry Point for FY 2022 through FY 2026. The SMP will meet the requirements of CERCLA as set forth in the FFA. The SMP will be used as a management tool by the MCAS Cherry Point Partnering Team and their respective organizations (NAVFAC Mid-Atlantic, MCAS Cherry Point, USEPA, and NCDEQ) in the planning and scheduling of environmental remedial response activities to be conducted at MCAS Cherry Point. The SMP is a working document that is updated yearly to maintain current documentation and a summary of environmental actions at the base.

Table 11-1. Enforceable/Potentially Enforceable Milestones for FY 2021 through FY 2023

FY 2021 Site Management Plan

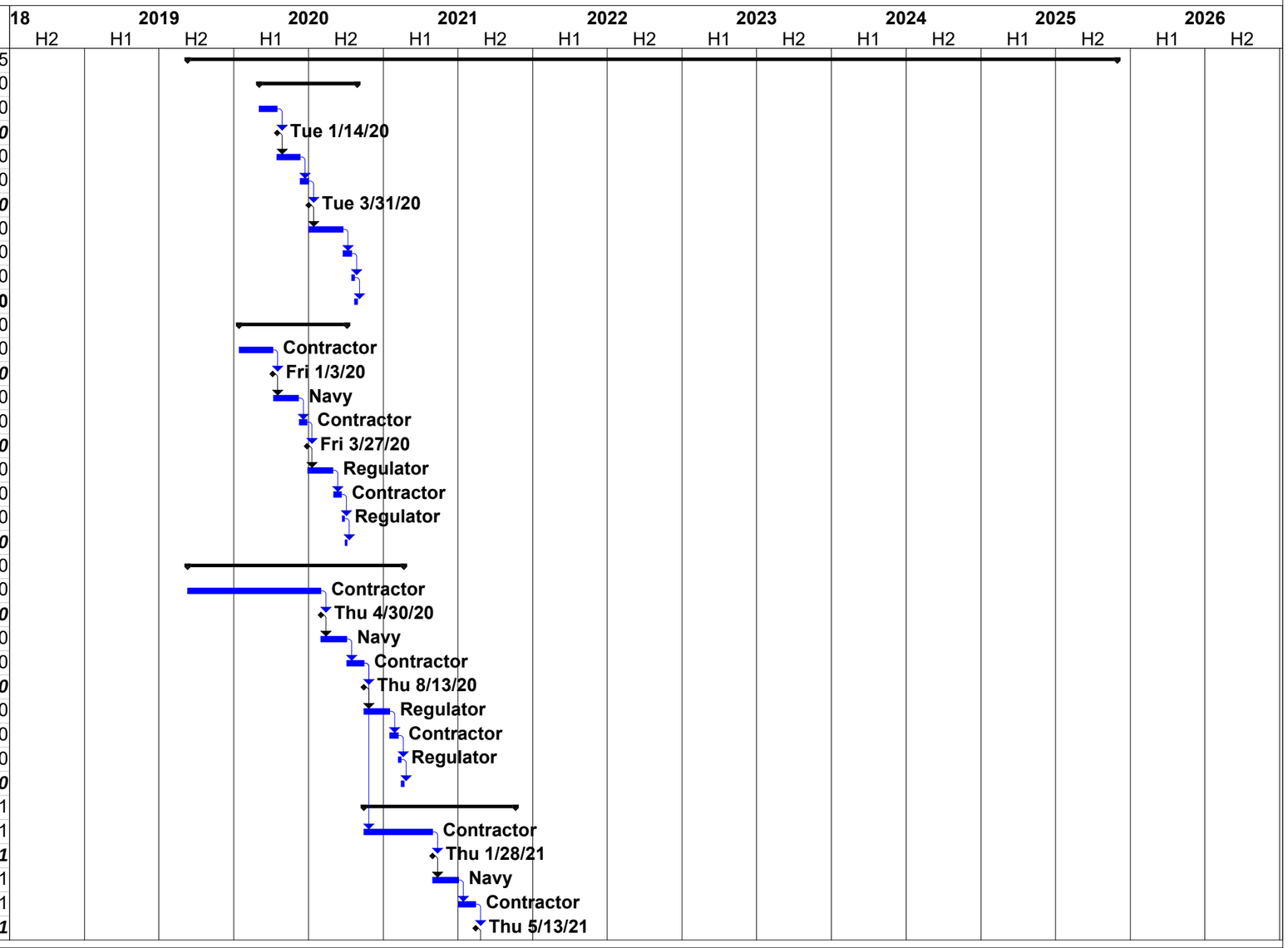
MCAS Cherry Point, North Carolina

Operable Unit or Site	Scheduled Submittal Date	FY21	FY22	FY23
MCAS Cherry Point - Basewide	11/19/2020	Final PFAS PA		
	5/13/2021	Draft PFAS SI WP		
	8/19/2021	Final PFAS SI WP		
	8/25/2022		Draft PFAS SI Report	
	12/1/2022			Final PFAS SI Report
	6/15/2021	Draft FY2022 SMP		
	8/31/2021	Final FY2022 SMP		
	6/15/2022		Draft FY2023 SMP	
	8/31/2022		Final FY2023 SMP	
	6/15/2023			Draft FY2024 SMP
	8/31/2023			Final FY2024 SMP
	8/2/2022		Draft Five-Year Review	
	3/17/2023			Final Five-Year Review
OU1	7/6/2022		Draft BLDG 137 PS Report	
	12/14/2022			Final BLDG 137 PS Report
	10/27/2020	Final BLDG 423 Pipeline SAP		
	6/29/2021	Draft BLDG 423 Pipeline TM		
	9/29/2021	Final BLDG 423 Pipeline TM		
	10/14/2020	Final CGWP ISEB and ZVI CCR		
	4/29/2021	Draft CGWP IRACR		
	8/5/2021	Final CGWP IRACR		
	11/20/2020	Draft CGWP PM Report		
	2/26/2021	Final CGWP PM Report		
	12/15/2021		Draft CGWP GW LTM Report - 2021	
	3/23/2022		Final CGWP GW LTM Report - 2021	
OU2	12/25/2020	Final GW LTM Report - 2020		
	9/17/2021	Draft GW LTM Report - 2021		
	12/24/2021		Final GW LTM Report - 2021	
	9/16/2022		Draft GW LTM Report - 2022	
	12/23/2022			Final GW LTM Report - 2022
	9/15/2023			Draft GW LTM Report - 2023
OU4	12/25/2020	Final GW LTM Report - 2020		
	9/17/2021	Draft GW LTM Report - 2021		
	12/24/2021		Final GW LTM Report - 2021	
	9/16/2022		Draft GW LTM Report - 2022	
	12/23/2022			Final GW LTM Report - 2022
	9/15/2023			Draft GW LTM Report - 2023
OU14	12/25/2020	Final GW LTM Report - 2020		
	9/17/2021	Draft GW LTM Report - 2021		
	12/24/2021		Final GW LTM Report - 2021	
	9/16/2022		Draft GW LTM Report - 2022	
	12/23/2022			Final GW LTM Report - 2022
	9/15/2023			Draft GW LTM Report - 2023
MCOLF Oak Grove	7/30/2021	Draft PFAS SI Report		
	1/7/2022		Final PFAS SI Report	
MCALF Bogue	11/27/2020	Final PFAS SI WP		
	11/12/2021		Draft PFAS SI Report	
	2/18/2022		Final PFAS SI Report	
MCOLF Atlantic	11/12/2020	Final Expanded PFAS SI WP		
	10/28/2021		Draft PFAS SI Report	
	2/3/2022		Final PFAS SI Report	

Note: FFA site primary documents are in ***Bold*** text.

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

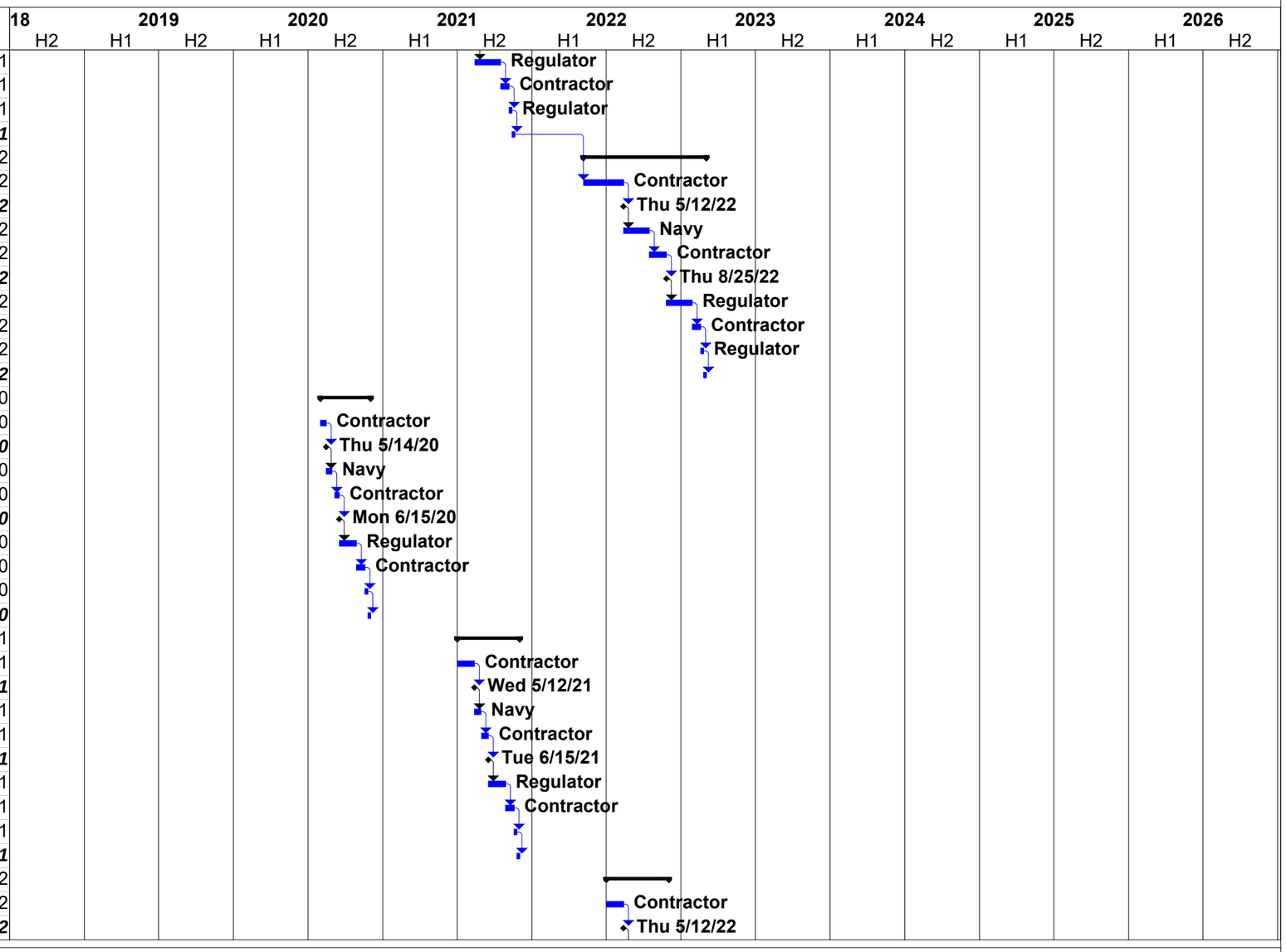
ID	Task Name	Start	Finish
1	**MCAS Cherry Point - Basewide**	Mon 6/10/19	Fri 8/29/25
2	**Community Involvement Plan**	Mon 12/2/19	Tue 7/28/20
3	Pre-Draft CIP	Mon 12/2/19	Tue 1/14/20
4	***Submit Pre-Draft CIP***	***Tue 1/14/20***	***Tue 1/14/20***
5	Review Pre-Draft CIP	Wed 1/15/20	Tue 3/10/20
6	Draft CIP	Wed 3/11/20	Tue 3/31/20
7	***Submit Draft CIP***	***Tue 3/31/20***	***Tue 3/31/20***
8	Review Draft CIP	Wed 4/1/20	Tue 6/23/20
9	RTC Draft CIP	Wed 6/24/20	Tue 7/14/20
10	Approve Final CIP	Wed 7/15/20	Tue 7/21/20
11	**Submit Final CIP**	**Wed 7/22/20**	**Tue 7/28/20**
12	**OU2, 4, 14 GW LTM SAP**	Mon 10/14/19	Fri 7/3/20
13	Pre-Draft SAP	Mon 10/14/19	Fri 1/3/20
14	***Submit Pre-Draft SAP***	***Fri 1/3/20***	***Fri 1/3/20***
15	Review Pre-Draft SAP	Mon 1/6/20	Fri 3/6/20
16	Draft SAP	Mon 3/9/20	Fri 3/27/20
17	***Submit Draft SAP***	***Fri 3/27/20***	***Fri 3/27/20***
18	Review Draft SAP	Mon 3/30/20	Fri 5/29/20
19	RTC Draft SAP	Mon 6/1/20	Fri 6/19/20
20	Approve Final SAP	Mon 6/22/20	Fri 6/26/20
21	***Submit Final SAP***	***Mon 6/29/20***	***Fri 7/3/20***
22	**Main Base PA**	Mon 6/10/19	Thu 11/19/20
23	Pre-Draft PA	Mon 6/10/19	Thu 4/30/20
24	***Submit Pre-Draft PA***	***Thu 4/30/20***	***Thu 4/30/20***
25	Review Pre-Draft PA	Fri 5/1/20	Thu 7/2/20
26	Draft PA	Fri 7/3/20	Thu 8/13/20
27	***Submit Draft PA***	***Thu 8/13/20***	***Thu 8/13/20***
28	Review Draft PA	Fri 8/14/20	Thu 10/15/20
29	RTC Draft PA	Fri 10/16/20	Thu 11/5/20
30	Approve Final PA	Fri 11/6/20	Thu 11/12/20
31	***Submit Final PA***	***Fri 11/13/20***	***Thu 11/19/20***
32	**Main Base SI WP**	Fri 8/14/20	Thu 8/19/21
33	Pre-Draft SI WP	Fri 8/14/20	Thu 1/28/21
34	***Submit Pre-Draft SI WP***	***Thu 1/28/21***	***Thu 1/28/21***
35	Review Pre-Draft SI WP	Fri 1/29/21	Thu 4/1/21
36	Draft SI WP	Fri 4/2/21	Thu 5/13/21
37	***Submit Draft SI WP***	***Thu 5/13/21***	***Thu 5/13/21***



