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COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN II)
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DEPARTMENT OF THE NAVY
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HUNTERS POINT ANNEX
SAN FRANCISCO, CALIFORNIA

ACTION MEMORANDUM
REMOVAL ACTION DOCUMENTATION
FOR SITE IR-1/21: INDUSTRIAL LANDFILL
GROUNDWATER PLUME
FINAL

September 13, 1996

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1.0 PURPOSE

The purpose of this action memorandum (AM) is to request and document approval of a non-time-critical removal action for groundwater contamination migrating toward San Francisco Bay from Site IR-1/21 of Parcel E at Hunters Point Shipyard (HPS) in San Francisco, California. The recommended removal action approach was developed as part of an engineering evaluation and cost analysis (EE/CA) conducted by PRC Environmental Management, Inc. (PRC) on behalf of the Department of the Navy (Navy). As the lead agency, the Navy has authority over the selection of the removal action alternative, the risk evaluation, and overall public participation activities. The Navy is working in cooperation with U.S. Environmental Protection Agency (EPA) Region IX; the State of California Department of Toxic Substances Control (DTSC) Region II; and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) to develop and implement the removal action.

The proposed non-time critical removal action will reduce migration of contaminated groundwater into the San Francisco Bay through installation of a sheet pile barrier and well points for groundwater control. By doing this, the proposed action will substantially eliminate the identified pathway of exposure to contaminants of concern for aquatic life and humans ingesting aquatic life. This non-time critical removal action is anticipated to be an interim action which will require subsequent study and evaluation.

The proposed removal action for this site is consistent with the factors set forth within the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 of the Code of Federal Regulations Part 300 [40 CFR Part 300]).

This AM has eight sections including this section and one attachment. Section 2.0 discusses site conditions and background information for HPS; Section 3.0 discusses threats to public health and welfare, and to the environment from the contaminated groundwater migrating from Site IR-1/21; Section 4.0 presents the endangerment determination; Section 5.0 discusses the proposed removal action alternatives and estimated costs; Section 6.0 discusses the effects of delaying or not implementing the removal action; Section 7.0 discusses outstanding policy issues; and Section 8.0 discusses the recommended removal action alternative.

This AM frequently references text, tables, and figures in the Site IR-1/21 groundwater plume EE/CA report, which was finalized in July 1996 and is

available for public review. The EE/CA report is included as Attachment A. Attachment B presents the administrative record index for this action.

2.0 SITE CONDITIONS AND BACKGROUND

This section discusses (1) the site description, (2) other actions conducted to date at HPS, and (3) the state and local agency roles.

2.1 SITE DESCRIPTION

This section discusses the removal site evaluation, the physical location of HPS, Site IR-1/21 characteristics, release information, the National Priorities List (NPL) status of HPS, and site figures.

2.1.1 Removal Site Evaluation

Site IR-1/21, a 36-acre industrial landfill, is located along the southwestern shoreline of HPS (Figure 2 in the EE/CA report shows the location [see Attachment A]). The filling history of Site IR-1/21 is not well documented. Aerial photos indicate that filling of the bay on the eastern side of the site began in the 1940s. Review of these photographs indicates that artificial fill, composed primarily of serpentinite, was placed on native bay sediments during bay filling operations from 1942 to 1946. The western side of the site was filled primarily during the 1950s. A wide slough extended from the bay to the northern corner of the site; between 1958 and 1974, the Navy reportedly filled this slough with shipyard wastes, including construction and industrial debris and waste, sandblast waste, domestic refuse, paints, and solvents. Filling of the slough was completed in 1974 and the entire site was capped with several feet of clean fill.

Groundwater investigations have identified contamination emanating from the landfill and potentially migrating toward San Francisco Bay. The source of contamination is assumed to be waste in the landfill. Some landfill waste is located below the water table, is saturated, and may act as a continuous source of groundwater contamination migrating toward San Francisco Bay. The groundwater samples contained concentrations of several hazardous substances as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), inorganic (or metal) constituents, and polychlorinated biphenyls (PCBs). The EE/CA report presents detailed information on the contaminants found in the groundwater at this site.

