



Proposed Plan for IR Site 35 Former NAS Alameda



Alameda, California

June 2008

U.S. NAVY ANNOUNCES PROPOSED PLAN

The U.S. Navy encourages the public to comment on its Proposed Plan for cleanup of soil and groundwater at Installation Restoration (IR)* Program Site 35, Areas of Concern (AOCs) in Transfer Parcel Economic Development Conveyance 5 (EDC-5), at the former Naval Air Station (NAS) Alameda in Alameda, California. The U.S. Environmental Protection Agency (EPA); California EPA, Department of Toxic Substances Control (DTSC); and San Francisco Bay Regional Water Quality Control Board (Water Board) worked with the Navy in the evaluation of alternatives and in the selection of the preferred alternatives.

This Proposed Plan presents the Navy's preferred cleanup alternatives for soil and groundwater at IR Site 35. IR Site 35 consists of 23 study areas including 19 small areas referred to as Areas of Concern (AOCs). IR Site 35 has been extensively investigated, removal actions have been conducted, and most areas are currently suitable for unrestricted use. A few AOCs, however, still contain contaminants in soil at levels that require cleanup. These AOCs have slightly elevated contamination that, when cleaned up, will leave the property available for unrestricted use. The Navy proposes the following approaches at IR Site 35:

- Excavating and removing soil in areas at AOC 3, AOC 10, and AOC 12; transporting excavated soil to an appropriate disposal facility; and filling in with clean soil to allow unrestricted future use of these areas.
- No action is required for groundwater beneath AOC 1 and AOC 23 since current conditions are protective of human health and the environment.
- No further action is required for polycyclic aromatic hydrocarbons (PAHs) in soil. These PAHs are associated with fill at the site that was placed there prior to the Navy obtaining the property, and are not related to a Navy release. Further, PAH-related risks are at the lower end of the risk management range and the site is suitable for unrestricted use.

No action or no further action is recommended for soil and groundwater at other study areas in IR Site 35 (AOCs 2, 4, 5, 6, 7, 8, 9, 11, 13, 17, 18, 20, 21, 24, 25; Environmental Baseline Survey [EBS] Parcels 78, 79, and 205; and the solid waste management units [SWMUs]) because concentrations of contaminants are considered safe for residential use, and because of the lack of suitable wildlife habitat and the absence of threatened, endangered, or special-status species at IR Site 35.

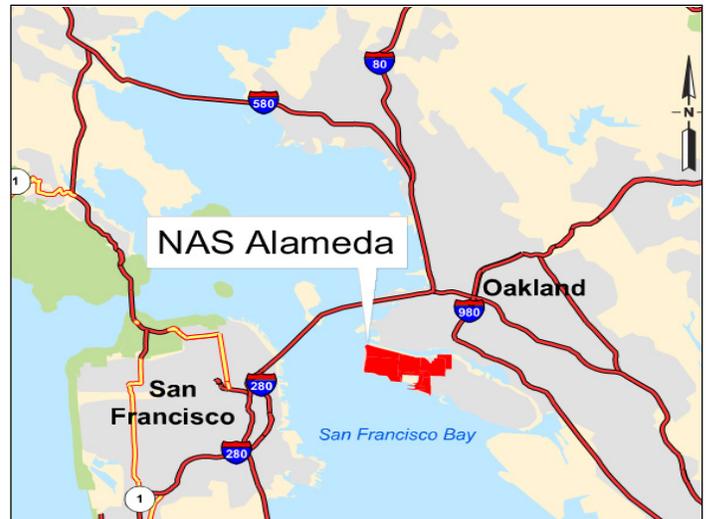


Figure 1. Alameda Point

- NOTICE -
Public Comment Period
May 28, 2008 through
June 28, 2008

Public Meeting
June 10, 2008
Alameda Point
Main Office Building, Room 201
950 West Mall Square
Alameda, California
6:00 to 7:30 p.m.

*A glossary of terms and definitions is provided on page 17. Words included in the glossary appear in *italized font* the first time they are used in the text.

This Proposed Plan summarizes the site history, environmental investigations, risk assessments, and *remedial alternative* evaluations conducted at IR Site 35, and describes the basis for choosing the preferred alternatives. The Navy will consider public comments on this Proposed Plan during preparation of the *Record of Decision (ROD)* document for IR Site 35.

THE CERCLA PROCESS

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* and Section 300.430(f)(2) of the *National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*. The flow chart to the right illustrates the current status of IR Site 35 in the CERCLA process.

The Proposed Plan summarizes information detailed in the *Remedial Investigation (RI) and Feasibility Study (FS) Reports* and other supporting documents contained in the Administrative Record file for IR Site 35. The Navy encourages the public to review these documents to gain an understanding of the environmental investigation, risk assessment, and remedial alternative evaluation activities that have been conducted. The documents are available for public review at the location listed on Page 16.

SITE DESCRIPTION AND BACKGROUND

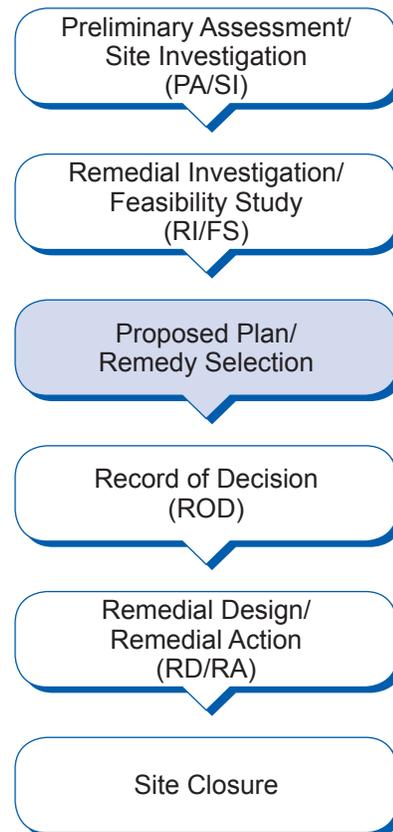
Former NAS Alameda, now called Alameda Point, ceased naval operations in 1997. Alameda Point is located on the western tip of Alameda Island, which is on the eastern side of San Francisco Bay (Figure 1). IR Site 35 consists of 23 study areas within Transfer Parcel EDC-5. These 23 study areas occupy about 75 acres and are distributed across the northeastern portion of Alameda Point (Figure 2). IR Site 35 is generally bounded by Oakland Inner Harbor on the north, Main Street on the east, Transfer Parcel EDC-10 and Seaplane Lagoon on the south, and Transfer Parcels EDC-7, EDC-9, EDC-15, and Public Benefit Conveyance (PBC) Parcel 1A on the west.

IR Site 35 consists of open space, residences, and commercial/industrial buildings. The land was largely undeveloped prior to 1940. By 1940 the site was used for industrial military activities and by 1947 the site looked much as it does today. Historical Navy site uses included living quarters, medical facilities, maintenance facilities, water towers, air terminal offices, educational buildings, hobby shops, dog

training and kenneling facilities, a plant nursery (with reported pesticide mixing and storage), materials storage areas, communication towers, hazardous materials storage, chemical storage, fuel storage tanks, and oil/water separators. Potential sources of contamination in soil and groundwater at IR Site 35 include the historical and recent operations conducted within Transfer Parcel EDC-5 boundaries.