Task | Rolled Up Progress | Inactive Milestone | Manual Summary | Progress
Milestone | Split | Inactive Summary | Start-only | Deadline
Summary | External Tasks | Manual Task | Finish-only
Rolled Up Task | Project Summary | Duration-only | External Tasks
Rolled Up Milestone | Group By Summary | Manual Summary Rollup | External Milestone

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

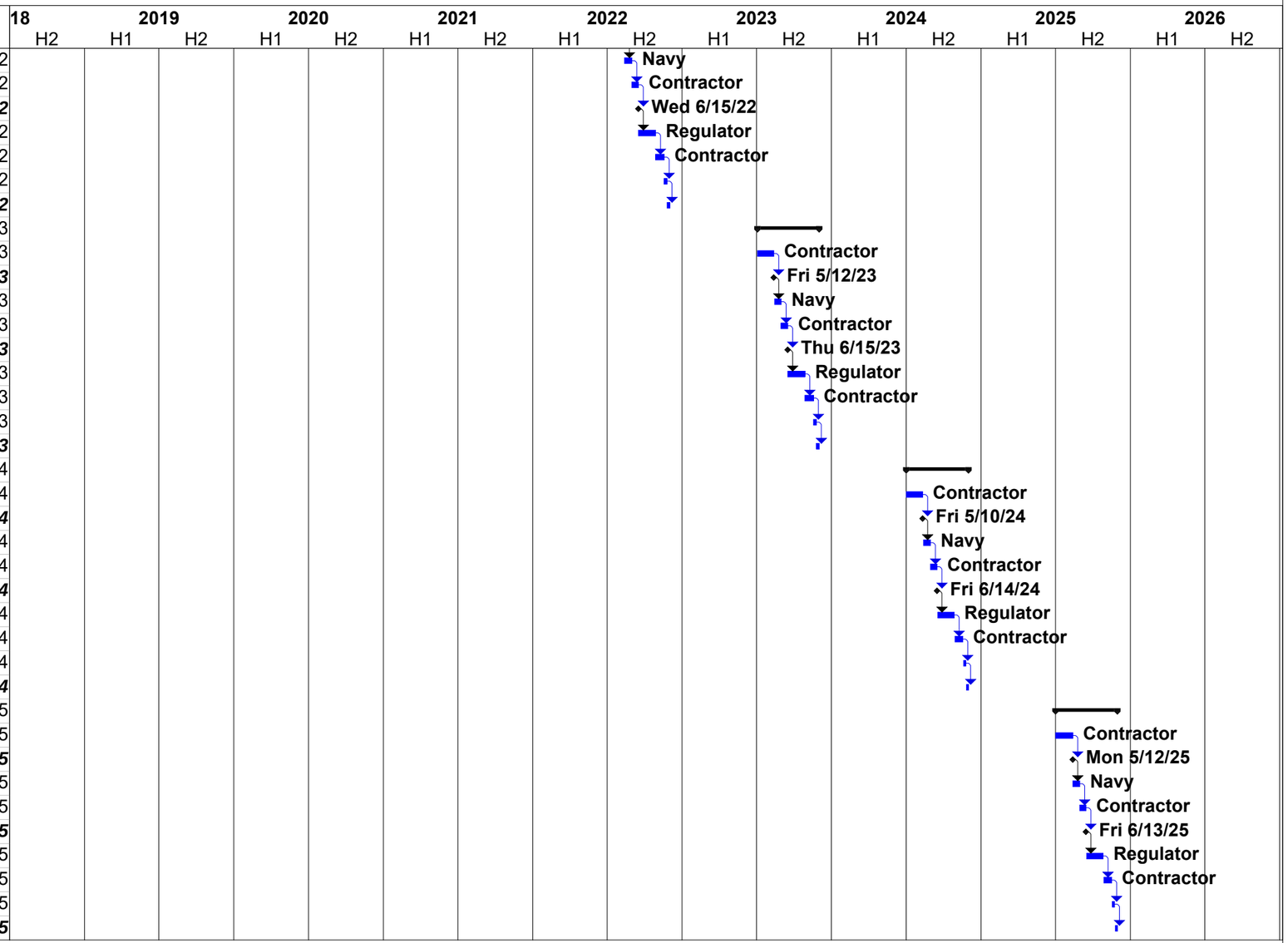
ID	Task Name	Start	Finish
38	Review Draft SI WP	Fri 5/14/21	Thu 7/15/21
39	RTC Draft SI WP	Fri 7/16/21	Thu 8/5/21
40	Approve Final SI WP	Fri 8/6/21	Thu 8/12/21
41	***Submit Final SI WP***	***Fri 8/13/21***	***Thu 8/19/21***
42	**Main Base SI Report**	Fri 2/4/22	Thu 12/1/22
43	Pre-Draft SI	Fri 2/4/22	Thu 5/12/22
44	***Submit Pre-Draft SI***	***Thu 5/12/22***	***Thu 5/12/22***
45	Review Pre-Draft SI	Fri 5/13/22	Thu 7/14/22
46	Draft SI	Fri 7/15/22	Thu 8/25/22
47	***Submit Draft SI***	***Thu 8/25/22***	***Thu 8/25/22***
48	Review Draft SI	Fri 8/26/22	Thu 10/27/22
49	RTC Draft SI	Fri 10/28/22	Thu 11/17/22
50	Approve Final SI	Fri 11/18/22	Thu 11/24/22
51	***Submit Final SI***	***Fri 11/25/22***	***Thu 12/1/22***
52	**SMP Update - FY2021**	Fri 5/1/20	Mon 8/31/20
53	Pre-Draft SMP	Fri 5/1/20	Thu 5/14/20
54	***Submit Pre-Draft SMP***	***Thu 5/14/20***	***Thu 5/14/20***
55	Review Pre-Draft SMP	Fri 5/15/20	Thu 5/28/20
56	Draft SMP	Fri 6/5/20	Mon 6/15/20
57	***Submit Draft SMP***	***Mon 6/15/20***	***Mon 6/15/20***
58	Review Draft SMP	Tue 6/16/20	Mon 7/27/20
59	RTC Draft SMP	Tue 7/28/20	Mon 8/17/20
60	Approve Final SMP	Tue 8/18/20	Mon 8/24/20
61	***Submit Final SMP***	***Tue 8/25/20***	***Mon 8/31/20***
62	**SMP Update - FY2022**	Thu 4/1/21	Tue 8/31/21
63	Pre-Draft SMP	Thu 4/1/21	Wed 5/12/21
64	***Submit Pre-Draft SMP***	***Wed 5/12/21***	***Wed 5/12/21***
65	Review Pre-Draft SMP	Thu 5/13/21	Fri 5/28/21
66	Draft SMP	Mon 5/31/21	Tue 6/15/21
67	***Submit Draft SMP***	***Tue 6/15/21***	***Tue 6/15/21***
68	Review Draft SMP	Wed 6/16/21	Tue 7/27/21
69	RTC Draft SMP	Wed 7/28/21	Tue 8/17/21
70	Approve Final SMP	Wed 8/18/21	Tue 8/24/21
71	***Submit Final SMP***	***Wed 8/25/21***	***Tue 8/31/21***
72	**SMP Update - FY2023**	Fri 4/1/22	Wed 8/31/22
73	Pre-Draft SMP	Fri 4/1/22	Thu 5/12/22
74	***Submit Pre-Draft SMP***	***Thu 5/12/22***	***Thu 5/12/22***



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

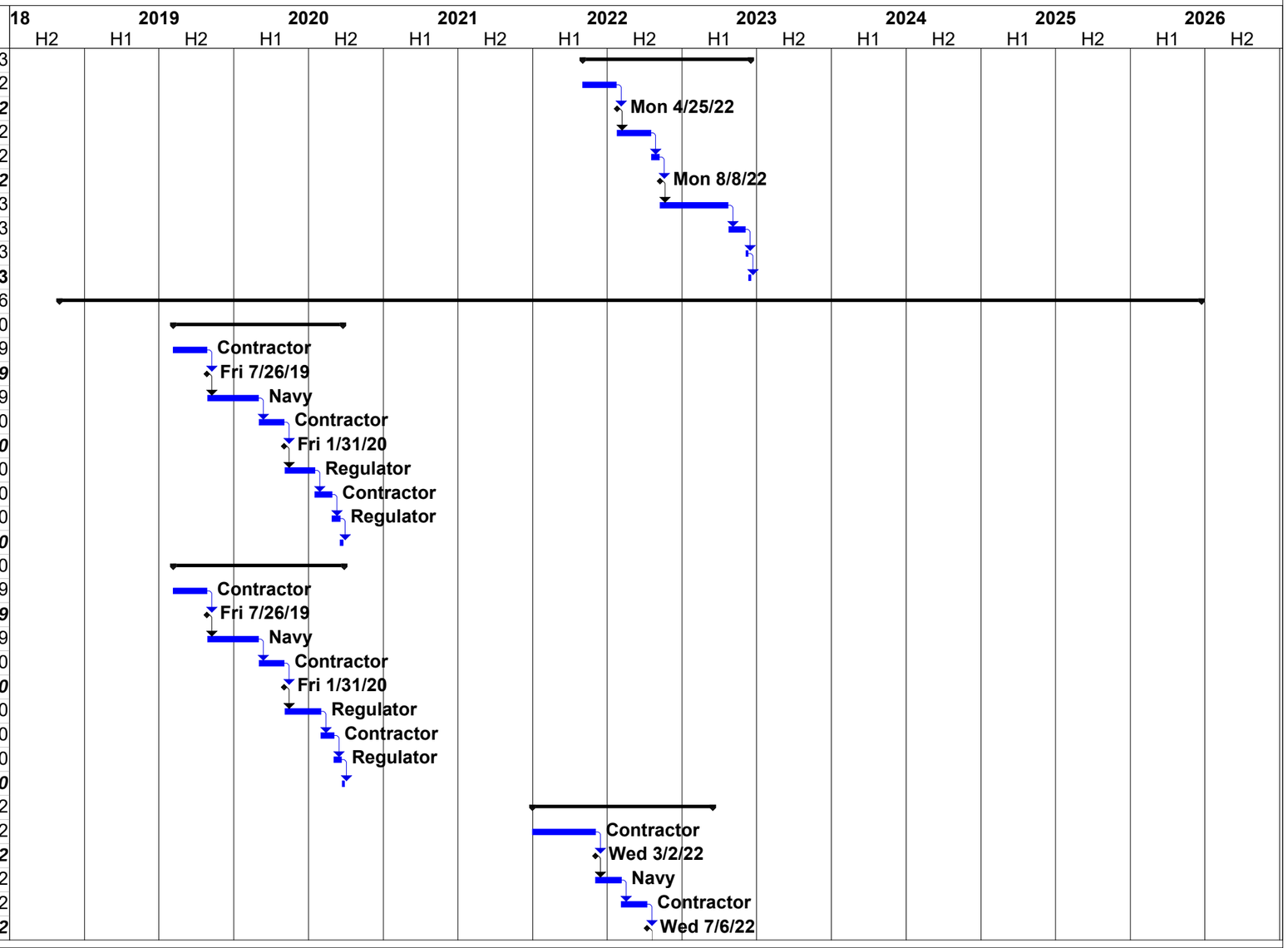
ID	Task Name	Start	Finish
75	Review Pre-Draft SMP	Fri 5/13/22	Mon 5/30/22
76	Draft SMP	Tue 5/31/22	Wed 6/15/22
77	***Submit Draft SMP***	***Wed 6/15/22***	***Wed 6/15/22***
78	Review Draft SMP	Thu 6/16/22	Wed 7/27/22
79	RTC Draft SMP	Thu 7/28/22	Wed 8/17/22
80	Approve Final SMP	Thu 8/18/22	Wed 8/24/22
81	***Submit Final SMP***	***Thu 8/25/22***	***Wed 8/31/22***
82	**SMP Update - FY2024**	Mon 4/3/23	Thu 8/31/23
83	Pre-Draft SMP	Mon 4/3/23	Fri 5/12/23
84	***Submit Pre-Draft SMP***	***Fri 5/12/23***	***Fri 5/12/23***
85	Review Pre-Draft SMP	Mon 5/15/23	Tue 5/30/23
86	Draft SMP	Wed 5/31/23	Thu 6/15/23
87	***Submit Draft SMP***	***Thu 6/15/23***	***Thu 6/15/23***
88	Review Draft SMP	Fri 6/16/23	Thu 7/27/23
89	RTC Draft SMP	Fri 7/28/23	Thu 8/17/23
90	Approve Final SMP	Fri 8/18/23	Thu 8/24/23
91	***Submit Final SMP***	***Fri 8/25/23***	***Thu 8/31/23***
92	**SMP Update - FY2025**	Mon 4/1/24	Fri 8/30/24
93	Pre-Draft SMP	Mon 4/1/24	Fri 5/10/24
94	***Submit Pre-Draft SMP***	***Fri 5/10/24***	***Fri 5/10/24***
95	Review Pre-Draft SMP	Mon 5/13/24	Wed 5/29/24
96	Draft SMP	Thu 5/30/24	Fri 6/14/24
97	***Submit Draft SMP***	***Fri 6/14/24***	***Fri 6/14/24***
98	Review Draft SMP	Mon 6/17/24	Fri 7/26/24
99	RTC Draft SMP	Mon 7/29/24	Fri 8/16/24
100	Approve Final SMP	Mon 8/19/24	Fri 8/23/24
101	***Submit Final SMP***	***Mon 8/26/24***	***Fri 8/30/24***
102	**SMP Update - FY2026**	Tue 4/1/25	Fri 8/29/25
103	Pre-Draft SMP	Tue 4/1/25	Mon 5/12/25
104	***Submit Pre-Draft SMP***	***Mon 5/12/25***	***Mon 5/12/25***
105	Review Pre-Draft SMP	Tue 5/13/25	Thu 5/29/25
106	Draft SMP	Fri 5/30/25	Fri 6/13/25
107	***Submit Draft SMP***	***Fri 6/13/25***	***Fri 6/13/25***
108	Review Draft SMP	Mon 6/16/25	Fri 7/25/25
109	RTC Draft SMP	Mon 7/28/25	Fri 8/15/25
110	Approve Final SMP	Mon 8/18/25	Fri 8/22/25
111	***Submit Final SMP***	***Mon 8/25/25***	***Fri 8/29/25***



