

EXHIBIT 9. ISSUES, RECOMMENDATIONS, AND FOLLOW-UP ACTIONS

Toolkit Tip ■ ■ ■

Identify any issues, recommendations, and follow-up actions that affect current or future protectiveness.

General operations and maintenance activities that do not affect protectiveness should not be included.

Tables and figures, with photographic support, can be useful tools in consolidating information.

When presenting issues and recommendations specify:

- Whether current and/or future protectiveness is affected
- Responsible party
- Oversight agency
- Milestone dates

When developing milestones, communicate with stakeholders to ensure reasonable and obtainable milestones are set.

Issues	Affects Protectiveness (Y/N)		Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date
	Current	Future				
Sinkhole identified in soil cover	N	Y	Repair soil cover and revisit the operations and maintenance plan for cover inspections.	Navy	EPA/State	May 2012
LUCs do not encompass extent of groundwater contamination	Y	Y	Revise the LUC boundary to encompass extent of contaminated groundwater.	Navy	EPA/State	September 2013
Cleanup levels have changed since the ROD	N	Y	Update groundwater COCs and cleanup levels to reflect recent standards.	Navy	EPA/State	September 2012
Perimeter fence damaged by fallen tree	Y	Y	Repair fence.	Navy/Base	EPA/State	May 2012
Potential for vapor intrusion pathway	N	Y	Evaluate and mitigate vapor intrusion pathway during construction planning.	Navy/Base	EPA/State	Ongoing