Groundwater beneath IR Site 35 is not presently used as a drinking water source. Drinking water at Alameda Point is provided by East Bay Municipal Utilities District. Groundwater underlying the eastern portion of IR Site 35 is classified as a potential drinking water source. Groundwater underlying the western portion of IR Site 35 (west of Saratoga Street) is not considered a potential drinking water source because of the poor quality of the water. Thus, drinking water standards apply to groundwater in the eastern portion of IR Site 35 but do not apply to groundwater in the western portion.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) PROCESS



 Current Phase

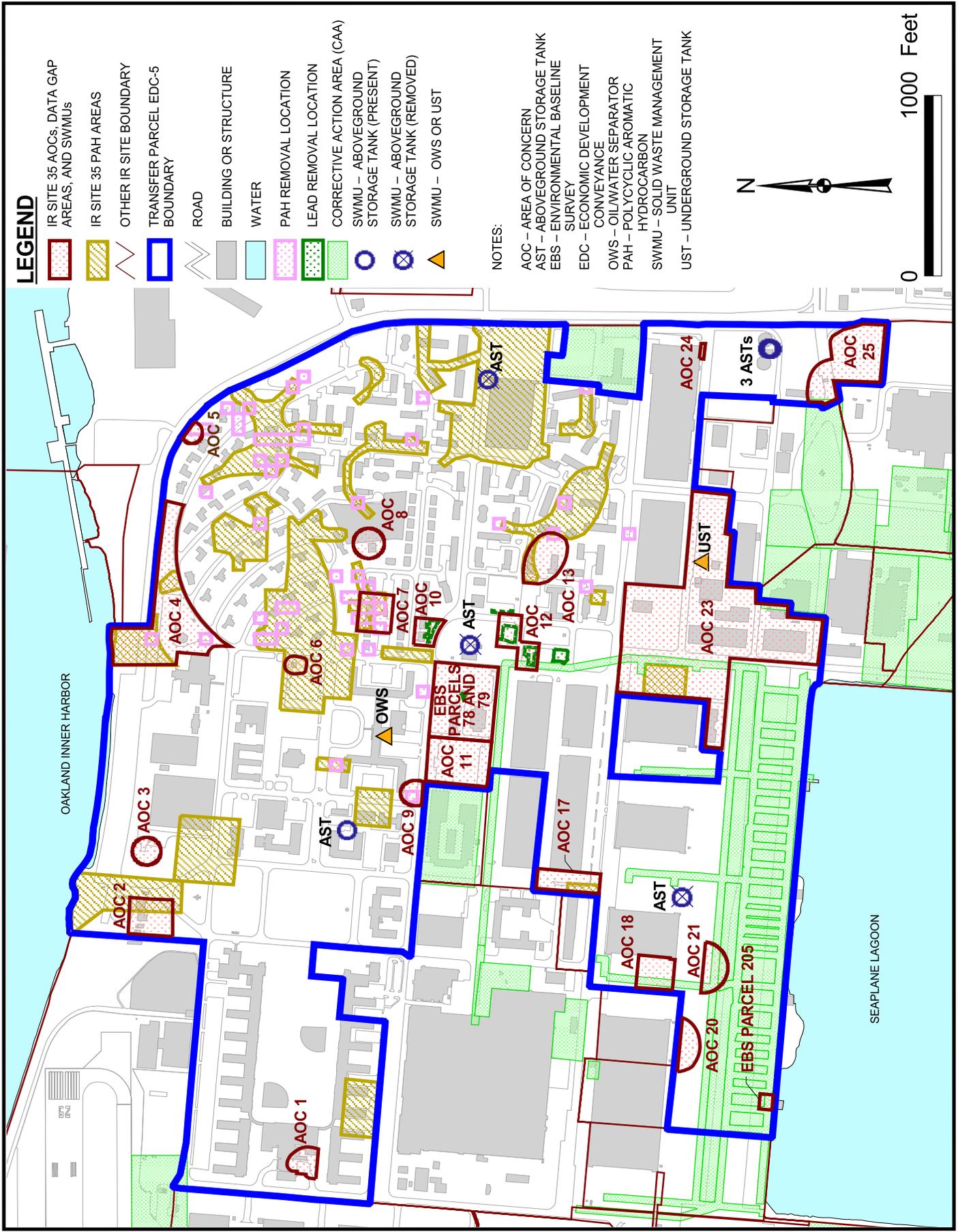


Figure 2. IR Site 35 AOCs, Data Gap Areas, and SWMUs.

The City of Alameda General Plan Amendment has designated Transfer Parcel EDC-5, which contains IR Site 35, for “mixed use” which includes industrial, residential, commercial, and open space.

PREVIOUS SITE INVESTIGATIONS

Numerous investigations of soil and groundwater have been conducted at IR Site 35. The Remedial Investigation/Feasibility Study (RI/FS) Report, as well as other documents containing information about the environmental investigations conducted at IR Site 35, is available for public review at the location listed on Page 16.

An RI/FS for IR Site 35 was conducted from 2005 to 2007. For the RI portion of the RI/FS, over 350 groundwater and 120 soil samples were collected and analyzed for one or more of the following: *volatile organic compounds (VOCs)*, *semivolatile organic compounds (SVOCs)*, *total petroleum hydrocarbons (TPH)*, PAHs, pesticides, *polychlorinated biphenyls (PCBs)*, and metals.

The FS portion of the RI/FS developed and evaluated remedial action alternatives to address human-health risks from pesticides in soil at AOC 3, lead in soil at AOCs 10 and 12, and VOCs in groundwater at AOCs 1 and 23. The FS also addressed PAHs in soil across Transfer Parcel EDC-5.

REMOVAL ACTION SUMMARY

Prior response actions at IR Site 35 included removing soil containing lead at AOCs 10 and 12 and EBS Parcel 79; and PAHs in soil at several areas within Transfer Parcel EDC-5. AOCs 10 and 12 are sites that used to house water towers formerly painted with lead-based paint. Each time the water towers were repainted, old paint was scraped off and fell to the ground, raising the concentration of lead in the soil to levels above health-based standards. Similarly, scraping and repainting of two former radio towers (one in AOC 10 and one in EBS Parcel 79) resulted in an increased concentration of lead in the soil under the towers. Between November 2002 and July 2003, the Navy removed approximately 1,600 cubic yards of soil from these areas, using an action level of 199 milligrams per kilogram (mg/kg) for the removal. However, localized lead concentrations above 199 mg/kg remain in soil under hardscape at these sites.

In 2003, the Navy removed PAH-contaminated soil in a residential area referred to as the West Housing Area. These PAHs are not related to a Navy

release, but appear to be associated with the fill at the site which was placed there before the Navy obtained the property. Soil from the upper 2 feet below ground surface (bgs) was removed in a grid pattern at EBS Parcels 62, 96, 97 (AOC 4); 80 (AOC 9); 98 (including AOCs 5 and 7); and 103 (including AOCs 13 and 14). A concentration of 1 mg/kg for PAHs (measured as the *benzo[a]pyrene* equivalent concentration) was used as a value to identify areas to be targeted for removal. Approximately 5,400 cubic yards of soil was removed from nonpaved areas. Following the PAH removal action, the average benzo(a)pyrene equivalent concentration in soil from the upper 2 feet was calculated as 0.116 mg/kg. This is below the Alameda Point residential screening level of 0.62 mg/kg. The excavated soil from both removal actions was properly disposed off-site and replaced with clean fill material.

In addition, a time critical removal action (TCRA) was conducted by the Navy between February and March 2002. During the TCRA, over 200 cubic yards of contaminated soil was removed to a maximum depth of 2 feet bgs near Building 195 (a former pesticide mixing area) in EBS Parcel 98, south of AOC 8. Results of confirmation sampling indicated that residual PCBs, pesticides, and lead levels in soil were below their respective cleanup levels.

RI/FS REPORT SUMMARY AND CONCLUSIONS

Previous investigations and historical uses of Transfer Parcel EDC-5 led the Navy and regulatory agencies to conclude that further study of portions of EDC-5 were necessary. These areas within EDC-5 were defined as IR Site 35 and were the subject of the RI/FS conducted between 2005 and 2007.

The RI/FS examined 19 AOCs; two “data gap” areas (areas where more information was needed); one study area consisting of SWMUs (aboveground tanks, an oil/water separator, and an underground storage tank); and one study area referred to as the PAH Areas (which addressed PAHs in soil anywhere in Transfer Parcel EDC-5 that were present at concentrations above the Alameda Point residential screening level of 0.62 mg/kg). TPH in soil and groundwater is being addressed under the petroleum program and is not discussed further in this Proposed Plan.

Results of the RI investigation showed that most of IR Site 35 is suitable for unrestricted use with no further action required. Based on a review of previous investigations and discussions with the regulatory

agencies, a few AOCs were recommended for further investigation in the FS. A summary of the RI/FS findings for AOCs 1, 3, 10, 12, and 23 is presented below. A summary of PAHs in soil is also provided.