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

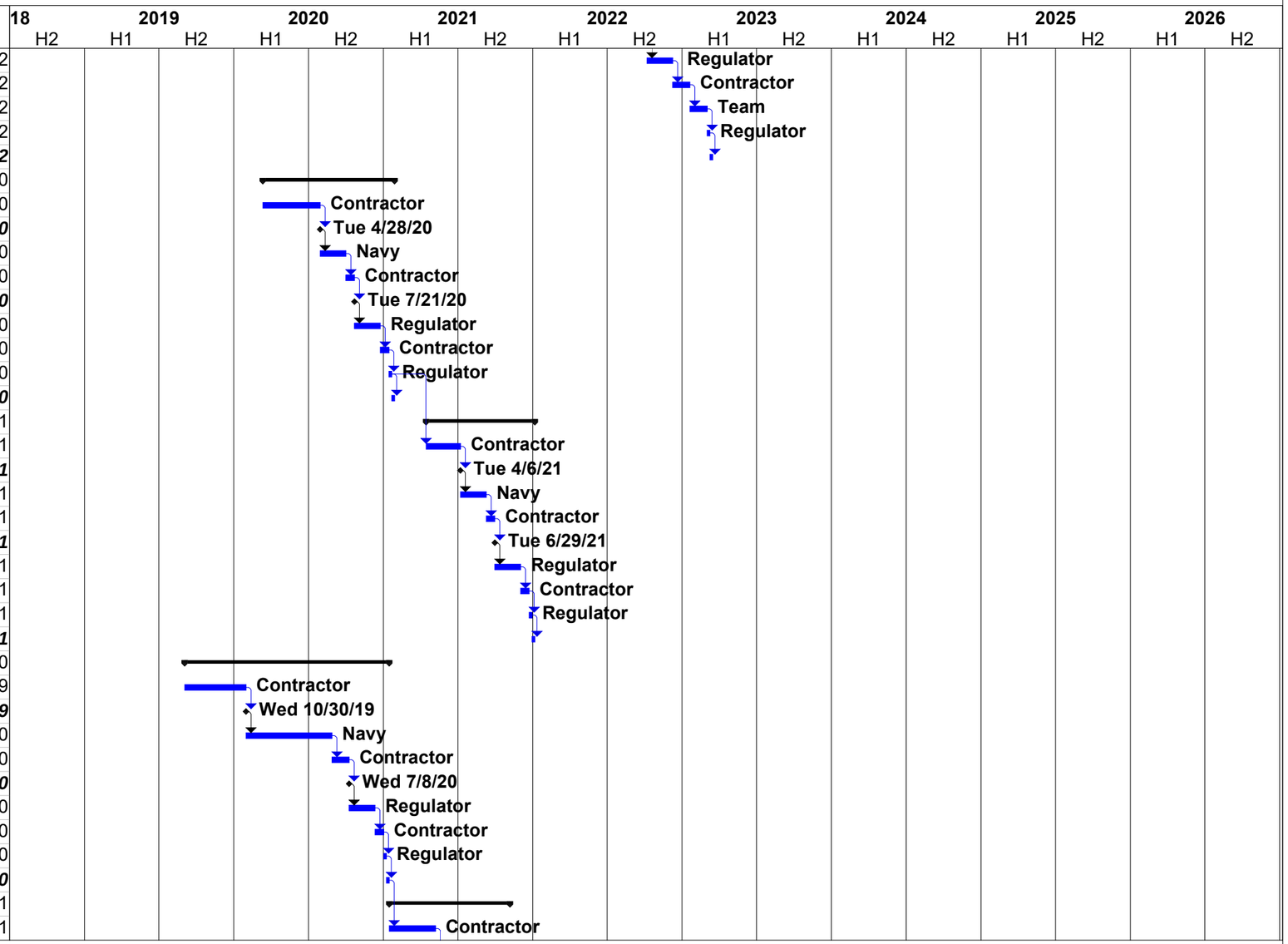
ID	Task Name	Start	Finish
112	**Five Year Review - 2022**	Mon 1/31/22	Fri 3/17/23
113	Pre-Draft FYR	Mon 1/31/22	Fri 4/22/22
114	***Submit Pre-Draft FYR***	***Mon 4/25/22***	***Mon 4/25/22***
115	Review Pre-Draft FYR	Mon 4/25/22	Fri 7/15/22
116	Draft FYR	Mon 7/18/22	Fri 8/5/22
117	***Submit Draft FYR***	***Mon 8/8/22***	***Mon 8/8/22***
118	Review Draft FYR	Mon 8/8/22	Fri 1/20/23
119	RTC Draft FYR	Mon 1/23/23	Fri 3/3/23
120	Approve Final FYR	Mon 3/6/23	Fri 3/10/23
121	**Submit Final FYR**	**Mon 3/13/23**	**Fri 3/17/23**
122	**Operable Unit 1**	Wed 8/1/18	Mon 3/23/26
123	**Building 137 VI SAP**	Mon 5/6/19	Tue 6/23/20
124	Pre-Draft SAP	Mon 5/6/19	Fri 7/26/19
125	***Submit Pre-Draft SAP***	***Fri 7/26/19***	***Fri 7/26/19***
126	Review Pre-Draft SAP	Mon 7/29/19	Fri 11/29/19
127	Draft SAP	Mon 12/2/19	Fri 1/31/20
128	***Submit Draft SAP***	***Fri 1/31/20***	***Fri 1/31/20***
129	Review Draft SAP	Mon 2/3/20	Wed 4/15/20
130	RTC Draft SAP	Thu 4/16/20	Wed 5/27/20
131	Approve Final SAP	Thu 5/28/20	Tue 6/16/20
132	***Submit Final SAP***	***Wed 6/17/20***	***Tue 6/23/20***
133	**Building 137 PS Implementation Plan**	Mon 5/6/19	Fri 6/26/20
134	Pre-Draft Implementation Plan	Mon 5/6/19	Fri 7/26/19
135	***Submit Pre-Draft Implementation Plan***	***Fri 7/26/19***	***Fri 7/26/19***
136	Review Pre-Draft Implementation Plan	Mon 7/29/19	Fri 11/29/19
137	Draft Implementation Plan	Mon 12/2/19	Fri 1/31/20
138	***Submit Draft Implementation Plan***	***Fri 1/31/20***	***Fri 1/31/20***
139	Review Draft Implementation Plan	Mon 2/3/20	Thu 4/30/20
140	RTC Draft Implementation Plan	Fri 5/1/20	Mon 6/1/20
141	Approve Final Implementation Plan	Tue 6/2/20	Fri 6/19/20
142	***Submit Final Implementation Plan***	***Mon 6/22/20***	***Fri 6/26/20***
143	**Building 137 VI PS Summary Report**	Thu 9/30/21	Wed 12/14/22
144	Pre-Draft Report	Thu 9/30/21	Wed 3/2/22
145	***Submit Pre-Draft Report***	***Wed 3/2/22***	***Wed 3/2/22***
146	Review Pre-Draft Report	Thu 3/3/22	Wed 5/4/22
147	Draft Report	Thu 5/5/22	Wed 7/6/22
148	***Submit Draft Report***	***Wed 7/6/22***	***Wed 7/6/22***