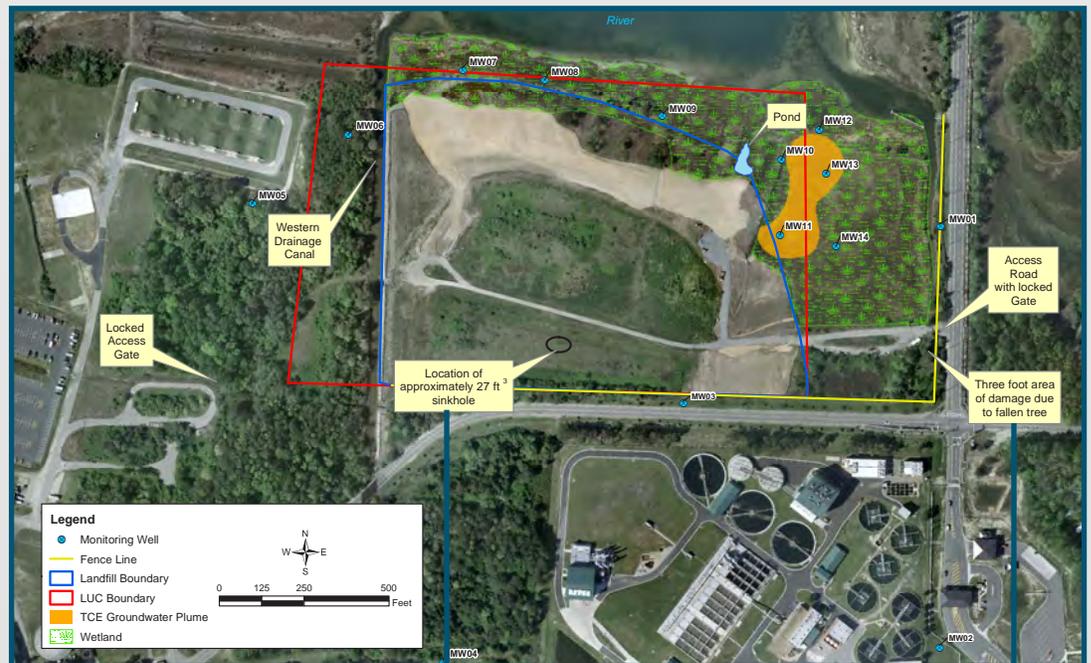


EXHIBIT 10. PROTECTIVENESS STATEMENTS

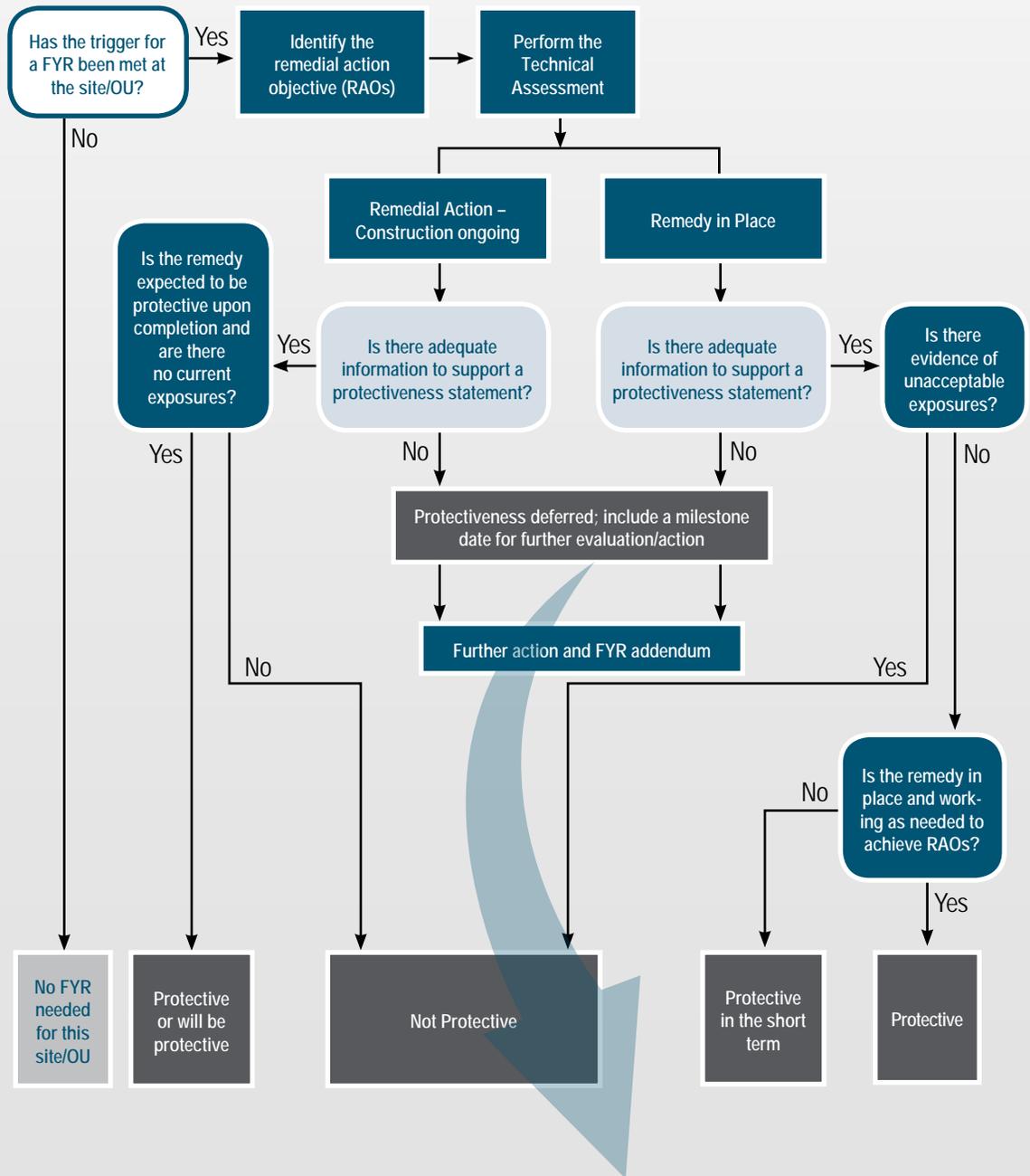
Toolkit Tip ■ ■ ■

Include a protectiveness statement for each Site/Operable Unit (OU) at which a Record of Decision is in-place, the site is not available for unlimited use and unrestricted exposure, and the remedial action (RA) has been initiated.

For installations where construction is complete, also issue one installation-wide protectiveness statement covering all remedies that do not allow for unlimited use and unrestricted exposure.