AOC 1 – Former Housing/Barracks Area. Levels of contamination in soil are low and do not pose an unacceptable risk for current or proposed future site uses. The RI recommended no action for soil at AOC 1. Naphthalene (a VOC) is present in groundwater and is associated with an oil/water separator. The Navy recently conducted a supplemental investigation which confirms that naphthalene in groundwater is of limited extent. Based on discussions with the regulatory agencies, the Navy evaluated groundwater remedial alternatives for naphthalene in groundwater in the FS.

AOC 3 – Portion of Golf Course, Clubhouse, and Nursery Building. Heptachlor (a pesticide) was detected in only one location in shallow soil (upper 2 feet bgs) in an area formerly used for storing and mixing of pesticides. Contamination in soil exceeds the regulatory screening criterion, and the FS evaluated remedial alternatives for soil. Soil sampling has defined the vertical extent of heptachlor contamination and groundwater sampling shows that the contamination has not migrated into groundwater. The RI therefore recommended no action for groundwater, and an evaluation of remedial alternatives for soil only.

AOCs 10 and 12 – Water Towers (AOCs 10 and 12) and Radio Tower (AOC 12). Lead (a heavy metal) is present in shallow soil (upper 1.5 feet bgs). The extent of lead in soil is well defined both laterally and vertically and is above the water table. Based on fate-and-transport characteristics, lead is not expected to migrate to groundwater. Therefore, the RI recommended evaluation of remedial alternatives for soil and no action for groundwater at AOCs 10 and 12.

AOC 23 – Storage Shed. Levels of contamination in soil do not pose an unacceptable risk for current or proposed future site uses. Therefore, the RI recommended no action for soil at AOC 23. Vinyl chloride and 1,2-dichloroethane (1,2-DCA; both VOCs) in groundwater are present at concentrations slightly above regulatory guidelines. While it is considered an unlikely use, groundwater in this area is designated a potential drinking water source; therefore, concentrations were compared to

maximum contaminant levels (MCLs). 1,2-DCA (a gasoline additive) is found in the eastern portion of AOC 23 and is likely associated with the adjacent fuel corrective action area; this is being addressed under the petroleum program. Therefore, the RI recommended no action for 1,2-DCA and evaluation of remedial alternatives for vinyl chloride in groundwater.

PAHs in Soil – PAHs in soil have been subjected to a removal action as previously described. Risks associated with the PAHs in soil are at the lower end of the risk management range. Based on discussions with the regulatory agencies, the Navy considered PAHs in soil in the FS portion of the RI/FS Report.

RISK ASSESSMENT PROCESS

In the context of environmental investigations and actions, “risk” can be defined as the likelihood or probability that a hazardous substance, when released to the environment, will cause adverse effects on exposed human or other biological receptors (those who may be at risk). To determine whether the risks justify reducing exposure to contaminants at a site, a risk assessment is performed, including a *human health risk assessment (HHRA)* and/or an *ecological risk assessment (ERA)*.

The ways that receptors may be exposed to the chemicals of concern in soil and groundwater are called exposure pathways. These exposure pathways are based on current and reasonable future exposure scenarios. To account for uncertainty and to be representative, the risk calculations use statistical methods and a reasonable maximum exposure to assure that risks are not underestimated. Exposure pathways for IR Site 35 are shown in Table 1.

Human health risk is classified as non-cancer risk (from exposure to non-carcinogens) or cancer risk (from exposure to carcinogens). A *hazard index (HI)* of 1 or less is considered to be an acceptable exposure level for non-cancer health hazards. Cancer risk is a statistical probability and is not based on actual cases of cancer. Cancer risk estimates the probability that an individual’s baseline or normal risk of cancer could increase as a result of exposure. The likelihood of any kind of cancer resulting from exposure to chemicals is generally expressed as an upper bound probability. For example, a 1 in 10,000 chance is a risk of 1×10^{-4} . In this case, for every 10,000 people, one additional cancer case may occur as a result of exposure. A 1 in 1,000,000 chance is a risk of 1×10^{-6} . In this case, for every

1,000,000 people, one additional cancer case may occur as a result of exposure. In accordance with EPA guidance, the risk management range is 10^{-4} to 10^{-6} . The risk management range was established by EPA to set guidelines for making risk management decisions.

For non-cancer effects, a *hazard quotient (HQ)* is calculated. An HQ of 1 or greater indicates that a lifetime of exposure may have potential for causing adverse health effects. The HQ is based upon effects of a single chemical. For multiple chemicals, the HQs are added together to obtain the HI. As a useful reference for assessing health effects, the HI is commonly used to express health effects of chemical mixtures.

EPA guidance states: “Where the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure for both current and future land use is less than 10^{-4} and the non-carcinogenic HQ is less than 1, action generally is not warranted unless there are adverse environmental impacts. However, if MCLs or non-zero maximum contaminant level goals (MCLGs) are exceeded, action generally is warranted.” Site-specific factors are typically considered at sites where the cancer risks are in the 10^{-4} to 10^{-6} range when decisions are being made about whether action will be taken. Cancer risks below 10^{-6} are generally considered insignificant. For cancer risks above the risk management range of 10^{-4} to 10^{-6} , action is generally required.

HUMAN HEALTH RISK ASSESSMENT SUMMARY

The HHRA presented in the IR Site 35 RI/FS Report prepared in 2007 evaluated risk to human receptors based on the planned future use of IR Site 35 as mixed use, which includes residential use. The residential exposure scenario was the only scenario evaluated in detail because it is protective of all other potential uses. The conclusions of the HHRA for IR Site 35 are summarized below.

No action was recommended for AOCs 2, 4, 5, 6, 7, 8, 9, 11, 13, 17, 18, 20, 21, 24, 25, and EBS Parcels 78 and 205; and no further action for EBS Parcel 79 because levels of contamination do not pose an unacceptable risk for current or proposed future site uses. Separate calculations were also performed to evaluate risks associated with PAHs in soil across Transfer Parcel EDC-5. The transfer parcel was subdivided into smaller areas called “decision areas” (DAs) for the purposes of the PAH risk assessment,

Table 1. Exposure Pathways and Potential Receptors: Soil and Groundwater

<p>➤ Soil Pathways</p> <ul style="list-style-type: none"> • Direct contact with soil through dermal absorption • Ingestion of soil • Inhalation of dust • Ingestion of produce grown in local soil
<p>➤ Groundwater Pathways</p> <ul style="list-style-type: none"> • Direct contact with shallow groundwater through dermal (skin) absorption (e.g., showering), only if groundwater is used for potable or domestic purposes, which is presently unlikely • Ingestion of groundwater (drinking), only if groundwater is used for potable or domestic purposes, which is presently unlikely • Inhalation of vapors in air from water resulting from household use (e.g., showering), only if groundwater is used for potable or domestic purposes, which is presently unlikely • Inhalation of vapors in air from shallow groundwater

in order to assure that the estimates of potential human-health risks were conservative. A summary of the HHRA for those sites for which an FS was recommended is detailed below.

AOC 1 Risk Characterization

Groundwater beneath AOC 1 is not a drinking water source and therefore groundwater ingestion was not included in the risk calculations. The risk driver for both cancer risk and the HI is naphthalene in indoor air. The human health risks were calculated using a conservative approach and the maximum naphthalene concentration in groundwater. The cancer risk is within the risk management range and the non-cancer HI is slightly above 1. Since human health risks were calculated using the maximum naphthalene concentration, the results of the risk assessment are therefore protective.

AOC 3 Risk Characterization

For a residential use scenario, the cancer risk for soil is above the risk management range and the non-cancer HI is above 1. Both the cancer risk and non-cancer HI are due to the pesticide heptachlor in an area historically used for storing and mixing pesticides.

AOC 23 Risk Characterization

AOC 23 is located east of Saratoga Street and, while such use is unlikely, groundwater in this area is considered a potential domestic water source. Vinyl chloride (around Building 13 and south of Building 66) was reported at concentrations in groundwater slightly exceeding the MCL of 0.5 microgram per liter in four of 43 grab samples collected during the RI. In supplemental investigations, only one sample exceeded the MCL at 0.7 microgram per liter.