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

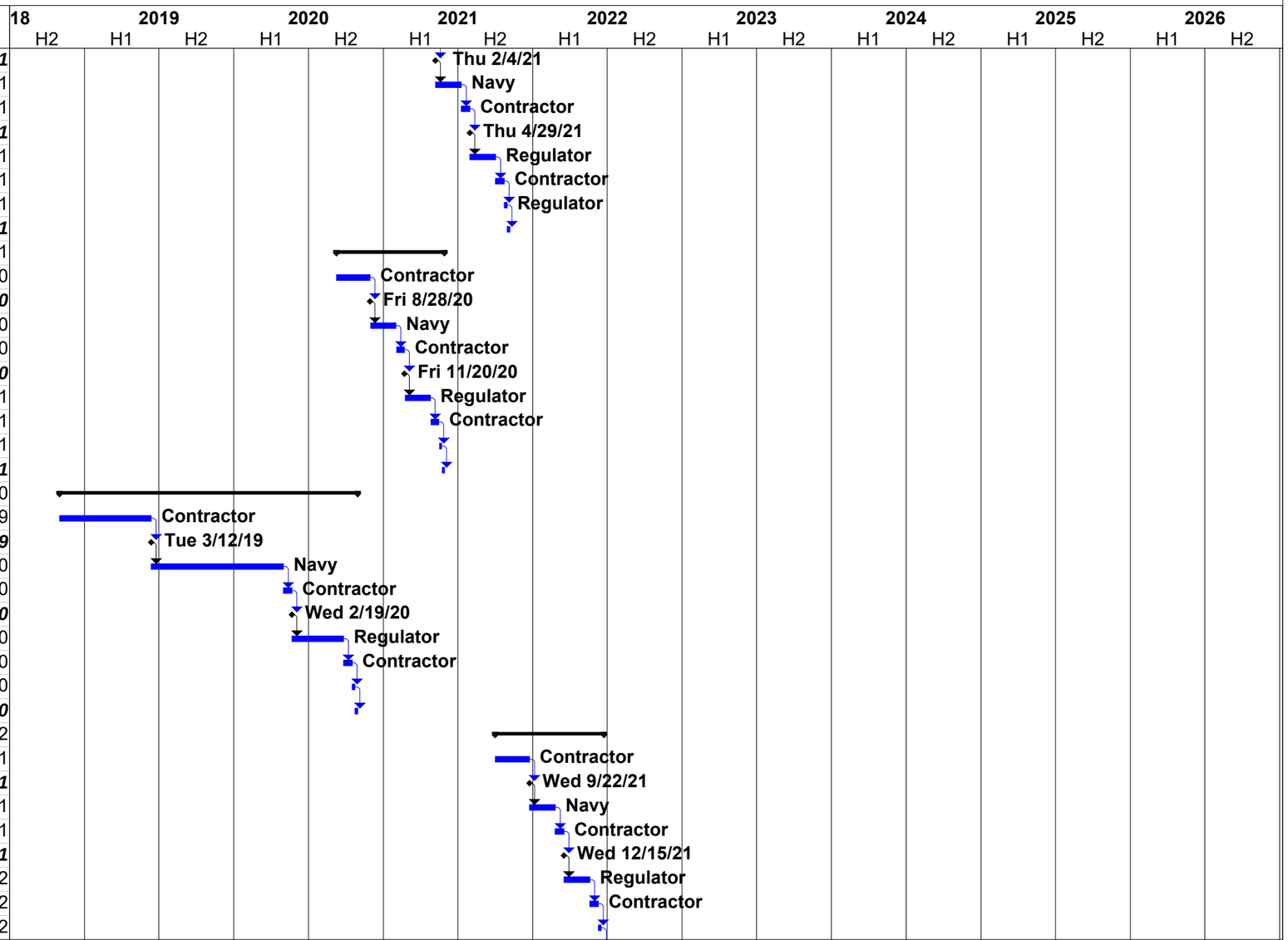
ID	Task Name	Start	Finish
149	Review Draft Report	Thu 7/7/22	Wed 9/7/22
150	RTC Draft Report	Thu 9/8/22	Wed 10/19/22
151	CMT Resolution Draft Report	Thu 10/20/22	Wed 11/30/22
152	Approve Final Report	Thu 12/1/22	Wed 12/7/22
153	***Submit Final Report***	***Thu 12/8/22***	***Wed 12/14/22***
154	**BLDG 423 Pipeline SAP**	Wed 12/11/19	Tue 10/27/20
155	Pre-Draft SAP	Wed 12/11/19	Tue 4/28/20
156	***Submit Pre-Draft SAP***	***Tue 4/28/20***	***Tue 4/28/20***
157	Review Pre-Draft SAP	Wed 4/29/20	Tue 6/30/20
158	Draft SAP	Wed 7/1/20	Tue 7/21/20
159	***Submit Draft SAP***	***Tue 7/21/20***	***Tue 7/21/20***
160	Review Draft SAP	Wed 7/22/20	Tue 9/22/20
161	RTC Draft SAP	Wed 9/23/20	Tue 10/13/20
162	Approve Final SAP	Wed 10/14/20	Tue 10/20/20
163	***Submit Final SAP***	***Wed 10/21/20***	***Tue 10/27/20***
164	**BLDG 423 Pipeline TM**	Wed 1/13/21	Tue 10/5/21
165	Pre-Draft TM	Wed 1/13/21	Tue 4/6/21
166	***Submit Pre-Draft TM***	***Tue 4/6/21***	***Tue 4/6/21***
167	Review Pre-Draft TM	Wed 4/7/21	Tue 6/8/21
168	Draft TM	Wed 6/9/21	Tue 6/29/21
169	***Submit Draft TM***	***Tue 6/29/21***	***Tue 6/29/21***
170	Review Draft TM	Wed 6/30/21	Tue 8/31/21
171	RTC Draft TM	Wed 9/1/21	Tue 9/21/21
172	Approve Final TM	Wed 9/22/21	Tue 9/28/21
173	***Submit Final TM***	***Wed 9/29/21***	***Tue 10/5/21***
174	**CGWP ISEB and ZVI CCR**	Mon 6/3/19	Wed 10/14/20
175	Pre-Draft CCR	Mon 6/3/19	Wed 10/30/19
176	***Submit Pre-Draft CCR***	***Wed 10/30/19***	***Wed 10/30/19***
177	Review Pre-Draft CCR	Thu 10/31/19	Wed 5/27/20
178	Draft CCR	Thu 5/28/20	Wed 7/8/20
179	***Submit Draft CCR***	***Wed 7/8/20***	***Wed 7/8/20***
180	Review Draft CCR	Thu 7/9/20	Wed 9/9/20
181	RTC Draft CCR	Thu 9/10/20	Wed 9/30/20
182	Approve Final CCR	Thu 10/1/20	Wed 10/7/20
183	***Submit Final CCR***	***Thu 10/8/20***	***Wed 10/14/20***
184	**CGWP IRACR**	Thu 10/15/20	Thu 8/5/21
185	Pre-Draft IRACR	Thu 10/15/20	Thu 2/4/21



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

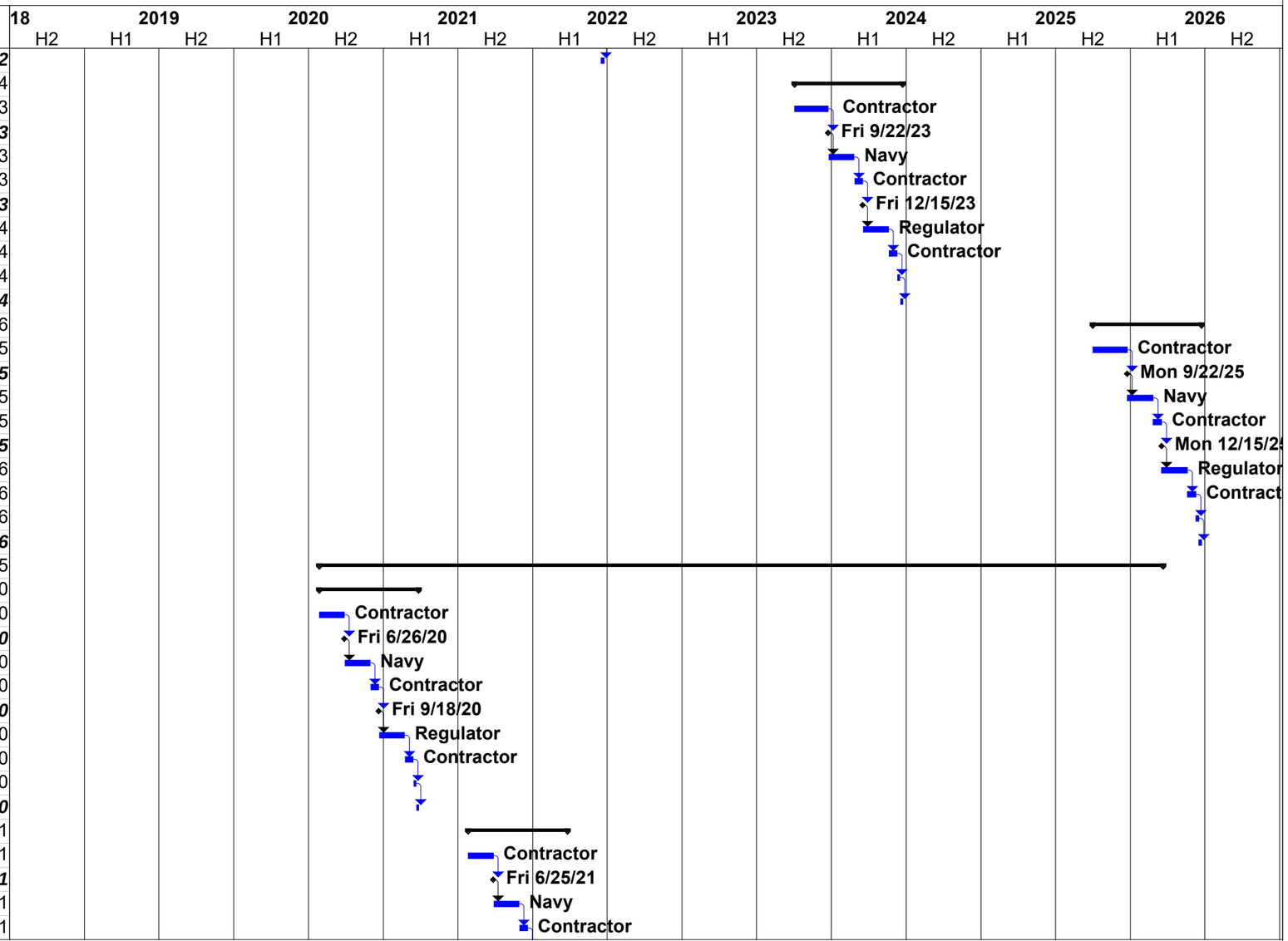
ID	Task Name	Start	Finish
186	***Submit Pre-Draft IRACR***	***Thu 2/4/21***	***Thu 2/4/21***
187	Review Pre-Draft IRACR	Fri 2/5/21	Thu 4/8/21
188	Draft IRACR	Fri 4/9/21	Thu 4/29/21
189	***Submit Draft IRACR***	***Thu 4/29/21***	***Thu 4/29/21***
190	Review Draft IRACR	Fri 4/30/21	Thu 7/1/21
191	RTC Draft IRACR	Fri 7/2/21	Thu 7/22/21
192	Approve Final IRACR	Fri 7/23/21	Thu 7/29/21
193	***Submit Final IRACR***	***Fri 7/30/21***	***Thu 8/5/21***
194	**CGWP PM Report - 2020**	Mon 6/8/20	Fri 2/26/21
195	Pre-Draft LTM Report	Mon 6/8/20	Fri 8/28/20
196	***Submit Pre-Draft PM Report***	***Fri 8/28/20***	***Fri 8/28/20***
197	Review Pre-Draft PM Report	Mon 8/31/20	Fri 10/30/20
198	Draft PM Report	Mon 11/2/20	Fri 11/20/20
199	***Submit Draft PM Report***	***Fri 11/20/20***	***Fri 11/20/20***
200	Review Draft PM Report	Mon 11/23/20	Fri 1/22/21
201	RTC Draft PM Report	Mon 1/25/21	Fri 2/12/21
202	Approve Final PM Report	Mon 2/15/21	Fri 2/19/21
203	***Submit Final PM Report***	***Mon 2/22/21***	***Fri 2/26/21***
204	**CGWP GW LTM Report - 2018**	Wed 8/1/18	Wed 7/29/20
205	Pre-Draft LTM Report	Wed 8/1/18	Tue 3/12/19
206	***Submit Pre-Draft LTM Report***	***Tue 3/12/19***	***Tue 3/12/19***
207	Review Pre-Draft LTM Report	Wed 3/13/19	Wed 1/29/20
208	Draft LTM Report	Thu 1/30/20	Wed 2/19/20
209	***Submit Draft LTM Report***	***Wed 2/19/20***	***Wed 2/19/20***
210	Review Draft LTM Report	Thu 2/20/20	Wed 6/24/20
211	RTC Draft LTM Report	Thu 6/25/20	Wed 7/15/20
212	Approve Final LTM Report	Thu 7/16/20	Wed 7/22/20
213	***Submit Final LTM Report***	***Thu 7/23/20***	***Wed 7/29/20***
214	**CGWP GW LTM Report - 2021**	Thu 7/1/21	Wed 3/23/22
215	Pre-Draft LTM Report	Thu 7/1/21	Wed 9/22/21
216	***Submit Pre-Draft LTM Report***	***Wed 9/22/21***	***Wed 9/22/21***
217	Review Pre-Draft LTM Report	Thu 9/23/21	Wed 11/24/21
218	Draft LTM Report	Thu 11/25/21	Wed 12/15/21
219	***Submit Draft LTM Report***	***Wed 12/15/21***	***Wed 12/15/21***
220	Review Draft LTM Report	Thu 12/16/21	Wed 2/16/22
221	RTC Draft LTM Report	Thu 2/17/22	Wed 3/9/22
222	Approve Final LTM Report	Thu 3/10/22	Wed 3/16/22