Model your protectiveness statements on the examples provided in Tables 4-6 and 4-7 of the Environmental Protection Agency's (EPA's) *Comprehensive Five-Year Review (FYR) Guidance* (June 2001).

Use the graphic flowchart in this exhibit to help determine the type of protectiveness statement to issue.



NOTE There are some cases where protectiveness may need to be deferred. For example, a deferred protectiveness statement may be required if a volatile organic compound plume is located immediately beneath a building above screening criteria, there is clear evidence the vapor intrusion pathway is complete (e.g., floor cracks, low air exchange rate, negative building pressure), and the risks associated with vapor intrusion have not been evaluated. If protectiveness is deferred, include a milestone date to complete the further evaluation and FYR addendum. Per Navy Policy, the addendum must be completed within one year, unless an alternate timeline is approved by NAVFAC Headquarters.

EXHIBIT 11. COMMUNITY INVOLVEMENT

Toolkit Tip ■ ■ ■

Community involvement is a key aspect of the Five-Year Review (FYR) process and includes:

- Notifying the community that the FYR will be conducted and when it has been initiated and completed
- Conducting interviews with community stakeholders
- Providing the results in the information repository

Community notification requirements during the FYR are described in Exhibit 3-2 of Environmental Protection Agency's (EPA's) *Comprehensive FYR Guidance* (June 2001).

Where land use controls are involved, interviews with local implementing organizations, land owners, and governments may be required to evaluate protectiveness. Where interviews indicate an issue that potentially affects protectiveness, the FYR should discuss and resolve them.

For higher profile sites or installations with significant public interest, consider developing a communication strategy. Consult EPA's *Superfund Community Involvement Handbook and Toolkit* (April 2005). Risk communication assistance is also available from the Navy and Marine Corps Public Health Center. EPA and DoD are developing training materials and fact sheet templates for conducting Five-Year Reviews. Go to <http://www.epa.gov/fedfac/fyr.htm> for additional information.

Public Notices

PUBLIC NOTICE
Completion of Five-Year Review of Remedial Actions at Marine Corps Base Camp Lejeune, North Carolina

The Navy, Marine Corps, US Environmental Protection Agency (EPA) Region 4, and North Carolina Department of Environment and Natural Resources (NCDENR) completed a five-year review of ongoing remedial actions (environmental cleanup) at 16 Operable Units on Marine Corps Base Camp Lejeune. This is the Base's third five-year review.

The purpose of the five-year review is to ensure that remedial actions are providing adequate protection of human health and the environment. The findings of the five-year review were finalized in 2010. All ongoing remedial actions were determined to be protective of human health and the environment.

The Five-Year Review Report and a Fact Sheet are available for public review in the Navy's Administrative Record at the following website and location: <http://go.usa.gov/JZ>.

Onslow Public Library
58 Doris Avenue East
Jacksonville, NC 28540
(910) 455-7350

Members of the public who have questions regarding the five-year review are encouraged to contact the Navy Remedial Project Manager.

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The next five-year review for ongoing remedial actions at Marine Corps Base Camp Lejeune is scheduled for 2015.

NOTE Public notices should be issued at the initiation and completion of the FYR for an installation.

FYR Fact Sheets

Environmental Cleanup at Marine Corps Base Camp Lejeune
Five-Year Review
July 2011

The purpose of a Five-Year Review is to evaluate the effectiveness of remedies and remedial actions for sites with contaminants remaining above levels that allow for unlimited use and unrestricted exposure (UL/UR) and for which there is a Record of Decision (ROD) or Decision Document (DD) in place. The 2007 Five-Year Review was prepared pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121(e) and the National Contingency Plan (NCP). This is the second Five-Year Review for WPNSTA Yorktown and was accomplished through 1) review of various reports and documents pertaining to post-remedy implementation activities; 2) review of existing analytical data and findings and 3) site visits and inspections.

This fact sheet is being distributed to the 2007 Five-Year Review findings.