Site IR-1/21 was previously investigated by EMCON Associates to evaluate areas of potential soil and groundwater contamination identified in the initial assessment study (IAS). Based on the results of EMCON's investigation, Site IR-1/21 was included in the remedial investigation and feasibility study (RI/FS) program. The RI at Site IR-1/21 is underway.

2.1.2 HPS Physical Location

HPS is in southeastern San Francisco at the tip of a peninsula extending into San Francisco Bay (see Figure 1 in the EE/CA report [see Attachment A]). HPS encompasses 936 acres, 493 of which are on land and 443 of which are below the waters of the bay. The climate at HPS is characterized by partly cloudy, cool summers with little precipitation and mostly clear, mild winters with rainstorms. The average annual precipitation is about 19 inches.

HPS is bordered by San Francisco Bay to the north, east, and south. A mixed-use residential and industrial area is located west of HPS. The northern and eastern shores of HPS were developed for ship repair and are equipped with drydock and berthing facilities. The Navy used HPS from 1939 through 1976 for ship repair. Triple A Machine Shop (Triple A) operated HPS as a commercial ship repair facility from 1976 to 1987. Currently, the Navy and private businesses use HPS for limited commercial and light industrial activities.

HPS has been divided into five parcels of land, Parcels A through E, and the subtidal areas, Parcel F. Site IR-1/21 is located in Parcel E.

2.1.3 Site IR-1/21 Characteristics

The industrial landfill, Site IR-1/21, is a 36-acre, horseshoe-shaped area along the southwestern shoreline of HPS (Figure 2 in the EE/CA report shows the location [see Attachment A]). The landfill is no longer operational. The entire site was capped with several feet of clean fill. There are no buildings at Site IR-1/21 and a fence limits access to the area. The area immediately west, east, and north of the landfill is industrial or commercial. The San Francisco Bay is to the south.

The Navy identified potential wetlands of HPS during a July 1991 investigation. Salt marsh habitats were

identified along the bay margin at Parcel E; however, this potential wetland does not extend into the removal action area.

This removal action constitutes the first removal action under CERCLA taken at Site IR-1/21. However, during a previous tenant's (Triple A) occupancy, unlabeled drums were stored at the landfill for an unknown period of time. Ground staining was observed in the vicinity of the drums; the drums were later removed by Triple A.

2.1.4 Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

Various VOCs, SVOCs, PCBs, pesticides, and metals have been detected in groundwater samples at Site IR-1/21. Organic compounds were chiefly found in the waste zone portion of the site. As stated previously, the landfill waste is the suspected source of the organic groundwater contamination. Figures 5 and 6 in the EE/CA report show the distribution, throughout Site IR-1/21, of organic and inorganic chemicals detected above published water quality criteria.

The threat to human health and the environment for Site IR-1/21 is directly related to the potential for the contaminants to migrate into the bay via groundwater recharge. At Site IR-1/21, there are seven wells along the shoreline. Evaluating groundwater chemistry in these wells gives the best representation of the contamination levels potentially migrating into the bay and the location of the area of greatest concern. The removal action target area is the southeastern corner of the landfill (Figure 7 in the EE/CA report shows the location [see Attachment A]). Contaminants found in near-bay groundwater above published water quality values include heavy metals (such as zinc, copper, and nickel), polycyclic aromatic hydrocarbons (PAHs), benzene, and PCBs. These contaminants are hazardous or toxic substances as defined by CERCLA, Section 101(14), or the Toxic Substance Control Act (TSCA).

Typically, PAHs, PCBs, and metals are not soluble in groundwater and are not very mobile. However, the near-bay wells may have increased migration due to the hydraulics established by the tidal action in the area.

2.1.5 National Priorities List Status

Because of the presence of hazardous materials from past shipyard operations, HPS was placed on the NPL in 1989. In 1991, HPS was slated for closure pursuant to the terms of the Defense Base Realignment and Closure Act of 1990 (Public Law 101-510). Closure activities at HPS involve environmental remediation activities and making the property available for nondefense use.