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

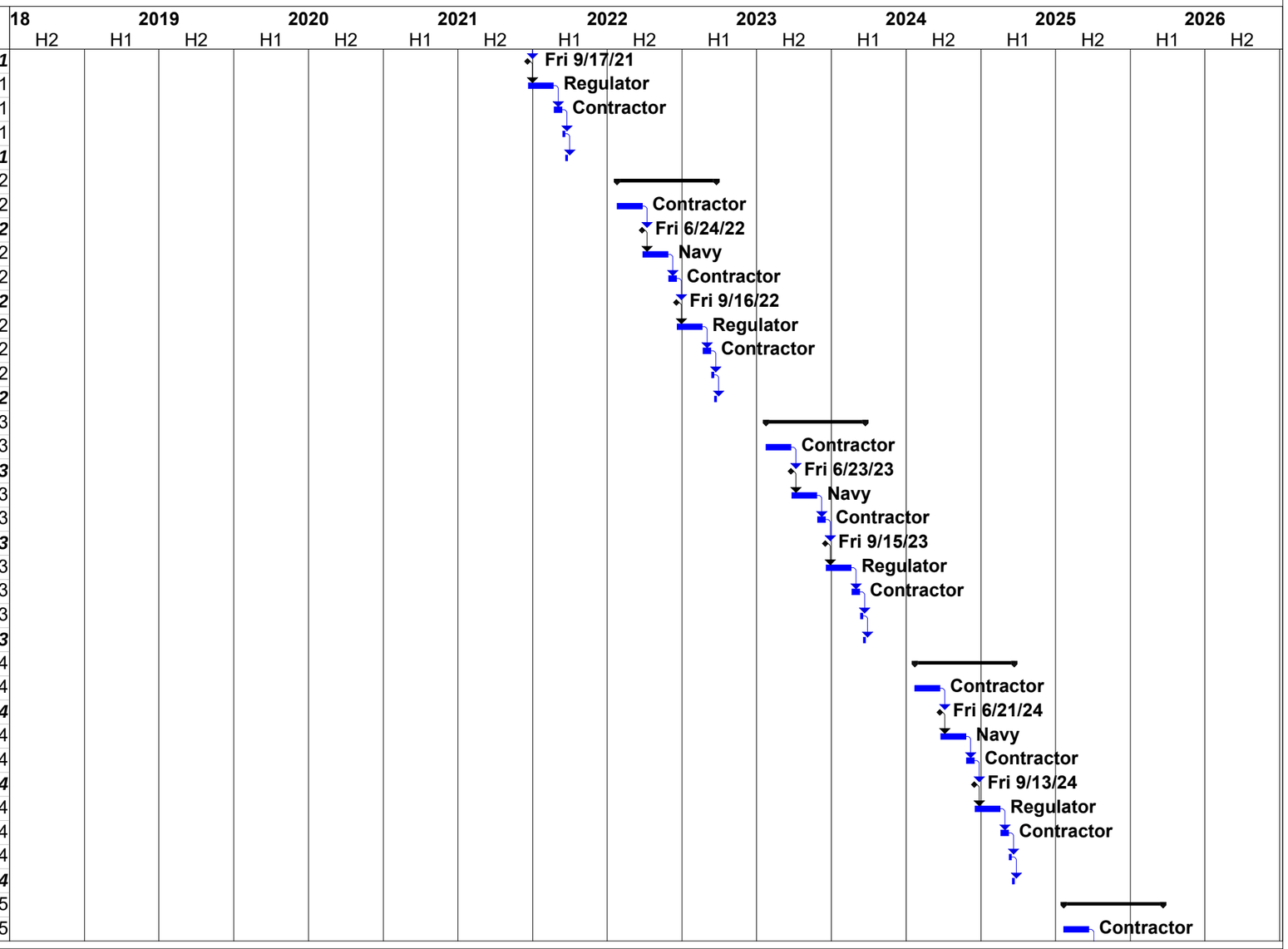
ID	Task Name	Start	Finish
223	***Submit Final LTM Report***	***Thu 3/17/22***	***Wed 3/23/22***
224	**CGWP GW LTM Report - 2023**	Mon 7/3/23	Fri 3/22/24
225	Pre-Draft LTM Report	Mon 7/3/23	Fri 9/22/23
226	***Submit Pre-Draft LTM Report***	***Fri 9/22/23***	***Fri 9/22/23***
227	Review Pre-Draft LTM Report	Mon 9/25/23	Fri 11/24/23
228	Draft LTM Report	Mon 11/27/23	Fri 12/15/23
229	***Submit Draft LTM Report***	***Fri 12/15/23***	***Fri 12/15/23***
230	Review Draft LTM Report	Mon 12/18/23	Fri 2/16/24
231	RTC Draft LTM Report	Mon 2/19/24	Fri 3/8/24
232	Approve Final LTM Report	Mon 3/11/24	Fri 3/15/24
233	***Submit Final LTM Report***	***Mon 3/18/24***	***Fri 3/22/24***
234	**CGWP GW LTM Report - 2025**	Tue 7/1/25	Mon 3/23/26
235	Pre-Draft LTM Report	Tue 7/1/25	Mon 9/22/25
236	***Submit Pre-Draft LTM Report***	***Mon 9/22/25***	***Mon 9/22/25***
237	Review Pre-Draft LTM Report	Tue 9/23/25	Mon 11/24/25
238	Draft LTM Report	Tue 11/25/25	Mon 12/15/25
239	***Submit Draft LTM Report***	***Mon 12/15/25***	***Mon 12/15/25***
240	Review Draft LTM Report	Tue 12/16/25	Mon 2/16/26
241	RTC Draft LTM Report	Tue 2/17/26	Mon 3/9/26
242	Approve Final LTM Report	Tue 3/10/26	Mon 3/16/26
243	***Submit Final LTM Report***	***Tue 3/17/26***	***Mon 3/23/26***
244	**Operable Unit 2**	Mon 4/27/20	Fri 12/19/25
245	**OU2 GW LTM Report - 2020**	Mon 4/27/20	Fri 12/25/20
246	Pre-Draft LTM Report	Mon 4/27/20	Fri 6/26/20
247	***Submit Pre-Draft LTM Report***	***Fri 6/26/20***	***Fri 6/26/20***
248	Review Pre-Draft LTM Report	Mon 6/29/20	Fri 8/28/20
249	Draft LTM Report	Mon 8/31/20	Fri 9/18/20
250	***Submit Draft LTM Report***	***Fri 9/18/20***	***Fri 9/18/20***
251	Review Draft LTM Report	Mon 9/21/20	Fri 11/20/20
252	RTC Draft LTM Report	Mon 11/23/20	Fri 12/11/20
253	Approve Final LTM Report	Mon 12/14/20	Fri 12/18/20
254	***Submit Final LTM Report***	***Mon 12/21/20***	***Fri 12/25/20***
255	**OU2 GW LTM Report - 2021**	Mon 4/26/21	Fri 12/24/21
256	Pre-Draft LTM Report	Mon 4/26/21	Fri 6/25/21
257	***Submit Pre-Draft LTM Report***	***Fri 6/25/21***	***Fri 6/25/21***
258	Review Pre-Draft LTM Report	Mon 6/28/21	Fri 8/27/21
259	Draft LTM Report	Mon 8/30/21	Fri 9/17/21



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

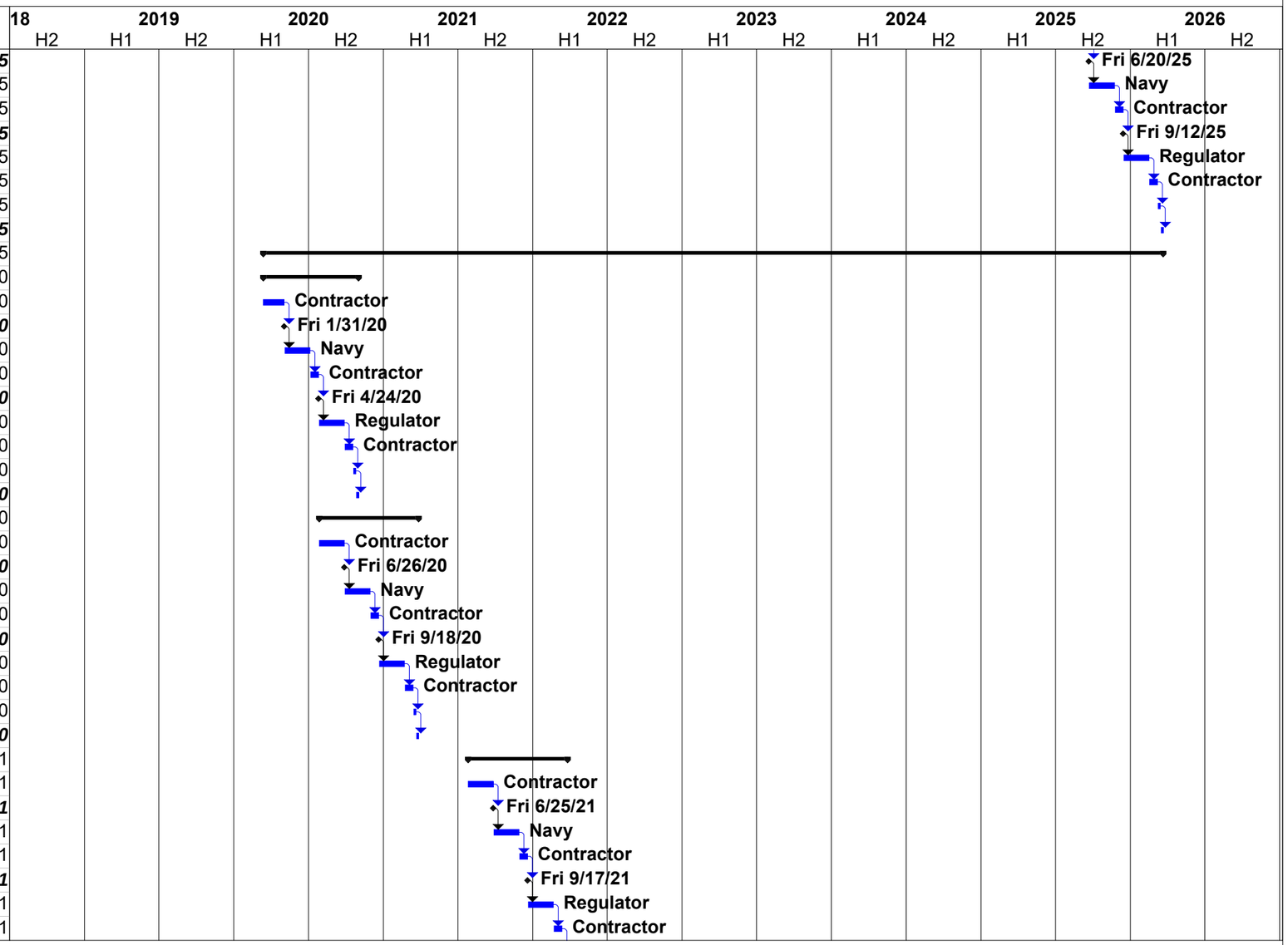
ID	Task Name	Start	Finish
260	***Submit Draft LTM Report***	***Fri 9/17/21***	***Fri 9/17/21***
261	Review Draft LTM Report	Mon 9/20/21	Fri 11/19/21
262	RTC Draft LTM Report	Mon 11/22/21	Fri 12/10/21
263	Approve Final LTM Report	Mon 12/13/21	Fri 12/17/21
264	***Submit Final LTM Report***	***Mon 12/20/21***	***Fri 12/24/21***
265	**OU2 GW LTM Report - 2022**	Mon 4/25/22	Fri 12/23/22
266	Pre-Draft LTM Report	Mon 4/25/22	Fri 6/24/22
267	***Submit Pre-Draft LTM Report***	***Fri 6/24/22***	***Fri 6/24/22***
268	Review Pre-Draft LTM Report	Mon 6/27/22	Fri 8/26/22
269	Draft LTM Report	Mon 8/29/22	Fri 9/16/22
270	***Submit Draft LTM Report***	***Fri 9/16/22***	***Fri 9/16/22***
271	Review Draft LTM Report	Mon 9/19/22	Fri 11/18/22
272	RTC Draft LTM Report	Mon 11/21/22	Fri 12/9/22
273	Approve Final LTM Report	Mon 12/12/22	Fri 12/16/22
274	***Submit Final LTM Report***	***Mon 12/19/22***	***Fri 12/23/22***
275	**OU2 GW LTM Report - 2023**	Mon 4/24/23	Fri 12/22/23
276	Pre-Draft LTM Report	Mon 4/24/23	Fri 6/23/23
277	***Submit Pre-Draft LTM Report***	***Fri 6/23/23***	***Fri 6/23/23***
278	Review Pre-Draft LTM Report	Mon 6/26/23	Fri 8/25/23
279	Draft LTM Report	Mon 8/28/23	Fri 9/15/23
280	***Submit Draft LTM Report***	***Fri 9/15/23***	***Fri 9/15/23***
281	Review Draft LTM Report	Mon 9/18/23	Fri 11/17/23
282	RTC Draft LTM Report	Mon 11/20/23	Fri 12/8/23
283	Approve Final LTM Report	Mon 12/11/23	Fri 12/15/23
284	***Submit Final LTM Report***	***Mon 12/18/23***	***Fri 12/22/23***
285	**OU2 GW LTM Report - 2024**	Mon 4/22/24	Fri 12/20/24
286	Pre-Draft LTM Report	Mon 4/22/24	Fri 6/21/24
287	***Submit Pre-Draft LTM Report***	***Fri 6/21/24***	***Fri 6/21/24***
288	Review Pre-Draft LTM Report	Mon 6/24/24	Fri 8/23/24
289	Draft LTM Report	Mon 8/26/24	Fri 9/13/24
290	***Submit Draft LTM Report***	***Fri 9/13/24***	***Fri 9/13/24***
291	Review Draft LTM Report	Mon 9/16/24	Fri 11/15/24
292	RTC Draft LTM Report	Mon 11/18/24	Fri 12/6/24
293	Approve Final LTM Report	Mon 12/9/24	Fri 12/13/24
294	***Submit Final LTM Report***	***Mon 12/16/24***	***Fri 12/20/24***
295	**OU2 GW LTM Report - 2025**	Mon 4/21/25	Fri 12/19/25
296	Pre-Draft LTM Report	Mon 4/21/25	Fri 6/20/25