BACKGROUND

Naval Weapons Station (WPNSTA) Yorktown is a 4,000-acre installation located on the Virginia and James City Counties and the City of Yorktown, Virginia. The mission of WPNSTA is to provide ordnance, technical support, and training to sustain the war-fighting capability of the Fleet Marine Force in support of national military operations. WPNSTA Yorktown supports industrial activities, including ordnance management and storage associated with ordnance support functions including:

- reclamation, storage, and issuance of mines, depth charges, and related materials; ammunition loading; and torpedo overhaul facilities. These historical land uses and practices at WPNSTA Yorktown have resulted in localized areas of contamination of soil, groundwater, surface water, and sediment, which are being evaluated under the Department of Defense's (DoD) Navy Environmental Restoration Program (NERP). WPNSTA Yorktown was added to the National Priorities List (NPL) in October 1992, based on the U.S. Environmental Protection Agency's Hazard Ranking System (HRS).

SITE DESCRIPTIONS

Since the initiation of NERP at WPNSTA Yorktown, the Department of Defense's (DoD's) environmental cleanup program at Marine Corps Base Camp Lejeune. Specifically, the DoD, working in partnership with the U.S. Environmental Protection Agency (USEPA) and the North Carolina Department of Environment and Natural Resources (NCDENR), has just completed a five-year review of ongoing environmental cleanup actions. The purpose of the five-year review is to ensure that current cleanup activities are effectively protecting human health and the environment.

This fact sheet provides an overview of the five-year review, the path forward for each Operable Unit, and information about how you can learn more about the environmental cleanup.

Introduction

Marine Corps Base Camp Lejeune is a military installation near Jacksonville, North Carolina. The Base's mission is to provide ordnance, technical support, and training to sustain the war-fighting capability of the Fleet Marine Force in support of national military operations. WPNSTA Yorktown supports industrial activities, including ordnance management and storage associated with ordnance support functions including:

- reclamation, storage, and issuance of mines, depth charges, and related materials; ammunition loading; and torpedo overhaul facilities. These historical land uses and practices at WPNSTA Yorktown have resulted in localized areas of contamination of soil, groundwater, surface water, and sediment, which are being evaluated under the Department of Defense's (DoD) Navy Environmental Restoration Program (NERP). WPNSTA Yorktown was added to the National Priorities List (NPL) in October 1992, based on the U.S. Environmental Protection Agency's Hazard Ranking System (HRS).

Five-Year Review

The Navy, Marine Corps, US Environmental Protection Agency (EPA) Region 4, and North Carolina Department of Environment and Natural Resources (NCDENR) completed a five-year review of ongoing remedial actions (environmental cleanup) at 16 Operable Units on Marine Corps Base Camp Lejeune. This is the Base's third five-year review.

The purpose of the five-year review is to ensure that remedial actions are providing adequate protection of human health and the environment. The findings of the five-year review were finalized in 2010. All ongoing remedial actions were determined to be protective of human health and the environment.

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Jane Smith
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The next five-year review for ongoing remedial actions at Marine Corps Base Camp Lejeune is scheduled for 2015.

Operable Unit 1 Site Overview

Operable Unit 1 is located within the Hadnot Point Industrial Area (HPIA) on the Mainland of the Base. It consists of three sites (Sites 23, 24, and 28) that have been grouped together because of their proximity to each other in the industrialized portion of the base. Seven of these sites have been identified as sources of groundwater contamination near and under Building 133. The primary contaminants of concern are volatile organic compounds (usually solvents).

Cleanup Activities

Soil vapor extraction (SVE) systems remove harmful chemicals, in the form of vapors, from the soil above the water table. Vapors are the gases that form when chemicals evaporate. The vapors are removed from the ground by applying a vacuum to pull them out.

Soil. An air sparge/soil vapor extraction system began operation in September 1995 to remove volatile organic compounds from the soil. However, evaluation of the system indicated that it was not effectively cleaning up the soil and was not cost effective. Therefore, the system was shut down in February 2005.

NOTE A brief summary or fact sheet can be made available to stakeholders to present the results of the FYR. The summary should include a short description of the remedial action, any deficiencies, recommendations and follow-up actions that are directly related to protectiveness of the remedy, and the determination(s) of whether the remedy is or is expected to be protective of human health and the environment.