2.1.6 Maps, Pictures, and other Graphic Representations

The EE/CA report, Attachment A of this AM, contains the figures and tables related to the Site IR-1/21 groundwater removal action. Graphics specifically referenced in this AM are Figures 1, 2, 5, 6, and 7. Figure 1 shows the location of HPS and Figure 2 shows the location of Site IR-1/21. Figure 5 presents distribution of the organic chemicals that exceed published water quality values. Figure 6 shows the distribution of the inorganic chemicals that exceed published water quality values. Figure 7 presents the location of the proposed removal action implementation area.

2.2 OTHER ACTIONS TO DATE

Previous removal activities conducted at HPS include (1) PCB cleanup at IR-08, (2) the Tank S-505 removal action, (3) underground storage tank (UST) removals, (4) sandblast grit fixation, and (5) the IR-06 Tank Farm removal action. These actions are discussed in the EE/CA report.

Current removal activities include (1) the pickling and plating yard (PPY) removal action; (2) the exploratory excavation sites removal action; (3) the IR-03 removal action; (4) the storm drain system removal action; and (5) the IR-06 soil removal action. The PPY removal action is completed and consisted of the removal of hazardous substances and the decontamination and removal of structures at the PPY. The exploratory excavation sites removal action will involve excavation and off-site disposal of contaminated soil. The IR-03 removal action will involve isolating impacted groundwater from San Francisco Bay using a containment technology. The storm drain system removal action will involve cleaning out and disposing of sediments. The IR-06 removal action will involve excavation and treatment or disposal of affected, vadose zone soil.

2.3 STATE AND LOCAL AGENCY ROLES

Federal Executive Order 12580 delegates the President's authority to undertake CERCLA response actions to the Department of Defense. Congress further outlines this authority in its Defense Environmental Restoration Program (DERP) Amendments, which are presented in 10 United States Code (U.S.C.) 2701-2705. Both CERCLA 120(f) and 10 U.S.C. 2705 require Navy facilities to ensure that state and local officials be given the timely opportunity to review and comment on Navy response actions.

Accordingly, DTSC and RWQCB are representing the state during activities that are part of the Navy's CERCLA response program at HPS. State input was solicited by providing DTSC and RWQCB with the opportunity to review and comment on the draft and draft final EE/CA report and a draft version of this action memorandum.

As lead agency, the Navy has authority over all public participation activities. To foster community awareness and public input, the Navy has an established community relations program at HPS. The Navy regularly publishes fact sheets and public notices to announce environmental restoration activities at HPS. An important part of the community relations program is the HPS restoration advisory board (RAB). The HPS RAB meets on a monthly basis as a forum for interested parties to receive information and provide comment on HPS documents and environmental activities.

For the Site IR-1/21 removal action, the Navy's community relations activities included publishing a fact sheet and holding a public comment period for the draft final EE/CA report. Public notice was published in the *Independent* on May 28 for a public comment period, which occurred from May 28, 1996 to June 25, 1996. Information related to the Site IR-1/21 removal action, as well as other ongoing removal actions at HPS, was presented on poster boards during a RAB meeting held June 26, 1996. No comments from the public were received; therefore a responsiveness summary is not provided in this AM.

3.0 THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Because of the presence of hazardous substances in the groundwater at HPS that may migrate into San Francisco Bay, the Navy determined that, based on the eight removal action factors set forth in the NCP, the groundwater in the southeastern portion of Site IR-1/21 at HPS poses a threat to human health or the

environment and that a removal action is appropriate to mitigate the potential for exposure to hazardous substances at the site. The NCP removal factors that apply to Site IR-1/21 groundwater are discussed in Section 3.1 and 3.2 below.

3.1 THREATS TO PUBLIC HEALTH OR WELFARE

NCP Section 300.415(b)(2)(i): Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

A potential indirect human exposure pathway to groundwater contaminants exists via ingestion of fish and other aquatic life from the bay. Contaminated groundwater from Site IR-1/21 could migrate into the bay where aquatic organisms could bioaccumulate contaminants, and subsequently, human receptors could ingest the organisms. There are no direct pathways for human exposure to contaminated groundwater at HPS. Human exposure through the ingestion of drinking water is not a pathway since groundwater and surface water at HPS are not used for domestic drinking water nor is it considered a likely future source of drinking water.