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

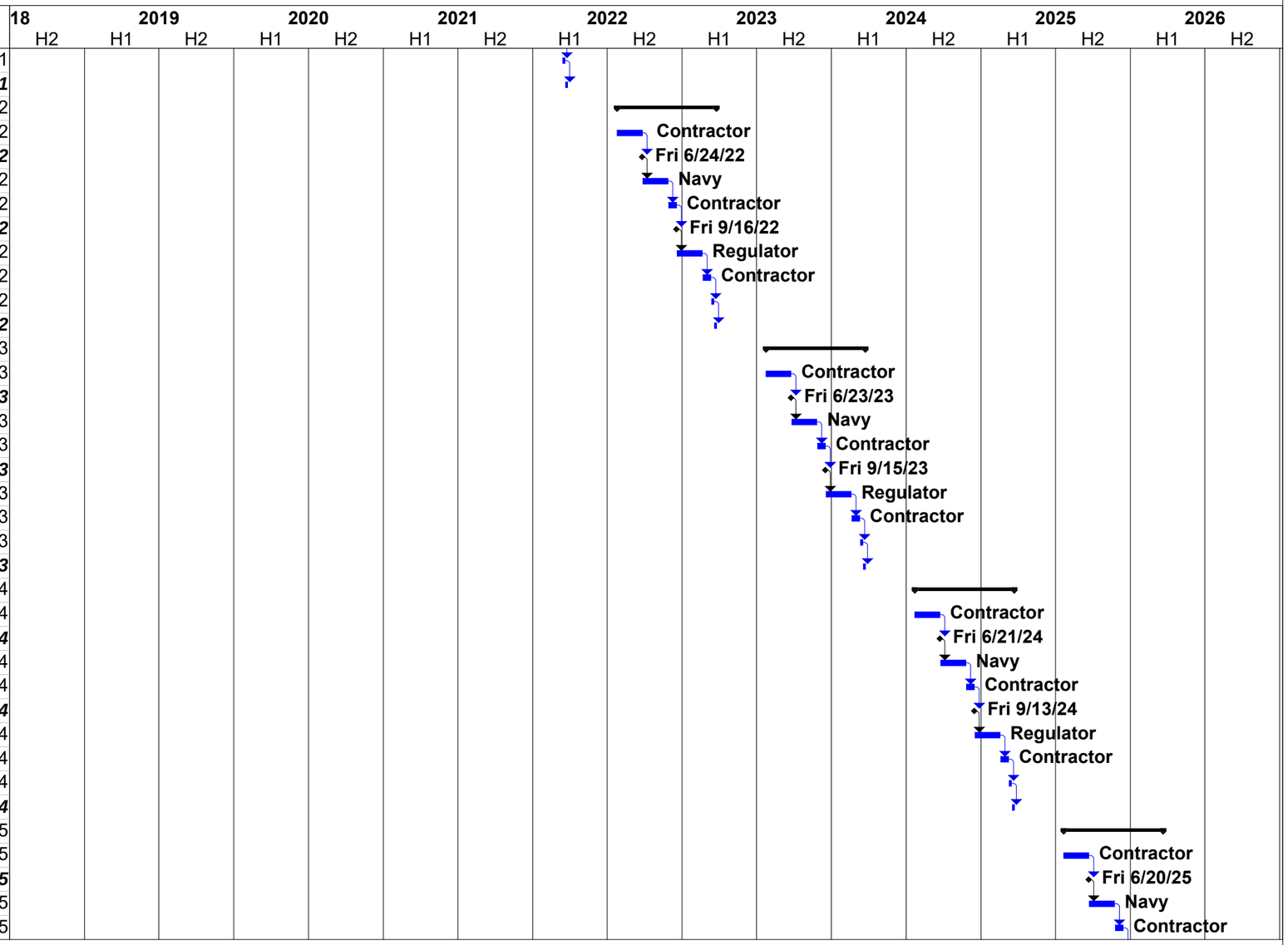
ID	Task Name	Start	Finish
297	***Submit Pre-Draft LTM Report***	***Fri 6/20/25***	***Fri 6/20/25***
298	Review Pre-Draft LTM Report	Mon 6/23/25	Fri 8/22/25
299	Draft LTM Report	Mon 8/25/25	Fri 9/12/25
300	***Submit Draft LTM Report***	***Fri 9/12/25***	***Fri 9/12/25***
301	Review Draft LTM Report	Mon 9/15/25	Fri 11/14/25
302	RTC Draft LTM Report	Mon 11/17/25	Fri 12/5/25
303	Approve Final LTM Report	Mon 12/8/25	Fri 12/12/25
304	***Submit Final LTM Report***	***Mon 12/15/25***	***Fri 12/19/25***
305	**Operable Unit 4**	Thu 12/12/19	Fri 12/19/25
306	**OU4 Remedy Optimization TM**	Thu 12/12/19	Fri 7/31/20
307	Pre-Draft RO TM	Thu 12/12/19	Fri 1/31/20
308	***Submit Pre-Draft RO TM***	***Fri 1/31/20***	***Fri 1/31/20***
309	Review Pre-Draft RO TM	Mon 2/3/20	Fri 4/3/20
310	Draft RO TM	Mon 4/6/20	Fri 4/24/20
311	***Submit Draft RO TM***	***Fri 4/24/20***	***Fri 4/24/20***
312	Review Draft RO TM	Mon 4/27/20	Fri 6/26/20
313	RTC Draft RO TM	Mon 6/29/20	Fri 7/17/20
314	Approve Final RO TM	Mon 7/20/20	Fri 7/24/20
315	***Submit Final RO TM***	***Mon 7/27/20***	***Fri 7/31/20***
316	**OU4 GW LTM Report - 2020**	Mon 4/27/20	Fri 12/25/20
317	Pre-Draft LTM Report	Mon 4/27/20	Fri 6/26/20
318	***Submit Pre-Draft LTM Report***	***Fri 6/26/20***	***Fri 6/26/20***
319	Review Pre-Draft LTM Report	Mon 6/29/20	Fri 8/28/20
320	Draft LTM Report	Mon 8/31/20	Fri 9/18/20
321	***Submit Draft LTM Report***	***Fri 9/18/20***	***Fri 9/18/20***
322	Review Draft LTM Report	Mon 9/21/20	Fri 11/20/20
323	RTC Draft LTM Report	Mon 11/23/20	Fri 12/11/20
324	Approve Final LTM Report	Mon 12/14/20	Fri 12/18/20
325	***Submit Final LTM Report***	***Mon 12/21/20***	***Fri 12/25/20***
326	**OU4 GW LTM Report - 2021**	Mon 4/26/21	Fri 12/24/21
327	Pre-Draft LTM Report	Mon 4/26/21	Fri 6/25/21
328	***Submit Pre-Draft LTM Report***	***Fri 6/25/21***	***Fri 6/25/21***
329	Review Pre-Draft LTM Report	Mon 6/28/21	Fri 8/27/21
330	Draft LTM Report	Mon 8/30/21	Fri 9/17/21
331	***Submit Draft LTM Report***	***Fri 9/17/21***	***Fri 9/17/21***
332	Review Draft LTM Report	Mon 9/20/21	Fri 11/19/21
333	RTC Draft LTM Report	Mon 11/22/21	Fri 12/10/21



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress	
Milestone	Split	Inactive Summary	Start-only	Deadline	
Summary	External Tasks	Manual Task	Finish-only		
Rolled Up Task	Project Summary	Duration-only	External Tasks		
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone		

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

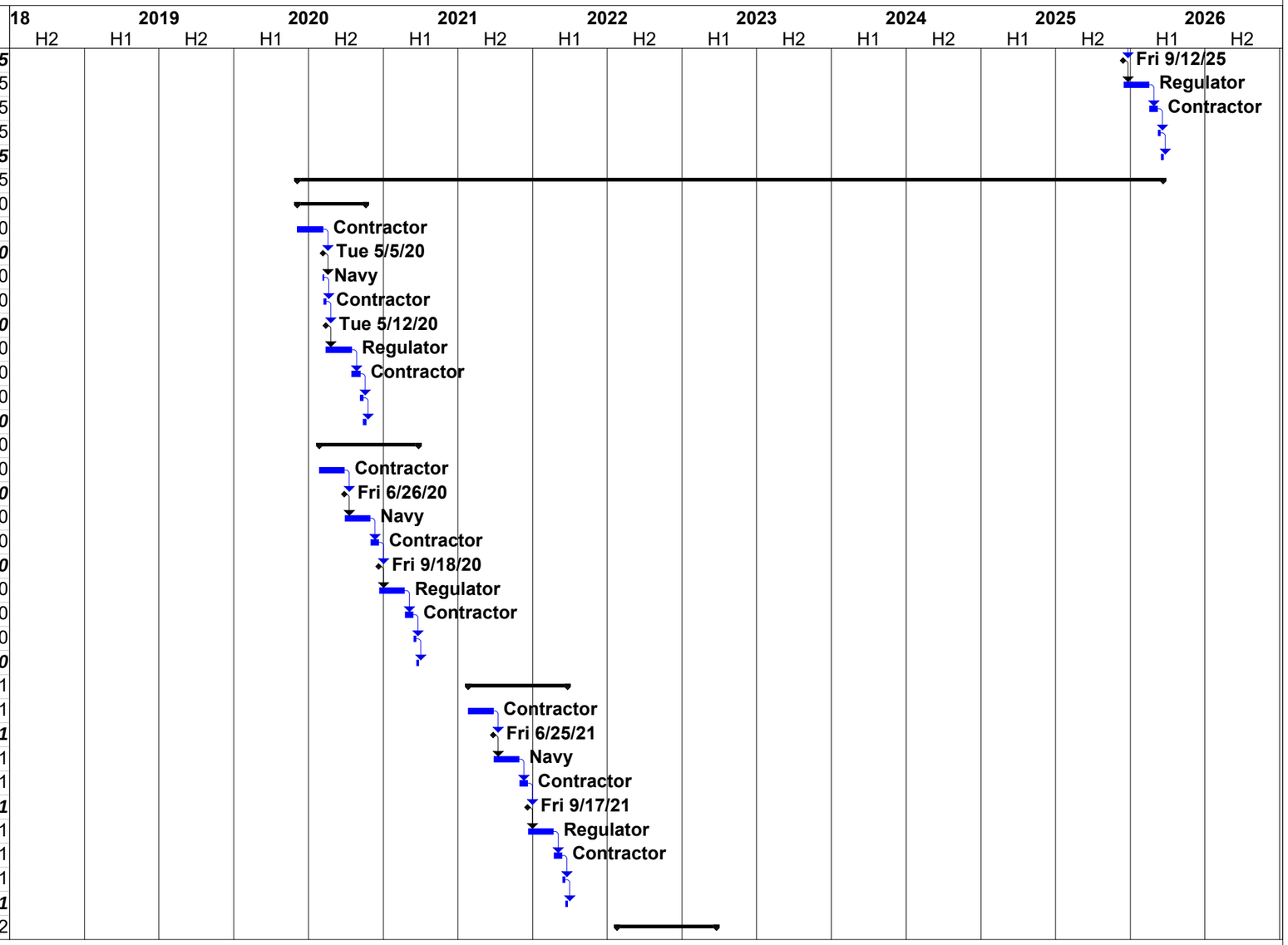
ID	Task Name	Start	Finish
334	Approve Final LTM Report	Mon 12/13/21	Fri 12/17/21
335	***Submit Final LTM Report***	***Mon 12/20/21***	***Fri 12/24/21***
336	**OU4 GW LTM Report - 2022**	Mon 4/25/22	Fri 12/23/22
337	Pre-Draft LTM Report	Mon 4/25/22	Fri 6/24/22
338	***Submit Pre-Draft LTM Report***	***Fri 6/24/22***	***Fri 6/24/22***
339	Review Pre-Draft LTM Report	Mon 6/27/22	Fri 8/26/22
340	Draft LTM Report	Mon 8/29/22	Fri 9/16/22
341	***Submit Draft LTM Report***	***Fri 9/16/22***	***Fri 9/16/22***
342	Review Draft LTM Report	Mon 9/19/22	Fri 11/18/22
343	RTC Draft LTM Report	Mon 11/21/22	Fri 12/9/22
344	Approve Final LTM Report	Mon 12/12/22	Fri 12/16/22
345	***Submit Final LTM Report***	***Mon 12/19/22***	***Fri 12/23/22***
346	**OU4 GW LTM Report - 2023**	Mon 4/24/23	Fri 12/22/23
347	Pre-Draft LTM Report	Mon 4/24/23	Fri 6/23/23
348	***Submit Pre-Draft LTM Report***	***Fri 6/23/23***	***Fri 6/23/23***
349	Review Pre-Draft LTM Report	Mon 6/26/23	Fri 8/25/23
350	Draft LTM Report	Mon 8/28/23	Fri 9/15/23
351	***Submit Draft LTM Report***	***Fri 9/15/23***	***Fri 9/15/23***
352	Review Draft LTM Report	Mon 9/18/23	Fri 11/17/23
353	RTC Draft LTM Report	Mon 11/20/23	Fri 12/8/23
354	Approve Final LTM Report	Mon 12/11/23	Fri 12/15/23
355	***Submit Final LTM Report***	***Mon 12/18/23***	***Fri 12/22/23***
356	**OU4 GW LTM Report - 2024**	Mon 4/22/24	Fri 12/20/24
357	Pre-Draft LTM Report	Mon 4/22/24	Fri 6/21/24
358	***Submit Pre-Draft LTM Report***	***Fri 6/21/24***	***Fri 6/21/24***
359	Review Pre-Draft LTM Report	Mon 6/24/24	Fri 8/23/24
360	Draft LTM Report	Mon 8/26/24	Fri 9/13/24
361	***Submit Draft LTM Report***	***Fri 9/13/24***	***Fri 9/13/24***
362	Review Draft LTM Report	Mon 9/16/24	Fri 11/15/24
363	RTC Draft LTM Report	Mon 11/18/24	Fri 12/6/24
364	Approve Final LTM Report	Mon 12/9/24	Fri 12/13/24
365	***Submit Final LTM Report***	***Mon 12/16/24***	***Fri 12/20/24***
366	**OU4 GW LTM Report - 2025**	Mon 4/21/25	Fri 12/19/25
367	Pre-Draft LTM Report	Mon 4/21/25	Fri 6/20/25
368	***Submit Pre-Draft LTM Report***	***Fri 6/20/25***	***Fri 6/20/25***
369	Review Pre-Draft LTM Report	Mon 6/23/25	Fri 8/22/25
370	Draft LTM Report	Mon 8/25/25	Fri 9/12/25