AOCs 10 and 12 Lead Exposure Evaluation

Lead removal actions have been undertaken at AOCs 10 and 12. A human health risk evaluation was performed on soil remaining after the removal actions were completed and evaluated for exposure to lead. Protective values for lead levels in soil for residential use are calculated using California EPA's model which determines a site-specific concentration that is safe for children. The calculated site-specific concentration for IR Site 35 is 184 mg/kg (which includes ingestion of homegrown produce) and this value was compared to remaining levels in soil at AOCs 10 and 12. After the removal actions, the site-wide lead concentration in each of these AOCs was significantly below the site-specific residential lead level of 184 mg/kg; however, the Navy evaluated additional soil cleanup alternatives for lead in soil beneath hardscape in the FS portion of the RI/FS Report.

PAH Risk Characterization

PAHs in soil are well characterized with over 1,500 samples taken throughout Transfer Parcel EDC-5. Risks associated with PAHs in soil were calculated for 18 DAs for three depth intervals: 0 to 2 feet; 0 to 4 feet; and 0 to 8 feet bgs. Portions of 12 DAs were subjected to a PAH soil removal action, while the other 6 DAs did not require a removal action because PAHs at these areas were already below the Alameda Point residential screening level of 0.62 mg/kg. Risk calculations performed on post-removal action soil concentrations showed that the risk is at the lower end of the risk management range for all depth intervals across all DAs, and the non-cancer HIs are substantially less than 1. The estimated risks associated with soil from these areas have a high level of confidence based upon the extensive data available for the site.

ECOLOGICAL RISK ASSESSMENT (ERA) SUMMARY

Evaluation of ecological risk to terrestrial receptors was performed during the Site Inspection and

potential impact to aquatic (water-dwelling) receptors was assessed in the RI/FS Report. Habitat surveys were performed for Transfer Parcel EDC-5, and it was concluded that no suitable wildlife habitat exists in this area. Based on the absence of suitable habitat and the absence of threatened, endangered, or special-status species at IR Site 35, the Navy and regulatory agencies agreed that an ERA of terrestrial receptors was not needed. Groundwater results for IR Site 35 study areas adjacent to or near surface water bodies were compared to regulatory criteria for protection of aquatic receptors in the RI. The RI concluded that it is unlikely that chemicals with elevated concentrations in groundwater would reach surface water.

REMEDIAL ACTION OBJECTIVES

To evaluate alternatives for addressing remedies at a site, *remedial action objectives (RAOs)* are developed during the FS phase to identify areas for potential remedial action, screen the appropriate types of technologies, and assess a remedial alternative's ability to achieve required objectives.

The general RAOs for IR Site 35, as presented in the FS portion of the RI/FS Report, are as follows.

- Protect existing beneficial uses of groundwater underlying IR Site 35.
- Protect existing beneficial uses of surface water for those portions of IR Site 35 that are adjacent to surface water.
- Protect human health by preventing unacceptable exposure to impacted soil.
- For those areas where groundwater is considered a potential drinking water source for CERCLA decision-making purposes, protect human health by preventing exposure to concentrations of chemicals of concern that present unacceptable risk for domestic use and other complete exposure pathways.
- For those areas where groundwater is not considered a potential drinking water source for CERCLA decision-making purposes, protect human health by preventing unacceptable exposure to VOCs via inhalation of indoor air vapors that may migrate from groundwater.

Groundwater beneath IR Site 35 is not used for drinking water but, as previously noted, a portion of the groundwater zone underlying IR Site 35 is classified as a potential drinking water source. RAOs must therefore take into consideration potential domestic use of groundwater.

This Proposed Plan provides proposed *remediation goals (RGs)*. Final RGs will be established in the ROD. The proposed RGs for soil are as follows:

- Heptachlor at AOC 3: 0.11 milligram per kilogram
- Lead at AOCs 10 and 12: 184 milligrams per kilogram

SUMMARY OF REMEDIAL ALTERNATIVES

Remedial alternatives for soil and groundwater that were evaluated ranged from no action (required by CERCLA as a baseline for comparison) to active remediation.

Soil Alternatives

Twelve remedial alternatives for IR Site 35 soil at AOCs 3, 10, and 12 and the PAH Areas were developed and screened in the FS portion of the RI/FS Report. The alternatives for soil include the following and are described in Table 2:

Comparative Analysis of Alternatives for Soil Specific to AOC 3:

- Alternative AOC 3-1 – No Action
- Alternative AOC 3-2 – Soil Cover and/or *Institutional Controls (ICs)*
- Alternative AOC 3-3 – Excavation and Off-Site Disposal

Comparative Analysis of Alternatives for Soil Specific to AOCs 10 and 12:

- Alternative AOC 10/12-1 – No Further Action
- Alternative AOC 10/12-2 – Limited Excavation, Cover, and ICs
- Alternative AOC 10/12-3 – Excavation and Off-Site Disposal

Comparative Analysis of Alternatives for Soil Specific to PAH Areas:

- Alternative PAH-1 – No Further Action
- Alternative PAH-2 – ICs
- Alternative PAH-3a – Excavation in Unpaved Areas to 2 feet bgs and ICs
- Alternative PAH-3b – Excavation to 2 feet bgs and ICs
- Alternative PAH-4a - Excavation in Unpaved Areas to 4 feet bgs and ICs
- Alternative PAH-4b – Excavation to 4 feet bgs

Groundwater Alternatives

Nine remedial alternatives for IR Site 35 groundwater at AOCs 1 and 23 were developed and screened

in the FS portion of the RI/FS Report, and seven were retained for detailed analysis. The retained alternatives for groundwater include the following and are described in Table 3:

- Alternative AOC 1-1 – No Action
- Alternative AOC 1-2 – *Monitored Natural Attenuation (MNA)* and ICs
- Alternative AOC 1-3 – Source Removal, Enhanced Aerobic *In Situ Bioremediation*, and ICs
- Alternative AOC 1-5 – *In situ* chemical oxidation (ISCO) and ICs
- Alternative AOC 23-1 – No Action
- Alternative AOC 23-2 – MNA and ICs
- Alternative AOC 23-4 – ISCO and ICs

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

CERCLA requires that remedial actions meet federal or state (if more stringent) environmental standards, requirements, criteria, or limitations that are determined to be *applicable or relevant and appropriate requirements (ARARs)*. A summary of the significant potential ARARs that will be met by the preferred alternatives for soil and groundwater at IR Site 35 can be found on page 15 (Table 8).

COMPARISON OF ALTERNATIVES

Selection of the preferred alternative for each AOC or area is based on comparison against the nine NCP criteria, as presented in Figure 3.

The nine criteria include: two threshold criteria, which must be met; five balancing criteria, which can be met in varying degrees; and two modifying criteria, reflecting agency and community acceptance. The last criterion is determined following the close of the public comment period. Tables 5, 6, and 7 compare the remedial alternatives for IR Site 35 against the nine NCP criteria.

1. **Overall Protection of Human Health and the Environment.** All of the soil alternatives, except the no-action alternative AOC 3-1 and alternative AOC 10/12-1, are protective of human health and the environment. All of the groundwater alternatives are protective of human health and the environment. The soil no-action alternative AOC 3-1, which failed this first criterion, will not be evaluated further.