Typically, a site-specific fate and transport analysis, ambient level comparison, and health assessment would be conducted to evaluate contaminant levels that present a threat to receptors. This type of analysis is beyond the scope of this removal action and will be addressed in the RI/FS program. Therefore, as recommended by the regulatory agencies, evaluation of the threat posed by the contaminated groundwater was accomplished qualitatively. Two factors were used for this evaluation: (1) contaminant toxicity, and (2) proximity of contaminants to the bay. Relative contaminant toxicity was evaluated by screening the groundwater data against published water quality criteria for protection of human health and aquatic life. Contaminants having the highest threat are contaminants with groundwater concentrations that consistently exceed published values or screening criteria by a significant amount. These contaminants are more likely to migrate into the bay at concentrations that may pose a threat to receptors. Likewise, proximity to the bay was considered because contaminants are more likely to migrate into the bay if they are close to the bay, that is, they are detected in groundwater monitoring wells close to the bay. These contaminants have less distance to achieve natural attenuation than contaminants located far from the bay.

The Navy believes that published values do not take into account site-specific fate and transport mechanisms or ambient levels; therefore, they may be conservative indicators of potential human health and

environmental threats.

At Site IR-1/21, VOCs, PAHs, PCBs, and inorganic (metal) constituents in groundwater exceed screening criteria. However, PCBs pose the greatest threat because there are numerous detections close to the bay at levels well above screening criteria.

PCBs are class B2 carcinogens based on the induction of liver tumors in experimental animals. In humans, the primary acute toxic effect of PCBs is chloracne. No distinctive acute effects have been reported in animals. Chronic ingestion of PCBs causes "Yusho Disease."

3.2 THREATS TO THE ENVIRONMENT

NCP Section 300.415(b)(2)(i): Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

The landfill is adjacent to San Francisco Bay. Therefore, environmental impacts could occur if groundwater contaminants migrate into the bay. As indicated in the previous section, the site-specific evaluation of the threat posed by contaminants will be conducted in the RI/FS process. For this removal action, the evaluation of threat was accomplished by using the screening criteria and proximity to the bay considerations discussed above. PCBs pose the greatest threat because there are numerous detections close to the bay at levels well above screening criteria.

Adverse effects associated with exposure to PCBs in aquatic organisms include decreased growth, reproductive toxicity, and mutagenicity. PCBs bioconcentrate significantly.

4.0 ENDANGERMENT DETERMINATION

Qualitative risk evaluations for the removal action and other information contained in the administrative record indicate that current conditions in the groundwater at the southeastern corner of Site IR-1/21 may present imminent threats to the aquatic ecosystem, public health, welfare, or the environment.

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this AM, may present an imminent and substantial endangerment to public

health, welfare, or the environment. The groundwater contaminated with hazardous substances could migrate into the bay where receptors could be exposed to the hazardous substances.

5.0 PROPOSED REMOVAL ACTIONS AND ESTIMATED COSTS

This section discusses the proposed removal action, including the description of the proposed removal action, its contribution to remedial performance, a description of alternative technologies, the EE/CA report, applicable or relevant and appropriate requirements (ARAR), the removal action schedule, and estimated costs.

5.1 PROPOSED ACTION DESCRIPTION

The proposed Site IR-1/21 removal action includes groundwater containment with sheet piling, groundwater extraction with well points, and discharge to the sanitary sewer. Sheet pile are thick, interlocking steel plates that are driven into the ground to form a steel underground wall between the landfill and San Francisco Bay. The steel sheets are driven into the ground until they reach an underground, natural layer of clay. The clay layer will limit the amount of contamination that can flow under the wall. Near the shoreline of Site IR-1/21, clays exist at about 15 feet below ground surface (bgs) and an effective seal could be established.