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress			
Milestone	Split	Inactive Summary	Start-only	Deadline			
Summary	External Tasks	Manual Task	Finish-only				
Rolled Up Task	Project Summary	Duration-only	External Tasks				
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone				

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

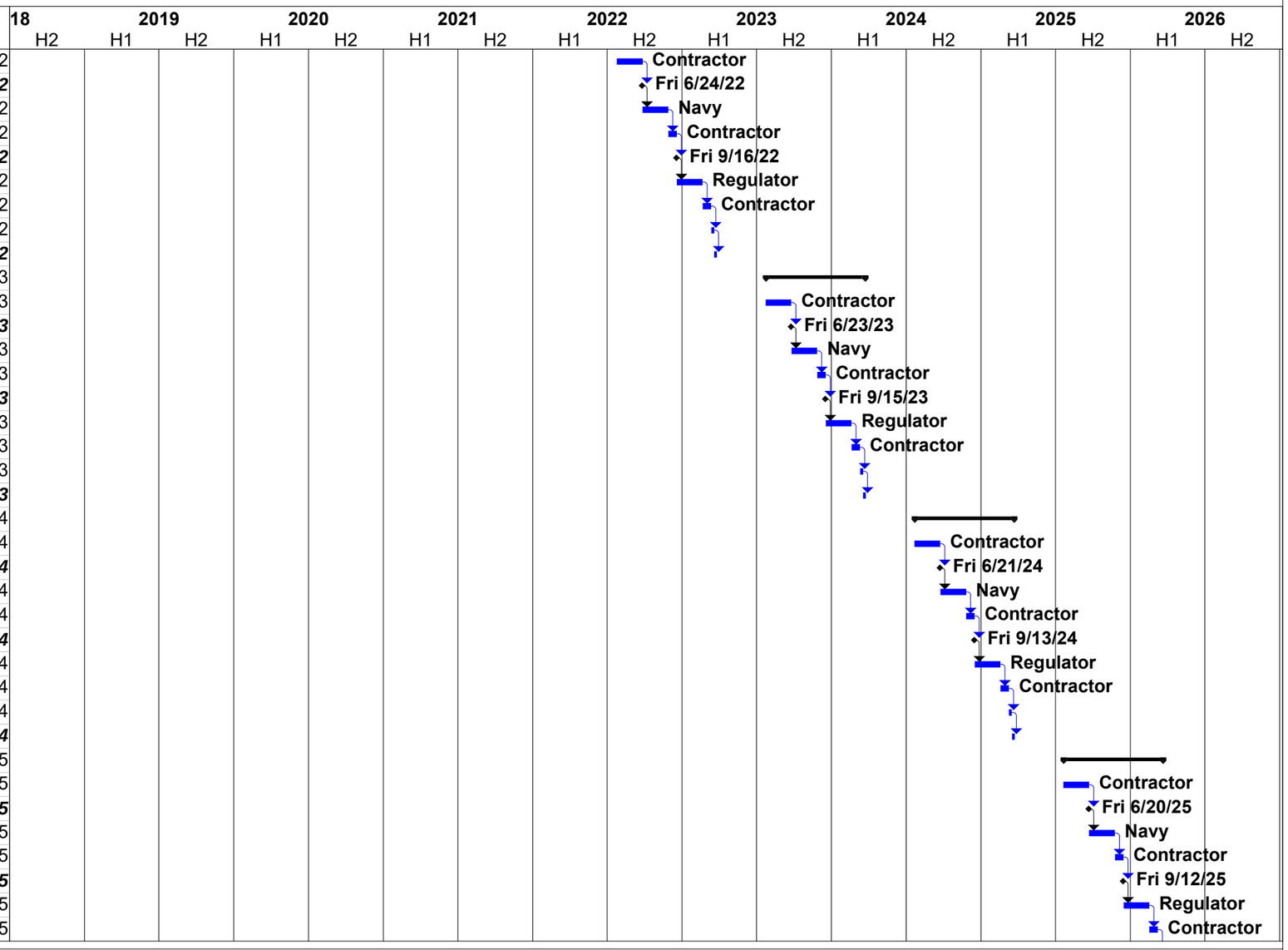
ID	Task Name	Start	Finish
371	***Submit Draft LTM Report***	***Fri 9/12/25***	***Fri 9/12/25***
372	Review Draft LTM Report	Mon 9/15/25	Fri 11/14/25
373	RTC Draft LTM Report	Mon 11/17/25	Fri 12/5/25
374	Approve Final LTM Report	Mon 12/8/25	Fri 12/12/25
375	***Submit Final LTM Report***	***Mon 12/15/25***	***Fri 12/19/25***
376	**Operable Unit 14**	Wed 3/4/20	Fri 12/19/25
377	**OU14 Remedy Optimization TM**	Wed 3/4/20	Tue 8/18/20
378	Pre-Draft RO TM	Wed 3/4/20	Tue 5/5/20
379	***Submit Pre-Draft RO TM***	***Tue 5/5/20***	***Tue 5/5/20***
380	Review Pre-Draft RO TM	Wed 5/6/20	Thu 5/7/20
381	Draft RO TM	Fri 5/8/20	Tue 5/12/20
382	***Submit Draft RO TM***	***Tue 5/12/20***	***Tue 5/12/20***
383	Review Draft RO TM	Wed 5/13/20	Tue 7/14/20
384	RTC Draft RO TM	Wed 7/15/20	Tue 8/4/20
385	Approve Final RO TM	Wed 8/5/20	Tue 8/11/20
386	***Submit Final RO TM***	***Wed 8/12/20***	***Tue 8/18/20***
387	**OU14 GW LTM Report - 2020**	Mon 4/27/20	Fri 12/25/20
388	Pre-Draft LTM Report	Mon 4/27/20	Fri 6/26/20
389	***Submit Pre-Draft LTM Report***	***Fri 6/26/20***	***Fri 6/26/20***
390	Review Pre-Draft LTM Report	Mon 6/29/20	Fri 8/28/20
391	Draft LTM Report	Mon 8/31/20	Fri 9/18/20
392	***Submit Draft LTM Report***	***Fri 9/18/20***	***Fri 9/18/20***
393	Review Draft LTM Report	Mon 9/21/20	Fri 11/20/20
394	RTC Draft LTM Report	Mon 11/23/20	Fri 12/11/20
395	Approve Final LTM Report	Mon 12/14/20	Fri 12/18/20
396	***Submit Final LTM Report***	***Mon 12/21/20***	***Fri 12/25/20***
397	**OU14 GW LTM Report - 2021**	Mon 4/26/21	Fri 12/24/21
398	Pre-Draft LTM Report	Mon 4/26/21	Fri 6/25/21
399	***Submit Pre-Draft LTM Report***	***Fri 6/25/21***	***Fri 6/25/21***
400	Review Pre-Draft LTM Report	Mon 6/28/21	Fri 8/27/21
401	Draft LTM Report	Mon 8/30/21	Fri 9/17/21
402	***Submit Draft LTM Report***	***Fri 9/17/21***	***Fri 9/17/21***
403	Review Draft LTM Report	Mon 9/20/21	Fri 11/19/21
404	RTC Draft LTM Report	Mon 11/22/21	Fri 12/10/21
405	Approve Final LTM Report	Mon 12/13/21	Fri 12/17/21
406	***Submit Final LTM Report***	***Mon 12/20/21***	***Fri 12/24/21***
407	**OU14 GW LTM Report - 2022**	Mon 4/25/22	Fri 12/23/22



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress			
Milestone	Split	Inactive Summary	Start-only	Deadline			
Summary	External Tasks	Manual Task	Finish-only				
Rolled Up Task	Project Summary	Duration-only	External Tasks				
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone				

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

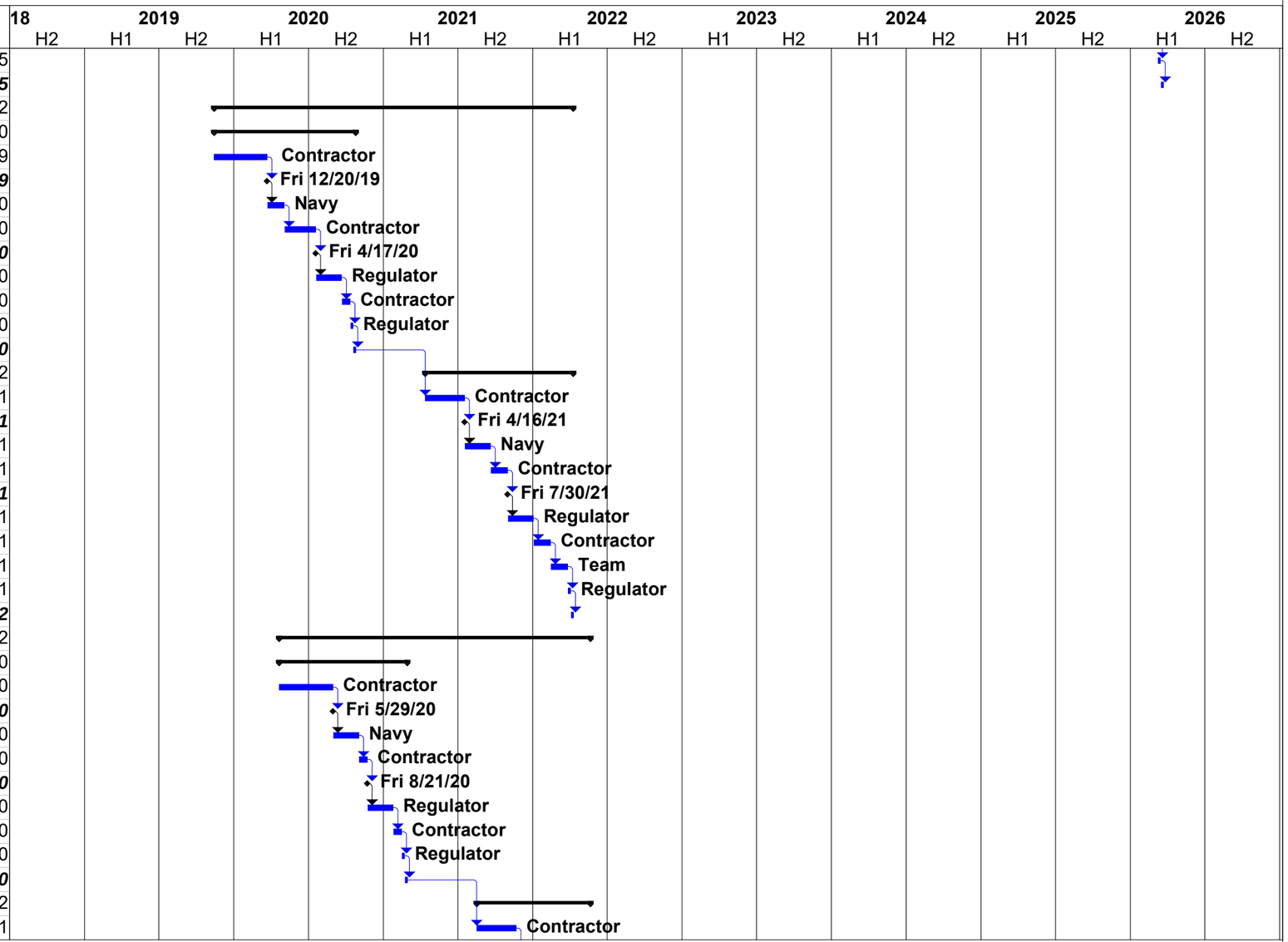
ID	Task Name	Start	Finish
408	Pre-Draft LTM Report	Mon 4/25/22	Fri 6/24/22
409	***Submit Pre-Draft LTM Report***	***Fri 6/24/22***	***Fri 6/24/22***
410	Review Pre-Draft LTM Report	Mon 6/27/22	Fri 8/26/22
411	Draft LTM Report	Mon 8/29/22	Fri 9/16/22
412	***Submit Draft LTM Report***	***Fri 9/16/22***	***Fri 9/16/22***
413	Review Draft LTM Report	Mon 9/19/22	Fri 11/18/22
414	RTC Draft LTM Report	Mon 11/21/22	Fri 12/9/22
415	Approve Final LTM Report	Mon 12/12/22	Fri 12/16/22
416	***Submit Final LTM Report***	***Mon 12/19/22***	***Fri 12/23/22***
417	**OU14 GW LTM Report - 2023**	Mon 4/24/23	Fri 12/22/23
418	Pre-Draft LTM Report	Mon 4/24/23	Fri 6/23/23
419	***Submit Pre-Draft LTM Report***	***Fri 6/23/23***	***Fri 6/23/23***
420	Review Pre-Draft LTM Report	Mon 6/26/23	Fri 8/25/23
421	Draft LTM Report	Mon 8/28/23	Fri 9/15/23
422	***Submit Draft LTM Report***	***Fri 9/15/23***	***Fri 9/15/23***
423	Review Draft LTM Report	Mon 9/18/23	Fri 11/17/23
424	RTC Draft LTM Report	Mon 11/20/23	Fri 12/8/23
425	Approve Final LTM Report	Mon 12/11/23	Fri 12/15/23
426	***Submit Final LTM Report***	***Mon 12/18/23***	***Fri 12/22/23***
427	**OU14 GW LTM Report - 2024**	Mon 4/22/24	Fri 12/20/24
428	Pre-Draft LTM Report	Mon 4/22/24	Fri 6/21/24
429	***Submit Pre-Draft LTM Report***	***Fri 6/21/24***	***Fri 6/21/24***
430	Review Pre-Draft LTM Report	Mon 6/24/24	Fri 8/23/24
431	Draft LTM Report	Mon 8/26/24	Fri 9/13/24
432	***Submit Draft LTM Report***	***Fri 9/13/24***	***Fri 9/13/24***
433	Review Draft LTM Report	Mon 9/16/24	Fri 11/15/24
434	RTC Draft LTM Report	Mon 11/18/24	Fri 12/6/24
435	Approve Final LTM Report	Mon 12/9/24	Fri 12/13/24
436	***Submit Final LTM Report***	***Mon 12/16/24***	***Fri 12/20/24***
437	**OU14 GW LTM Report - 2025**	Mon 4/21/25	Fri 12/19/25
438	Pre-Draft LTM Report	Mon 4/21/25	Fri 6/20/25
439	***Submit Pre-Draft LTM Report***	***Fri 6/20/25***	***Fri 6/20/25***
440	Review Pre-Draft LTM Report	Mon 6/23/25	Fri 8/22/25
441	Draft LTM Report	Mon 8/25/25	Fri 9/12/25
442	***Submit Draft LTM Report***	***Fri 9/12/25***	***Fri 9/12/25***
443	Review Draft LTM Report	Mon 9/15/25	Fri 11/14/25
444	RTC Draft LTM Report	Mon 11/17/25	Fri 12/5/25



