Site Management Plan
Fiscal Years 2015—2016

Naval Weapons Station Yorktown
Yorktown, Virginia

Contract Task Order WE88

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Acronyms and Abbreviations

AM	Action Memorandum
amsl	above mean sea level
AOC	Area of Concern
AR	Administrative Record
AST	aboveground storage tank
BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
bio-cell	bioremediation cell
CAX	Cheatham Annex
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
COC	chemical of concern
COPC	chemical of potential concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
DCA	dichloroethane
DCE	dichloroethene
DD	Decision Document
DNA	dinitroaniline
DNT	dinitrotoluene
DoD	Department of Defense
DPT	direct-push technology
DR	Determination Request
EE/CA	Engineering Evaluation/Cost Analysis
ER	Environmental Restoration
ERA	Ecological Risk Assessment
ERI	Expanded Remedial Investigation
ERP	Environmental Restoration Program
ESD	Explanation of Significant Differences
ESS	Explosives Safety Submission
ESV	ecological screening value
FFA	Federal Facilities Agreement
FFS	Focused Feasibility Study
FS	Feasibility Study
ft/day	foot per day
ft^2/day	square feet per day
FY	Fiscal Year
HHRA	Human Health Risk Assessment
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HRSD	Hampton Roads Sanitation District
IAS	Initial Assessment Study
IR	Installation Restoration
LTM	long-term monitoring
LUC	land use control

MCL	maximum contaminant level
MEC	munitions and explosives of concern
mg/kg	milligram per kilogram
MIP	membrane interface probe
MRP	Munitions Response Program
MWR	Morale, Welfare, and Recreation
NACIP	Navy Assessment and Control of Installation Pollutants
NAVFAC	Naval Facilities Engineering Command
Navy	Department of the Navy
NCP	National Contingency Plan
NEDED	Naval Explosives Development Engineering Department
NFA	no further action
NPDES	National Pollutant Discharge Elimination System
NTCRA	non-time-critical removal action
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PP	Proposed Plan
ppm	part per million
PRAP	Proposed Remedial Action Plan
PRG	preliminary remediation goal
RA	remedial action
RAA	remedial action alternative
RAB	Restoration Advisory Board
RACR	Remedial Action Completion Report
RAO	remedial action objective
RAWP	Remedial Action Work Plan
RC	response complete
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RG	remediation goal
RI	Remedial Investigation
RIP	remedy in place
RME	reasonable maximum exposure
ROD	Record of Decision
RSL	regional screening level
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
SMP	Site Management Plan
SSA	Site Screening Area
SSP	Site Screening Process
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TAL	target analyte list
TCA	trichloroethane
TCE	trichloroethene

TCL	target compound list
TM	Technical Memorandum
TNB	trinitrobenzene
TNT	trinitrotoluene
UFP-SAP	Uniform Federal Policy-Sampling and Analysis Plan
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	underground storage tank
UXO	unexploded ordnance
VC	vinyl chloride
VDEQ	Virginia Department of Environmental Quality
VOC	volatile organic compound
WPNSTA	Naval Weapons Station
yd^3	cubic yard

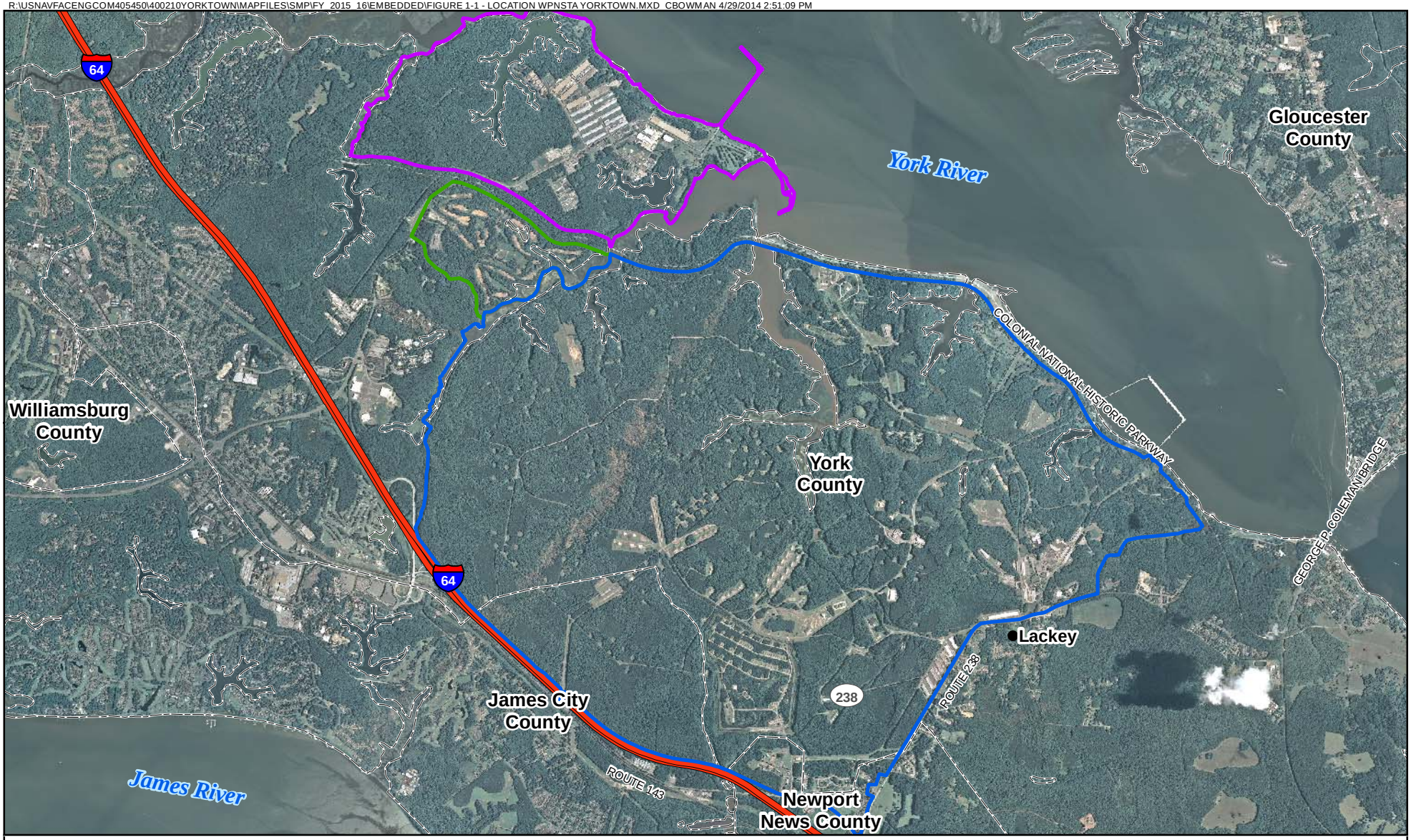
SECTION 1

Introduction

This document presents the Fiscal Years (FYs) 2015 through 2016 annual amendment to the Site Management Plan (SMP) for Naval Weapons Station (WPNSTA) Yorktown, Yorktown, Virginia. This SMP meets the requirements of the Federal Facilities Agreement (FFA) (USEPA, 1994) between the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Division, Commonwealth of Virginia Department of Environmental Quality (VDEQ), and Region 3 of the United States Environmental Protection Agency (USEPA) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This annual update to the SMP is being submitted in accordance with the requirements of the FFA. **Figure 1-1** illustrates the location of the installation within the Commonwealth of Virginia.

The purpose of the SMP is to provide a management tool for NAVFAC Mid-Atlantic, WPNSTA Yorktown, VDEQ, USEPA, and their consultants to use in planning, reviewing, and setting priorities for all response activities to be conducted at WPNSTA Yorktown. The SMP establishes schedules and conceptual approaches for continued CERCLA activities at WPNSTA Yorktown Environmental Restoration (ER) sites. The prioritization of activities, proposed schedules, and work descriptions were jointly developed by the Department of the Navy (Navy), USEPA, and VDEQ on the basis of goals agreed to by all parties. The SMP is a working document that is updated annually. This annual SMP update supersedes the FY 2014-2015 SMP (CH2M HILL, 2013a).

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 1-1 - LOCATION WPNSTA YORKTOWN.MXD CBOWMAN 4/29/2014 2:51:09 PM



Legend

- Yorktown Base Boundary
- Kings Creek Commerce Park
- Cheatham Annex
- County Boundary

N
W E
S

0 2,750 5,500 Feet

Imagery: 2011

Figure 1-1
Location of WPNSTA Yorktown
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

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SECTION 2

Background and Regulatory Framework

2.1 Activity Description

WPNSTA Yorktown is a 10,624-acre installation located on the Virginia Peninsula in York and James City Counties, Virginia (**Figure 1-1**). WPNSTA Yorktown is bounded on the northwest by Cheatham Annex (CAX) and the King's Creek Commerce Center; on the northeast by the York River and the Colonial National Historic Parkway; on the southwest by Route 143 and Interstate 64; and on the southeast by Route 238 and the town of Lackey.

Originally named the United States Mine Depot, WPNSTA Yorktown was established in 1918 to support the laying of mines in the North Sea during World War I. For 20 years after World War I, the depot continued to receive, reclaim, store, and issue mines, depth charges, and related materials. During World War II, the facility was expanded to include three trinitrotoluene (TNT) loading plants and new torpedo overhaul facilities. A research and development laboratory for experimentation with high explosives was established in 1944. In 1947, a quality evaluation laboratory was developed to monitor special tasks assigned to the facility which included the design and development of depth charges and advanced underwater weapons. On August 7, 1959, the depot was renamed the United States WPNSTA Yorktown. Today, the primary mission of WPNSTA Yorktown is to provide ordnance, technical support, and related services to sustain the war-fighting capability of the armed forces in support of national military strategy.

2.2 Environmental History

2.2.1 Regulatory History

Comprehensive ER activities at WPNSTA Yorktown began in 1984 under the Navy Assessment and Control of Installation Pollutants (NACIP) program and continued under the Environmental Restoration Program (ERP). The purpose of the NACIP and ERP was to identify, assess, characterize, and cleanup or control contamination from past waste management activities. The NACIP program was modified into the ERP in 1986 to reflect the requirements of CERCLA as amended by the Superfund Amendments and Reauthorization Act. The Navy is committed to cleaning up sites that pose a threat to human health or the environment and implementing environmental stewardship practices that ensure Navy waste management operations are in compliance with all federal and state regulations and Navy policy.

On October 15, 1992, WPNSTA Yorktown was added to the National Priorities List based on a Hazard Ranking System score of 50. An FFA between the Navy and the USEPA was signed in August 1994, and incorporated the Resource Conservation and Recovery Act (RCRA) Solid Waste Management Units (SWMUs) at WPNSTA Yorktown, as identified in a 1992 RCRA SWMU Investigation Report (A. T. Kearney, 1992). The FFA Findings of Fact identified 16 Sites (Sites 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 16, 17, 18, 19, and 21) for Remedial Investigation (RI). Appendix A of the FFA identified 19 Site Screening Areas (SSAs) (SSAs 1 through 19) for the Site Screening Process (SSP). Subsequent to the FFA, six additional SSAs (SSA 20 through SSA 25) were identified for consideration under CERCLA. Based on the results of the SSP, SSA 1 (currently Site 23), SSA 6 (currently Site 24), SSA 7 (currently Site 25), SSA 10 (currently Site 28), SSA 14 (currently Site 34), SSA 16 (currently Site 16), SSA 18 (currently Site 26), SSA 20 (currently Site 29), SSA 22 (currently Site 33), SSA 24 (currently Site 30), and SSA 25 (currently Site 32) were determined to warrant RI/Feasibility Study (FS) efforts under CERCLA. Appendix B of the FFA identified 21 Areas of Concern (AOCs) (AOCs 1 through 21) for desktop audits under CERCLA to determine if the AOCs warranted further consideration in the SSP. With the exception of AOCs 5, 6, and 7, which are associated with SSA 15, the Navy, in partnership with USEPA and VDEQ, agreed that no action was warranted for all other AOCs (Baker, 1997a). However, one additional AOC (AOC 23, currently Site 31) was added in 2007 when it was determined that groundwater in the industrial area upgradient of Site 12 was contaminated with trichloroethene (TCE). In addition, in 2007, the Navy initiated investigations of numerous Munitions Response Program (MRP) sites,

including the Morale, Welfare, and Recreation (MWR) Skeet Range. Although Site 31, the MWR Skeet Range, and Unexploded Ordnance (UXO) 3 were not included in the FFA, investigations at these sites have been or will be conducted following CERCLA guidance, and are included in this document.

Table 2-1 identifies active sites, SSAs, and AOCs addressed under CERCLA at WPNSTA Yorktown and those in which it was determined that no action or no further action (NFA) is required. **Figure 2-1** shows the location of each site at WPNSTA. Active sites and SSAs are discussed in Section 3. Additional background information for sites and SSAs with no action or NFA determinations prior to 2008 is provided in previous SMPs.

Partnering

The Navy works in partnership with USEPA and VDEQ and has established a formal WPNSTA Yorktown Partnering Team to implement CERCLA. Partnering Team decisions are documented through consensus statements and partnering meeting minutes; a summary of Team[1] consensus statements is presented in **Table 2-2**.

2.2.2 Hydrogeologic Setting

WPNSTA Yorktown is situated within the Virginia Coastal Plain Physiographic Province, which is characterized by unconsolidated sediments several thousand feet in thickness (Meng and Harsh, 1988). Deposition and erosion associated with fluctuating sea levels resulted in terraces that decrease in topographic elevation in a stair-step pattern with scarps, oriented north to south, that delineate the eroded shoreline along the toe of each terrace. Two terraces (Lackey Plain and Croaker Flat) are divided by one scarp (the Camp Peary Scarp) within the boundaries of WPNSTA Yorktown.

A total of ten geologic formations have been identified (Brockman et al., 1997) beneath WPNSTA Yorktown. The upper-most geologic formations consist of alluvial, colluvial, and marsh deposits composed of silt, sand, and pebbles with some clay. The geologic units are grouped into hydrostratigraphic units based upon hydraulic characteristics. The lithological sequence of aquifers and confining/semi-confining units relevant to CERCLA investigations at WPNSTA are, from youngest to oldest: the Columbia aquifer, the Cornwallis Cave confining unit, the Cornwallis Cave aquifer, the Yorktown confining unit, and the Yorktown-Eastover aquifer. Groundwater flow is locally controlled by topography with discharge to downgradient surface water bodies and a primary flow and discharge direction toward the York River.

Across the northern part of the Base near the York River, in the vicinity of Sites 1, 3, 6, 7, 11, 17, 24, and 25, the Camp Peary Scarp truncates the Columbia aquifer, the Cornwallis Cave confining unit, the Cornwallis Cave aquifer, and some to all of the Yorktown confining unit; as a result, the upper units are missing and either the Yorktown-Eastover aquifer or a thin portion of the Yorktown confining unit occurs at the surface. In some areas, the Cornwallis Cave aquifer and confining unit are absent and the Columbia aquifer overlies the Yorktown confining unit. Where present, the Columbia aquifer ranges in thickness between 5 and 10 feet, with horizontal hydraulic conductivity between approximately 0.4 to 8 feet per day (ft/day) and vertical hydraulic conductivity between 1.7×10^{-4} and 1.7×10^{-1} ft/day (Brockman et. al., 1997). The dark greenish gray clay and silt of the Yorktown confining unit is absent north of Turkey Road between the west and south branches of Felgates Creek, along the streambeds of Felgates Creek, Indian Field Creek and their unnamed tributaries (Brockman et al., 1997). Where present, the unit is up to 36 feet thick. Vertical hydraulic conductivity of the confining unit ranges from 1.3×10^{-5} ft/day to 7.4×10^{-3} ft/day.

The Yorktown-Eastover aquifer extends across all of WPNSTA Yorktown and ranges between 60 and 100 feet thick. Horizontal hydraulic conductivity ranges from 0.004 to 3 ft/day and vertical hydraulic conductivity ranges between 1.7×10^{-5} and 4.8×10^{-1} ft/day. Transmissivity of the aquifer ranges from 0.5 to 40 square feet per day (ft^2/day), with a primary direction of groundwater flow from west to east.

[1] WPNSTA Yorktown and CAX conducted joint Partnering meetings between 2000 and September 2008, when the Bases split into separate Partnering Teams.

2.3 CERCLA Process

The following sections provide an overview of the CERCLA process. The objectives of the CERCLA process are to evaluate the nature and extent of contamination at a site, assess potentially unacceptable risks to human health and the environment, and to identify, develop, and implement appropriate remedial actions (RAs) in order to protect human health and the environment. The major elements of the CERCLA process are identified as follows and described in greater detail in **Table 2-3**:

- Preliminary Assessment (PA)
- Site Investigation (SI)
- RI/FS
- Treatability Study
- Engineering Evaluation/Cost Analysis (EE/CA) and Removal Action (may be implemented at any time in the CERCLA process)
- Proposed Plan (PP) and Record of Decision (ROD)
- Five-Year Review
- Remedial Design (RD) and RA
- Post-RA Monitoring and Reporting
- Response Complete (RC)/Remedy In Place (RIP)

2.3.1 Munitions Response Program

The Department of Defense (DoD) has established the MRP under the Navy ERP to address munitions and explosives of concern (MEC) at other than operational ranges. The 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 action will be conducted under the process outlined in the National Contingency Plan (NCP) as authorized by CERCLA.

2.3.2 Community Participation

WPNSTA Yorktown has developed a Community Involvement Plan (CIP) (CH2M HILL, 2009b) and established a Restoration Advisory Board (RAB) comprised of members of the community, local environmental group members, and state and federal officials who meet semi-annually (May and November) to keep the community informed on environmental issues at WPNSTA Yorktown.

The documents prepared for the ERP are maintained in the Administrative Record (AR) file for review by the public. The index of the WPNSTA Yorktown AR is available at the information repository, the York County Public Library at 8500 George Washington Memorial Highway, Yorktown, Virginia. Documents from the AR are available through the WPNSTA Yorktown public website: http://go.usa.gov/DynG

Additional information regarding RAB meetings or environmental cleanup programs at Yorktown may also be obtained from the WPNSTA Yorktown Public Affairs Officer at:

Mr. Mark Piggott, Public Affairs Officer
160 Main Road
Yorktown, VA 23691-0160
(757) 887-4939

TABLE 2-1
Site Summary WPNSTA Yorktown
FY2014-15 SMP

Site Identification	Other Identification				Site Name	Site Description	FFA Status	Current CERCLA Status	Comments/Notes
	IAS (1984) RCRA (1992)	FFA	OU Number	CERCLIS Number					
Site 1	IAS Site 1	Site 1	Soil - VIII	Soil - 6 GW/SW/SD - 33	Dudley Road Landfill	10 acre landfill with soil cover in place; 1999 removal action of soil/waste	Findings of Fact RI/FS	Post-ROD (soil/waste) RI/FS (GW/SW/SD)	ROD (June 1999) for soil/waste Site Inspections/Five-Year Review (2013) GW/SW/SD RI field investigation completed LUC RD for soil/waste (2014) RI Report ongoing*
Site 2	IAS Site 2	Site 2		Soil/GW/SW/SD - 31	Turkey Road Landfill	5 acre landfill; 1994 partial removal action of waste	Findings of Fact RI/FS	MRP	Site was transferred to MRP on June 19, 2007 Funding for MRP site is anticipated for 2017
Site 3	IAS Site 3	Site 3	Soil - IX	Soil - 9 GW/SW/SD - 35	Group 16 Magazine Landfill	2 acre landfill with soil cover in place; 1999 removal action of soil/waste; 2000 two foot soil cover installed	Findings of Fact RI/FS	Post-ROD (soil/waste) RI/FS (GW/SW/SD)	ROD (June 1999) for soil/waste; Draft ESD (2008) FS for groundwater completed (2014) PRAP/ROD for GW/SW/SD ongoing
Site 4	IAS Site 4	Site 4	Soil - XVII	Soil - 7 GW/SW/SD - 14	Burning Pad Residue Landfill	10 acre landfill; 1994 removal of action waste, 2003 removal action of soil/waste, 2005 removal action of soil	Findings of Fact RI/FS	Response Complete	NFA ROD (September 2005) for soil/waste GW/SW/SD RI (2010) PP GW/SW/SD (2010) ROD GW/SW/SD (2011)
Site 5	IAS Site 5	Site 5	Soil/GW/SW/SD - I	Soil/GW/SW/SD - 10	Surplus Transformer Storage Area	1000 square foot area, stored surplus transformers; 1982 removal action of soil/waste	Findings of Fact RI/FS	Response Complete	NFA ROD (September 1994) for Site 5 all media
Site 6	IAS Site 6	Site 6	Soil - XIII (Flume Area) and XIV (Excavated Area) GW - XV SW - XV (Impoundment Area) SD - XIII (Flume Area) and XV (Impoundment Area)	Soil/GW/SW/SD - 34	Explosives-Contaminated Wastewater Impoundment	Includes the following three areas: flume area, impoundment and excavated area; 2000 removal action of bioremediation cell; wetlands created in impoundment area	Findings of Fact RI/FS	Post-ROD (GW/soil/SW/SD) RI/FS (Soil/GW/SW/SD)	ROD (October 1998) for soil/SD LTM of GW/SW/SD RA soil/sediment completed (2007), CCR (2008) Site Inspections/Five-Year Review (2013) Soil/GW/SW/SD investigation on going*
Site 7	IAS Site 7	Site 7	Soil/SD - XII GW/SW - XV	Soil/GW/SW/SD - 29	Plant 3 Explosives-Contaminated Wastewater Discharge Area	300 foot long drainage and surrounding area; 1996 *ex-situ* Bioremediation Pilot Study (soil). Expanded site area includes all of former Plant 3.	Findings of Fact RI/FS	Post-ROD (soil/SW/SD/GW) RI/FS (soil/GW/SW/SD)	ROD (October 1998) for soil/SW/SD/GW Site Inspections/Five-Year Review (2013) LTM GW completed (2010) Expanded RI for GW/Soil/SW/SD for area of former plant ongoing*
Site 8	IAS Site 8	Site 8		Soil/GW/SW/SD - 25	NEDED Explosives-Contaminated Wastewater Discharge Area	300 foot drainage way and surrounding area; 2007 removal action of soil/SD	Findings of Fact RI/FS	Pre-FS Data Gap Investigation FS (GW)	NFA consensus statement (May 2008) for soil/SD GW RI (2011) Soil/GW investigation ongoing*
Site 9	IAS Site 9	Site 9	Soil/SW/SD - VII	Soil/GW/SW/SD - 26	Plant 1 Explosives-Contaminated Wastewater Discharge Area	600 foot natural drainage way; 1994 removal action of soil/SD/waste	Findings of Fact RI/FS	Response Complete (soil/SW/SD) RI/FS (soil/GW)	NFA ROD (March 1998) for soil/SW/SD Soil/GW/SW/SD investigation ongoing*
Site 11	IAS Site 11	Site 11	Soil - X	Soil - 8 GW - 16	Abandoned Explosives Burning Pits	0.5 acre waste disposal/burning area; 2000 removal action of waste ash/soil	Findings of Fact RI/FS	Response Complete (all media)	NFA ROD (September 2010) for all media RACR completed February 2012
Site 12	IAS Site 12	Site 12	Soil - III and IV GW/SW/SD - V	Soil/GW/SW/SD - 4	Barracks Road Landfill	Includes the following 3 areas; Area A (4 acres), Area B (1.6 acres), Area C (3.3 acres); 1997 removal action of surface debris/onsite buildings and installation of geosynthetic landfill cover	Findings of Fact RI/FS	Post-ROD (soil/SW/SD/GW)	ROD (April 1997) for soil ESD to remove GW VOCs from LTM (2011) Site Inspections/Five-Year Review (2013) LTM GW (2013) LUC RD (2013) RACR is being developed
Site 16 / SSA 16	IAS Site 16	Site 16	Soil/GW/SW/SD - II	Soil/GW/SW/SD - 5	West Road Landfill	5 acre landfill; 1992 removal action of surface debris; 1994 removal action of waste/surface debris Site addressed with SSA16 (0.4 acre scrap metal storage area)	Findings of Fact RI/FS	Response Complete (all media)	ROD (September 1995) for soil/GW Tech Memo for risk management of GW HH risk complete (2013) Site Inspections/Five-Year Review (2012) ESD completed to remove LUCs (all media then NFA) (2013)
Site 17	IAS Site 17	Site 17	Soil - XI	Soil - 8 GW- 16	Holm Road Landfill	2 acre landfill; 2000 removal action of soil	Findings of Fact RI/FS	Response Complete (all media)	NFA ROD (September 2010) for all media RACR completed February 2012
Site 18	IAS Site 18	Site 18		Soil/GW/SW/SD - 9	Building 476 Discharge Area	1320 feet unlined drainage ditch	Findings of Fact RI/FS	Response Complete (all media)	NFA ROD (September 2005) for all media

TABLE 2-1
Site Summary WPNSTA Yorktown
FY2014-15 SMP

Site Identification	Other Identification				Site Name	Site Description	FFA Status	Current CERCLA Status	Comments/Notes
	IAS (1984) RCRA (1992)	FFA	OU Number	CERCLIS Number					
Site 19	IAS Site 19	Site 19	Soil - VI	Soil/GW/SW/SD - 32	Conveyor Belt Soils at Building 10	Area beneath and surrounding former location of conveyor belt; 1998 removal action of soil/conveyor system and backfilled with aluminum-contaminated soil Since 1998 ROD, investigation area has expanded to include area of former Building 5.	Findings of Fact RI/FS	Post-ROD (soil) RI/FS (GW/soil)	ROD (March 1998) for soil Site Inspections/Five-Year Review (2007) Soil/GW/SW/SD investigation ongoing* ESD (if necessary) after additional investigation LUC RD pending completion of ESD
Site 21	SWMU 21	Site 21	Soil - XVII	Soil - 7 GW/SW/SD - 14	Battery and Drum Disposal Area	1 acre disposal area; 1994 removal action of waste/soil; 2002 removal action of soil	Findings of Fact RI/FS	Response Complete (soil)	NFA ROD (September 2003) for soil/waste GW/SW/SD RI (2010) PP GW/SW/SD (2010) ROD GW/SW/SD (2011)
Site 22	Not Identified	Not Identified	Soil - XVII	Soil - 7 GW/SW/SD - 15	Burn Pad	9 acre burn pad; 2002 removal action of soil	Not identified	Response Complete (soil/SW/SD) Post-ROD (GW)	NFA ROD (September 2003) for soil GW/SW/SD RI (2010) PP SW/SD (2010) ROD SW/SD (2011) FS completed 2011 (GW) ROD GW (2012) LUC RD (2013) UFP-SAP for Pre-Design Investigation ongoing
Site 23	SWMU 99 EPIC 37	SSA 1		Soil/GW/SW/SD - 10	Building 428 Teague Road Disposal Area	10.5 acre disposal area; 1994 removal action of surface debris/ash/soil; 2003 removal action of surface debris/soil; 2004 removal action of soil	Appendix A SSA/SSP	RI/FS (all media)	Revised Draft Final Round I RI (2008) All media investigations ongoing
Site 24	IAS Site 14 SWMU 28 EPIC 25	SSA 6		Soil/GW - 19	Aviation Field	14 acre grassy storage area with five discontinuous buried debris areas No SD/SW associated with site	Appendix A SSA/SSP	RI/FS (all media)	Revised Draft Final Round I RI (2008) RI (all media) (2014) EE/CA for soil and waste removal action ongoing
Site 25	SWMU 25 AOC A, EPIC 22 & 23	SSA 7		Soil/GW/SW/SD - 20	Building 373 Rocket Plant	0.14 acres around 500-gallon UST and associated piping; 1996 removal action of tank/piping/soil	Appendix A SSA/SSP	RI/FS (all media)	Revised Draft Final Round I RI (2008) All media investigations ongoing
Site 26	SWMU 87	SSA 18		Soil/GW/SW/SD - 21	Building 1816 Mark 48 Waste Otto Fuel Tank	6.7 acres around 2,500-gallon UST and associated piping; 1995 removal action of UST Retained as an IRP site because of VOCs in GW	Appendix A SSA/SSP	RI/FS (all media)	Revised Draft Final Round I RI (2008) All media investigations ongoing
Site 27	SWMU 80 & 81	SSA 9		Soil/GW/SW/SD - 12	Building 1751 Chemistry Laboratory Neutralization Unit and Drainage Area	1.9 acres around 4 underground septic tanks and a below-grade cylindrical unit	Appendix A SSA/SSP	Response Complete (all media)	NFA ROD (September 2006) all media
Site 28	SWMU 107	SSA 10		Soil/GW/SW/SD - 24	Building 28 X-Ray Facility Tank Drain Field	5.8-acre drain field; septic tank/drain field	Appendix A SSA/SSP	Response Complete (all media)	NFA ROD (2011) all media Draft BERA (2008) Draft Final ROD (2011) PP/ROD (2011) all media
Site 29	Not Identified	Not Identified		Soil/GW/SW/SD - 13	Lee Pond (SSA 20)	4.1 acre pond No soil/GW associated with site	Not identified	Response Complete (all media)	NFA ROD (2009) for all media
Site 30 / AOC 22	Not Identified	Not Identified		Soil/GW/SW/SD - 11	Bracken Road Incinerator and Environs (former SSA 24)	0.1 acres around former incinerator location; 2008 removal action of soil	Not identified	Response Complete (all media)	NFA ROD (2011) for all media
Site 31 / AOC 23	Not Identified	Not Identified		Soil/GW/SW/SD - 22	Barracks Road Landfill Industrial Area	Industrial area (Buildings 3, 4, 5, and 6) VOC GW plume; formerly investigated as Site 12	Appendix B Desktop Audit	RI/FS (GW/SW/SD/VI)	GW/VI/SW/SD investigation ongoing RI ongoing
Site 32 (SSA 25)	Not Identified	Not Identified		Soil/GW/SW/SD - 23	Wetlands Downgradient of Beaver Pond	5.6 acre wetland consisting of 2 impoundment areas of Ballard Creek. 2009 removal action of contaminated sediments	Not Identified	Response Complete (all media)	BERA (2008) EE/CA (2008) NFA ROD (2011) for SD/SW SI documenting NFA for upgradient Soil/GW (2013)
Site 33 (SSA 22 / AOC 4)	Not Identified	Not Identified		Soil/GW/SW/SD - 28	Sand Blasting Grit Pile	0.5 acre ordinance sand blast grit area; 1998 removal action of soil/grit. 2011 Team found waste disposal area	Not Identified	SSP NFA (soil) RI/FS (GW/soil/debris)	NFA for soil Site Screening Process Report 2001 AR# 01350 GW/soil/debris investigation on going
Site 34 (SSA 14)	SWMU 72	SSA 14		Soil/GW/SW/SD - 27	Building 537 Discharge to Felgates Creek	0.4 acre pipe from Bldg 537; 2007 removal action of soil/SD	Appendix A SSA/SSP	Supplemental RI (SD/SW/GW/soil)	EE/CA (2005) for soil/SD Post Construction Tech Memo (2008) GW RI (2011) GW FS ongoing Soil/GW/SW/SD investigation on-going
SSA 2	SWMU 54	SSA 2			Former EOD Burning/Disposal Area	4.1 acre storage area for 2 small (3 yd^3) dumpsters; 1994 removal action of surface debris	Appendix A SSA/SSP	SSP NFA	NFA 1992 RCRA SWMU Investigation

TABLE 2-1
Site Summary WPNSTA Yorktown
FY2014-15 SMP

Site Identification	Other Identification				Site Name	Site Description	FFA Status	Current CERCLA Status	Comments/Notes
	IAS (1984) RCRA (1992)	FFA	OU Number	CERCLIS Number					
SSA 3	SWMU 56, 57, 58, 59	SSA 3			Fire Training Pits and Vicinity	2.7 acre fire training area; 1996 removal action of soil/tanker trailer	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report 2001 AR# 01350
SSA 4	SWMU 102	SSA 4			Weapons Casing/Drum Disposal Area	0.5 acre former disposal area; 1994 removal action of surface debris	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report 2001 AR# 01350
SSA 5	SWMU 101	SSA 5			Bypass Road Landfill	0.9 acre disposal area; 1994 removal action of surface debris	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report 2001 AR# 01350
SSA 8	SWMU 122, 123	SSA 8			Building 350 Rail Roadhouse Maintenance Area Trench Outfall	0.4 acre underground oil/water separator	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report (July 1997) AR# 01.10-07/29/97 0905
SSA 11	SWMU 113	SSA 11			Building 3 Neutralization Unit	0.2 acre drainage system (rectangular tank, trench, and sump)	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report (July 1997) AR# 01.10-07/29/97 0906
SSA 12	SWMU 133, 134; EPIC 41, 42	SSA 12			Public Works Storage Yard/Building 683 Vicinity	1.5 acre storage area comprised of 2 waste accumulation areas (open field and fenced area)	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report (July 1997) AR# 01.10-07/29/97 0907
SSA 13	AOC R	SSA 13			Building 529 Battery Drainage Area	0.5 acre paved area for discharge of washwater into storm drain	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report (July 1997) AR# 01.10-07/29/97 0908
SSA 15	SWMU 127	SSA 15			Sewage Treatment Plant #1 Sludge Drying Beds and Discharge Area	0.3 acre sewage treatment plant; 2001 removal action of imhoff tank, trickling filter, sludge drying bed, and chlorination unit	Appendix A SSA/SSP	NFA	NFA (August 2010)
SSA 17	SWMU 74	SSA 17			Building 1456 Mark 46 Waste Otto Fuel Tank	2.35 acre area around UST and associated piping; 1995 removal action of UST system	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report (March 1996) AR# 03.13-03/18/96 00666
SSA 19	SWMU 31, 32, AOC B	SSA 19			Beaver Road/Ponds 11 and 12 Drainage Area and Environs	164 acres surrounding the open burn/open detonation area	Appendix A SSA/SSP	SSP NFA	NFA Site Screening Process Report (March 1996) AR# 03.13-03/18/96 00667
SSA 21	Not Identified	Not Identified			Roosevelt Pond	22.2 acre pond receiving storm water from industrial area	Not Identified	SSP NFA	NFA Site Screening Process Report 2001 AR# 01350
SSA 23	Not Identified	Not Identified			Coal Storage Area	1 acre coal storage area surrounded by 9-inch thick reinforced concrete wall	Not Identified	SSP NFA	NFA Site Screening Process Report 2001 AR# 01350
AOC 1	AOC O	AOC 1			Building 350 Rail Roadhouse Transformer Pad	Fenced concrete pad outside Building 350	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 2	SWMU 128	AOC 2			Building 372 - PW Vehicle Maintenance O/W Separator	Below grade two chambered concrete oil/water separator	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 3	AOC J	AOC 3			Blasting Grit Spill Area	Area near Building 1347 where black powdery/glassy material was observed (may result from previous sandblasting activities)	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 4	AOC S	AOC 4			Paint Shop Grit Disposal Area	Area of soil and pavement outside building 530 where a container of metal grit was previously stored. Pavement was badly worn and contains staining	Appendix B Desktop Audit	NFA	Desk Top Audit determined site as SSA 22, NFA in SSP
AOC 7	SWMU 177	AOC 7			STP # 4 Sludge Drying Beds	Inactive sewage treatment plant (clarifier, settling tanks, and sludge drying beds); unit managed sanitary waste and possibly explosive contaminated wastewater	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 8	SWMU 37	AOC 8			Building 118 Waste Oil O/W Separator	One or two underground oil/water separators of unknown size and construction.	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 9	SWMU 147 & 148	AOC 9			Building 683 O/W Separator	50 feet by 50 feet concrete pad used for washing heavy equipment. Wastewater drains to below grade two chambered oil/water separator	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 10	EPIC 45	AOC 10			Stoney Point Road Disposal Area (STP # 2)	Area of soil where construction debris from barracks demolition was disposed.	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 11	SWMU 174	AOC 11			Building 710 Waste O/W Separator	Below grade two chambered concrete oil/water separator	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 12	SWMU 71	AOC 12			Building 457 O/W Separator	Below grade two chambered oil/water separator that received discharge from boiler operations. May be near/assoc/w SSA 14	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 13	SWMU 98	AOC 13			Building 370 O/W Separator	Underground oil/water separator; Liquid contents unknown, but suspected to be oil contaminated wastewater from boiler activities	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909

TABLE 2-1
Site Summary WPNSTA Yorktown
FY2014-15 SMP

Site Identification	Other Identification				Site Name	Site Description	FFA Status	Current CERCLA Status	Comments/Notes
	IAS (1984) RCRA (1992)	FFA	OU Number	CERCLIS Number					
AOC 14	SWMU 160	AOC 14			Building 1811 - Supply Storage Yard	Concrete storage pad where usable materials and waste was stored on and around pad.	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 15		AOC 15			Building 1744 Explosive Burning Silo	Building 1744 Explosive Burning Silo	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 16	SWMU 107	AOC 16			X-Ray Facility Tank	Below grade two chambered oil/water separator that received discharge from X-ray facility	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 17	SWMU 29 EPIC 34	AOC 17			Dredge Material Disposal Area	Vegetated area where dredge spoils from the York River were deposited	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 18	AOC M	AOC 18			Code 17 Contaminated Soil Runoff Drainage ways	Area of pavement where oil contaminated soil was placed on plastic. Discolored area of pavement caused by drainage from this area and SWMU 104 was observed	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 19	SWMU 104	AOC 19			Code 17 Storage Compound	Two fenced-in areas of pavement where contaminated liquid and soil are stored in drums. Discolored area of pavement caused by drainage from this area and AOC M was observed	Appendix B Desktop Audit	NFA	Consensus for NFA September 1997 Partnering Meeting
AOC 20	SWMU 72	AOC 20			NEDED Discharge areas to Felgates Creek	Two pipes discharged explosive contaminated wastewater to Felgates Creek	Appendix B Desktop Audit	NFA	NFA Desk Top Audit Decision Document 1997 AR# 01.10-09/23/97 00909
AOC 21	SWMU 181, 97, 168	AOC 21			West Road Coal Storage Area/Buildings 370 & 708 Coal Storage Piles	Currently known as SSA 23	Appendix B Desktop Audit	NFA	Portion of AOC became SSA 23; Remainder of site NFA as documented in EPA letter July 11, 1995
MWR Skeet Range	Not Identified	Not Identified			MWR Skeet Range	30 acre small arms range	Not identified	MRP	NFA ESI 2008 AR# 02180
UXO 2	IAS Site 2	Site 2		Soil/GW/SW/SD - 31	Turkey Road Landfill	5 acre landfill; 1994 partial removal action of waste	Findings of Fact RI/FS	MRP	Site was transferred to MRP on June 19, 2007 Funding for MRP site is anticipated for 2017
UXO 3				SD - 30	NMC Munitions Loading Pier	Current and former munitions loading pier along the shoreline of the York River; surrounded by ESQD arcs	Not identified	Preliminary Assessment	PA finalized (2013) Site Inspection ongoing

Note: Sites 10, 13, 14, and 15 went NFA prior to the FFA. They are listed in the IAS (C.C. Johnson & Associates, Inc. and CH2M HILL , 1984).
Site 20 is documented in the Dames and Moore Confirmation studies (1986 and 1988), It became SSA 18 during an SSP investigation (Baker, 1996 - AR No. 00666) and is later designated as Site 26.
* Indicates site media that have previously been documented in a ROD, but have been reopened in order to investigate areas not previously investigated

Indicates NFA Site/SSA

AOC - Area of Concern
CERCLIS - Comprehensive Environmental Response, Compensation, and Liability Information System
FFA - Federal Facilities Agreement
FS - Feasibility Study
GW - Groundwater
IAS - Initial Assessment Study
LUC - Land Use Control
NFA - No Further Action
O/W - Oil/Water
OU - Operable Unit
PP - Proposed Plan
RCRA - Resource Conservation and Recovery Act
RD - Remedial Design
RI - Remedial Investigation
ROD - Record of Decision
SD - sediment
SSA - Site Screening Area
SSP - Site Screening Process
STP - Sewage Treatment Plant
SW - Surface Water
SWMU - Solid Waste Management Unit
UST - Underground Storage Tank
UXO - Unexploded Ordnance
VOC - Volatile Organic Compound

TABLE 2-2

WPNSTA Yorktown/CAX Partnering Team Consensus Statement Summary

FY 2015 - 2016 SMP

Number	Consensus Statement Number	Date	Facility	Site	Topic	Consensus Statement
	NA	10/23/2001	WPNSTA	18	Site 18	The Team agreed to separate the Mercury issue from the Site 18 ROD.
	NA	10/23/2001	WPNSTA		Dec. 2002 Partnering Meeting	The team agreed to start at 12:00 noon Monday, December 3, 01 (lunch on own prior to starting) and meet through Wednesday evening with site visits Thursday December 6, 2001.
	NA	12/3/2001	WPNSTA	6, 7	LUCIP Review Sites 6 & 7	state the site size and then the size of the restricted area, annotate Global Position Coordinates (GPS) of restricted area on figures.
	NA	12/3/2001	WPNSTA/CAX		Define Metrics in Partnering Deliverable	Keep as stated in deliverable.
	NA	12/4/2001	WPNSTA	6	Site 6 – Explosives-Contaminated Wastewater Impoundment	This site is former cache where TNT was placed in a hole and stored. The hole was later backfilled. Soil with concentrations of cadmium and zinc were left in the hole and then backfilled with 4 feet of soil. After discussing the conditions of the site, the team agreed to evaluate whether further action was required at this site.
	NA	2/5/2002	WPNSTA	18	Site 18	Because Site 18 is NFA, the team proposed to schedule preparation of documents for this site on the same schedule as Sites 23-26.
	NA	2/5/2002	WPNSTA	2, 8, 14	Sites 2, 8, and SSA 14	Sites 2, 8, and SSA 14 (2 will be a ROD, 8 & SSA 14 will be a ROD) will track on a later schedule than Sites 23-26.
	NA	2/5/2002	WPNSTA	8, 18, SSA 14	RI Sites 8, 18 & SSA 14	Baker will update the report and resubmit for review and comment.
		2/5/2002	WPNSTA/CAX	12	5-Year Review	The team agreed to form a subgroup to research and report out at the March meeting on this issue. The subgroup consists of Bob Stroud and Jennifer Davis.
	NA	2/5/2002	WPNSTA/CAX		2002 Goals Update	The team agreed to include the Goals as part of each meeting's minutes.
	NA	2/5/2002	WPNSTA/CAX		Consensus Statement Documentation	The team agreed to document Consensus Statements by site as an addendum to the Site Management Plan. Mary is to evaluate possible methods (by site, chronologically, etc.) and report back to the team during the March Meeting.
	NA	2/5/2002	WPNSTA/CAX		Draft FFA	Scott Park/Jennifer Davis to prepare Draft FFA Addendum for counsel review and submittal to EPA and DEQ.
1	3/13/2002-1	3/13/2002	WPNSTA/CAX		Documentation of Consensus Statements	The team agreed to document Consensus Statements by site as an addendum to the Site Management Plan. A tracking number will be used to track the documents consisting of date and numerical sequence (i.e.: Month/Day/Year-Number – 3/13/02-1).
2	3/13/2002-2	3/13/2002	WPNSTA	4	Clean-up level	If Site 4 removal action cannot achieve residential levels then Sites 4 and 22 ROD will split into two separate RODS.
3	4/23/2002-3	4/23/2002	WPNSTA/CAX		Identification of new sites	The Team agrees that the FFA (Sections 9.3a and 9.3b) gives the team the authority to add newly identified sites to the SMP.
4	4/24/2002-4	4/24/2002	WPNSTA/CAX		Site Management Plan	The team agreed to go final with the FY 2002/2003 Draft SMP and revise text for the FY 2003/2004 submittal. Baker will provide Final covers for the FY 2002/2003 SMP.
7	4/24/2002-7	4/24/2002	WPNSTA/CAX		Community Relations Plan	The Team agrees to go final with the Community Relations Plan. If appropriate, final covers and spines will be submitted.
8	6/03/2002-8	6/3/2002	WPNSTA	GWOU 1	Groundwater Operable Unit 1 – Work Plan	The Team agrees to investigate and install groundwater monitoring wells if a removal action(s) at site 24 within Groundwater Operable Unit I shows contamination or materials that pose a potential risk to receptors with the potential of exposure to groundwater (waste left in place or confirmatory samples detections exceed PRG).

TABLE 2-2

WPNSTA Yorktown/CAX Partnering Team Consensus Statement Summary

FY 2015 - 2016 SMP

Number	Consensus Statement Number	Date	Facility	Site	Topic	Consensus Statement
10	8/6/2002-10	8/6/2002	WPNSTA		Five Year Review Report, WPNSTA Yorktown Sites 1, 6, 7, 12, 16, and 19	The team agrees with the 5-year review Report findings and agrees to go final with the document. Jeff Harlow to pursue signature of the document by Admiral.
12	9/18/2002-12	9/18/2002	WPNSTA/CAX		New technical team member	The Team agreed to add Marlene Ivester as a technical member to the team.
13	9/18/2002-13	9/18/2002	WPNSTA/CAX		Facilitator	The team agreed a facilitator is needed for a few meetings.
14	10/22/2002-14	10/22/2002	WPNSTA		LUCIPs	The Team agreed to revise the LUCIP to incorporate two sections: Site Environmental History and References. Also, the LUCIP will include a brief executive summary of the ROD (about 1 paragraph, similar to the Camp Allen Landfill LUCIP). The numbers of signs for each site is as follows: - Site 12: At least four signs, placed at egress points to the site (of the ten proposed, four will be mandatory) - Site 19: At least three signs, placed at egress points to the site - Site 1: At least three signs, placed at egress points to the site - Sites 6 & 7: At least three signs for Site 6 at egress points and one sign at Site 7 egress point
15	10/23/2002-15	10/23/2002	WPNSTA/CAX		N/A	The Team agreed to add a goal to the FY03 Team Goals to be self-facilitating by end of third Quarter 2003 (5 additional meetings).
16	10/23/2002-16	10/23/2002	WPNSTA		GWOU I	The Team agreed that Baker can proceed with submitting the response to comments and with submitting a revised Draft Final Work Plan for GWOU I to the normal distribution list.
17	10/23/2002-17	*12/4/2002 Revised*	WPNSTA/CAX		WPNSTA-SSAs 3-24; 23-26; 2, 8, 18 & SSA 14; GWOU I, 27-30 CAX-1, 4 & 9, 11, Background Study, NFRAP 2, 3, 5, 6, 9, 10 & 12	The WPNSTA Yorktown/CAX Partnering Team empowers the ecological technical support team to address and resolve ecological issues for various sites at WPNSTA Yorktown/CAX (see table below) to meet the dates and priority specified by the WPNSTA Yorktown/CAX Team, with Ed Corl to take the lead on meeting the schedule determined by the Team. WPNSTA: SSAs 3-24 SSP; 23-26 DF RI; 2, 8, 18 & SSA 14 DF RI; GWOU I Draft WP; 27-30 Draft RI CAX: 1 DF RI; 4 & 9 Draft RI (SERA); 11 Draft RI, Draft Background Study; 2, 3, 5, 6, 9, 10 & 12 Draft NFRAP
18	12/5/2002-18	12/5/2002	WPNSTA/CAX	21, 22	WPNSTA Sites 21 & 22	Based upon EPA Region III comments, Sites 21 and 22 RODs will be rewritten as No Further Action (NFA) RODs with no institutional controls (ICs) because they were remediated to residential levels.
19	12/5/2002-19	12/5/2002	WPNSTA/CAX		Site Action Status Report	The Team agrees to use the SASR as a tracking tool and add it to the standard meeting format.
20	12/5/2002-20	12/5/2002	WPNSTA/CAX		Action Item List	The Team agreed that the Action Item List will be addressed during the Agenda Building Call with respect to whether or not the Action Item has been completed. If completed, a "C" will be put in the Outcome column of the Action Item list and the item will not be addressed during the subsequent Partnering Team Meeting.
21	1/29/2003-21	1/29/2003	WPNSTA/CAX		CAX Site 1 Baseline Risk Assessment	The eco subgroup discussed the issues for the CAX Site 1 RI and determined that a baseline risk assessment was warranted for the wetland area based upon a conference call prior to the December Partnering Meeting. The Navy RPM determined that based upon the existing ROD schedule and funding execution for the site, ~~it was determined that (revised per team concurrence by MM 3/12/03)~~ the ROD and funding schedule could not be met. Therefore, the Navy recommended that an EECA for soils/debris removal at CAX Site 1 would be the best approach. The Team agrees upon this approach.
22	3/13/2003-22	3/13/2003	WPNSTA	23	Confirmation sampling during removal action	At Yorktown Site 23, the Team agrees that the removal action should meet the following goals: Areas A and C are large areas and confirmation sampling will include multiple bottom samples as proposed in the confirmation sampling plan. All other sample locations that exceed cleanup goals at this time will be removed as hot spots.

TABLE 2-2

WPNSTA Yorktown/CAX Partnering Team Consensus Statement Summary

FY 2015 - 2016 SMP

Number	Consensus Statement Number	Date	Facility	Site	Topic	Consensus Statement
24	3/13/2003-24	3/13/2003	WPNSTA	4	Site clean-up goals	The team agrees that the ROD for Site 4 should be drafted upon completion of the on-going non-time critical removal action (NTCRA) to ensure that the ROD will be most appropriate in light of final conditions following the NTCRA. The team understands that $600,000 will be committed in March 2003 to fund the NTCRA and that the Navy RPM projects that the NTCRA may require additional funding at the start of FY04 to complete the clean up.
26	6/17/2003-26	6/17/2003	WPNSTA	24	Groundwater investigation at WPNSTA Site 24 – Aviation Field	Based upon past sample results and the reported solid waste disposed of at WPNSTA Site 24 – Aviation Field, the Partnering Team agrees that a groundwater investigation is not warranted at this time unless the planned removal action at WPNSTA Site 24 can not meet human health or ecological clean-up goals that have yet to be determined for sediment and soil.
30	6/19/2003-30	6/18/2003	WPNSTA	12	Long term monitoring program at WPNSTA Site 12	Based upon the information presented on June 19, 2003 at the Partnering Meeting on the long term monitoring program at WPNSTA Site 12 (years one through five), the Partnering Team agreed to the following: 1. Eliminate LTM monitoring at wells 12GW13 and 12GW4 (located upgradient of site) and collect one round of samples during the next 5 year LTM period at wells 12GW8, 12GW19, 12GW18 and 12GW 18A and analyze for 8 RCRA metals (total metals only). 2. The team agreed to install a new monitoring well, 12GW20, down gradient of well 12GW07 at the site to identify the migration pathway for VOCs. 3. Eliminate sampling at wells 12GW01A, 12GW06 for VOCs because: a. 12GW01A is screened in the deeper aquifer and has no history of detections; b. 12GW06 – concentrations have decreased over time and it is recommended that monitoring at 12GW01 will adequately monitor groundwater pathway. 4. Collect samples from at 10 wells (12GW01, 12GW05, 12GW07, 12GW09, 12GW13, 12GW14, 12GW17, 12GW15, 12GW16, and 12GW20 (new well) every two years and analyze for all VOCs. 5. The team agreed to collect 4 or 5 sediment samples at locations 12SDCWL, 12SD32, 12SD34, 12SD37, and RI sample location SD17 and analyze for the 8 RCRA metals once (in year 9 or 10) in the next 5-year review cycle.
32	12-2-03-32	Dec. 2, 2003	WPNSTA	WPNSTA OB/OD Range	OB/OD Groundwater Monitoring Program	The Partnering Team agrees that the RCRA groundwater monitoring program conducted at the OB/OD Range Site should be discontinued as the CERCLA program will be conducting a media-wide investigation of the site.
33	1-07-04-33	1/7/2004	WPNSTA	23	Site 23 TCRA	With respect to zinc-contaminated soil at Site 23, the Team agrees to stop excavating at Grids 1 through 6, and to place a minimum of 2 feet of clean backfill. We agree that with a minimum of 2 foot of clean fill, there are no current unacceptable ecological risks presented by the soils. With respect to grids 4, 5, and 6, confirmation sampling indicates that zinc concentrations at the bottom of the excavated grids exceed the cleanup goal of 200 mg/kg. The Team agrees that based on the current mission of the WPNSTA, and the location of Site 23 within the blast arc of the pier, it is unlikely that the site would be redeveloped. However, should the soil at grids 4, 5, and 6 be excavated in the future, there is a chance of future ecological risks from zinc in the soil, should this soil be brought back to the surface. However, this potential risk ecological risk is small, given that the overall size of grids 4 5, and 6 is relatively small, and given that if excavation occurred, soil would be mixed with clean fill, and this mixing with the clean fill would lower the overall zinc concentrations. Therefore, the actual chance of potential future ecological risks is minimal, and acceptable.
34	3-9-04-34	3/9/2004	WPNSTA	4	Site 4 Draft ROD	The team will move forward with the preparation of the Draft ROD for WPNSTA Site 4 as cited in the FY 2004 team goals. The document will be for internal team review only pending completion of removal activities at WPNSTA Site 4.
35	3-9-04-35	3/11/2004	CAX	12	Site 12 NFRAP	The team agrees with the NFA remedy for CAX Site 12 – Disposal Site Water Tower based upon the no further action remedy recommended in the Technical Memorandum submitted for review on January 12, 2004. A No Further Response Action Planned (NFRAP) Decision Document with a Final Technical Memorandum as an appendix will be prepared for submittal by March 31, 2004 in accordance with the annual team 2004 goals.

TABLE 2-2

WPNSTA Yorktown/CAX Partnering Team Consensus Statement Summary

FY 2015 - 2016 SMP

Number	Consensus Statement Number	Date	Facility	Site	Topic	Consensus Statement
36	3-22-04-36	3/22/2004	CAX	7	CAX Site 7	Based upon the field investigation conducted at CAX Site 7N, as summarized in the Draft Trenching Letter Report dated 19 March 2004, the team has agreed to move forward with a TCRA Action Memorandum as an interim action that will recommend appropriate erosion control and shoreline stabilization for the site. The team also agrees that removal of the CAX Site 7N landfill will be accomplished under an Engineering Evaluation/Cost Analysis (EE/CA) when funding is available. While the team agreed that an esthetic clean up of the beach in the vicinity of the landfill does little to mitigate risk, the team agreed to move forward with a beach cleanup at the request of the Navy.
37	5-18-04-37	5/18/2004	WPNSTA	SSA 25	Planned action for SSA 25	The team agrees, based upon the 2003 limited field investigation, to develop a work plan for the continued investigation of mercury associated with the former STP 2 area, when funding becomes available. The team agrees that the proposed continued investigation is a high priority. The work plan will include a sampling program of sediment and tissue samples of small fish and amphibians or frogs to further assess nature and extent (vertical and lateral) of mercury in Ballard Creek from the Beaver Dam to the next downstream impoundment structure.
38	5-19-04-38	5/19/2004	WPNSTA/CAX		BTAG	The Yorktown/CAX Partnering Team agrees that the role of USEPA BTAG members will be changed from Adjunct Member to Technical Member.
39	6-24-04-39	6/24/2004	WPNSTA	18	Site 18 NFA	Team agrees with No Further Action for WPNSTA Yorktown Site 18.
40	6-24-04-40	6/24/2004	WPNSTA	2, 8, SSA 14	Planned action for Sites 2, 8, SSA 14	Team agrees to perform pre-characterization sampling for WPNSTA Yorktown Sites 2 and 8 and SSA 14. If the sampling shows that the extent of contamination at the sites can be well defined, then the Navy will complete an EE/CA with a removal action and go for a NFA ROD. However, if the sampling indicates that extent of contamination at the sites cannot be well defined, then the Team agrees to go forward with a BERA and follow on FS/PRAP with a ROD with remedy.
41	5-18-05-41	5/18/2005	WPNSTA	OB/OD	Path forward for sampling for planned RI	As presented on May 18, 2005, the Team agrees with Sampling Option 2 for the upcoming field investigation. Sampling Option 2: collect 15 surface soil and 15 subsurface soil samples from within the tree line area, and collect 30 surface soil samples outside the tree line. This option will capture the greatest extent of exposure points for ecological receptors.
42	8-17-05-42	9/26/2005	WPNSTA	SSA 25	Team approval of Draft Work Plan for SSA 25 Mercury Investigation	The Team agrees that the Work Plan for the SSA 25 investigation can be finalized and that field work can be scheduled.
43	4-4-06-43	4/4/2006	WPNSTA	1, 3, 11	Team approval of post-ROD documentation that addresses minor changes in the remedies at Sites 1, 3 and 11 at WPNSTA Yorktown.	The Team understands that the selected remedy documented in the Sites 1 and 3 ROD (Baker, 1999) and the Site 11 ROD (Baker, 2000) estimate an amount of soil that would be removed during the execution of the selected remedies, as noted above. The remedial action closeout reports (OHM, 2001a and 2001b) document that the actions resulted in the removal of 413 tons (260 cy) of soil from Site 1, 284 tons (800 cy) of soil from Site 3, and 655 tons (400 cy) of soil from Site 11. While these increases in quantity constitute changes in the remedy, they are considered minor changes in terms of USEPA guidance on post-ROD changes (USEPA, 1999). A minor change is considered a change that does not have a significant impact on scope, performance, or cost of the remedy, such as a small volume change or a change in the long term monitoring frequency. The Team, therefore, agrees that a Memo to File is appropriate to document these minor changes for Sites 1, 3 and 11. The Memo to File will become part of the WPNSTA Yorktown Administrative Record.
44	7-24-06-44	7/24/2006	WPNSTA	GWOUs	Elimination of GWOU designations	Groundwater at WPNSTA Yorktown will be addressed on a site-specific basis.
45	9-1-06-45	9/1/2006	WPNSTA	12	LTM at Site 12	Elimination of VOC sampling from LTM sampling program at Site 12.

TABLE 2-2

WPNSTA Yorktown/CAX Partnering Team Consensus Statement Summary

FY 2015 - 2016 SMP

Number	Consensus Statement Number	Date	Facility	Site	Topic	Consensus Statement
		3/14/2008	WPNSTA	3	LUC not necessary	The Partnering Team agrees to the following: 1. Residual levels of cPAHs in the PAH hot-spot are are below clean up levels that are protctive of human health (4.1 mg/kg) and the environment (44 mg/kg) for UUUE. 2. Soils at the entire site poses no unacceptable risks to human health or the environment 3. No waste material remains at the sitel and 4. The entire site meets the criteria for UUUE Therefore land use controls are not necessary to protect human health and the environment from exposure to soil at Site 3.
		5/15/2008	WPNSTA	8	NFA for soil and sediment	The Partnering team agrees that, based on the removal action and post-removal confirmation sampling resluts, no further action for soil or sediment is required at Site 8.
		5/20/2008	WPNSTA	11 and 17	NFA for groundwater	The Partnering team agrees groundwater poses no unacceptable human health or ecological risks, therfore NFA is warranted for groundwater at Sites 11 and 17.
	9-23-09-1	9/26/2009	WPNSTA	Site 16/SSA 16	Withdrawl of ESD and continuation of ICs	The partnering team agreed that the Site 16/SSA 16 Risk Management Technical Memorandum and ESD will be withdrawn and the Institutional Controls, along with Five-Year Reviews, will continue at the site.