The target area for the removal action is defined by three wells which are 250 to 300 feet apart (the total distance between end wells is approximately 600 feet) (Figure 7 of the EE/CA report shows the location [see Attachment A]). Since these data points are far apart and because contaminants detected in these wells are typically not very mobile in groundwater, it is not known whether contaminants are widespread along this 600-foot-long southeastern area. Therefore, additional data from this area are needed before the exact length of sheet pile wall is finalized. During Phase I of construction, HydroPunch (HP) groundwater samples will be taken to determine whether the contamination is continuous between the three shoreline wells. In addition, cone penetrometer tests (CPTs) will be conducted along the proposed wall alignment to more accurately locate the clay layer depth and to confirm that lithology is favorable for driving sheet pile. Based on current monitoring well data, approximately 600 feet of sheet pile will be needed. The extent and feasibility of sheet pile installation will be revised following the receipt of additional field work results.

Upgradient from the sheet piling wall, well points will be installed to extract groundwater and maintain an

inward gradient from the bay. By maintaining an inward gradient from the bay to the landfill, contaminant migration into the bay will be minimized. Well points were selected as the groundwater extraction method because they are well-suited for shallow applications such as at Site IR-1/21. Well points provide a versatile means to control groundwater gradients and capture contaminated groundwater. By providing more certain control of hydraulics with well points, the volume of groundwater requiring treatment and discharge can be minimized. Well points can be installed by driving or jetting pressure and do not require subsurface drilling to install. A 20-foot spacing should be adequate for well points since saturated permeable sediments frequently have been found along the shoreline. It is assumed that 30, 4-inch diameter well points would be installed to a depth of 15 feet bgs under this alternative. It is also assumed that extraction of 1 gallon per minute (gpm) from each well point will be necessary to control groundwater mounding. This will yield a total flow of 30 gpm that will be discharged to the sanitary sewer.

Extracted groundwater will be pumped to the sanitary sewer. At Site IR-1/21, there is a sanitary sewer line near Building 810, approximately 900 feet from a well-point collection header location. Therefore, additional pumps will be required to transfer water to the City and County of San Francisco (CCSF) sewage treatment plant or sanitary sewer. Any groundwater withdrawn during the removal action will be discharged to the sewage treatment plant because there is a regulatory preference for discharge to a sewage system over the storm drain and because the temporary nature of the removal action does not warrant construction of an on-site treatment plant. After startup, there will be an initial shakedown period during which all groundwater will be stored and sampled prior to discharge. Once approved by the CCSF, groundwater will be discharged continuously with periodic monitoring. Groundwater will be extracted for an estimated 3 years until a regional approach to groundwater contamination is adopted. The RI/FS process will identify the regional approach and include a cost-benefit analysis for on-site versus off-site treatment. Sanitary sewer influent criteria have been reviewed to determine whether contaminated groundwater from the southeast corner of Site IR-1/21 would be accepted without pretreatment. The comparison indicated that contaminant concentrations detected in groundwater are considerably lower than sanitary sewer influent criteria.

This removal action will require ongoing operation and maintenance (O&M) activities, including sampling of extracted groundwater to confirm that discharge requirements are met, evaluation of containment system effectiveness, and determination of how this system should be integrated into the long-term cleanup plan for the landfill.

5.2 PROPOSED ACTION CONTRIBUTION TO REMEDIAL PERFORMANCE

The proposed removal action will contain the contaminated groundwater that poses the greatest threat to receptors in the bay. The removal action is not intended to be the final remedy for the site. The long-term cleanup plan for the site is not determined at this date. Site-specific evaluations will be conducted in the RI/FS to determine the groundwater contaminant levels that pose actual threats to receptors at HPS and the corresponding long-term plan for the site. This removal action can be expanded or modified to accommodate a larger area or different contaminants.

5.3 DESCRIPTION OF ALTERNATIVE TECHNOLOGIES

Four groundwater alternatives were identified and evaluated in the EE/CA report. The primary options available for reducing groundwater contaminant movement are impermeable barriers, groundwater extraction, and permeable underground treatment walls. Because underground treatment walls were found to be unproven and unreliable for Site IR-1/21, the four alternatives considered in the EE/CA are:

Alternative 1: No Action

Alternative 2: Groundwater Containment with Sheet Piling, Groundwater Extraction with Well Points, Discharge to the Sanitary Sewer

Alternative 3: Groundwater Containment with Slurry Wall, Groundwater Extraction with Well Points, Discharge to the Sanitary Sewer

Alternative 4: Groundwater Containment and Extraction with a Biopolymer Slurry Trench, Discharge to the Sanitary Sewer

The EE/CA report describes the removal action alternatives in detail and evaluates them using the criteria of effectiveness, implementability, and cost.

