FACT SHEET

Former Long Beach Naval Complex
Five-Year Review of Installation Restoration Sites 1-6A and 8-14

January 2010

The Department of the Navy (Navy) completed a five-year review of environmental cleanup actions (remedies) at Installation Restoration (IR) Program Sites 1-6A and 8-14 at the former Long Beach Naval Complex (LBNC) in Long Beach, California. This five-year review is the first for IR Sites 8-13 and the second for IR Sites 1-6A and 14. Palos Verdes Operable Unit (OU) 1 was included in the previous five-year review, but it was not considered in this five-year review because no further action is needed at Palos Verdes OU-1. The five-year review evaluates the implementation and performance of remedies and removal actions throughout LBNC to verify that the remedies remain protective of human health and the environment. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires a five-year review whenever remedies leave contaminants on site at levels that do not allow unlimited use or unrestricted exposure — for example, residential use. The five-year review process began at LBNC after the first response action was initiated in 1999 and will continue until there are no restrictions on the potential use of the land or other natural resources. The originally-scheduled review dates for Sites 8-13 were modified so that these sites would be on the same five-year cycle as Sites 1-6A and 14. This consolidation of five-year reviews meets the requirements of Navy and EPA policy and is intended to gather all IR sites at LBNC into a single five-year review cycle.

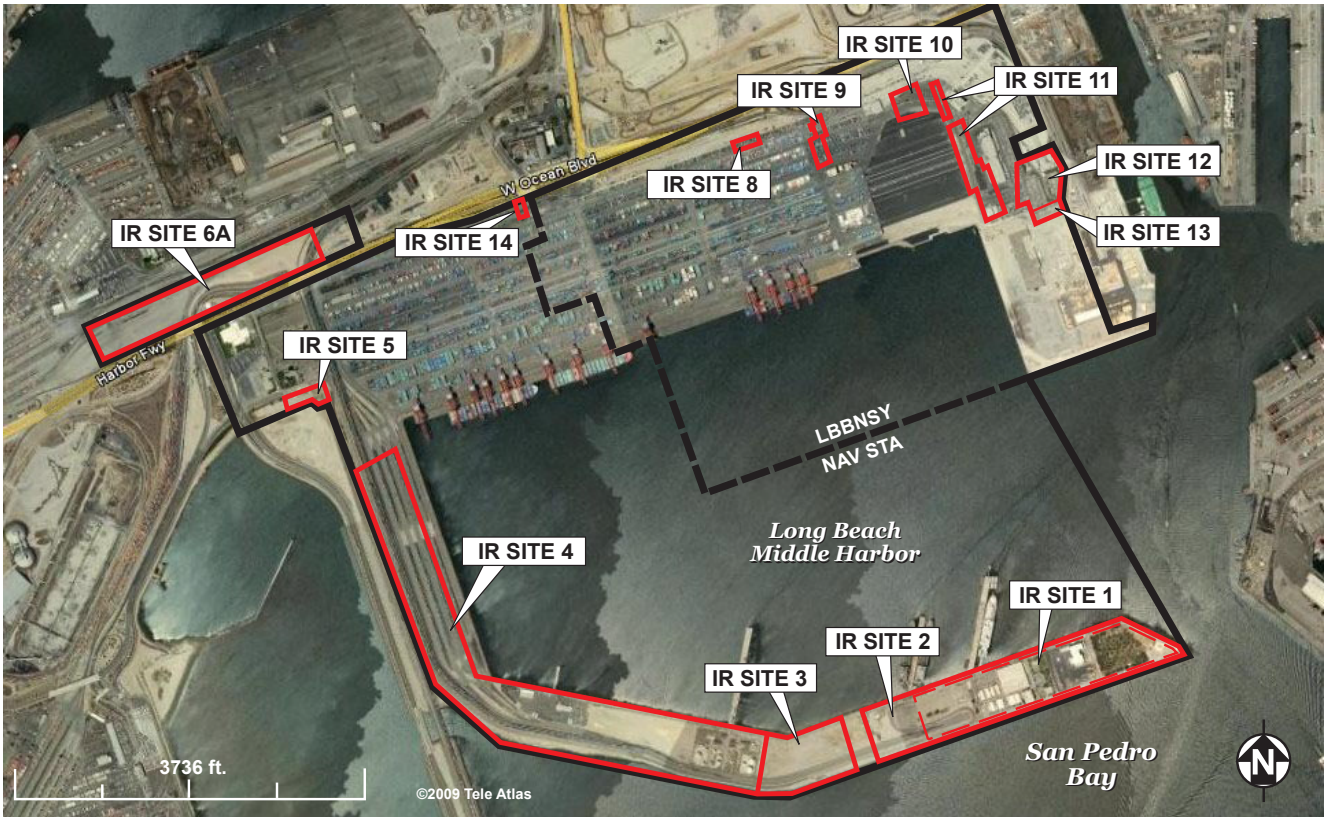
Because contaminants remain in place that do not allow for residential use, a five-year review was conducted at the former LBNC to determine if the remedies continue to protect human health and the environment.