Table 2. Remedial Alternatives for Soil – AOCs 3, 10/12, and PAH Areas

Alternative	Time (years)	Total Cost (\$ Millions)	Description
No Action AOC 3-1 AOC 10/12-1 PAH-1	0	0	No action is required by CERCLA to be evaluated as an alternative to establish a baseline from which to compare the other alternatives. Under this scenario, no action would be performed at AOC 3, and no further action would be performed at AOC 10/12 or the PAH Areas.
Cover and/or Institutional Controls (ICs) AOC 3-2	30	\$0.37	These alternatives involve the maintenance of existing pavement (AOC 10/12-2) or the installation of a new soil or asphalt cover (AOC 3-2) to act as a barrier between the underlying impacted soil and potential receptors. ICs would protect the new cover and existing pavements, and would prohibit actions that could damage or reduce the cover's effectiveness. AOC 10/12-2 includes limited excavation and off-site disposal of lead-impacted soil containing residues at concentrations above RGs in unpaved areas. Storm drains containing sediment or other solid residues with lead concentrations above RGs would also be cleaned out and disposed off-site. Once lead-impacted soil is removed, ICs would be discontinued. PAH-2 includes only ICs.
AOC 10/12-2 (with limited excavation)	30	\$0.61	
PAH-2 (ICs only)	30	\$0.24	
Excavation and Off-Site Disposal AOC 3-3	<1	\$0.40	These six alternatives involve removal of impacted soil in varying amounts at each respective study area. Where necessary, existing paved surfaces would be demolished and removed to access underlying soil contamination. PAH-3a and PAH-3b would involve excavation to 2 feet bgs and removal of soil with B(a)P equivalent concentrations above the RG. PAH-4a and PAH-4b would involve excavation to 4 feet bgs and removal of soil with B(a)P equivalent concentrations above the RG. Under PAH-3a and PAH-4a, however, paved areas would not be excavated and pavement-maintenance activities and ICs would be instituted for soil in the 2- to 4-foot bgs range with B(a)P equivalent concentrations above the RG. Under PAH-3b and PAH-4b, both paved and unpaved areas would be excavated. PAH-3b would include ICs for soil in the 2- to 4-foot bgs interval and B(a)P equivalent concentrations above the RG; PAH-4b would not include ICs.
AOC 10/12-3	<1	\$0.55	
PAH-3a (excavation in unpaved areas to 2 ft below ground surface [bgs] and ICs)	30	\$0.39	
PAH-3b (excavation to 2 ft bgs and ICs)	30	\$0.55	
PAH-4a (excavation in unpaved areas to 4 ft bgs and ICs)	30	\$2.0	
PAH-4b (excavation to 4 ft bgs)	<1	\$2.5	

B(a)P = benzo(a)pyrene

RG = remediation goal

Table 3. Remedial Alternatives for Groundwater – AOCs 1 and 23

Alternative	Time (years)	Total Cost (\$ Millions)	Description
No Action AOC 1-1 and AOC 23-1	0	0	No action is required by CERCLA to be evaluated as an alternative to establish a baseline from which to compare the other alternatives. Under this scenario, no actions would be performed at AOC 1 and AOC 23.
Monitored Natural Attenuation (MNA) and Institutional Controls (ICs) AOC 1-2 and AOC 23-2	10	AOC 1-2: \$0.44 AOC 23-2: \$0.50	MNA relies on naturally occurring processes to continue reducing contaminant levels in groundwater. A groundwater investigation would be performed at AOC 1 and AOC 23 to refine the area to be monitored. Monitoring wells would be installed to collect samples for the MNA program at AOC 1 because no groundwater monitoring wells currently exist in the impacted area. ICs at AOC 1 and AOC 23 would prohibit actions that would interfere with MNA. ICs at AOC 23 would also prohibit groundwater extraction and use until remediation is complete.
Source Removal, Enhanced Aerobic <i>In situ</i> Bioremediation (ISB), and ICs AOC 1-3	10	\$0.88	Alternative AOC 1-3 includes removal of the suspected source area (the oil/water separator at AOC 1) and adjacent impacted soil, enhanced ISB, and ICs to address the limited extent of naphthalene in groundwater at AOC 1. Monitoring wells would be installed to track the progress of aerobic ISB. ICs are described in Table 4.
<i>In situ</i> Chemical Oxidation (ISCO) and ICs AOC 1-5 and AOC 23-4	2	AOC 1-5: \$0.50 AOC 23-4: \$0.85	This alternative would use ISCO to treat groundwater at AOC 1 and AOC 23. ICs at AOC 1 and AOC 23 would prohibit actions that would interfere with treatment. ICs at AOC 23 would prohibit groundwater extraction and use until remediation is complete.

- Compliance with ARARs.** All of the alternatives meet the ARARs (see Page 15).
- Long-Term Effectiveness and Permanence.** All of the soil alternatives, except AOC 3-1, have some degree of long-term effectiveness and permanence. However, excavation for removal of PAH-impacted soil is not expected to reduce PAH-related risks appreciably since current PAH risks are at the lower end of the risk management range. All of the groundwater alternatives are at least moderately effective in the long term.
- Reduction of Toxicity, Mobility, or Volume through Treatment.** Soil alternatives AOC 3-3, AOC 10/12-2, and AOC 10/12-3 would be best at achieving reduction of toxicity, mobility, or volume. PAH alternatives involve ICs and varying degrees of excavation, but no treatment. Therefore, all of the PAH alternatives are rated the same for

this criterion. Groundwater alternatives AOC 1-3, AOC 1-5, and AOC 23-4 would be best at achieving reduction of toxicity, mobility, or volume for groundwater. Groundwater alternatives AOC 1-2 and AOC 23-2 would be less effective in achieving this criterion because they rely on naturally occurring processes without additional treatment.

- Short-Term Effectiveness.** Soil alternatives AOC 3-3 and 10/12-3 would be the most effective in the short term. Soil alternatives PAH-2, -3a, -3b, and -4a are moderately effective in the short term. Soil alternative PAH-4b is not considered to be as effective since it involves significant additional excavation and does not accomplish any appreciable risk reduction. All the groundwater alternatives are moderately effective in the short term.

6. **Implementability.** All the soil and groundwater alternatives are implementable. Soil alternatives AOC 3-3 and AOC 10/12-3 are the most readily implementable because the services of excavation and off-site disposal are readily available and the excavation areas are relatively small. PAH-1 is the most implementable alternative.
7. **Cost.** Alternatives AOC 3-3, AOC 10/12-2, and PAH-4b are the most expensive soil remedial alternatives. Alternatives AOC 1-3 and AOC 23-4 are the most expensive groundwater remedial alternatives.
8. **State Agency Acceptance.** The state of California, as a participant in the decision-making team, has reviewed the Proposed Plan and supports the preferred alternatives.
9. **Community Acceptance.** Community acceptance will be evaluated after the public comment period closes. A Responsiveness Summary in the ROD will document responses to public comments on this Proposed Plan.

