



DEPARTMENT OF THE NAVY
LONG BEACH NAVAL SHIPYARD
LONG BEACH, CALIFORNIA 90822

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IN REPLY REFER TO:

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25 FEB 1994

ACTION MEMORANDUM

From: Captain B. Janov, U.S. Navy
Commander, Long Beach Naval Shipyard
To: Antony Landis, Chief of Operations
California Environmental Protection Agency
Department of Toxic Substances Control (DTSC)
Office of Military Facilities
Subj: ACTION MEMORANDUM FOR REMOVAL ACTION AT LONG BEACH NAVAL
SHIPYARD, INSTALLATION RESTORATION (IR) SITE 11

Facility ID Number: CA6170023109

Category of Removal: Time Critical

1. The purpose of this ACTION MEMORANDUM is to document for the Administrative Record the Department of the Navy's (DON's) decision to undertake a removal action at Installation Restoration Site 11. The Department of Defense has the authority to undertake Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) response actions, including removal actions, under 42 U.S.C. § 9604, 10 U.S.C. § 2705 and Federal Executive Order 12580.
2. Conditions at the site meet the criteria for initiating a removal action under § 300.415 (b)(2) of the National Contingency Plan (NCP); conditions at the site which, if not addressed, may pose a potential threat of off-site hazardous substance migration, resulting in the potential for human exposure and endangerment to the environment.
3. The removal action commenced on January 3, 1994. Onsite activities are expected to continue through March 1, 1994. The present estimated cost of this action is \$388,696.
4. Point of contacts are Joseph Joyce, Remedial Project Manager, Southwest Division, Naval Facilities Engineering Division, at (619) 532-3873 or C. Anna Ulaszewski, IR Program Manager, Long Beach Naval Shipyard, at (310) 547-7868.


B. JANOV

ACTION MEMORANDUM

DATE: 22 February 1994

SUBJECT: Action Memorandum for Removal Action at Long Beach Naval Shipyard, Site 11, Long Beach, California

Facility ID Number: CA6170023109

Category of Removal: Time Critical

National Significance: None

I. PURPOSE

The purpose of this ACTION MEMORANDUM is to document, for the Administrative Record, the Department of the Navy's (DON's) decision to undertake a removal action at Site 11 at the Long Beach Naval Shipyard. The Department of Defense has the authority to undertake Comprehensive Environmental Response, Compensation, & Liability Act (CERCLA) response actions, including removal actions, under 42 U.S.C. §9604, 10 U.S.C. §2705 and federal Executive Order 12580.

The Remedial Investigation/Feasibility Study Workplan for Long Beach Naval Shipyard (RI/FS), dated September 1993, recommends that a removal action be initiated for Site 11. The conditions at the site meet criteria for initiating a removal action under section 300.415 (b)(2) of the National Contingency Plan (NCP); conditions at the site which, if not addressed, may pose a potential threat of off-site hazardous substance migration, resulting in the potential for human exposure.

II. SITE CONDITIONS AND BACKGROUND

The first evaluation of Site 11 was presented in the August 1983 Initial Assessment Study (IAS) for Naval Complex Long Beach, prepared by the Naval Energy and Environmental Support Activity (NEESA). Later reports, containing information on Site 11, include: the 1989 RCRA Facility Assessment (RFA) prepared by the California Department of Toxic Substances Control (DTSC), the November 1992 Site Inspections prepared by Jacobs Engineering Group Inc.(Jacobs), the April 1993 RI/FS Workplan for Long Beach Naval Shipyard prepared by Jacobs, and the August 12, 1993 Site 11 Site Walk Report prepared by International Technology Corporation. Together these reports satisfy the Removal Site Evaluation requirements in section 300.410 of the NCP. These reports will be included in the Administrative Record. A review and analysis of these reports indicated that a removal action is necessary at Site 11. The planning period for the removal action began with the Statement of Work for Site Walk IR Site 11, June 6, 1993.