TABLE OF CONTENTS

Regional Location Map 1
Background 2
Five-Year Review Process 3
Remedial Action Summary. . . 4
Protectiveness Statement . . . 6
Glossary and Acronyms. 7
Information Repository. 8
Administrative Record 8

Regional Location Map

Approximate IR Site Locations within the former Long Beach Naval Complex



BACKGROUND

The former LBNC is located on the south side of Terminal Island within the Los Angeles and Long Beach Harbor districts, 24 miles south of downtown Los Angeles. LBNC was made up of two entities — the former Naval Station Long Beach and the former Long Beach Naval Shipyard — which operated from the 1940s through the mid-1990s until the property was closed under the Defense Base Closure and Realignment Act of 1990. After closure, most of LBNC was acquired by the Port of Long Beach (POLB) through leases and land transfers from the Navy for redevelopment as a marine cargo shipping terminal. IR Site 5, the western portion of IR Site 6A, and the "Water Tank Parcel" of IR Site 6A were transferred to the Port of Los Angeles because they are located within the city limits of Los Angeles. As a result, most of the land at the former LBNC is being used for port-related operations. The Navy dedicated a small tract of land at the east end of the mole (the man-made breakwater that separates San Pedro Bay from Long Beach Middle Harbor and where Sites 1-4 are situated) as Gull Park, a bird sanctuary.

Contaminants at the LBNC IR sites include volatile organic compounds, semivolatile organic compounds, total petroleum hydrocarbons, and metals in soil and groundwater. These contaminants are generally found at bases that built and serviced ships. Past operations at LBNC that contributed to contamination included solid and liquid waste disposal, chemical storage, ship manufacturing, degreasing, paint removal, dry cleaning, electrical and weapons shop operations, fueling operations, and other industrial activities. Remedies selected to address the presence of these contaminants were presented in Records of Decision (ROD) for Sites 1-6A and 8-13, signed by the Navy and two divisions of the California Environmental Protection Agency: the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (Water Board). The exception is IR Site 14, where an action memorandum (AM) selected a removal action to address contamination. Although EPA has no formal concurrence role, it reviewed and provided comments to the Navy on the RODs and AM. If you are interested in reading the RODs for Sites 1-6A and 8-13 and the AM for IR Site 14, they can be found at the Navy's administrative record and information repository locations. Information on the administrative record and information repository locations is on page 8 of this fact sheet.

FIVE-YEAR REVIEW PROCESS

(1) Document Review

Key documents were reviewed that identify the accepted remedial and removal actions, how they are being carried out, the legal requirements that influence the response actions, the impacts of the response action on human health and the environment, and community concerns. Analytical data were evaluated to identify long-term trends, which allowed conclusions to be drawn. Documents providing this information included, but were not limited to, the previous five-year review report, RODs, the AM, remedial action/remedial design documents, remedial system and groundwater monitoring reports, and annual site inspection reports.