TABLE 2-3
Major Elements of the CERCLA Process
FY2014-15 SMP

Preliminary Assessment (PA)	Initiation of concern about a site, area, or potential contaminant source. 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 sites that may pose a threat and require further investigation. Environmental samples are rarely collected during a PA. The PA also identifies sites requiring assessment for possible response actions. If the PA results in a recommendation for further investigation, an SI is conducted.
Site Investigation (SI)	Some sites warrant preliminary or interim investigations, studies, or removal/remedial actions. If it is unclear as to whether a site should be included in the CERCLA RI/FS process, an SI is sometimes conducted to make a general determination if activities at the site have impacted environmental media. SIs typically include the collection of environmental and waste samples to determine which hazardous substances are present at a site and to determine if these substances have been released to the environment.
Remedial Investigation (RI)	During an RI, data are collected to characterize site conditions, determine the nature of the waste, assess risk to human health and the environment, and, if necessary, conduct treatability testing to evaluate the potential performance and cost of the treatment technologies being considered.
Treatability Study (TS)	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 studies) 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 are performed to assist in the evaluation of a potentially promising remedial technology. 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 support the remedial design of a selected alternative.
Engineering Evaluation/ Cost Analysis (EE/CA) and Interim Removal Action (IRA)	Removal actions are implemented to clean up or remove hazardous substances from the environment at a specific site in order to mitigate the spread of contamination. Removal actions may be implemented at any time during the CERCLA process. Removal actions are classified as either time-critical or non-time-critical actions. 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 time-critical removal actions. Removal actions that may be delayed for 6 months or more without significant additional harm to human health or the environment are classified as non-time-critical removal actions (NTCRA). 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. It is possible for a removal action to become the final remedial action if the risk assessment results indicate that no further remedial action is required in order to protect human health and the environment.

TABLE 2-3
Major Elements of the CERCLA Process
FY2014-15 SMP

Feasibility Study (FS)	The FS is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions. The RI and FS can be conducted concurrently; data collected in the RI influences 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 effort, which minimizes the collection of unnecessary data and maximizes data quality.
Proposed Plan (PP)	A PP presents the remedial alternatives developed in the FS and recommends a preferred remedial alternative. The public has an opportunity to comment on the PP during an announced formal public comment period. Site information is compiled in an administrative record and placed in the general IR program information repositories established at local libraries for public review. The public comments are reviewed and the responses are recorded in a document called a Responsiveness Summary. At the end of the public comment period, an appropriate remedial alternative is chosen to protect human health and the environment. All parties directly involved in the restoration program (Navy, EPA, and VDEQ) must agree on the selected alternative.
Record of Decision (ROD)	The ROD document is issued to explain and document the selected remedial action. Public comments received during the PP are addressed as part of the responsiveness summary in the ROD. A notice to the public is issued when the ROD is signed by Navy and EPA following State concurrence.
Remedial Design/Remedial Action (RD/RA)	The final stage in the process is the RD/RA. The technical specifications for cleanup remedies and technologies are designed in the RD phase. If land use controls are a component of the remedy, the Land Use Control Remedial Design is generated during this phase. The RA is the actual construction or implementation phase of the cleanup process.
Remedy In Place (RIP)	For long-term remedies where it is anticipated that remedial action objectives will be achieved over a long period, the RIP milestone signifies the completion of the remedial action 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 all RCs and RIPs have been documented for every site at the facility and the terms of the FFA have been met, site closeout and NPL deletion is completed.
Response Complete (RC)	Within the CERCLA process there are multiple points at which 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 response complete and/or site closeout. RC is the point at which the remedy has achieved the required reduction in risk to human health and the environment (cleanup goals have been met). Response complete is followed by site closeout.
Five Year Review	Five-year reviews generally are required by CERCLA or program policy when hazardous substances remain on site above levels that permit unrestricted use and unlimited exposure. Five-year reviews provide an opportunity to evaluate the implementation and performance of a remedy to determine whether it remains protective of human health and the environment. Generally, reviews are performed 5 years after the initiation of a CERCLA response action, and are conducted every 5 years as long as future uses remain restricted. Five-year reviews for WPNSTA Yorktown are performed by the Navy, the lead agency for the site, but EPA retains responsibility for determining the protectiveness of the remedy.

Legend

- Ongoing LTM
- Active RA/RD Sites (one or more media)
- Active PRAP/ROD Sites (one or more media)
- Active RI/FS Sites (one or more media)
- No Further Action RI/FS Sites and SSP SSAs
- Action SSP Sites/SSAs (one or more media)
- MMRP Sites
- NFA-MMRP Sites

N W E S

0 1,800 3,600 Feet

Figure 2-1
Sites/SSA Locations/AOC Locations/MMRP sites and CERCLA Status
Site Management Plan for FY 2015 to 2016
Naval Weapons Station Yorktown
Yorktown, Virginia

CH2MHILL

SECTION 3

WPNSTA Yorktown Site and SSA Descriptions

This section provides a summary of Basewide investigations as well as a brief history of CERCLA activities (chronology of significant CERCLA documents and milestones), a summary of the nature and extent of potential contamination, potential unacceptable risks, RAs, and CERCLA path forward for each of the sites and the one SSA at WPNSTA Yorktown. Schedules for this FY 2015-2016 SMP illustrate ongoing and planned CERCLA activities for 2015 and 2016.

3.1 Basewide Studies

WPNSTA Yorktown initiated its environmental investigation and restoration efforts in 1984 under the NACIP program by conducting an Initial Assessment Study (IAS). The purpose of the IAS was to identify and assess sites posing a potential threat to human health and/or the environment due to contamination from past operations. A total of 19 sites were identified based on information from historical records, aerial photographs, field inspections, and personnel interviews. The IAS concluded that 15 of the 19 sites posed a sufficient threat to human health or the environment to warrant Confirmation Studies (C. C. Johnson & Associates, Inc., and CH2M HILL, 1984).

Confirmation Studies included the collection and analysis of groundwater, sediment, and soil in 1986 and 1988. In 1986, samples were collected from the 15 sites identified in the IAS (Dames & Moore, 1986). The 1988 sampling effort consisted of additional analyses of groundwater, sediment, and soil (Dames & Moore, 1988). In 1992, an RI Interim Report summarized confirmation study results and recommended further RI activities at 14 of the 15 sites (Versar, 1991).

A Focused Biological Sampling and Preliminary Risk Evaluation was completed in 1993 summarizing results of a limited biological tissue, surface water, and sediment sampling effort to evaluate the potential human health risk associated with consumption of fish and shellfish taken from select waters within WPNSTA Yorktown, including Lee Pond, Roosevelt Pond, Felgates Creek, and Indian Field Creek (Baker and Weston, 1993a). A Habitat Evaluation was completed at WPNSTA Yorktown in 1995 that characterized the aquatic and terrestrial habitats at Sites 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 16, 17, 18, 19, and 21. The evaluation described the major habitat types on or surrounding each site, provided an inventory of vegetative species, and a record of any animal species encountered or suspected to be present (Baker, 1995).

Five-year Reviews were conducted in 2002, 2007, and 2013 to evaluate the effectiveness of the remedies at sites for which there is a ROD or Decision Document (DD) in place to determine if the remedies continued to be protective of human health and the environment. The 2002 and 2007 Five-year Reviews included an evaluation of Sites 1, 6, 7, 12, 16/SSA 16, and 19 (Baker, 2002; CH2M HILL, 2007b). The 2007 Five-year Review also included an evaluation of Sites 3, 11, and 17. Both documents concluded that all site remedies were properly implemented and protective of human health and the environment. The 2007 Five-year Review recommended the preparation of Explanations of Significant Differences (ESDs) documenting the changes in scope, performance, and cost of the remedies selected in the RODs for Sites 3, 6, 12, 16/SSA 16, and 17. The 2013 Five-year Review included an evaluation of Sites 1, 6, 7, 12, 16/SSA 16, and 19 (CH2M HILL, 2013a), and concluded that remedies for Sites 7, 12, and 16/SSA 16 are currently protective of human health and the environment, and that remedies for Sites 1, 6, and 19 are protective of human health and the environment in the short-term. The 2013 Five-year Review recommended that additional investigations be completed for Sites 1, 6, and 19 to evaluate future protectiveness. The next Five-year Review will be completed in 2018; projections of the sites that will be evaluated are identified in this SMP within individual site CERCLA path forward sections.

In August 2009, an update to the WPNSTA Yorktown and CAX CIP was prepared to assist the Navy in meeting the needs of the local community for information about, and participation in, the ongoing investigation and remedial processes (CH2M HILL, 2009a). The CIP identifies community concerns about the investigation and restoration of potentially contaminated sites at WPNSTA Yorktown and CAX and outlines community involvement activities to be conducted during the ongoing and anticipated future restoration activities. In general, the local populace trusts the Navy and feels that the Navy has a good relationship with the community. A 2014 update to the CIP is currently being developed.

The aforementioned documents are listed, along with the author, date, and AR document number, in **Table 3-1**.

TABLE 3-1
Basewide Studies

Document Title /Milestone	Author/Date	AR Document Number
Initial Assessment Study of Naval Weapons Station Yorktown	C.C. Johnson/ CH2M HILL, 1984	000247
Confirmation Study Step 1A (Verification), Round One	Dames and Moore, 1986	000256
Confirmation Study Step 1A (Verification), Round Two	Dames and Moore, 1988	000259
Remedial Investigation Interim Report	Versar, 1991	000812
Focused Biological Sampling and Preliminary Risk Evaluation	Baker and Weston, 1993a	000310
Five-Year Review Report for Sites 1, 6, 7, 12, 16, and 19	Baker, 2002	001310
Five-Year Review Report for Sites 1, 3, 6, 7, 11, 12, 16/SSA 16, 17, and 19	CH2M HILL, 2007b	002155
Community Involvement Plan	CH2M HILL, 2009b	000007
Five-Year Review Report for Sites 1, 6, 7, 12, 16/SSAs 16 and 19	CH2M HILL, 2013a	002568

3.2 Environmental Restoration Program Sites

An overview for each active ER site at WPNSTA Yorktown is provided in the following subsections, and includes the site description, a summary of previous investigations, associated media and potential risks identified, activities to be completed in FY 2015-2016, and the CERCLA path forward. Active ER sites included in this section, that are currently undergoing investigation and have not been closed, include Sites 1, 3, 6, 7, 8, 9 and 19, 12, 22, 23, 24, 25, 26, 31, 33, and 34.

Sites that were included in the FY 2014-2015 SMP, that have since been closed and are no longer included in this section are Site 16/16A and Site 32, which are now summarized in **Table 2-1**. Additional information on sites with no action or NFA decisions since 2007 is also included in **Table 2-1.** Background information for sites, SSAs, and AOCs with no action or NFA decisions prior to 2007 is provided in the “baseline” FY 2008-2009 SMP (CH2M HILL, 2008f).

3.2.1 Site 1—Dudley Road Landfill

Site 1 Summary	
Status:	Investigation Ongoing Soil: ROD – OU VIII, CERCLIS 6 - closed (landfill cover/LUCs) Groundwater: CERCLIS 33 - open Surface Water: CERCLIS 33 - open Sediment: CERCLIS 33 - open
Current ER Activities:	RI/FS Stage of Investigation - RI for Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment

Site 1 Summary	
Removal and RAs:	Surface Debris Removal and Soil Excavation– 1999 (OHM, 2001)
Media Closed:	Soil – Landfill Cover and Land Use Controls (LUCs) (Baker, 1999b; OHM, 2001)
Waste and/or Debris Present Onsite:	Yes (Soil Cover In Place)
Activities Completed in FY2014:	Phase III RI Field Work; Technical Memorandum (TM) to Document Extent of Landfill Waste and Soil Cover; LUC RD

3.2.1.1 Site Description

Site 1 is a 10-acre landfill located in the northern portion of WPNSTA Yorktown, west of Indian Field Creek and north of an unnamed tributary to the creek (**Figure 3-1**). Site 1 is generally level and grassy with topography that gently slopes to the east with more pronounced slopes east and south toward Indian Field Creek and the unnamed tributary to Indian Field Creek. The area surrounding the soil-covered landfill is wooded and acts as a riparian buffer for the adjacent Indian Field Creek. Depth to groundwater is between 3 and 10 feet below ground surface (bgs). Groundwater in both the Columbia and Yorktown-Eastover aquifers flows primarily toward Indian Field Creek and its tributary. Indian Field Creek discharges to the York River (approximately 1 mile) downstream of Site 1.

Site 1 was historically used for sand mining activities, resulting in the construction of two borrow pits, which were subsequently filled with waste materials. Between 1965 and 1979, Site 1 was operated as a landfill under a VDEQ Conditional Permit (No. 287) for disposal of solid waste materials in the borrow pits. Disposed waste included asbestos from insulation on steam piping; empty oil, grease, paint, and solvent containers; nitramine-contaminated carbon; household appliances; scrap metal banding; construction debris; tree limbs; lumber; packaging wastes; electrical wires; waste oil; and plastic lens grinding waste. These wastes were estimated at combined disposal quantities of 17 tons per year for approximately 15 years. In 1979, the landfill was closed except for the disposal of plastic lens grinding residues, which continued for 2 years after the closure of the main landfill. In 1985, the landfill was closed to the receipt of all waste materials. A summary of relevant documents and action milestones is presented in **Table 3-2**.

TABLE 3-2
Site 1 Previous Investigations

Document Title/Milestone	Summary
Final Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and soil, groundwater, surface water, and sediment samples were collected and analyzed. In addition, a soil cover survey was conducted. Results indicated that landfill activities had affected groundwater quality, as the presence of tetrachloroethene (PCE), TCE, cis-1,2-dichloroethene (DCE), and other volatile organic compounds (VOCs) and metals were detected in groundwater. VOCs and metals were detected in sediment, and metals were detected in surface water. The report recommended an expanded geophysical investigation to define the boundaries of waste disposal and additional groundwater investigation to delineate the extent of groundwater contamination.
Final Round Two RI Report Sites 1 and 3 (Volumes I and II) (Baker, 1998a) – AR # 000998 and 000999	Additional groundwater monitoring wells were installed and test pits were excavated to delineate the extent of waste disposal at Site 1. Surface and subsurface soil, sediment, surface water, and groundwater samples were collected and analyzed. A Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) were completed and potential unacceptable risks were identified for potential future adult and child residents from exposure to VOCs in groundwater, and potential risk to the aquatic environment was identified due to several metals in sediment and surface water. The report concluded that groundwater at Site 1 had been fully delineated and recommended implementing LUCs to prohibit groundwater as a potable water source, and concluded that NFA was required for Site 1 soils.

TABLE 3-2
Site 1 Previous Investigations

Document Title/Milestone	Summary
Final FS Sites 1 and 3 (Baker, 1997b) – AR # 001158	The FS delineated an arsenic "hot spot" in Site 1 soil, where elevated levels of arsenic posed potential risk to human receptors, and established a final remedial goal of 63 milligrams per kilogram (mg/kg) for arsenic in Site 1 soil. The remedial action objective (RAO) identified was to mitigate the potential for direct contact with arsenic-contaminated soil exceeding the remedial goal. Alternatives evaluated for Site 1 soil were: (1) No Action, (2) Soil Cover and Surface Debris Removal, and (3) Soil Cover, Surface Debris Removal, and Excavation with Offsite Disposal.
Final Proposed Remedial Action Plan (PRAP) Site 1 – Dudley Road Landfill and Site 3 – Group 16 Magazines Landfill (Baker, 1999a) – AR # 001840	The PRAP was completed to document the proposed RA of soil cover, surface debris removal, and excavation with offsite disposal of soil posing unacceptable risks to human health.
Final ROD Operable Unit Nos. VIII and IX Site 1 – Dudley Road Landfill and Site 3 – Group 16 Magazines Landfill (Baker, 1999b) – AR # 001000	The ROD for Site 1 identified Alternative 3, soil cover, surface debris removal, and excavation and offsite disposal of soil posing potential unacceptable risks to human health as the selected remedy. The major components of the remedy were removal of surficial debris, excavation and offsite disposal of arsenic-contaminated soil within the hot spot area, and restoration of portions of the existing soil cover with eighteen inches of soil cover material followed by 6 inches of topsoil. In addition, LUCs to prevent residential land use were implemented.
Final Report RA Sites 1 and 3, and SSA 22 (OHM, 2001) – AR # 001091	The Final RA report documented the completion of the selected remedial alternative, surface debris removal, excavation and offsite disposal of arsenic-contaminated soil from the hot spot at Site 1, and restoration of the soil cover.
Final Long-term Monitoring (LTM) Report for Sites 1, 3, and 7 (Baker, 2006a) – AR # 002075	The LTM Report documented and evaluated the five rounds of LTM samples collected at Site 1. Following the completion of the soil RA, LTM of groundwater, surface water, and sediment were initiated to monitor concentrations of VOCs in groundwater and potential impacts from groundwater discharging to surface water bodies. LTM was initiated based on concurrence of the Yorktown Partnering Team, as LTM was not stipulated in the ROD for Site 1. Round 1 of LTM at Site 1 was conducted in May 2000, and four wells (MW04A, MW05A, MW12, and MW12B) and 10 co-located surface water and sediment locations (SW/SD18 through SW/SD27) were sampled and analyzed for VOCs. Rounds 2 through 5 were conducted in September/October 2004, February 2005, May 2005, and August 2005, respectively. During LTM Rounds 2 through 5, seven monitoring wells (MW04, MW04A, MW05, MW05A, MW12, MW12B, and MW20) and nine co-located surface water and sediment locations (SW/SD19 through SW/SD27) were sampled and analyzed for VOCs. The 2006 Report concluded that LTM should cease at Site 1, given that LTM was not stipulated as the final remedy for groundwater, and additional investigation of groundwater was being conducted.
Final Phase I RI Report for Groundwater at Sites 1, 3, 6, 7, 11, 17, 24, and 25 (CH2M HILL, 2007a) – AR # 002158	The Phase I RI for Groundwater at Operable Unit I was completed to assess the nature and extent of groundwater contamination at several WPNSTA Yorktown sites, including Site 1, based on comparison of available data to maximum contaminant levels (MCLs) and maximum background concentrations. Phase I RI field activities were conducted in September and October 2004 and included groundwater sampling. Chlorinated VOCs (CVOCs), specifically TCE and its daughter products, were identified as primary contaminants in Site 1 groundwater. It was concluded that contaminants in Site 1 groundwater migrate vertically downward and laterally toward Indian Field Creek; however, the extent of CVOC contamination was not fully delineated. The Phase I RI recommended additional investigation, including conducting a membrane interface probe (MIP) investigation, groundwater/surface water interface sampling, further investigation of the aquifers at Site 1, and quantifying potential unacceptable risks.

TABLE 3-2
Site 1 Previous Investigations

Document Title/Milestone	Summary
Final Phase II RI Report Sites 1 and 3 (Volumes I, II, III, and IV) (CH2M HILL, 2012b) – AR # 002630, 002631, 002632, 002633	Phase II RI activities were performed between January and September 2009, and consisted of MIP logging, direct-push technology (DPT) sampling, monitoring well installation and sampling, hydraulic conductivity testing, and surface water, sediment, and sediment pore water sampling from the southwestern branch of Indian Field Creek. Using the Phase II RI results, an HHRA was conducted to evaluate potential risks from constituents in groundwater at Site 1 and surface water and sediment in the creek and the tributary. An ERA was conducted to assess potential risks to the environment from constituents in surface water, sediment, and pore water. Groundwater COCs identified as posing potential unacceptable risks to human receptors warranting remediation were PCE, TCE, cis-1,2-DCE, and vinyl chloride (VC). While the collected data were determined to be adequate for the purpose of risk assessment, the report recommended further investigation to support the FS. Report conclusions indicated data gaps with regard to VOC concentrations in areas where the plume was delineated only with MIP and components of discharge to surface water bodies under potentially varying base flow conditions.
Final Technical Memorandum, Site 1 Dudley Road Landfill, Extent of Landfill Waste and Soil Cover (CH2M HILL, 2014a) – AR # Pending	The landfill cover investigation was completed to confirm the lateral extent of landfill waste, to confirm the vertical and lateral extent of the soil cover over the landfill, and to delineate waste within the landfill potentially not covered by the existing soil cover. Both the extent of landfill waste material and the soil cover were delineated using historical aerial photographs, historical and recent soil borings and test pit locations, the 2013 field observations and test pit and hand-dug locations, and topography to address uncertainties identified in the 2013 Third Five-Year Review Report. All areas of landfilled waste were found to be covered by at least 2 feet of soil, and the boundaries of the landfill cover could be determined with confidence from the available data. Based on these conclusions, the Navy recommended a Land Use Control Remedial Design for Site 1 with continued annual site inspections.
Remedial Design for LUCs (NAVFAC, 2014) – AR # Pending	The LUC RD was issued to satisfy the ROD requirement related to LUCs to prevent unacceptable risk from exposure to soil and landfill waste at Site 1. The LUC RD does not pertain to site groundwater, surface water, or sediments since these media are still under investigation. LUCs associated with Site 1 soil and waste (OU VIII) will be maintained within the landfill soil cover boundary until concentrations of hazardous substances within the soils are reduced to levels that allow for unlimited exposure and unrestricted use. These LUCs include prohibiting disturbance of the soil cover, intrusive activities, construction, residential development, and placement of new wells for any purpose other than environmental monitoring, within the boundary of the soil cover.

3.2.1.2 Activities Completed in FY 2014

A Uniform Federal Policy-Sampling and Analysis Plan (UFP-SAP) was finalized in March 2013 as part of the Site 1 RI, and field work in association with the UFP-SAP, including surface water, sediment, pore water, and seep sampling, was conducted from April to June 2013. The Phase III RI Report to document the completed field work and results, is currently being developed. A TM to document the extent of landfill waste and soil cover was finalized in January 2014, and an LUC RD to document the LUCs at Site 1 was completed in May 2014. LUC inspections of the landfill soil cover are performed on an annual basis.

3.2.1.3 Nature and Extent of Potential Contamination

The buried waste at Site 1 is the source of contamination to soil, groundwater, sediment, and surface water. Previous investigations included analyses of soil, groundwater, sediment, and surface water samples for target compound list (TCL) VOCs, TCL semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), explosives, and target analyte list (TAL) inorganic constituents. Sediment pore water was also sampled for TCL VOCs. Surface water and sediment samples were collected near Site 1 as part of an overall evaluation of surface water related to Sites 1 and 3, as they are adjacent to each other and contribute runoff and groundwater discharge to Indian Field Creek. The current nature and extent of

contamination for each medium at Site 1, as documented in the previously presented reports, are summarized in **Table 3-3**.

TABLE 3-3
Site 1 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health	Arsenic	An RA was conducted that consisted of surface debris removal and a soil removal action consisting of excavation and offsite disposal of arsenic-contaminated soil. Confirmation samples were collected and all remediation goals (RGs) were achieved (OHM, 2001).
Groundwater	Human Health	TCE, cis-1,2-DCE, 1,1,2-trichloroethane (TCA), and VC	Potential unacceptable risks were identified associated with TCE, cis-1,2-DCE, 1,1,2-TCA, and VC, based on the conclusions of the Phase II RI (CH2M HILL, 2012). No revisions to this list of COCs are recommended based on the results of the Draft RI currently being developed.
Surface Water	None Identified	None Identified	No potential unacceptable risk or COCs associated with surface water were identified in the risk assessments to be submitted as part of the Draft RI currently being developed.
Sediment	None Identified	None Identified	No potential unacceptable risks or COCs associated with sediment were identified in the risk assessments to be submitted as part of the Draft RI currently being developed.

3.2.1.4 CERCLA Path Forward

- Routine annual LUC inspection of landfill soil cover area
- Phase III RI report for groundwater, surface water, and sediment
- FS/PP/ROD for groundwater, surface water, and sediment
- LUC RD
- Remedial Action Work Plan (RAWP)
- RA field work
- Construction Completion Report (CCR)
- Five-year Review (2018)
- LTM Work Plan and implementation
- Remedial Action Completion Report (RACR)

Schedule 3-1 presents the FY 2015-2016 schedule for Site 1.

3.2.2 Site 3—Group 16 Magazine Landfill

Site 3 Summary	
Status:	Investigation Ongoing Soil: ROD – OU IX, CERCLIS 9 - closed (removal) Groundwater: CERCLIS 35 - open Surface Water: CERCLIS 35 - open Sediment: CERCLIS 35 - open
Current IR Activities:	PRAP/ROD Stage of Investigation - PRAP for Groundwater, Surface Water, and Sediment in development
Media Investigated:	Soil, Groundwater, Surface Water, Sediment

Site 3 Summary	
Removal and RAs:	Soil and Waste/Debris Excavation – 1999 (OHM, 2001)
Media Closed:	Soil – carcinogenic PAHs (cPAHs) (CH2M HILL, 2012b) Surface Water – No COCs (NFA pending) Sediment – No COCs (NFA pending)
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	FS Report for Groundwater

3.2.2.1 Site Description and History

Site 3, the Group 16 Magazines Landfill, is an open field and wooded area behind the former Group 16 Magazines, located in the northern portion of WPNSTA Yorktown west of Indian Field Creek (**Figure 3-2**). Site 3 is named for its proximity to the Group 16 Magazines; however, the history of this landfill is unrelated to operations at the magazines. Surface water and groundwater flow to the north/northeast toward Indian Field Creek. The area adjacent to Indian Field Creek is covered by woods that act as a riparian buffer for surface water runoff. North and south of Site 3 are two unnamed tributaries that lead into Indian Field Creek.

The site was originally used for sand mining and consisted of one 10-foot-deep borrow pit. Between 1940 and 1970, Site 3 was operated as a landfill. Approximately 90 tons of waste were disposed of in the borrow pit and reportedly included solvents, sludge from boiler cleaning operations, grease trap wastes, Imhoff tank skimmings (containing oil and grease), and animal carcasses. The Site 3 waste boundary was estimated as part of previous investigations that included a geophysical survey. Test pit investigations performed in 1997 confirmed the presence of scrap metal, 55-gallon metal drums, grease, wax, lumber, banding, concrete blocks, plastic sheeting, and surface debris. A summary of relevant documents and action milestones is presented in **Table 3-4**.

TABLE 3-4
Site 3 Previous Investigations

Document Title/Milestone	Summary
Final Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and soil, groundwater, surface water, and sediment samples were collected. Results indicated that landfill activities had affected groundwater quality, as the presence of TCE and other VOCs and metals were detected in groundwater. The report recommended a geophysical investigation to define the boundaries of waste disposal, and additional groundwater investigation to evaluate potential seasonal variation in TCE concentrations.
Final Round Two RI Report Sites 1 and 3 (Volumes I and II) (Baker, 1998a) – AR # 000998 and 000999	A polycyclic aromatic hydrocarbon (PAH)-contaminated soil hot spot was identified, and HHRAs and ERAs were completed that considered two separate areas: Site 3 proper, and the PAH hot spot. Site 3 proper included all sample locations except the PAH hot spot area. No potential risks were identified for soil associated with Site 3 proper. Potential unacceptable human health and ecological risks were identified for soil associated with the Site 3 PAH hot spot.
Final FS Sites 1 and 3 (Baker, 1997b) – AR # 001158	The FS established a final remedial goal of 10 mg/kg for total cPAHs in Site 3 soil. In addition, a PAH-contaminated soil hot spot was identified, and the RAO for Site 3 was to mitigate the potential for direct contact of PAHs in soil exceeding the remedial goal of 10 mg/kg of cPAHs. Alternatives evaluated were: (1) No Action, (2) No Action with Institutional Controls and Debris Removal, (3) Soil Excavation with Onsite Treatment and Debris Removal, and (4) Soil Excavation with Offsite Disposal and Debris Removal.

TABLE 3-4
Site 3 Previous Investigations

Document Title/Milestone	Summary
Final PRAP Site 1 – Dudley Road Landfill and Site 3 – Group 16 Magazines Landfill (Baker, 1999a) – AR # 001840	The PRAP was completed to document the proposed RA of removal and offsite disposal of soil posing unacceptable risks to human health and the environment (Alternative 4).
Final ROD Operable Unit Nos. VIII and IX Site 1 – Dudley Road Landfill and Site 3 – Group 16 Magazines Landfill (Baker, 1999b) – AR # 001000	The ROD for Site 3 identified Alternative 4, removal and offsite disposal of soil posing unacceptable risks to human health and the environment, as the selected remedy. The major components of the remedy were removal of surface debris, excavation and offsite disposal of PAH-contaminated soil within the hot spot area, and LUCs to prevent residential land use.
Final Report RA Sites 1 and 3, and SSA 22 (OHM, 2001) – AR # 001091	The Final RA report documented the completion of the selected remedial alternative, excavation and offsite disposal of contaminated soil from Site 3. Although the selected remedy identified in the ROD was to remove PAH-contaminated soil that exceeded commercial/industrial levels (10 mg/kg) within the PAH hot spot area, as excavation progressed during the RA, buried waste was encountered, and the 2000 action was expanded to remove all waste at the Site (Site 3 proper and PAH hot spot). Approximately 432 tons of PAH-contaminated soil, drums, and dry batteries were removed. In addition, approximately 4,700 tons of galley waste (cardboard, glass bottles, metals cans) were also removed. Areas where contaminated soil and waste were removed received 3 to 8 feet of backfill.
Final LTM Report for Sites 1, 3, and 7 (Baker, 2006a) – AR # 002075	The LTM Report documented and evaluated the five rounds of LTM samples collected at Site 3. Following the completion of the soil RA, LTM of groundwater was initiated to monitor concentrations of VOCs. LTM was initiated based on concurrence by the Yorktown Partnering Team, as LTM was not stipulated in the ROD for Site 3. Round 1 of LTM at Site 3 was conducted in May 2000, and three wells (MW08A, MW19, and MW19A) were sampled and analyzed for VOCs. Rounds 2 through 5 were conducted in September/October 2004, February 2005, May 2005, and August 2005, respectively. During LTM Rounds 2 through 5, six monitoring wells (MW08A, MW08B, MW19, MW19A, MW20, and MW20A) were sampled and analyzed for VOCs. The 2006 Report concluded that LTM should cease at Site 3, given LTM was not stipulated as the final remedy for groundwater, and additional investigation of groundwater was being conducted.
Final Phase I RI Report for Groundwater at Sites 1, 3, 6, 7, 11, 17, 24, and 25 (CH2M HILL, 2007a) – AR # 002158	The Phase I RI for Groundwater at Operable Unit I was completed to assess the nature and extent of groundwater contamination at several WPNSTA Yorktown sites, including Site 3, based on comparison of available data to MCLs and maximum background concentrations. Phase I RI field activities were conducted in September and October 2004 and included groundwater sampling. Chlorinated VOCs (CVOCs), specifically TCE and its daughter products, were identified as primary contaminants in Site 3 groundwater. It was concluded that contaminants in Site 3 groundwater migrate vertically downward and laterally toward Indian Field Creek; however, the extent of CVOC contamination was not fully delineated. The Phase I RI recommended additional investigation, including conducting an MIP investigation, groundwater/surface water interface sampling, and quantifying potential unacceptable risks.
Final TM Documentation of Post-RA Site Conditions Site 3 – Group 16 Magazines Landfill (Baker, 2008a) – AR # 002200	The TM was completed to establish the post-RA site conditions at Site 3. The report documented that the RA completed in 2000 resulted in removal of all waste and PAH-contaminated soil to levels below a residential land use RG. Therefore, the LUC component of the remedy identified in the ROD to prevent future residential use with a requirement to conduct Five-year Reviews no longer applied, as the action implemented resulted in removal of all waste sources and residual soil concentrations that allow for unlimited use/unrestricted exposure (UU/UE).
ESD for Site 3 (CH2M HILL, 2008a) – AR # 002351	An ESD was signed in 2008 to document removal of all waste and associated soil contamination to levels acceptable for unlimited use and unrestricted exposure at Site 3 and removing the need for LUCs and Five-year Review of the site regarding soil.

TABLE 3-4
Site 3 Previous Investigations

Document Title/Milestone	Summary
Final Phase II RI Report Sites 1 and 3 (Volumes I, II, III, and IV) (CH2M HILL, 2012b) – AR # 002630, 002631, 002632, 002633	Phase II RI activities were performed between January and September 2009, and consisted of MIP logging, DPT sampling, monitoring well installation and sampling, hydraulic conductivity testing, and surface water, sediment, and sediment pore water sampling from the southwestern branch of Indian Field Creek and the tributary to the creek that flows to the north of Site 3. Groundwater COCs identified as posing potential unacceptable risks to human receptors and potentially warranting remediation were TCE, cis-1,2-DCE, VC, arsenic, and manganese. The Phase II RI report did not identify any COCs for surface water, sediment, or sediment pore water because the human health and ecological risks were within or below acceptable risk ranges.
Final FS Report for Groundwater at Site 3 (CH2M HILL, 2014b) - AR # Pending	The RAOs outlined in the groundwater FS were to reduce TCE, cis-1,2-DCE, VC, arsenic, and manganese concentrations in groundwater to risk-based cleanup levels, prevent future human receptors from exposure to groundwater until cleanup levels are met, and prevent unacceptable risk to ecological receptors from exposure to COCs in groundwater that discharges to Indian Field Creek. The MCL was established as the preliminary remediation goal (PRG) when available (for TCE, cis-1,2-DCE, VC, and arsenic). Because no MCL has been established for manganese, a risk-based PRG was calculated. Alternatives evaluated were: (1) No Action, (2) MNA and LUCs, (3) Enhanced In Situ Bioremediation, MNA, and LUCs, (4) In Situ Chemical Reduction (ISCR), MNA, and LUCs, and (5) In Situ Chemical Oxidation (ISCO), MNA, and LUCs.

3.2.2.2 Activities Completed in FY 2014

An FS Report for groundwater was finalized in January 2014, and a PRAP for groundwater, surface water, and sediment is currently available for public comment. The ROD for these media is currently being developed.

3.2.2.3 Nature and Extent of Potential Contamination

The waste at Site 3 was the source of potential contamination to soil, groundwater, sediment, and surface water. Previous investigations included analyses of soil, groundwater, sediment, and surface water samples for TCL VOCs, TCL SVOCs, pesticides, PCBs, explosives, and TAL inorganic constituents. Sediment pore-water was also sampled for TCL VOCs. Surface water and sediment samples were collected near Site 3 as part of an overall evaluation of surface water related to Sites 1 and 3, as they are adjacent to each other and contribute runoff and groundwater discharge to Indian Field Creek. Potential unacceptable risks identified for each medium at Site 3, as documented in the previously presented reports, are summarized in **Table 3-5.**

TABLE 3-5
Site 3 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health Ecological	cPAHs	A soil removal action was conducted consisting of excavation and offsite disposal of contaminated soil and waste/debris. Confirmation samples were collected and all RGs were achieved. An ESD to the ROD was subsequently signed in December 2008 to document the removal of LUCs for soil and the determination that NFA is required to address soil at Site 3 (CH2M HILL, 2012).
Groundwater	Human Health	TCE, cis-1,2-DCE, VC, arsenic, and manganese	Potential risks are primarily associated with TCE, cis-1,2-DCE, VC, arsenic, and manganese (CH2M HILL, 2012).
Surface Water	None Identified	None Identified	All potential human health and ecological risk associated with exposure to surface water were below or within the USEPA acceptable ranges (CH2M HILL, 2012).

TABLE 3-5
Site 3 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Sediment	None Identified	None Identified	All potential human health and ecological risk associated with exposure to sediment were below or within the USEPA acceptable ranges (CH2M HILL, 2012).

3.2.2.4 CERCLA Path Forward

- PRAP/ROD for groundwater, surface water, and sediment
- LUC RD
- Pre-RD Work Plan
- Pre-RD field work
- Pre-RD TM
- RD
- RAWP
- RA field work
- CCR
- LTM Work Plan and implementation
- RACR
- Five-year Review (2018)

Schedule 3-2 presents the FY 2015-2016 schedule for Site 3.

3.2.3 Site 6—Explosives Contaminated Wastewater Impoundment, Flume Area and Excavation Area

Site 6 Summary	
Status:	Investigation Ongoing Soil: Flume Area ROD OU XIII, CERCLIS 34 and Excavated Area ROD – OU XIV, CERCLIS 34 – open/LUCs Groundwater: ROD OU XV, CERCLIS 34 - open Surface Water: Impoundment Area ROD OU XV, CERCLIS 34 – open/LUCs Sediment: Flume Area ROD OU XIII, CERCLIS 34 and Impoundment Area ROD OU XV, CERCLIS 34 – open/LUCs
Current IR Activities:	RI/FS Stage of Investigation - RI for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Debris Removal and Soil Excavation, Treatment, and Disposal– 1999 to 2006 (OHM, 1999; Shaw, 2008)
Media Closed:	None
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	UFP-SAP for Site 6 RI

3.2.3.1 Site Description

Site 6 is located in the northern portion of WPNSTA Yorktown and consists of three areas: an Impoundment Area, a Flume Area, and an Excavated Area (**Figure 3-3**).

Flume Area

The Flume Area is a network of concrete flumes that transported wastewater from Building 109 to a downgradient wetland area. The wastewater, possibly containing explosive constituents (TNT, hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX], and 2,4-dinitrotoluene [DNT]) and solvents (TCE, 1,1,1-TCA, and cyclohexanone), was discharged between 1942 and 1975. The wastewater was generated from explosives reclamation at Building 109 (R-1) and from explosives loading, mixing, and casting at Building 110 (Plant 2).

In 1975, a carbon adsorption tower was installed to treat the contaminated wastewater prior to discharge into the drainage way. A National Pollutant Discharge Elimination System (NPDES) permit was granted to allow the discharge of effluent from the carbon adsorption tower containing acceptable concentrations of nitramines/nitroaromatics. In 1986, the effluent from the carbon adsorption tower was diverted to the sanitary sewer and ultimately to the Hampton Roads Sanitation District (HRSD) (Baker, 1998b).

Impoundment Area

The Site 6 Impoundment Area is the wetland area located behind the coffer dam along a small tributary to the main branch of Felgates Creek. The surface impoundment was created by building a coffer dam across the headwaters of the small tributary. Wastewater (containing explosives constituents and solvents) was discharged to this area from the flume area between 1942 and 1975. After 1986, the surface impoundment collected only surface runoff from the area around Buildings 109 and 110. Wastewater discharges ceased in 2003 when operations in Buildings 109 and 110 terminated (Baker, 1998b).

Excavated Area

The Excavated Area was originally identified via aerial photography where concrete rubble and other debris was evident (Baker, 1994e). However, there were no records to document historical activities or former use. Previous reports suggest that the area may have been: 1) used as the soil borrow pit for construction of the coffer dam, 2) used to contain packed explosives, or 3) used for disposal of unknown types of materials and debris (Baker, 1998b; CH2M HILL, 2007a). Based on historical photographs, soil boring logs, and analytical soil and groundwater data collected during SIs, the Excavated Area was most likely used only for surface storage and not for any of the previously suggested uses.

While refining the Operable Unit boundaries, a cleared area was identified to the west of the Excavated Area in historical aerial photographs and subsequent site visits (CH2M HILL, 2012d). Initially, it was suspected that this might have been the actual location of the Excavated Area instead of the area specified in the ROD. However, after further review of historical photographs, the location of the Excavated Area is believed to have been defined correctly in the ROD. There is no documentation or photographs to suggest that disposal or storage activities were conducted at the cleared area.

In addition to these areas, the current investigation also includes the footprint of three former buildings within Plant 1 and Plant 2 (Building 109, Building 110, and Building 501) that have been demolished. The former buildings were decontaminated and demolished in 2012, and existing surface soil was evened out across the area of the former buildings, including the Flume Area. Currently, the Impoundment Area only collects surface runoff from the area between the former buildings, and the coffer dam is still in place. All of these areas are currently being investigated as part of Site 6.

Site 6 is generally wooded with some open areas near the existing buildings. Site 6 topography generally slopes from highs on the northern and southern areas downward toward the Impoundment Area, with ground surface elevations from approximately 40 feet above mean sea level (amsl) near Main Road to less than 10 feet amsl at the Impoundment Area. An unnamed tributary and the Eastern Branch of Felgates Creek are located on the western side of the site. The study area also includes former Building 109, which has been demolished. Surface water runoff from the site is conveyed to Felgates Creek either directly by overland flow or via tributaries located adjacent to Site 6.

The surface geology at Site 6 is consistent with Yorktown-Eastover aquifer lithology. The depth to groundwater mimics topography and ranges from 1 to 35 feet bgs. Groundwater generally flows from the northern, westward, and southern areas toward the Impoundment Area and Felgates Creek. The Yorktown-Eastover aquifer is approximately 80 feet thick in the vicinity of Site 6 and is underlain by the Eastover-Calvert confining unit (Brockman et al., 1997).

A summary of relevant documents and action milestones is presented in **Table 3-6**.

TABLE 3-6
Site 6 Previous Investigations

Document Title/Milestone	Summary
Final Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and soil, groundwater, surface water, and sediment samples were collected. Based on the results of the investigation, it was recommended that Site 6 be a candidate for an accelerated RA for soil and sediment under a Focused Feasibility Study (FFS). The Round One RI recommended that additional surface soil and sediment samples be collected in the area north of Building 109 to confirm that contamination was localized in the upstream portion of the ditch and that additional groundwater sampling be conducted to delineate the extent of VOC and explosives-contaminated groundwater in the area.
Final Round Two RI Report Sites 6 and 7 (Volumes I, II, III, and IV) (Baker, 1998b) – AR # 001294, 001295, 001346, 001347	A Round Two RI and Supplemental Investigation were conducted between 1994 and 1996. Field activities at Site 6 consisted of the installation of three groundwater monitoring wells, groundwater sampling at eight temporary points and four permanent monitoring wells, and surface and subsurface soil sampling. Surface water and sediment samples were collected within Site 6 and Felgates Creek.
FS, v2, Sites 6 and 7 (Baker, 1998d) – AR #001077	Based on the results of the Round One RI and Round Two RI, an FFS was conducted to identify remedial action alternatives (RAAs) to address soil and sediment contamination at Site 6. Although concentrations in surface water in the Impoundment Area were identified as posing potential risks to ecological receptors, this medium was not included in the alternative evaluation. Sediment and soil in the Flume Area were considered to pose the greatest risks.
PRAP, v2, Sites 6 and 7 (Baker, 1998e) – AR # 001838	The PRAP was prepared to document the selected remedy for Site 6 for surface water and sediment in the Impoundment Area, soil and sediment in the Flume Area, and soil in the Excavated Area.
ROD, Operable Unit Nos. XII, XIII, XIV, and XV, Sites 6 and 7 (Baker, 1998f) – AR # 001001	A ROD outlining the selected remedy for Site 6 was signed in 1998 by the Navy and USEPA Region 3, with concurrence from VDEQ, to address soil, sediment, and surface water contamination within the OUs. In the Impoundment Area, surface water and sediment were identified as media of concern; however, because a sediment removal action would result in the destruction of wetland habitat and potentially cause greater harm to ecological receptors than the observed level of contamination, and because remediation of surface water would also be difficult, LTM was selected as the remedy for surface water and sediment in the Impoundment Area. No LUCs were included in the ROD for the Impoundment Area. Excavation and *ex situ* bioremediation of contaminated soil and sediment and LUCs to prevent residential land use were selected as the remedy for soil and sediment in the Flume Area. A soil cover and LUCs to prevent disturbance of the soil cover were selected as the remedy for soil associated with the Excavated Area.
Contractor Closeout Report for Site 6 Remediation (OHM, 1999) – AR # 001221	Implementation of the selected remedy was initiated in 1999. The initial phase of remediation consisted of the construction of a bioremediation cell (bio-cell) at Site 24, excavation of PAH- and explosives-contaminated soil to approximately 4 feet bgs, disposal of PAH-contaminated soil/sediment, transportation of explosives-contaminated soil to the bio-cell, flume and drain decontamination, and site restoration (OHM, 1999). A soil cover was also planned to be placed over the Excavated Area. Soil and sediment from the Flume Area that exceeded the RGs, and sediment from the Impoundment Area that exceeded the RGs, were excavated and transported to the bio-cell where they were treated by ex situ biological treatment. Although the ROD only stipulated soil excavation from the Flume Area as part of the selected remedy, during the remedial action additional contaminated sediment was also excavated from the eastern portion of the

TABLE 3-6
Site 6 Previous Investigations

Document Title/Milestone	Summary
	Impoundment Area due to the exceedances of the RGs detected during the removal. To allow for adequate treatment time in the bio-cell, implementation of the remedy (removal of soil and sediment and treatment in the bio-cell) continued into 2006.
RD for WPNSTA Yorktown Sites 6 and 7 (Baker, 2006b) – AR # 002268	The RD documented the implementation and maintenance of LUCs at Site 6, which including prohibiting residential land use in the Flume Area and prohibiting disturbance of the soil cover in the Excavated Area.
Phase I RI Report for Groundwater at Sites 1, 3, 6, 7, 11, 17, 24, and 25 (CH2M HILL, 2007a) – AR # 002158	The Phase I RI for Groundwater at Operable Unit I was completed to assess the nature and extent of groundwater contamination at several WPNSTA Yorktown sites, including Site 6, based on comparison of available data to MCLs and maximum background concentrations. Nine additional monitoring wells were installed at Site 6. Groundwater samples were collected from new and existing monitoring wells. Based on the results, additional groundwater investigation within the Impoundment Area was recommended. Additional surface water, sediment, and sediment pore water samples were also recommended to further evaluate groundwater discharge to surface water. The Phase I Groundwater RI also recommended that the next investigation only include those COPCs that were identified in the Phase I Groundwater RI.
Final Construction Closeout Report for Site 6 Bioremediation (Shaw, 2008) – AR # - 002354	Approximately 11,800 tons of sediment and soil were treated between 1999 and 2006 in the bio-cell (Shaw, 2008). Treatment was deemed complete once two consecutive sampling events confirmed soil and sediment contained VOC and explosives concentrations below RGs.
Final Phase II RI Report, Site 6 (CH2M HILL, 2011a) – AR # - 002488	A Phase II Groundwater RI was conducted in 2009. Field activities at Site 6 consisted of installing 10 new monitoring wells, groundwater sampling at 25 monitoring wells, hydraulic conductivity testing, dense non-aqueous phase liquid (DNAPL) field testing, surface water and sediment sampling, and sediment pore water sampling. A baseline HHRA was conducted and concluded that potential risks above USEPA's acceptable levels were present. Exposure scenarios associated with surface water and sediment were found to be within the acceptable risk levels. A Screening ERA was conducted for aquatic and wetland habitats at Site 6, and no unacceptable ecological risks were identified. It was concluded that no further evaluation was warranted for ecological receptors. The Phase II RI recommended that an FS of potential remedial alternatives was needed to address potential unacceptable human health risks in groundwater at Site 6. However, additional sampling was also needed to resolve uncertainties in the CSM before proceeding with an FS for groundwater at the site.
Suspension of Site 6 LTM Requirements for Operable Unit XV Identified in the 1998 ROD, TM (CH2M HILL, 2012c) – AR # 002527	LTM of the Impoundment Area surface water and sediment and Site 6 groundwater began in May 2000. Following the baseline round of sampling, LTM at Site 6 was suspended pending completion of the RA and additional investigation activities, as documented in the TM.
Memorandum to File Documentation of Non-significant Difference to ROD for Site 6 and 7 ROD, Clarification of Site 6 Areas (CH2M HILL, 2012d) – AR # 002518	A memorandum to file was completed to document and define the different areas of Site 6, including the Impoundment Area, Flume Area, and Excavated Area. The memorandum clarified and clearly defined the delineation of the different areas of Site 6.

3.2.3.2 Activities Completed in FY 2014

The site status TM was completed in October 2013. A UFP-SAP in association with Phase 1 of the RI was finalized in March 2014, and is associated with the former Plant 1 area including Building 109. A second phase of investigation is anticipated to occur following Phase 1, and is associated with the former Plant 2 area including Building 110. LUC inspections of the Impoundment and Excavated areas are performed on an annual basis. A memo to file clarifying that the LUCs identified in the ROD will be documented in a LUC RD Document is in team review.

3.2.3.3 Nature and Extent of Potential Contamination

The sources of potential contamination at Site 6 are related to the wastewater discharge from the network of flumes at the site and the possible storage of explosives within the Excavated Area. Previous investigations included analysis of soil, surface water, sediment, and groundwater samples for TCL VOCs, TCL SVOCs, explosives constituents, and TAL inorganic constituents. In addition, soil and groundwater samples were analyzed for pesticides and PCBs. Sediment pore-water samples were also analyzed for VOCs. Potential risks identified for each medium at Site 6, as documented in the previously presented reports, are summarized in **Table 3-7**.

TABLE 3-7
Site 6 Potential Contamination and Risks Summary

Medium	Potential Risk	COC*	Status
Soil	Ecological	Cadmium and Zinc	A soil removal action was conducted consisting of excavation and removal of debris, and excavation, treatment, and offsite disposal of contaminated soil. Confirmation samples were collected and all RGs were achieved (OHM, 1999). It is unclear whether the soil cover stipulated in the ROD was ever installed. Therefore, it is unclear whether or not it is present. Following the removal action, LUCs were implemented prohibiting residential development of Site 6 and disturbance of the soil cover (if present) at the excavated area. Soil is currently being investigated as part of the ongoing Post-ROD Data Gap Investigation.
Groundwater	Human Health	2a-DNT, 2,4-DNT, cis-1,2-DCE, PCE, TCE, VC, 1,3-dinitrobenzene, RDX, and several metals	Potential unacceptable risks were identified associated with 2a-DNT, 2,4-DNT, cis-1,2-DCE, PCE, TCE, VC, 1,3-dinitrobenzene, RDX, and several metals (CH2M HILL, 2011). Groundwater is currently being investigated as part of the ongoing Post-ROD Data Gap Investigation.
Surface Water	Pending Evaluation	Pending Evaluation	Surface water is currently being investigated as part of the ongoing Post-ROD Data Gap Investigation.
Sediment	Human Health	TCE, 1,2-DCE, PCE, 1,1-dichloroethane (DCA), 1,1,1-TCA, cPAHs, amino-DNTs, 2,4-DNT, 2,6-DNT, octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX), RDX, 1,3,5- trinitrobenzene (TNB), 2,4,6-TNT, lead	A removal action was conducted consisting of excavation, treatment, and off-site disposal of contaminated sediment from within the Flume Area (OHM, 1999). Remaining sediment is currently being investigated as part of the ongoing Post-ROD Data Gap Investigation.
	Ecological	TCE, 1,2-DCE, HMX, 1,3,5-TNB, cadmium, lead, mercury, nickel, and zinc	

*The COCs shown potentially posing unacceptable risks are based on data collected from within a limited area of the current site boundary. Additional characterization was determined to be necessary following these initial investigations, based on the decommissioning and demolition of site buildings.

3.2.3.4 CERCLA Path Forward

- Phase 1 RI fieldwork (all media)
- Routine annual LUC inspections for Impoundment and Excavated Areas
- LUC RD for Impoundment Area
- LUC RD or risk management of Excavated Area
- Phase 1 Data Gap Investigation report
- Phase 2 Data Gap Investigation UFP-SAP
- Phase 2 Data Gap Investigation field work/report

- Resume LTM
- FS for soil, groundwater, surface water, and sediment
- Revise PP/ROD for soil, groundwater, surface water, and sediment
- LUC RD, as appropriate
- RAWP
- RA field work
- CCR
- Five-year Review (2018)
- LTM Work Plan and implementation
- RACR

Schedule 3-3 presents the FY 2015-2016 schedule for Site 6.

3.2.4 Site 7—Plant 3 Explosives-Contaminated Wastewater Discharge Area

Site 7 Summary	
Status:	Investigation Ongoing Soil: ROD – OU XII, CERCLIS 29 – open/LUCs Groundwater: ROD OU XV, CERCLIS 29 – open Surface Water: ROD OU XV, CERCLIS 29 – open Sediment: ROD OU XII, CERCLIS 29 – open
Current IR Activities:	RI/FS Stage of Investigation - Expanded Remedial Investigation (ERI) for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Drainage Area Soil and Sediment – 1997 (Baker, 1998a)
Media Closed:	Drainage Area Soil and Sediment - Explosives (Baker, 1998a)
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	ERI, Phase I Field Work and Report

3.2.4.1 Site Description

Site 7 is located in the northern portion of WPNSTA Yorktown in the vicinity of Poe Road and adjacent to an unnamed tributary leading to Felgates Creek (**Figure 3-4**), approximately one mile upstream from the confluence of Felgates Creek and the York River. The site consists of the Plant 3 Explosives-Contaminated Discharge Area, including an approximately 300-foot long drainage area located adjacent to wetlands surrounding an unnamed tributary to Felgates Creek, and the current investigation has been expanded to include the footprints and surrounding area of the former Plant 3 buildings upgradient of the discharge area. Depths to groundwater (Yorktown-Eastover aquifer) at the site are variable with topography and range between approximately 15 and 25 feet bgs and groundwater generally flows westward toward the tributary and Felgates Creek.

Plant 3 was used as a weapons loading facility beginning in 1945. Between 1945 and 1975, wastewater from the Plant was discharged directly into the drainage area. The wastewater possibly contained RDX, TNT, cyclohexane, and chlorinated solvents (C. C. Johnson & Associates, Inc., and CH2M HILL, 1984). Between 1975 and 1986, the wastewater was treated in an activated carbon unit, which was designed to remove dissolved explosives from the wastewater prior to discharge. After 1986, the carbon treated wastewater was directed to the sanitary sewer system and ultimately to HRSD. The site has reverted to a natural drainage area and received no discharge from the Plant 3 complex after 1986. In 2009, all buildings at Site 7 were demolished; however, the earthen berms adjacent to the former buildings remain in place, resulting in

uneven, and in places, steep terrain, ranging from 20 to 50 feet amsl. Additional soil, sediment, surface water, groundwater, pore water, and seep data are being collected as part of the Site 7 ERI, currently ongoing. The purpose of this ERI is to further evaluate the nature and extent of CERCLA-related contamination at Site 7, due to the potential for releases to have occurred in the vicinity of the former buildings associated with Plant 3. This investigation will provide additional information within the footprint of the former buildings, conveyor areas, and locations of loading/unloading zones, and areas downgradient from the former building footprints, to help identify and delineate any contamination present as a result of Plant 3 operations. A summary of relevant documents and action milestones is presented in **Table 3-8**.

TABLE 3-8
Site 7 Previous Investigations

Document Title/Milestone	Summary
Final Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and was completed to determine the nature and extent of contamination and identify potential migration pathways. One hydropunch groundwater, two surface soil, four surface water, and five surface/subsurface sediment samples were collected from Site 7. Based on the results of the sampling activities, Site 7 was determined to be a candidate for an accelerated RA if the identified groundwater impacts were determined to be localized. To support the accelerated RA, the installation and sampling of three shallow monitoring wells, the re-sampling of surface water, and the completion of a risk assessment and FFS were recommended.
Report for Field Scale Treatability Study for Site 7 and 22 (OHM, 1997a) – AR # 000887	The treatability study report documented the completion of the field-scale treatability study for Site 7. The treatability study consisted of excavating approximately 770 yd^3 of explosives-contaminated soil from Site 7 and transporting it to the bio-cell at Site 22, where the soil was treated. The site was re-graded and re-vegetated following the treatability study.
Round Two RI Report, Sites 6 and 7 (Volumes I, II, III, and IV) (Baker, 1998b) – AR # 001294, 001295, 001346, 001374	The Round Two RI was completed to assess the nature and extent of contamination, identify data gaps preventing an adequate understanding of site conditions, and to assess potential unacceptable human health and ecological risks associated with contamination at Site 7. As part of the Round Two RI, a soil, groundwater, surface water, sediment and biota investigation was conducted. Based on the results of the sampling activities, potential unacceptable risks to human health and the environment were identified due to exposure to site media.
FS, v2, Sites 6 and 7 (Baker, 1998d) – AR #001077	Following completion of the pilot study, an FS was completed to develop and evaluate potential RAAs that are protective of human health and the environment, attain Federal and state requirements that are applicable or relevant and appropriate, and are cost-effective. However, in order to conduct the field-scale pilot study, all the contaminated sediment was removed in order to evaluate the biological remediation of explosives-contaminated soils. As a result, the FS recommended NFA for soil, surface water, and sediment at Site 7, since these media no longer posed a potential threat to human health or the environment.
PRAP, v2, Sites 6 and 7 (Baker, 1998e) – AR # 001838	The PRAP presented the proposed remedy for Site 7 soil, sediment, and surface water within the drainage area following the completion of the Site 7 drainage area soil and sediment excavation and treatment. The proposed remedy consisted of LTM and LUCs.
ROD, Operable Unit Nos. XII, XIII, XIV, and XV, Sites 6 and 7 (Baker, 1998f) – AR # 001001	Following completion of the pilot study and FS, a ROD was prepared for Site 7. As outlined in the ROD, as a result of the pilot study removal action and offsite treatment, the soil and sediment within the drainage area had been remediated to levels protective of future industrial land use and no additional action was necessary for ecological receptors, as soil, surface water, and sediment within the drainage area no longer posed an unacceptable ecological risk. The ROD, however, did state that an additional remedy would be necessary for groundwater.