A. Site Description

1. Removal Site Evaluation

Site 11 is an embankment slope with a surface relief of about 20 feet, located on the eastern portion of the Long Beach Naval Shipyard. The site, containing approximately 188,000 square feet, is surrounded by parking lots and is bordered by a fenced-off region containing active oil wells to the east. Building 300, and parking lots A and F are located to the east, while parking lots G and H are directly west. An asphalt roadway bisects the site. The southern edge is approximately 150 feet from the West Basin of Long Beach Harbor.

Surface soil consists of a dry, loose silty sand/sandy silt topsoil with exposed sandblast grit underlain by more spent sandblast grit used as fill. The vertical extent of the sandblast grit is unknown, but has been estimated to average 1 foot. Groundwater is

approximately 10 feet below the ground surface at the toe of the hillside, and 20 feet below the ground surface at the top of the hill.

Although ice plant and grasses cover part of site, the site's southern portion contains exposed soils and deposited sandblast grit. Plastic sheeting has been placed in these areas to minimize erosion and limit exposure pathways. There are signs of water erosion, possibly from run-off from parking lot F. There is some dead vegetation and precipitated salts. The cause of the precipitated salts has not been determined. There are trees at the top of the slope which need to be protected during the removal and remedial actions.

Access to Site 11 is limited by the security provided for the Naval Shipyard. The southern portion of Site 11, extending past the fence line to the harbor, is located in a high security area which requires a special pass to gain access. No additional security exists at Site 11.

2. Incident/Release Characteristics

Sandblast material was used as fill to form the hillside East of Drydock 1. In 1975, spent sandblast materials were used to extend the natural hillside, where Site 11 currently exists. No records were found to document the quantity of spent sandblast grit used at this site. However, based on topography and reasoned assumptions, an estimated 6,400 cubic yards of sandblast abrasives, containing 46,000 pounds of cuprous oxide, are present (NEESA, 1983). The IAS confirmed surface contamination, and the RI/FS Report and Site Walk Report provide a detailed analysis of the contamination.

3. Quantities and Types of Substances Present

Ten soil samples were collected during the site investigation in September and October 1991. No ground water samples were collected. The soil samples were analyzed for metals, organotins and soluble lead. Detailed information concerning the field investigation can be found in the November 1992 SI Report or the April 1993 RI/FS Report

prepared by Jacobs. The highest levels of metals were found in soil sample B-41, which was collected from the southern portion of Site 11.

The samples were collected with a stainless steel spoon from depths of 0.5 to 2 feet below ground surface. Sampling locations were selected based on existing information concerning the area of the sandblast grit disposal. Because there are no suspected sources of volatile or semivolatile organics, pesticides, recoverable petroleum hydrocarbons, pH, or asbestos in this area, analyses for these substances were not conducted.

The table below summarizes the contaminants found at the different sampling locations on Site 11. Contaminants which exceed screening criteria are shown in bold CAPITALS. If a screening criteria has not been established, the contaminant is not highlighted, but remains a concern. More detailed charts can be found in the April 1993 RI/FS Report, Tables 9-1 and 9-2.

CONTAMINANTS AT SITE 11

<u>Contaminant</u>	<u>Level of Contamination</u>	<u>Frequency Detected</u>	<u>Frequency Criteria Exceeded</u>
Monobutyltin	75 to 172 ug/kg	1/10	NA
Aluminum	5190 to 34,800 mg/kg	0/10	NA
ARSENIC	4 to 23.3 mg/kg	0/10	10/10
Barium	35.4 to 574 mg/kg	0/10	NA
BERYLLIUM	0.51 to 5.1 mg/kg	0/10	10/10
CHROMIUM, total	11.2 to 130 mg/kg	10/10	10/10
Cobalt	5.4 to 56.4 mg/kg	10/10	NA
COPPER	38.9 to 4,510 mg/kg	10/10	10/10
LEAD	7.5 to 819 mg/kg	10/10	2/10
MERCURY	0.1 to 1.5 mg/kg	4/10	2/10
NICKEL	7.5 to 106 mg/kg	10/10	8/10
SILVER	1.0 to 4 mg/kg	6/10	6/10
ZINC	42.3 to 1,240 mg/kg	10/10	9/10