5.4 EE/CA REPORT

An EE/CA report has been developed for this non-time critical removal action. The EE/CA report identifies and compares several containment alternatives for the hazardous substance-affected groundwater at Site IR-1/21. Based on comparison of the removal action alternatives, the EE/CA report recommended Alternative 2, groundwater containment using a sheet pile wall and well points and groundwater discharge to the sanitary sewer.

The EE/CA report was released for public comment on May 28, 1996; the public comment period occurred from May 28 to June 25, 1996. No public comments were received regarding the proposed removal action. Regulatory input regarding the draft and draft final EE/CA reports was received and is incorporated into this AM, as well as into the final EE/CA report.

5.5 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The NCP states that "removal actions. . . shall to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws." ARARs are substantive requirements that must be met for on-site actions at CERCLA sites. A requirement is deemed applicable if the law or regulation specifically addresses the chemical of concern, the action, or the affected location at a CERCLA site. If a law or regulation is not applicable, it may be relevant and appropriate if the circumstances are sufficiently similar to circumstances in which the law otherwise applies and if the law or regulation is well suited to site conditions. ARARs are identified for on-site activities, not off-site activities, such as discharge to the POTW or sanitary sewer.

Based on the current site data, a list of federal ARARs and the Navy's determination of state ARARs applicable to this removal action are presented below and in the draft final EE/CA. ARARs are generally divided into three categories: chemical-specific, location-specific, and action-specific. The sections below discuss these ARARs for the Site IR-1/21 removal action.

Chemical-Specific ARARs

Chemical-specific ARARs are health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, result in the establishment of numerical cleanup values. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment.

The scope of the removal action does not include groundwater or adjacent surface water restoration; rather the action is only for containment. Therefore, it is beyond the scope of this removal action to identify chemical-specific ARARs. During the RI/FS, chemical-specific ARARs will be identified for the groundwater.

Location-Specific ARARs

Location-specific ARARs are restrictions on the concentrations of hazardous substances or on the conduct of activities solely because they are in specific locations. Special locations include flood plains, wetlands, historic places, and sensitive ecosystems or habitats. Site IR-1/21 may include both wetlands and sensitive habitats. Pickleweed has been observed at the margins of Site IR-1/21. Pickleweed provides habitat for the salt marsh harvest mouse, which is a *federal threatened and endangered species*. Therefore, the Endangered Species Act, Executive Order 11990 Section 404 of the Clean Water Act (CWA) (Protection of Wetlands), and the California Fish and Game Code are potential location-specific ARARs for the Site IR-1/21 removal action. The location of the construction area is more than 100 feet southeast of the potential wetland (Figure 7 in the EE/CA report shows the location [see Attachment A]). The removal action is not expected to impact the sensitive habitat.

Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations on actions taken with respect to hazardous substances. These requirements are triggered by the particular remedial activities selected. Action-specific ARARs do not in themselves determine the remedial alternative; rather, they indicate how a selected alternative must be implemented. Therefore, action-specific ARARs depend on the action selected.

The substantive requirements of the Resource Conservation and Recovery Act (RCRA) for management of hazardous wastes, as embodied in the California Code of Regulations (CCR), are ARARs for the identification and disposal of sediments determined to be hazardous wastes generated by the storm drain system removal action. A hazardous waste is a waste (any material that is discarded, relinquished, recycled, or inherently waste like [22 CCR 66261.2]) that exhibits one of the characteristics specified in 22 CCR Chapter 11, Article 3 or is listed in 22 CCR, Chapter 11, Article 4.

The groundwater is not expected to exceed toxicity characteristic levels based on maximum groundwater concentrations and current statutory levels; therefore, waste requirements are not ARARs for managing groundwater. But any wastewater generated during the removal action that exceeds toxicity characteristics will be handled as hazardous waste. Soils generated during construction activities (well installation) may exceed toxicity characteristic levels. Therefore, in accordance with EPA's contained-in policy, soil exceeding toxicity levels will be managed as hazardous waste. Specifically, the material will be placed in containers, labeled, and manifested for off-site disposal. In addition, all land disposal restrictions will be complied with. Soils excavated to check for utilities and immediately backfilled will not be considered waste-like and will not be sampled.