(2) Site Inspection

The purpose of the site inspections was to review and document current site conditions and to evaluate visual evidence on the protectiveness of the remedial systems and land use restrictions. This effort included noting current land use, points of access, and access requirements; the presence and location of fencing; and locations and conditions of monitoring wells.

(3) Site Interviews

Eight site interviews were conducted during this review with members of the local community, and personnel from regulatory agencies, Navy, and POLB regarding remedy implementation and their overall impression of the environmental cleanup actions at LBNC. The complete interviews are located in Appendix G of the five-year review report.

Pavement and surface inprovements in good condition at Site 12

(4) Assessment of Protectiveness

In the assessment of protectiveness, the information gathered during the document review, site inspection, and site interviews were used to answer the following questions:

- *Is the response action functioning as intended?*
- *Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of remedy selection still valid?*
- *Has any other information come to light that could call into question the protectiveness of the remedy?*

Is the remedy doing what it was designed to do, which is to protect human health and the environment?

The five-year review did not reconsider the remedies and removal action accepted in the RODs and the AM. Instead, it evaluated the performance of the remedial and removal actions and recommended improvements if they are not performing as designed. The remedies and removal action for each site were selected based on results from soil and groundwater monitoring after input from EPA, state regulatory agencies and the public. All agreed the remedies and removal action would (1) reduce the amount of contamination to standards that would protect public health and the environment; (2) keep the chemical plumes to within the former Naval Station Long Beach property boundary; and (3) ensure there was no unacceptable risk to the health of personnel working at these facilities.

REMEDIAL ACTION SUMMARY

The remedy for **IR Site 1** (Mole Solid Waste Operations) and **IR Site 2** (Chemical Materials and Waste Storage Area) consists of excavation of potentially contaminated surface and vadose zone soils, operation of an in situ air sparging/soil vapor extraction (IAS/SVE) system to reduce contaminant concentrations in groundwater, groundwater monitoring, and ICs. Approximately 7,300 cubic yards of soil and debris were removed to a depth 10 feet below ground surface between October 2000 and February 2001. Implementation of the IAS/SVE system followed, which removed approximately 1,270 kilograms of volatile organic compounds (VOC) from groundwater between April 2001 and August 2003. The system was permanently dismantled and a remedial action completion report was issued in 2007 after quarterly groundwater monitoring conducted between 2003 and 2005 indicated the IAS/SVE system achieved cleanup goals. Groundwater monitoring was discontinued with regulatory agency concurrence after results from sampling events in October 2006 and March 2007 indicated that contaminant concentrations were stable or decreasing.

Gull Park at Sites 1 and 2

Institutional Controls (ICs) are administrative measures such as deed restrictions and were selected at LBNC to prevent human exposure to soil and groundwater contaminants. They restrict how land can be used and will maintain industrial use of the land at the former LBNC.