Nine of the heavy metals detected exceed screening criteria. Arsenic, beryllium, and chromium exceed the direct contact criteria in all samples. The chromium level is within the range of background levels and is expected to exist in a less toxic, trivalent state. Arsenic and beryllium are present in concentrations greater than background. Lead exceeds direct contact criteria in one sample. This evaluation indicates that the surface soils present a direct contact risk.

Copper, lead, mercury, nickel, silver, and zinc exceed groundwater protection criteria. The concentrations of copper, lead, and zinc are higher than background concentrations. These results indicate that copper concentrations exceed the soluble threshold limit concentration (STLC) and the total threshold limit concentration (TTLC). Lead concentrations also exceed TTLC.

B. OTHER ACTIONS TO DATE

1. Previous Actions

The hillside has been covered with a matting and top soil, and planted with vegetative cover to help prevent erosion and airborne particles.

In 1977, Long Beach Naval Shipyard awarded a contract to International Technology Corporation to accomplish the following scope of work at Site 11, from Building 174 north to the street:

- (1) Construct asphalt Parking Lot G
- (2) Remove sandblasting material, debris, plants, bushes, and grade the slope
- (3) Place 6 inches of compacted top soil on the slope

- (4) Revegetate the entire slope with ice plant

- (5) Install a new sprinkler system on top of the slope north from Building 174 to the street. A new three-station-type automatic controller for the sprinkler system was installed in Building 302.

The planted ice plants were observed thriving during the rainy season, but are now partially dead. Based on inspections by Long Beach Naval Shipyard personnel, the sprinkler system installed north of Building 174 is not operational. The area of the site south of Building 174 is covered with plastic sheeting, and has no discernable sprinkler system. It is believed that the dead vegetation is due to a lack of water, rather than incompatibility with the top soil.

During June, 1993 plastic sheeting was placed over the entire area east of Building 174, to minimize airborne contaminants. This area is also bounded by a fence on three sides, with metal sheeting positioned along the lower portion of the fence line to prevent the movement of soil to the adjacent parking lot.

2. Current Actions

Site 11 is currently undergoing the Remedial Investigation/Feasibility Study (RI/FS) process as part of the Installation Restoration Program. The purpose of the RI/FS is to gather sufficient information to support an informed risk management decision to select a remedy. The RI/FS Work Plan for Site 11 will include a risk assessment and soil and groundwater studies to determine the extent of contamination and suggest final remediation alternatives beyond this interim measure.

C. State and Local Authorities' Roles

Because this site is not on the National Priorities List, the lead federal agency is the Department of the Navy. The Navy's Southwest Division Naval Facilities Engineering Command (SOUTHWESTDIV) and Long Beach Naval Shipyard personnel work together to manage and coordinate the Installation Restoration Program (IRP). The installation commander is responsible for executing the IRP. SOUTHWESTDIV coordinates, directs, and reviews IRP work in order to assure compliance with the National Contingency Plan. SOUTHWESTDIV also recommends actions and coordinates the contracts for the RI/FS work.

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) is the lead State agency responsible for environmental restoration. DTSC is the lead State agency responsible for identifying the Applicable or Relevant and Appropriate Requirements (ARARs), and coordinates the review process for all State agencies involved. It is important to note that the current removal action is an interim action and does not address final remediation. Therefore, the removal action does not address the RCRA Part B permit corrective action protocol.

**III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT,
AND STATUTORY AND REGULATORY AUTHORITIES**

A. Threat to Public Health and Welfare

Because the sample analyses indicate elevated metals concentrations in surface soils, the primary pathway of concern is direct contact with the exposed spent sandblast grit and inhalation of windblown dust. Windblown dust has been observed in the area and is a concern. Direct contact with subsurface contamination could occur during excavation activities.