TABLE 3-8
Site 7 Previous Investigations

Document Title/Milestone	Summary
LTM Report Sites 1, 3, and 7 (Baker, 2006a) – AR # 002075	LTM of surface water and sediment in Felgates Creek and groundwater associated with the site was conducted between 2000 and 2005 and included VOCs, explosives constituents, and inorganic constituent analyses. Although groundwater monitoring is included in the LTM program, further investigations of groundwater are currently ongoing and LTM was suspended until additional investigation activities are completed.
RD for WPNSTA Yorktown Sites 6 and 7 (Baker, 2006b) – AR # 002268	Following the completion of the pilot study in January 1997, concentrations of all COCs in the drainage area soil and sediment were found to be below established treatment goals. The RD documents LUC implementation and maintenance at Site 7. The selected remedy for Site 7 included LTM and LUCs, and the RAO to prohibit residential land use in the area surrounding the Site 7 Drainage area was stipulated and implemented in accordance with this RD.
Phase I RI Report for Groundwater at Sites 1, 3, 6, 7, 11, 17, 24, and 25 (CH2M HILL, 2007a) – AR # 002158	The Phase I RI for Groundwater at Operable Unit I was completed to assess the nature and extent of groundwater contamination at several WPNSTA Yorktown sites, including Site 7, based on comparison of available data to MCLs and maximum background concentrations. As part of the Phase I RI for Groundwater, groundwater samples from three Site 7 monitoring wells were collected and analyzed for explosives constituents, TAL total and dissolved metals, and cyanide. Based on the results of the sampling activities, the concentrations of explosives constituents detected in the well (7GW02) in the area where the historical discharges took place and where the 1997 removal action took place had steadily declined since the 1997 removal action, suggesting that the source removal activities were successful not only for soil contamination, but for groundwater contamination as well.
Final LTM Report for Site 7 (CH2M HILL, 2010a) – AR #000148	LTM at Site 7 was conducted to confirm concentrations of explosives constituents in groundwater were continuing to decline following the 1997 soil and sediment removal action, and to evaluate current concentrations of explosives and solvents in groundwater. One additional monitoring well was installed, and groundwater samples were collected from both the existing and new monitoring wells. The Site 7 LTM report concluded that based on the generally decreasing trends in groundwater concentrations, the remedy was effective and it was recommended to continue LTM on an annual basis until groundwater concentrations are below the corresponding criteria or until it is determined other measures are necessary.
Suspension of Site 7 LTM Requirements for Operable Unit XV Identified in the 1998 ROD, TM (CH2M HILL, 2012e) – AR # 002529	Although groundwater monitoring is included in the LTM program, further investigations of groundwater are currently ongoing as part of the ERI. The TM documents the suspension of LTM until the additional investigation activities are completed.
Technical Memorandum for Site 7, Clarification of Operable Units and Approach for Implementing CERCLA (NAVFAC, 2013c) – AR # Pending	The TM documented and clarified the OUs that comprise Site 7, and the CERCLA approach for each OU to achieve closure, and the status of LUCs. OU XII consists of the Plant 3 wastewater discharage area, and OU XV consists of the Plant 3 former operation area. In 2011 and 2012 all buildings and structures associated with Plant 3 were demolished. Subsequently, the Navy completed an expanded RI at Site 7 OU XV to verify all CERCLA releases are identified and managed to ensure protection of human health and the environment. Post-ROD investigations at OU XV included extensive soil and groundwater sampling within and adjacent to the footprint of former Plant 3, and sediment, pore water and surface water sampling in the tributary of Felgates Creek. Data are currently being evaluated; findings will be documented in a supplemental RI report. Following completion of all post-ROD investigation evaluations and findings, the need for modifications to the ROD and LUCs for the overall site will be evaluated to ensure protection of human health and the environment and compliance with CERCLA and the NCP.

3.2.4.2 Activities Completed in FY 2014

The ERI Report is currently being developed. The site status TM was completed in October 2013. LUC inspections of the drainage area are performed on an annual basis. A memo to file clarifying that the LUCs identified in the ROD will be documented in a LUC RD Document is in team review.

3.2.4.3 Nature and Extent of Potential Contamination

The wastewater discharged from Plant 3 was the source of potential contamination at Site 7. Previous investigations included analysis of soil, surface water, sediment, and groundwater samples for VOCs, SVOCs, explosives constituents, and inorganic constituents. In addition, soil and groundwater samples were analyzed for pesticides and PCBs. Primary contaminants previously identified that are associated with Site 7 are explosives constituents and inorganic constituents in soil, sediment, and groundwater. Additional soil, sediment, surface water, groundwater, pore water, and seep data are being collected as part of the Site 7 ERI, which is currently ongoing. The nature and extent of potential contamination will be reevaluated during the ERI based on the new sampling data in order to evaluate impacts from the building areas, which were not previously investigated. Potential unacceptable risks identified for each medium at Site 7, as documented in the previously presented reports, are summarized in **Table 3-9**.

TABLE 3-9
Site 7 Potential Contamination and Risks Summary

Medium	Potential Risk	COC*	Status
Soil	Human Health Ecological	Explosives constituents (drainage area only), lead, arsenic, and zinc	Explosives-contaminated soil from the drainage area of Site 7 was excavated and sent to a bio-cell for biological remediation (Baker, 1997). Soil within and surrounding the footprint of the former Plant 3 buildings was evaluated as part of the ERI (submittal pending), and lead, arsenic, and zinc were identified as COCs.
Groundwater	Human Health	TCE, perchlorate, RDX, 2,6-DNT	Groundwater was investigated as part of the ERI (submittal pending), and potential risks were identified associated with TCE, perchlorate, RDX, and 2,6-DNT.
Surface Water	None Identified	None Identified	No potential unacceptable risk or COCs associated with surface water have been identified during previous investigations. Potential risks associated with surface water possibly impacted by the building areas were evaluated as part of the ERI (submittal pending), and no unacceptable risks were identified.
Sediment	Human Health Ecological	Explosives constituents (drainage area only)	Explosives-contaminated sediment from the drainage area of Site 7 was excavated and sent to a bio-cell for biological remediation (Baker, 1997). Sediment downgradient from the footprint of the former Plant 3 buildings was evaluated as part of the ERI (submittal pending), and no unacceptable risks were identified.

* The COCs shown potentially posing unacceptable risks are based on data collected from within a limited area of the current site boundary. Additional characterization was determined to be necessary following these initial investigations, based on the decommissioning and demolition of site buildings.

3.2.4.4 CERCLA Path Forward

- LUC RD for Drainage Area
- Routine annual LUC inspections
- ERI report
- LTM Work Plan and implementation
- FS for all media
- Revise PP/ROD for all media

- LUC RD, as appropriate
- RAWP
- RA field work
- CCR
- Five-year Review for soil (2018)
- RACR

Schedule 3-4 presents the FY 2015-2016 schedule for Site 7.

3.2.5 Site 8—NEDED Explosives-Contaminated Wastewater Discharge Area

Site 8 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 25 – open Groundwater: CERCLIS 25 – open Surface Water: CERCLIS 25 – open Sediment: CERCLIS 25 – open
Current IR Activities:	RI/FS Stage of Investigation - Pre-FS Data Gap Investigation for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Drainage Area Soil and Sediment – 2007 (Shaw, 2009a)
Media Closed:	Drainage Area Soil and Sediment - bis(2-ethylhexyl)phthalate (BEHP), Aroclor-1260, amino-DNTs, HMX, RDX, 2,4,6-TNT, Chromium, Iron, Mercury, Vanadium, and Zinc
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	N/A

3.2.5.1 Site Description

Site 8 consists of a 300-foot drainage way and its surrounding area (including Building 456), located along the Eastern Branch of Felgates Creek, approximately 1.5 miles from the confluence of Felgates Creek and the York River (**Figure 3-5**). The drainage way lies east of the Naval Explosives Development Engineering Department (NEDED) complex (Building 456). The topography is generally level around Building 456, but slopes steeply into the drainage way, which is situated in a ravine. Surface water run-off at the site flows from around Building 456 into the drainage channels that eventually discharge into the Eastern Branch of Felgates Creek. The drainage channel contains standing water and has a soft ground surface. The remaining ground surface is paved with the exception of the wooded western and northern portions of the site. The surficial aquifer beneath the drainage way at the site generally flows towards Felgates Creek.

The Site 8 discharge area received wastewater from the NEDED complex (Building 456) from 1940 until 1986. Prior to 1975, the wastewater reportedly contained solvents (including TCE), spent/neutralized acids, and explosives constituents. After 1975, a carbon adsorption tower was used to treat the contaminated wastewater prior to discharge into the drainage area. An NPDES permit was granted to allow this discharge. In 1986, the effluent from the tower was diverted to the sanitary sewer and ultimately to HRSD. Since 1986, the discharge area has reverted to a natural drainage area. In 2012, the operations at Building 456 were terminated, and the building is scheduled to complete the decontamination process in Fall 2014. A summary of relevant documents and action milestones is presented in **Table 3-10**.

TABLE 3-10
Site 8 Previous Investigations

Document Title/Milestone	Summary
Final Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and soil, groundwater, surface water, and sediment samples were collected and analyzed. The Round One RI concluded that the source at Site 8 (Building 456 discharge) no longer existed, and the main concerns remaining were explosives and VOCs in surface soil and groundwater. Site 8 was recommended as a candidate for the accelerated RA category, if the contaminants at Site 8 could be confirmed to be localized. The report recommended additional soil sampling to delineate the extent of contamination and confirm if it was localized or not, and additional groundwater samples to delineate the extent of contamination.
Round Two RI Report for Sites 2, 8, 18, and SSA 14 (Baker, 2004a) – AR # 001548	Objectives for the Round Two RI were to assess potential unacceptable human health and ecological risks associated with contamination in soil, groundwater, and sediment. COPCs were identified for Site 8 as follows: PAHs, nitramines, Aroclor-1260, and inorganics in surface soil; inorganics in subsurface soil; and VOCs, explosives constituents, and inorganics in groundwater. Soil contamination was concentrated in the drainage way leading from Building 456 to Felgates Creek. The Eastern Branch of Felgates Creek was investigated in association with Site 8 and SSA 14. The RI determined that organic constituents from Site 8 and SSA 14 did not appear to be affecting surface water; however, explosives constituents, VOCs, and SVOCs, and inorganics were potentially impacting sediment.
EE/CA for Contaminated Soil and Sediment at Site 8 and SSA 14 (Baker, 2005a) – AR # 002076	This EE/CA provided the basis for a non-time-critical removal action (NTCRA) for contaminated soil and sediment at Site 8. Removal action alternatives evaluated included: (1) excavation with offsite incineration; and (2) excavation with offsite disposal. The two alternatives were evaluated based on effectiveness, implementability, and cost. Alternative 2, excavation with offsite disposal, was recommended to mitigate potential unacceptable human health and ecological risks. Cleanup goals were developed as part of the EE/CA for BEHP, Aroclor-1260, amino-DNTs, HMX, RDX, 2,4,6-TNT, chromium, iron, mercury, vanadium, and zinc in soil, and BEHP and Aroclor-1260 in sediment, to protect human health and ecological receptors.
Action Memorandum (AM) for Contaminated Soil and Sediment at Site 8 and SSA 14 (Baker, 2005b) – AR # 001871	This AM documented approval for the NTCRA. The proposed removal action at Site 8 included the removal and disposal of contaminated soil and sediment, transportation of contaminated soil and sediment to an approved disposal facility, backfilling and grading the excavated areas to the approximate original elevations prior to excavation, placement of riprap as erosion control in steep areas, placement of 6 inches of topsoil over the remaining disturbed areas, and re-vegetation with native grasses and wetland plants.
Removal Action and Post-Removal Confirmation Sampling Summary TM (CH2M HILL, 2008b) – AR # 002202	A total of 765 non-hazardous yd^3 (1,147 tons) of contaminated soil were excavated and 29 yd^3 (44 tons) of hazardous soil were excavated from Site 8. Post-removal confirmation samples were collected to confirm contaminant concentrations were below the PRGs. NFA was needed at Site 8 for explosives constituents, metals, and PCBs in soil or sediment.
Consensus Statement (May 2008)	It was determined that, based on removal action and post-removal confirmation sampling results, NFA for soil or sediment was required at Site 8.The Navy and the USEPA, in partnership with the VDEQ, reached consensus in May 2008 that NFA for soil was required.
CCR (Shaw, 2009a) – AR # 002589	The Final CCR summarized the activities associated with soil and sediment removal, treatment, and disposal of impacted soil at Site 8.

TABLE 3-10
Site 8 Previous Investigations

Document Title/Milestone	Summary
Final RI Report for Groundwater at Sites 8 and 34 (CH2M HILL, 2011b) – AR # 000246	The Final RI presents data, results, and conclusions of activities conducted to support characterization of groundwater, surface water, and sediment. PCE, VC, (BEHP), 2,4,6-TNT, RDX, 3,5-dinitroaniline (DNA), 4-amino-2,6-DNT and 2-amino-4,6-DNT were identified as human health COCs or MCL exceedances for groundwater at Site 8. Additional action was determined to be necessary to address three of these chemicals: PCE, VC, and RDX. No unacceptable human health or ecological risks were identified for surface water and sediment in the Eastern Branch of Felgates Creek.

3.2.5.2 Activities Completed in FY 2014

The FS for Site 8 groundwater was initiated in 2012, but put on hold pending completion of the Data Gap Investigation. The Data Gap Investigation will be used to determine whether the FS for groundwater at Site 8 should be expanded to other parts of the site and whether soil, surface water, and/or sediment should be included as media requiring remediation in the FS. A UFP-SAP in association with the Site 8 Data Gap Investigation for soil and groundwater is currently in team review. The Data Gap field activities will not be initiated until the Navy completes explosives decontamination of the buildings at this site, which is scheduled for Fall 2014.

3.2.5.3 Nature and Extent of Potential Contamination

Historical wastewater discharges from the NEDED complex (Building 456) were the source of potential contamination to soil, sediment, surface water, and groundwater at Site 8. Previous investigations have included analysis of soil, groundwater, sediment, and surface water samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. Surface water and sediment samples were collected near Site 8 as part of an overall evaluation of surface water related to Sites 8 and 34, as they are adjacent to each other and contribute runoff and groundwater discharge to the Eastern Branch of Felgates Creek. Potential unacceptable risks identified for each medium at Site 3, as documented in the previously presented reports, are summarized in **Table 3-11**.

TABLE 3-11
Site 8 Potential Contamination and Risks Summary

Medium	Potential Risk	COC*	Status
Soil	Human Health	Amino-DNTs, and Aroclor-1260	A removal action was conducted beginning in February 2007 to remove and dispose of contaminated soil. Post-removal confirmation samples indicated that concentrations of all COCs were below established RGs following the completion of removal activities in September 2008 (CH2M HILL, 2008). Potential risk associated with soil is being evaluated as part of the ongoing Data Gap Investigation.
	Ecological	BEHP, Aroclor-1260, amino-DNTs, HMX, RDX, 2,4,6-TNT, Chromium, Iron, Mercury, Vanadium, and Zinc	
Groundwater	Human Health	PCE, VC, BEHP, 2,4,6-TNT, RDX, 3,5-DNA, 4-amino-2,6-DNT and 2-amino-4,6-DNT	Potential unacceptable risks were identified associated with PCE, VC, BEHP, 2,4,6-TNT, RDX, 3,5-DNA, 4-amino-2,6-DNT and 2-amino-4,6-DNT. However, the RI (CH2M HILL, 2011b) determined additional action was necessary only to address PCE, VC, and RDX. Groundwater in the building area is being evaluated as part of the ongoing Data Gap Investigation.
Surface Water	Pending Evaluation	Pending Evaluation	No potential unacceptable risks or COCs associated with surface water have been identified. Surface water is being evaluated as part of the ongoing Data Gap Investigation.
Sediment	Human Health Ecological	BEHP and Aroclor-1260	A removal action was conducted beginning in February 2007 to remove and dispose of contaminated sediment. Post-removal confirmation samples indicated that concentrations of all COCs were below established RGs following the

TABLE 3-11
Site 8 Potential Contamination and Risks Summary

Medium	Potential Risk	COC*	Status
			completion of removal activities in September 2008 (CH2M HILL, 2008). Sediment potentially impacted by the building area at the site is being evaluated as part of the ongoing Data Gap Investigation.

*The COCs shown potentially posing unacceptable risks are based on data collected from within a limited area of the current site boundary. Additional characterization was determined to be necessary following these initial investigations, based on the decommissioning and demolition of site buildings.

3.2.5.4 CERCLA Path Forward

- Complete UFP-SAP for Data Gap Investigation (soil and GW)
- Field work/report for Data Gap Investigation (soil and GW)
- FS (GW and possibly soil)
- PP/ROD for all media
- LUC RD
- RAWP
- RA field work for groundwater
- LTM Work Plan and implementation
- RACR

Schedule 3-5 presents the FY 2015-2016 schedule for Site 8.

3.2.6 Site 9 and 19 —Plant 1 Explosives-Contaminated Wastewater Discharge Area and Conveyor Belt Soils at Building 10

Site 9 and 19 Summary	
Status:	Investigation Ongoing Soil: Site 9 ROD – OU VII, CERCLIS 26 and Site 19 ROD – OU VI, CERCLIS 32 – open/LUCs Groundwater: Site 9, CERCLIS 26 and Site 19, CERCLIS 32 - open Surface Water: Site 9 ROD OU VII, CERCLIS 26 and Site 19 ROD OU VII, CERCLIS 32 - open Sediment: Site 9 ROD OU VII, CERCLIS 26 and Site 19 ROD OU VII, CERCLIS 32 – open
Current IR Activities:	RI/FS Stage of Investigation - Data Gap Investigation for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Surface and Subsurface Debris Excavation and Offsite Disposal – 1994 (IT Corporation, 1995b)
Media Closed:	Soil – NFA (Baker, 1998g) Surface Water Drainage to Lee Pond – NFA (Baker, 1998g) Sediment Drainage to Lee Pond – NFA (Baker, 1998g)
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	N/A

3.2.6.1 Site Description

Site 9 and Site 19 are both part of the former Plant 1 operations area. Although these sites were originally identified as two separate sites, Site 9 and Site 19 are currently being investigated together as one overall study area.

Site 9 is a discharge area that consists of a 600-foot drainage way and the immediate surrounding area (**Figure 3-6**). Site 9 is located east of Lee Pond and topographically downgradient of Site 19. The drainage way flows from the northwest portion of Building 10 westward, underneath Bollman Road, and discharges to Lee Pond. Wooded areas immediately surround the drainage way and rip-rap is present along the top of the relatively steep slope leading down into the site.

Site 19 includes soil beneath and surrounding a 500-foot long conveyor belt formerly used to transport packaged TNT from Building 10 to Building 98. Site 19 is located west of Building 10 and 300 feet south of Site 9 (**Figure 3-6**). The topography of Site 19 slopes downward to the north towards Site 9. A topographic low formed by a trench beneath the former conveyor belt bisects the site and receives surface water runoff that either infiltrates to the subsurface or flows through drainage channels connecting Site 19 to Site 9 and ultimately discharges to nearby Lee Pond.

Groundwater at Sites 9 and 19 is encountered at depths of 10 to 29 feet bgs within the shallow Cornwallis Cave aquifer and flows to the southwest toward Lee Pond. Within the deeper Yorktown-Eastover aquifer, groundwater is encountered between approximately 39 and 51 feet bgs and flows west/southwest, also toward Lee Pond.

Between the late 1930s and 1975, Site 9 was used as a drainage way for Plant 1 (Building 10) explosives-contaminated wastewater and (possibly) organic solvents. A carbon adsorption tower was installed in 1974 to treat the wastewater prior to discharge in accordance with a NPDES permit. In 1986, the effluent from the carbon adsorption tower was diverted to the sanitary sewer and ultimately to HRSD. Wastes including weapons casings and railroad ties were discarded along the drainage way bank upstream of where it flows under Bollman Road. In addition, on the downstream side of Bollman Road, several drums were discarded along the drainage way. No information is available regarding the date(s) this material was disposed (Baker, 1994a). The conveyor belt at Site 19 was used for transport of packaged TNT between the 1940s and the 1970s. As documented in the Round Two RI, holes were observed along the floors and walls of the conveyor belt and in the conveyor belt enclosure. The walls and floor of the conveyor belt were periodically sprayed with water to control dust. Although the area has not been active for any other land use since operations ceased in the 1970s, the site remains relatively cleared and has not been excessively overgrown with vegetation.

The weapon casings, railroad ties and drums at Site 9 were removed along with contaminated soil and sediment in 1994. Between 2010 and 2012, all of the former buildings located at Sites 9 and 19 were demolished. Currently, Site 9 has reverted to a natural drainage way for surface runoff from surrounding areas and receives no wastewater discharge from the former Plant 1 complex.

A summary of relevant documents and action milestones is presented in **Table 3-12**.

TABLE 3-12
Sites 9 and 19 Previous Investigations

Document Title/Milestone	Summary
Final Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and soil, groundwater, surface water, and sediment samples were collected and analyzed from Sites 9 and 19. Results indicated that wastewater discharges from Building 10 have resulted in the presence of elevated levels of explosives compounds in soil at the site and adjacent to the drainage ditch leading to Lee Pond, in groundwater, and in surface water in the ditch and in Lee Pond, at Site 9. TNT was the primary explosive constituent detected at elevated levels at Site 9. The report recommended Site 9 as a good candidate for accelerated RA if the explosives constituent detections were confirmed to be localized, in which case it was recommended that an accelerated RA be conducted. At Site 19, the report documented primarily TNT-contaminated soil in the vicinity of the conveyor belt. Site 19 was also recommended for an accelerated RA based upon the limited contamination within the small area. Additional sampling was recommended at both sites to further delineate the soil contamination.
AM and EE/CA (Baker, 1994a) – AR # 000615	The AM and EE/CA for Site 9 documented a proposed NTCRA at Site 9 to remove surface and subsurface debris consisting of railroad ties and drums disposed of along the drainage way at Site 9.
Closeout Report, Sites 2 and 9 and SSA 4, Mine Casing and Debris Removal Action (IT Corporation, 1995b) – AR # 000646	A removal action was completed in December 1994 to address surface and subsurface debris. The removal action included the concurrent removal of ordnance and railroad ties to a depth of 4 feet bgs at the lower end of the drainage way before it crosses Bollman Road. The excavated area was backfilled with on-base borrow topsoil and re-graded.
Site 19 and Composites of Site 9, Site 19, SSA 6 & SSA 7 Independent Sampling and Risk Screening Report (Black & Veatch, 1996a) – AR #000781	The Independent Sampling and Risk Screening Report for Sites 9 and 19 consisted of collecting, analyzing and evaluating grab soil samples from Site 19, composite soil samples from Site 9 and Site 19, and performing risk assessments using the data collected. Several constituents were detected at Sites 9 and 19 that exceeded the USEPA human health risk-based screening values for residential soil and ecological screening values (ESVs) for soil, and were identified as COPCs, including explosives constituents, VOCs, SVOCs, and inorganics. The report concluded some potential unacceptable risk to sensitive communities was present, due in particular to the concentrations of metals and nitramine.
Round Two RI Report, Sites 9 and 19 (Baker, 1997d) – AR #000889	The Round Two RI concluded that Site 9 contamination was confined to the drainage way from Building 10 to Lee Pond, and COCs included PAHs, nitramines, and inorganic constituents found in soils, nitramines in shallow groundwater, and nitramines and inorganic constituents in surface water and sediment. All site media were recommended for the FS at Site 9. At Site 19, PAHs, nitramines, and inorganic constituents in surface soil were identified as posing potential risk to human health and/or ecological receptors, with nitramines being the primary concern. The RI concluded that detected COCs were generally concentrated along the conveyor belt and in shallow groundwater, and soil and groundwater were recommended to be evaluated in the FS.
FS Sites 9 and 19 (Baker, 1997e) – AR #000966	An FS for Sites 9 and 19 was conducted to identify the RAAs. The report documented that lead and vanadium in surface soil at Site 9 and iron in sediment at Site 9, and nitramines/ nitroaromatics, aluminum, iron, and lead in surface soil at Site 19 contributed to unacceptable human health and/or ecological risk. Final RGs were established for surface soil at Site 19; however, it was determined that no action for soil, sediment, and surface water was necessary to protect human health at Site 9, as a RA would do greater harm to the environment than the no action alternative. In addition, it was documented that no action was necessary for groundwater associated with Site 9 and 19. For surface soil at Site 19, the following alternatives were evaluated: (1) no action, (2) no action with institutional controls, (3) capping, (4) excavation and biological treatment, (5) excavation, soil washing, and incineration, and (6) excavation and incineration.

TABLE 3-12
Sites 9 and 19 Previous Investigations

Document Title/Milestone	Summary
PP and ROD, v3, Operable Unit Nos. VI and VII, Sites 9 and 19 (Baker, 1997f; Baker, 1998g) – AR #000889 and 002077	An NFA PP and ROD for soil, surface water, and sediment at Site 9 was signed in March 1998. The ROD also included a remedy for soil at Site 19 to mitigate the potential for direct contact of 2,4,6-TNT and RDX by human receptors, to prevent ecological effects to terrestrial receptors from exposure to aluminum, and to eliminate the potential migration of these contaminants to other environmental media. The proposed remedy for Site 19 included removing the conveyor belt, excavating site soil beneath the belt, excavating aluminum-contaminated soil near Building 527, and backfilling the area beneath the conveyor belt with the aluminum-contaminated soil from Building 527 topped with clean fill.
Closeout Report Site 19 Bioremediation (OHM, 2000) – AR #001556	The remedy at Site 19 was initiated in April 1998 and included dismantling and disposal of the conveyor system, excavation of explosives-contaminated soil, and confirmation sampling. Approximately 1,000 yd^3 of explosives-contaminated soil were excavated to a depth of 4 feet bgs within the conveyor belt trench. The excavated soil was transported to the bio-cell located at Site 22 for treatment. Following treatment, this soil was distributed to the ground surface surrounding the bio-cell. Approximately 60 yd^3 of soil with elevated aluminum concentrations were excavated and placed in the conveyor belt trench excavation and covered with clean fill. The site was then restored with topsoil and re-vegetated to prevent ecological exposure to elevated aluminum in soil.

3.2.6.2 Activities Completed in FY 2014

During the demolition of all structures (Buildings 10, 11, 527, 98, 528, and the Nitrate Conveyor Belt) in 2011 and 2012, the team agreed to evaluate whether environmental media in these areas could have been affected by site operations. The UFP-SAP to evaluate the former building areas is currently in team review. LUC inspections of the former conveyor belt area are performed on an annual basis.

3.2.6.3 Nature and Extent of Potential Contamination

At Site 9, the Plant 1 wastewater discharge was the source of potential contamination to soil, sediment, surface water, and groundwater. Previous investigations have included analyses of soil, groundwater, sediment, and surface water samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals.

At Site 19, fine particulates released through the holes and the rinse water sprayed on the conveyor belt were a source of potential contamination to soil and groundwater proximal to the conveyor belt, and sediment located in the concrete drainage way west of the conveyor belt. Previous investigations have included analysis of soil and groundwater samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL inorganic constituents.

Potential risks identified for each medium at Site 9 and 19, as documented in the previously presented reports, are summarized in **Table 3-13**.

TABLE 3-13
Sites 9 and 19 Potential Contamination and Risks Summary

Medium	Potential Risk	COC*	Status
Site 9			
Soil	Human Health Ecological	Nitramines	In March 1998, a ROD was signed indicating that NFA was required for site soil within the original site boundary, as potential human health and ecological risks were considered acceptable or manageable for this medium (Baker, 1998). Soil in the vicinity of the former building footprints is currently being investigated as part of the ongoing RI.
Groundwater	Human Health	2,4,6-TNT, 1,3,5-TNB, arsenic	Potential risks were identified associated with 2,4,6-TNT, 1,3,5-TNB, and dissolved arsenic in limited downgradient wells (Baker, 1997). Groundwater in the source area is currently being more thoroughly investigated as part of the ongoing RI.
Surface Water	Pending Evaluation	Pending Evaluation	In March 1998, a ROD was signed indicating that NFA was required for site surface water within the original site boundary, as potential human health and ecological risks were considered acceptable or manageable for this medium (Baker, 1998). Surface water in and around drainage ditches in the vicinity of the former building footprints is currently being investigated as part of the ongoing RI.
Sediment	Ecological	arsenic, lead, iron, and vanadium	In March 1998, a ROD was signed indicating that NFA was required for site sediment within the original site boundary, as potential human health risks were considered acceptable or manageable for this medium (Baker, 1998). Although conservative modeling predicted some potential for unacceptable ecological risk at Site 9, it was determined that remediation of the site would generate more harm to the surrounding ecology by destroying habitat and potentially creating erosion problems in the Site 9 drainage ditch. Accordingly, it was determined that NFA was required for ecological receptors. Sediment in and around drainage ditches in the vicinity of the former building footprints is currently being investigated as part of the ongoing RI.
Site 19			
Soil	Human Health Ecological	2,4,6-TNT, RDX, and aluminum	A removal action was conducted beginning in April 1998 to remove and dispose of contaminated soil. Post-removal confirmation samples indicated that concentrations of all COCs were below established RGs following the completion of removal activities in July 1998 (OHM, 2000). Because contaminants were not reduced to a level allowing unrestricted land use, LUCs were implemented prohibiting residential development or disturbance of the soil at Site 19. Soil in the vicinity of the former building footprints is currently being investigated as part of the ongoing RI.
Groundwater	Human Health	1,3,5-TNB and 2,4,6-TNT	Potential risks were identified associated with 1,3,5-TNB and 2,4,6-TNT in limited downgradient wells (Baker, 1997). Groundwater in the source area is currently being more thoroughly investigated as part of the ongoing RI.
Surface Water	Pending Evaluation	Pending Evaluation	Surface water in and around drainage ditches in the vicinity of the former building footprints is currently being investigated as part of the ongoing RI.
Sediment	Pending Evaluation	Pending Evaluation	Sediment in and around drainage ditches in the vicinity of the former building footprints is currently being investigated as part of the ongoing RI.

*The COCs shown potentially posing unacceptable risks are based on data collected from within a limited area of the current site boundary. Additional characterization was determined to be necessary following these initial investigations, based on the decommissioning and demolition of site buildings.

3.2.6.4 CERCLA Path Forward

- Routine annual LUC inspections of the former conveyor belt area
- Finalize Phase I RI UFP-SAP
- Phase I RI field work
- TM for Conveyor Area
- LUC RD, as appropriate
- Phase 2 RI UFP-SAP/Field Work/Report, if necessary
- FS/PP/ROD
- RAWP
- RA field work
- CCR
- LTM Work Plan and implementation , if required
- RACR

Schedule 3-6 presents the FY 2015-2016 schedule for Site 9.

3.2.7 Site 12—Barracks Road Landfill

Site 12 Summary	
Status:	Investigation Ongoing Soil: ROD OU III and IV, CERCLIS 4 – closed (landfill cap/LUCs) Groundwater: ROD OU V, CERCLIS 4 – closed/LUCs Surface Water: ROD OU V, CERCLIS 4 - closed Sediment: ROD OU V, CERCLIS 4 – closed
Current IR Activities:	LTM of Groundwater
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Soil Excavation and Disposal, Area A – Lead (OHM, 1998)
Media Closed:	Soil – Lead (OHM, 1998) Groundwater – currently in LTM Phase. Upgradient VOCs are being investigated as part of Site 31 (Consensus Statement 9-1-06-45) Surface Water – NFA (CH2M HILL, 2012f) Sediment – NFA (CH2M HILL, 2012f)
Waste and/or Debris Present Onsite:	Yes (Soil Cover In Place)
Activities Completed in FY2014:	Groundwater LTM Field Work

3.2.7.1 Site Description

Site 12, the Barracks Road Landfill, is located in the eastern portion of WPNSTA Yorktown and consists of three areas - Area A, Area B/C, and the Wood/Debris Disposal Area (**Figure 3-7**). Area A is partially wooded and covers approximately 4.4 acres. An incinerator building and smokestack were formerly located in Area A; ash from the incinerator was disposed of in the topographic low area immediately southwest of the building, adjacent to Ballard Creek. Area B/C covers approximately 1.6 acres and consists mostly of an open field, but also has wooded areas with steep slopes and ravines; ash may have been disposed of in this area. The Wood/Debris Disposal Area consists of a ravine near Ballard Creek in which wood and construction debris were formerly disposed, and covers approximately 3.3 acres. The ROD, ESD, and AR file demonstrate that only Area A (Operable Units III and V) requires a remedy. A summary of relevant documents and action milestones is presented in **Table 3-14**.

TABLE 3-14
Site 12 Previous Investigations

Document Title/Milestone	Summary
Final Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and soil, groundwater, surface water, and sediment samples were collected and analyzed. Based on the analytical results, the report recommended additional groundwater and surface water sampling, a test pit investigation, and additional investigation into the Wood/Debris Disposal Area.
Round Two RI Report Site 12 (Baker, 1996a) – AR #000640	A Round II RI was conducted to delineate landfill materials within the vicinity of Site 12. The Round II RI recommended an evaluation of Area A soil and groundwater, and surface water, and sediment within Ballard Creek in an FS.
AOC 22, Site 12, and SSA 2, SSA 19 and King Creek Independent Sampling and Risk Screening Report (Black & Veatch, 1996b) – AR #000669	The Ecological Risk Screening identified potential risk to the benthic community due to pesticides/PCBs in sediments.
FS Report Site 12 (Baker, 1996b) – AR #000647	The FS determined that only lead-contaminated soil in Area A required remediation. The RAOs established were to prevent soil erosion in Area A at Site 12, prevent the potential for direct contact with lead-contaminated soil, and remediate the soil to meet the RG. The following six remedial alternatives for Site 12 were evaluated: (1) no action, (2) institutional controls, monitoring, and erosion control, (3) soil and clay cover, (4) excavation and landfill disposal, (5) in situ solidification and stabilization, and (6) excavation and soil washing. In addition, an RAO to ensure that the quality of groundwater and surface water at Site 12 do not deteriorate over time was established.
PRAP and ROD, Operable Unit Nos. III, IV, and V, Site 12 (Baker, 1996c; Baker, 1997g) – AR #000654 and 000871	A ROD was signed in April 1997 to document the selected RA for the COCs in Area A soil. The selected remedy included limited surface debris removal, installation of a clay cover, land and groundwater use restrictions, and LTM. Because no potential unacceptable risks were identified for Area B/C and the Wood/Debris Disposal Area, no action was required to address soil at these areas. The ROD also required LTM of sediment in order to ensure that the RIP remains protective of human health and the environment. As part of the remedy selected in the 1997 ROD, LUCs are maintained for groundwater throughout Area A to prohibit the use of groundwater as a potable source and to prohibit disturbance of the landfill cover. In addition, groundwater monitoring of shallow and deep wells was initiated across the Site 12 Study Area.
Construction Closeout Report for Site 12 – Area A (OHM, 1998) – AR #001154	Three buildings at Site 12 (the incinerator, incinerator stack, and maintenance shed) were demolished during the removal action. Following the demolition, soil sampling was conducted to delineate the extent of lead contaminated soil. All soil exceeding the remedial goal of 400 mg/kg was included within the boundaries of the proposed landfill cover. Following the delineation sampling, the area was re-graded and a clay liner was installed followed by a 1 foot fill material cover. The RA conducted at Site 12 eliminated exposure to lead above established RGs to be protective of future industrial/commercial land use receptors. Because contaminants were not reduced to a level allowing unrestricted land use, LUCs were implemented prohibiting residential development or disturbance of the soil cover at Site 12. Annual inspections of LUCs and yearly reporting are required in order to ensure that the RIP remains protective of human health and the environment.
LTM Report, Site 12 (Baker, 2000) – AR # 001219	The report analyzed groundwater and sediment samples collected as part of the LTM effort, and concluded that LTM should continue, consisting of groundwater, surface water, and sediment sampling.

TABLE 3-14
Site 12 Previous Investigations

Document Title/Milestone	Summary
Site 12 LTM Report – 1998 – 2003 (Baker, 2005c) – AR #002078	The LTM Report evaluated the LTM data from 1998 to 2003. The report noted no discernable trends in sediment COC concentrations. There were no exceedances of sediment target values. Although not associated with a release from Site 12, VOC concentrations in groundwater were evaluated and showed no significant increases or decreases. There were no exceedances of the threshold TCE concentration established in the Final ROD for Site 12 that would trigger additional action for groundwater. The LTM report recommended eliminating some wells from the sampling network and eliminating all sediment monitoring.
Partnering Team Consensus Statement 9-1-06-45	The consensus statement documented that the Partnering Team agreed that VOCs in groundwater at Site 12 were not attributable to Site 12, and that existing data and historical site use indicate the source of VOCs is upgradient of Site 12, potentially the result of a release from former tanks located in the industrial area west/southwest of the site. Therefore, it was agreed that sampling for VOCs would no longer be included in the LTM program at Site 12, but would be addressed as part of an investigation of the area upgradient of the site. The team agreed that LTM at Site 12 would continue with sampling for RCRA 8 metals only.
Final LTM Report (CH2M HILL, 2008c) – AR #002272	LTM of groundwater and sediment was completed at Site 12 for select RCRA 8 metals. Concentrations of the select metals were below screening values in all groundwater samples with the exception of a slightly turbid total metals sample. Decreasing concentrations indicated the clay cover installed on the landfill continues to be effective in preventing leaching of contaminants to groundwater and sediment. It was recommended that groundwater samples be analyzed for select RCRA 8 metals (total and dissolved metals) and sediment samples be analyzed for RCRA 8 metals once in the next Five-year Review cycle in accordance with the Final ROD for Site 12 (Baker, 1997g). Because waste is left in place at the landfill, LTM should continue indefinitely to ensure the effectiveness of the clay cover.
ESD (CH2M HILL, 2012f) – AR #000157	The ESD documented a significant difference to the LTM and LUC requirements prescribed in the ROD by removing the details of the LTM requirements from the ROD and putting them in an LTM Work Plan, clarifying that LTM is required only for the Area A portion of Site 12 (not Area B/C or the Wood/Debris Disposal Area), and removing groundwater use restriction requirements for all areas of Site 12 (including Area B/C and the Wood/Debris Disposal Area) except for Area A. Because LTM data do not show any significant increases in concentrations, and because there are no exceedances of screening values for dissolved metals in groundwater (exceedances of total metals were attributed to sampling turbidity), the ESD documented that the Site 12 remedy is protective of human health and the environment.
LUC RD, Site 12: Barracks Road Landfill (NAVFAC, 2013a) – AR # 002594	The LUC RD was issued to document the 1997 ROD and 2011 ESD requirements related to LUCs for soil and groundwater. The LUCs will be implemented, maintained, monitored, enforced, and documented to prevent potential unacceptable risk exposure until RAOs are met, with 5-year statutory reviews to ensure protection of human health and the environment. Area A LUCs include prohibiting disturbance of the soil cover, intrusive activities (digging, trenching, jackhammering), construction, residential development, placement of new wells for any purpose other than environmental monitoring, preventing potable use of groundwater throughout the area, and prohibiting tampering with monitoring wells.

3.2.7.2 Activities Completed in FY 2014

LUC inspections were performed in 2014. An LTM Sampling Results Report is currently being developed.

3.2.7.3 Nature and Extent of Potential Contamination

The waste materials burned/disposed of in the Site 12 disposal areas are the sources of potential contamination to site media. Previous investigations have included analysis of soil, groundwater, sediment,

and surface water for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. Potential unacceptable risks identified for each medium at Site 12, as documented in the previously presented reports, are summarized in **Table 3-15**.

TABLE 3-15
Site 12 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health	Lead	The removal action conducted at Site 12 eliminated the exposure pathways to COCs in soil. Because contaminants were not reduced to a level allowing unrestricted land use, LUCs were implemented. Because no unacceptable risks were identified for Area B/C and the Wood/Debris Disposal Area, no action is required to address soil at these areas (CH2M HILL, 2012f).
Groundwater	Human Health	1,3,5-TNB, antimony, cadmium, manganese, and lead	Elevated concentrations of VOCs and explosives constituents were detected in groundwater samples collected at Site 12; however, the VOCs have been attributed to past operations at Site 31. Explosives constituents were not determined to pose potential unacceptable risks. LTM is currently ongoing (CH2M HILL, 2012f).
Surface Water	None Identified	None Identified	Following a review of the available data, the WPNSTA Yorktown Partnering Team agreed that current concentrations of VOCs in surface water did not present a potential unacceptable risk to human health or the environment (CH2M HILL, 2012f).
Sediment	Ecological	Pesticides/PCBs	Potential unacceptable risk to the benthic community due to pesticides/PCBs in sediments was identified. LTM data show concentrations in sediment were decreasing and the Site 12 remedy has been determined to be protective of human health and the environment. The ESD defers requirements for future sediment investigation to the LTM program (CH2M HILL, 2012f).

3.2.7.4 CERCLA Path Forward

- Routine annual LUC inspections of the landfill cover area
- LTM Sampling Results Report
- RACR
- Five-year Review (2018)

Schedule 3-7 presents the FY 2015-2016 schedule for Site 12.

3.2.8 Site 22—Burn Pad

Site 22 Summary	
Status:	Investigation Ongoing Soil: ROD OU XVII, CERCLIS 7 - closed Groundwater: CERCLIS 15 - open Surface Water: CERCLIS 15 – closed Sediment: CERCLIS 15 - closed
Current IR Activities:	RD – Pre-RD Data Collection for Groundwater
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Soil Excavation – 2002 (Shaw, 2003)
Media Closed:	Soil – NFA (Baker, 2003a) Surface Water – NFA (CH2M HILL, 2011d) Sediment – NFA (CH2M HILL, 2011d)

Site 22 Summary	
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	Pre-RD UFP-SAP

3.2.8.1 Site Description

Site 22 (**Figure 3-8**), the Burn Pad, consists of a 9-acre area located south of Site 4. The site is on a flat, elevated plateau with topography sloping steeply to the east, south, and southwest toward the Eastern Branch of Felgates Creek. An access road runs north to south along the west side of Site 4 and provides vehicle access to Site 22 from the north. The site consists of a grassy field surrounded by woods.

Site 22 once contained a 150-foot-diameter circular array of 11 steel burning pans which were used for burning waste plastic explosives and spent solvents. Open burning operations at the burn pads ceased in 1994. In addition, Site 22 was also used for the treatment of nitramine-contaminated soil and TNT-contaminated soil from Sites 7 and 19 in a 153-foot by 86-foot bio-cell constructed onsite. Bio-cell operations ceased in 1998 and treated (clean) soil was dewatered by being pumped into an impoundment area in a topographical low area directly southeast of the existing bio-cell. A summary of relevant documents and action milestones is presented in **Table 3-16**.

TABLE 3-16
Site 22 Previous Investigations

Document Title/Milestone	Summary
Pilot Study Report for the Explosives-Contaminated Soil (Baker, 1997c) – AR #001088	Several sites at WPNSTA Yorktown contained explosives-contaminated soil, which was excavated and treated in a bio-cell that was constructed at Site 22. Following completion of the treatability study for explosives-contaminated soil, when the soil met the remedial goals, the bio-cell was removed from Site 22 and the site was restored by re-grading and vegetating the site.
Round Two RI Report, Sites 4, 21, and 22 (Volume I and II) (Baker, 2001a) – AR #001296; 001297	From August to November 1996, groundwater, surface water, and surface/subsurface sediment samples were collected to evaluate potential unacceptable risks to human health and the environment. For groundwater, the HHRA indicated no unacceptable non-cancer hazards or cancer risks to current or future receptors under a beneficial use scenario for groundwater, and the ERA indicated aquatic receptors would potentially be at risk from exposure to 1,1-DCE, TCE, di-n-butylphthalate, aldrin, and several explosives constituents and metals if groundwater were to discharge to a surface water body without dilution or natural attenuation. Potential unacceptable ecological risk was also identified for surface soil from potential exposure to PAHs, 2,4,6-TNT, GMX, amino-DNTs, RDX, 1,3,5-TNB, and several organic constituents. For surface water and sediment, the HHRA indicated no unacceptable non-cancer hazards or cancer risks to current or future receptors and the ERA indicated potential unacceptable risk to ecological receptors from exposure to several pesticides, explosives constituents, and metals in sediment.
FS, Sites 4, 21, and 22 (Baker, 2001b) – AR # 001160	The FS identified RAOs for Site 22 to prevent the exposure of ecological receptors to HMX and inorganics in surface soil exceeding the remedial goals, and to close the existing bio-cell according to RCRA closure requirements. Remedial goals were established for site COCs, including HMX, cadmium, copper, lead, mercury, silver, and zinc. The following RAAs were evaluated for Site 22: (1) no action, (2) capping and bio-cell closure, (3) ex situ phytoremediation and bio-cell closure, (4) excavation with offsite disposal and bio-cell closure, and (5) soil washing and bio-cell closure.
Closeout Report Sites 21 and 22 (Shaw, 2003) – AR #001779	A removal action in 2002 consisted of excavation and disposal of 3,540 yd^3 of contaminated soil. Based on the removal action and confirmation sampling results, the Partnering Team agreed that all potential unacceptable human health and ecological risks for soil at Site 22 were mitigated.

TABLE 3-16
Site 22 Previous Investigations

Document Title/Milestone	Summary
ROD, Site 22 – Burn Pad (Baker, 2003a) – AR #001375	Based on the previous removal action and the achievement of the RA goals, an NFA ROD for soil was signed in September 2003.
RI Report for Groundwater at Sites 4, 21, and 22 (CH2M HILL, 2009c) – AR #000024	From March 2007 to April 2008, groundwater, groundwater seep, surface water, and surface and subsurface sediment samples were collected to evaluate potential risks to human health and the environment. Upstream surface water and sediment samples were also collected to assess site-specific background conditions. Based on the final results of the RI, the COCs identified in groundwater at Site 22 for action were TCE, VC, and RDX. The RI concluded that development of an FS for Site 22 groundwater was warranted. The RI also concluded that no unacceptable risks to human health or the environment from exposure to surface water or sediment were present at Site 22; therefore, no additional action was recommended to address surface water and sediment adjacent to the site.
Final FS for Groundwater at Site 22 (CH2M HILL, 2011c) – AR #000181	An FS was generated to evaluate alternatives for remediation of TCE, VC, and RDX present at unacceptable levels in the groundwater. The preferred alternative was Alternative 2 - Hot Spot Treatment of RDX using Enhanced In Situ Bioremediation and Associated Performance Monitoring; MNA of TCE, VC and RDX; and LUCs.
Final ROD at Sites 4, 21, and 22 (CH2M HILL, 2011d) – AR # 000262	An NFA ROD for surface water and sediment was signed in August 2011. Based on reasonable maximum exposure (RME) calculations, no unacceptable human health risks were identified to any receptor from exposure to sediment or surface water at Site 22, and because any potential sources of contamination related to the waste and soil were removed in previous removal actions, the ROD concluded that NFA was warranted.
PRAP and ROD for Site 22 Groundwater (CH2M HILL, 2012g; CH2M HILL, 2012h) – AR #002532	A PRAP and ROD for groundwater at Site 22 were completed and finalized in July 2012 and September 2012, respectively. The PRAP and ROD documented the selected remedy of Hot Spot Treatment of RDX using Enhanced In Situ Bioremediation and associated performance monitoring; MNA of TCE, VC and RDX; and LUCs.
Final LUC RD, Site 22: Burn Pad (NAVFAC, 2013b) – AR # 002596	The LUC objectives identified in the 2012 ROD are to prohibit activities that would result in contact with groundwater, prohibit the withdrawal of groundwater, and prohibit the construction and occupation of any future buildings within the groundwater LUC boundary without a vapor mitigation system in place, and maintain the integrity of the current or future remedial or monitoring system. The LUC RD documented the LUCs for Site 22 and the implementation actions that would be conducted to implement, operate, maintain, and enforce them.

3.2.8.2 Activities Completed in FY 2014

A Pre-RD UFP-SAP in support of the RD for Site 22 was finalized in September 2013, and field work in association with the pre-RD is anticipated to be conducted in 2014.

3.2.8.3 Nature and Extent of Potential Contamination

Historical burning operations are the source for potential contamination of site media. Investigations have consisted of analyses of samples of groundwater, soil, surface water and sediment for VOCs, SVOCs, pesticides, PCBs, inorganic constituents, and explosives constituents. Surface water and sediment samples were collected near Site 22 as part of an overall evaluation of surface water related to Sites 4, 21, and 22, as they are adjacent to each other and contribute runoff and groundwater discharge to the Eastern Branch of Felgates Creek. Potential unacceptable risks identified for each medium at Site 22, as documented in the previously presented reports, are summarized in **Table 3-17**.

TABLE 3-17
Site 22 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Ecological	HMX, cadmium, copper, lead, mercury, silver, zinc	A removal action was conducted to remove and dispose of contaminated soil. Post-removal action confirmation samples indicated that concentrations of all COCs were below established RGs and were protective of a future unrestricted land use scenario. An NFA ROD for soil was signed in September 2003 (Baker, 2003a).
Groundwater	Human Health	arsenic, heptachlor epoxide, RDX, TCE, 1,1-DCE, and VC	Potential unacceptable risks were identified associated with arsenic, heptachlor epoxide, RDX, TCE, 1,1-DCE, and VC (CH2M HILL, 2009c). However, additional action is only necessary to address TCE, VC, and RDX (CH2M HILL, 2012h).
Surface Water	None Identified	None Identified	No unacceptable risks were identified for surface water. An NFA ROD for surface water was signed in August 2011 (CH2M HILL, 2011d).
Sediment	None Identified	None Identified	No unacceptable risks were identified for sediment. An NFA ROD for sediment was signed in August 2011 (CH2M HILL, 2011d).

3.2.8.4 CERCLA Path Forward

- Pre-RD field work
- Pre-RD Summary Report
- RD/RAWP/RA/CCR
- LTM implementation
- RACR
- Five-year Review (2018)

Schedule 3-8 presents the FY 2015-2016 schedule for Site 22.

3.2.9 Site 23—Building 428 Teague Road Disposal Area

Site 23 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 10 - open Groundwater: CERCLIS 10 - open Surface Water: CERCLIS 10 - open Sediment: CERCLIS 10 - open
Current IR Activities:	RI/FS Stage of Investigation - RI for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Soil and Debris Removal - (OHM, 1996; J.A. Jones, 2003; UNITEC, 2006; Shaw, 2011)
Media Closed:	None
Waste and/or Debris Present Onsite:	Yes
Activities Completed FY2014:	N/A

3.2.9.1 Site Description

Site 23 (formerly SSA 1), the Building 428 Teague Road Disposal Area, is located northeast of Building 428 along the eastern portion of the WPNSTA Yorktown property boundary (**Figure 3-9**). The site encompasses

10.5 acres bisected by a former railroad track. The railroad track was constructed in 1919 and operated until 1989. The track has since been removed and only the ballast and a gravel road that parallels the former track remain. The site generally consists of open, maintained grass-covered areas where disposed materials were removed surrounded by mixed hardwood/pine forest. South of the former railroad tracks, surface runoff flows toward an intermittent unnamed tributary that was dry during the 1997-1998 RI, but has an inch or more of flowing water during times of heavy rainfall. This drainage lies approximately 300 feet east-southeast of the site disposal areas and trends to the York River approximately 1,000 feet east of Site 23. Depth to groundwater (Cornwallis Cave aquifer) is between 8 and 15 feet bgs, with flow directed toward the York River.

Disposal activities at the site reportedly began in 1940, ceased in 1960, and included the disposal of debris from a pier fire in the mid-1950s. Aerial photography suggests the area was also used for waste storage in 1945. In 1993, a land survey was conducted, where discrete piles of surface and partially buried debris were identified (concrete rubble; scrap metal; wooden pilings and railroad ties; empty fuel cans; empty, open, and corroded drums; asbestos pipe insulation; and shingles). A summary of relevant documents and action milestones is presented in **Table 3-18**.

TABLE 3-18
Site 23 Previous Investigations

Document Title/Milestone	Summary
Waste Characterization Sampling, SSAs 1, 2, and 5 (Baker, 1993a) – AR #000313	Waste characterization sampling was conducted at SSA 1 (currently Site 23) in order to characterize the types of waste materials present and to support the engineering and design activities associated with the proposed removal action, consisting of excavation and disposal of surface debris and associated soil.
EE/CA and AM SSA 1, 2, and 5 (Baker, 1994b) – AR #000625	The EE/CA and AM documented the proposed NTCRA at SSA 1 (Site 23) to remove miscellaneous surface debris piles.
Soil and Debris Removal Action SSAs 1, 2, and 5 (OHM, 1996) – AR #000648	A removal action was conducted during the summer and early fall of 1994 by OHM to address surface debris present at SSA 1 (Site 23). Items removed from the site during the removal action included two 55-gallon drums of paint cans/spilled paint; 443 tons of wooden creosote timbers (remains of the burnt pier); 763 tons of ordinary nonhazardous debris; 1,119 tons of debris containing non-friable asbestos; 1,680 pounds of pipe wrapped with friable asbestos; 31 tons of recyclable metal; and two truck batteries. Approximately 5,815 tons of TNT- and TNB-contaminated ash/soil were also removed from an area north of the railroad tracks at the northeast portion of the site. Confirmatory soil samples were collected and the excavated area was backfilled and re-graded.
SSP Report SSAs 1, 6, 7, and 15 (Baker, 1996d) – AR #000663	An SSP report was conducted to determine whether SSA 1 warranted an RI/FS. Soil, groundwater, sediment, and surface water samples were collected, and detections of carcinogenic PAHs, VOCs, explosives constituents, pesticides, and inorganics in site media warranted additional investigation, and SSA 1 (Site 24) was recommended for an RI/FS.
Final Ecological Cleanup Goals for Soil, Site 23, Teague Road Disposal Area (Baker, 2003b) – AR #002269	The Final cleanup goals were established for PAHs, N-nitrosodi-n-propylamine, and arsenic associated with potential human health risk, and arsenic, mercury, and zinc, associated with potential risk to ecological receptors. The following cleanup goals were established: carcinogenic PAHs (1 ppm), non-carcinogenic PAHs (10 ppm), N-nitrosodi-n-propylamine (0.0613 ppm), arsenic (14.8 ppm), mercury (0.24 ppm), and zinc (199 ppm).
Construction Closeout Report for Site 23 (J.A. Jones, 2003) – AR #002415	A second removal action was conducted by J.A. Jones in the spring of 2003 to address eight identified hotspots (Areas A through H). During the March 2003 Yorktown Partnering Meeting, the Partnering Team agreed not to include Area G because the concentration of arsenic at this location was consistent with Station background concentrations. In total, the removal action included the excavation and offsite disposal of approximately 1,025 tons of contaminated soil and buried debris from seven areas.

TABLE 3-18
Site 23 Previous Investigations

Document Title/Milestone	Summary
Excavation and Offsite Landfill Disposal, Site 23 (UNITEC, 2006) – AR #002283	A third removal action was conducted by Universe Technologies, Inc., in January 2004 to address approximately 2,816 tons of zinc-contaminated soil and debris that remained in Area F following the 2003 action. Floor composite confirmation samples were collected from six grid cell areas prior to backfilling. Confirmation samples indicated that the zinc cleanup goal was met in the western three grid cells, but was slightly exceeded in the eastern three grid cells. This area was backfilled and on January 7, 2004, the WPNSTA Yorktown Partnering Team agreed (Consensus Statement 1-07-04-33) that there were no unacceptable ecological risks from exposure to zinc that remained in eastern grid cells.
Draft Final Round One RI Report for Sites 23, 24, 25, and 26 (Baker, 2008b) – AR # N/A*	A review of the 2003 Draft Removal Action Construction Closeout Report (J.A. Jones, 2003) was conducted and determined that a further investigation of soil remaining within the footprint of the 2003 removal action areas (Areas A-F and H) was warranted. In July 2006, an investigation of surface and subsurface soil was conducted in order to re-characterize the footprint of the 2003 removal actions areas (Areas A-F and H) and to investigate a small depression in the central portion of the site. Samples were analyzed for total metals, low-level PAHs, N-nitrosodi-n-propylamine, and 2, 4, 6-TNT. The results of this soil investigation indicated that contaminants exceeded cleanup goals within Areas A-C (Grid cells 1-28) and within the small depression. All other former 2003 removal areas (D, E, F, and H) were confirmed to have met cleanup goals. However, due to data quality issues, inappropriate collection procedures and sample locations, and inappropriate quality control procedures, the document associated with the RI was not finalized, and the team agreed that only slug test data could be used to support future decisions. In accordance with Partnering Team agreement, this document will not be finalized and is not discussed further.
Final CCR at Site 23 (Shaw, 2011) – AR # 000167	In June 2009, Shaw Environmental conducted an additional soil removal action to address the remaining contaminated soil left in place. A total of 4,513 yd^3 (6,770 tons) of contaminated soil were excavated from eighteen grid cells and disposed of offsite. Confirmation samples indicated that COCs remained in exceedance of remedial goals; however, due to funding constraints, excavation activities were discontinued. Excavation walls that had not yet been addressed were covered with plastic as an interface between the clean backfill and existing sidewall. Additional waste was identified during the removal action, consisting of concrete pieces, whole trees, wood, metal pieces, and roofing material.

*Report will not be finalized, no AR number

3.2.9.2 Activities Completed in FY 2014

A UFP-SAP to address data gaps in the Site 23 RI is currently being developed.

3.2.9.3 Nature and Extent of Potential Contamination

Disposed waste material at Site 23 was the source of potential contamination to soil, groundwater, sediment, and surface water. Previous investigations have included analysis of soil, groundwater, surface water, and sediment samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. A Round One RI was completed in 2008; however, in accordance with Partnering Team agreement, this document will not be finalized and is not discussed further. A UFP-SAP is currently being developed as part of the ongoing RI to determine the nature and extent of contamination in groundwater, surface water, and sediment, remaining debris, residual soil contamination, and contaminated backfill (if present) following the removal actions completed from 1994 to 2009. Potential risks identified for each medium at Site 23, as documented in the previously presented reports, are summarized in **Table 3-19**.

TABLE 3-19
Site 23 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health Ecological	PAHs, N-nitrosodi-n-propylamine, arsenic, mercury, zinc, cyanide	Potential unacceptable risks were identified associated with SVOCs, explosives constituents, and inorganic constituents. Removal actions have addressed most of the known soil risks. Areas not previously investigated and backfill areas are currently being investigated as part of the ongoing RI.
Groundwater	Pending Evaluation	Pending Evaluation	Groundwater is currently being evaluated as part of the ongoing RI.
Surface Water	Pending Evaluation	Pending Evaluation	Surface water is currently being investigated as part of the ongoing RI.
Sediment	Human Health Ecological	arsenic, mercury, and zinc	Potential unacceptable risks were identified associated with arsenic, mercury, and zinc. Sediment is currently being investigated as part of the ongoing RI.

3.2.9.4 CERCLA Path Forward

- Finalize UFP-SAP
- RI field activities
- RI reporting
- EE/CA and AM for all media, as appropriate
- Removal Action Work Plan
- Removal Action field work
- CCR
- NFA PP/ROD

Schedule 3-9 presents the FY 2015-2016 schedule for Site 23.