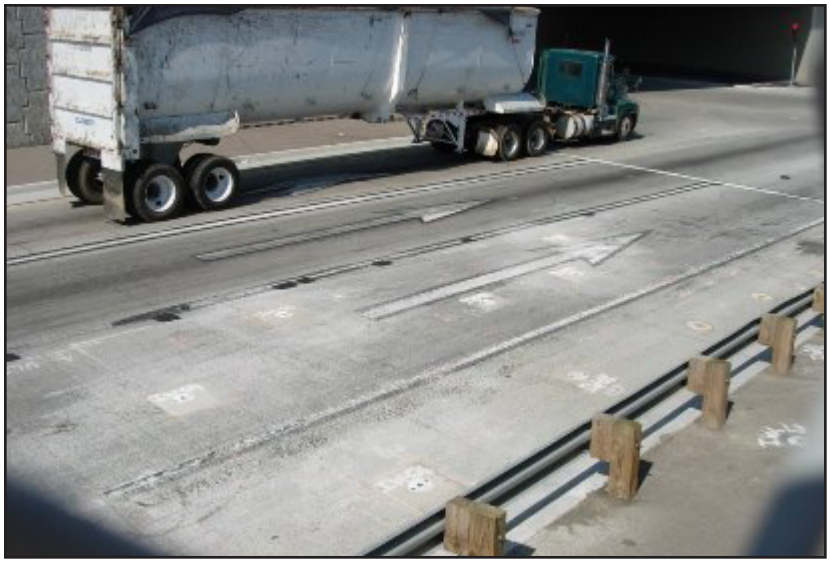
The remedy for **IR Site 3** (Industrial Waste Disposal Pits), **IR Site 4** (Mole Extension Operations), **IR Site 5** (Skeet Range Solid Waste Fill Area), and **IR Site 6A** (Boat Disposal Locations) consists of ICs and groundwater monitoring (Sites 3 and 6A only). Site 3 was granted a conditional no further action (NFA) status in 2003 and Site 6A was granted a conditional NFA in 2000, pending confirmatory groundwater monitoring to demonstrate contaminants were not migrating and that concentrations remained stable. An additional groundwater monitoring event was conducted in 2004 in conjunction with the previous five-year review. The monitoring data concluded that contaminants at both Sites 3 and 6A remained stable and were not migrating toward the marine environment. DTSC and the Water Board concurred with the decision to end groundwater monitoring in 2004 (Site 3) and 2005 (Site 6A). Although EPA has no formal concurrence role, it agreed with the decision to discontinue groundwater monitoring. The groundwater monitoring wells at Sites 3 and 6A were decommissioned in 2008. Sites 4 and 5 did not require post-ROD groundwater monitoring.

Site 4 on the Navy mole, cleared for hydroseeding

The remedy for **IR Site 8** (Building 210 Trichloroethene Disposal Site) and **IR Site 10** (Parking Lot H) consists of ICs

The intent of groundwater monitoring at LBNC is to verify that chemicals of concern (COC) are not migrating to the marine environment at concentrations that would exceed water quality objectives of the California Ocean Plan. This is done by collecting and analyzing groundwater samples for COC concentrations on a set, periodic basis.

and groundwater monitoring. Groundwater monitoring was conducted from 2004 until 2007, when analytical results indicated contaminant concentrations had been reduced to below remedial goals. DTSC and the Water Board concurred with the Navy's decision to discontinue monitoring at Site 8 in 2008 and at Site 10 in 2007. Although EPA has no formal concurrence role, it agreed with the decision to discontinue groundwater monitoring.



Target treatment area for nutrient injections at Site 14

The remedy for **IR Site 9** (Building 129 Operations) consists of ICs, groundwater monitoring, and monitored natural attenuation (MNA) to ensure groundwater contaminants are decreasing. Groundwater monitoring commenced in 2004. Data collected over the five-year review period indicate overall decreasing contaminant trends at IR Site 9 The Navy plans to discontinue groundwater monitoring in well NW-09-03 and to continue groundwater monitoring in well NW-09-08. Subsurface conditions at Site 9 remain conducive to natural attenuation.

The remedy for **IR Site 11** (Hillside East of Drydock No. 1), **IR Site 12** (Parking Lot X), and **IR Site 13** (Tank Farm near Building 303) consists of ICs, groundwater monitoring, and maintenance of pavement and other surface improvements (Site 12 only) to ensure no direct exposure to soil by industrial workers. Groundwater monitoring began in 2004. At Site 11, monitoring for mercury and hexavalent chromium was discontinued in 2006 and for total chromium in 2007, leaving arsenic as the sole contaminant being monitored at the three sites. Arsenic concentrations exceeded cleanup goals in two wells for two consecutive sampling events in 2008 and 2009. The Navy is currently conducting an optimization study to determine if the remedy will achieve the RAOs in these two wells. Over the five-year review period, arsenic concentrations have consistently been below cleanup goals in wells NW-11-01, NW-12-04, NW-12-05, and NW-12-07. The Navy plans to discontinue monitoring for arsenic in these wells. Semi-annual groundwater monitoring at the remaining wells at IR Sites 11, 12, and 13 is ongoing.