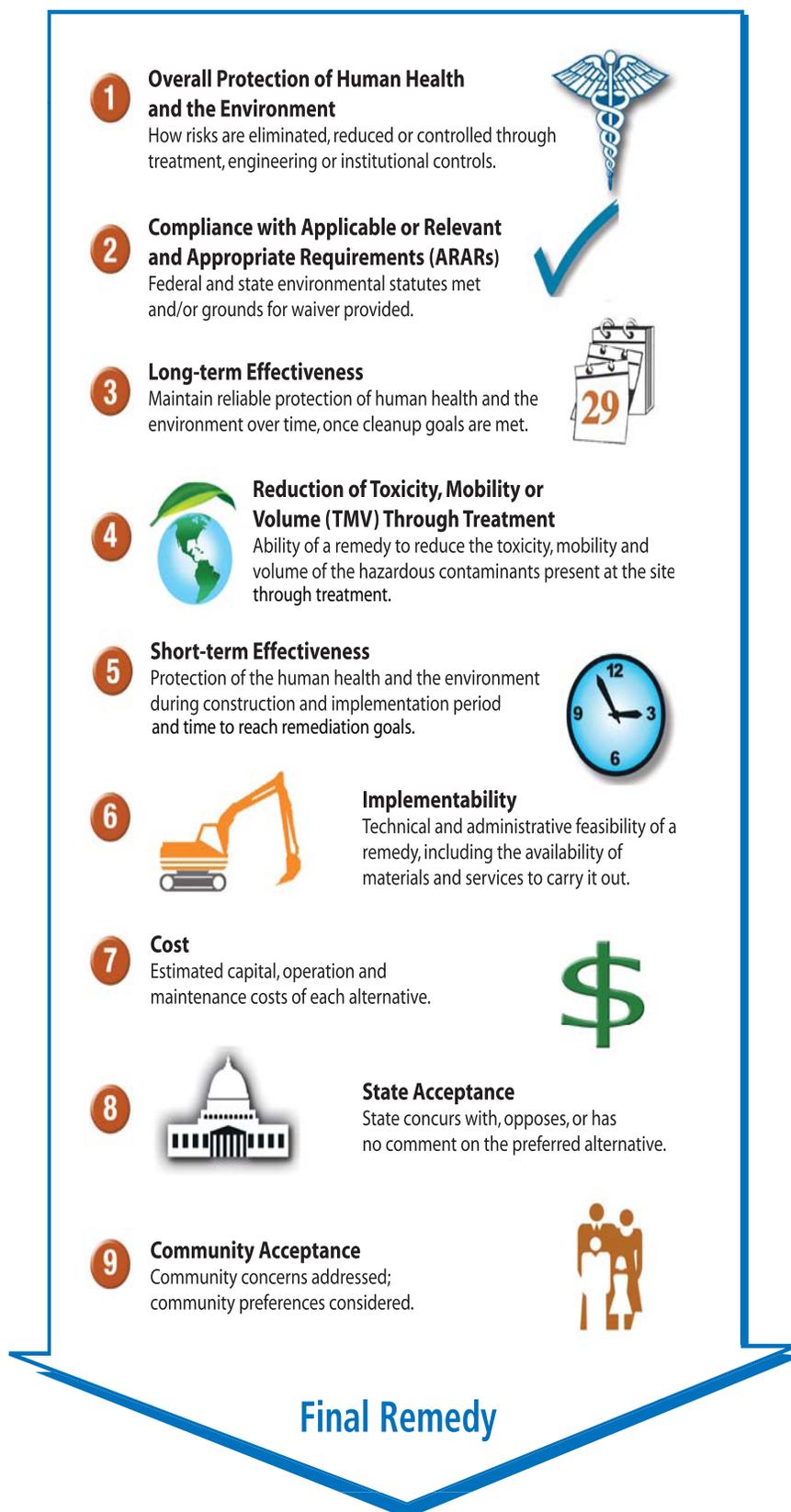


Figure 3. Nine Alternatives Evaluation Criteria

ICs, which are included in some of the remedial alternatives for both soil and groundwater, are presented in Table 4, below.

Table 4. Institutional Controls

ICs described in this Proposed Plan include land use restrictions that would be established to limit human exposure to contaminated soil and groundwater until the risk-based remediation goals in the ROD and applicable or relevant and appropriate requirements (ARARs) have been met.

ICs are a component of soil alternatives AOC 3-2, AOC 10/12-2, PAH-2, PAH-3a, PAH-3b, and PAH-4a; and groundwater alternatives AOC 1-2, AOC 1-3, AOC 1-5, AOC 23-2, and AOC 23-4; and would be implemented as soon as feasible. ICs are not a component of the no-action alternatives and soil alternatives AOC 3-3, AOC 10/12-3, and PAH-4b.

If the property within IR Site 35 is transferred to a non-federal entity, the land use restrictions will be incorporated into and implemented through two separate legal instruments:

1. Restrictive covenants included in a "Covenant to Restrict Use of Property" provided in the Navy and DTSC 2000 Memorandum of Agreement and consistent with the substantive provisions of California Code of Regulations Title 22, § 67391.1.
2. A Quitclaim Deed from the Navy to the property recipient.

If the property within IR Site 35 is transferred to a federal department or agency, the land use restrictions will be incorporated into a Memorandum of Agreement or similar agreement.

Proposed Land Use Restrictions:

- Prohibit alteration, disturbance, or removal of Navy extraction, injection, and monitoring wells and associated piping and equipment, any component of a response or cleanup action, or associated utilities without the prior review and written approval of the Navy.
- Prohibit extraction of groundwater and installation of new groundwater wells until the risk-based remedial goals in the ROD have been reached, unless written approval is obtained from the regulatory agencies and the Navy.
- Future land use restrictions to reduce exposure to site chemicals of concern until remediation goals are met.
- Restrictions on future excavations.
- Access limitations.

Access Provisions:

- Access provisions are required to ensure the Navy and the regulatory agencies have access to remedial equipment and other remedy components for the purpose of implementing the remedial action, performing maintenance activities, and conducting monitoring.

Table 5. Comparative Analysis of Alternatives for Soil Specific to AOCs 3, 10, and 12

NCP Criteria	Alternatives					
	AOC 3-1 No Action	AOC 3-2 Soil Cover and ICs	AOC 3-3 Excavation and Off-Site Disposal	AOC 10/12-1 No Further Action	AOC 10/12-2 Limited Excavation, Cover, and ICs	AOC 10/12-3 Excavation and Off-Site Disposal
Overall protectiveness	No	Yes	Yes	No	Yes	Yes
Compliance with ARARs	NE	Yes	Yes	Yes	Yes	Yes
Long-term effectiveness and permanence	NE	●	●	○	●	●
Reduction of toxicity, mobility, or volume through treatment	NE	○	●	○	●	●
Short-term effectiveness	NE	●	●	○	●	●
Implementability	NE	●	●	●	●	●
Cost (\$M)*	NE	●	●	●	○	●
		0.37	0.40	0	0.61	0.55
State acceptance	The state of California agrees with the preferred remedies					
Community acceptance	To be evaluated after public comment period					

Table 6. Comparative Analysis of Alternatives for Soil Specific to PAH Areas

NCP Criteria	Alternatives					
	PAH-1 No Further Action	PAH-2 ICs	PAH-3a Excavation in Unpaved Areas to 2 feet bgs and ICs	PAH-3b Excavation to 2 feet bgs and ICs	PAH-4a Excavation in Unpaved Areas to 4 feet bgs and ICs	PAH-4b Excavation to 4 feet bgs
Overall protectiveness	Yes	Yes	Yes	Yes	Yes	Yes
Compliance with ARARs	Yes	Yes	Yes	Yes	Yes	Yes
Long-term effectiveness and permanence	●	●	●	●	●	●
Reduction of toxicity, mobility, or volume through treatment	○	○	○	○	○	○
Short-term effectiveness	●	●	●	●	●	○
Implementability	●	●	●	●	●	●
Cost (\$M)*	●	●	●	●	○	○
	0	0.24	0.39	0.55	2.0	2.5
State acceptance	The state of California agrees with the preferred remedies					
Community acceptance	To be evaluated after public comment period					

Note:
*based on net present value

NE - not evaluated because it did not meet
threshold criteria
M - millions

Relative Performance:
○ = low
● = medium
● = high

Alternatives AOC 3-3, AOC 10/12-3, and
PAH-1 are the Preferred Alternatives for soil

PREFERRED ALTERNATIVES

The Navy, in coordination with the regulatory agencies, has developed preferred alternatives for IR Site 35 groundwater and soil based on evaluation against the nine NCP criteria.

For soil, the following alternatives are preferred:

AOC 3 – Heptachlor in soil: Alternative AOC 3-3 (Excavation and Off-Site Disposal) was rated highest overall in satisfying the balancing criteria and was judged most effective in the long and short term and

more implementable than Alternative AOC 3-2 (Soil Cover and ICs). The alternatives are comparable in cost.

AOCs 10 and 12 – Lead in soil: Alternative 10/12-3 (Excavation and Off-Site Disposal) was rated highest overall in satisfying the balancing criteria and was judged most effective in the long and short term and less costly than Alternative 10/12-2 (Limited Excavation, Cover, and ICs).

PAH Areas – PAHs in soil: Alternative PAH-1 (No Further Action) is considered protective of human

Table 7. Comparative Analysis of Alternatives for Groundwater for AOCs 1 and 23

NCP Criteria	Alternatives						
	AOC 1-1 No Action	AOC 1-2 MNA and ICs	AOC 1-3 Source Removal, Enhanced Aerobic ISB, and ICs	AOC 1-5 ISCO and ICs	AOC 23-1 No Action	AOC 23-2 MNA and ICs	AOC 23-4 ISCO and ICs
Overall protectiveness	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Compliance with ARARs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Long-term effectiveness and permanence	●	●	●	●	●	●	●
Reduction of toxicity, mobility, or volume through treatment	○	●	●	●	○	●	●
Short-term effectiveness	●	●	●	●	●	●	●
Implementability	●	●	●	●	●	●	●
Cost (\$M)*	●	●	○	●	●	●	○
	0	0.44	0.88	0.50	0	0.50	0.85
State acceptance	The state of California agrees with the preferred remedies						
Community acceptance	To be evaluated after public comment period						
Note:	M - millions			Relative Performance:			
*based on net present value				○ = low			
				● = medium			
				● = high			
Alternatives AOC 1-1 and AOC 23-1 are the Preferred Alternatives for groundwater							

health and the environment. There is a high level of confidence that the results of the risk assessment are representative because the site has been extensively characterized. The Navy has already performed significant excavations for PAHs across IR Site 35. PAH-related risks for soil across IR Site 35 at all depth intervals are at the lower end of the risk management range. The assumptions used in the risk assessment are designed to assure that any actual exposures are not underestimated. Future residential development of the area does not need to be restricted since there is no unacceptable risk.