Contaminants in the soil may potentially leach to the groundwater, causing the groundwater to become contaminated, or move to other locations via surface runoff . These pathways can impact both humans and wildlife. Surface runoff currently flows to paved areas west of the site and is collected by nearby storm drains that discharge directly into the West Basin of Long Beach Harbor. Therefore, the primary related exposure pathway of concern is ingestion by aquatic organisms and subsequent uptake by humans or wildlife.

B. Threat to the Environment

Wildlife including plants, birds, bugs, waterfowl, fish and other aquatic organisms can be impacted directly or indirectly by any of the exposure pathways mentioned above. The biological resources at Long Beach Naval Complex (Long Beach Naval Shipyard and Naval Station Long Beach) include rare, threatened, endangered and special-status species and sensitive environments. Further details can be found in the April 1993 RI/FS Work Plan.

C. Level of Risk

The RI/FS will assess the risk to human health and the environment posed by the contaminants at Site 11. Arsenic is a human carcinogen that has been associated with an increased frequency of skin or lung cancer when ingested or inhaled. Lead is an acute or chronic toxin and is particularly harmful to the blood-forming and central nervous systems of children. Arsenic, beryllium and chromium were screened according to EPA carcinogenic residential exposure criteria. Copper, lead, mercury, nickel, silver, and zinc were screened according to groundwater protection criteria.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Removal Action Description:

The objective of the proposed removal action is to minimize the release of hazardous substance through erosion and limit exposure pathways. The proposed removal action is not intended to address final remediation or "closure" of this site.

The selected removal action is to place topsoil and erosion control blankets on the bare areas of site 11, fix the irrigation system, and revegetate. Soil samples are to be collected to verify the suitability of the soil. The vegetative cover must be established and maintained, especially after heavy rainfall. If the vegetation is not maintained, erosion will scour the topsoil and possibly expose the contaminated sandblast grit.

The chosen action was evaluated according to five criteria. These criteria were (1) overall protection of human health and the environment; (2) long-term effectiveness and permanence; (3) short-term effectiveness; (4) implementability; and (5) cost. Based on statements by the DTSC, groundwater protection is not an objective of the removal action. The groundwater is non-potable and its remedies will be evaluated during the RI/FS process.

The long-term effectiveness (5 years) is suitable for erosion control only. Rainwater and irrigation water will percolate into the groundwater. However, the irrigation can be adjusted so that optimum moisture to support the vegetation can be maintained without excess moisture to cause percolation or runoff.

The short-term effectiveness is good because topsoil and vegetation can be applied quickly, at the start of the wet season. Growth should propagate steadily with minimal disturbance of the sandblast grit. Monthly maintenance of the system will include sprinkler head adjustment and replacement (if necessary), and trimming of the vegetation. At present,

the total cost of this action is estimated at \$388,696. Funding is provided by the Defense Environmental Restoration Account (DERA) which is administered by SOUTHWESTDIV.

This action is the most cost-effective and least disruptive to the environment. It does not, however, provide total containment of the contaminants. Small quantities of the contaminants may work their way to the surface even if optimum vegetative cover is maintained. Because such concentrations should be below action levels, no threat to human health and the environment should occur. Work for this removal action will take 6 weeks.

B. Description of alternative technologies

Alternative 1: No Action

This action is unacceptable because it does not protect human health and the environment.

Alternative 2: Shotcrete Cap over hillside and relief

This action would consist of grading the site to provide an even base for the shotcrete. A geotextile layer would be placed between the soil base and the shotcrete. If the RI/FS specifies removal of the sandblast grit, demolition and removal of the shotcrete would be required. This alternative is difficult compared to the others. The problem is the cut and fill grading operations required to trim the site to an even grade. This type of work requires respirators and dust suppressants to minimize wind-blown dispersion. This action is unacceptable due to its high cost and difficult working conditions.