The removal action for **IR Site 14** (former Building 46) consists of land use controls to restrict land and groundwater use to industrial, excavation of potentially contaminated surface soils, and MNA. Approximately 4,297 tons of contaminated soil and debris were removed to a depth of 10 feet below ground surface between April and May 2001. To enhance MNA at Site 14, hydrogen release compound© (HRC), a compound which facilitates

Cargo containers at Site 9

View of the port from Site 13

breakdown of chlorinated solvents, was injected into the upper 25 feet of the saturated zone in July 2002 and April 2005. Groundwater monitoring results from Site 14 indicated dichloroethene (DCE) stall (a rate reduction in reductive dechlorination of VOCs) was occurring. In 2008, an optimization study concluded a combination of biostimulation (injection of emulsified oil) and bioaugmentation (injection of *Dehalococcoides* spp. bacteria) was the preferred approach to address the DCE stall. These nutrient injections were conducted in March 2009. Groundwater sampling to monitor the progress of the enhanced MNA is ongoing at Site 14.

Are the remedies working and effective?

The overall effectiveness of the selected remedies is presented in a "protectiveness statement" in the five-year review report. A technical assessment was conducted and the protectiveness statement was developed based on the results of that assessment.

Technical Assessment Summary

Is the response action functioning as intended?	YES
Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives used at the time of remedy selection still valid?	YES
Has any other information come to light that could call into question the protectiveness of the remedy?	NO

PROTECTIVENESS STATEMENT

The results of this five-year review indicate that the selected remedies for IR Sites 1-6A and 8-13 are protective of human health and the environment. Exposure pathways that could result in unacceptable risks are being controlled. The removal action at IR Site 14 is expected to be protective of human health and the environment when it is complete. In the interim, exposure pathways that could result in unacceptable risks are being controlled. Remedial and removal measures that have been implemented include ICs (all sites), groundwater monitoring (Sites 1 through 3, 6A, and 8-14), MNA (Sites 9 and 14), removal of contaminated soil and debris (Sites 1, 2 and 14), active groundwater treatment systems (Sites 1 and 2), and maintenance of surface improvements (Site 12).

No changes to exposure assumptions, toxicity data, or regulatory cleanup levels have occurred that would affect the protectiveness of the selected remedies at Sites 1-6A and 8-13 and the removal action at Site 14. The RAOs are still valid and appropriate to protect human health and the environment and have already been met (Sites 1-6A, 8, and 10) or are being met (Sites 9 and 11 through 14). Based on the reuse plan adopted by the City of Long Beach, industrial use is the anticipated land use scenario for the former LBNC.

GLOSSARY AND ACRONYMS

Action Memorandum (AM) – A decision document under the Comprehensive Environmental Response, Compensation, and Liability Act Removal Program that documents how a site will be cleaned up and why the cleanup method was selected; used for emergency, time-critical, and non-time-critical removal actions.

Administrative Record – A collection of all response action documents at a Navy installation that justify why particular response actions were selected. It is maintained by the Navy and made available for public review at or near a site.

California Ocean Plan – Guidelines established by the State of California to protect ocean water and the marine ecosystem from pollutants.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) – Commonly referred to as Superfund, authorizes federal action to respond to the release, or threat of release, into the environment of hazardous substances, pollutants, or contaminants that may present an imminent or substantial danger to public health or welfare.

Groundwater – Water beneath the ground surface that fills spaces between soil particles. Groundwater at Long Beach Naval Complex is not potable because of high naturally occurring mineral content.