For groundwater, the following alternatives are preferred:

AOC 1 – Naphthalene in groundwater: Alternative AOC 1-1 (No Action) is considered protective of human health and the environment since risks are within the risk management range. There is a high level of confidence that the exposure assumptions used in the risk assessment do not underestimate exposure because they are designed to represent the reasonable maximum exposure. Future residential development of the area does not need to be restricted since there is no unacceptable risk. The Navy conducted a supplemental investigation and confirmed that naphthalene in groundwater is of limited extent. The Navy will conduct additional sampling, including soil gas sampling, around the oil/water separator to confirm these results.

AOC 23 – Vinyl chloride in groundwater: Alternative AOC 23-1 (No Action) is the preferred alternative. Vinyl

chloride in groundwater slightly exceeded the MCL of 0.5 micrograms per liter in 4 of 43 grab groundwater samples collected during the RI. Results of the supplemental investigation conducted in Winter 2007 indicate levels of vinyl chloride at concentrations below the MCL (except for a single sample at 0.7 micrograms per liter). Remedial action is not necessary and, therefore, the No Action alternative is appropriate.

SUMMARY STATEMENT

The preferred alternatives for soil and groundwater at IR Site 35 meet the NCP threshold criteria and satisfy the following statutory requirements of CERCLA 121(b):

- Protect human health and the environment;
- Are compliant with ARARs;
- Are cost effective; and
- Use permanent solutions and alternative treatment technologies to the maximum extent practicable.

Multi-Agency Environmental Team Concurs with Preferred Remedy

The *Base Realignment and Closure (BRAC)* Cleanup Team (BCT), which has been working cooperatively to address remedial decisions for Alameda Point, concurs with this proposed plan for IR Site 35:

- The Navy
- US EPA Region 9
- DTSC
- San Francisco Bay Water Board

Table 8. Applicable or Relevant and Appropriate Requirements

CERCLA requires that remedial actions meet federal or state (if more stringent) environmental standards, requirements, criteria, or limitations that are determined to be ARARs. Significant potential ARARs that will be met by the preferred remedy for cleanup of soil and groundwater are listed below.

Potential Federal and State ARARs – Soil

The potential federal and state chemical-specific ARARs for IR Site 35 soil include the substantive provisions of the following:

- Groundwater protection standard for hazardous constituents at California Code of Regulations (Cal. Code Regs.) Title (tit.) 22, § 66264.94(a)(1) and (3), (c), (d), and (e) for soil cleanup concentrations to risk-based concentrations.

The following were identified as potential chemical-specific ARARs for characterizing excavated soil prior to off-site disposal:

- RCRA standards to determine if a waste is hazardous in Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100.
- Definition of non-RCRA hazardous waste at Cal. Code Regs. tit. 22, § 66261.3(a)(2)(C) or 66261.3(a)(2)(F), 66261.22(a)(3) and (4), 66261.24(a)(2)–(a)(8), 66261.101(a)(1) and (a)(2).
- Definitions of designated waste, nonhazardous waste, and inert waste at Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230.

Potential Federal and State ARARs – Surface Water

There are no surface water bodies within the boundaries of IR Site 35. Even though it is adjacent to Seaplane Lagoon and Oakland Inner Harbor (which are contiguous with San Francisco Bay), surface water is not a medium of concern for the site. Because the proposed excavation will contact groundwater, dewatering will be necessary. Discharge of treated dewatered groundwater is proposed to Oakland Inner Harbor or Seaplane Lagoon. Therefore, surface water requirements were identified to assist in developing cleanup goals for IR Site 35.

- Clean Water Act (CWA) of 1977, as Amended, water quality standards in the National Toxics Rule and California Toxics Rule standards at 40 CFR § 131.36(b) and § 131.38.
- Basin Plan, Chapters 2 and 3 (Beneficial Uses and Water Quality Objectives) (California Water Code Sections 13240, 13241, 13242 and 13243).
- CWA of 1977, as Amended, 33 USC ch. 26, § 1311(b)(1)(C) and (b)(2) (CWA Section 301[b]); 40 CFR § 125.3.
- Implementation Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, SWRCB 2000, §§ 1.3 and 1.4.

- Substantive requirements of 40 CFR §§ 131.36(b) and 131.38.
- Water Quality Standards at 40 CFR §§ 131.36(b) and 131.38 for dewatering effluent discharge to surface water.
- Effluent limitations that meet technology-based requirements, including best conventional pollution control technology and best available technology economically achievable, specifically, 33 USC ch. 26, § 1311(b) (CWA § 301[b]).

Other Potential Federal and State Location-Specific ARARs

Substantive provisions of the following requirements were determined to be location-specific ARARs for the proposed remedial action:

- The Migratory Bird Treaty Act of 1972 (16 USC § 703) is the only potential biological resource ARAR for the remedial actions at IR Site 35 because it may serve as a corridor between other habitats or as a place of brief resting for migratory birds.
- National Historic Preservation Act of 1966 as Amended (16 USC § 470-470x-6) for areas of the site where the Alameda Historic District may be affected.

Potential Action-Specific ARARs

The following requirements have been determined to be state action-specific ARARs for implementation of institutional controls for property that will be transferred to a nonfederal entity:

- Substantive provisions of California Civil Code § 1471.
- California Health and Safety Code §§ 25202.5, 25222.1, 25233(c), 25234, and 25355.5.
- Cal. Code Regs. tit. 22, § 67391.1.

Substantive requirements of the following provisions have been determined to be federal action-specific ARARs:

- Clean closure requirements at Cal. Code Regs. tit. 22, § 66264.114 are relevant and appropriate ARARs for excavation.
- General requirements for stormwater plans and best management practices set forth in 40 CFR § 122.44(k)(2) and (4) are federal ARARs.

The following requirements were identified as potential ARARs for storing waste prior to off-site disposal:

- Cal. Code Regs. tit. 22, § 66262.34 for accumulating waste in containers.
- Container storage requirements at Cal. Code Regs. tit. 22, § 66264.171–173, § 66264.174, § 66264.175(a) and (b), § 66264.177, and § 66264.178.
- Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f) for alternative container storage that is protective of human health and the environment.
- Staging pile requirements at 40 CFR § 264.554(d)(1) (i–ii) and (d)(2), (e), (f), (h), (i), (j), and (k) for storage of excavated soil prior to off-site disposal.

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Information Repository

Individuals interested in the full technical details beyond the scope of this Proposed Plan can find more detailed documents at the local Information Repository in Alameda:

- Alameda Point – 950 West Mall Square, Bldg 1, Room 240

Supporting documents describing the field investigation, laboratory analysis, and risk assessment are part of the Alameda Point Administrative Record (AR) and are available for your review at the Information Repository in Alameda. These reports include:

- Final Remedial Investigation/Feasibility Study for IR Site 35 (2007), [AR# N00236.002712](#)
- Draft Remedial Investigation/Feasibility Study for IR Site 35 (2006), [AR# N00236.002375](#)
- Site Inspection Report for Transfer Parcel EDC-5 (2005), [AR# N00236.001945](#)
- Final Removal Action Closeout Report, Rev. 1, TCRA for Building 195 Pesticide Shed Demolition and Soil Removal (2004), [AR# N00236.001763](#).
- PAH Field Activity Study (2004) (includes results of the 2002 PAH study), [AR# N00236.001812](#)
- Draft Final Water and Antenna Sites Lead Removal Action Engineering Evaluation and Cost Analysis (2002), [AR#N00236.00364](#).

Did You Know...?