Alternative 3: Geosynthetic layer & Soil Cover Cap over both hillside and relief

This alternative consists of grading the slopes and placing a geosynthetic layer. A soil cover will be placed on top of the barrier layer for protection. The layer would

minimize the percolation of surface water to the aquifer. Vegetation and permanent irrigation system would be required to minimize erosion of the cover soil. Vegetation requires a permanent irrigation system to establish and maintain growth. An automatic irrigation sprinkler system combined with regularly scheduled maintenance is the most feasible system for maintaining the cover growth. This action was not chosen due to its high cost and relatively long design period.

Alternative 4: Revegetate bare areas on both hillside and relief

This alternative assumes that reestablishment of vegetation growth in the bare areas is possible. Soil samples would be collected to verify that the soil is capable of supporting plant growth. The bare areas would require topsoil, erosion control blankets, and vegetation. The topsoil is required to propagate growth and the erosion control blankets are designed to hold the topsoil in place. An automatic sprinkler system would be required to establish and maintain plant growth. This alternative was not accepted since alternative 5 will provide better surface water routing and collection.

Alternative 5: Revegetate hillside and shotcrete the relief

Again, this alternative assumes that reestablishment of vegetation growth is possible in the bare areas of the hillside. Soil samples would be collected to verify that the soil is capable of supporting plant growth. The bare areas would require topsoil, erosion control blankets, and vegetation. The topsoil is required to propagate growth and the erosion control blankets are designed to hold the topsoil in place. An automatic sprinkler system would be required to establish and maintain plant growth. The other part of this removal action would consist of grading the relief and applying a shotcrete cap over the relief. The shotcrete would be laid to promote surface water-flow toward the surface water collection system.

This is the chosen alternative. The DON chose this alternative based on its relatively quick implementability and economic feasibility. This action, of course, also provides protection to human health and the environment by reducing the possibility of inhalation and direct contact, and preventing direct run-off of sandblast grit into the surface water collection system. Although the scope of this removal action is not to protect the quality of the underlying groundwater, it may decrease leaching of the soil contaminants to the groundwater.

C. Applicable or Relevant and Appropriate Requirements (ARARs)

Federal

Endangered Species Act 16 USC §1531, 40 CFR §6.302(h) and 50 CFR Part 402

State

Pending letter from DTSC

D. Estimated Costs

<u>Sitework</u>	<u>Cost</u>
Mobilize construction equipment	\$ 20,065
Mobilize personnel	2,853
Preconstruction submittals	19,559
Local permits	1,116
Set up temporary facilities	8,289
Soil samples	3,521
Geotechnical Testing	212
Remove and replace fencing	19,907
Shotcrete open exposed sandblast grit	16,605

Seeding/Mulch Revegetate	13,943
Sprinkler system	12,190
<u>Subcontractor costs</u>	<u>270,436</u>
 Total	 \$ 388,696

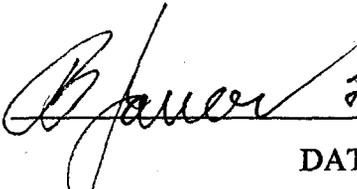
VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION NOT BE TAKEN OR ACTION DELAYED

If no removal action is taken or action is delayed until remedial actions begin, the workers, naval personnel and wildlife at Long Beach Naval Shipyard may be exposed to harmful contaminants via direct contact, inhalation, or ingestion. Additionally, the contamination may migrate to previously uncontaminated areas, resulting in increased population exposure and cleanup costs.

VII. RECOMMENDATION

This decision document represents the selected removal action for the Long Beach Naval Shipyard, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision document is based on the administrative record for the site.

Because the conditions at this site meet the criteria for a removal action under section 300.415(b)(2) and the NCP, I recommend your approval of the proposed removal action. The total project cost is estimated at \$388,696.

 7/25/94 APPROVED

DATE

CAPT B. JANOV, US NAVY