Groundwater Monitoring – Repeated, periodic sampling and analysis of groundwater.

Information Repository – The physical location where a collection of site information is maintained. It contains copies of documents available for public review.

Installation Restoration (IR) Site – Areas designated under the Navy's program to identify, investigate, assess, characterize clean up, or control past releases of hazardous substances.

Institutional Control (IC) – A legal or administrative device to maintain the viability and effectiveness of the selected remedy, and that limits access to or use of property (for example, land use restrictions imposed by the property owner contained in a property deed).

Monitored Natural Attenuation (MNA) – A passive remedial action that observes contaminant levels over consecutive groundwater monitoring events to determine if they are degrading by natural processes.

No Further Action (NFA) – The conclusion that no additional environmental cleanup actions are necessary because a site does not pose an unacceptable risk to human health or the environment.

Record of Decision (ROD) – A decision document under the CERCLA Remedial Program that documents how a site will be cleaned up and why the cleanup method was selected.

Remedial Action – The final actions taken at a site to implement a permanent remedy. Implementation may take an extended period of time and allow a certain level of contamination to remain on site.

Remedial Action Objective (RAO) – Site-specific goals that that provide a clear and concise description of what a proposed cleanup action under CERCLA is expected to accomplish.

Remediate/Remediation – Any active or passive environmental activity that results in the reduction of toxicity, mobility, or volume of contaminants at a site.

Remedy – The final decision as stated in a ROD or decision document that describes the general strategy that will be implemented at a site to reduce, control, or eliminate risks to human health and the environment.

Acronyms

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

COC – chemical of concern

DTSC – California Department of Toxic Substances Control

EPA – (U.S.) Environmental Protection Agency

HRC – hydrogen release compound

IAS – in situ air sparging

IR – Installation Restoration

LBNC – Long Beach Naval Complex

LBNSY – Long Beach Naval Shipyard

NAVSTA – Naval Station Long Beach

OU – Operable Unit

POLB – Port of Long Beach

SVE – soil vapor extraction

VOC – volatile organic compound

Water Board – California Regional Water Quality Control Board

INFORMATION REPOSITORY AND ADMINISTRATIVE RECORD

Public notices were published in the *Long Beach Press Telegram* announcing the commencement and completion of the five-year review, as well as the location of the information repository and administrative record, which are provided for the community to review the five-year review report.

Information Repository

Long Beach Public Library
Government Publications Dept.
101 Pacific Avenue
Long Beach, CA 90822
(562) 570-7500

Hours: Tuesday 10 a.m. – 8 p.m.
Wed-Thurs 10 a.m – 6 p.m.
Fri-Sat 10 a.m – -5 p.m.
Sun 12 p.m – -5 p.m.

Administrative Record

Ms. Diane Silva
Naval Facilities Engineering Command
Southwest Division
1220 Pacific Highway, Bldg. 129
San Diego, CA 92132
(619) 532-3676

Hours: Mon-Fri 7:30 a.m. – 3:30 p.m.

FOR MORE INFORMATION

The Navy welcomes your input. If you have questions or concerns, or would like more information, please contact:

Mr. John Hill
BRAC Environmental Coordinator
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108
(619) 532-0985
John.M.Hill@navy.mil

Mr. Alan Hsu
Remedial Project Manager
Cal/EPA DTSC
5796 Corporate Avenue
Cypress, CA 90630
(714) 484-5395
AHsu@dtsc.ca.gov

Mr. Henry Jones
Remedial Project Manager
Cal/EPA Water Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
(213) 576-6697
HJones@waterboards.ca.gov

Mr. Martin Hausladen
Remedial Project Manager
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3007
Hausladen.Martin@epamail.epa.gov

Mr. John Hill, Navy BEC
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108

Inside: Information on the Navy's Five-Year Review of Sites 1-6A and 8-14 at the former Long Beach Naval Complex