3.2.10 Site 24—Aviation Field

Site 24 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 19 - open Groundwater: CERCLIS 19 - open Surface Water: Not Present Sediment: Not Present
Current IR Activities:	RI/FS Stage of Investigation - EE/CA for Soil Excavation and Removal
Media Investigated:	Soil, Groundwater
Removal and RAs:	None
Media Closed:	None
Waste and/or Debris Present Onsite:	Yes
Activities Completed in FY2014:	RI Report

3.2.10.1 Site Description

The Site 24, the Aviation Field (formerly Site 14, SSA 6, and SWMU 27), investigation area is approximately 34 acres, and includes approximately 14 acres of an open, grassy field surrounding the helicopter landing

pad in the northern portion of WPNSTA Yorktown, just south of the York River (**Figure 3-10**). The site is bounded by the WPNSTA Yorktown installation fence line to the north, former railroad tracks to the east and Main Road to the south. A Joint Improvised Explosive Device Defeat Organization battle course is located in the western portion of the site and along the western perimeter of the site in former storage areas. The depth to first encountered groundwater is between 11 and 14 feet bgs. The surface water bodies surrounding the site (the York River, Felgates Creek, and Indian Field Creek) influence the groundwater flow directions across the site, and groundwater flow within the Columbia aquifer generally flows toward the closest water body. A topographic divide runs north to south through the middle of the site, causing surface water runoff to flow towards drainage ditches to the east and west. Due to the small elevation change across the site, surface runoff is minimal even after a storm event.

Historically, the site was utilized as an aviation field until 1927, after which it was used for storage of munitions on the surface and in underground caches. The site was also used for storage of miscellaneous debris, including batteries and cables. A review of aerial photographs indicates that peak surface storage occurred in 1968. Areas of surface debris are no longer evident at the site. In addition, the area where the helicopter landing pad is currently located may also have been used briefly as an explosives burning area. Sludge from WPNSTA Sewage Treatment Plant #1 was reportedly dried in the eastern portion of the site. A Daramend greenhouse/bio-cell was constructed in 1999 to treat explosives-contaminated soil and sediment from Site 6, and was removed in August 2006 once treatment was complete. A summary of relevant documents and action milestones is presented in **Table 3-20**.

TABLE 3-20
Site 24 Previous Investigations

Document Title/Milestone	Summary
SSP Report for SSAs 1, 6, 7 and 15 (Baker, 1996d) – AR #000663	An SSP was conducted to determine if conditions at the site warranted initiation of the RI/FS process. In 1994, a geophysical survey was conducted to identify areas of buried debris and fill material. Utilizing electromagnetic terrain conductivity, magnetometry, and ground penetrating radar techniques, four major disposal areas (Areas B, C, E, and F), one minor disposal area (Area G), and one area of black sludge-like material (Area D) were identified within the SSA 6 Helicopter Landing Pad Area (currently Site 24). Test pits were conducted and buried materials, including metal banding, pipes, metal grating, wire, and inert ordnance components (activating devices and rocket motor casings), were identified between 2 and 13 feet bgs within the Helicopter Landing Pad Area (Areas B, C, E, and F). Potential unacceptable risks were identified within the SSA 6 Helicopter Pad Landing Area (currently Site 24) and an RI/FS was recommended.
Draft Final Round One RI for Sites 23, 24, 25, and 26* (Baker, 2008b) – AR # N/A	The Round One RI at Site 24 was conducted in September 1997. Five surface soil samples were collected. However, due to data quality issues, inappropriate collection procedures and sample locations, and inappropriate quality control procedures, the document associated with the RI was not finalized, and the team agreed that only slug test data could be used to support future decisions. In accordance with Partnering Team agreement, this document will not be finalized and is not discussed further. Consequently, the team recommended the collection of additional soil and groundwater data.

TABLE 3-20
Site 24 Previous Investigations

Document Title/Milestone	Summary
RI, Site 24 (CH2M HILL, 2014c) – AR # Pending	The RI was conducted to characterize the nature and extent of buried debris and the potential contamination of soil and groundwater and to assess the potential unacceptable risks posed by exposure to contamination by human and ecological receptors. The extent of buried debris has been delineated and is limited to six small (each less than 2,000 square feet), discontinuous disposal areas (Disposal Areas B [north and south], C, E, and F [north and south]). Waste debris consists of miscellaneous metal debris, metal banding material, inert ordnance debris, and three empty and rusted 55-gallon drums; no ash was observed. The HHRA concluded that the only potential unacceptable human health risks at Site 24 are associated with the possible future child and lifetime resident from exposure to waste and soil within the waste disposal areas (primarily Aroclor-1254, aluminum, cadmium, chromium, and copper), soil across the entire site (primarily Aroclor-1254, arsenic, and chromium), and soil outside the waste area (primarily arsenic and chromium). The ERA concluded that risks from terrestrial food web exposures are acceptable; however, for terrestrial habitats, a few small, isolated areas with high concentrations of mercury and arsenic in surface soil were identified that may present spatially limited, localized risks to some lower-trophic-level receptors.

*Report will not be finalized, no AR number

3.2.10.2 Activities Completed in FY 2014

The Final RI Report was completed in April 2014. A soil removal EE/CA is in development.

3.2.10.3 Nature and Extent of Potential Contamination

Several areas of buried debris at Site 24 are the source of potential contamination to soil and groundwater. Based on the results of a geophysical survey and test pitting activities, buried debris is located within six discontinuous areas at the site. Historical investigations have included analyses of surface and subsurface soil and groundwater samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. Additional field activities, completed in 2010 as part of the 2014 RI, included analyses of surface and subsurface soil, drainage soil, and groundwater samples for VOCs, SVOCs, explosives constituents, pesticides, PCBs, and metals. The results of historical soil sampling (conducted during the 1996 SSP and the 2008 Round One RI), 2010 soil sampling (surface, subsurface, drainage), and 2013 groundwater sampling have been included in the RI report. Potential unacceptable risks identified for each medium at Site 24, as documented in the previously presented reports, are summarized in **Table 3-21**.

TABLE 3-21
Site 24 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health	Aroclor-1254, aluminum, arsenic, cadmium, chromium, and copper	An RA is proposed based on the potential unacceptable risks from exposure to waste materials and soil within the waste disposal areas. Potential unacceptable human health risks were identified from exposure to Aroclor-1254, aluminum, arsenic, cadmium, chromium, and copper. Potential unacceptable ecological risk in isolated areas was identified associated with mercury and arsenic. There are no potential unacceptable human health or ecological risks on a site-wide basis (CH2M HILL, 2014).
	Ecological	Mercury, and Arsenic	
Groundwater	None Identified	None Identified	Potential unacceptable risks to human health or ecological receptors were not identified associated with groundwater. NFA is necessary for groundwater as documented in the RI (CH2M HILL, 2014).
Surface Water	None Identified	None Identified	Surface water is not associated with Site 24.

TABLE 3-21
Site 24 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Sediment	None Identified	None Identified	Sediment is not associated with Site 24.

3.2.10.4 CERCLA Path Forward

- EE/CA
- AM
- RAWP
- Removal action field work
- CCR
- NFA PP/NFA ROD

Schedule 3-10 presents the FY 2015-2016 schedule for Site 24.

3.2.11 Site 25—Building 373 Rocket Plant

Site 25 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 20 - open Groundwater: CERCLIS 20 - open Surface Water: CERCLIS 20 - open Sediment: CERCLIS 20 - open
Current IR Activities:	RI/FS Stage of Investigation - RI for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Underground Storage Tank (UST) Removal (OHM, 1997b)
Media Closed:	None
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	RI UFP-SAP anticipated to be finalized in 2014

3.2.11.1 Site Description

Site 25, the Rocket Plant (formerly SWMU 25 and SSA 7), is located at the end of Main Road, just east of Felgates Creek (**Figure 3-11**). Site 25 is relatively flat with a surface depression west of Building 373. The majority of the site consists of paved or grassy areas; however, a wooded area lies just west of the surface depression and separates the site from Felgates Creek. Groundwater flows westward toward Felgates Creek. Surface water generally flows toward Felgates Creek and the surface depression west of Building 373.

Building 373 is an explosives loading plant. Prior to the 1960s, wash/rinse water from the cleanup of formulation/ pouring equipment drained into a settling basin within the building for removal of suspended solids. The solids were incinerated and dumped at Site 4 (Burning Pad Residue Landfill). The wash/rinse water was then discharged to a pipe, which terminated in an outfall to a dirt drainage swale that discharged into Felgates Creek. This discharge line was plugged in the early 1980s and a 220-gallon UST was installed to contain the wash/rinse water. The UST consisted of a pre-cast concrete pipe installed vertically into the ground with a bottom section cast in the concrete pipe. Once the tank was filled, the water was filtered through a carbon treatment unit and discharged to the sanitary sewer system. The use of the UST was curtailed in the early 1980s when it was replaced with an aboveground storage tank (AST), installed at the north end of the building. Materials contained in fluids within the tanks included binders, stabilizers, and

explosives constituents. In addition, Building 737 was decontaminated in 2013. A summary of relevant documents and action milestones is presented in **Table 3-22**.

TABLE 3-22
Site 25 Previous Investigations

Document Title/Milestone	Summary
SSP Report for SSAs 1, 6, 7 and 15 (Baker, 1996d) – AR # 000663	An SSP investigation of AOC 7, which included what is now the Site 25 Rocket Plant, the Group 18 Magazine, and the Main Road Disposal Area, was conducted in 1994. Soil, groundwater, surface water, and sediment samples were collected during the SSP investigation, and VOCs, SVOCs, pesticides, one PCB (Aroclor-1260), explosives constituents, and metals were detected in site media. The SSP concluded that the area around the former UST and associated piping was an AOC and warranted further investigation, but no additional investigation was warranted for the Group 18 Magazine or Main Road Disposal Area (Baker, 1996d).
Final Report at SSAs 3 and 7 (OHM, 1997b) – AR # 000893	A removal action was conducted in June and July of 1996, consisting of removing the 220-gallon concrete UST and associated piping. In addition, soil beneath the UST and piping was excavated and removed to an average depth of approximately 3 feet below the bottom of the tank and piping. The excavated UST, piping, and soil were disposed of offsite. Confirmation samples were collected from the sidewalls and floor of the excavation. Results indicated the presence of VOCs, nitramines, and inorganics in soil; however, clean up goals were not established in the removal action work plan. Confirmation data were reviewed and compared to current USEPA regional screening levels (RSLs) and ESVs for use in future investigations.
Phase I RI Report for Groundwater at Sites 1, 3, 6, 7, 11, 17, 24, and 25 (CH2M HILL, 2007a) – AR # 000892 and 002158	Site 25 groundwater samples were collected and analyzed for inorganic constituents and explosives constituents. Only RDX concentrations exceeded the RSL for tap water. However, the sampled well network did not represent adequate coverage of all potential source areas at the site. The Phase I Groundwater RI report recommended additional sampling in the vicinity of the discharge pipe, since soil and groundwater samples were not previously collected in this area. The report also recommended sampling for perchlorates, which could have been present in the rocket fuels used at the site.
Draft Final Round One RI for Sites 23, 24, 25, and 26* (Baker, 2008b) – AR # N/A	A Round One RI was conducted at Site 25 in 1997. Soil, groundwater, surface water, and sediment samples were collected. VOCs and explosives constituents were detected in subsurface soil and groundwater, SVOCs were detected in Felgates Creek surface water and sediment, pesticides and PCBs were detected in sediment, and metals were detected in all site media. Potential human health and ecological risks and hazards were within or below acceptable ranges for all exposure pathways. However, due to data quality issues, inappropriate collection procedures and sample locations, and inappropriate quality control procedures, the document associated with the RI was not finalized, and the team agreed that only slug test data could be used to support future decisions. In accordance with Partnering Team agreement, this document will not be finalized and is not discussed further.

*Report will not be finalized, no AR number

3.2.11.2 Activities Completed in FY 2014

A UFP-SAP supporting an RI is currently being developed to further characterize soil and groundwater in the vicinity of Building 373, the former UST and associated piping, and the abandoned discharge line, and to evaluate potential transport and contaminant discharge from the site to sediment and surface water in Felgates Creek.

3.2.11.3 Nature and Extent of Potential Contamination

The wash/rinse water from the cleanup of formulation/pouring equipment was the source of potential contamination at Site 25. Previous investigations have included analyses of soil, groundwater, surface water, and sediment samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. A Round One RI was completed in 2008; however, in accordance with Partnering Team agreement, this document will not be finalized and is not discussed further. The initial SSP report identified detectable concentrations of VOCs, SVOCs, one PCB (Aroclor-1260), explosives constituents, and metals in site media at concentrations exceeding screening levels. A UFP-SAP is currently being developed as part of the ongoing RI to further characterize soil and groundwater in the vicinity of Building 373, the former UST and associated piping, and the abandoned discharge line, and to evaluate potential transport and contaminant discharge from the site to Felgates Creek. The nature and extent of contamination at Site 25 is currently being further evaluated. Potential unacceptable risks identified for each medium at Site 25, as documented in the previously presented reports, are summarized in **Table 3-23**.

TABLE 3-23
Site 25 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health Ecological	SVOCs, Aroclor-1260, and inorganic constituents (in former UST area)	Potential unacceptable risks were identified associated with SVOCs, Aroclor-1260, and inorganic constituents in the former UST area (OHM, 1997). The tank and visually contaminated soil were removed, and soil in other areas is currently being investigated as part of the ongoing RI.
Groundwater	Pending Evaluation	Pending Evaluation	Groundwater is currently being investigated as part of the ongoing RI.
Surface Water	Pending Evaluation	Pending Evaluation	Surface water is currently being investigated as part of the ongoing RI.
Sediment	Pending Evaluation	Pending Evaluation	Sediment is currently being investigated as part of the ongoing RI.

3.2.11.4 CERCLA Path Forward

- Finalize UFP-SAP
- RI field activities
- RI reporting
- FS/PP/ROD for all media
- LUC RD, as appropriate
- RAWP
- RA field work
- CCR
- LTM Work Plan and implementation, if required
- RACR
- Five-year Review (2018)

Schedule 3-11 presents the FY 2015-2016 schedule for Site 25.

3.2.12 Site 26—Building 1816 Mark 48 Waste Otto Fuel Tank

Site 26 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 21 - open Groundwater: CERCLIS 21 - open Surface Water: Not Present Sediment: Not Present
Current IR Activities:	RI/FS Stage of Investigation - RI for Soil and Groundwater
Media Investigated:	Soil, Groundwater
Removal and RAs:	UST and Surrounding Contaminated Soil Removal - (Environmental and Safety Designs, Inc. 1994)
Media Closed:	None
Waste and/or Debris Present Onsite:	No
Activities Completed in FY 2014:	RI UFP-SAP and Field Work for DPT Soil and Groundwater Samples

3.2.12.1 Site Description

Site 26, the Building 1816 Mark 48 Waste Otto Fuel Tank (formerly SSA 18 and previously referred to as Site NW20 - The Otto Fuel Spill Site), is located at Building 1816 (**Figures 3-12)**. Site 26 consists of the area surrounding Buildings 1816, 1818, 1897, and 2054, including a waste Otto fuel management process area that was active in the northern portion of Building 1816 from the mid-1970s to the mid-1990s, before the southern portion of the building was constructed and operations in the northern portion ceased. The area is currently used for work on Mark 48 torpedoes as part of the Naval Submarine Torpedo Facility Command. A majority of the site is restricted; a physical barrier (chain-link fence) is present to prevent unauthorized access to the facility. There were also two fuel oil USTs at the site that are not considered to have been potential sources of CERCLA contamination.

Site 26 includes a 2,500-gallon concrete UST and network of ancillary drain pipes that were formerly used to store waste Otto fuel. The tank was installed in 1974 andin late 1987, waste Otto fuel was discovered leaking from the tank. The tank was not equipped with a secondary containment system. The waste fuel stored in the tank consisted of a liquid mixture of Otto fuel and water; it may also have contained oils, denatured ethyl alcohol, detergent, and trace amounts of cyanide, halogenated hydrocarbons, and heavy metals such as arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The fuel was removed, the tank was cleaned, and a RCRA closure permit was filed. During the removal action, some contaminated soil was noted and removed. However, before the tank removal was completed, the excavation sides collapsed and the base of the tank was left in place. In March 1995, the waste Otto fuel UST was removed from the site. A separate, neighboring 8,000-gallon fuel oil UST was also removed from the site in 1995 and a 12,000-gallon #2 heating oil UST located in the southern portion of the site was removed in 1998. Site 26 has been retained as an ERP site because of chlorinated VOCs detected in shallow groundwater. Depth to groundwater in this area is generally 30 feet to the shallow Cornwallis Cave aquifer. The Yorktown confining unit is approximately 25 feet thick at Site 26 and separates the Cornwallis Cave aquifer from the underlying Yorktown Eastover aquifer. The topography at the site is generally flat at approximately 70 feet amsl. A summary of relevant documents and action milestones is presented in **Table 3-24**.

TABLE 3-24
Site 26 Previous Investigations

Document Title/Milestone	Summary
AM, SSA 18 (Environmental and Safety Designs, Inc. 1994) – AR # 000612	The AM documented the decision to remove the leaking UST and surrounding soil contaminated with waste Otto fuel, and to notify current onsite workers of the potential for exposure.
Soil Assessment Report for SSA 18 (Baker, 1994c) – AR # 000619	In April 1994, a soil assessment investigation was conducted related to an expansion of Building 1816. Surface and subsurface soil samples were analyzed, TCE was detected in one sample and elevated concentrations of several metals were detected in one or more samples; however, no detected concentrations exceeded regulatory limits.
Site Screening Progress Report for SSAs 2, 17, 18 and 19 (Baker, 1996e) – AR # 000666 and 000667	An SSP investigation was conducted at Site 26 in February 1995 and included collection of surface soil and groundwater samples. The investigation identified potential unacceptable human health risks associated with concentrations of SVOCs and inorganics in soil and VOCs in groundwater. 1,1,1-TCA and 1,1-DCE were detected in groundwater in the vicinity of the tank location and downgradient of the tank. The SSP recommended additional RI/FS efforts.
Draft Final Round One RI Report for Sites 23, 24, 25, and 26* (Baker, 2008b) – AR # N/A	In September and October of 1997, a Round One RI investigation was conducted at Site 26. Surface and subsurface soil and groundwater samples were collected. The associated HHRA identified cumulative non-cancer hazards to future adult and child residents due to combined exposure to all media. However, because hazard indices for each target organ for chemicals in specific media were below 1, the RI recommended NFA related to human health risk. The ERA identified no potential unacceptable risks to receptors associated with the site. While the conclusions of the Draft Final RI Report were that the levels of chemicals in site media posed no unacceptable potential risk to human or ecological receptor populations, the WPNSTA Yorktown Partnering Team did not accept the conclusions or recommendations of the report. Due to data quality issues, inappropriate collection procedures and sample locations, and inappropriate quality control procedures, the document associated with the RI was not finalized, and the team agreed that only slug test data could be used to support future decisions. In accordance with Partnering Team agreement, this document will not be finalized and is not discussed further.

*Report will not be finalized, no AR number

3.2.12.2 Activities Completed in FY 2014

A UFP-SAP was finalized in December 2013 to further evaluate potential impacts from the former waste Otto fuel management processes that occurred in the northern portion of Building 1816. Portions of the field work were conducted in November and December 2013, and the remainder is anticipated to be completed in 2014 following approval of the explosives siting package by Navy Ordnance Safety and Security Activity.

3.2.12.3 Nature and Extent of Potential Contamination

The source of contamination to site media was the contents of the UST that was removed in 1995. Previous investigations have included analyses of soil and groundwater samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. No surface water or sediment analyses were completed at Site 26 because there are no surface water bodies associated with the site. An RI was completed in 2008; however, in accordance with Partnering Team agreement, this document will not be finalized. A UFP-SAP was developed as part of the ongoing RI to further understand the hydraulic characteristics of Site 26 and to characterize the nature and extent of soil contamination associated with the release from the former UST source area, soil that may have been impacted by industrial operations at the site, and groundwater contamination. In addition, sub-slab soil gas samples from under Building 1816 will be collected to characterize potential vapor intrusion issues in the vicinity of the former UST. The nature and extent of

contamination at Site 26 is currently being further evaluated. Potential unacceptable risks identified for each medium at Site 26, as documented in the previously presented reports, are summarized in **Table 3-25**.

TABLE 3-25
Site 26 Potential Contamination and Risks Summary

Media	Potential Risk	COC	Status
Soil	Pending Evaluation	Pending Evaluation	Soil is currently being investigated as part of the ongoing RI.
Groundwater	Pending Evaluation	Pending Evaluation	Groundwater is currently being investigated as part of the ongoing RI.
Surface Water	N/A	N/A	Surface water is not associated with Site 26.
Sediment	N/A	N/A	Sediment is not associated with Site 26.

3.2.12.4 CERCLA Path Forward

- Complete RI field activities
- RI reporting
- FS/PP/ROD for all media
- LUC RD, as appropriate
- RAWP
- RA field work
- CCR
- LTM Work Plan and implementation, if required
- RACR
- Five-year Review (2018)

Schedule 3-12 presents the FY 2015-2016 schedule for Site 26.

3.2.13 Site 31—Barracks Road Landfill Industrial Area

Site 31 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 22 - open Groundwater: CERCLIS 22 - open Surface Water: CERCLIS 22 - open Sediment: CERCLIS 22 - open
Current IR Activities:	RI/FS Stage of Investigation - RI for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Sealing Interior Cracks (Shed 6 & Building 371) and Relocation of Employees from Sheds 3 and 6
Media Closed:	None
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	Phase III RI UFP-SAP and Field Work

3.2.13.1 Site Description

Site 31 (formerly AOC 23) consists of an industrial area west of Site 12 and SSA 15 (**Figure 3-13**). The topography of Site 31 slopes to the northwest toward an unnamed creek. The area is predominantly paved with asphalt or covered in gravel. Wooded areas are present on both the northwest and southeast sides of

the study area. The industrial area consists of four large buildings (Sheds 3 through 6) and several smaller buildings. Shed 3 formerly housed a paint booth, blast booth, satellite accumulation area for aerosol paint cans, and parts washer and was used for wing and fin repair until it was evacuated in February 2012 due to vapor intrusion concerns. The building was also historically used as a missile component rework facility and a boiler plant. Shed 4 is currently used as a storage warehouse. The building was historically used for container repair and testing. Shed 5 was historically used for mine and depth charge rework, and later for administrative and driver training purposes. Shed 6 was most recently used to support public works and utilities maintenance, and was historically used for missile component rework and equipment maintenance; but like Shed 3, was evacuated in February 2012 due to vapor intrusion concerns, and is currently unoccupied. Public works operations formerly conducted in Shed 6 are now conducted in Shed 5. Railroad tracks lie to the northwest of the buildings. A UST that used to contain waste oil was previously located by the northern corner of Shed 5, but was removed in December 1993 (Baker, 1997g). Two other USTs and one AST were also located onsite and were used for storage of heating oil.

Site 31 was formerly known as either AOC 23 or the area upgradient of Site 12 and was associated with Site 12 until September 2006. At that time a consensus statement was signed by the Partnering Team indicating the VOC concentrations detected in groundwater were unrelated to Site 12 based on historical site use and the spatial distribution of contamination. The presence of VOCs was attributed to the industrial area operations upgradient of Site 12 and this area has subsequently been investigated independently of Site 12 as Site 31. The site is bounded on the east and west sides by surface drainage features and the site topography slopes downward toward these surface water features. The site is located on a groundwater divide, with groundwater flowing in both westerly and easterly directions. A summary of relevant documents and action milestones is presented in **Table 3-26**.

TABLE 3-26
Site 31 Previous Investigations

Document Title/Milestone	Summary
Site Assessment Report AOC 23 (CH2M HILL, 2008d) – AR # 002425	The Site Assessment was completed between April 2007 and March 2008, and consisted of an MIP study to determine the groundwater source areas, DPT soil and groundwater sampling, well installation, and groundwater, seep, surface water, and sediment sampling. The report concluded that a VOC plume was present at the site as a result of two potential sources, one in the vicinity of Shed 3 and the other in the vicinity of Shed 5. In some places, groundwater contamination was found to be migrating and discharging via seeps, but this did not appear to have a significant impact to surface water. Potential unacceptable risk were identified from exposure to metals, explosives constituents, and VOCs in groundwater, and from exposure to VOCs in indoor air. An RI was recommended for Site 31.
Site 31 AM (Navy, 2012) – AR # Pending	The Site 31 AM for a time-critical removal action (TCRA) documented the decision to evacuate personnel from Shed 3, Shed 6, and Building 371, based on the results of the indoor air and sub-slab soil gas sampling conducted in January 2012. The maximum concentrations of TCE in indoor air in Shed 3, Shed 6, and Building 371 exceeded the screening criteria. In addition, an RA contractor was tasked with sealing foundation cracks that were identified as potential pathways for vapor intrusion.

3.2.13.2 Activities Completed in FY 2014

The updated Phase III RI UFP-SAP for Site 31 was completed in March 2014 to collect samples from the following media: groundwater, surface water, sediment, seep, and soil. Field work was conducted in March and April 2014. Additional fieldwork is planned for summer 2014. In addition, a vapor intrusion investigation was conducted within buildings located at Site 31. Vapor intrusion samples were collected from Shed 5 in January 2014. Both Sheds 3 and 6 remain unoccupied as the Navy continues to evaluate long-term actions for these sheds. During recent RI fieldwork, it was discovered that site-related groundwater contamination has intercepted a storm water system and is discharging at an on-base outfall. Development of a treatability

study is underway to address the outfall contamination. A Work Plan to conduct video surveillance of the outfall pipes was completed in April 2014.

3.2.13.3 Nature and Extent of Potential Contamination

Previous investigations included analyses of surface water, sediment, and groundwater samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. Investigation is currently ongoing to evaluate the results of indoor/ outdoor air, sub-slab soil gas, subsurface soil, groundwater, surface water, and sediment samples as part of the RI. The nature and extent of contamination at Site 31 is currently being further evaluated. Potential unacceptable risks identified for each medium at Site 31, as documented in the previously presented reports, are summarized in **Table 3-27**.

TABLE 3-27
Site 31 Potential Contamination and Risks Summary

Medium	Potential Risk	COPC	Status
Soil	Human Health Ecological	VOCs	Potential unacceptable risks were identified during Phase II of the RI associated with VOC-contaminated soil potentially acting as continued sources of contamination. Soil is currently being investigated as part of the ongoing RI.
Groundwater	Human Health	VOCs, explosives constituents, and inorganics	Potential risks were identified associated with VOCs, explosives constituents and inorganic constituents. Groundwater is currently being investigated as part of the ongoing RI.
Surface Water	Human Health Ecological	TCE	Potential unacceptable risk was identified associated with TCE exceeding human health screening criteria and approaching the ESV. Surface water is currently being investigated as part of the ongoing RI.
Sediment	Pending Evaluation	Pending Evaluation	Sediment is currently being investigated as part of the ongoing RI.
Indoor Air and Sub-slab Soil Gas	Human Health	VOCs	Indoor air and sub-slab soil gas samples were collected as part of the initial RI investigation in January 2012. Shed 3, Shed 6, and Building 371 were immediately evacuated of personnel based on a USEPA Region 3 recommendation, as documented in the AM for the TCRA (Navy, 2012). Indoor air and sub-slab soil gas are currently being investigated as part of the ongoing RI.

3.2.13.4 CERCLA Path Forward

- Outfall pipe video survey Field Work
- RI reporting (Phase 1, 2, and 3)
- Treatability study design/Work Plan/field work/report
- FS/PP/ROD for all media
- LUC RD, as appropriate
- RAWP
- RA field work
- CCR
- LTM Work Plan and implementation, if required
- RACR
- Five-year Review (2018)

Schedule 3-13 presents the FY 2015-2016 schedule for Site 31.

3.2.14 Site 33—Sand Blasting Grit Area

Site 33 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 28 - open Groundwater: CERCLIS 28 - open Surface Water: CERCLIS 28 - open Sediment: CERCLIS 28 - open
Current IR Activities:	SI Stage of Investigation - Site Inspection for soil, groundwater, surface water, and sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Excavation of Soil and Sandblasting Grit – (OHM, 2001)
Media Closed:	None
Waste and/or Debris Present Onsite:	Yes
Activities Completed in FY2014:	N/A

3.2.14.1 Site Description

Site 33 (formerly SSA 22 and AOC 4) consists of approximately 3.5 acres located in the eastern portion of WPNSTA Yorktown. Site 33 is bounded to the east and north by Bollman Road and an intermittent drainage ditch and to the south by a surface water drainage ditch (**Figure 3-14**). The eastern portion of the site is a vacant lot, and the western portion of the site is wooded. Site 33 is the former Building 530 Paint Shop and Sand Blasting Operations, which operated between 1945 and the early to mid-1980s. Bomb fins and wings, inert bomb casings, and various other inert ordnance items were grit-blasted in a blasting booth and painted within Building 530. Grit blasting material may have been composed of coal slag or steel grit. The blasting booth within the building used a dust collector; accumulated dust was deposited on the ground surface north of Building 530. Waste dumping areas have also been observed within the wooded portions of the site to the northeast and southwest of former Building 530. The northern waste dumping area consists of metal slag, drum fragments, and construction debris, while the southern waste dumping area consists primarily of railroad ties and other related materials. Site 33 is a mostly cleared grassy area that is generally flat in topography. A summary of relevant documents and action milestones is presented in **Table 3-28**.

TABLE 3-28
Site 33 Previous Investigations

Document Title/Milestone	Summary
Navy Final Recommendation for AOCs (SSA 22 is identified as AOC 4) (P. A. Rakowski, P.E., 1995) – AR # 000355	In 1995, Site 33 was identified as AOC 4, and soil samples were collected from the grit disposal pile located to the northeast of Former Building 530. These samples were analyzed for metals. Elevated lead concentrations were detected in the samples collected from the grit pile, with a maximum concentration of 3,100 mg/kg. Based on this sampling, it was recommended that the site be retained as an AOC and that the grit pile be removed.
SSP Report for SSAs 3, 4, 5, 9, 10, 20, 21, 22, 23, and 24 (Volume I, II, and III) (Baker, 2001c) – AR # 001350, 001351, 001352	The SSP was initiated at Site 33 in 1997. SI activities included the collection of soil and groundwater samples analyzed for organic compounds and metals. VOCs, SVOCs, PCBs, and metals were detected in surface soil, primarily in the areas of grit disposal. A groundwater sample was collected from the one monitoring well located at the site. TCE was the primary constituent detected in groundwater at a concentration of 220 micrograms per liter. It was concluded that elevated VOC levels may be due to the use of solvents at Former Building 530. VOCs and metals were identified as COPCs at Site 33.

TABLE 3-28
Site 33 Previous Investigations

Document Title/Milestone	Summary
RA Report for Sites 1 and 3 and SSA 22 (OHM, 2001) – AR # 001091	Excavation of the lead-impacted soil and sandblasting grit began in 1999 and was completed in April 2000. The soil excavation area covered approximately 600 square feet, with excavation depths ranging from 6 inches to 2 feet. The groundwater monitoring well was abandoned during the soil excavation efforts. Following the soil removal effort and post-removal confirmatory sampling the USEPA indicated that NFA was required for site soil.

3.2.14.2 Activities Completed in FY 2014

Site 33 is currently in the SI phase. A UFP-SAP is being developed to investigate if soil, groundwater, surface water, and/or sediment have been impacted by activities at Building 530 and by the waste debris areas.

3.2.14.3 Nature and Extent of Potential Contamination

Potential contamination at Site 33 is related to grit blasting activities within and near former Building 530 and the grit pile that was located in the north corner of Building 530. Previous investigations have included analyses of soil and groundwater samples for VOCs, SVOCs, explosives constituents, pesticides, PCBs, and metals. Potential unacceptable risks identified for each medium at Site 33, as documented in the previously presented reports, are summarized in **Table 3-29**.

TABLE 3-29
Site 33 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health	Lead (Blast Area)	A removal action was conducted beginning in July 1999 to remove and dispose of lead-contaminated soil and blasting grit from within the Blast Area (OHM, 2001). An NFA Decision Summary for soil within the blasting area was signed in May 2004. Soil is currently being investigated as part of the ongoing SI.
Groundwater	Pending Evaluation	Pending Evaluation	Groundwater is currently being investigated as part of the ongoing SI.
Surface Water	Pending Evaluation	Pending Evaluation	Surface water is being investigated as part of the ongoing SI.
Sediment	Pending Evaluation	Pending Evaluation	Sediment is being investigated as part of the ongoing SI.

3.2.14.4 CERCLA Path Forward

- Finalize SI UFP-SAP
- SI Fieldwork
- SI report
- EE/CA
- AM
- Removal Action
- CCR
- NFA PP/NFA ROD

Schedule 3-14 presents the FY 2015-2016 schedule for Site 33.

3.2.15 Site 34—Building 537 Discharge to Felgates Creek

Site 34 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 27 - open Groundwater: CERCLIS 27 - open Surface Water: CERCLIS 27 - open Sediment: CERCLIS 27 - open
Current IR Activities:	RI/FS Stage of Investigation - Data Gap Investigation for Soil, Groundwater, Surface Water, and Sediment
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Soil and Sediment Excavation and Disposal – (Shaw, 2009a; CH2M HILL, 2009e)
Media Closed:	None
Waste and/or Debris Present Onsite:	No
Activities Completed in FY2014:	Data Gap RI UFP-SAP and Field Work

3.2.15.1 Site Description

Site 34 (formerly SSA 14), the Building 537 Discharge to Felgates Creek, is approximately 3 acres in size and is located in the north-central portion of WPNSTA Yorktown (**Figure 3-17**). During its operation, the site was used for industrial activities related to ordnance. The site is no longer active and buildings at the site, including Building 537, were decontaminated (contents removed and interiors cleaned) in 2013 and 2014. A one-lane asphalt road circles around Buildings 458, 459, 460, 537, and 651, which are concrete bunkers set into a hillside. South of the road, the sparsely-wooded terrain slopes steeply to a flat marsh wetland area north of the main channel of the Eastern Branch of Felgates Creek. Site 34 consists of potential discharges from Building 537 as well as a distinct discharge pipe which originates at Building 537 and extends south to Felgates Creek. Nitramine-contaminated wastewater was reportedly discharged through the pipe.

The surface geology at Site 34 consists of approximately ten feet of silt and clay consistent with the Yorktown confining unit. This clay unit overlies the Yorktown-Eastover aquifer, which consists predominantly of sand, but includes an approximately ten feet thick clay lens between 30 and 40 feet bgs at Site 34. Depth to groundwater at the site is between 10 and 12 feet bgs. Groundwater and surface water flow south toward the Eastern Branch of Felgates Creek. A summary of relevant documents and action milestones is presented in **Table 3-30**.

TABLE 3-30
Site 34 Previous Investigations

Document Title/Milestone	Summary
Round Two RI Report for Sites 2, 8, 18, and SSA 14 (Volume I and II) (Baker, 2004a) – AR # 001548 and 001549	A Round Two RI was conducted, which consisted of the collection of surface and subsurface soil, groundwater, surface water, and sediment samples at SSA 14 (now Site 34). Potentially unacceptable human health risks were identified related to CVOCs in groundwater, explosives constituents in surface soil, and metals in surface and subsurface soil. Potentially unacceptable ecological risks were identified related to VOCs, explosives constituents, and metals in soil and sediment, and explosives constituents in surface water.

TABLE 3-30
Site 34 Previous Investigations

Document Title/Milestone	Summary
EE/CA and AM for Contaminated Soil and Sediment at Site 8 and SSA 14 (Baker, 2005a; Baker, 2005b) – AR #002076 and #001871	In 2005, soil and sediment sampling was conducted within the drainage area downstream of the discharge pipe as part of the pre-removal characterization of soil to support a removal action. Sampling results were used to complete an EE/CA and AM for an NTCRA. The EE/CA recommended excavation with offsite disposal of contaminated soil and sediment within the drainage channel to mitigate potentially unacceptable human health and ecological risks. The AM documented the approved RA of excavation of contaminated soil and sediment from SSA 14, which was acting as a source of potential contamination. Remedial goals were established for COCs at SSA 14 as follows: BEHP, HMX, chromium, iron, mercury, vanadium, and zinc in soil, and BEHP and selenium in sediment. Because pre-removal action confirmation surface and subsurface sediment samples in the drainage area of the wetland did not contain detectable mercury, mercury was not identified as a sediment COC. Therefore, a sediment-based PRG for mercury was not developed.
Draft Final CCR (Shaw, 2009a) – AR # Draft No AR	The NTCRA was completed in 2007 and included excavation with offsite disposal of contaminated sediment, as well as a smaller amount of soil within the drainage channel. Sediment in the area was excavated to meet established clean-up goals for constituents other than mercury.
SSA 14 Removal Action and Confirmation Sampling Summary TM (CH2M HILL, 2009e) – AR # Draft No AR*	The TM documented the confirmation sampling conducted following the removal action. With regard to the soil portion of the removal action, a soil-based PRG was established for mercury, and this soil-based PRG was not exceeded in confirmation samples collected following the soil removal.
Final RI Report for Groundwater at Sites 8 and 34 (CH2M HILL, 2011b) – AR # 000246	Concurrent with the removal action, potential impacts to groundwater and groundwater discharges to surface water and sediment to the Eastern Branch of Felgates Creek were investigated in a groundwater RI. TCE, 1,1-DCE, cis-1-2-DCE, 1,1-DCA, and arsenic were identified as human health COCs for groundwater or exceeded the MCLs. No potential unacceptable human health risks were identified for surface water or sediment, and NFA was recommended for these media in the groundwater RI. The RI recommended an FS for groundwater to address potential unacceptable human health risks in groundwater.

*The Yorktown Partnering Team agreed after data gaps were identified to further assess mercury in sediment in the vicinity of two locations that were not included in the 2011 groundwater RI risk assessment.

3.2.15.2 Activities Completed in FY 2014

Building 537 was decontaminated of explosives residues between July and October 2013. The UFP-SAP for the Data Gap RI at Site 34 was finalized in March 2014. The field work in association with the Data Gap RI was completed in 2014.

3.2.15.3 Nature and Extent of Potential Contamination

The primary source of contamination was wastewater discharged from the Building 537 pipeline. Previous investigations have included analyses of soil, groundwater, sediment, and surface water samples for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL metals. Surface water and sediment samples were collected near Site 34 as part of an overall evaluation of surface water related to Sites 8 and 34, as they are adjacent to each other and contribute runoff and groundwater discharge to the Eastern Branch of Felgates Creek. Potential unacceptable risks identified for each medium at Site 34, as documented in the previously presented reports, are summarized in **Table 3-31**.

TABLE 3-31
Site 34 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health	HMX	A removal action was conducted to remove and dispose of contaminated soil within the wastewater discharge area (Shaw, 2009a). A more extensive investigation of site soil is currently being conducted as part of the ongoing Data Gap RI.
	Ecological	BEHP, HMX, Chromium, Iron, Mercury, Vanadium, and Zinc	
Groundwater	Human Health	TCE, 1,1-DCE, cis-1-2-DCE, 1,1-DCA, and arsenic	Potential unacceptable risks were identified primarily associated with TCE and arsenic (CH2M HILL, 2011b). A more extensive investigation of groundwater is currently being conducted as part of the ongoing Data Gap RI.
Surface Water	Pending Evaluation	Pending Evaluation	No unacceptable risks were identified for any receptor based on the limited investigation area. A more extensive investigation of site surface water is currently being conducted as part of the ongoing Data Gap RI.
Sediment	Ecological	BEHP, selenium	A removal action was conducted to remove and dispose of contaminated soil and sediment (Shaw, 2009a). A more extensive investigation of site sediment is currently being conducted as part of the ongoing Data Gap RI.

3.2.15.4 CERCLA Path Forward

- Data Gap RI report
- Complete FS
- PP/ROD (for all media)
- LUC RD
- RD
- RAWP/ field work
- CCR
- RACR
- LTM
- Five-year Review (2018)

Schedule 3-15 presents the FY 2015-2016 schedule for Site 34.

3.3 Munitions Response Program Sites

An overview for each active MRP site at WPNSTA Yorktown is provided in the following subsections, and includes the site description, a summary of previous investigations, associated media and identified potential unacceptable risks, activities to be completed in FY2015-2016, and the CERCLA path forward. Active MRP sites included in this section that are currently undergoing investigation and have not been closed include the MWR Skeet Range, UXO 2 (formerly Site 2), and UXO 3.

The MWR Skeet Range was identified in a draft final PA (Malcolm Pirnie, 2005) that also identified three areas as potential MRP sites: the Demolition Range (currently active), the Detonator Blasting Pit Area, and the Detonator Pit. A TM was developed in December 2010 that summarized the recommendations for these three locations based upon the findings of the PA (CH2M HILL, 2010d). No additional activities beyond the PA were recommended for the Detonator Blast Pit Area and the Detonator Pit. However, once the Demolition Range is closed or is no longer active, this area should be reevaluated by the MRP.

3.3.1 UXO 2 —Turkey Road Landfill

UXO 2 Summary	
Status:	Investigation Ongoing Soil: CERCLIS 31 - open Groundwater: CERCLIS 31 - open Surface Water: CERCLIS 31 - open Sediment: CERCLIS 31 - open
Current IR Activities:	PA/SI Stage of Investigation
Media Investigated:	Soil, Groundwater, Surface Water, Sediment
Removal and RAs:	Surface and Near Surface Debris Removal – (IT Corporation, 1995b)
Media Closed:	None
Waste and/or Debris Present Onsite:	Yes
Activities Completed in FY2014:	N/A

3.3.1.1 Site Description

UXO 2 (former Site 2) is a five-acre landfill located east of Turkey Road adjacent to a wetland area on the Southern Branch of Felgates Creek and two unnamed tributaries that border Site 2 (**Figure 3-19**). Operations at the landfill reportedly began in the 1940s and ceased in 1981. Wastes disposed in this landfill reportedly included mercury and carbon-zinc batteries, tree stumps and limbs, construction rubble, missile hardware (e.g., wings, fins and power packs), electrical devices, and unidentified drums and/or tanks. An estimated 240 tons of waste were disposed during the period of use. Waste material (e.g., mine casings) was primarily located along the tributaries to the Southern Branch of Felgates Creek. In June 2005, during investigation activities, an ordnance item was discovered. Although the item was eventually determined to be inert, the discovery, paired with the history of inert munitions waste disposal at the site, prompted the transference of Site 2 from the IRP to the MRP. Once identified as an MRP site, Site 2 was designated as UXO 2, a Munitions Response Site Prioritization Protocol (MRSPP) scoring was completed. The Turkey Road Landfill was transferred to the MRP on June 19, 2007. A summary of relevant documents and action milestones is presented in **Table 3-32**.

TABLE 3-32
UXO 2 Previous Investigations

Document Title/Milestone	Summary
Round One RI Report for Sites 1-9, 11, 12, 16-19, and 21 (Baker and Weston, 1993b) – AR # 000313	The field investigation for the Round One RI was conducted from June to October 1992, and soil, groundwater, surface water, and sediment samples were collected and analyzed. The results of a geophysical investigation indicated the presence of waste along the perimeter of the site adjacent to the drainage ways. Due to the peripheral distribution of waste, the report concluded that the waste was likely graded into the adjacent marshland during disposal. Analytical results indicated minimal site-related impacts to groundwater. Although exceedances of screening values were detected in surface water and sediment samples, the report concluded that detected concentrations were not site-related because elevated concentrations of these constituents were not detected in groundwater samples. The report recommended a removal action to address surficial waste and debris, followed by surface soil sampling to aid in the completion of a risk assessment.
AM and EE/CA (Baker, 1994d) – AR # 000615	The AM documented the removal action to dispose of surface and near surface debris. Heavy metals, nitramine compounds, and base/neutral acid extractable compounds (BNAs) were detected in media at Site 2, and waste present at Site 2 was determined to present a potential source of contamination to groundwater, surface water, sediment, and soil.

TABLE 3-32
UXO 2 Previous Investigations

Document Title/Milestone	Summary
Closeout Report, Sites 2 and 9 and SSA 4, Mine Casing and Debris Removal Action (IT Corporation, 1995b) – AR # 000646	A removal action was conducted from September to December 1994 in order to remove all surface and near surface debris and collect surface soil samples from within the removal areas. Subsurface waste was not addressed as part of this action. The main objective of the removal action was to eliminate risk from direct exposure to waste and to remove potential sources of contamination. In total, approximately 2 tons of tar emulsion, 6 tons of non-fibrous filter material, 365 tons of batteries, and three drums were removed from Site 2. An additional 4,323 pieces of inert munitions were removed from the sites included in the removal action excavation activities; however, the exact amount of inert munitions items from each site was not recorded. It is estimated that approximately ninety percent of the inert munitions items that were removed came from Site 2.
Round Two RI Report for Sites 2, 8, 18, and SSA 14 (Baker, 2004a) – AR # 001548	Soil, groundwater, surface water, and sediment samples were collected to characterize the nature and extent of contamination. The HHRA indicated potentially unacceptable non-carcinogenic risk to hypothetical future adult and child residents from combined exposure to cadmium, thallium, Aroclor-1254, and copper under RME concentrations. The ERA identified potentially unacceptable risk to aquatic lower-trophic-level receptors from exposure to silver in sediment. However, due to the presence of elevated silver concentrations detected upgradient of Site 2, the report concluded that Site 28 was the source of silver in unnamed tributary sediments. The report recommended further characterization of PAHs, Aroclor-1254, cadmium, and mercury in site soil to evaluate the potential for migration and accumulation in downgradient media. Although current levels of exposure did not indicate the potential for unacceptable risk to aquatic receptors from these chemicals, the potential for continued source release and future exposures elevated above those measured in the current dataset warranted additional investigation.
Pre-Removal Characterization Field Investigation	A Work Plan was developed outlining the sampling approach for exploratory trenching and additional soil sampling at Site 2 to define the extent of waste and concentrations of PAHs, Aroclor-1254, cadmium, and mercury. In June 2005, during investigation activities, an ordnance item was discovered. Although the item was eventually determined to be inert, because of the identification of this potential ordnance item along with the 1994 identification of inert munitions, the site was designated as a MRP site and the Pre-Removal Characterization of Soil Investigation was halted. Once identified as an MRP site, Site 2 was designated as UXO 2, a Munitions Response Site Prioritization Protocol (MRSPP) scoring was completed, and a public announcement regarding its availability was published in local newspapers in May 2008.
Final TM Summary Report for Non-Intrusive Geophysical Investigation of Turkey Road Landfill (Formerly Site 2), WPNSTA Yorktown, Yorktown, Virginia (CH2M HILL, 2010d) – AR # 000129	A non-intrusive geophysical survey was conducted in April 2010 to delineate the southern boundary of the landfill. Results generally agreed with the findings of the 1992 geophysical survey; no distinguishable southern boundary of the site could be identified. The data also supported the conclusion that debris and waste were likely pushed out toward the wetlands surrounding the site and filled into the surrounding low lying areas. Isolated subsurface anomalies were detected in the northern and southern portions of the eastern boundary of the investigation area. The greatest concentration of anomalies was detected along the eastern boundary of the site. Further investigation would be required on the southeastern side of the investigation area to delineate the extent of debris in this area.
Site Inspection Report, MRP Site UXO 2 (CH2M HILL, 2011e) – AR # 000166	The SI Report examined all of the previous investigations and actions at the site from an MR perspective. No documentation of munitions disposal activities or munitions certification processes was identified for the site; however, of the over 4,000 munitions items recovered and inspected, all were wholly inert training or display munitions items. This leads to a reasonable belief that an efficient inspection process was in place to ensure that no live munitions (i.e., MEC) items were placed in the landfill. Due to the low probability of encountering MEC or MPPEH, it was recommended that investigation activities to delineate the landfill boundary and the nature and extent of contamination recommence under an Explosives Safety Submission (ESS) Determination Request (DR).

3.3.1.2 Activities Completed in FY 2014

None.

3.3.1.3 Nature and Extent of Potential Contamination

The source of potential contamination is the waste disposal of tar emulsion, non-fibrous filter material, batteries, drums and inert munitions in the landfill. Previous investigations have included analyses of soil, groundwater, sediment, and surface water for TCL VOCs, TCL SVOCs, explosives constituents, pesticides, PCBs, and TAL inorganic constituents. Potential risks identified for each medium at UXO 2, as documented in the previously presented reports, are summarized in **Table 3-33**.

TABLE 3-33
UXO 2 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	Human Health	PAHs, Aroclor-1254, cadmium, and mercury	Potential unacceptable risks were identified associated with PAHs, Aroclor-1254, cadmium, and mercury.
Groundwater	None Identified	N/A	No unacceptable risk identified.
Surface Water	None Identified	N/A	No unacceptable risk identified.
Sediment	None Identified	N/A	No unacceptable risk identified. Though current levels of exposure do not indicate the potential for unacceptable risk to aquatic receptors from PAHs, Aroclor-1254, cadmium, and mercury, the potential for continued source release and future exposures elevated above those measured in the current dataset warrants additional investigation.

3.3.1.4 CERCLA Path Forward

- RI UFP-SAP and ESS-DR
- RI field work
- RI report
- FS/PP/ROD
- LUC RD
- RAWP
- RA field work
- CCR
- LTM implementation, if required
- RACR
- Five-year Review, if required (2018)

A schedule of planned activities is shown in **Schedule 3-16**. Funding may become available in FY 2014; however, it is also possible that funding may not be available until FY2017 or later.

3.3.2 UXO 3 — NMC Munitions Loading Pier

UXO 3 Summary	
Status:	Investigation Ongoing Soil: N/A Groundwater: N/A Surface Water: N/A Sediment: CERCLIS 30 - open
Current IR Activities:	PA/SI Stage of Investigation

UXO 3 Summary	
Media Investigated:	Sediment
Removal and RAs:	None
Media Closed:	None
Waste and/or Debris Present Onsite:	Yes – Potential Munitions Debris (Currently under investigation)
Activities Completed in FY2014:	SI Phase I Work Plan and Field Work

3.3.2.1 Site Description

MRP Site UXO 3 is the current and former piers and pier area along the shoreline of the York River, comprising approximately 289 acres of water and including approximately 5,400 linear feet of standing pier (**Figure 3-19**). The site is separated from the Base by the Colonial National Historic Parkway, which borders the southwestern edge of the site. Access to UXO 3 is restricted to authorized Navy personnel.

A current pier and former pier occupy the site. Pier R-1 (the former pier) was constructed in 1919, the year after the United States Mine Depot opened, to facilitate munitions loading. Prior to the construction of the pier, munitions loading and handling occurred in the York River from barge to boat. The wooden pier was badly damaged by the Chesapeake-Potomac hurricane in 1933.

In the 1940s, construction began on a concrete pier immediately adjacent to Pier R-1. The new pier (Pier R-3, the current pier) was originally L-shaped, consisting only of the southern arm of the current pier and a portion of the crossbar, but in the 1950s was completed to the current U-shape. In 1954, the wooden Pier R-1 suffered damage due to a fire. Pier R-3 eclipsed Pier R-1 for use as a munitions loading, unloading, and handling facility, and continues in service for that purpose.

In the 1990s, Pier R-1 was referred to as a recreational pier by the United States Army Corps of Engineers (USACE). This pier was standing until the mid-2000s, after which time the pier was no longer present with the exception of pilings remaining beneath the water surface. In 1993, in support of developing a long-term strategy for the disposal of dredging material from the pier area, the USACE collected eight sediment samples immediately outboard and inboard of Pier R-3. Low levels of metals and pesticides were found, and no environmental action was initiated. In 2011, the pier area was identified as MRP Site UXO 3 because the site history indicates a potential presence of MEC. A summary of relevant documents and action milestones is presented in **Table 3-34**.

TABLE 3-34
UXO 3 Previous Investigations

Document Title/Milestone	Summary
PA Report, UXO 0003 Munitions Loading Piers (CH2M HILL, 2013b) – AR # 002598	This PA was conducted to evaluate the potential for MEC, including UXO, discarded military munitions, and munitions constituents (MC), to be present at UXO 3. A desktop review was conducted and onsite and offsite sources were researched to evaluate the potential for munitions to have been dropped into the river or mishandled during munitions loading operations. The two areas of UXO 3 include Pier R-1 (operated from 1920 to the 1970s) and Pier R-3 (operated from 1941 to the present), the pier-associated trestles, and sediment associated with these areas. Although documentation of a release was not identified during the PA, the potential exists for MEC to be present at UXO 3 as a result of undocumented releases during historical loading operations. It was recommended that a Site Inspection (SI) be performed for the inactive portions of UXO 3, namely former Pier R-1. It was recommended that SI activities for Pier R-3, which is currently active, not be performed until all munitions loading operations in this area have ceased.

3.3.2.2 Activities Completed in FY 2014

The Site Inspection Work Plan and MEC Quality Assurance Project Plan for UXO 3 were finalized in December 2013. Field work was conducted in November and December 2013. The Phase I SI Results Report is currently being developed and is anticipated to be completed in 2014. In addition, the Phase II SI Work Plan and field work is anticipated to be completed in 2014.

3.3.2.3 Nature and Extent of Potential Contamination

The source of potential contamination at UXO 3 is the potential MEC and MC present as a result of past operations at the piers. No environmental samples have been collected to date. Potential unacceptable risks identified for each medium at UXO 3, as documented in the previously presented reports, are summarized in **Table 3-35**.

TABLE 3-35
UXO 3 Potential Contamination and Risks Summary

Medium	Potential Risk	COC	Status
Soil	N/A	N/A	Soil is not associated with UXO 3.
Groundwater	N/A	N/A	Groundwater is not associated with UXO 3.
Surface Water	N/A	N/A	Although UXO 3 is located within the York River environment, the transient nature of river water does not make it a medium of concern.
Sediment	N/A*	N/A	Sediment is associated with UXO 3 but has not been evaluated to date.

*Potential unacceptable risk may exist from the presence of MEC and MC within sediment.

3.3.2.4 CERCLA Path Forward

- SI Phase I Results report
- SI Phase II Work Plan and ESS-DR
- SI Phase II field work
- SI Phase II Results report
- SI Work Plan Addendum and field work to investigate anomalies
- SI Addendum Results report

A schedule of planned activities is shown in **Schedule 3-17.** Additional funding to address any potential concerns identified in the PA/SI may not be available until at least 2017.

3.4 Federal Facilities Agreement Document Review Summary

Table 3-36 summarizes the document review timeframes for primary and secondary documents, as presented in the FFA.

3.5 Records of Decision

As part of the FFA, 15 source areas were identified at WPNSTA Yorktown as requiring closeout documentation prior to base closeout:

- Site 1—Dudley Road Landfill
- Site 2—Turkey Road Landfill
- Site 3—Group 16 Magazine Landfill
- Site 4—Burning Pad Residue Landfill

- Site 6—Explosives-Contaminated Wastewater Impoundment, Flume Area and Excavation Area, Buildings 109, 110 and 501
- Site 7—Plant 3 Explosives-Contaminated Wastewater Discharge Area
- Site 8—NEDED Explosives-Contaminated Wastewater Discharge Area
- Site 9—Plant 1 Explosives-Contaminated Wastewater Discharge Area
- Site 11—Abandoned Explosives Burning Pits
- Site 12—Barracks Road Landfill
- Site 16—West Road Landfill and SSA 16 – Building 402 Metal Disposal Area and Environs
- Site 17—Holm Road Landfill
- Site 19—Conveyor Belt Soils at Building 10
- Site 21—Battery and Drum Disposal Area
- Site 22—Burn Pad

Table 3-37 provides a list of those documents that currently have a ROD in place for one or more media, the LTM requirements as applicable, modifications proposed, and recently completed ESDs.

TABLE 3-37
Record of Decision Summary

Site	ROD Media	Analytes for LTM	Proposed ESD Modification
Site 1	Soil, Waste	No LTM	No ESD
Site 3	Soil, Waste	No LTM	Remove LUCs
Site 4	Soil, Waste, GW, SW, SD	No LTM	No ESD
Site 5	Soil, GW	No LTM	No ESD
Site 6	Soil, SW, SD	No LTM	Document more stringent cleanup levels Removal of SW and SD from LTM
Site 7	Soil, GW, SW, SD	No LTM	Document more stringent cleanup levels Removal of SW and SD from LTM
Site 9	Soil, SW, SD	No LTM	No ESD
Site 11	Soil, Waste, GW	No LTM	No ESD
Site 12	Soil, GW	GW - VOCS, inorganic constituents SD – inorganic constituents	No LUC inspections for Areas B/C and Wood/Debris Disposal Area LTM requirements deferred to work plan No Analysis of VOCs in site media Clarify LUCs around Area A landfill
Site 17	Soil, Waste, GW	No LTM	Remove LUCs
Site 19	Soil	No LTM	Identify areas were industrial/commercial RGs were not achieved, if necessary
Site 21	Soil, Waste, GW, SW, SD	No LTM	No ESD
Site 22	Soil, Waste, SW, SD (action ROD for GW)	MNA and performance monitoring	No ESD
Site 28	Soil, GW, SW, SD	No LTM	No ESD
Site 29	Soil, GW, SW, SD	No LTM	No ESD

TABLE 3-37
Record of Decision Summary

Site	ROD Media	Analytes for LTM	Proposed ESD Modification
Site 30	Soil, GW, SW, SD	No LTM	No ESD

A Five-year Review is required to evaluate and document the effectiveness of remedies and RAs at sites with RODs or DDs. The next Five-year Review will be conducted in 2018 and is anticipated to include the following sites, at a minimum:

- Site 1 – Dudley Road Landfill
- Site 3 – Group 16 Magazine Landfill
- Site 6 – Explosives-Contaminated Wastewater Impoundment, Flume Area and Excavation Area, Buildings 109, 110, and 501
- Site 7 – Plant 3 Explosives-Contaminated Wastewater Discharge Area
- Site 12 - Barracks Road Landfill
- Site 19 – Conveyor Belt Soils at Building 10
- Site 22 – Burn Pad

Additional sites may be included based upon the findings of remaining investigations to be performed. Five-Year Reviews will be required for these sites as long as waste remains in place or hazardous substances, pollutants, or contaminants remain above levels allowing for unrestricted land use.