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress	
Milestone	Split	Inactive Summary	Start-only	Deadline	
Summary	External Tasks	Manual Task	Finish-only		
Rolled Up Task	Project Summary	Duration-only	External Tasks		
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone		

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

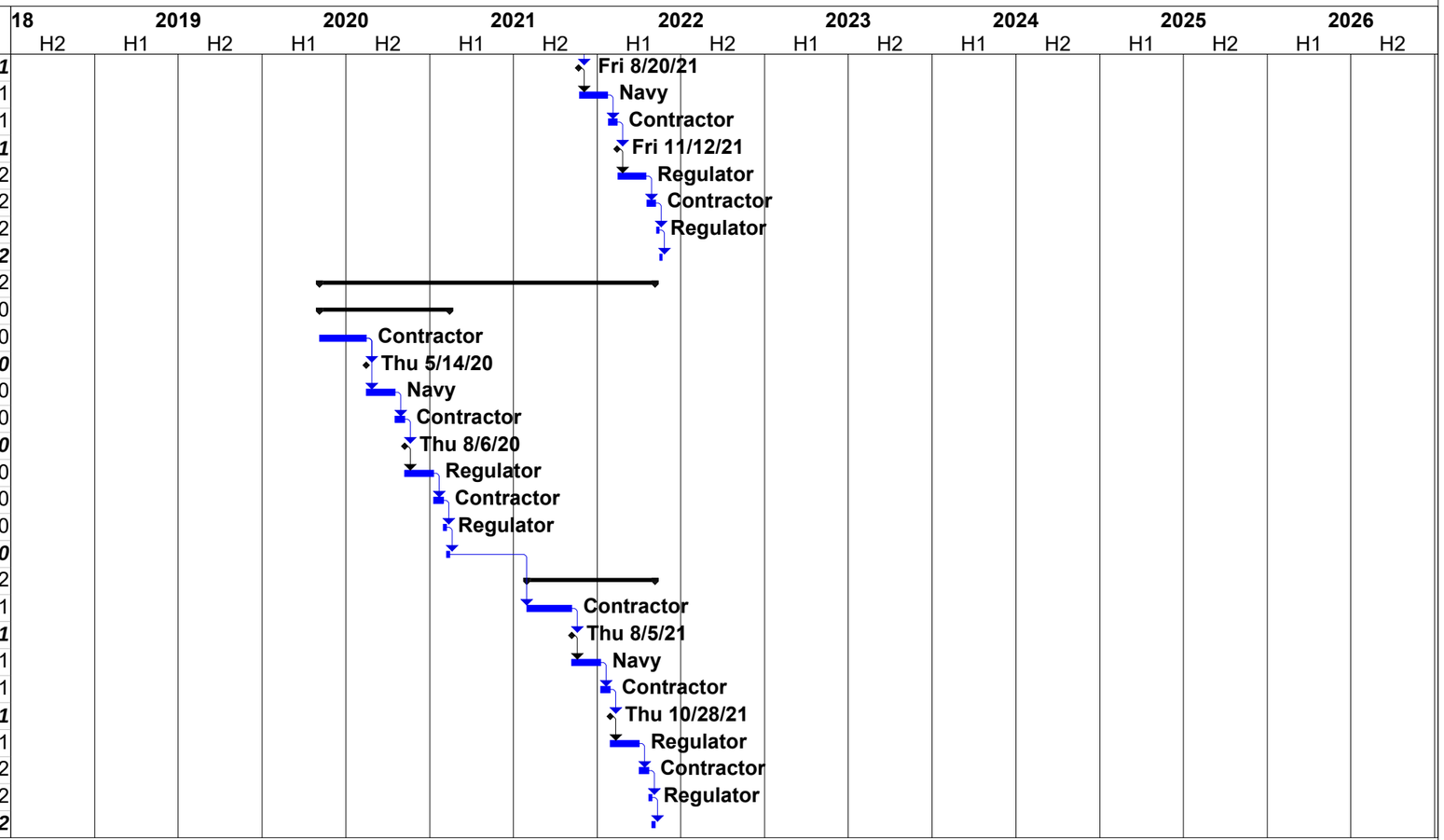
ID	Task Name	Start	Finish
445	Approve Final LTM Report	Mon 12/8/25	Fri 12/12/25
446	***Submit Final LTM Report***	***Mon 12/15/25***	***Fri 12/19/25***
447	**MCOLF Oak Grove**	Wed 8/14/19	Fri 1/7/22
448	**Oak Grove SI WP**	Wed 8/14/19	Fri 7/24/20
449	Pre-Draft SI WP	Wed 8/14/19	Fri 12/20/19
450	***Submit Pre-Draft SI WP***	***Fri 12/20/19***	***Fri 12/20/19***
451	Review Pre-Draft SI WP	Mon 12/23/19	Fri 1/31/20
452	Draft SI WP	Mon 2/3/20	Fri 4/17/20
453	***Submit Draft SI WP***	***Fri 4/17/20***	***Fri 4/17/20***
454	Review Draft SI WP	Mon 4/20/20	Fri 6/19/20
455	RTC Draft SI WP	Mon 6/22/20	Fri 7/10/20
456	Approve Final SI WP	Mon 7/13/20	Fri 7/17/20
457	***Submit Final SI WP***	***Mon 7/20/20***	***Fri 7/24/20***
458	**Oak Grove SI Report**	Mon 1/11/21	Fri 1/7/22
459	Pre-Draft SI	Mon 1/11/21	Fri 4/16/21
460	***Submit Pre-Draft SI***	***Fri 4/16/21***	***Fri 4/16/21***
461	Review Pre-Draft SI	Mon 4/19/21	Fri 6/18/21
462	Draft SI	Mon 6/21/21	Fri 7/30/21
463	***Submit Draft SI***	***Fri 7/30/21***	***Fri 7/30/21***
464	Review Draft SI	Mon 8/2/21	Fri 10/1/21
465	RTC Draft SI	Mon 10/4/21	Fri 11/12/21
466	CMT Resolution Draft SI	Mon 11/15/21	Fri 12/24/21
467	Approve Final SI	Mon 12/27/21	Fri 12/31/21
468	***Submit Final SI***	***Mon 1/3/22***	***Fri 1/7/22***
469	**MCALF Bogue**	Mon 1/20/20	Fri 2/18/22
470	**Bogue SI WP**	Mon 1/20/20	Fri 11/27/20
471	Pre-Draft SI WP	Mon 1/20/20	Fri 5/29/20
472	***Submit Pre-Draft SI WP***	***Fri 5/29/20***	***Fri 5/29/20***
473	Review Pre-Draft SI WP	Mon 6/1/20	Fri 7/31/20
474	Draft SI WP	Mon 8/3/20	Fri 8/21/20
475	***Submit Draft SI WP***	***Fri 8/21/20***	***Fri 8/21/20***
476	Review Draft SI WP	Mon 8/24/20	Fri 10/23/20
477	RTC Draft SI WP	Mon 10/26/20	Fri 11/13/20
478	Approve Final SI WP	Mon 11/16/20	Fri 11/20/20
479	***Submit Final SI WP***	***Mon 11/23/20***	***Fri 11/27/20***
480	**Bogue SI Report**	Mon 5/17/21	Fri 2/18/22
481	Pre-Draft SI	Mon 5/17/21	Fri 8/20/21



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress			
Milestone	Split	Inactive Summary	Start-only	Deadline			
Summary	External Tasks	Manual Task	Finish-only				
Rolled Up Task	Project Summary	Duration-only	External Tasks				
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone				

Table 11-2
Schedules and Milestones
ER Program Site Management Plan (SMP) FY21-FY25
MCAS Cherry Point, North Carolina

ID	Task Name	Start	Finish
482	***Submit Pre-Draft SI***	***Fri 8/20/21***	***Fri 8/20/21***
483	Review Pre-Draft SI	Mon 8/23/21	Fri 10/22/21
484	Draft SI	Mon 10/25/21	Fri 11/12/21
485	***Submit Draft SI***	***Fri 11/12/21***	***Fri 11/12/21***
486	Review Draft SI	Mon 11/15/21	Fri 1/14/22
487	RTC Draft SI	Mon 1/17/22	Fri 2/4/22
488	Approve Final SI	Mon 2/7/22	Fri 2/11/22
489	***Submit Final SI***	***Mon 2/14/22***	***Fri 2/18/22***
490	**Site 100 - MCOLF Atlantic**	Mon 2/3/20	Thu 2/3/22
491	**Site 100 - Atlantic Expanded SI WP**	Mon 2/3/20	Thu 11/12/20
492	Pre-Draft SI WP	Mon 2/3/20	Thu 5/14/20
493	***Submit Pre-Draft SI WP***	***Thu 5/14/20***	***Thu 5/14/20***
494	Review Pre-Draft SI WP	Fri 5/15/20	Thu 7/16/20
495	Draft SI WP	Fri 7/17/20	Thu 8/6/20
496	***Submit Draft SI WP***	***Thu 8/6/20***	***Thu 8/6/20***
497	Review Draft SI WP	Fri 8/7/20	Thu 10/8/20
498	RTC Draft SI WP	Fri 10/9/20	Thu 10/29/20
499	Approve Final SI WP	Fri 10/30/20	Thu 11/5/20
500	***Submit Final SI WP***	***Fri 11/6/20***	***Thu 11/12/20***
501	**Site 100 - Atlantic SI Report**	Fri 4/30/21	Thu 2/3/22
502	Pre-Draft SI	Fri 4/30/21	Thu 8/5/21
503	***Submit Pre-Draft SI***	***Thu 8/5/21***	***Thu 8/5/21***
504	Review Pre-Draft SI	Fri 8/6/21	Thu 10/7/21
505	Draft SI	Fri 10/8/21	Thu 10/28/21
506	***Submit Draft SI***	***Thu 10/28/21***	***Thu 10/28/21***
507	Review Draft SI	Fri 10/29/21	Thu 12/30/21
508	RTC Draft SI	Fri 12/31/21	Thu 1/20/22
509	Approve Final SI	Fri 1/21/22	Thu 1/27/22
510	***Submit Final SI***	***Fri 1/28/22***	***Thu 2/3/22***



Task	Rolled Up Progress	Inactive Milestone	Manual Summary	Progress
Milestone	Split	Inactive Summary	Start-only	Deadline
Summary	External Tasks	Manual Task	Finish-only	
Rolled Up Task	Project Summary	Duration-only	External Tasks	
Rolled Up Milestone	Group By Summary	Manual Summary Rollup	External Milestone	

SECTION 12

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