U.S. Department of Transportation (DOT) requirements (49 CFR, Part 107) are applicable to the transportation of any hazardous waste from HPS to a treatment, storage, or disposal facility.

5.6 PROJECT SCHEDULE

The Site IR-1/21 groundwater removal action process began with the submission of the removal action work plan in May 1995. Field implementation of the removal action, including HP and CPT data collection, is anticipated to begin during Fall 1996 and last approximately 3 months. Once the removal action is complete, a removal action summary report will be prepared to document the field activities and analytical results within 90 days. The Site IR-1/21 removal action process is expected to be completed by December 1996.

5.7 ESTIMATED COSTS

Comparative present worth cost estimates were prepared for each alternative that involved taking an action.

A detailed cost opinion for sheet pile and well point installation, sanitary sewer connection, and operation for 3 years (the estimated time it will take to decide on regional groundwater remedy) is provided in

Appendix C of the EE/CA report. Actual costs may vary depending on the length of the wall and the subcontract negotiated with the construction firm completing the work. A summary of costs is provided below.

Construction Labor Costs	\$ 29,900
Construction Equipment and Material Costs	309,400
Sample Analysis	54,300
Sanitary Sewer Discharge Fee	364,600
O&M Equipment, Material, and Labor Costs	<u>206,900</u>
TOTAL	\$ 965,100

6.0 EXPECTED CHANGE SHOULD ACTION BE DELAYED OR NOT TAKEN

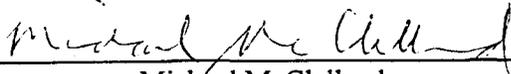
If the removal action is delayed, groundwater contaminants may continue migration toward the bay impacting receptors.

7.0 OUTSTANDING POLICY ISSUES

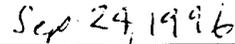
No outstanding policy issues exist for this removal action.

8.0 RECOMMENDATION

This AM represents the selection of a sheet pile barrier and well points at the southeastern corner of Site IR-1/21 as the removal action for hazardous substance-affected groundwater at Site IR-1/21 at HPS in San Francisco, California. The action was developed in accordance with CERCLA as amended by SARA and is not inconsistent with the NCP. Conditions at the site indicate that a removal action is appropriate in accordance with Title 40 CFR, Section 300.415(b)(2), criteria for a removal. This decision is based on the administrative record for this action. The index to the administrative record for this action is included in Attachment B.



Michael McClelland
(BRAC Environmental Coordinator)



Date

ATTACHMENT A
ENGINEERING EVALUATION AND COST ANALYSIS
REMOVAL ACTION DOCUMENTATION
FOR SITE IR-1/21: INDUSTRIAL LANDFILL
GROUNDWATER PLUME
July 26, 1996

N00217.003383
HUNTERS POINT
SSIC NO. 5090.3

ATTACHMENT A

ENGINEERING EVALUATION AND COST
ANALYSIS REMOVAL ACTION DOCUMENTATION
FOR SITE IR-1/21: INDUSTRIAL LANDFILL
GROUNDWATER PLUME

DATED 26 JULY 1996

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ATTACHMENT B
SITE IR-1/21 GROUNDWATER REMOVAL ACTION
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(One Page)

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<u>Document Title</u>	<u>Author</u>	<u>Date</u>
Confirmation Study	EMCON Associates	March 19, 1987
Draft Final Parcel E Site Inspection Report	Harding Lawson Associates	July 22, 1994
Draft Engineering Evaluation and Cost Analysis (EE/CA) Report, Removal Action Documentation for Parcel E	PRC Environmental Management, Inc. (PRC)	March 13, 1996
Draft Final EE/CA Report	PRC	May 24, 1996
Final EE/CA Report	PRC	July 26, 1996
Draft Action Memorandum (AM)	PRC	July 19, 1996
Final AM	PRC	September 13, 1996