EXHIBIT 12. TRACKING MILESTONES

Toolkit Tip ■ ■ ■

Consider developing a summary table to list the installation-wide Five-Year Review (FYR) recommendations by site to help with tracking milestones. This table should be prepared post-FYR and incorporated into the Site Management Plan or other planning documents to ensure that issues and recommendations are tracked, monitored, and implemented.

This table is a good tool for communicating progress with stakeholders and regulators. It can also be useful for development of spending plans to ensure funds are available to address issues within milestone dates.

TABLE 2-1
Summary of Five-Year Review Recommendations and Milestones
FY 2012 Site Management Plan

Issues/Recommendations	Sites/OU						Milestones	Current Status (02/2012)
	OU3		OU5		OU6			
	3	6	16	35	36			
State regulatory standards have been updated since the ROD/Update COCs and cleanup levels for LTM	X	X		X	X		September 2012	Completed as part of LTM UFP-SAP (November 2011)
LTM program was optimized and identified extraneous well locations/Evaluate LTM monitoring well networks and recommend wells for abandonment	X	X		X	X		September 2012	Planned during LTM 2012-2013
Effluent contained elevated concentrations of metals/Complete treatment plant evaluation		X					December 2012	Optimization planned for October 2012
State regulatory standards have been updated since the ROD/Prepare ESD to document change in ARARs	X	X		X	X		May 2013	Planned for 2012-2013, pending funding
Residential cleanup levels were met in northern area of site/Revise LUCs to reflect current conditions			X				December 2013	Planned for 2013 following annual LTM
Treatment system is asymptotic/Evaluate alternative groundwater treatment technologies		X					September 2015	Planned in 2015, following RIP for all sites
Basewide vapor intrusion evaluation conducted and potential future pathways identified/Evaluate and mitigate vapor intrusion pathways during building and construction planning	X	X		X	X		Ongoing	Base Planning maintains current groundwater data and construction projects go through environmental review

NOTE If an issue is directly related to a land use control (LUC) then enter the issue as an inspection deficiency in the Naval Installation Restoration Information Solution (NIRIS) LUC Tracker tool.

EXHIBIT 13. EXECUTIVE SUMMARY

Toolkit Tip ■ ■ ■

Although the executive summary is the first section of the report, it should be the last section that is written. It is important to consider the audience as the executive summary is intended for a general reader.

The executive summary should orient the reader to the installation, sites, and Operable Units (OUs); and distill the technical messages contained in the report. Use a table or figure and the Environmental Protection Agency (EPA) summary form to highlight the following:

- Status
- Issues/recommendations
- Protectiveness statements
- Milestones

Consider including a summary table to present the status and designation (Navy's and EPA's) of all sites identified at the installation.

Only sites where a Remedial Action (RA) or an Interim RA was selected in a Record of Decision (or Decision Document) and has been initiated, but unlimited use and unrestricted exposure (no further action) has not been achieved, should be evaluated in the FYR.

Sites that have reached no further action, site closeout, or achieved unlimited use/unrestricted exposure should not be evaluated in the FYR.

Executive Summary

The United States Navy (Navy) conducted this Five-Year Review for Naval Amphibious Base (NAB) Little Creek in Virginia Beach, Virginia, as required by the Comprehensive Environmental Response, Compensation, and Liability Act in accordance with CERCLA §121(c), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR). The Report has been prepared in accordance with the United States Environmental Protection Agency (USEPA) *Comprehensive Five-Year Review Guidance* (2001), and summarizes the evaluation of remedies and remedial actions that resulted in hazardous substances, pollutants, or contaminants remaining at sites above levels that allow for unlimited use and unrestricted exposure, and for which there is a Final Record of Decision (ROD). A ROD requiring a Five-Year Review has been finalized for the following NAB Little Creek sites:

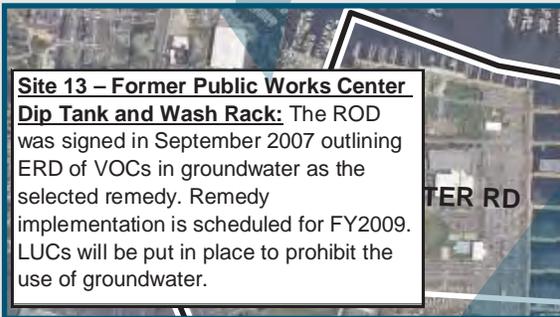
- Site 9 – Driving Range Landfill, December 2003
- Site 10 – Sewage Treatment Plant Landfill, December 2003
- Site 11 – School of Music Plating Shop, July 2007
- Site 12 – Former Exchange Laundry/Dry Cleaning Facility, September 2005
- Site 13 – Former Public Works Pentachlorophenol (PCP) Dip Tank and Wash Rack, September 2007

The objective of this Five-Year Review is to evaluate the selected remedies at these sites and determine whether the remedies remain protective of human health and the environment in accordance with the requirements set forth in the ROD. The principal method used to evaluate the protectiveness of the remedies was a review of various documents pertaining to site activities, analytical data, and findings. The methods, findings, and conclusions from the document reviews are presented in this Five-Year Review report. In addition, this report identifies issues that may prevent a particular remedy from functioning as designed or appropriately, which could endanger the protection of human health and the environment. The overall evaluations of the effectiveness of each remedy are presented as protectiveness statements in the Five Year Review Summary Form provided below.



Table ES-1
Site Status Summary Table

OU	Site	Name/Description	Basis for Action	Site Status	Five-Year Review Status
Five-Year Review Summary Form					
SITE IDENTIFICATION					
Name: Naval Amphibious Base Little Creek					
D: VA5170022482					
OU: 3	State: VA	City/County: Virginia Beach			
SITE STATUS					
Status: Final					
Are OUs?	Has the site achieved construction completion?				
	No				
REVIEW STATUS					
Agency: Other Federal Agency					
Other Federal Agency: "United States Navy" was selected above, enter Agency name: United States Navy					
Project name (Federal or State Project Manager): Click here to enter text.					
Agency affiliation:					
Review period: 2003 - 2008					
Date of site inspection: September 17, 2008					
Type of review: Statutory					
Review number: 1					
Triggering action date: 2003 signature of Sites 9 and 10 ROD					
Date (five years after triggering action date): January 2009					
Issues/Recommendations					
Without Issues/Recommendations Identified in the Five-Year Review:					
2					
Issues and Recommendations Identified in the Five-Year Review:					
OU: Sites 9	Issue Category: Operations and Maintenance				
0	Issue: Bare and low-lying areas observed on landfill covers.				
Recommendation: Repair bare and low-lying areas.					
Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date	
No	Yes	Federal Facility	EPA/State	May 2009	



NOTE EPA and Navy terminology for Operable Unit, site, and installation may differ. When developing FYRs it is important to ensure a crosswalk or other method is used to clearly link Navy and EPA designations.

OU	Site	Name/Description	Basis for Action	Site Status	Five-Year Review Status
1	SWMU 3	Sandblasting Yard	COCs under investigation.	R/FS	Site still under investigation.
	SWMU 7	Small Boats Sandblast Yard	ABM in sediment	RIP (LTM & LUCs)	Included in this report.
2	Site 7	Base Landfill	Waste in-place and metals in groundwater	RIP (LTM & LUCs)	Included in this report.
3	Site 11a	Waste Oil Tank	VOCs in groundwater	RIP (LTM & LUCs)	Included in this report.
4	Site 9	Driving Range Landfill	Waste in-place and metals in groundwater	RIP (LTM & LUCs)	Included in this report.
	Site 10	Sewage Treatment Plant Landfill	Waste in-place and metals in groundwater	RIP (LTM & LUCs)	Included in this report.
5	Site 11	Plating Shop	Metals in soil and groundwater	RIP (LTM & LUCs)	Included in this report.
6	Site 12	NEX Laundry Disposal Area	VOCs in groundwater	RIP (Groundwater Injections, LTM, & LUCs)	Included in this report.
7	Site 13	Wash Rack and PCP Dip Tank	VOCs in groundwater	RIP (Groundwater Injections, LTM, & LUCs)	Included in this report.