TABLE 3-36
Federal Facilities Agreement Document Review Summary
FY 2015 - 2016 SMP
Naval Weapons Station Yorktown, Yorktown, Virginia

Primary Documents	Draft					Draft Final		Final
	EPA/State Review	EPA/State may request extension of regulatory review period	Navy response to regulator review period extension request	Navy addresses regulatory comments	Navy may request extension of period to issue responses or Draft Final	EPA/State Review	Navy addresses regulatory comments	Navy Preparation
	up to 60 days to review	up to 20 days upon written request	up to 7 days to accept extension request or invoke dispute; no response implies acceptance	up to 60 days to issue responses and issue Draft Final	up to 20 days upon written request	up to 30 days to review changes or invoke dispute	up to 30 days to produce Final or issue dispute; Draft Final become Final if no party invokes dispute; if dispute is invoked, a Revised Draft Final will be issued within 35 days from issuing dispute	A primary final document may be modified only if there is significant new information AND need to evaulate potential impacts to public health or the environemnt; party may seek to modify by submitting a concise written request that details the reason for the mod request; if parties do not agree to the mod, any party may invoke dispute
Site Screening Process Work Plans								
Site Screening Proce Reports								
Remedial Investigation/Feasibility Study (including Baseline Risk Assessment) and Focused Feasibility Study Work Plans								
Remedial Investigation Reports (including baseline Risk Assessments)								
Feasibility Study and Focused Feasibility Study Reports								
Proposed Plans	Draft PRAP will be submitted within 30 days of the final FS or FFS Report							within 7 days of EPA acceptance and receiving State comments, Navy shall notice the PRAP for 45 days, and during which time shall hold a public meeting; after the public comment period, EPA, State, and Navy will decide if the plan needs to be modified and/or noticed again
Record of Decision	submit draft w/in 30 days of close of public comment period including any extension on finalization of the PRAP, ROD will include responsiveness summary; up to 30 days to attempt to select a remedy		RODs are not subject to dispute; if a remedy agreement can't be reached, EPA will select the remedy and issue the final ROD			RODs are not subject to dispute; if a remedy agreement can't be reached, EPA will select the remedy and issue the final ROD	RODs are not subject to dispute; if a remedy agreement can't be reached, EPA will select the remedy and issue the final ROD	
Final Remedial Designs						up to 14 days; but can request additional 14 days if signficant changes exist from the Preliminary Redmedial Design		
Remedial Action Work Plans								
Remedial Action Completion Reports								
Operations and Maintenance Plans								
Site Management Plans	up to 30 days			30 days		up to 30 days		
Community Relations Plans	Considered primary for submittal purposes, but secondary for review purposes							
Long-Term Remedial Action Monitoring Plans								

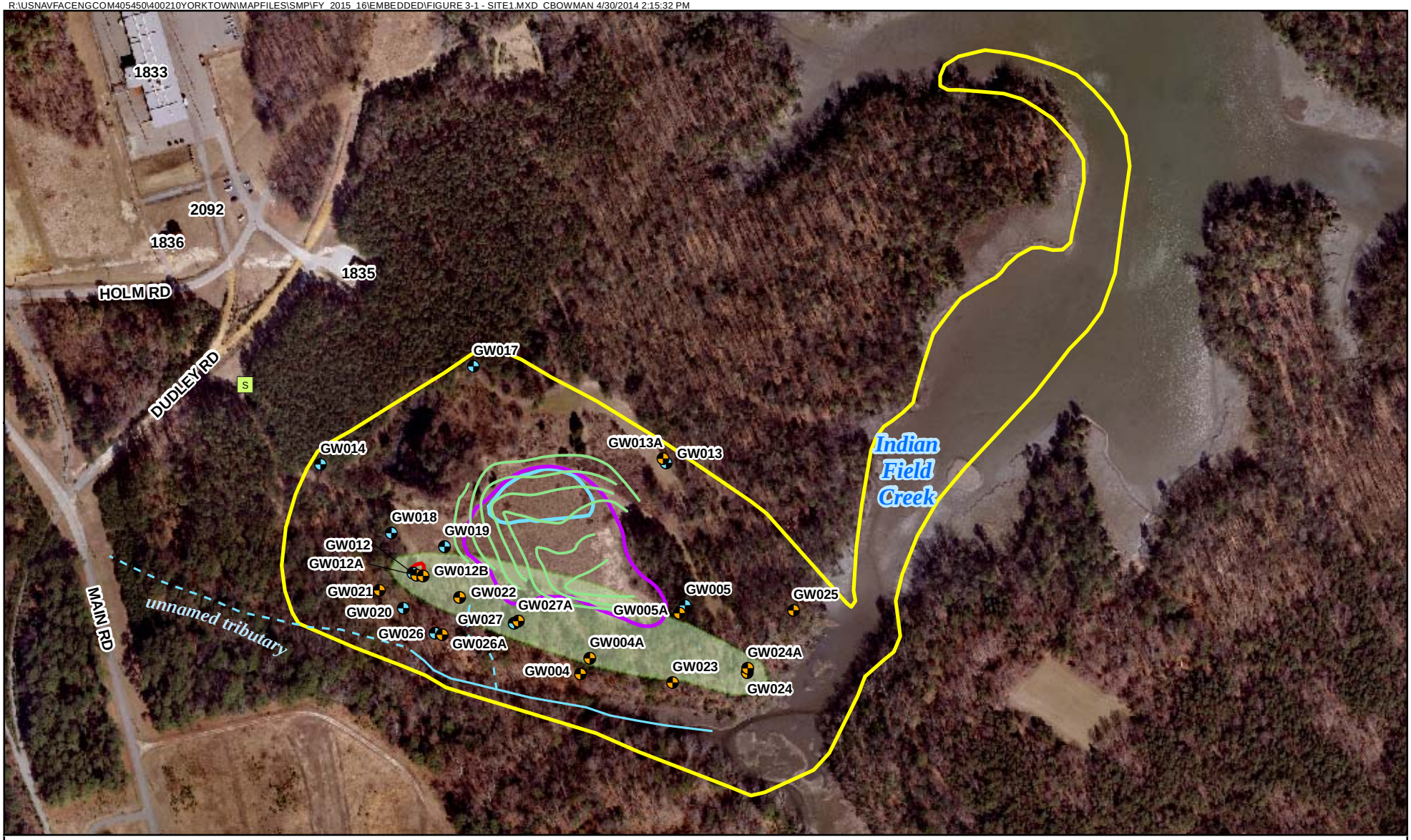
TABLE 3-36
Federal Facilities Agreement Document Review Summary
FY 2015 - 2016 SMP
Naval Weapons Station Yorktown, Yorktown, Virginia

Secondary Documents	Draft					Draft Final		Final
	EPA/State Review	EPA/State may request extension of regulatory review period	Navy response to regulator review period extension request	Navy addresses regulatory comments	Navy may request extension of period to issue responses or Draft Final	EPA/State Review	Navy addresses regulatory comments	Navy Preparation
Health and Safety Plans								
Non-Time Critical Removal Action Plans								
Pilot/Treatability Study Work Plans								
Pilot/Treatability Study Reports								
Engineering Evaluation/Cost Analysis Report								
Well Closure Methods and Procedures								
Preliminary/Conceptual Remedial Designs or Equivalents	up to 45 days							
Prefinal Remedial Designs								
Periodic Review Assessment Reports								
Removal Action Memorandums								
Community Relations Plans	Considered primary for submittal purposes, but secondary for review purposes							
Long-Term Remedial Action Monitoring Plans								
Other[2]	up to 30 days			up to 30 days		up to 30 days	up to 30 days	

ESDs
LUC RDs
Five-Year Reviews

1: Reference: USEPA, 1994. Federal Facility Agreement under CERCLA 120, Naval Weapons Station Yorktown, Yorktown, Virginia. September.
2: Not referenced in the 1994 FFA

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-1 - SITE1.MXD CBOWMAN 4/30/2014 2:15:32 PM



Legend

- S Site Sign
- Columbia Aquifer Monitoring Well
- Yorktown-Eastover Aquifer Monitoring Well
- Landfill Soil Cover Contour (CH2M HILL, 2014)
- Tributary
- Intermittent Tributary
- Extent of Landfill Waste/Soil LUC Boundary
- Approximate Area of 1999 Excavation of Arsenic Contaminated Soil
- Landfill Area with New Cover (2001 Remedial Action, OHM)
- Study Area Boundary
- Approximate Extent of TCE Plume

Note: Approximate extent of TCE plume based on data collected prior to 2013.

N
W E
S

0 170 340
Feet

Figure 3-1
Site 1 - Dudley Road Landfill
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-2 - SITE3.MXD CBOWMAN 5/21/2014 10:35:36 AM

Legend

- Yorktown Monitoring Wells
- Landfill Access Road
- Approximate Extent of TCE Plume
- 1999 Soil and Waste Removal Area
- Study Area Boundary

Note: Approximate extent of TCE plume based on data collected in 2009.

N
W E
S

0 70 140
Feet

Figure 3-2
Site 3 - Former Group 16 Magazine Landfill
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-3 -SITE6.MXD CBOWMAN 5/21/2014 10:37:36 AM

Legend

- Yorktown Monitoring Wells
- Approximate Drainage
- Approximate Location of Access Road
- Impoundment Area/Inferred LUC Boundary
- Coffer Dam
- Oil/Water Treatment Unit (OWTU)
- Carbon Adsorption Tower
- 1998 & 2007 Removal Area
- Cleared Area
- Excavation Area/Inferred LUC Boundary
- Flume Area
- Demolished Building
- Site 6 Study Area Boundary(under review)
- Approximate Extent of TCE Plume
- Approximate Extent of RDX Plume

Note: Approximate extent of TCE and RDX plumes based on data collected in 2009.

N
W E
S

0 125 250
Feet

BLDG 109 - Ordnance Demilitarization and Decontamination Plant
BLDG 110 - Explosives Loading Plant

Figure 3-3
Site 6 - Explosives Contaminated Wastewater Impoundment
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-4 - SITE7.MXD CBOWMAN 5/21/2014 10:39:45 AM

Legend

- Site Sign
- Deep Piezometer
- Yorktown-Eastover Monitoring Well
- Building Drain
- Culvert
- Drop Inlet
- Outfall
- Storm Sewer
- Former Buildings
- Rip Rap Area
- Site 7 Removal Area (1996)
- Inferred LUC Boundary
- Study Area
- Approximate Extent of RDX in Groundwater
- Approximate Extent of Perchlorate in Groundwater

Note: Approximate extent of RDX and Perchlorate plumes based on preliminary data collected in 2012 and 2013.

N
W E
S

0 150 300 Feet

Figure 3-4
Site 7 - Plant 3 Explosives Contaminated Wastewater Discharge Area
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-5 - SITE8.MXD CBOWMAN 5/21/2014 10:41:25 AM

Legend

- Unable to locate well since Spring 2003, possibly graded over
- Monitoring Well
- Yorktown-Eastover Monitoring Wells
- Outfall
- Drop Inlet
- Wastewater Treatment Line
- Overland Flow
- Storm Water Drainage
- Elevation Contour (5 ft interval)
- Drainage Channel
- Building Drain
- Drainage Trench
- Approximate Extent of VOCs in Groundwater
- Approximate Extent of RDX in Groundwater
- Excavated Area
- Study Area Boundary
- Loading Dock
- Wastewater Treatment Structure
- Wash Basin

Note: Approximate extent of VOCs and RDX plumes based on on data collected in 2007 and 2008.

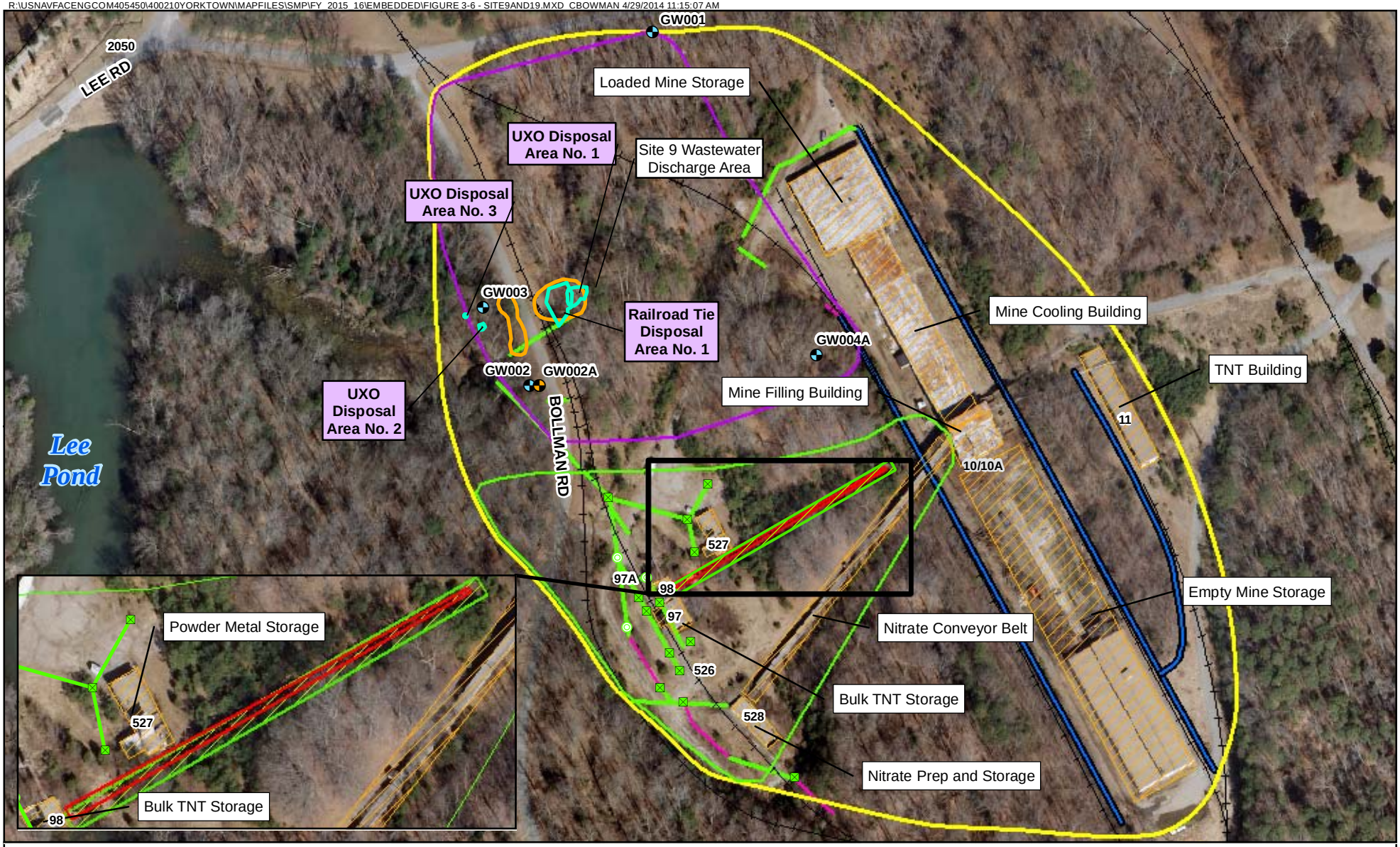
N W E S

0 50 100 Feet

Figure 3-5
Site 8 - NEDED Explosives-Contaminated Watewater Discharge Area
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-6 - SITE9AND19.MXD CBOWMAN 4/29/2014 11:15:07 AM



Legend

- Drop Inlet
- Manhole
- Cornwallis-Cave Aquifer Monitoring Wells
- Yorktown-Eastover Monitoring Wells
- Belowground Drainage Ways
- Concrete Lined Drainage Channels
- Unlined Surface Drainage
- Railroad
- Site 19 Original Study Area Boundary
- Site 9 Original Study Area Boundary
- Inferred Soil LUC Area
- Study Area Boundary
- Approximate Area of December 1994 Removal Action
- Former Site Structures (demolished 2010-2012)
- Site 9 Removal Areas
- Site 19 Removal/Inferred Soil LUC Area

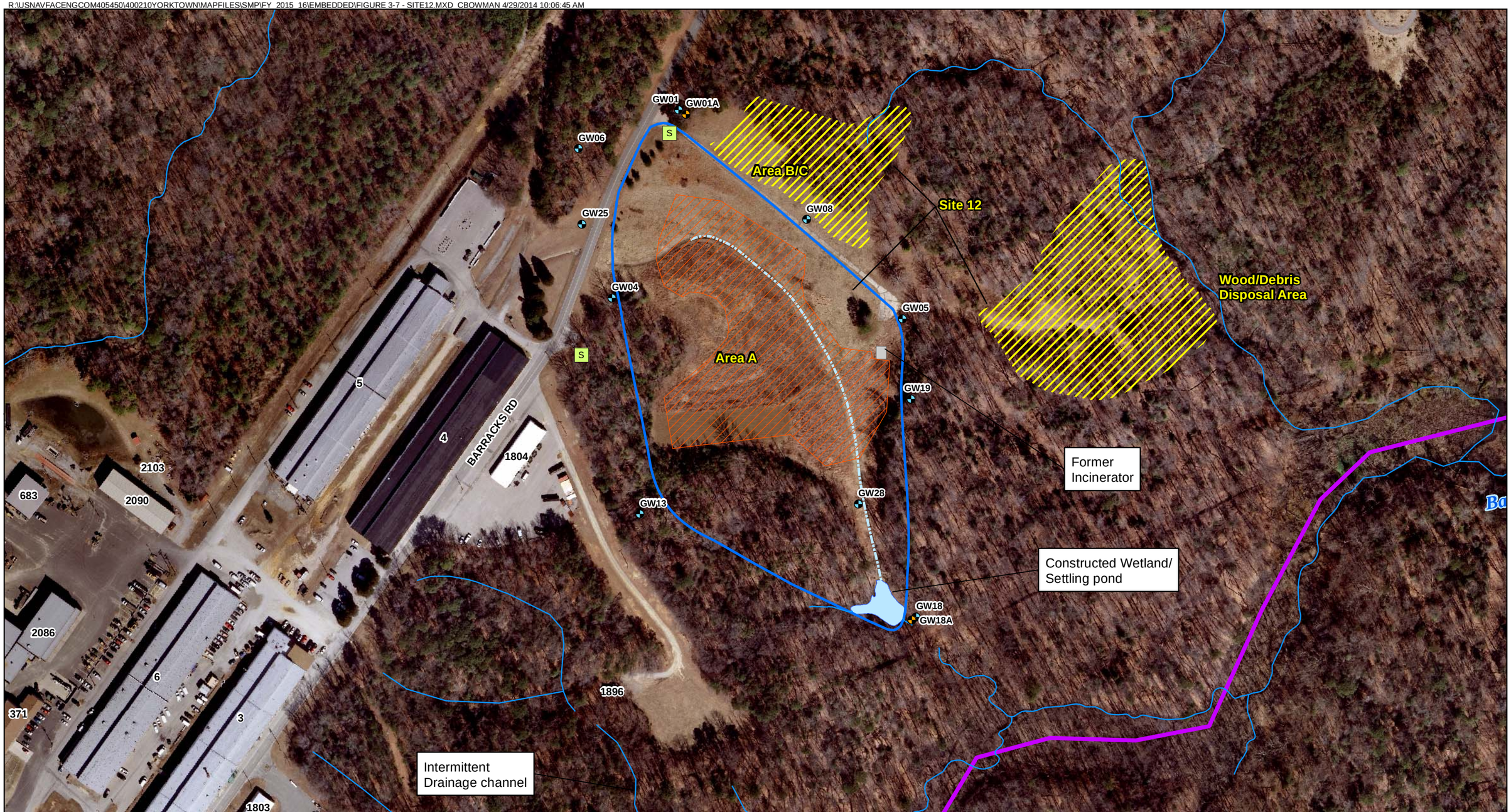
0 110 220 Feet

N W E S

Figure 3-6
Site 9 and 19: Plat 1 Explosives Contaminated Wastewater Discharge Area and Conveyor Belt Soils at Building 10
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-7 - SITE12.MXD CBOWMAN 4/29/2014 10:06:45 AM



Legend

- S Site Sign
- Yorktown-Eastover Monitoring Well
- Cornwallis Cave Monitoring Well
- WPNSTA Boundary
- Area A Groundwater LUC
- Extent of Landfill Cap (installed in 1997) and Area A Soil LUC
- Approximate NFA Areas

LUC Requirement: Maintain cap, prevent residential development, and prohibit potable use of groundwater.

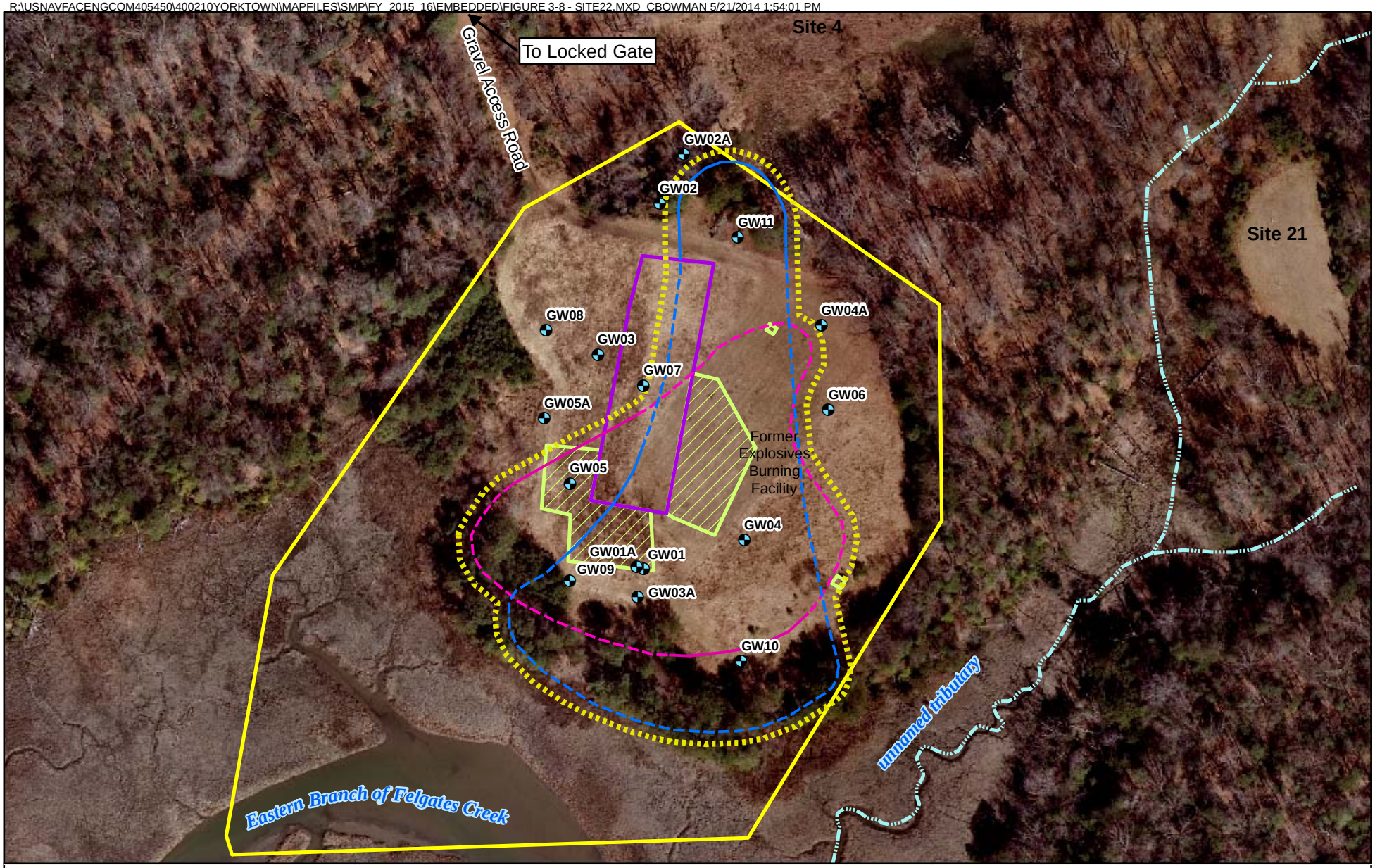
N
W E
S

0 100 200
Feet

Figure 3-7
Site 12 - Barracks Road Landfill
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-8 - SITE22.MXD CBOWMAN 5/21/2014 1:54:01 PM



Legend

- Monitoring Well
- Approximate Extent of TCE in Groundwater
- Approximate Extent of RDX in Groundwater
- Drainage
- Groundwater LUC Boundary
- Study Area Boundary
- Former Biocell Location
- Removal Action Area (2003)

Note: Approximate extent of TCE and RDX plumes based on data collected in 2007.

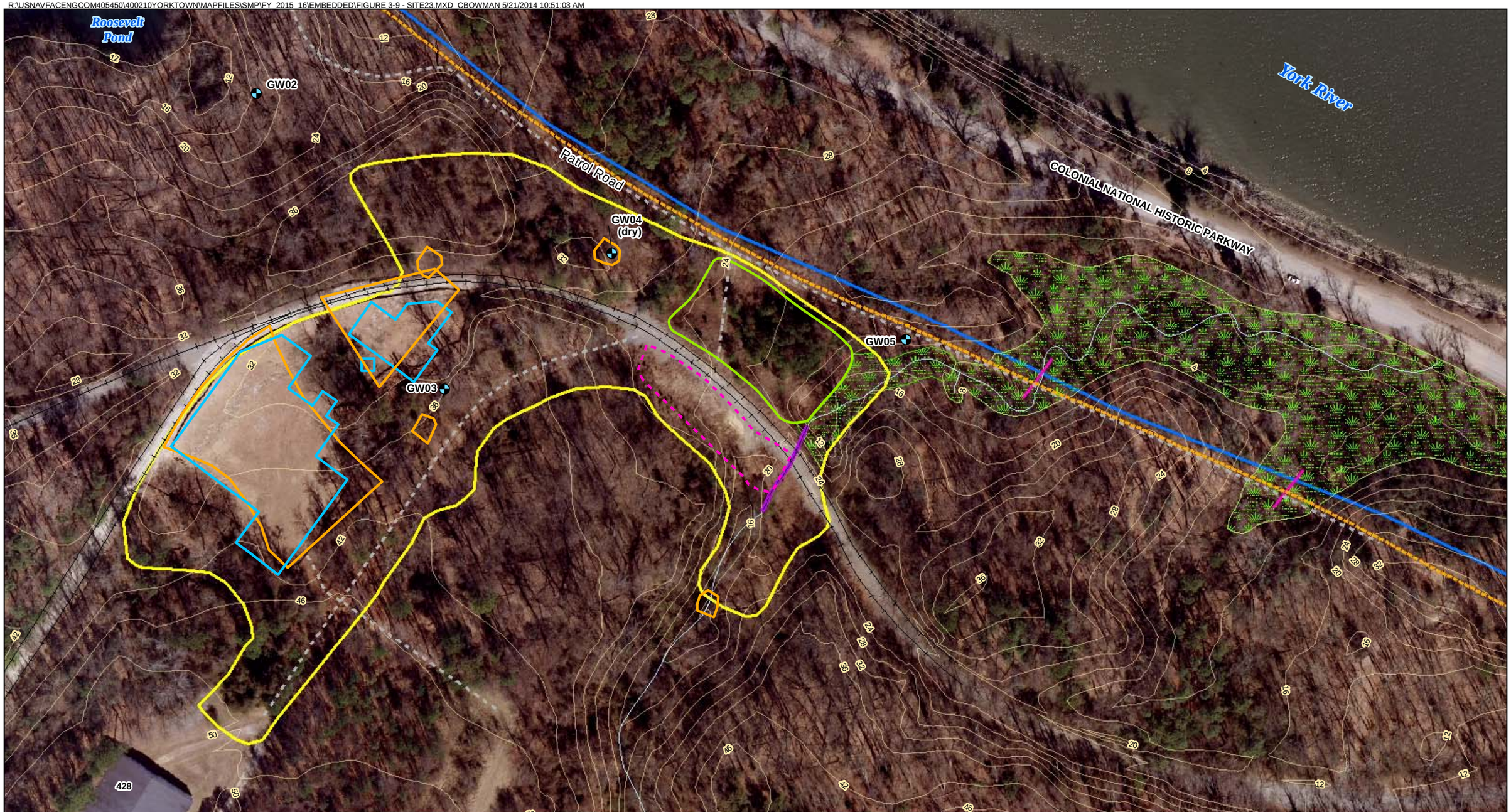
N W E S

0 75 150 Feet

Figure 3-8
Site 22 - Burn Pad
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-9 - SITE23.MXD CBOWMAN 5/21/2014 10:51:03 AM



Legend

- Existing Monitoring Well (unconfined Cornwallis Cave Aquifer)
- 2003 (J.A. Jones) Soil Removal Area
- 1994 (OHM) Surface Debris Removal and Soil/Debris Removal Area
- 2004 (UNITEC) Soil Removal Area
- 2009 (Shaw) Soil/Debris Removal Area
- Fence
- Former Railroad
- Unpaved Road
- 18" Corrugated Metal Pipe
- Approximate Location of Culvert
- Surface Water Centerline
- Elevation Contour (4 ft interval)
- Approximate Extent of Surface Debris Removal Area
- Marsh
- WPNSTA Boundary

N
W E
S

0 60 120 240 Feet

Figure 3-9
Site 23 - Building 428 Teague Road Disposal Area
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-10 - SITE24.MXD CBOWMAN 4/29/2014 2:49:25 PM

Legend

- Ecological Screening Value Exceedance Locations
- Monitoring Well (Yorktown-Eastover Aquifer)
- Monitoring Well (Columbia Aquifer)
- Monitoring Well
- Former Railroad Tracks
- JIEDDO Battle Course
- Drainage Swales
- Fences
- Site 24 Study Area Boundary (former SSA 6 Helicopter Landing Pad)
- Waste Areas
- Former Building
- WPNSTA Boundary
- Helicopter Pad

N
W E
S

0 300 600
Feet

Figure 3-10
Site 24 - Aviation Field
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-11 - SITE25.MXD CBOWMAN 4/29/2014 3:05:45 PM

Legend

- Monitoring Well (unconfined Yorktown-Eastover Aquifer)
- Drop Inlet
- Concrete Tank
- Raised Berm
- Door
- Wall
- Former Discharge Line
- Building 373 Drainage Trench
- Elevation Contour (4 ft interval)
- 12" Buried Corrugated Pipe
- Concrete-lined Drainage Swale
- Dirt-lined Drainage Swale
- Limits of 1996 Excavation (excavation included UST, UST piping, and associated soils)
- Study Area Boundary
- Loading Dock
- Buildings
- Building Exterior Wall

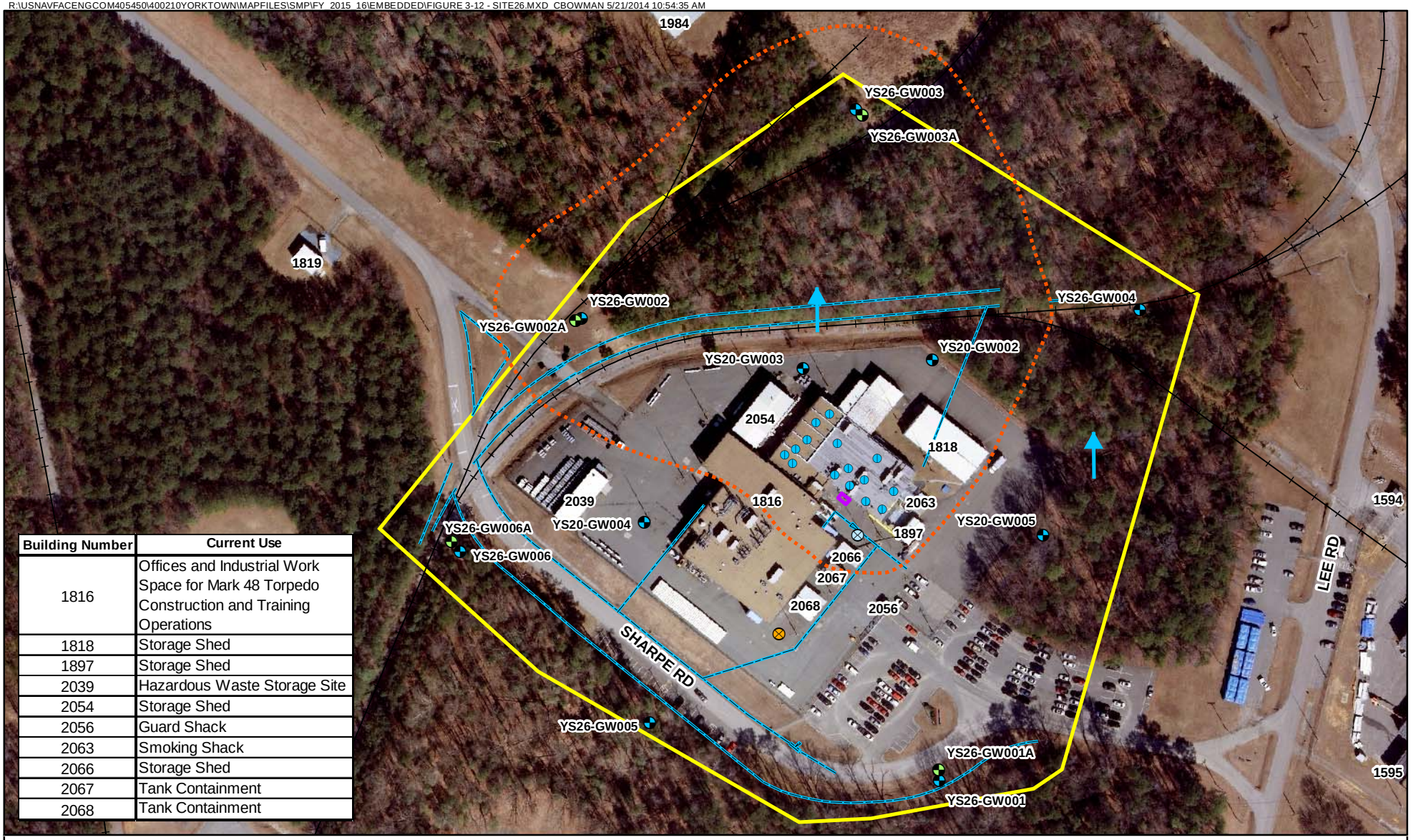
N
W E
S

0 40 80 Feet

Figure 3-11
Site 25 - Building 373 Rocket Plant
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY 2015 16\EMBEDDED\FIGURE 3-12 - SITE26.MXD CBOWMAN 5/21/2014 10:54:35 AM



Building Number	Current Use
1816	Offices and Industrial Work Space for Mark 48 Torpedo Construction and Training Operations
1818	Storage Shed
1897	Storage Shed
2039	Hazardous Waste Storage Site
2054	Storage Shed
2056	Guard Shack
2063	Smoking Shack
2066	Storage Shed
2067	Tank Containment
2068	Tank Containment

Legend

- Existing Shallow Monitoring Well (unconfined Cornwallis Cave Aquifer)
- Existing Deep Monitoring Well (confined Yorktown-Eastover Aquifer)
- Approximate Location of Floor Drain (Source: EDF DWG No. 114173)
- Approximate location of former 8,000-gallon Fuel Oil UST removed in 1995
- Approximate location of 12,000 gallon #2 heating oil UST removed in 1998 (orientation unknown)
- Approximate location of Storm Sewer
- Former Railroad
- Study Area Boundary
- Approximate location of former 2,500-gallon Waste Otto Fuel Oil UST removed in 1995
- Approximate Extent of CVOC Plume (1997)

Note: Approximate Extent of CVOC plume based on data collected in 1997.

N W E S

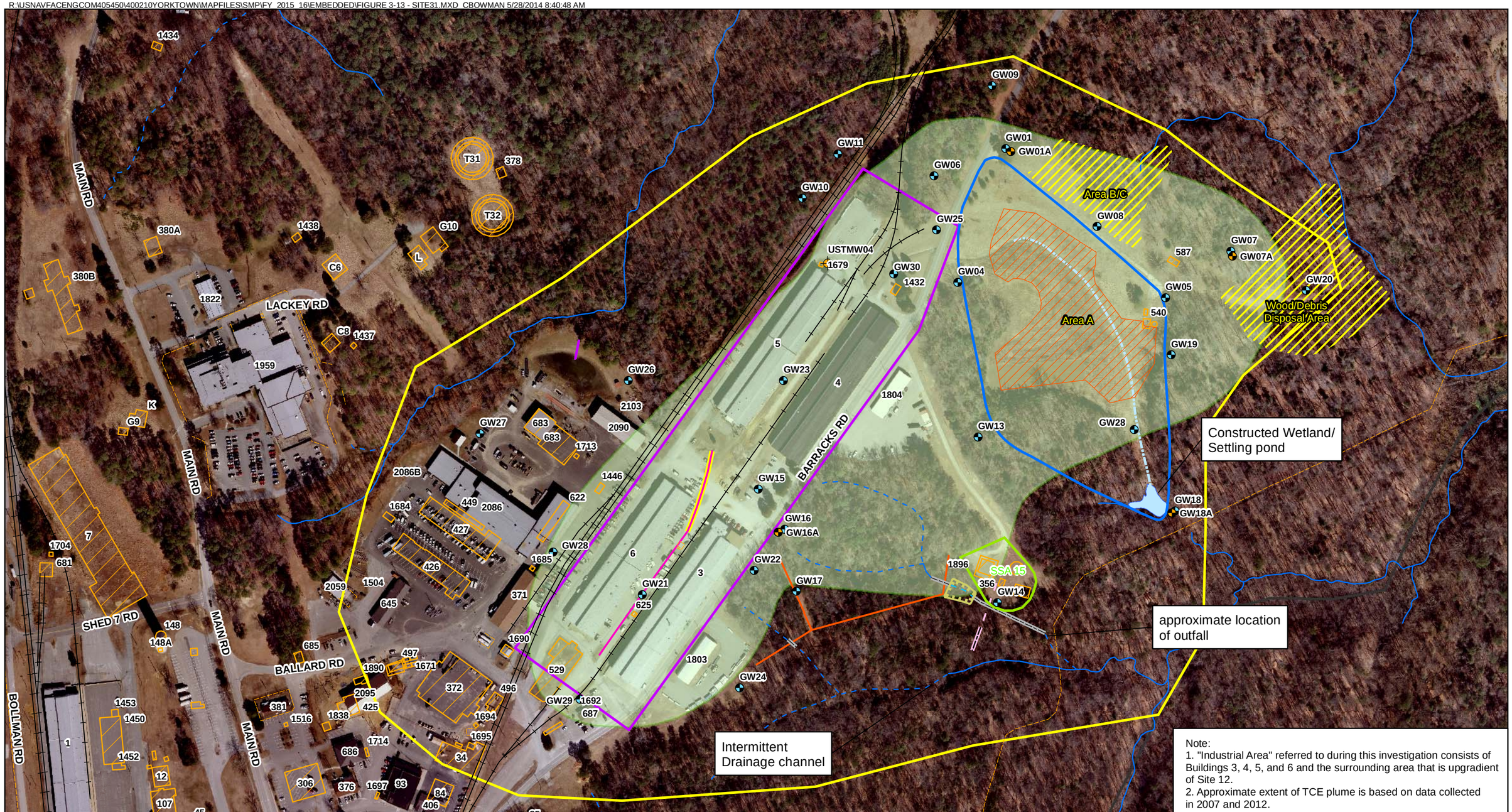
0 90 180 Feet

The reported dimensions of the 2,500-gallon Waste Otto Fuel Oil UST removal area were 17'x19'x8'. The bottom of the tank remains approximately 8 ft bgs.

Figure 3-12
Site 26 - Building 1816 Mark 47 Waste Otto Fuel Tank
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-13 - SITE31.MXD CBOWMAN 5/28/2014 8:40:48 AM



Note:
1. "Industrial Area" referred to during this investigation consists of Buildings 3, 4, 5, and 6 and the surrounding area that is upgradient of Site 12.
2. Approximate extent of TCE plume is based on data collected in 2007 and 2012.

Legend

Site 31
- Yorktown-Eastover Monitoring Well
- Cornwallis Cave Monitoring Well
- UST Well
- Trilock Block Drainage Ditch
- Railroad
- surface_water_body_area
- Former Drainage Ditch Location - not graded over
- Drainage Ditch Location
- Underground Former Treatment Plant Discharge Pipe
- Exposed Former Treatment Plant Discharge Pipe
- Sanitary Sewer Easement
- Storm Water Conveyance
- Demolished Building
- Approximate IR Site 12 Boundary
- SSA 15 Boundary
- WPNSTA Boundary
- Study Area Boundary
- Site 31 Bararcks Road Industrial Area
- Deep Depression
- Fence

Site 12
- Area A Groundwater LUC
- Extent of Landfill Cap (installed in 1997) and Area A Soil LUC
- Approximate NFA Areas
- Approximate Extent of TCE Plume

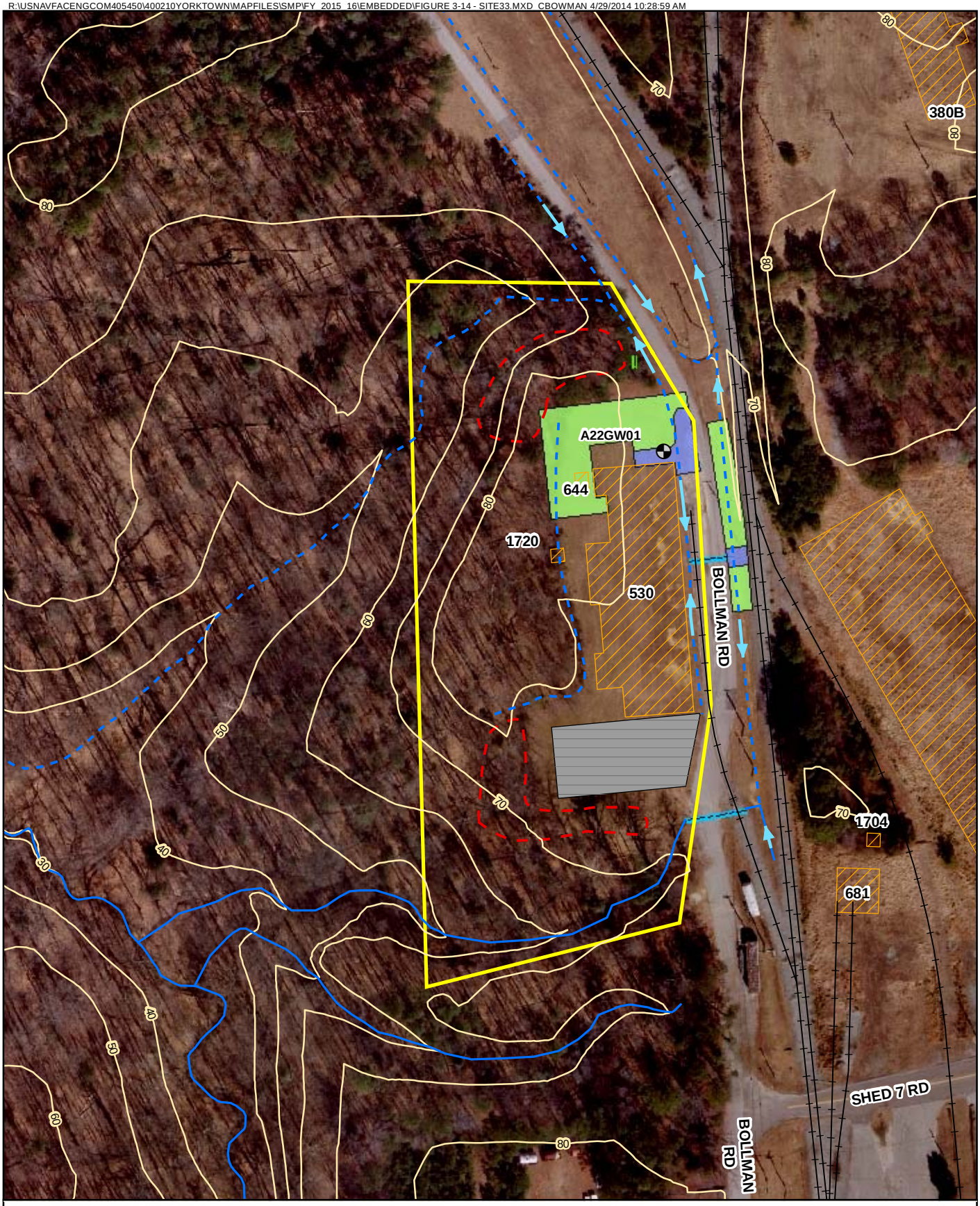
N W E S

0 140 280 Feet

Figure 3-13
Site 31 - Barracks Road Landfill Industrial Area
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-14 - SITE33.MXD CBOWMAN 4/29/2014 10:28:59 AM



Legend

- Abandoned Monitoring Well
- Culvert
- Discharge Pipe of Unknown Origin
- Drainage Flow Direction
- Drainage Ditch
- Intermittent Drainage Ditch
- Former Railroad
- Elevation Contour (10 ft interval)
- Historical Parking Lot
- Approximate Area of Debris
- Demolished Building
- 1999/2000 Soil Removal Area (0-24")
- 1999/2000 Soil Removal Area (0-6")
- Study Area Boundary

N
W E
S

0 60 120
Feet

Figure 3-14
Site 33 - Sand Blasting Grit Pile
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

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R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-15 - SITE34.MXD CBOWMAN 5/21/2014 12:11:05 PM

Legend

- Eastover Calvert Monitoring Well
- Yorktown-Eastover Monitoring Well
- Drop Inlet
- Discharge Pipe
- Approximate Retaining Wall Location
- Wastewater Force Main
- Top of Slope
- Terrain Elevation Contour (4 ft interval)
- Approximate Welands Boundary
- Building 537 Weir Box
- Building 537 Building Concrete Ditch
- Buildings
- Paved Area
- 2007 Removal Action
- Approximate Extent of TCE Plume

Note: Approximate extent of TCE plume based on data collected in 2007 and 2008.

N W E S

0 85 170 Feet

Figure 3-15
Site 34 - Building 537 Discharge to Felgates Creek
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-16 - SITE UXO2.MXD CBOWMAN 4/29/2014 12:19:50 PM

Legend

- Monitoring Well
- Study Area Boundary

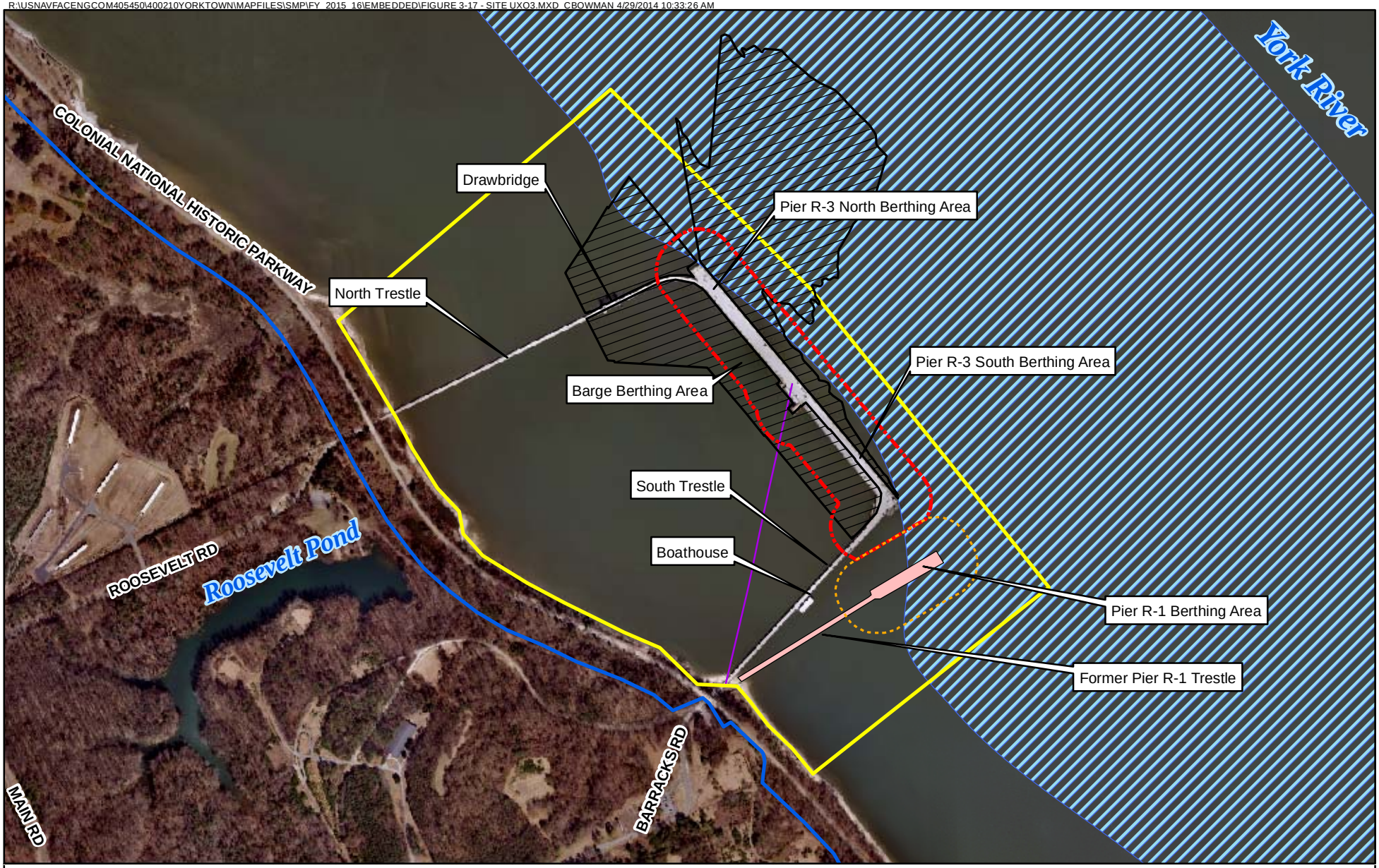
N
W E
S

0 175 350
Feet

Figure 3-16
UXO 2 - Turkey Road Landfill
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY_2015_16\EMBEDDED\FIGURE 3-17 - SITE UXO3.MXD CBOWMAN 4/29/2014 10:33:26 AM



Legend

- Area Recommended for SI
- Area Recommended for SI once munitions loading operations have ceased
- Former Dredged Area
- Yorktown Base Boundary
- Study Area Boundary
- Location of former pier known as Pier R-1 (submerged pilings remain)
- York River Main Channel
- Sewer Utility (Submerged)

N
W E
S

0 500 1,000
Feet

Figure 3-17
UXO 3 NMC Munitions Loading Pier
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

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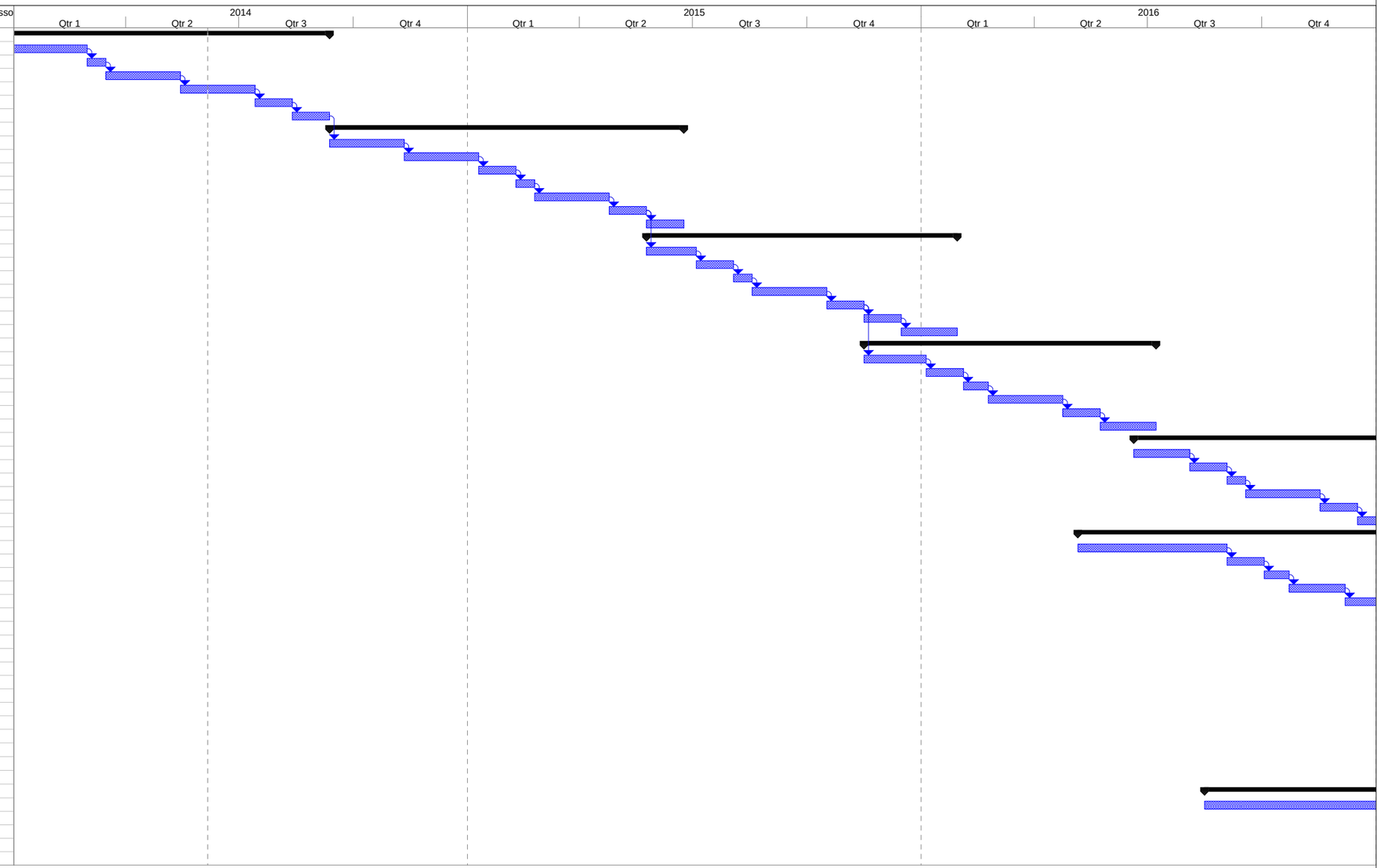
Schedule 3-1
Site 1 SMP FY15-16