You can read more about the Department of the Navy's environmental program at Alameda Point on the Internet at:

<http://www.bracpmo.navy.mil>

SITE CONTACTS

Community involvement in the decision-making process is encouraged. If you have any questions or concerns about environmental activities at Alameda Point, please feel free to contact any of the following project representatives:

Mr. George Patrick Brooks

BRAC Environmental Coordinator
Department of the Navy
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
(619) 532-0907

Ms. Dot Lofstrom

Project Manager
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826
(916) 255-6499

Mr. Marcus Simpson

Public Participation Specialist
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826
(916) 255-6683

Ms. Anna-Marie Cook

Project Manager
US EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3029

Mr. John West

Project Manager
San Francisco Bay Water Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
(510) 622-2438

Administrative Record – A Source for Reports and Studies

The AR is the collection of reports, key correspondence, regulatory review comments responses, and historical documents used by the decision-making team in selecting the cleanup or environmental management alternatives for a site. The AR file provides a record of actions by the Navy for the site discussed in this Proposed Plan. The AR file is located at:

➤ **Naval Facilities Engineering Command Southwest**

1220 Pacific Highway
San Diego, CA 92132-5190
ATTN: Ms. Diane Silva,
Phone: (619) 532-3676

You may view these documents by appointment during working hours (Monday through Friday, 8 a.m. to 5 p.m.). Please contact Ms. Silva at the number provided to make an appointment.

PUBLIC COMMENT PERIOD

The 30-day public comment period for the Proposed Plan is **May 28, 2008, through June 28, 2008**.

Submit Comments

There are two ways to provide comments during this period:

- Offer oral comments during the public meeting
- Provide written comments by mail, email or fax (no later than **June 28, 2008**)

Public Meeting

The public meeting will be held on **Tuesday, June 10, 2008** at Alameda Point, 950 West Mall Square, Room 201 from 6:00 p.m. to 7:30 p.m. It will be an opportunity to discuss the information presented in this Proposed Plan. Navy representatives will provide visual displays and information on the environmental investigations and the cleanup alternatives evaluated. You will have an opportunity to ask questions and formally comment on this Proposed Plan.

Send Comments to:

Mr. George Patrick Brooks

BRAC Environmental Coordinator

(See address under Site Contacts to the left)

GLOSSARY OF TECHNICAL TERMS

Applicable or Relevant and Appropriate Requirements

(ARARs) – Federal or State (if more stringent) environmental standards, requirements, criteria, or limitations.

Area of Concern (AOC) – A discrete area of contamination or suspected contamination.

Base Realignment and Closure (BRAC) Program – Program established by Congress under which Department of Defense installations undergo closure, environmental cleanup, and property transfer to other federal agencies or communities for reuse.

Benzo(a)pyrene (B[a]P) – One of a group of compounds called polycyclic aromatic hydrocarbons (PAHs). They are not produced or used commercially but are very commonly found since they are formed as a result of incomplete combustion of organic materials.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) – A department within the California Environmental Protection Agency charged with overseeing the investigation and cleanup of hazardous waste sites, and serving as the lead state agency at Alameda Point.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) – Also known as Superfund, this federal law regulates environmental investigation and cleanup of sites identified as possibly posing a risk to human health or the environment.

Contaminant – A substance that is not naturally present in the environment, or is present in unnatural concentrations that can, in sufficient concentrations, adversely alter the environment.

Ecological Risk Assessment (ERA) – Evaluation of potential hazard to plants, animals, and habitat as a result of environmental exposure to chemicals.

Environmental Protection Agency (EPA or USEPA) – United States Environmental Protection Agency. EPA is the lead regulatory agency at Alameda Point. Alameda Point is within EPA Region 9.

Feasibility Study (FS) – Analysis of proposed remedial alternatives to evaluate their effectiveness in reduction of risk to human health and the environment.

Groundwater – Water within the earth that flows through permeable rock, sand, or gravel.

Hazard Index (HI) – Summation of hazard quotients for multiple chemicals.

Hazard Quotient (HQ) – Ratio of exposure to toxicity of an individual chemical.

Human Health Risk Assessment (HHRA) – Estimate of potential harmful effects humans may experience as a result of exposure to chemicals.

In Situ Bioremediation (ISB) – Bioremediation uses harmless, naturally occurring organisms to clean up contamination in soil or groundwater. In situ (“in place”) means that the cleanup is occurring within the ground, without removing contaminated soil or groundwater to treat it.

In Situ Chemical Oxidation (ISCO) – Treatment that accelerates the breakdown of contaminants by injecting oxidizing chemicals into groundwater.

Institutional Controls (ICs) – Administrative and legal controls, established and administered to restrict use of property to limit human exposure to contaminated waste, soil, sediment, or groundwater and protect the integrity of the remedy.

Installation Restoration (IR) Program – Department of Defense’s comprehensive program to investigate and clean

up environmental contamination at military facilities in full compliance with CERCLA.

Maximum Contaminant Level (MCL) – The maximum permissible level of a contaminant in drinking water delivered to any user of a public system. MCLs are enforceable standards.

Monitored Natural Attenuation (MNA) – Careful tracking of natural in-situ processes that degrade groundwater contamination.

National Oil and Hazardous Substances Pollution

Contingency Plan (NCP) – The federal regulation that guides determination of the sites to be corrected under the Superfund program.

Polycyclic Aromatic Hydrocarbon (PAH) – Specific class or group of semivolatile organic compounds whose molecules consist of multiple benzene rings. “Polycyclic” means multi-ringed.

Polychlorinated Biphenyls (PCBs) – Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees.

Reasonable Maximum Exposure – The potential duration and frequency estimated by dividing daily intake time by time of exposure.

Record of Decision (ROD) – A legal document that explains the selected cleanup method to be used. It is signed by the Navy and regulatory agencies and is a binding agreement regarding how and when a site remediation is conducted.

Regional Water Quality Control Board (Water Board or RWQCB) – A department within the California Environmental Protection Agency charged with preserving, enhancing, and restoring water quality. Serves as CERCLA support and lead petroleum regulatory oversight at Alameda Point.

Remedial Action Objective (RAO) – A set of statements that contains a goal for the protection of one or more receptors from one or more chemicals in a specific medium (such as soil, groundwater, or air) at a site.

Remedial Alternative – An alternative or option for cleaning up a site.

Remedial Investigation (RI) – One of the two major studies that must be completed before a decision can be made about how to clean up a site (the FS is the second study). The RI is designed to determine the nature and extent of contamination at the site.

Remediation Goals (RGs) – Chemical concentration limits that provide a quantitative means of identifying areas for potential remedial action, screening the types of appropriate technologies and assessing a remedial action’s potential to achieve the RAO.

Semivolatile Organic Compound (SVOC) – A general term for organic compounds that volatilize relatively slowly.

Solid Waste Management Unit (SWMU) – Any unit in which wastes have been placed, regardless of whether the unit was designed to accept solid waste or hazardous waste such as oil/water separators or storage tanks.

Total Petroleum Hydrocarbons (TPH) – A large family of several hundred chemical compounds that originally come from crude oil. Because there are so many different chemicals in crude oil, it is useful to measure the total amount of TPH at a site.

Volatile Organic Compound (VOC) – An organic (carbon-containing) compound that evaporates readily at room temperature. VOCs are found in industrial solvents commonly used in dry cleaning, metal plating, and machinery degreasing operations.

Proposed Plan Comment Form

IR Site 35

The public comment period for the Proposed Plan for IR Site 35, Former Naval Air Station (NAS) Alameda at Alameda Point, Alameda, California is from **May 28, 2008 through June 28, 2008**. A public meeting to present the Proposed Plan will be held at the Alameda Point Main Office Building, Room 201, 950 West Mall Square, Bldg. 1, Alameda, California on **Tuesday, June 10, 2008, from 6:00 to 7:30 p.m.** You may provide your comments orally at the public meeting where your comments will be recorded by a court reporter. Alternatively, you may provide written comments in the space provided below or on your own stationery. All written comments must be postmarked no later than **June 28, 2008**. You may also submit this form to a Navy representative at the public meeting. Comments are also being accepted by e-mail and fax. Please address e-mail comments to george.brooks@navy.mil, or fax to (619) 532-0940.

Name: _____

Representing:
(if applicable) _____

Phone Number:
(optional) _____

Address:
(optional) _____

Please check here if you would like to be added to the Navy's Environmental Mailing List for Alameda Point.

Comments:

Mail to:
Mr. George Patrick Brooks
BRAC Environmental Coordinator
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

This page intentionally left blank.

Ms. Tommie Jean Darnel
Community Involvement Coordinator
SulTech
135 Main Street, Suite 1800
San Francisco, CA 94105



Proposed Plan for IR Site 35

Former NAS Alameda