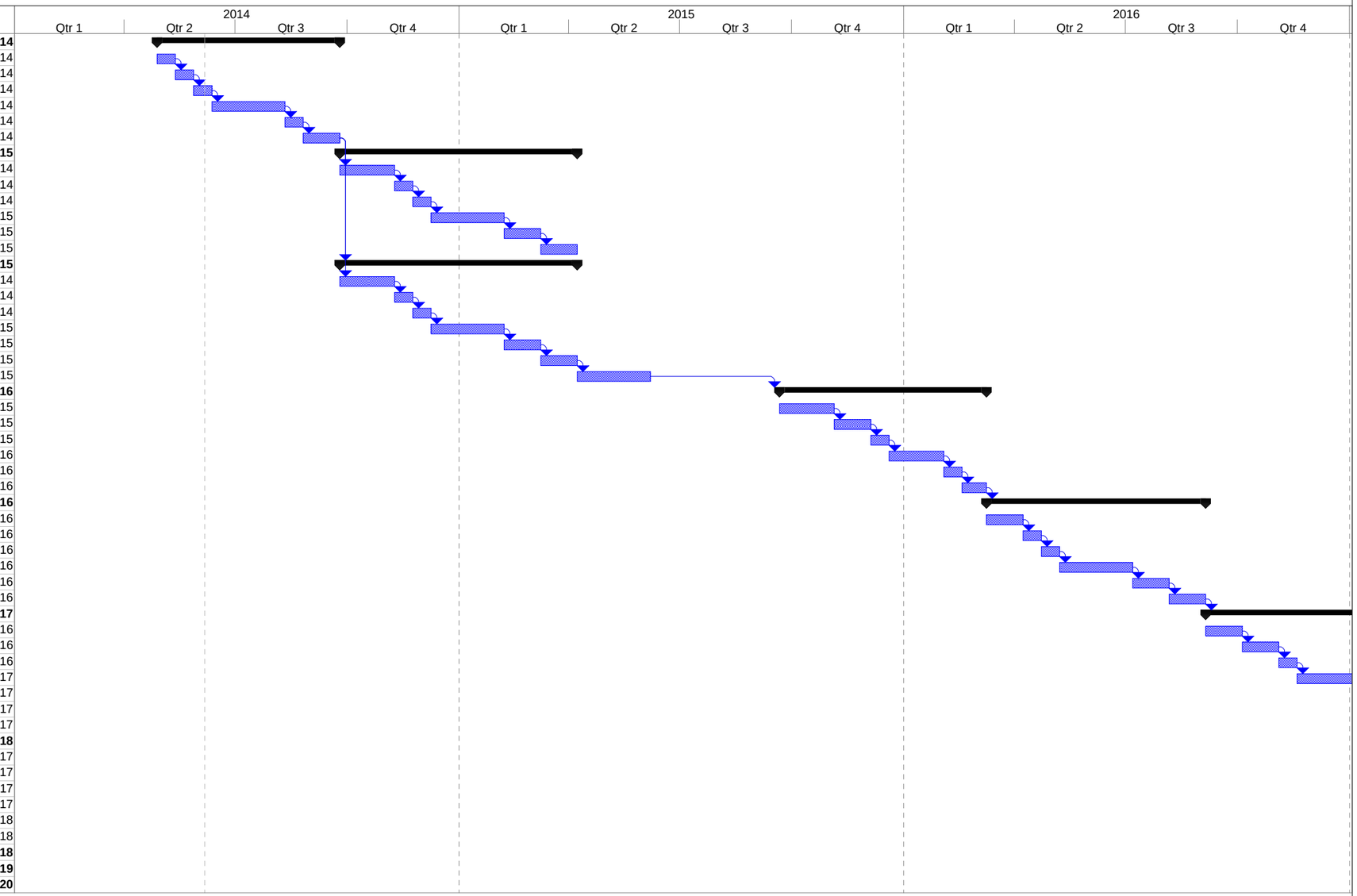
ID	Task Name	Duration	Start	Finish	Predecesso
1	**Phase 3 RI Report for GW/SW/SD**	**340 days**	**Mon 10/7/13**	**Thu 9/11/14**	
2	Preliminary RI	145 days	Mon 10/7/13	Fri 2/28/14	
3	Gov't Comments	15 days	Sat 3/1/14	Sat 3/15/14	2
4	Issue Draft RI report	60 days	Sun 3/16/14	Wed 5/14/14	3
5	Regulatory Review	60 days	Thu 5/15/14	Sun 7/13/14	4
6	Issue Draft Final RI report	30 days	Mon 7/14/14	Tue 8/12/14	5
7	Issue Final RI report	30 days	Wed 8/13/14	Thu 9/11/14	6
8	**FS Report**	**285 days**	**Fri 9/12/14**	**Tue 6/23/15**	
9	RAA	60 days	Fri 9/12/14	Mon 11/10/14	7
10	Preliminary FS	60 days	Tue 11/11/14	Fri 1/9/15	9
11	Gov't Comments	30 days	Sat 1/10/15	Sun 2/8/15	10
12	Issue Draft FS	15 days	Mon 2/9/15	Mon 2/23/15	11
13	Regulatory Review	60 days	Tue 2/24/15	Fri 4/24/15	12
14	Issue Draft Final FS	30 days	Sat 4/25/15	Sun 5/24/15	13
15	Issue Final FS	30 days	Mon 5/25/15	Tue 6/23/15	14
16	**PP**	**250 days**	**Mon 5/25/15**	**Fri 1/29/16**	
17	Preliminary PP	40 days	Mon 5/25/15	Fri 7/3/15	14
18	Gov't Comments	30 days	Sat 7/4/15	Sun 8/2/15	17
19	Issue Draft PP	15 days	Mon 8/3/15	Mon 8/17/15	18
20	Regulatory / Legal Review	60 days	Tue 8/18/15	Fri 10/16/15	19
21	Issue Draft Final PP	30 days	Sat 10/17/15	Sun 11/15/15	20
22	Issue Final PP	30 days	Mon 11/16/15	Tue 12/15/15	21
23	Public Comment Period	45 days	Wed 12/16/15	Fri 1/29/16	22
24	**ROD**	**235 days**	**Mon 11/16/15**	**Thu 7/7/16**	
25	Preliminary ROD	50 days	Mon 11/16/15	Mon 1/4/16	21
26	Navy Review	30 days	Tue 1/5/16	Wed 2/3/16	25
27	Issue Draft ROD	20 days	Thu 2/4/16	Tue 2/23/16	26
28	Regulatory / Legal Review	60 days	Wed 2/24/16	Sat 4/23/16	27
29	Issue Draft Final ROD	30 days	Sun 4/24/16	Mon 5/23/16	28
30	Issue ROD for Signature	45 days	Tue 5/24/16	Thu 7/7/16	29
31	**LUC RD (Groundwater)**	**210 days**	**Mon 6/20/16**	**Sun 1/15/17**	
32	Preliminary LUC RD	45 days	Mon 6/20/16	Wed 8/3/16	
33	Navy Review	30 days	Thu 8/4/16	Fri 9/2/16	32
34	Issue Draft LUC RD	15 days	Sat 9/3/16	Sat 9/17/16	33
35	Regulatory / Legal Review	60 days	Sun 9/18/16	Wed 11/16/16	34
36	Issue Draft Final LUC RD	30 days	Thu 11/17/16	Fri 12/16/16	35
37	Issue Final LUC RD	30 days	Sat 12/17/16	Sun 1/15/17	36
38	**RA Design**	**275 days**	**Fri 5/6/16**	**Sat 2/4/17**	
39	Preliminary RA Design	120 days	Fri 5/6/16	Fri 9/2/16	
40	Navy Review	30 days	Sat 9/3/16	Sun 10/2/16	39
41	Issue Draft RA Design	20 days	Mon 10/3/16	Sat 10/22/16	40
42	Regulatory Review	45 days	Sun 10/23/16	Tue 12/6/16	41
43	Issue Draft Final RA Design	30 days	Wed 12/7/16	Thu 1/5/17	42
44	Final RA Design	30 days	Fri 1/6/17	Sat 2/4/17	43
45	**RA Work Plan & HASP**	**774 days**	**Sun 2/5/17**	**Wed 3/20/19**	**44**
46	Preliminary RAWP & HASP	30 days	Sun 2/5/17	Mon 3/6/17	
47	Navy Review	30 days	Tue 3/7/17	Wed 4/5/17	46
48	Issue Draft RAWP	15 days	Thu 4/6/17	Thu 4/20/17	47
49	Regulatory Review	60 days	Fri 4/21/17	Mon 6/19/17	48
50	Issue Draft Final RAWP & HASP	30 days	Tue 6/20/17	Wed 7/19/17	49
51	Final RAWP	30 days	Thu 7/20/17	Fri 8/18/17	50
52	RA Field Work	563 days	Mon 9/4/17	Wed 3/20/19	51
53	**CCR**	**225 days**	**Tue 6/11/19**	**Tue 1/21/20**	**52**
60	**Groundwater LTM WP & HASP**	**270 days**	**Thu 12/5/19**	**Sun 8/30/20**	
66	**GW LTM Report**	**60 days?**	**Wed 11/4/20**	**Sat 1/2/21**	
73	**RACR**	**195 days**	**Wed 6/16/21**	**Mon 12/27/21**	
80	**Five Year Review (2017)**	**343 days**	**Tue 8/16/16**	**Mon 7/24/17**	
81	Preliminary Five-Year Review	151 days	Tue 8/16/16	Fri 1/13/17	
82	Gov't Comments	30 days	Sat 1/14/17	Sun 2/12/17	81
83	Issue Draft Five-Year Review	5 days	Mon 2/13/17	Fri 2/17/17	82
84	Regulatory Review	60 days	Sat 2/18/17	Tue 4/18/17	83
85	Public Comment and Issue Final Five-Year Review	97 days	Wed 4/19/17	Mon 7/24/17	84



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

Schedule 3-2
Site 3 SMP FY15-16

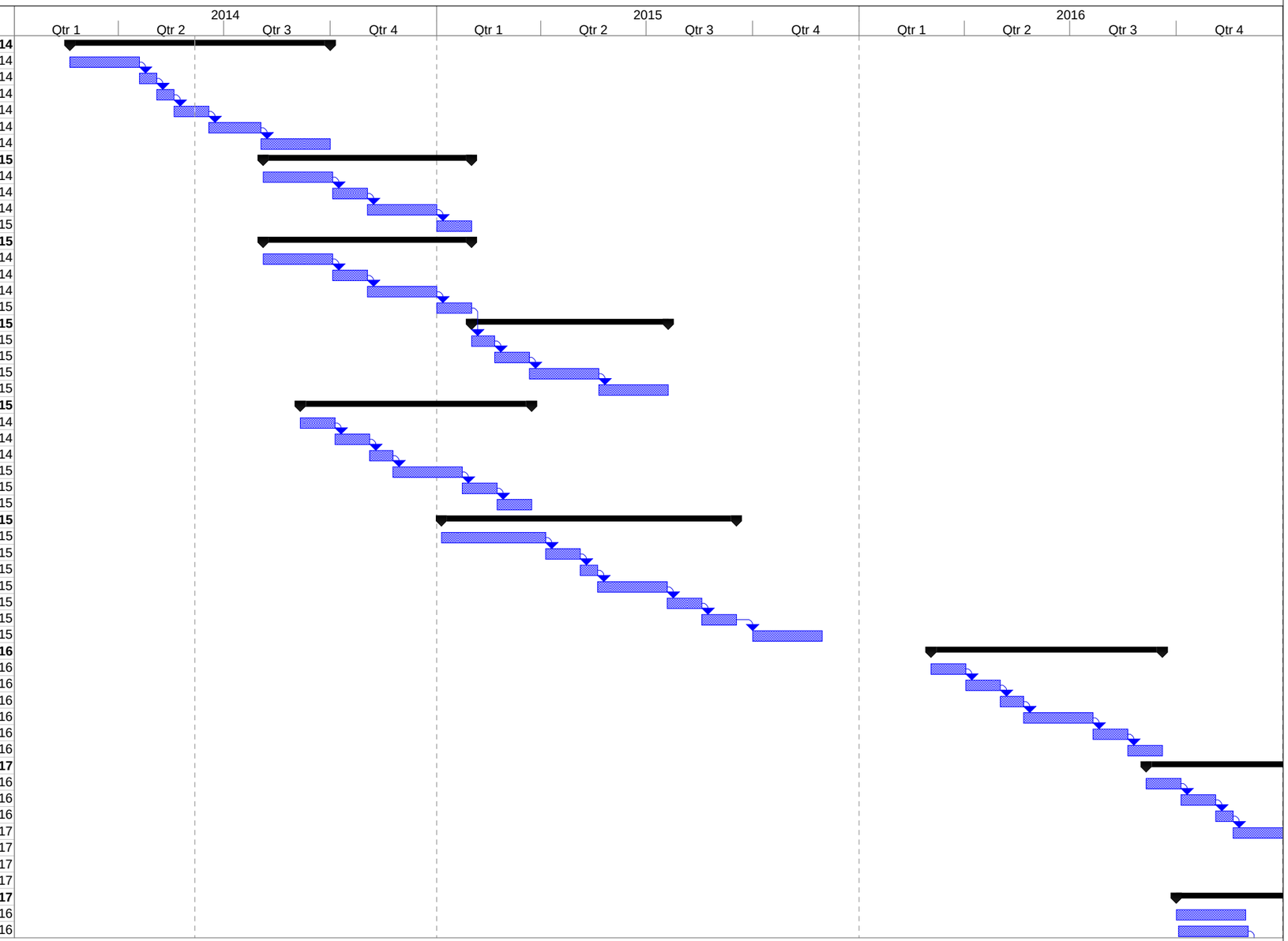
ID	Task Name	Duration	Start	Finish
1	**ROD (GW)**	**150 days**	**Mon 4/28/14**	**Wed 9/24/14**
2	Preliminary ROD	15 days	Mon 4/28/14	Mon 5/12/14
3	Navy Review	15 days	Tue 5/13/14	Tue 5/27/14
4	Issue Draft ROD	15 days	Wed 5/28/14	Wed 6/11/14
5	Regulatory / Legal Review	60 days	Thu 6/12/14	Sun 8/10/14
6	Issue Draft Final ROD	15 days	Mon 8/11/14	Mon 8/25/14
7	Issue ROD for Signature	30 days	Tue 8/26/14	Wed 9/24/14
8	**LUC RD**	**195 days**	**Thu 9/25/14**	**Tue 4/7/15**
9	Preliminary LUC RD	45 days	Thu 9/25/14	Sat 11/8/14
10	Navy Review	15 days	Sun 11/9/14	Sun 11/23/14
11	Issue Draft LUC RD	15 days	Mon 11/24/14	Mon 12/8/14
12	Regulatory / Legal Review	60 days	Tue 12/9/14	Fri 2/6/15
13	Issue Draft Final LUC RD	30 days	Sat 2/7/15	Sun 3/8/15
14	Issue Final LUC RD	30 days	Mon 3/9/15	Tue 4/7/15
15	**Pre-RD Work Plan**	**195 days**	**Thu 9/25/14**	**Tue 4/7/15**
16	Preliminary Pre-RD WP & HASP	45 days	Thu 9/25/14	Sat 11/8/14
17	Navy Review	15 days	Sun 11/9/14	Sun 11/23/14
18	Issue Draft Pre-RD WP & HASP	15 days	Mon 11/24/14	Mon 12/8/14
19	Regulatory Review	60 days	Tue 12/9/14	Fri 2/6/15
20	Issue Draft Final Pre-RD WP & HASP	30 days	Sat 2/7/15	Sun 3/8/15
21	Final Pre-RD WP & HASP	30 days	Mon 3/9/15	Tue 4/7/15
22	Pre-RD Field Work	60 days	Wed 4/8/15	Sat 6/6/15
23	**Pre-RD Technical Memorandum**	**170 days**	**Mon 9/21/15**	**Tue 3/8/16**
24	Preliminary Pre-RD TM	45 days	Mon 9/21/15	Wed 11/4/15
25	Navy Review	30 days	Thu 11/5/15	Fri 12/4/15
26	Issue Draft Pre-RD TM	15 days	Sat 12/5/15	Sat 12/19/15
27	Regulatory Review	45 days	Sun 12/20/15	Tue 2/2/16
28	Issue Draft Final Pre-RD TM	15 days	Wed 2/3/16	Wed 2/17/16
29	Final Pre-RD TM	20 days	Thu 2/18/16	Tue 3/8/16
30	**RA Design**	**180 days**	**Wed 3/9/16**	**Sun 9/4/16**
31	Preliminary RA Design	30 days	Wed 3/9/16	Thu 4/7/16
32	Navy Review	15 days	Fri 4/8/16	Fri 4/22/16
33	Issue Draft RA Design	15 days	Sat 4/23/16	Sat 5/7/16
34	Regulatory Review	60 days	Sun 5/8/16	Wed 7/6/16
35	Issue Draft Final RA Design	30 days	Thu 7/7/16	Fri 8/5/16
36	Final RA Design	30 days	Sat 8/6/16	Sun 9/4/16
37	**RA Work Plan & HASP**	**195 days**	**Mon 9/5/16**	**Sat 3/18/17**
38	Preliminary RAWP & HASP	30 days	Mon 9/5/16	Tue 10/4/16
39	Navy Review	30 days	Wed 10/5/16	Thu 11/3/16
40	Issue Draft RAWP	15 days	Fri 11/4/16	Fri 11/18/16
41	Regulatory Review	60 days	Sat 11/19/16	Tue 1/17/17
42	Issue Draft Final RAWP & HASP	30 days	Wed 1/18/17	Thu 2/16/17
43	Final RAWP	30 days	Fri 2/17/17	Sat 3/18/17
44	RA Field Work	60 days	Sun 3/19/17	Wed 5/17/17
45	**CCR**	**215 days**	**Mon 7/10/17**	**Fri 2/9/18**
46	Preliminary CCR	60 days	Mon 7/10/17	Thu 9/7/17
47	Navy Review	15 days	Fri 9/8/17	Fri 9/22/17
48	Issue Draft CCR	15 days	Sat 9/23/17	Sat 10/7/17
49	Regulatory Review	60 days	Sun 10/8/17	Wed 12/6/17
50	Issue Draft Final CCR	30 days	Thu 12/7/17	Fri 1/5/18
51	Final CCR	35 days	Sat 1/6/18	Fri 2/9/18
52	**Groundwater LTM Work Plan & HASP**	**225 days**	**Sat 2/10/18**	**Sat 9/22/18**
60	**Groundwater LTM Report**	**210 days**	**Mon 12/10/18**	**Sun 7/7/19**
67	**RACR**	**205 days**	**Mon 7/8/19**	**Tue 1/28/20**



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

Schedule 3-3
Site 6 SMP FY15-16

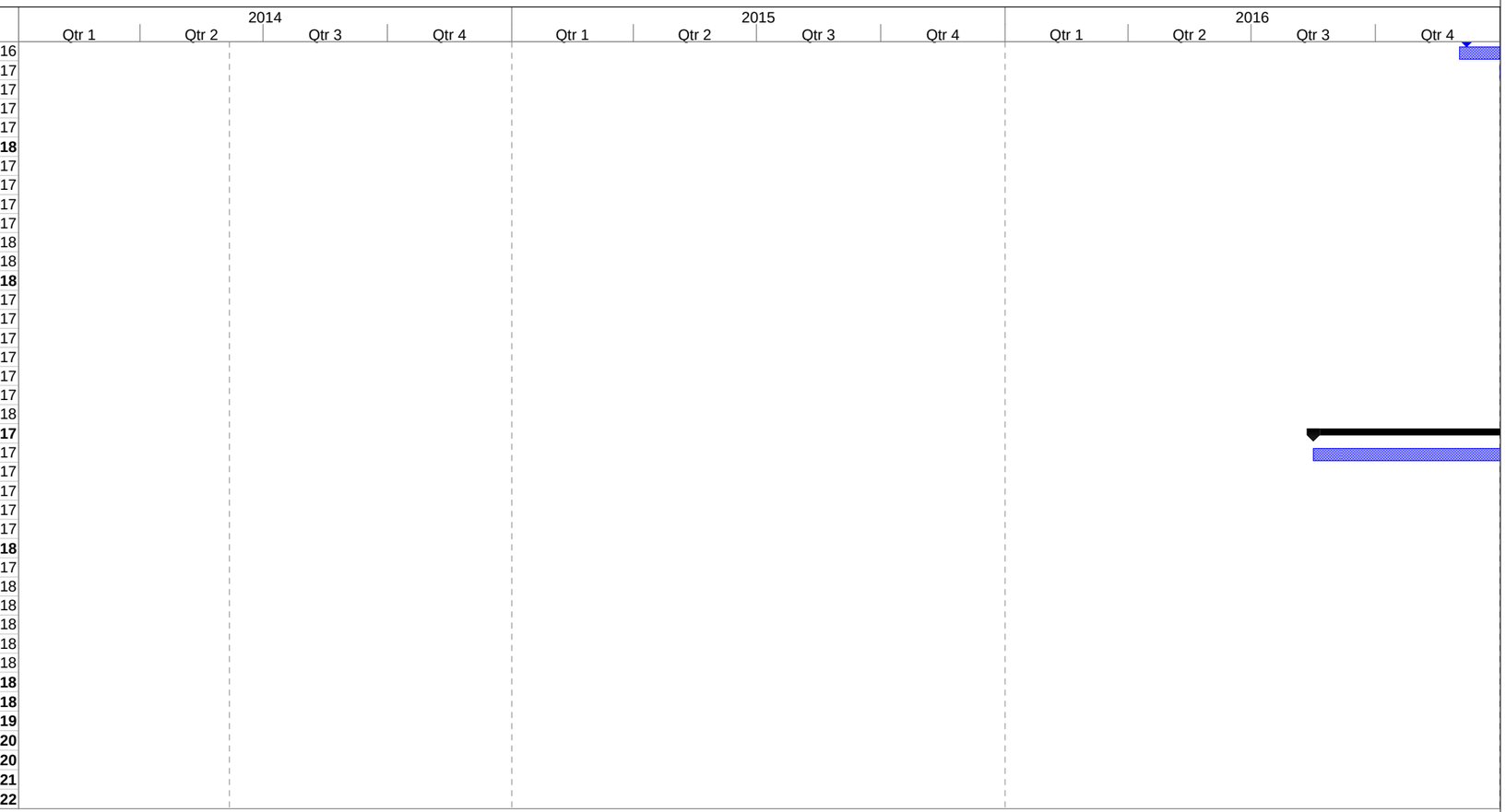
ID	Task Name	Duration	Start	Finish
1	TM to Clarify LUC RD	**225 days**	**Tue 2/18/14**	**Tue 9/30/14**
2	Preliminary Draft TM	60 days	Tue 2/18/14	Fri 4/18/14
3	Navy Review	15 days	Sat 4/19/14	Sat 5/3/14
4	Draft TM	15 days	Sun 5/4/14	Sun 5/18/14
5	Regulatory Review	30 days	Mon 5/19/14	Tue 6/17/14
6	Draft Final TM	45 days	Wed 6/18/14	Fri 8/1/14
7	Final TM	60 days	Sat 8/2/14	Tue 9/30/14
8	**Tech Memo for Excavated Area**	**180 days**	**Mon 8/4/14**	**Fri 1/30/15**
9	Preliminary TM	60 days	Mon 8/4/14	Thu 10/2/14
10	Issue Draft TM	30 days	Fri 10/3/14	Sat 11/1/14
11	Issue Draft Final TM	60 days	Sun 11/2/14	Wed 12/31/14
12	Issue Final TM	30 days	Thu 1/1/15	Fri 1/30/15
13	**Tech Memo for Impoundment Area**	**180 days**	**Mon 8/4/14**	**Fri 1/30/15**
14	Preliminary TM	60 days	Mon 8/4/14	Thu 10/2/14
15	Issue Draft TM	30 days	Fri 10/3/14	Sat 11/1/14
16	Issue Draft Final TM	60 days	Sun 11/2/14	Wed 12/31/14
17	Issue Final TM	30 days	Thu 1/1/15	Fri 1/30/15
18	**LUC RD**	**170 days**	**Sat 1/31/15**	**Sun 7/19/15**
19	Preliminary Draft LUC RD	20 days	Sat 1/31/15	Thu 2/19/15
20	Issue Draft LUC RD	30 days	Fri 2/20/15	Sat 3/21/15
21	Issue Draft Final LUC RD	60 days	Sun 3/22/15	Wed 5/20/15
22	Issue Final LUC RD	60 days	Thu 5/21/15	Sun 7/19/15
23	**Phase 1 RI Report**	**200 days**	**Fri 9/5/14**	**Mon 3/23/15**
24	Preliminary RI	30 days	Fri 9/5/14	Sat 10/4/14
25	Navy Review	30 days	Sun 10/5/14	Mon 11/3/14
26	Issue Draft RI Report	20 days	Tue 11/4/14	Sun 11/23/14
27	Regulatory Review	60 days	Mon 11/24/14	Thu 1/22/15
28	Issue Draft Final RI Report	30 days	Fri 1/23/15	Sat 2/21/15
29	Issue Final RI Report	30 days	Sun 2/22/15	Mon 3/23/15
30	Phase 2 UFP-SAP - Plant 2	**255 days**	**Mon 1/5/15**	**Wed 9/16/15**
31	Preliminary SAP and HASP	90 days	Mon 1/5/15	Sat 4/4/15
32	Navy Review	30 days	Sun 4/5/15	Mon 5/4/15
33	Draft SAP	15 days	Tue 5/5/15	Tue 5/19/15
34	Regulatory Review	60 days	Wed 5/20/15	Sat 7/18/15
35	Draft Final SAP	30 days	Sun 7/19/15	Mon 8/17/15
36	Final SAP	30 days	Tue 8/18/15	Wed 9/16/15
37	Phase 2 Field Work	60 days	Thu 10/1/15	Sun 11/29/15
38	**Phase 2 RI Report**	**200 days**	**Thu 3/3/16**	**Sun 9/18/16**
39	Preliminary RI	30 days	Thu 3/3/16	Fri 4/1/16
40	Navy Review	30 days	Sat 4/2/16	Sun 5/1/16
41	Issue Draft RI Report	20 days	Mon 5/2/16	Sat 5/21/16
42	Regulatory Review	60 days	Sun 5/22/16	Wed 7/20/16
43	Issue Draft Final RI Report	30 days	Thu 7/21/16	Fri 8/19/16
44	Issue Final RI Report	30 days	Sat 8/20/16	Sun 9/18/16
45	LTM Work Plan	**195 days**	**Mon 9/5/16**	**Sat 3/18/17**
46	Preliminary SAP and HASP	30 days	Mon 9/5/16	Tue 10/4/16
47	Navy Review	30 days	Wed 10/5/16	Thu 11/3/16
48	Draft SAP	15 days	Fri 11/4/16	Fri 11/18/16
49	Regulatory Review	60 days	Sat 11/19/16	Tue 1/17/17
50	Draft Final SAP	30 days	Wed 1/18/17	Thu 2/16/17
51	Final SAP	30 days	Fri 2/17/17	Sat 3/18/17
52	LTM Field Work	30 days	Sun 3/19/17	Mon 4/17/17
53	**FS Report**	**242 days**	**Sat 10/1/16**	**Tue 5/30/17**
54	RAA	60 days	Sat 10/1/16	Tue 11/29/16
55	Preliminary FS	60 days	Mon 10/3/16	Thu 12/1/16



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

Schedule 3-3
Site 6 SMP FY15-16

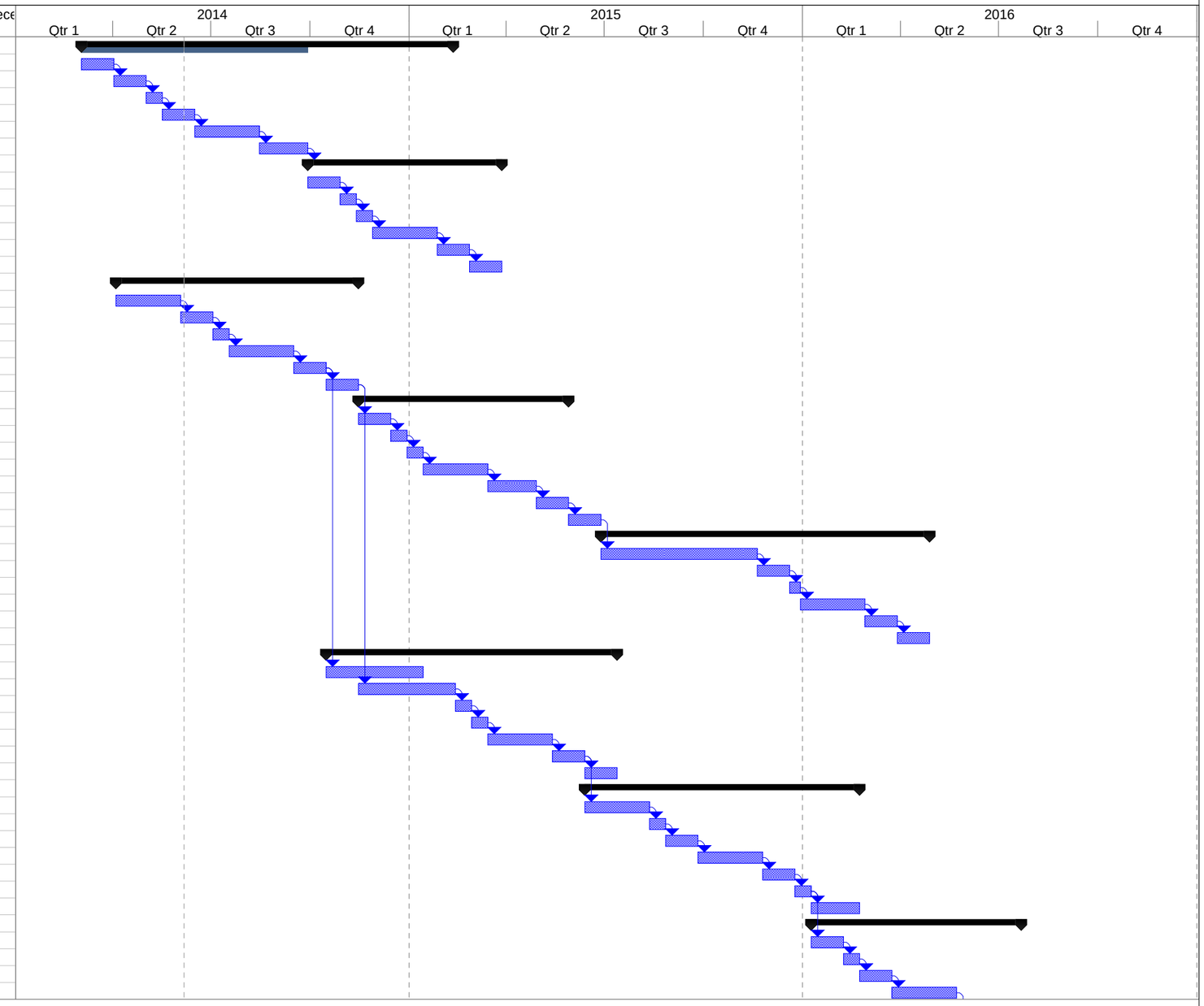
ID	Task Name	Duration	Start	Finish
56	Navy Review	30 days	Fri 12/2/16	Sat 12/31/16
57	Issue Draft FS	30 days	Sun 1/1/17	Mon 1/30/17
58	Regulatory Review	60 days	Tue 1/31/17	Fri 3/31/17
59	Issue Draft Final FS	30 days	Sat 4/1/17	Sun 4/30/17
60	Issue Final FS	30 days	Mon 5/1/17	Tue 5/30/17
61	**LTM Report**	**271 days**	**Wed 5/31/17**	**Sun 2/25/18**
62	Preliminary LTM report	120 days	Wed 5/31/17	Wed 9/27/17
63	Navy Review	30 days	Thu 9/28/17	Fri 10/27/17
64	Issue Draft LTM report	1 day	Sat 10/28/17	Sat 10/28/17
65	Regulatory Review	60 days	Sun 10/29/17	Wed 12/27/17
66	Issue Draft Final LTM report	30 days	Thu 12/28/17	Fri 1/26/18
67	Issue Final LTM report	30 days	Sat 1/27/18	Sun 2/25/18
68	**PP**	**225 days**	**Wed 5/31/17**	**Wed 1/10/18**
69	Preliminary PP	30 days	Wed 5/31/17	Thu 6/29/17
70	Gov't Comments	15 days	Fri 6/30/17	Fri 7/14/17
71	Issue Draft PP	15 days	Sat 7/15/17	Sat 7/29/17
72	Regulatory / Legal Review	60 days	Sun 7/30/17	Wed 9/27/17
73	Issue Draft Final PP	30 days	Thu 9/28/17	Fri 10/27/17
74	Issue Final PP	30 days	Sat 10/28/17	Sun 11/26/17
75	Public Comment Period	45 days	Mon 11/27/17	Wed 1/10/18
76	**Five Year Review (2017)**	**343 days**	**Tue 8/16/16**	**Mon 7/24/17**
77	Preliminary Five-Year Review	151 days	Tue 8/16/16	Fri 1/13/17
78	Gov't Comments	30 days	Sat 1/14/17	Sun 2/12/17
79	Issue Draft Five-Year Review	5 days	Mon 2/13/17	Fri 2/17/17
80	Regulatory Review	60 days	Sat 2/18/17	Tue 4/18/17
81	Public Comment and Issue Final Five-Year Review	97 days	Wed 4/19/17	Mon 7/24/17
82	**ROD**	**205 days**	**Sat 10/28/17**	**Sun 5/20/18**
83	Preliminary ROD	45 days	Sat 10/28/17	Mon 12/11/17
84	Navy Review	30 days	Tue 12/12/17	Wed 1/10/18
85	Issue Draft ROD	20 days	Thu 1/11/18	Tue 1/30/18
86	Regulatory / Legal Review	60 days	Wed 1/31/18	Sat 3/31/18
87	Issue Draft Final ROD	20 days	Sun 4/1/18	Fri 4/20/18
88	Issue ROD for Signature	30 days	Sat 4/21/18	Sun 5/20/18
89	**LUC RD (final)**	**170 days**	**Mon 5/21/18**	**Tue 11/6/18**
96	**RA Design**	**180 days**	**Mon 5/21/18**	**Fri 11/16/18**
103	**RA Work Plan & HASP**	**240 days**	**Sat 11/17/18**	**Sun 7/14/19**
111	**CCR**	**285 days**	**Mon 7/15/19**	**Fri 4/24/20**
118	**Groundwater LTM WP & HASP**	**210 days**	**Sat 4/25/20**	**Fri 11/20/20**
124	**Groundwater LTM Report**	**260 days**	**Mon 1/4/21**	**Mon 9/20/21**
131	**RACR**	**165 days**	**Tue 9/21/21**	**Fri 3/4/22**



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

Schedule 3-4
Site 7 SMP FY15-16

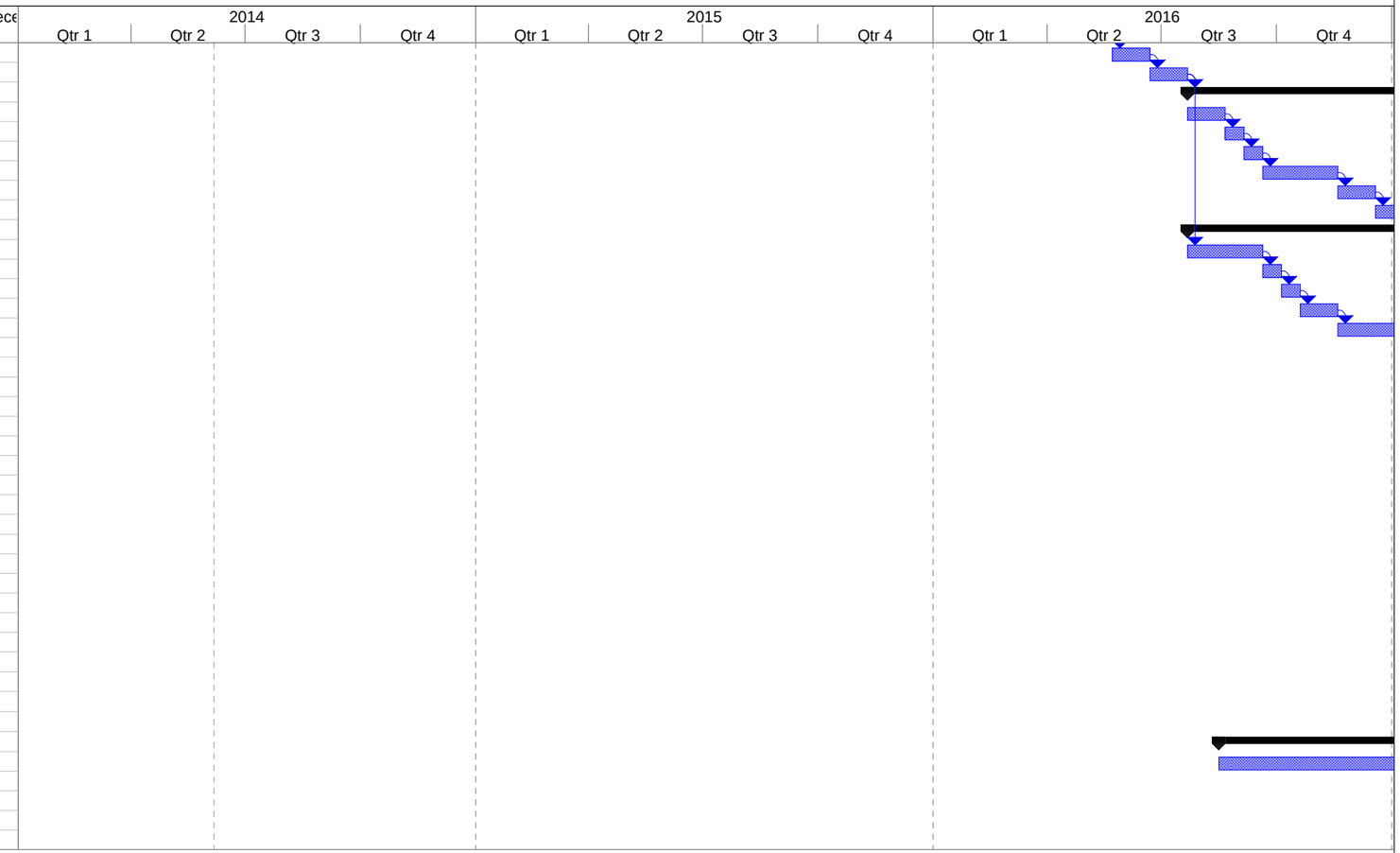
ID	Task Name	Duration	Start	Finish	Predece
1	**TM to Clarify LUC RD**	**345 days**	**Mon 3/3/14**	**Tue 2/10/15**	
2	Pre-Draft TM	30 days	Mon 3/3/14	Tue 4/1/14	
3	Navy Review	30 days	Wed 4/2/14	Thu 5/1/14	2
4	Draft TM	15 days	Fri 5/2/14	Fri 5/16/14	3
5	Regulatory Review	30 days	Sat 5/17/14	Sun 6/15/14	4
6	Draft Final TM	60 days	Mon 6/16/14	Thu 8/14/14	5
7	Final TM	45 days	Fri 8/15/14	Sun 9/28/14	6
8	**LUC RD (Drainage Area)**	**180 days**	**Mon 9/29/14**	**Fri 3/27/15**	7
9	Preliminary LUC RD (Drainage Area)	30 days	Mon 9/29/14	Tue 10/28/14	
10	Navy Review	15 days	Wed 10/29/14	Wed 11/12/14	9
11	Issue Draft LUC RD (Drainage Area)	15 days	Thu 11/13/14	Thu 11/27/14	10
12	Regulatory Review	60 days	Fri 11/28/14	Mon 1/26/15	11
13	Issue Draft Final LUC RD (Drainage Area)	30 days	Tue 1/27/15	Wed 2/25/15	12
14	Issue Final LUC RD (Drainage Area)	30 days	Thu 2/26/15	Fri 3/27/15	13
15	**Phase 3 Remedial Investigation Reporting**	**225 days**	**Fri 4/4/14**	**Fri 11/14/14**	
16	Preliminary RI Report	60 days	Fri 4/4/14	Mon 6/2/14	
17	Client Review	30 days	Tue 6/3/14	Wed 7/2/14	16
18	Draft RI Report	15 days	Thu 7/3/14	Thu 7/17/14	17
19	Regulatory Review	60 days	Fri 7/18/14	Mon 9/15/14	18
20	Draft Final RI Report	30 days	Tue 9/16/14	Wed 10/15/14	19
21	Final RI Report	30 days	Thu 10/16/14	Fri 11/14/14	20
22	**LTM Work Plan**	**195 days**	**Sat 11/15/14**	**Thu 5/28/15**	
23	Preliminary LTM WP & HASP Preparation	30 days	Sat 11/15/14	Sun 12/14/14	21
24	Gov't Comments	15 days	Mon 12/15/14	Mon 12/29/14	23
25	Issue Draft WP	15 days	Tue 12/30/14	Tue 1/13/15	24
26	Regulatory Review	60 days	Wed 1/14/15	Sat 3/14/15	25
27	Issue Draft Final WP	45 days	Sun 3/15/15	Tue 4/28/15	26
28	Issue Final WP	30 days	Wed 4/29/15	Thu 5/28/15	27
29	Fieldwork (2 Mobilizations)	30 days	Fri 5/29/15	Sat 6/27/15	28
30	**LTM Report**	**305 days**	**Sun 6/28/15**	**Wed 4/27/16**	
31	Preliminary LTM report	145 days	Sun 6/28/15	Thu 11/19/15	29
32	Gov't comments	30 days	Fri 11/20/15	Sat 12/19/15	31
33	Issue Draft LTM report	10 days	Sun 12/20/15	Tue 12/29/15	32
34	Regulatory Review	60 days	Wed 12/30/15	Sat 2/27/16	33
35	Issue Draft Final LTM report	30 days	Sun 2/28/16	Mon 3/28/16	34
36	Issue Final LTM report	30 days	Tue 3/29/16	Wed 4/27/16	35
37	**FS Report (soil, groundwater)**	**270 days**	**Thu 10/16/14**	**Sun 7/12/15**	
38	RAA	90 days	Thu 10/16/14	Tue 1/13/15	20
39	Preliminary FS	90 days	Sat 11/15/14	Thu 2/12/15	21
40	Gov't Comments	15 days	Fri 2/13/15	Fri 2/27/15	39
41	Issue Draft FS	15 days	Sat 2/28/15	Sat 3/14/15	40
42	Regulatory Review	60 days	Sun 3/15/15	Wed 5/13/15	41
43	Issue Draft Final FS	30 days	Thu 5/14/15	Fri 6/12/15	42
44	Issue Final FS	30 days	Sat 6/13/15	Sun 7/12/15	43
45	**PP (all media)**	**255 days**	**Sat 6/13/15**	**Mon 2/22/16**	
46	Preliminary PP	60 days	Sat 6/13/15	Tue 8/11/15	43
47	Gov't Comments	15 days	Wed 8/12/15	Wed 8/26/15	46
48	Issue Draft PP	30 days	Thu 8/27/15	Fri 9/25/15	47
49	Regulatory / Legal Review	60 days	Sat 9/26/15	Tue 11/24/15	48
50	Issue Draft Final PP	30 days	Wed 11/25/15	Thu 12/24/15	49
51	Issue Final PP	15 days	Fri 12/25/15	Fri 1/8/16	50
52	Public Comment Period	45 days	Sat 1/9/16	Mon 2/22/16	51
53	**ROD (all media)**	**195 days**	**Sat 1/9/16**	**Thu 7/21/16**	
54	Preliminary ROD	30 days	Sat 1/9/16	Sun 2/7/16	51
55	Navy Review	15 days	Mon 2/8/16	Mon 2/22/16	54
56	Issue Draft ROD	30 days	Tue 2/23/16	Wed 3/23/16	55
57	Regulatory / Legal Review	60 days	Thu 3/24/16	Sun 5/22/16	56



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

Schedule 3-4
Site 7 SMP FY15-16

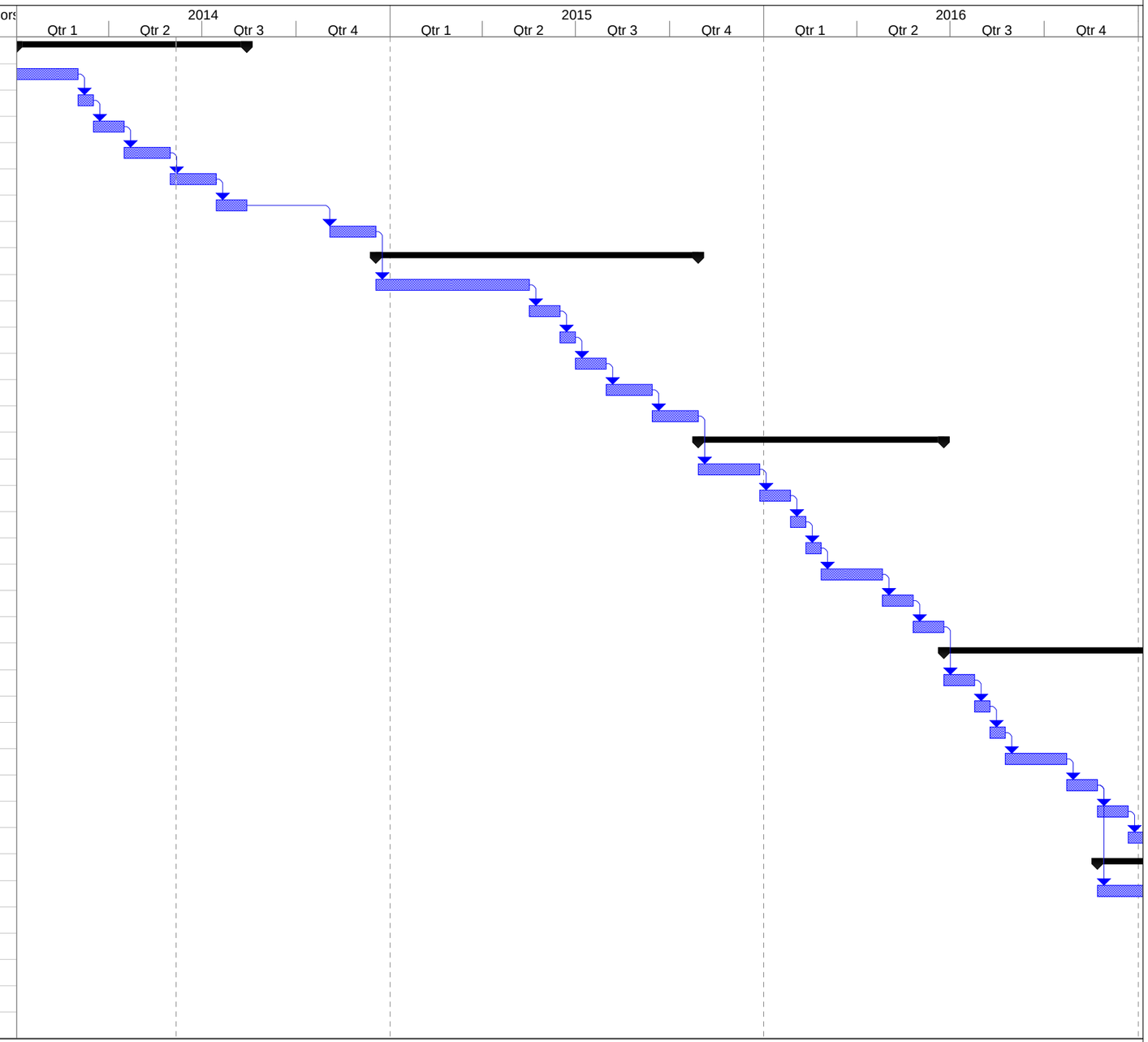
ID	Task Name	Duration	Start	Finish	Predece
58	Issue Draft Final ROD	30 days	Mon 5/23/16	Tue 6/21/16	57
59	Issue ROD for Signature	30 days	Wed 6/22/16	Thu 7/21/16	58
60	**LUC RD (final)**	**180 days**	**Fri 7/22/16**	**Tue 1/17/17**	**59**
61	Preliminary LUC RD	30 days	Fri 7/22/16	Sat 8/20/16	
62	Navy Review	15 days	Sun 8/21/16	Sun 9/4/16	61
63	Issue Draft LUC RD	15 days	Mon 9/5/16	Mon 9/19/16	62
64	Regulatory / Legal Review	60 days	Tue 9/20/16	Fri 11/18/16	63
65	Issue Draft Final LUC RD	30 days	Sat 11/19/16	Sun 12/18/16	64
66	Issue Final LUC RD	30 days	Mon 12/19/16	Tue 1/17/17	65
67	**RA Design**	**195 days**	**Fri 7/22/16**	**Wed 2/1/17**	
68	Preliminary RA Design	60 days	Fri 7/22/16	Mon 9/19/16	59
69	Navy Review	15 days	Tue 9/20/16	Tue 10/4/16	68
70	Issue Draft RA Design	15 days	Wed 10/5/16	Wed 10/19/16	69
71	Regulatory Review	30 days	Thu 10/20/16	Fri 11/18/16	70
72	Issue Draft Final RA Design	45 days	Sat 11/19/16	Mon 1/2/17	71
73	Final RA Design	30 days	Tue 1/3/17	Wed 2/1/17	72
74	**RA Work Plan & HASP**	**195 days**	**Thu 2/2/17**	**Tue 8/15/17**	**73**
75	Preliminary RAWP & HASP	30 days	Thu 2/2/17	Fri 3/3/17	
76	Navy Review	30 days	Sat 3/4/17	Sun 4/2/17	75
77	Issue Draft RAWP	15 days	Mon 4/3/17	Mon 4/17/17	76
78	Regulatory Review	45 days	Tue 4/18/17	Thu 6/1/17	77
79	Issue Draft Final RAWP	30 days	Fri 6/2/17	Sat 7/1/17	78
80	Final RAWP	45 days	Sun 7/2/17	Tue 8/15/17	79
81	RA Field Work	45 days	Wed 8/16/17	Fri 9/29/17	80
82	**CCR**	**250 days**	**Sat 9/30/17**	**Wed 6/6/18**	**81**
83	Preliminary CCR	100 days	Sat 9/30/17	Sun 1/7/18	
84	Navy Review	30 days	Mon 1/8/18	Tue 2/6/18	83
85	Issue Draft CCR	15 days	Wed 2/7/18	Wed 2/21/18	84
86	Regulatory Review	45 days	Thu 2/22/18	Sat 4/7/18	85
87	Issue Draft Final CCR	30 days	Sun 4/8/18	Mon 5/7/18	86
88	Final CCR	30 days	Tue 5/8/18	Wed 6/6/18	87
89	**Groundwater LTM Work Plan & HASP**	**180 days**	**Thu 6/7/18**	**Mon 12/3/18**	
96	Groundwater LTM Field Work	45 days	Tue 12/4/18	Thu 1/17/19	95
97	**Groundwater LTM Report**	**305 days**	**Fri 1/18/19**	**Mon 11/18/19**	
104	**RACR**	**180 days**	**Tue 11/19/19**	**Sat 5/16/20**	
111	**Five Year Review (2017)**	**343 days**	**Tue 8/16/16**	**Mon 7/24/17**	
112	Preliminary Five-Year Review	151 days	Tue 8/16/16	Fri 1/13/17	
113	Gov't Comments	30 days	Sat 1/14/17	Sun 2/12/17	112
114	Issue Draft Five-Year Review	5 days	Mon 2/13/17	Fri 2/17/17	113
115	Regulatory Review	60 days	Sat 2/18/17	Tue 4/18/17	114
116	Public Comment and Issue Final Five-Year Review	97 days	Wed 4/19/17	Mon 7/24/17	115



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

Schedule 3-5
Site 8 SMP FY15-16

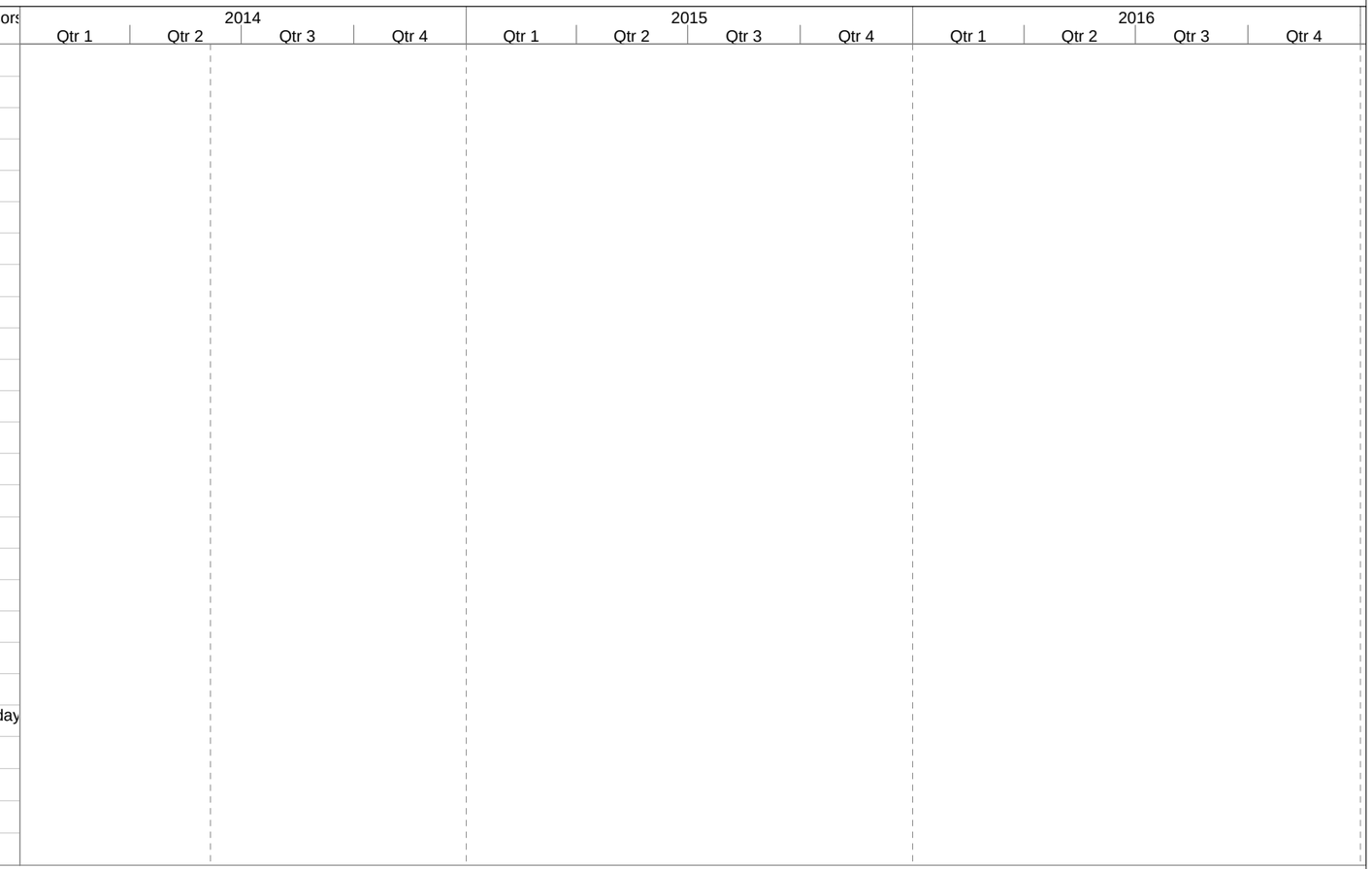
ID	Task Name	Duration	Start	Finish	Predecessors
1	**UFP-SAP - Soil/Groundwater**	**225 days**	**Wed 1/1/14**	**Wed 8/13/14**	
2	Preliminary SAP	60 days	Wed 1/1/14	Sat 3/1/14	
3	Navy Review	15 days	Sun 3/2/14	Sun 3/16/14	2
4	Issue Draft SAP	30 days	Mon 3/17/14	Tue 4/15/14	3
5	Regulatory Review	45 days	Wed 4/16/14	Fri 5/30/14	4
6	Issue Draft Final SAP	45 days	Sat 5/31/14	Mon 7/14/14	5
7	Issue Final SAP	30 days	Tue 7/15/14	Wed 8/13/14	6
8	Field Work	45 days	Mon 11/3/14	Wed 12/17/14	7
9	**RI (soil/groundwater)**	**315 days**	**Thu 12/18/14**	**Wed 10/28/15**	
10	Preliminary RI	150 days	Thu 12/18/14	Sat 5/16/15	8
11	Navy Review	30 days	Sun 5/17/15	Mon 6/15/15	10
12	Issue Draft RI	15 days	Tue 6/16/15	Tue 6/30/15	11
13	Regulatory Review	30 days	Wed 7/1/15	Thu 7/30/15	12
14	Issue Draft Final RI	45 days	Fri 7/31/15	Sun 9/13/15	13
15	Issue Final RI	45 days	Mon 9/14/15	Wed 10/28/15	14
16	**FS Report**	**240 days**	**Thu 10/29/15**	**Fri 6/24/16**	
17	RAA	60 days	Thu 10/29/15	Sun 12/27/15	15
18	Preliminary FS	30 days	Mon 12/28/15	Tue 1/26/16	17
19	Gov't Comments	15 days	Wed 1/27/16	Wed 2/10/16	18
20	Issue Draft FS	15 days	Thu 2/11/16	Thu 2/25/16	19
21	Regulatory Review	60 days	Fri 2/26/16	Mon 4/25/16	20
22	Issue Draft Final FS	30 days	Tue 4/26/16	Wed 5/25/16	21
23	Issue Final FS	30 days	Thu 5/26/16	Fri 6/24/16	22
24	**PP all Media**	**225 days**	**Sat 6/25/16**	**Sat 2/4/17**	
25	Preliminary PP	30 days	Sat 6/25/16	Sun 7/24/16	23
26	Gov't Comments	15 days	Mon 7/25/16	Mon 8/8/16	25
27	Issue Draft PP	15 days	Tue 8/9/16	Tue 8/23/16	26
28	Regulatory / Legal Review	60 days	Wed 8/24/16	Sat 10/22/16	27
29	Issue Draft Final PP	30 days	Sun 10/23/16	Mon 11/21/16	28
30	Issue Final PP	30 days	Tue 11/22/16	Wed 12/21/16	29
31	Public Comment Period	45 days	Thu 12/22/16	Sat 2/4/17	30
32	**ROD all Media**	**210 days**	**Tue 11/22/16**	**Mon 6/19/17**	
33	Preliminary ROD	45 days	Tue 11/22/16	Thu 1/5/17	29
34	Navy Review	30 days	Fri 1/6/17	Sat 2/4/17	33
35	Issue Draft ROD	15 days	Sun 2/5/17	Sun 2/19/17	34
36	Regulatory / Legal Review	60 days	Mon 2/20/17	Thu 4/20/17	35
37	Issue Draft Final ROD	30 days	Fri 4/21/17	Sat 5/20/17	36
38	Issue ROD for Signature	30 days	Sun 5/21/17	Mon 6/19/17	37



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

Schedule 3-5
Site 8 SMP FY15-16

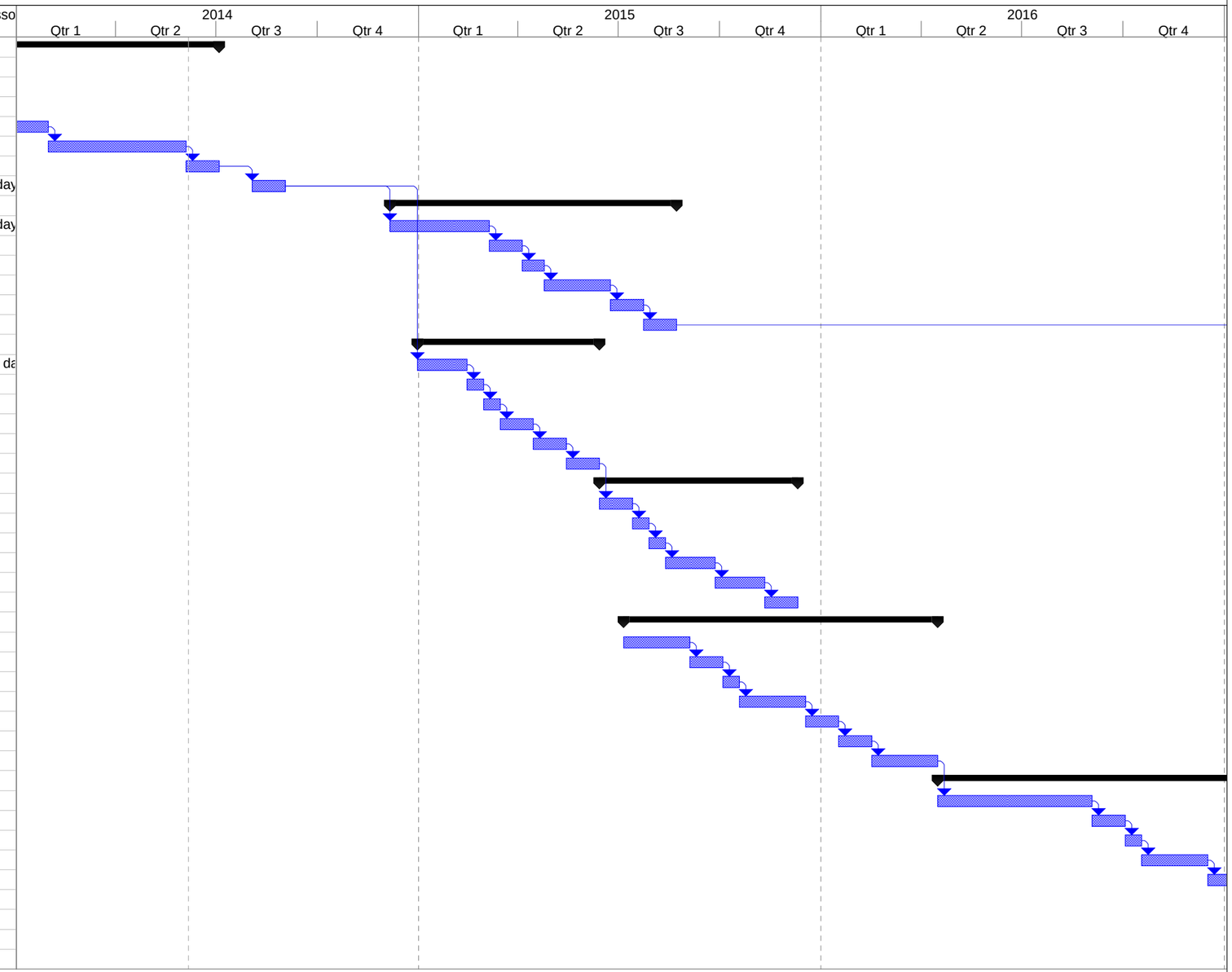
ID	Task Name	Duration	Start	Finish	Predecessors
39	**LUC RD**	**180 days**	**Tue 6/20/17**	**Sat 12/16/17**	
40	Preliminary LUC RD	30 days	Tue 6/20/17	Wed 7/19/17	38
41	Navy Review	15 days	Thu 7/20/17	Thu 8/3/17	40
42	Issue Draft LUC RD	15 days	Fri 8/4/17	Fri 8/18/17	41
43	Regulatory / Legal Review	60 days	Sat 8/19/17	Tue 10/17/17	42
44	Issue Draft Final LUC RD	30 days	Wed 10/18/17	Thu 11/16/17	43
45	Issue Final LUC RD	30 days	Fri 11/17/17	Sat 12/16/17	44
46	**Remedial Design**	**180 days**	**Tue 6/20/17**	**Sat 12/16/17**	
47	Preliminary Design	30 days	Tue 6/20/17	Wed 7/19/17	38
48	Gov't Comments	15 days	Thu 7/20/17	Thu 8/3/17	47
49	Issue Draft Design	15 days	Fri 8/4/17	Fri 8/18/17	48
50	Regulatory / Legal Review	60 days	Sat 8/19/17	Tue 10/17/17	49
51	Issue Draft Final Design	30 days	Wed 10/18/17	Thu 11/16/17	50
52	Issue Final Design	30 days	Fri 11/17/17	Sat 12/16/17	51
53	**Remedial Action Work Plan**	**180 days**	**Sun 12/17/17**	**Thu 6/14/18**	
54	Preliminary Design	30 days	Sun 12/17/17	Mon 1/15/18	52
55	Gov't Comments	15 days	Tue 1/16/18	Tue 1/30/18	54
56	Issue Draft Design	15 days	Wed 1/31/18	Wed 2/14/18	55
57	Regulatory / Legal Review	60 days	Thu 2/15/18	Sun 4/15/18	56
58	Issue Draft Final Design	30 days	Mon 4/16/18	Tue 5/15/18	57
59	Issue Final Design	30 days	Wed 5/16/18	Thu 6/14/18	58
60	Remedial Action Field Work	30 days	Thu 7/5/18	Fri 8/3/18	59FS+20 day
61	**Constructions Closeout Report**	**227 days**	**Thu 10/4/18**	**Sat 5/18/19**	
68	**Groundwater LTM WP & HASP**	**210 days**	**Sun 5/19/19**	**Sat 12/14/19**	**61**
74	**Groundwater LTM Report**	**300 days**	**Sun 12/15/19**	**Fri 10/9/20**	**68**
81	**RACR**	**180 days**	**Sat 10/10/20**	**Wed 4/7/21**	



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

Schedule 3-6
Site 9 & 19 SMP FY15-16

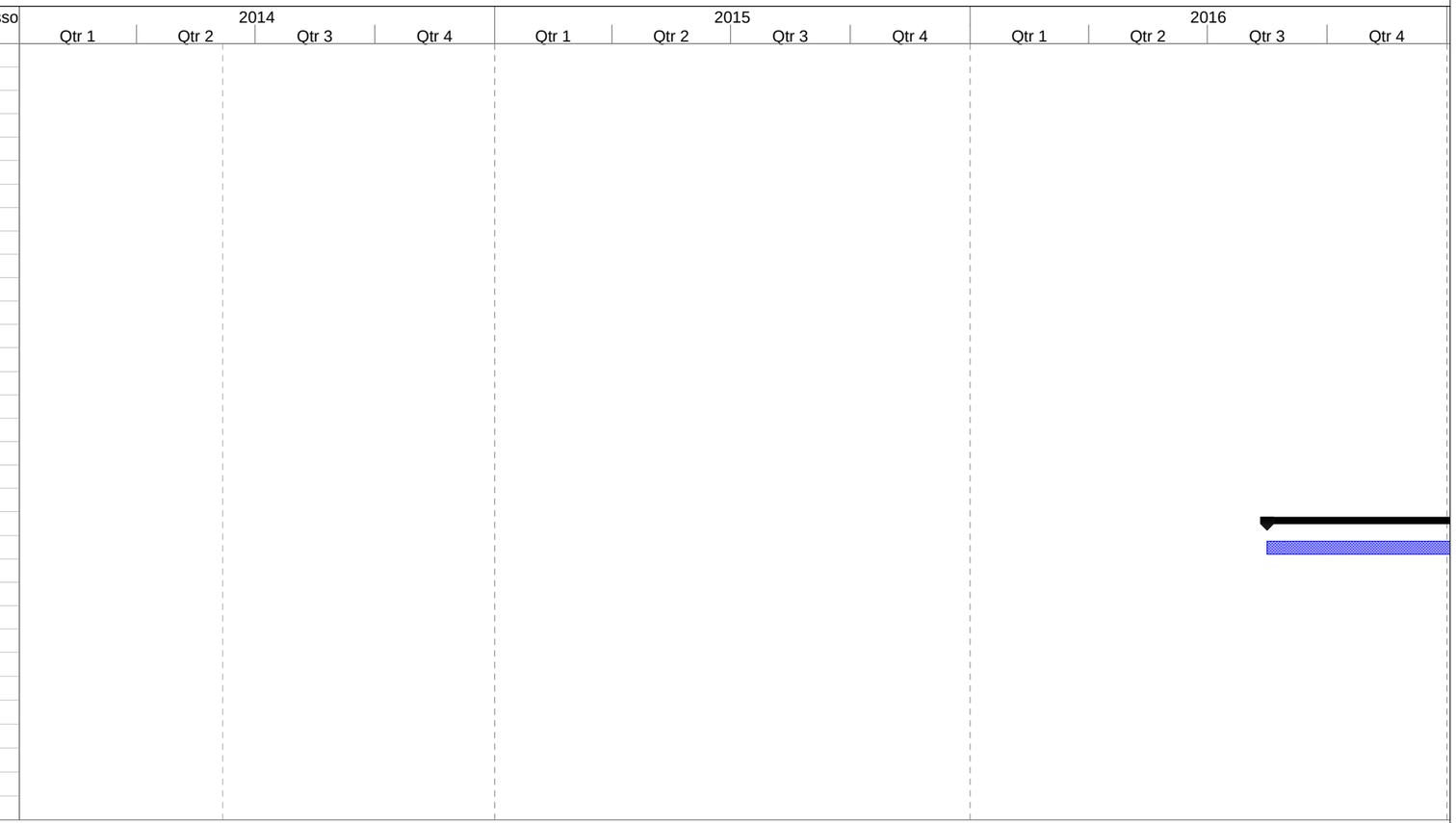
ID	Task Name	Duration	Start	Finish	Predecesso
1	**Phase 1 UFP-SAP for Phase 3 RI**	***455 days***	***Fri 4/5/13***	***Thu 7/3/14***	
2	Preliminary UFP-SAP & HASP Preparation	180 days	Fri 4/5/13	Tue 10/1/13	
3	Navy Review	30 days	Wed 10/2/13	Thu 10/31/13	2
4	Issue Draft WP	30 days	Fri 11/1/13	Sat 11/30/13	3
5	Regulatory Review	60 days	Sun 12/1/13	Wed 1/29/14	4
6	Issue Draft Final WP	125 days	Thu 1/30/14	Tue 6/3/14	5
7	Issue Final WP	30 days	Wed 6/4/14	Thu 7/3/14	6
8	Fieldwork	30 days	Sun 8/3/14	Mon 9/1/14	7FS+30 day
9	**Phase 1 Report for Phase 3 RI**	**260 days**	**Sat 12/6/14**	**Sat 8/22/15**	
10	Preliminary RI	90 days	Sat 12/6/14	Thu 3/5/15	8FS+95 day
11	Navy Review	30 days	Fri 3/6/15	Sat 4/4/15	10
12	Issue Draft RI report	20 days	Sun 4/5/15	Fri 4/24/15	11
13	Regulatory Review	60 days	Sat 4/25/15	Tue 6/23/15	12
14	Issue Draft Final RI report	30 days	Wed 6/24/15	Thu 7/23/15	13
15	Issue Final RI report	30 days	Fri 7/24/15	Sat 8/22/15	14
16	**Tech Memo for Conveyor Area**	**165 days**	**Wed 12/31/14**	**Sat 6/13/15**	
17	Preliminary Draft Tech Memo for Conveyor Area	45 days	Wed 12/31/14	Fri 2/13/15	8FS+120 da
18	Navy Review	15 days	Sat 2/14/15	Sat 2/28/15	17
19	Issue Draft Tech Memo for Conveyor Area	15 days	Sun 3/1/15	Sun 3/15/15	18
20	Regulatory Review	30 days	Mon 3/16/15	Tue 4/14/15	19
21	Issue Draft Final Tech Memo for Conveyor Area	30 days	Wed 4/15/15	Thu 5/14/15	20
22	Issue Final Tech Memo for Conveyor Area	30 days	Fri 5/15/15	Sat 6/13/15	21
23	**LUC RD (Conveyor Area)**	**180 days**	**Sun 6/14/15**	**Thu 12/10/15**	
24	Preliminary Draft LUC RD (Conveyor Belt)	30 days	Sun 6/14/15	Mon 7/13/15	22
25	Gov't Comments	15 days	Tue 7/14/15	Tue 7/28/15	24
26	Issue Draft LUC RD (Conveyor Belt)	15 days	Wed 7/29/15	Wed 8/12/15	25
27	Regulatory Review	45 days	Thu 8/13/15	Sat 9/26/15	26
28	Issue Draft Final LUC RD (Conveyor Belt)	45 days	Sun 9/27/15	Tue 11/10/15	27
29	Issue Final LUC RD (Conveyor Belt)	30 days	Wed 11/11/15	Thu 12/10/15	28
30	**Phase 2 UFP-SAP for Phase 3 RI**	***285 days***	***Mon 7/6/15***	***Fri 4/15/16***	
31	Preliminary UFP-SAP & HASP Preparation	60 days	Mon 7/6/15	Thu 9/3/15	
32	Navy Review	30 days	Fri 9/4/15	Sat 10/3/15	31
33	Issue Draft WP	15 days	Sun 10/4/15	Sun 10/18/15	32
34	Regulatory Review	60 days	Mon 10/19/15	Thu 12/17/15	33
35	Issue Draft Final WP	30 days	Fri 12/18/15	Sat 1/16/16	34
36	Issue Final WP	30 days	Sun 1/17/16	Mon 2/15/16	35
37	Fieldwork	60 days	Tue 2/16/16	Fri 4/15/16	36
38	**Phase 2 Report for Phase 3 RI**	**305 days**	**Sat 4/16/16**	**Tue 2/14/17**	
39	Preliminary Report	140 days	Sat 4/16/16	Fri 9/2/16	37
40	Navy Review	30 days	Sat 9/3/16	Sun 10/2/16	39
41	Issue Draft Report	15 days	Mon 10/3/16	Mon 10/17/16	40
42	Regulatory Review	60 days	Tue 10/18/16	Fri 12/16/16	41
43	Issue Draft Final Report	30 days	Sat 12/17/16	Sun 1/15/17	42
44	Issue Final Report	30 days	Mon 1/16/17	Tue 2/14/17	43
45	**FS Report**	**255 days**	**Wed 2/15/17**	**Fri 10/27/17**	
46	RAA	60 days	Wed 2/15/17	Sat 4/15/17	15,44
47	Preliminary FS	30 days	Sun 4/16/17	Mon 5/15/17	46



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

Schedule 3-6
Site 9 & 19 SMP FY15-16

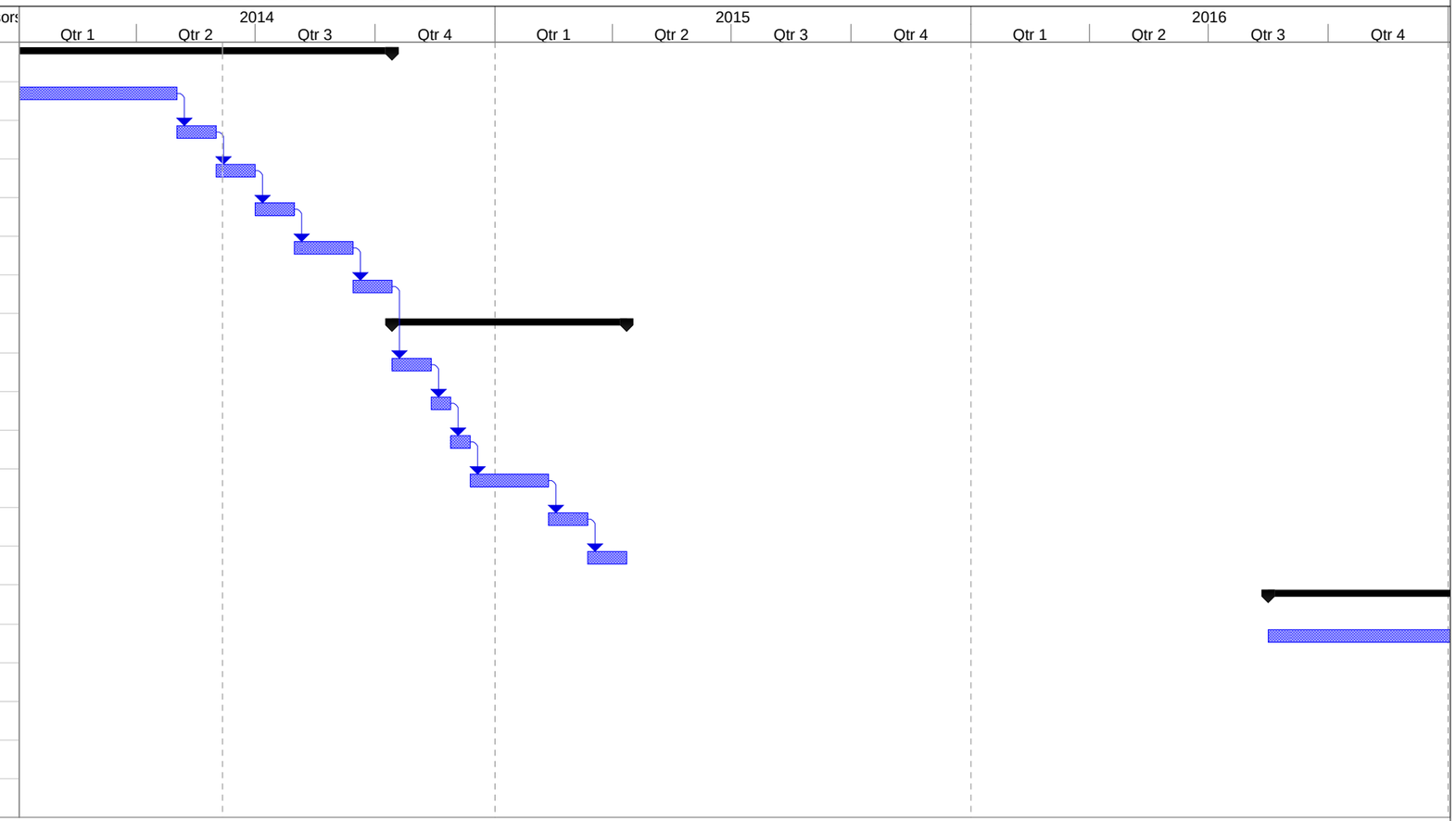
ID	Task Name	Duration	Start	Finish	Predecesso
48	Navy Review	30 days	Tue 5/16/17	Wed 6/14/17	47
49	Issue Draft FS	15 days	Thu 6/15/17	Thu 6/29/17	48
50	Regulatory Review	60 days	Fri 6/30/17	Mon 8/28/17	49
51	Issue Draft Final FS	30 days	Tue 8/29/17	Wed 9/27/17	50
52	Issue Final FS	30 days	Thu 9/28/17	Fri 10/27/17	51
53	**PP**	**240 days**	**Thu 9/28/17**	**Fri 5/25/18**	
54	Preliminary PP	60 days	Thu 9/28/17	Sun 11/26/17	51
55	Gov't Comments	15 days	Mon 11/27/17	Mon 12/11/17	54
56	Issue Draft PP	15 days	Tue 12/12/17	Tue 12/26/17	55
57	Regulatory / Legal Review	60 days	Wed 12/27/17	Sat 2/24/18	56
58	Issue Draft Final PP	30 days	Sun 2/25/18	Mon 3/26/18	57
59	Issue Final PP	15 days	Tue 3/27/18	Tue 4/10/18	58
60	Public Comment Period	45 days	Wed 4/11/18	Fri 5/25/18	59
61	**ROD**	**195 days**	**Tue 3/27/18**	**Sun 10/7/18**	
62	Preliminary ROD	60 days	Tue 3/27/18	Fri 5/25/18	58
63	Navy Review	30 days	Sat 5/26/18	Sun 6/24/18	62
64	Issue Draft ROD	15 days	Mon 6/25/18	Mon 7/9/18	63
65	Regulatory / Legal Review	45 days	Tue 7/10/18	Thu 8/23/18	64
66	Issue Draft Final ROD	30 days	Fri 8/24/18	Sat 9/22/18	65
67	Issue ROD for Signature	15 days	Sun 9/23/18	Sun 10/7/18	66
68	**Five Year Review (2017)**	**343 days**	**Tue 8/16/16**	**Mon 7/24/17**	
69	Preliminary Five-Year Review	151 days	Tue 8/16/16	Fri 1/13/17	
70	Gov't Comments	30 days	Sat 1/14/17	Sun 2/12/17	69
71	Issue Draft Five-Year Review	5 days	Mon 2/13/17	Fri 2/17/17	70
72	Regulatory Review	60 days	Sat 2/18/17	Tue 4/18/17	71
73	Public Comment and Issue Final Five-Year Review	97 days	Wed 4/19/17	Mon 7/24/17	72
74	**LUC RD**	**285 days**	**Fri 7/6/18**	**Tue 4/16/19**	
81	**RA Design**	**270 days**	**Fri 7/6/18**	**Mon 4/1/19**	
88	**RA Work Plan**	**245 days**	**Tue 4/2/19**	**Mon 12/2/19**	**87**
96	**CCR**	**270 days**	**Wed 12/11/19**	**Sat 9/5/20**	**95**
103	**Groundwater LTM WP**	**270 days**	**Tue 8/4/20**	**Fri 4/30/21**	
109	**Groundwater LTM Report**	**5085 days?**	**Sat 5/1/21**	**Mon 4/2/35**	
116	**RACR**	**210 days**	**Mon 1/17/22**	**Sun 8/14/22**	



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

Schedule 3-7
Site 12 SMP FY15-16

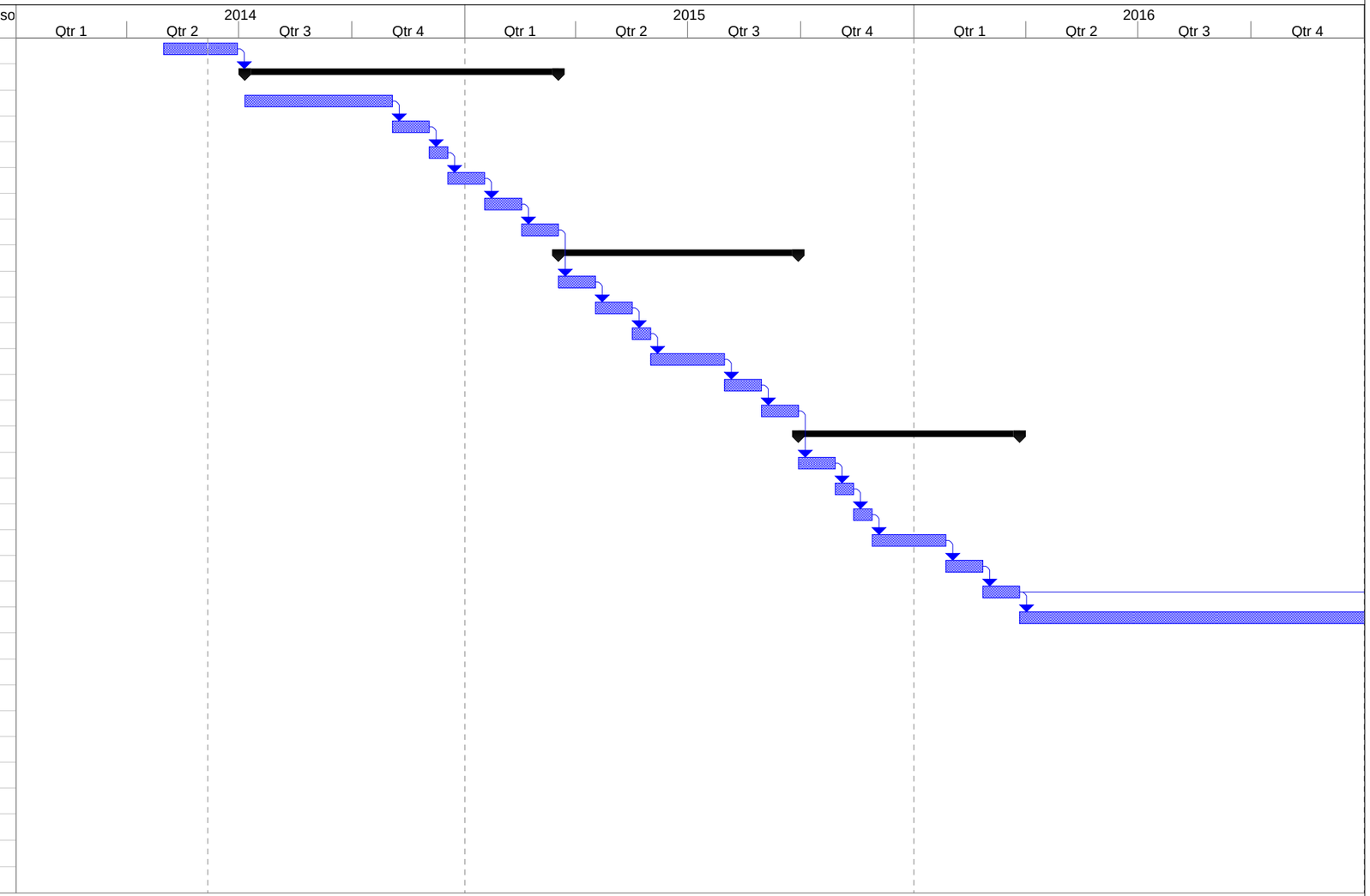
ID	Task Name	Duration	Start	Finish	Predecessors
1	**LTM Report**	**305 days**	**Fri 12/13/13**	**Mon 10/13/14**	
2	Preliminary Draft Report	140 days	Fri 12/13/13	Thu 5/1/14	
3	Navy Review	30 days	Fri 5/2/14	Sat 5/31/14	2
4	Issue Draft Report	30 days	Sun 6/1/14	Mon 6/30/14	3
5	Regulatory Review	30 days	Tue 7/1/14	Wed 7/30/14	4
6	Issue Draft Final Report	45 days	Thu 7/31/14	Sat 9/13/14	5
7	Issue Final Report	30 days	Sun 9/14/14	Mon 10/13/14	6
8	**RACR**	**180 days**	**Tue 10/14/14**	**Sat 4/11/15**	
9	Preliminary RACR	30 days	Tue 10/14/14	Wed 11/12/14	7
10	Navy Review	15 days	Thu 11/13/14	Thu 11/27/14	9
11	Issue Draft RACR	15 days	Fri 11/28/14	Fri 12/12/14	10
12	Regulatory Review	60 days	Sat 12/13/14	Tue 2/10/15	11
13	Issue Draft Final RACR	30 days	Wed 2/11/15	Thu 3/12/15	12
14	Issue Final RACR	30 days	Fri 3/13/15	Sat 4/11/15	13
15	**Five Year Review (2017)**	**343 days**	**Tue 8/16/16**	**Mon 7/24/17**	
16	Preliminary Five-Year Review	151 days	Tue 8/16/16	Fri 1/13/17	
17	Gov't Comments	30 days	Sat 1/14/17	Sun 2/12/17	16
18	Issue Draft Five-Year Review	5 days	Mon 2/13/17	Fri 2/17/17	17
19	Regulatory Review	60 days	Sat 2/18/17	Tue 4/18/17	18
20	Public Comment and Issue Final Five-Year Revie	97 days	Wed 4/19/17	Mon 7/24/17	19



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

Schedule 3-8
Site 22 SMP FY15-16

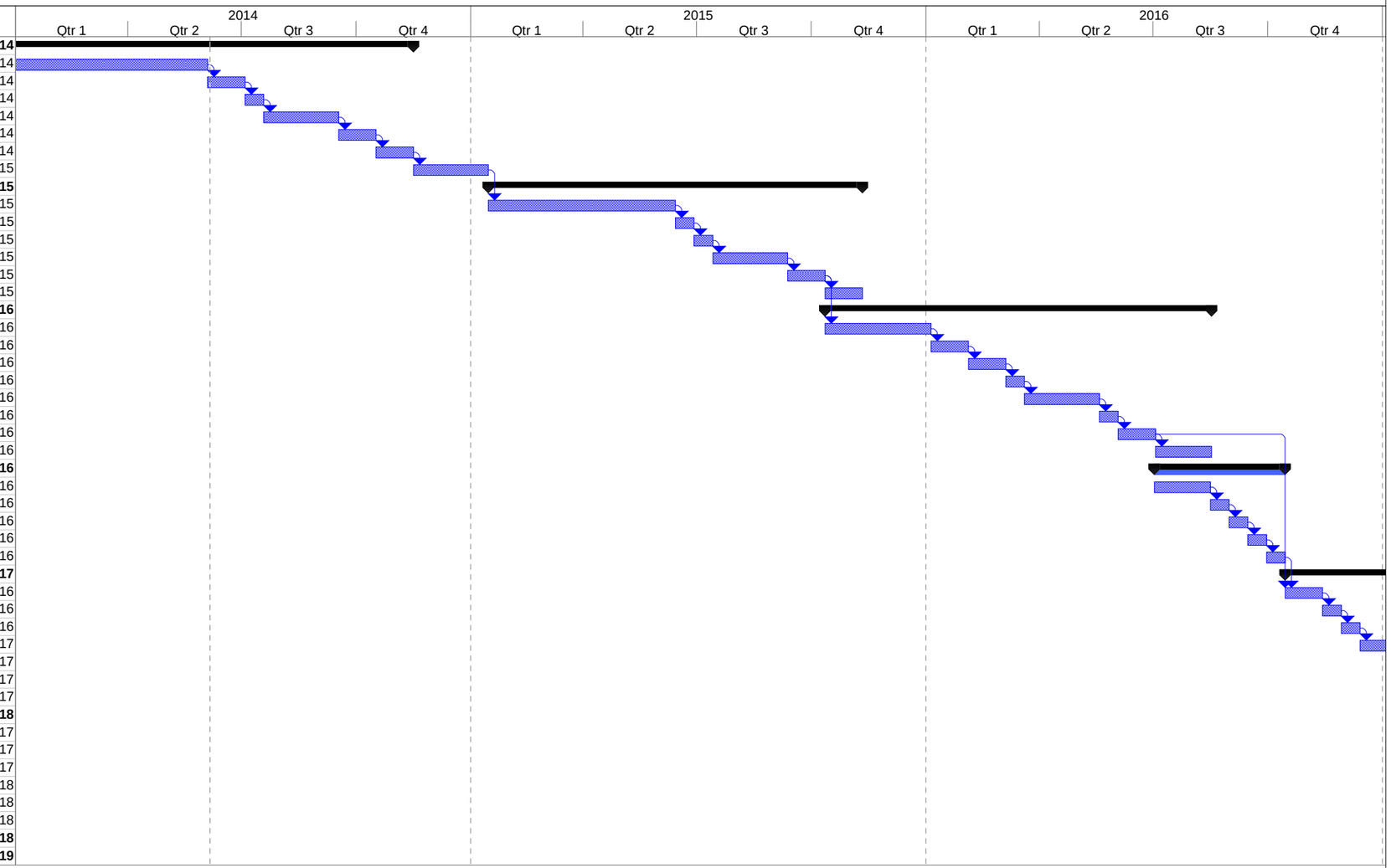
ID	Task Name	Duration	Start	Finish	Predecesso
1	Pre-RD Field Work	60 days	Thu 5/1/14	Sun 6/29/14	
2	**Pre-RD Summary Report**	**255 days**	**Sun 7/6/14**	**Tue 3/17/15**	**1**
3	Preliminary Draft	120 days	Sun 7/6/14	Sun 11/2/14	
4	Gov't Comments	30 days	Mon 11/3/14	Tue 12/2/14	3
5	Issue Draft	15 days	Wed 12/3/14	Wed 12/17/14	4
6	Regulatory Review	30 days	Thu 12/18/14	Fri 1/16/15	5
7	Issue Draft Final	30 days	Sat 1/17/15	Sun 2/15/15	6
8	Issue Final	30 days	Mon 2/16/15	Tue 3/17/15	7
9	**Remedial Design**	**195 days**	**Wed 3/18/15**	**Mon 9/28/15**	
10	Preliminary RD	30 days	Wed 3/18/15	Thu 4/16/15	8
11	Gov't Comments	30 days	Fri 4/17/15	Sat 5/16/15	10
12	Issue Draft RD	15 days	Sun 5/17/15	Sun 5/31/15	11
13	Regulatory Review	60 days	Mon 6/1/15	Thu 7/30/15	12
14	Issue Draft Final RD	30 days	Fri 7/31/15	Sat 8/29/15	13
15	Issue Final RD	30 days	Sun 8/30/15	Mon 9/28/15	14
16	**Remedial Action Work Plan**	**180 days**	**Tue 9/29/15**	**Sat 3/26/16**	
17	Preliminary WP & HASP Preparation	30 days	Tue 9/29/15	Wed 10/28/15	15
18	Gov't Comments	15 days	Thu 10/29/15	Thu 11/12/15	17
19	Issue Draft WP	15 days	Fri 11/13/15	Fri 11/27/15	18
20	Regulatory Review	60 days	Sat 11/28/15	Tue 1/26/16	19
21	Issue Draft Final WP	30 days	Wed 1/27/16	Thu 2/25/16	20
22	Issue Final WP	30 days	Fri 2/26/16	Sat 3/26/16	21
23	Remedial Action Fieldwork	580 days	Sun 3/27/16	Fri 10/27/17	22
24	**CCR**	**265 days**	**Sat 10/28/17**	**Thu 7/19/18**	**22,23**
25	Preliminary CCR	100 days	Sat 10/28/17	Sun 2/4/18	
26	Gov't Comments	15 days	Mon 2/5/18	Mon 2/19/18	25
27	Issue Draft CCR	30 days	Tue 2/20/18	Wed 3/21/18	26
28	Regulatory Review	30 days	Thu 3/22/18	Fri 4/20/18	27
29	Issue Draft Final CCR	45 days	Sat 4/21/18	Mon 6/4/18	28
30	Issue Final CCR	45 days	Tue 6/5/18	Thu 7/19/18	29
31	**Groundwater LTM WP & HASP**	**240 days**	**Fri 7/20/18**	**Sat 3/16/19**	**30**
37	**Groundwater LTM Report**	**210 days**	**Thu 6/6/19**	**Wed 1/1/20**	**31**
44	**RACR**	**196 days**	**Thu 1/2/20**	**Wed 7/15/20**	



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

Schedule 3-9
Site 23 SMP FY15-16

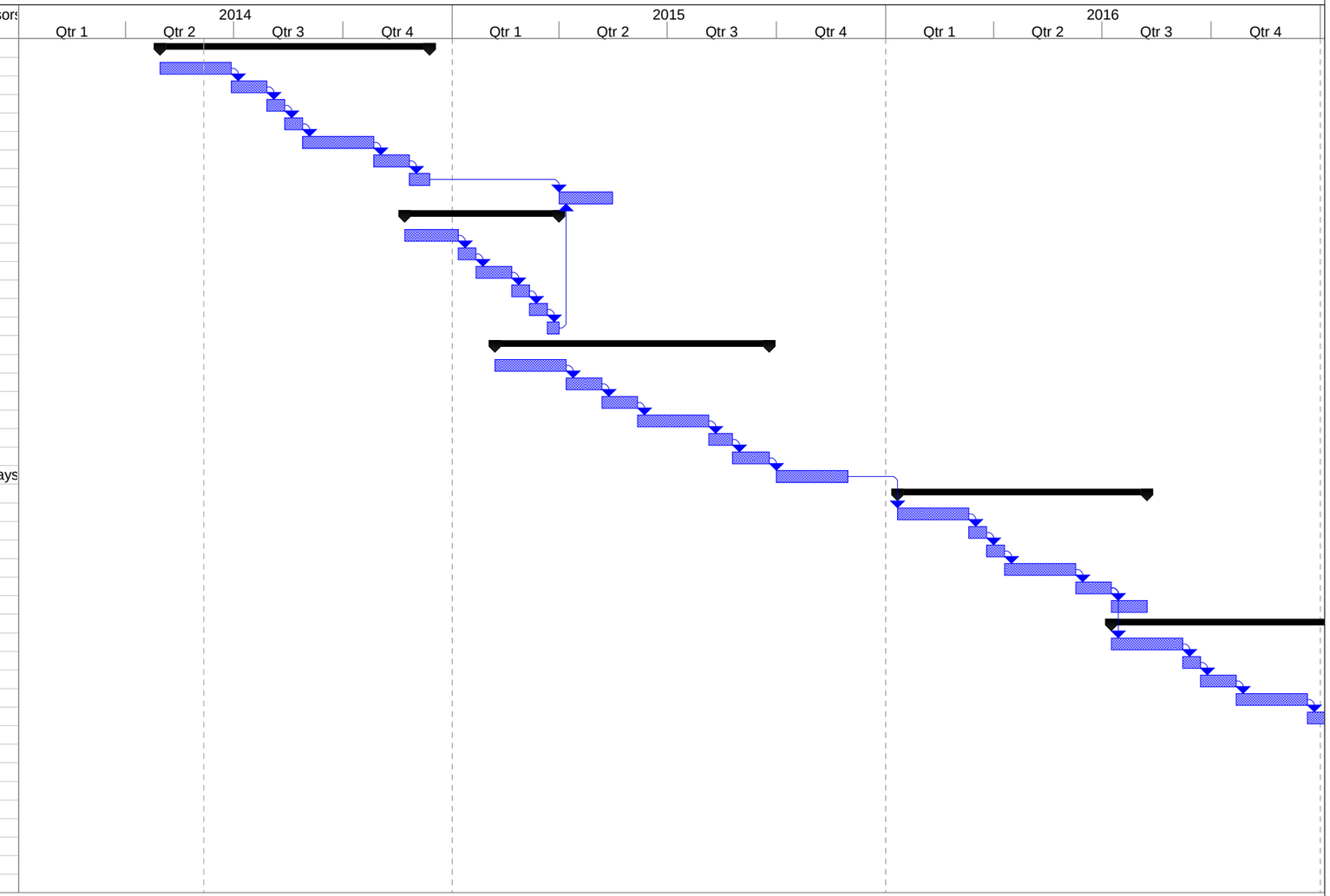
ID	Task Name	Duration	Start	Finish
1	**Work Plan for Additional RI Activities**	**440 days**	**Mon 9/2/13**	**Sat 11/15/14**
2	Preliminary UFP-SAP & HASP	275 days	Mon 9/2/13	Tue 6/3/14
3	Navy Review	30 days	Wed 6/4/14	Thu 7/3/14
4	Issue Draft UFP-SAP	15 days	Fri 7/4/14	Fri 7/18/14
5	Regulatory Review	60 days	Sat 7/19/14	Tue 9/16/14
6	Issue Draft Final UFP-SAP	30 days	Wed 9/17/14	Thu 10/16/14
7	Issue Final UFP-SAP Report	30 days	Fri 10/17/14	Sat 11/15/14
8	RI Field Work	60 days	Sun 11/16/14	Wed 1/14/15
9	**RI Report**	**300 days**	**Thu 1/15/15**	**Tue 11/10/15**
10	Preliminary RI	150 days	Thu 1/15/15	Sat 6/13/15
11	Navy Review	15 days	Sun 6/14/15	Sun 6/28/15
12	Issue Draft RI report	15 days	Mon 6/29/15	Mon 7/13/15
13	Regulatory Review	60 days	Tue 7/14/15	Fri 9/11/15
14	Issue Draft Final RI report	30 days	Sat 9/12/15	Sun 10/11/15
15	Issue Final RI report	30 days	Mon 10/12/15	Tue 11/10/15
16	**EE/CA**	**310 days**	**Mon 10/12/15**	**Tue 8/16/16**
17	RAA	85 days	Mon 10/12/15	Mon 1/4/16
18	Preliminary EE/CA	30 days	Tue 1/5/16	Wed 2/3/16
19	Navy Review	30 days	Thu 2/4/16	Fri 3/4/16
20	Issue Draft EE/CA	15 days	Sat 3/5/16	Sat 3/19/16
21	Regulatory Review	60 days	Sun 3/20/16	Wed 5/18/16
22	Issue Draft Final EE/CA	15 days	Thu 5/19/16	Thu 6/2/16
23	Issue Final EE/CA	30 days	Fri 6/3/16	Sat 7/2/16
24	Public Review & AM	45 days	Sun 7/3/16	Tue 8/16/16
25	**Removal AM**	**105 days**	**Sat 7/2/16**	**Fri 10/14/16**
26	Perliminary Removal AM	45 days	Sat 7/2/16	Mon 8/15/16
27	Navy Review	15 days	Tue 8/16/16	Tue 8/30/16
28	Issue Draft Removal AM	15 days	Wed 8/31/16	Wed 9/14/16
29	Regulatory Review	15 days	Thu 9/15/16	Thu 9/29/16
30	Issue Final Removal AM	15 days	Fri 9/30/16	Fri 10/14/16
31	**Removal Action Work Plan**	**180 days**	**Sat 10/15/16**	**Wed 4/12/17**
32	Preliminary Work Plan & HASP	30 days	Sat 10/15/16	Sun 11/13/16
33	Navy Review	15 days	Mon 11/14/16	Mon 11/28/16
34	Issue Draft Work Plan	15 days	Tue 11/29/16	Tue 12/13/16
35	Regulatory Review	60 days	Wed 12/14/16	Sat 2/11/17
36	Issue Draft Final Work Plan	30 days	Sun 2/12/17	Mon 3/13/17
37	Issue Final Work Plan	30 days	Tue 3/14/17	Wed 4/12/17
38	Removal Action Field Work	60 days	Thu 4/13/17	Sun 6/11/17
39	**Construction Completion Report**	**265 days**	**Mon 6/12/17**	**Sat 3/3/18**
40	Preliminary CCR	115 days	Mon 6/12/17	Wed 10/4/17
41	Navy Review	15 days	Thu 10/5/17	Thu 10/19/17
42	Issue Draft CCR	15 days	Fri 10/20/17	Fri 11/3/17
43	Regulatory Review	60 days	Sat 11/4/17	Tue 1/2/18
44	Issue Draft Final CCR	30 days	Wed 1/3/18	Thu 2/1/18
45	Issue Final CCR	30 days	Fri 2/2/18	Sat 3/3/18
46	**NFA PRAP**	**240 days**	**Sun 3/4/18**	**Mon 10/29/18**
54	**NFA ROD**	**195 days**	**Sat 9/15/18**	**Thu 3/28/19**



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

Schedule 3-10
Site 24 SMP FY15-16

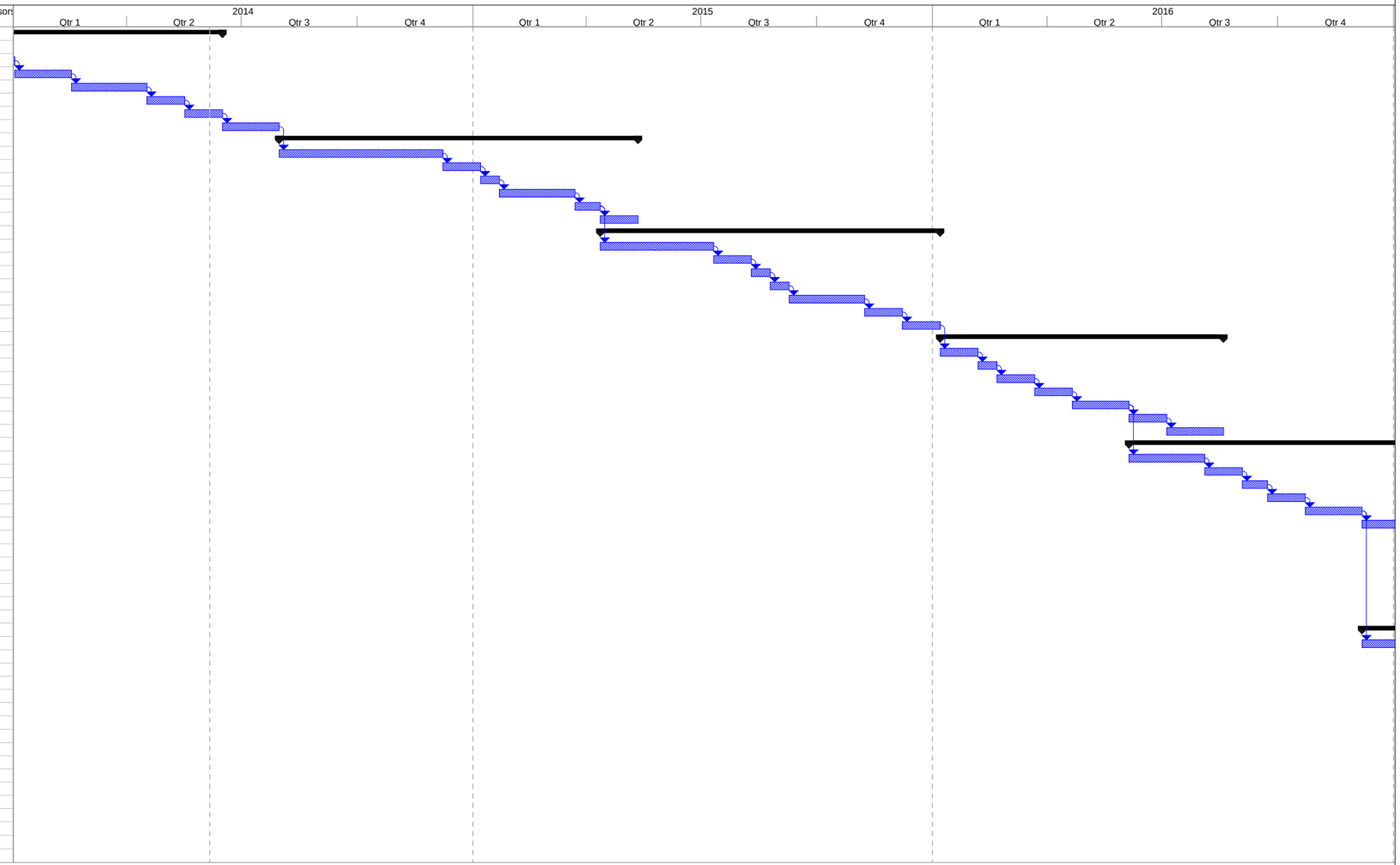
ID	Task Name	Duration	Start	Finish	Predecessors
7	**EE/CA**	**227 days**	**Wed 4/30/14**	**Fri 12/12/14**	
8	RAA	60 days	Wed 4/30/14	Sat 6/28/14	
9	Preliminary EE/CA	30 days	Sun 6/29/14	Mon 7/28/14	8
10	Gov't Comments	15 days	Tue 7/29/14	Tue 8/12/14	9
11	Issue Draft EE/CA	15 days	Wed 8/13/14	Wed 8/27/14	10
12	Regulatory Review	60 days	Thu 8/28/14	Sun 10/26/14	11
13	Issue Draft Final EE/CA	30 days	Mon 10/27/14	Tue 11/25/14	12
14	Issue Final EE/CA	17 days	Wed 11/26/14	Fri 12/12/14	13
15	Public Review & AM	45 days	Wed 4/1/15	Fri 5/15/15	14,24
18	**Action Memo**	**130 days**	**Sat 11/22/14**	**Tue 3/31/15**	
19	Preliminary AM	45 days	Sat 11/22/14	Mon 1/5/15	
20	Gov't Comments	15 days	Tue 1/6/15	Tue 1/20/15	19
21	Issue Draft AM	30 days	Wed 1/21/15	Thu 2/19/15	20
22	Regulatory Review	15 days	Fri 2/20/15	Fri 3/6/15	21
23	Issue Draft Final AM	15 days	Sat 3/7/15	Sat 3/21/15	22
24	Issue Final AM	10 days	Sun 3/22/15	Tue 3/31/15	23
25	**Removal Action Work Plan**	**231 days**	**Fri 2/6/15**	**Thu 9/24/15**	
26	Preliminary Work Plan & HASP	60 days	Fri 2/6/15	Mon 4/6/15	
27	Gov't Comments	30 days	Tue 4/7/15	Wed 5/6/15	26
28	Issue Draft Work Plan	30 days	Thu 5/7/15	Fri 6/5/15	27
29	Regulatory Review	60 days	Sat 6/6/15	Tue 8/4/15	28
30	Issue Draft Final Work Plan	20 days	Wed 8/5/15	Mon 8/24/15	29
31	Issue Final Work Plan	31 days	Tue 8/25/15	Thu 9/24/15	30
32	Removal Action Field Work	60 days	Thu 10/1/15	Sun 11/29/15	31FS+6 days
33	**Construction Completion Report**	**210 days**	**Mon 1/11/16**	**Sun 8/7/16**	
34	Preliminary CCR	60 days	Mon 1/11/16	Thu 3/10/16	32
35	Gov't Comments	15 days	Fri 3/11/16	Fri 3/25/16	34
36	Issue Draft CCR	15 days	Sat 3/26/16	Sat 4/9/16	35
37	Regulatory Review	60 days	Sun 4/10/16	Wed 6/8/16	36
38	Issue Draft Final CCR	30 days	Thu 6/9/16	Fri 7/8/16	37
39	Issue Final CCR	30 days	Sat 7/9/16	Sun 8/7/16	38
40	**NFA PRAP (all media)**	**270 days**	**Sat 7/9/16**	**Tue 4/4/17**	
41	Preliminary PP	60 days	Sat 7/9/16	Tue 9/6/16	38
42	Gov't Comments	15 days	Wed 9/7/16	Wed 9/21/16	41
43	Issue Draft PP	30 days	Thu 9/22/16	Fri 10/21/16	42
44	Regulatory / Legal Review	60 days	Sat 10/22/16	Tue 12/20/16	43
45	Issue Draft Final PP	30 days	Wed 12/21/16	Thu 1/19/17	44
46	Issue Final PP	30 days	Fri 1/20/17	Sat 2/18/17	45
47	Public Comment Period	45 days	Sun 2/19/17	Tue 4/4/17	46
48	**ROD**	**210 days**	**Fri 1/20/17**	**Thu 8/17/17**	
49	Preliminary ROD	60 days	Fri 1/20/17	Mon 3/20/17	45
50	Navy Review	30 days	Tue 3/21/17	Wed 4/19/17	49
51	Issue Draft ROD	15 days	Thu 4/20/17	Thu 5/4/17	50
52	Regulatory / Legal Review	45 days	Fri 5/5/17	Sun 6/18/17	51
53	Issue Draft Final ROD	30 days	Mon 6/19/17	Tue 7/18/17	52
54	Issue ROD for Signature	30 days	Wed 7/19/17	Thu 8/17/17	53



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

Schedule 3-11
Site 25 SMP FY15-16

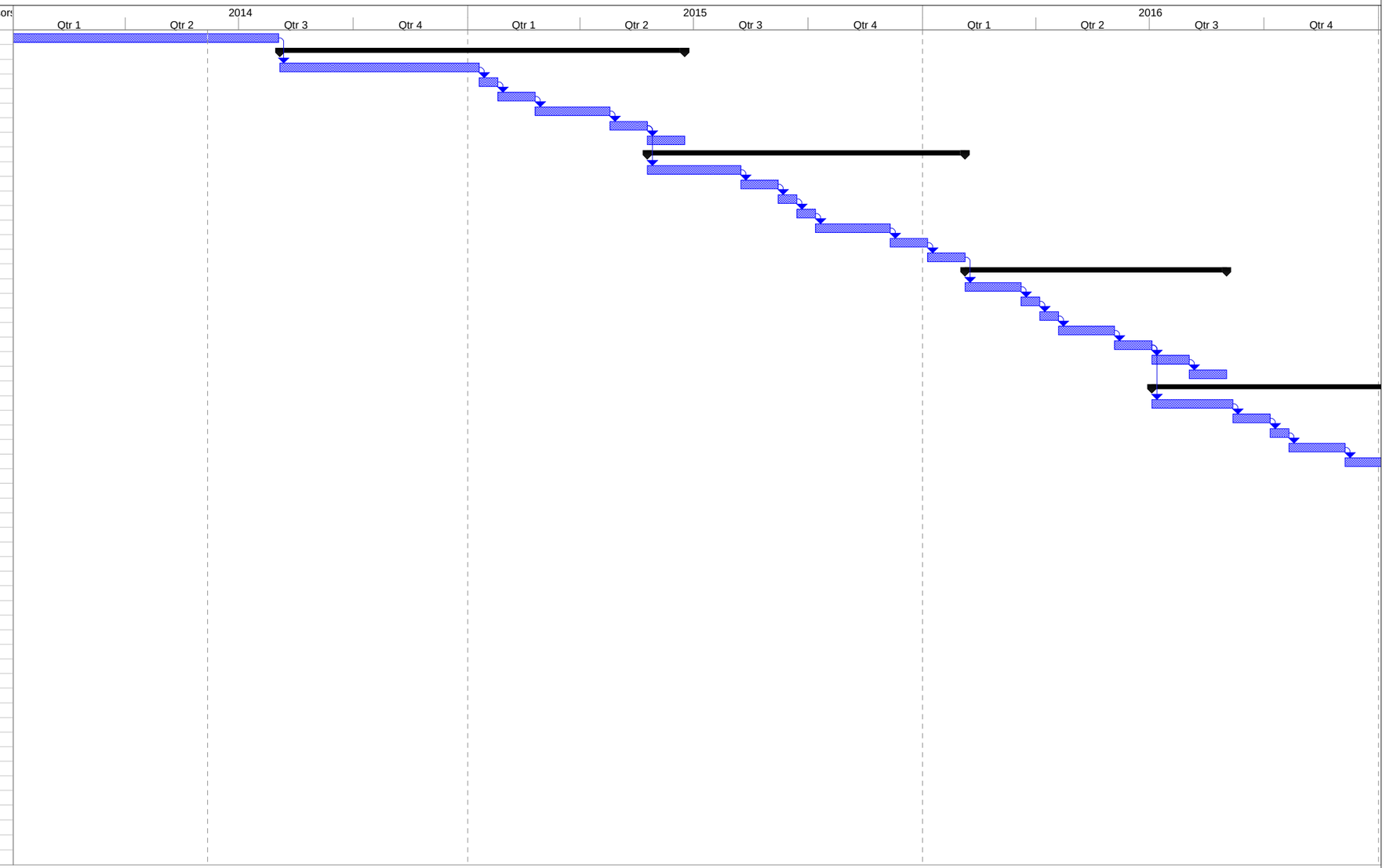
ID	Task Name	Duration	Start	Finish	Predecessors
1	**Work Plan for Additional RI Activities**	**315 days**	**Mon 8/5/13**	**Sun 6/15/14**	
2	Preliminary UFP-SAP & HASP	120 days	Mon 8/5/13	Mon 12/2/13	
3	Navy Review	30 days	Tue 12/3/13	Wed 1/1/14	2
4	Issue Draft UFP-SAP	45 days	Thu 1/2/14	Sat 2/15/14	3
5	Regulatory Review	60 days	Sun 2/16/14	Wed 4/16/14	4
6	Issue Draft Final UFP-SAP	30 days	Thu 4/17/14	Fri 5/16/14	5
7	Issue Final UFP-SAP Report	30 days	Sat 5/17/14	Sun 6/15/14	6
8	RI Field Work	45 days	Mon 6/16/14	Wed 7/30/14	7
9	**RI Report**	**285 days**	**Thu 7/31/14**	**Mon 5/11/15**	
10	Preliminary RI	130 days	Thu 7/31/14	Sun 12/7/14	8
11	Navy Review	30 days	Mon 12/8/14	Tue 1/6/15	10
12	Issue Draft RI report	15 days	Wed 1/7/15	Wed 1/21/15	11
13	Regulatory Review	60 days	Thu 1/22/15	Sun 3/22/15	12
14	Issue Draft Final RI report	20 days	Mon 3/23/15	Sat 4/11/15	13
15	Issue Final RI report	30 days	Sun 4/12/15	Mon 5/11/15	14
16	**FS Report**	**270 days**	**Sun 4/12/15**	**Wed 1/6/16**	
17	RAA	90 days	Sun 4/12/15	Fri 7/10/15	14
18	Preliminary FS	30 days	Sat 7/11/15	Sun 8/9/15	17
19	Navy Review	15 days	Mon 8/10/15	Mon 8/24/15	18
20	Issue Draft FS	15 days	Tue 8/25/15	Tue 9/8/15	19
21	Regulatory Review	60 days	Wed 9/9/15	Sat 11/7/15	20
22	Issue Draft Final FS	30 days	Sun 11/8/15	Mon 12/7/15	21
23	Issue Final FS	30 days	Tue 12/8/15	Wed 1/6/16	22
24	**PRAP (all media)**	**225 days**	**Thu 1/7/16**	**Thu 8/18/16**	
25	Preliminary PP	30 days	Thu 1/7/16	Fri 2/5/16	23
26	Navy Review	15 days	Sat 2/6/16	Sat 2/20/16	25
27	Issue Draft PP	30 days	Sun 2/21/16	Mon 3/21/16	26
28	Regulatory / Legal Review	30 days	Tue 3/22/16	Wed 4/20/16	27
29	Issue Draft Final PP	45 days	Thu 4/21/16	Sat 6/4/16	28
30	Issue Final PP	30 days	Sun 6/5/16	Mon 7/4/16	29
31	Public Comment Period	45 days	Tue 7/5/16	Thu 8/18/16	30
32	**ROD**	**215 days**	**Sun 6/5/16**	**Thu 1/5/17**	
33	Preliminary ROD	60 days	Sun 6/5/16	Wed 8/3/16	29
34	Navy Review	30 days	Thu 8/4/16	Fri 9/2/16	33
35	Issue Draft ROD	20 days	Sat 9/3/16	Thu 9/22/16	34
36	Regulatory / Legal Review	30 days	Fri 9/23/16	Sat 10/22/16	35
37	Issue Draft Final ROD	45 days	Sun 10/23/16	Tue 12/6/16	36
38	Issue ROD for Signature	30 days	Wed 12/7/16	Thu 1/5/17	37
39	**LUC RD**	**195 days**	**Fri 1/6/17**	**Wed 7/19/17**	
40	Preliminary LUC RD	30 days	Fri 1/6/17	Sat 2/4/17	38
41	Navy Review	15 days	Sun 2/5/17	Sun 2/19/17	40
42	Issue Draft LUC RD	30 days	Mon 2/20/17	Tue 3/21/17	41
43	Regulatory / Legal Review	60 days	Wed 3/22/17	Sat 5/20/17	42
44	Issue Draft Final LUC RD	30 days	Sun 5/21/17	Mon 6/19/17	43
45	Issue Final LUC RD	30 days	Tue 6/20/17	Wed 7/19/17	44
46	**RA Design**	**225 days**	**Wed 12/7/16**	**Wed 7/19/17**	
47	Preliminary RA Design	60 days	Wed 12/7/16	Sat 2/4/17	37
48	Navy Review	15 days	Sun 2/5/17	Sun 2/19/17	47
49	Issue Draft RA Design	30 days	Mon 2/20/17	Tue 3/21/17	48
50	Regulatory Review	45 days	Wed 3/22/17	Fri 5/5/17	49
51	Issue Draft Final RA Design	45 days	Sat 5/6/17	Mon 6/19/17	50
52	Final RA Design	30 days	Tue 6/20/17	Wed 7/19/17	51
53	**RA Work Plan**	**210 days**	**Tue 6/20/17**	**Mon 1/15/18**	
54	Preliminary RAWP & HASP	60 days	Tue 6/20/17	Fri 8/18/17	51
55	Navy Review	15 days	Sat 8/19/17	Sat 9/2/17	54
56	Issue Draft RAWP	15 days	Sun 9/3/17	Sun 9/17/17	55
57	Regulatory Review	60 days	Mon 9/18/17	Thu 11/16/17	56
58	Issue Draft Final RAWP	30 days	Fri 11/17/17	Sat 12/16/17	57
59	Final RAWP	30 days	Sun 12/17/17	Mon 1/15/18	58
60	RA Field Work	60 days	Tue 1/16/18	Fri 3/16/18	59
61	**CCR**	**270 days**	**Sat 3/17/18**	**Tue 12/11/18**	
68	**Groundwater LTM WP & HASP**	**210 days**	**Wed 12/12/18**	**Tue 7/9/19**	**61**
74	**RACR**	**210 days**	**Mon 4/6/20**	**Sun 11/1/20**	**68**



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

Schedule 3-12
Site 26 SMP FY15-16

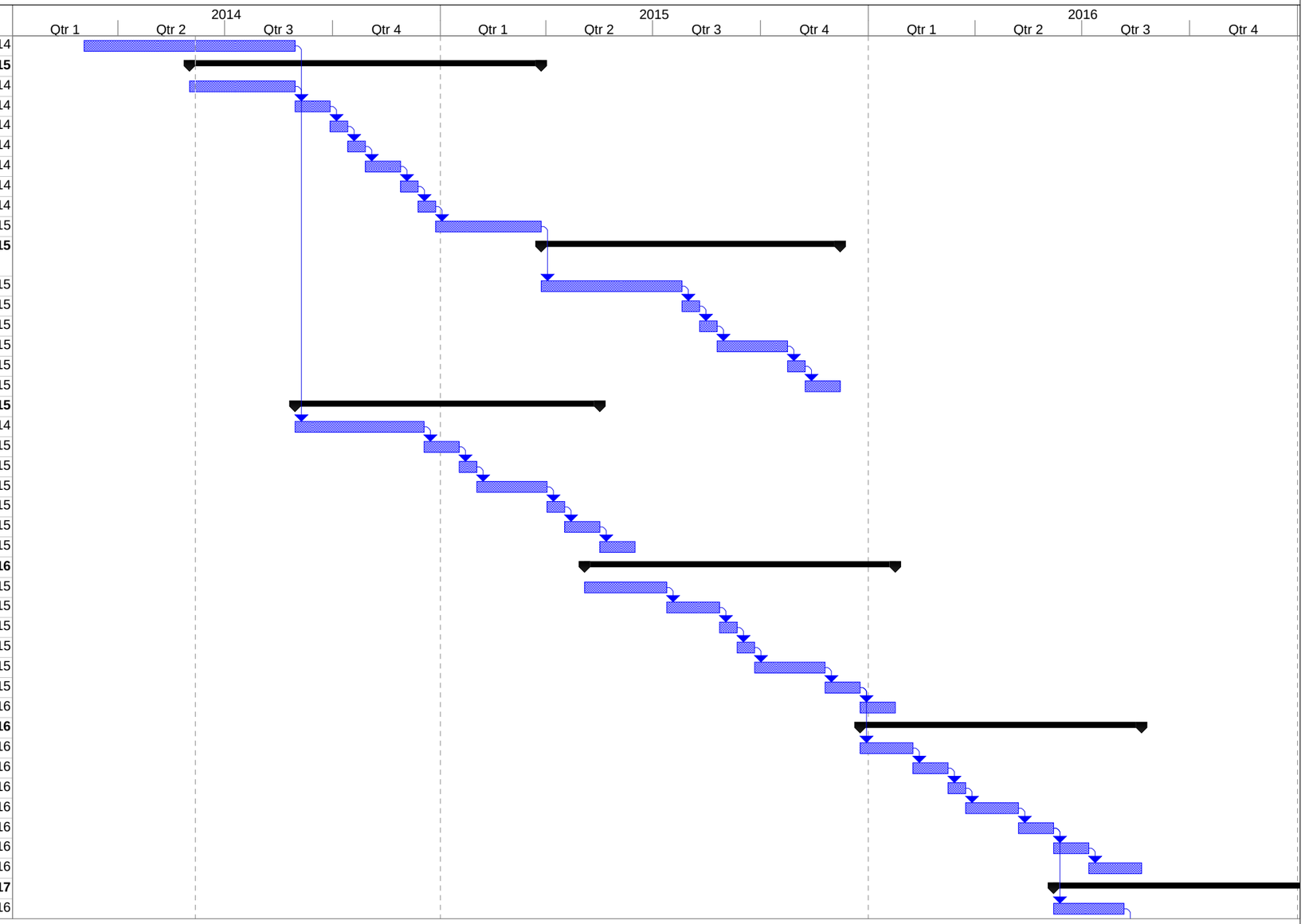
ID	Task Name	Duration	Start	Finish	Predecessors
1	RI Field Work	281 days	Fri 10/25/13	Fri 8/1/14	
2	**RI Report**	**325 days**	**Sun 8/3/14**	**Tue 6/23/15**	
3	Preliminary RI	160 days	Sun 8/3/14	Fri 1/9/15	1
4	Navy Review	15 days	Sat 1/10/15	Sat 1/24/15	3
5	Issue Draft RI report	30 days	Sun 1/25/15	Mon 2/23/15	4
6	Regulatory Review	60 days	Tue 2/24/15	Fri 4/24/15	5
7	Issue Draft Final RI report	30 days	Sat 4/25/15	Sun 5/24/15	6
8	Issue Final RI report	30 days	Mon 5/25/15	Tue 6/23/15	7
9	**FS Report**	**255 days**	**Mon 5/25/15**	**Wed 2/3/16**	
10	RAA	75 days	Mon 5/25/15	Fri 8/7/15	7
11	Preliminary FS	30 days	Sat 8/8/15	Sun 9/6/15	10
12	Navy Review	15 days	Mon 9/7/15	Mon 9/21/15	11
13	Issue Draft FS	15 days	Tue 9/22/15	Tue 10/6/15	12
14	Regulatory Review	60 days	Wed 10/7/15	Sat 12/5/15	13
15	Issue Draft Final FS	30 days	Sun 12/6/15	Mon 1/4/16	14
16	Issue Final FS	30 days	Tue 1/5/16	Wed 2/3/16	15
17	**PP**	**210 days**	**Thu 2/4/16**	**Wed 8/31/16**	
18	Preliminary PP	45 days	Thu 2/4/16	Sat 3/19/16	16
19	Navy Review	15 days	Sun 3/20/16	Sun 4/3/16	18
20	Issue Draft PP	15 days	Mon 4/4/16	Mon 4/18/16	19
21	Regulatory / Legal Review	45 days	Tue 4/19/16	Thu 6/2/16	20
22	Issue Draft Final PP	30 days	Fri 6/3/16	Sat 7/2/16	21
23	Issue Final PP	30 days	Sun 7/3/16	Mon 8/1/16	22
24	Public Comment Period	30 days	Tue 8/2/16	Wed 8/31/16	23
25	**ROD**	**215 days**	**Sun 7/3/16**	**Thu 2/2/17**	
26	Preliminary ROD	65 days	Sun 7/3/16	Mon 9/5/16	22
27	Navy Review	30 days	Tue 9/6/16	Wed 10/5/16	26
28	Issue Draft ROD	15 days	Thu 10/6/16	Thu 10/20/16	27
29	Regulatory / Legal Review	45 days	Fri 10/21/16	Sun 12/4/16	28
30	Issue Draft Final ROD	30 days	Mon 12/5/16	Tue 1/3/17	29
31	Issue ROD for Signature	30 days	Wed 1/4/17	Thu 2/2/17	30
32	**LUC RD**	**195 days**	**Fri 2/3/17**	**Wed 8/16/17**	
33	Preliminary LUC RD	30 days	Fri 2/3/17	Sat 3/4/17	31
34	Navy Review	15 days	Sun 3/5/17	Sun 3/19/17	33
35	Issue Draft LUC RD	30 days	Mon 3/20/17	Tue 4/18/17	34
36	Regulatory / Legal Review	60 days	Wed 4/19/17	Sat 6/17/17	35
37	Issue Draft Final LUC RD	30 days	Sun 6/18/17	Mon 7/17/17	36
38	Issue Final LUC RD	30 days	Tue 7/18/17	Wed 8/16/17	37
39	**RA Design**	**255 days**	**Wed 1/4/17**	**Fri 9/15/17**	
40	Preliminary RA Design	90 days	Wed 1/4/17	Mon 4/3/17	30
41	Navy Review	30 days	Tue 4/4/17	Wed 5/3/17	40
42	Issue Draft RA Design	15 days	Thu 5/4/17	Thu 5/18/17	41
43	Regulatory Review	45 days	Fri 5/19/17	Sun 7/2/17	42
44	Issue Draft Final RA Design	45 days	Mon 7/3/17	Wed 8/16/17	43
45	Final RA Design	30 days	Thu 8/17/17	Fri 9/15/17	44
46	**RA Work Plan**	**225 days**	**Thu 8/17/17**	**Thu 3/29/18**	
47	Preliminary RAWP & HASP	60 days	Thu 8/17/17	Sun 10/15/17	44
48	Navy Review	30 days	Mon 10/16/17	Tue 11/14/17	47
49	Issue Draft RAWP	15 days	Wed 11/15/17	Wed 11/29/17	48
50	Regulatory Review	60 days	Thu 11/30/17	Sun 1/28/18	49
51	Issue Draft Final RAWP	30 days	Mon 1/29/18	Tue 2/27/18	50
52	Final RAWP	30 days	Wed 2/28/18	Thu 3/29/18	51
53	RA Field Work	45 days	Fri 3/30/18	Sun 5/13/18	52
54	**CCR**	**275 days**	**Mon 5/14/18**	**Tue 2/12/19**	**53**
61	**Groundwater LTM WP & HASP**	**240 days**	**Mon 1/14/19**	**Tue 9/10/19**	
67	**Groundwater LTM Report**	**225 days**	**Tue 12/10/19**	**Tue 7/21/20**	
74	**RACR**	**180 days**	**Wed 7/22/20**	**Sun 1/17/21**	



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

Schedule 3-13
Site 31 SMP FY15-16

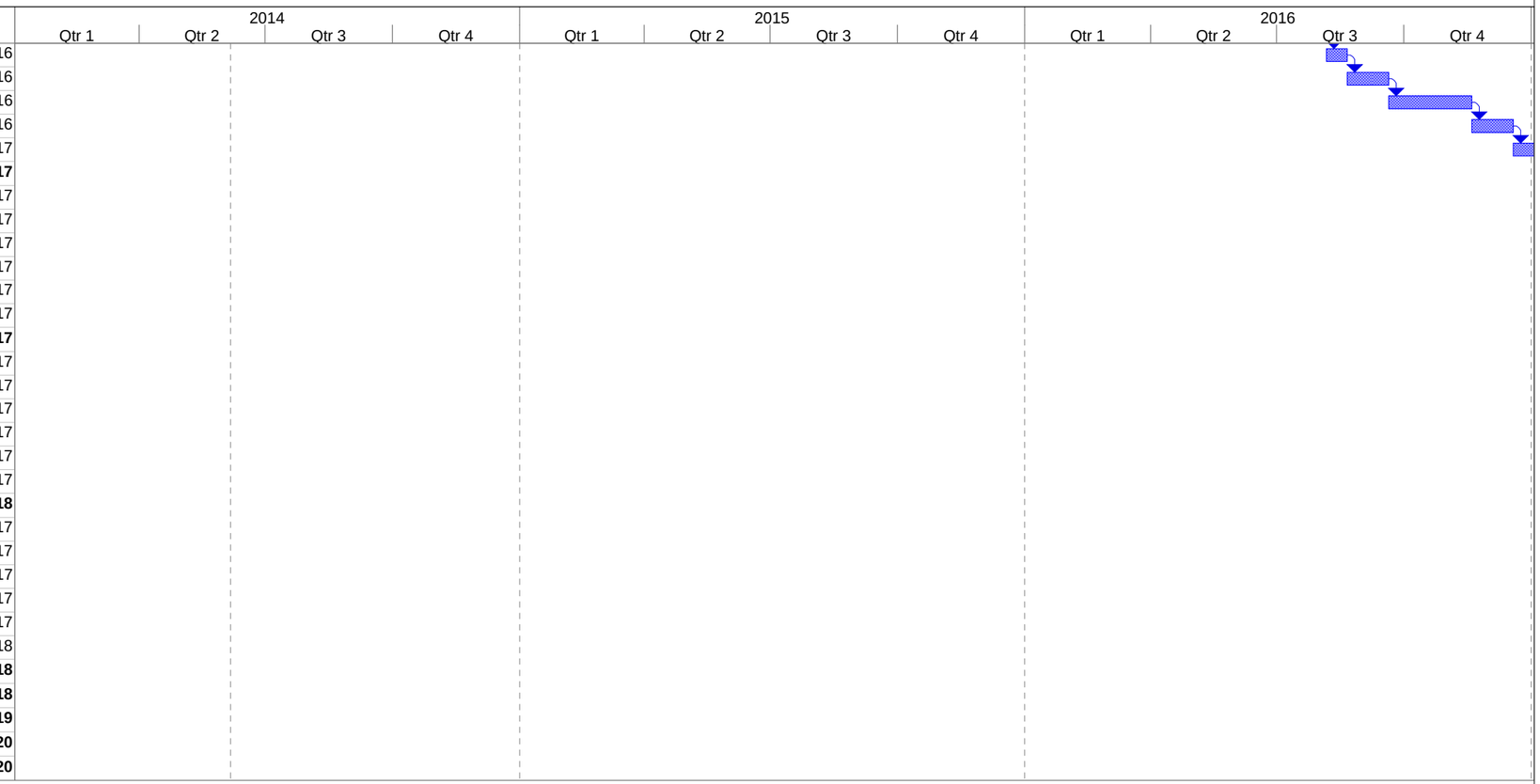
ID	Task Name	Duration	Start	Finish
1	Supplemental RI Field Work	180 days	Mon 3/3/14	Fri 8/29/14
2	**Treatability Study**	**300 days**	**Sun 6/1/14**	**Fri 3/27/15**
3	RAAs	90 days	Sun 6/1/14	Fri 8/29/14
4	Pre-Draft Work Plan	30 days	Sat 8/30/14	Sun 9/28/14
5	Navy Review	15 days	Mon 9/29/14	Mon 10/13/14
6	Draft Work Plan	15 days	Tue 10/14/14	Tue 10/28/14
7	Regulatory Review	30 days	Wed 10/29/14	Thu 11/27/14
8	Draft Final Work Plan	15 days	Fri 11/28/14	Fri 12/12/14
9	Final Work Plan	15 days	Sat 12/13/14	Sat 12/27/14
10	Treatability Study Fieldwork	90 days	Sun 12/28/14	Fri 3/27/15
11	**Treatabiliy Study Results Technical Memorandum**	**255 days**	**Sat 3/28/15**	**Mon 12/7/15**
12	Pre-Draft TM	120 days	Sat 3/28/15	Sat 7/25/15
13	Navy Review	15 days	Sun 7/26/15	Sun 8/9/15
14	Draft TM	15 days	Mon 8/10/15	Mon 8/24/15
15	Regulatory Review	60 days	Tue 8/25/15	Fri 10/23/15
16	Draft Final TM	15 days	Sat 10/24/15	Sat 11/7/15
17	Final TM	30 days	Sun 11/8/15	Mon 12/7/15
18	**RI Report**	**260 days**	**Sat 8/30/14**	**Sat 5/16/15**
19	Preliminary RI	110 days	Sat 8/30/14	Wed 12/17/14
20	Gov't Comments	30 days	Thu 12/18/14	Fri 1/16/15
21	Issue Draft RI Report	15 days	Sat 1/17/15	Sat 1/31/15
22	Regulatory Review	60 days	Sun 2/1/15	Wed 4/1/15
23	Issue Draft Final RI Report	15 days	Thu 4/2/15	Thu 4/16/15
24	Issue Final RI Report	30 days	Fri 4/17/15	Sat 5/16/15
25	Public Review and AM	30 days	Sun 5/17/15	Mon 6/15/15
26	**FS Report**	**265 days**	**Mon 5/4/15**	**Sat 1/23/16**
27	RAA	70 days	Mon 5/4/15	Sun 7/12/15
28	Preliminary FS	45 days	Mon 7/13/15	Wed 8/26/15
29	Gov't Comments	15 days	Thu 8/27/15	Thu 9/10/15
30	Issue Draft FS	15 days	Fri 9/11/15	Fri 9/25/15
31	Regulatory Review	60 days	Sat 9/26/15	Tue 11/24/15
32	Issue Draft Final FS	30 days	Wed 11/25/15	Thu 12/24/15
33	Issue Final FS	30 days	Fri 12/25/15	Sat 1/23/16
34	**PP**	**240 days**	**Fri 12/25/15**	**Sat 8/20/16**
35	Preliminary PP	45 days	Fri 12/25/15	Sun 2/7/16
36	Gov't Comments	30 days	Mon 2/8/16	Tue 3/8/16
37	Issue Draft PP	15 days	Wed 3/9/16	Wed 3/23/16
38	Regulatory / Legal Review	45 days	Thu 3/24/16	Sat 5/7/16
39	Draft Final PP	30 days	Sun 5/8/16	Mon 6/6/16
40	Issue Final PP	30 days	Tue 6/7/16	Wed 7/6/16
41	Public Comment Period	45 days	Thu 7/7/16	Sat 8/20/16
42	**ROD**	**225 days**	**Tue 6/7/16**	**Tue 1/17/17**
43	Preliminary ROD	60 days	Tue 6/7/16	Fri 8/5/16



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

Schedule 3-13
Site 31 SMP FY15-16

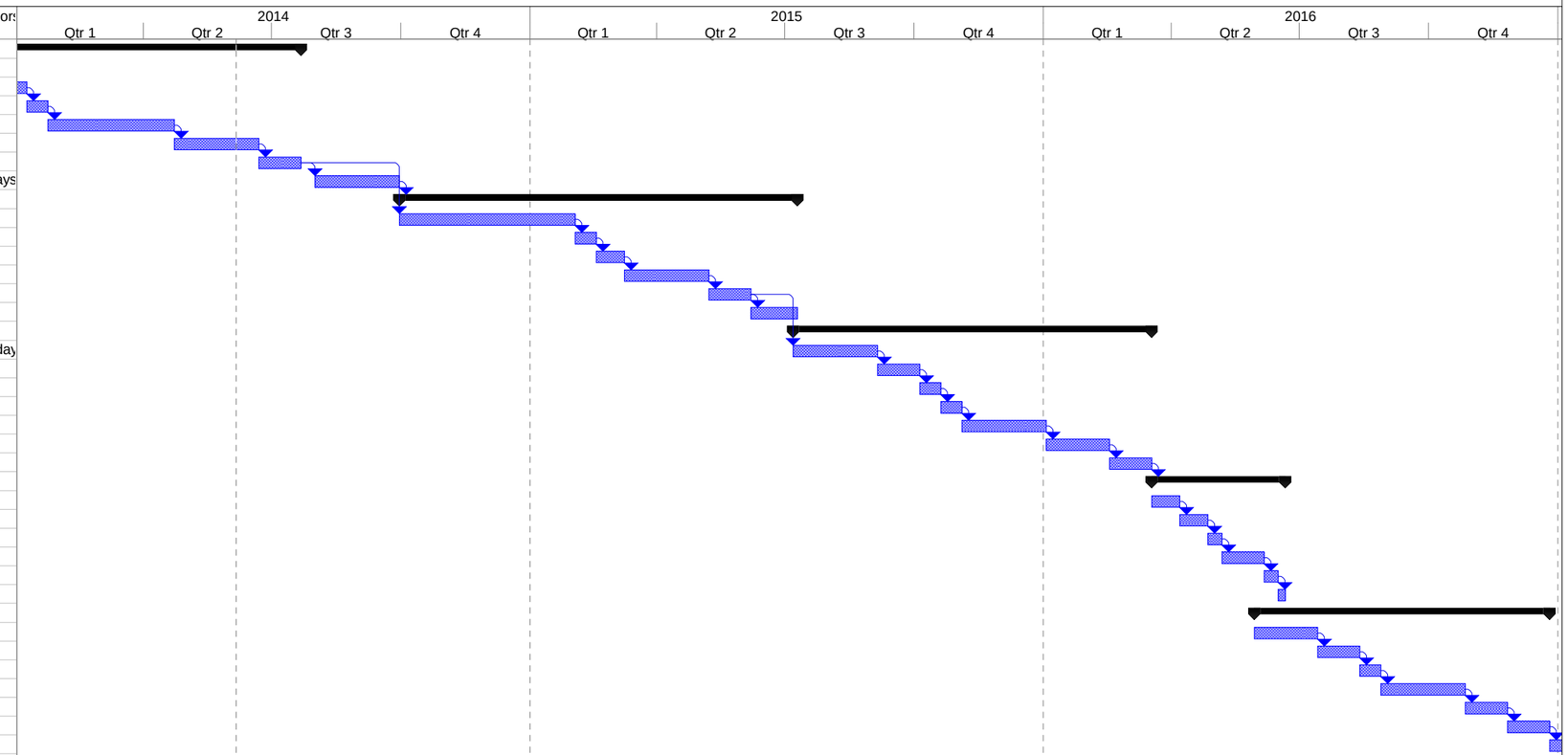
ID	Task Name	Duration	Start	Finish
44	Navy Review	15 days	Sat 8/6/16	Sat 8/20/16
45	Issue Draft ROD	30 days	Sun 8/21/16	Mon 9/19/16
46	Regulatory / Legal Review	60 days	Tue 9/20/16	Fri 11/18/16
47	Issue Draft Final RD	30 days	Sat 11/19/16	Sun 12/18/16
48	Issue ROD for Signature	30 days	Mon 12/19/16	Tue 1/17/17
49	**LUC RD**	**165 days**	**Wed 1/18/17**	**Sat 7/1/17**
50	Preliminary LUC RD	15 days	Wed 1/18/17	Wed 2/1/17
51	Gov't Comments	15 days	Thu 2/2/17	Thu 2/16/17
52	Issue Draft LUC RD	15 days	Fri 2/17/17	Fri 3/3/17
53	Regulatory Review	60 days	Sat 3/4/17	Tue 5/2/17
54	Issue Draft Final LUC RD	30 days	Wed 5/3/17	Thu 6/1/17
55	Issue Final LUC RD	30 days	Fri 6/2/17	Sat 7/1/17
56	**RD**	**180 days**	**Thu 1/19/17**	**Mon 7/17/17**
57	Preliminary RD	15 days	Thu 1/19/17	Thu 2/2/17
58	Gov't Comments	30 days	Fri 2/3/17	Sat 3/4/17
59	Issue Draft RD	15 days	Sun 3/5/17	Sun 3/19/17
60	Regulatory Review	60 days	Mon 3/20/17	Thu 5/18/17
61	Issue Draft Final RD	30 days	Fri 5/19/17	Sat 6/17/17
62	Issue Final RD	30 days	Sun 6/18/17	Mon 7/17/17
63	**RA Work Plan & HASP**	**210 days**	**Sun 6/18/17**	**Sat 1/13/18**
64	Preliminary Work Plan & HASP	45 days	Sun 6/18/17	Tue 8/1/17
65	Gov't Comments	30 days	Wed 8/2/17	Thu 8/31/17
66	Issue Draft Work Plan	15 days	Fri 9/1/17	Fri 9/15/17
67	Regulatory Review	60 days	Sat 9/16/17	Tue 11/14/17
68	Issue Draft Final Work Plan	30 days	Wed 11/15/17	Thu 12/14/17
69	Issue Final Work Plan	30 days	Fri 12/15/17	Sat 1/13/18
70	**Remedial Action Fieldwork**	**55 days**	**Mon 3/5/18**	**Sat 4/28/18**
72	**CCR**	**240 days**	**Sun 4/29/18**	**Mon 12/24/18**
79	**Groundwater LTM WP & HASP**	**210 days**	**Tue 12/25/18**	**Mon 7/22/19**
85	**Groundwater LTM Report**	**210 days**	**Tue 7/23/19**	**Mon 2/17/20**
92	**RACR**	**195 days**	**Tue 2/18/20**	**Sun 8/30/20**



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

Schedule 3-14
Site 33 SMP FY15-16

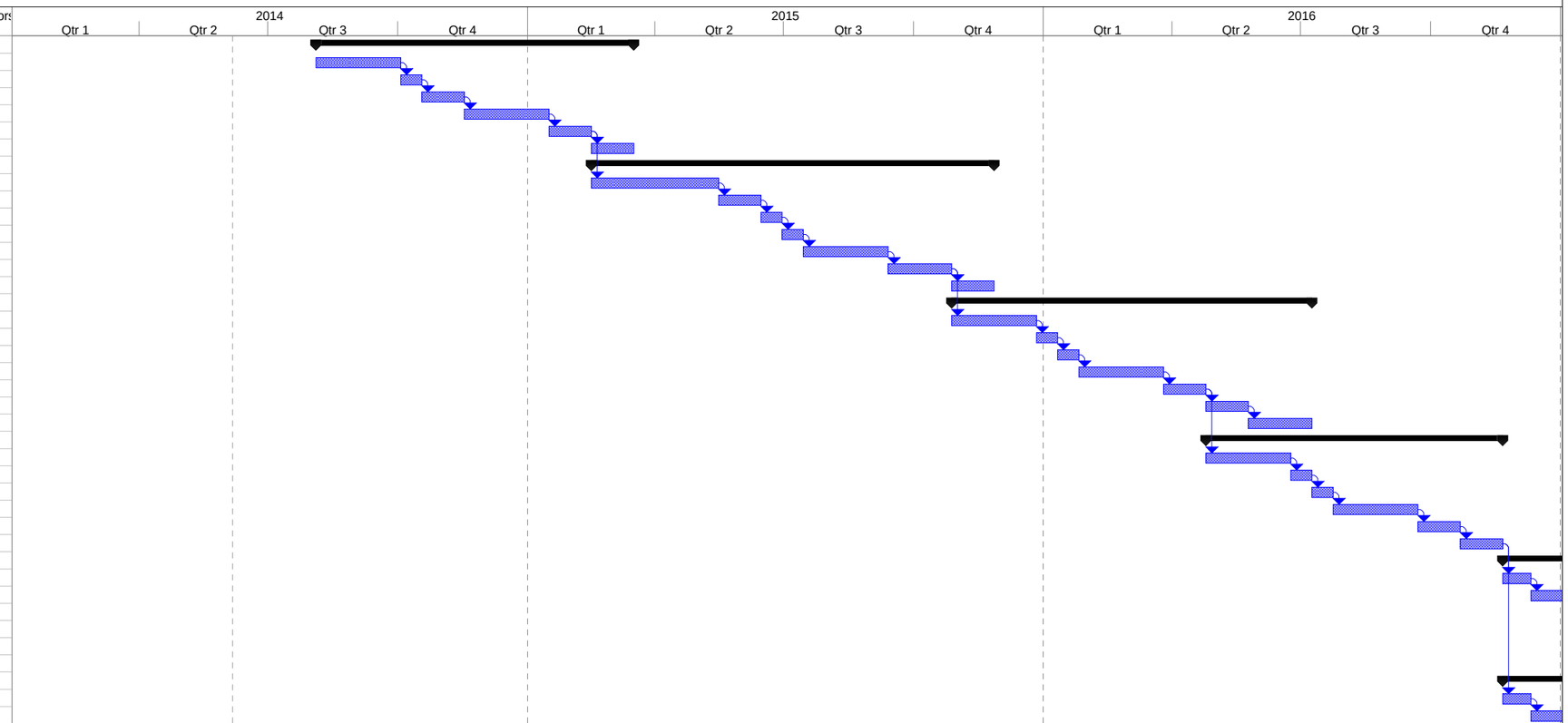
ID	Task Name	Duration	Start	Finish	Predecessors
1	**SI SAP**	**355 days**	**Thu 8/1/13**	**Mon 7/21/14**	
2	Preliminary WP Preparation	130 days	Thu 8/1/13	Sun 12/8/13	
3	Gov't Comments	30 days	Mon 12/9/13	Tue 1/7/14	2
4	Issue Draft WP	15 days	Wed 1/8/14	Wed 1/22/14	3
5	Regulatory Review	90 days	Thu 1/23/14	Tue 4/22/14	4
6	Issue Draft Final WP	60 days	Wed 4/23/14	Sat 6/21/14	5
7	Issue Final WP	30 days	Sun 6/22/14	Mon 7/21/14	6
8	SI Field Investigation	60 days	Fri 8/1/14	Mon 9/29/14	7FS+10 days
9	**SI Report for GW**	**283 days**	**Tue 9/30/14**	**Thu 7/9/15**	**8**
10	Preliminary RI Report	125 days	Tue 9/30/14	Sun 2/1/15	7
11	Gov't Comments	15 days	Mon 2/2/15	Mon 2/16/15	10
12	Issue Draft RI Report	20 days	Tue 2/17/15	Sun 3/8/15	11
13	Regulatory Review	60 days	Mon 3/9/15	Thu 5/7/15	12
14	Issue Draft Final RI Report	30 days	Fri 5/8/15	Sat 6/6/15	13
15	Issue Final RI report	33 days	Sun 6/7/15	Thu 7/9/15	14
16	**EE/CA**	**255 days**	**Tue 7/7/15**	**Thu 3/17/16**	
17	RAA	60 days	Tue 7/7/15	Fri 9/4/15	14FS+30 day
18	Preliminary EE/CA	30 days	Sat 9/5/15	Sun 10/4/15	17
19	Gov't Comments	15 days	Mon 10/5/15	Mon 10/19/15	18
20	Issue Draft EE/CA	15 days	Tue 10/20/15	Tue 11/3/15	19
21	Regulatory Review	60 days	Wed 11/4/15	Sat 1/2/16	20
22	Issue Draft Final EE/CA	45 days	Sun 1/3/16	Tue 2/16/16	21
23	Issue Final EE/CA	30 days	Wed 2/17/16	Thu 3/17/16	22
24	**AM**	**95 days**	**Fri 3/18/16**	**Mon 6/20/16**	**23**
25	Preliminary AM	20 days	Fri 3/18/16	Wed 4/6/16	
26	Gov't Comments	20 days	Thu 4/7/16	Tue 4/26/16	25
27	Issue Draft AM	10 days	Wed 4/27/16	Fri 5/6/16	26
28	Regulatory Review	30 days	Sat 5/7/16	Sun 6/5/16	27
29	issue Draft Final AM	10 days	Mon 6/6/16	Wed 6/15/16	28
30	Issue Final AM	5 days	Thu 6/16/16	Mon 6/20/16	29
31	**Removal Action Work Plan & HASP**	**210 days**	**Mon 5/30/16**	**Sun 12/25/16**	
32	Preliminary Work Plan	45 days	Mon 5/30/16	Wed 7/13/16	
33	Gov't Comments	30 days	Thu 7/14/16	Fri 8/12/16	32
34	Issue Draft Work Plan & HASP	15 days	Sat 8/13/16	Sat 8/27/16	33
35	Regulatory Review	60 days	Sun 8/28/16	Wed 10/26/16	34
36	Issue Draft Final Work Plan	30 days	Thu 10/27/16	Fri 11/25/16	35
37	Issue Final Work Plan	30 days	Sat 11/26/16	Sun 12/25/16	36
38	Removal Action Field Work	60 days	Mon 12/26/16	Thu 2/23/17	37
39	**Construction Completion Report**	**260 days**	**Fri 2/24/17**	**Fri 11/10/17**	
40	Preliminary CCR	110 days	Fri 2/24/17	Tue 6/13/17	38
41	Gov't Comments	15 days	Wed 6/14/17	Wed 6/28/17	40
42	Issue Draft CCR	30 days	Thu 6/29/17	Fri 7/28/17	41
43	Regulatory Review	45 days	Sat 7/29/17	Mon 9/11/17	42
44	Issue Draft Final CCR	30 days	Tue 9/12/17	Wed 10/11/17	43
45	Issue Final CCR	30 days	Thu 10/12/17	Fri 11/10/17	44
46	**NFA Decision Document**	**295 days**	**Sat 7/29/17**	**Sat 5/19/18**	
47	Preliminary NFA Decision Document	130 days	Sat 7/29/17	Tue 12/5/17	42
48	Navy Review	15 days	Wed 12/6/17	Wed 12/20/17	47
49	Issue Draft ROD	30 days	Thu 12/21/17	Fri 1/19/18	48
50	Regulatory / Legal Review	60 days	Sat 1/20/18	Tue 3/20/18	49
51	Issue Draft Final Decision Document	30 days	Wed 3/21/18	Thu 4/19/18	50
52	Issue NFA Decision Document for Signature	30 days	Fri 4/20/18	Sat 5/19/18	51



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

Schedule 3-15
Site 34 SMP FY15-16

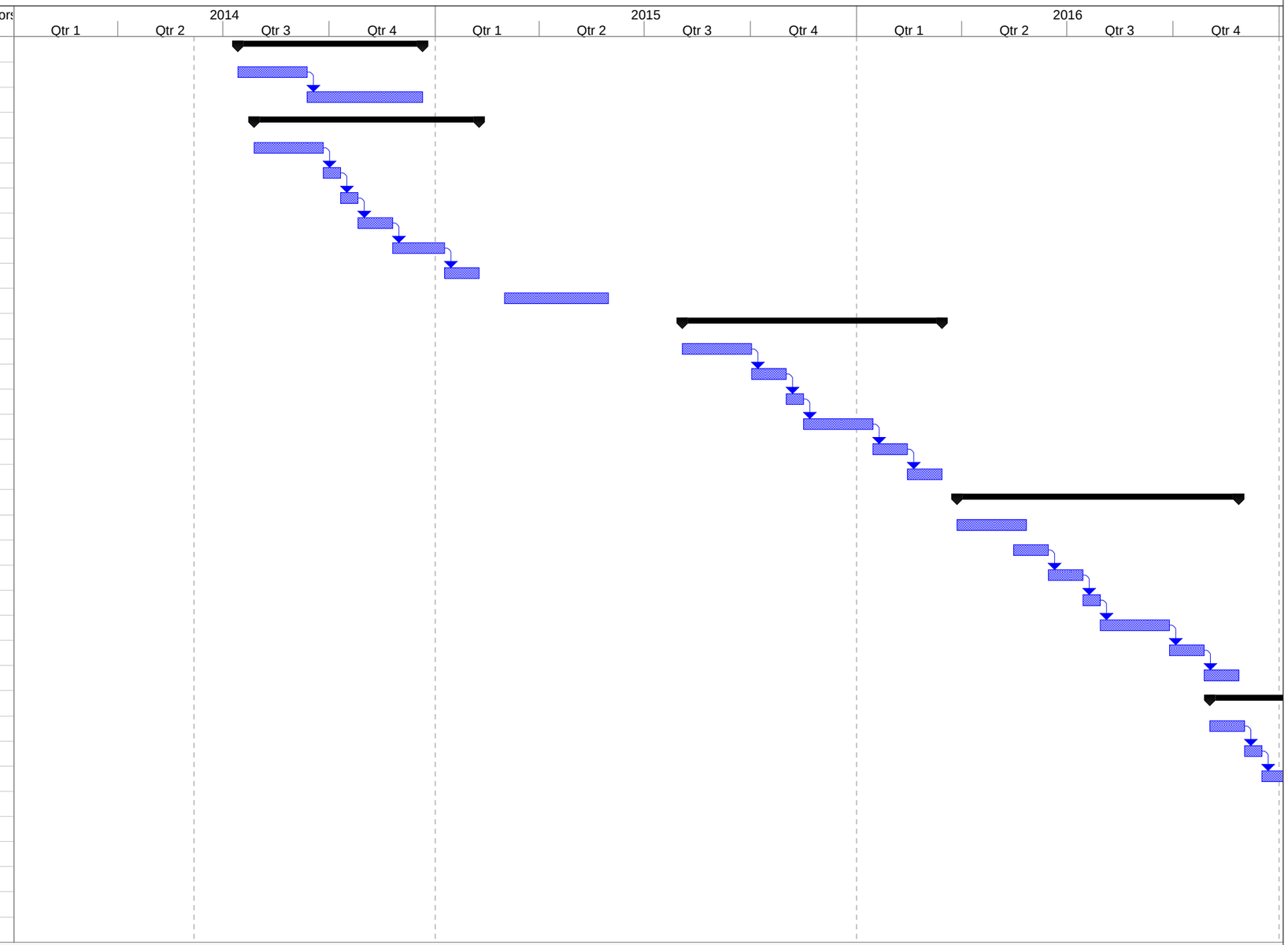
ID	Task Name	Duration	Start	Finish	Predecessors
1	**Data Gap Report**	**225 days**	**Mon 8/4/14**	**Mon 3/16/15**	
2	Preliminary Report	60 days	Mon 8/4/14	Thu 10/2/14	
3	Gov't Comments	15 days	Fri 10/3/14	Fri 10/17/14	2
4	Issue Draft Report	30 days	Sat 10/18/14	Sun 11/16/14	3
5	Regulatory Review	60 days	Mon 11/17/14	Thu 1/15/15	4
6	Issue Draft Final Report	30 days	Fri 1/16/15	Sat 2/14/15	5
7	Issue Final Report	30 days	Sun 2/15/15	Mon 3/16/15	6
8	**FS Report**	**285 days**	**Sun 2/15/15**	**Thu 11/26/15**	
9	RAA	90 days	Sun 2/15/15	Fri 5/15/15	6
10	Preliminary FS	30 days	Sat 5/16/15	Sun 6/14/15	9
11	Gov't Comments	15 days	Mon 6/15/15	Mon 6/29/15	10
12	Issue Draft FS	15 days	Tue 6/30/15	Tue 7/14/15	11
13	Regulatory Review	60 days	Wed 7/15/15	Sat 9/12/15	12
14	Issue Draft Final FS	45 days	Sun 9/13/15	Tue 10/27/15	13
15	Issue Final FS	30 days	Wed 10/28/15	Thu 11/26/15	14
16	**PP (all media)**	**255 days**	**Wed 10/28/15**	**Fri 7/8/16**	
17	Preliminary PP	60 days	Wed 10/28/15	Sat 12/26/15	14
18	Navy Review	15 days	Sun 12/27/15	Sun 1/10/16	17
19	Issue Draft PP	15 days	Mon 1/11/16	Mon 1/25/16	18
20	Regulatory / Legal Review	60 days	Tue 1/26/16	Fri 3/25/16	19
21	Issue Draft Final PP	30 days	Sat 3/26/16	Sun 4/24/16	20
22	Issue Final PP	30 days	Mon 4/25/16	Tue 5/24/16	21
23	Public Comment Period	45 days	Wed 5/25/16	Fri 7/8/16	22
24	**ROD (all media)**	**210 days**	**Mon 4/25/16**	**Sun 11/20/16**	
25	Preliminary ROD	60 days	Mon 4/25/16	Thu 6/23/16	21
26	Navy Review	15 days	Fri 6/24/16	Fri 7/8/16	25
27	Issue Draft ROD	15 days	Sat 7/9/16	Sat 7/23/16	26
28	Regulatory / Legal Review	60 days	Sun 7/24/16	Wed 9/21/16	27
29	Issue Draft Final ROD	30 days	Thu 9/22/16	Fri 10/21/16	28
30	Issue ROD for Signature	30 days	Sat 10/22/16	Sun 11/20/16	29
31	**LUC RD**	**184 days**	**Mon 11/21/16**	**Tue 5/23/17**	
32	Preliminary LUC RD	20 days	Mon 11/21/16	Sat 12/10/16	30
33	Gov't Comments	30 days	Sun 12/11/16	Mon 1/9/17	32
34	Issue Draft RD	14 days	Tue 1/10/17	Mon 1/23/17	33
35	Regulatory Review	60 days	Tue 1/24/17	Fri 3/24/17	34
36	Issue Draft Final RD	30 days	Sat 3/25/17	Sun 4/23/17	35
37	Issue Final RD	30 days	Mon 4/24/17	Tue 5/23/17	36
38	**RD**	**184 days**	**Mon 11/21/16**	**Tue 5/23/17**	
39	Preliminary RD	20 days	Mon 11/21/16	Sat 12/10/16	30
40	Gov't Comments	30 days	Sun 12/11/16	Mon 1/9/17	39
41	Issue Draft RD	14 days	Tue 1/10/17	Mon 1/23/17	40
42	Regulatory Review	60 days	Tue 1/24/17	Fri 3/24/17	41
43	Issue Draft Final RD	30 days	Sat 3/25/17	Sun 4/23/17	42
44	Issue Final RD	30 days	Mon 4/24/17	Tue 5/23/17	43
45	**RA Work Plan**	**180 days**	**Wed 5/24/17**	**Sun 11/19/17**	
46	Preliminary Work Plan	30 days	Wed 5/24/17	Thu 6/22/17	44
47	Gov't Comments	15 days	Fri 6/23/17	Fri 7/7/17	46
48	Issue Draft Work Plan	15 days	Sat 7/8/17	Sat 7/22/17	47
49	Regulatory Review	60 days	Sun 7/23/17	Wed 9/20/17	48
50	Issue Draft Final Work Plan	30 days	Thu 9/21/17	Fri 10/20/17	49
51	Issue Final Work Plan	30 days	Sat 10/21/17	Sun 11/19/17	50
52	Remedial Action Fieldwork	45 days	Sun 1/7/18	Tue 2/20/18	51
53	**CCR**	**240 days**	**Wed 2/21/18**	**Thu 10/18/18**	**52**
60	**Groundwater LTM WP & HASP**	**215 days**	**Fri 10/19/18**	**Tue 5/21/19**	
66	**Groundwater LTM Report**	**210 days**	**Sat 8/24/19**	**Fri 3/20/20**	**65**
71	**RACR**	**180 days**	**Sat 3/21/20**	**Wed 9/16/20**	**66**



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

Schedule 3-16
UXO-2 SMP FY15-16

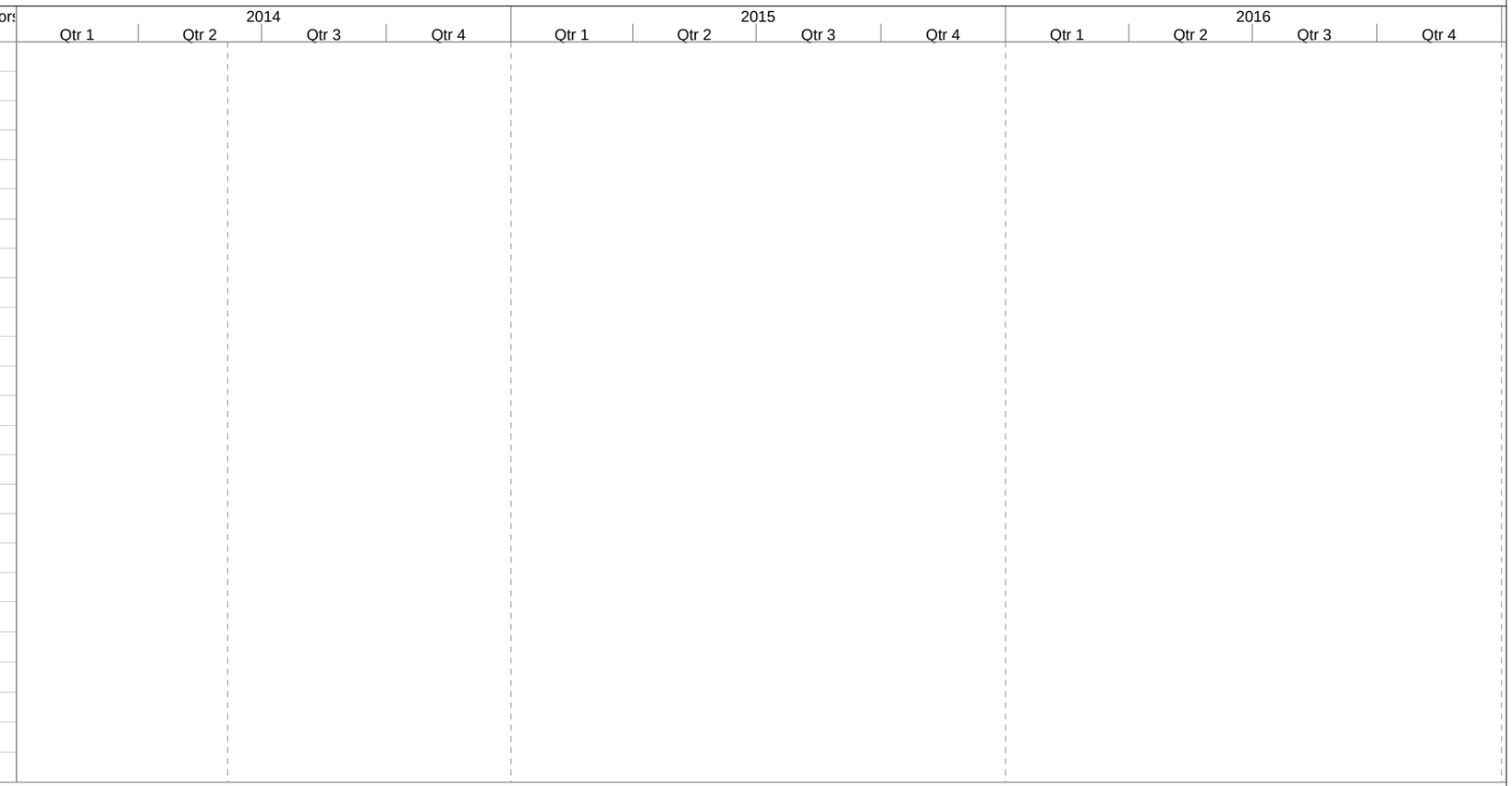
ID	Task Name	Duration	Start	Finish	Predecessors
1	**ESS**	**160 days**	**Mon 7/14/14**	**Sat 12/20/14**	
2	Draft	60 days	Mon 7/14/14	Thu 9/11/14	
3	Final	100 days	Fri 9/12/14	Sat 12/20/14	2
4	**RI Work Plan & HASP**	**195 days**	**Mon 7/28/14**	**Sat 2/7/15**	
5	Pre-Draft WP	60 days	Mon 7/28/14	Thu 9/25/14	
6	Navy Review	15 days	Fri 9/26/14	Fri 10/10/14	5
7	Issue Draft WP	15 days	Sat 10/11/14	Sat 10/25/14	6
8	Regulatory Review	30 days	Sun 10/26/14	Mon 11/24/14	7
9	Issue Draft Final WP	45 days	Tue 11/25/14	Thu 1/8/15	8
10	Issue Final WP	30 days	Fri 1/9/15	Sat 2/7/15	9
11	RI Fieldwork	90 days	Mon 3/2/15	Sat 5/30/15	
12	**RI Report**	**225 days**	**Mon 8/3/15**	**Mon 3/14/16**	
13	Pre-Draft Report	60 days	Mon 8/3/15	Thu 10/1/15	
14	Navy Review	30 days	Fri 10/2/15	Sat 10/31/15	13
15	Draft Report	15 days	Sun 11/1/15	Sun 11/15/15	14
16	Regulatory Review	60 days	Mon 11/16/15	Thu 1/14/16	15
17	Issue Draft Final	30 days	Fri 1/15/16	Sat 2/13/16	16
18	Issue Final	30 days	Sun 2/14/16	Mon 3/14/16	17
19	**FS Report**	**244 days**	**Mon 3/28/16**	**Sat 11/26/16**	
20	RAA	60 days	Mon 3/28/16	Thu 5/26/16	
21	Preliminary FS	30 days	Mon 5/16/16	Tue 6/14/16	
22	Navy Review	30 days	Wed 6/15/16	Thu 7/14/16	21
23	Issue Draft FS	15 days	Fri 7/15/16	Fri 7/29/16	22
24	Regulatory Review	60 days	Sat 7/30/16	Tue 9/27/16	23
25	Issue Draft Final FS	30 days	Wed 9/28/16	Thu 10/27/16	24
26	Issue Final FS	30 days	Fri 10/28/16	Sat 11/26/16	25
27	**PP**	**240 days**	**Wed 11/2/16**	**Thu 6/29/17**	
28	Preliminary PP	30 days	Wed 11/2/16	Thu 12/1/16	
29	Gov't Comments	15 days	Fri 12/2/16	Fri 12/16/16	28
30	Issue Draft PP	30 days	Sat 12/17/16	Sun 1/15/17	29
31	Regulatory / Legal Review	60 days	Mon 1/16/17	Thu 3/16/17	30
32	Issue Draft Final PP	30 days	Fri 3/17/17	Sat 4/15/17	31
33	Issue Final PP	30 days	Sun 4/16/17	Mon 5/15/17	32
34	Public Comment Period	45 days	Tue 5/16/17	Thu 6/29/17	33
35	**ROD**	**215 days**	**Sun 4/16/17**	**Thu 11/16/17**	
36	Preliminary ROD	60 days	Sun 4/16/17	Wed 6/14/17	32



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

Schedule 3-16
UXO-2 SMP FY15-16

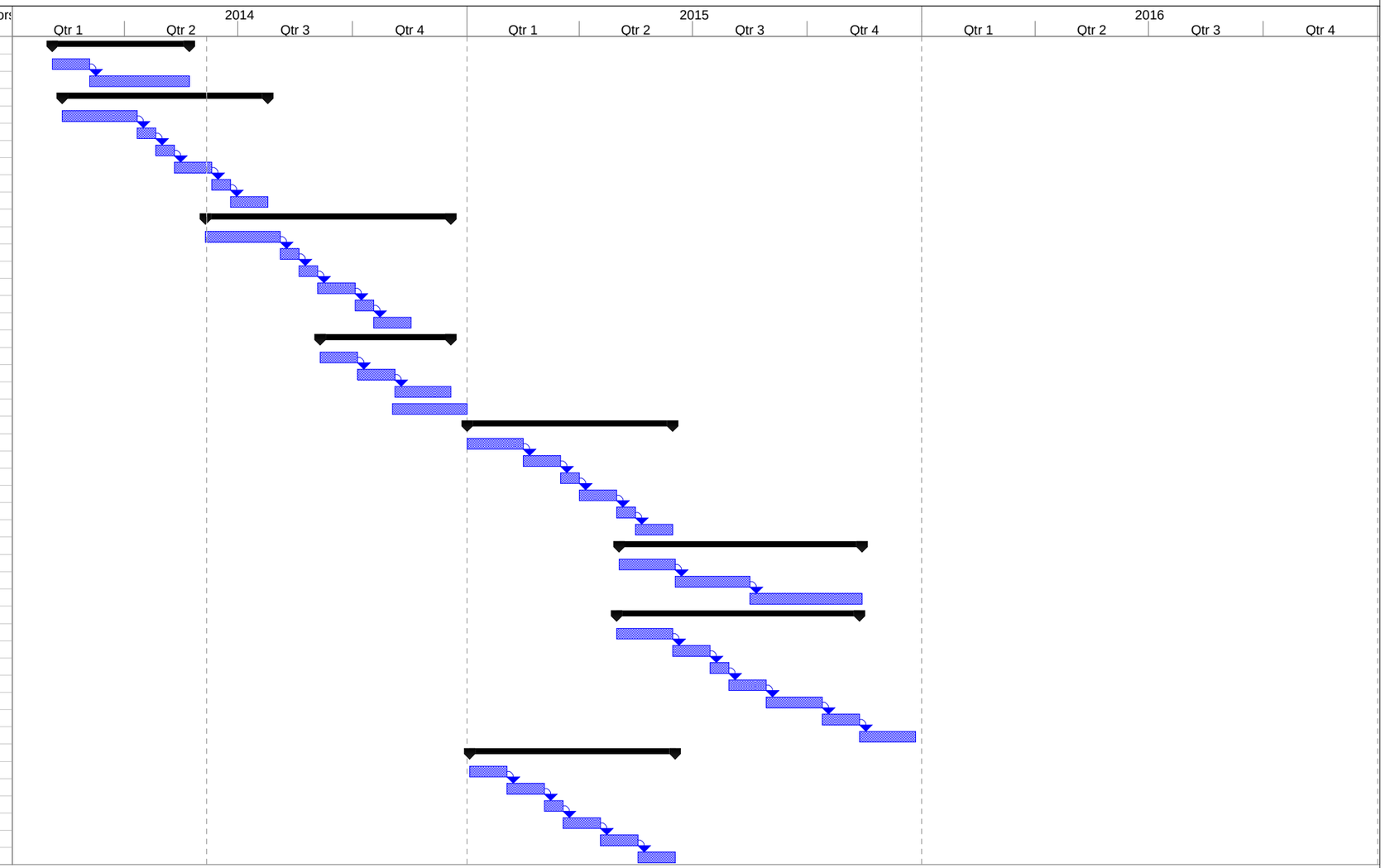
ID	Task Name	Duration	Start	Finish	Predecessors
37	Navy Review	30 days	Thu 6/15/17	Fri 7/14/17	36
38	Issue Draft ROD	15 days	Sat 7/15/17	Sat 7/29/17	37
39	Regulatory / Legal Review	60 days	Sun 7/30/17	Wed 9/27/17	38
40	Issue Draft Final ROD	20 days	Thu 9/28/17	Tue 10/17/17	39
41	Issue ROD for Signature	30 days	Wed 10/18/17	Thu 11/16/17	40
42	**LUC RD (final)**	**180 days**	**Fri 11/17/17**	**Tue 5/15/18**	
43	Preliminary LUC RD	30 days	Fri 11/17/17	Sat 12/16/17	41
44	Navy Review	15 days	Sun 12/17/17	Sun 12/31/17	43
45	Issue Draft LUC RD	30 days	Mon 1/1/18	Tue 1/30/18	44
46	Regulatory / Legal Review	45 days	Wed 1/31/18	Fri 3/16/18	45
47	Issue Draft Final LUC RD	30 days	Sat 3/17/18	Sun 4/15/18	46
48	Issue Final LUC RD	30 days	Mon 4/16/18	Tue 5/15/18	47
49	**RA Design**	**180 days**	**Fri 11/17/17**	**Tue 5/15/18**	**41**
50	Preliminary RA Design	30 days	Fri 11/17/17	Sat 12/16/17	
51	Navy Review	15 days	Sun 12/17/17	Sun 12/31/17	50
52	Issue Draft RA Design	15 days	Mon 1/1/18	Mon 1/15/18	51
53	Regulatory Review	60 days	Tue 1/16/18	Fri 3/16/18	52
54	Issue Draft Final RA Design	30 days	Sat 3/17/18	Sun 4/15/18	53
55	Final RA Design	30 days	Mon 4/16/18	Tue 5/15/18	54
56	**ESS**	**160 days**	**Tue 4/3/18**	**Sun 9/9/18**	
59	**RA Work Plan**	**285 days**	**Wed 5/16/18**	**Sun 2/24/19**	**55**
67	**CCR**	**250 days**	**Mon 2/25/19**	**Fri 11/1/19**	**66**
74	**Groundwater LTM WP & HASP**	**240 days**	**Sat 11/2/19**	**Sun 6/28/20**	
80	**Groundwater LTM Report**	**200 days**	**Mon 10/12/20**	**Thu 4/29/21**	
87	**RACR**	**165 days**	**Fri 4/30/21**	**Mon 10/11/21**	**86**



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

Schedule 3-17
UXO-3 SMP FY15-16

ID	Task Name	Duration	Start	Finish	Predecessors
1	**PA Prioritization Score**	**110 days**	**Sun 2/2/14**	**Thu 5/22/14**	
2	Load score for QA Panel Review	30 days	Sun 2/2/14	Mon 3/3/14	
3	QA Panel Feedback	80 days	Tue 3/4/14	Thu 5/22/14	2
4	**SI Results Report**	**165 days**	**Mon 2/10/14**	**Thu 7/24/14**	
5	Pre-Draft Results Report	60 days	Mon 2/10/14	Thu 4/10/14	
6	Navy Review	15 days	Fri 4/11/14	Fri 4/25/14	5
7	Draft Results Report	15 days	Sat 4/26/14	Sat 5/10/14	6
8	Regulatory Review	30 days	Sun 5/11/14	Mon 6/9/14	7
9	Issue Draft Final	15 days	Tue 6/10/14	Tue 6/24/14	8
10	Issue Final	30 days	Wed 6/25/14	Thu 7/24/14	9
11	**SI Phase 1c Work Plan**	**197 days**	**Thu 6/5/14**	**Thu 12/18/14**	
12	Pre-Draft WP Preparation	60 days	Thu 6/5/14	Sun 8/3/14	
13	Navy Review	15 days	Mon 8/4/14	Mon 8/18/14	12
14	Issue Draft WP	15 days	Tue 8/19/14	Tue 9/2/14	13
15	Regulatory Review	30 days	Wed 9/3/14	Thu 10/2/14	14
16	Issue Draft Final WP	15 days	Fri 10/3/14	Fri 10/17/14	15
17	Issue Final WP	30 days	Sat 10/18/14	Sun 11/16/14	16
18	**ESS-DR**	**105 days**	**Fri 9/5/14**	**Thu 12/18/14**	
19	Pre-Draft ESS	30 days	Fri 9/5/14	Sat 10/4/14	
20	Draft ESS	30 days	Sun 10/5/14	Mon 11/3/14	19
21	Final ESS	45 days	Tue 11/4/14	Thu 12/18/14	20
22	SI Fieldwork	60 days	Sun 11/2/14	Wed 12/31/14	
23	**SI Phase 1c Results Report**	**165 days**	**Thu 1/1/15**	**Sun 6/14/15**	
24	Preliminary SI Report	45 days	Thu 1/1/15	Sat 2/14/15	
25	Gov't Comments	30 days	Sun 2/15/15	Mon 3/16/15	24
26	Issue Draft SI Report	15 days	Tue 3/17/15	Tue 3/31/15	25
27	Regulatory Review	30 days	Wed 4/1/15	Thu 4/30/15	26
28	Issue Draft Final SI Report	15 days	Fri 5/1/15	Fri 5/15/15	27
29	Issue Final SI report	30 days	Sat 5/16/15	Sun 6/14/15	28
30	**ESS**	**195 days**	**Sun 5/3/15**	**Fri 11/13/15**	
31	Pre-Draft	45 days	Sun 5/3/15	Tue 6/16/15	
32	Draft	60 days	Wed 6/17/15	Sat 8/15/15	31
33	Final	90 days	Sun 8/16/15	Fri 11/13/15	32
34	**SI Work Plan Addendum & HASP**	**195 days**	**Fri 5/1/15**	**Wed 11/11/15**	
35	Pre-Draft WP	45 days	Fri 5/1/15	Sun 6/14/15	
36	Navy Review	30 days	Mon 6/15/15	Tue 7/14/15	35
37	Draft WP	15 days	Wed 7/15/15	Wed 7/29/15	36
38	Regulatory Review	30 days	Thu 7/30/15	Fri 8/28/15	37
39	Issue Draft Final WP	45 days	Sat 8/29/15	Mon 10/12/15	38
40	Issue Final WP	30 days	Tue 10/13/15	Wed 11/11/15	39
41	SI Fieldwork	45 days	Thu 11/12/15	Sat 12/26/15	40
42	**SI Phase 2 Report**	**165 days**	**Sat 1/3/15**	**Tue 6/16/15**	
43	Preliminary SI Report	30 days	Sat 1/3/15	Sun 2/1/15	
44	Gov't Comments	30 days	Mon 2/2/15	Tue 3/3/15	43
45	Issue Draft SI Report	15 days	Wed 3/4/15	Wed 3/18/15	44
46	Regulatory Review	30 days	Thu 3/19/15	Fri 4/17/15	45
47	Issue Draft Final SI Report	30 days	Sat 4/18/15	Sun 5/17/15	46
48	Issue Final SI report	30 days	Mon 5/18/15	Tue 6/16/15	47



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

SECTION 4

Land Use Planning

Sites with LUCs and the boundaries of potential environmental impact areas are shown on **Figure 4-1**. Annual LUC inspections are conducted at each of the sites with LUCs to insure they are being maintained. The following LUCs are in place:

- Site 1 – Dudley Road Landfill: Prohibit disturbance of soil cover and residential land use
- Site 6 – Explosive Impoundment, Flume Area and Excavation Area: Prohibit residential land use in the Impoundment and Flume Areas and disturbance of the soil cover in the Excavated Area
- Site 7 – Plant 3 Explosives-Contaminated Wastewater Discharge Area: Prohibit residential land use within the drainage area
- Site 12 – Barracks Road Landfill: Prohibit disturbance of the soil cover and residential land use, and restrict groundwater use
- Site 19 – Conveyor Belt Soils at Building 10: Prohibit disturbance of the soil cover and residential use within the former conveyor belt removal area
- Site 22 – Burn Pad: Restrict groundwater use

R:\USNAVFACENGCOM405450\400210YORKTOWN\MAPFILES\SMP\FY 2015 16\EMBEDDED\FIGURE 4-1 - LUC BOUNDARY MAP.MXD CBOWMAN 4/30/2014 2:19:42 PM

Legend

- Soil LUC Boundary
- Groundwater LUC Boundary
- WPNSTA Boundary

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Figure 4-1
WPNSTA LUC Boundary Map
Site Management Plan for FY 2015 to 2016
WPNSTA Yorktown
Yorktown, Virginia

CH2MHILL

SECTION 5

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