PROPOSED PLAN FOR PALMER BARGE LINE SUPERFUND SITE PORT ARTHUR, TEXAS

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6
JULY 27, 2005

THE U.S. EPA ANNOUNCES A PROPOSED PLAN

PURPOSE

The purpose of this proposed plan is to:

- Identify and define the remedial alternatives evaluated by EPA to address contamination at the Palmer Barge Line Superfund Site (Site).
- Present EPA's Preferred Alternative.
- Solicit public comment on the remedial action alternatives and supporting analyses, as well as on information contained in the Administrative Record.
- Provide information on how the public can be involved in the remedy selection process.

EPA PROPOSES FINAL REMEDY FOR THE PALMER BARGE LINE SITE

In this Proposed Plan, the U.S. Environmental Protection Agency (EPA) describes a proposed final remedy for the Palmer Barge Line Superfund site (Site) and provides the rationale for this preference. In addition, this Proposed Plan includes summaries of other alternatives evaluated for use at this Site. This document is issued by the U.S. Environmental Protection Agency (EPA), the lead agency for Site activities, and the Texas Commission on Environmental Quality (TCEQ), the support agency. The EPA, in consultation with the TCEQ, will select a final remedy for the Site after reviewing and considering all information submitted during the 30-day public comment period. The EPA, in consultation with the TCEQ, may modify the proposed remedy or select another response action presented in this Proposed Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives presented in this Proposed Plan. The Feasibility Study report for this Site should be consulted for more detailed information on these alternatives.

The EPA 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) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, §300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation and Feasibility Study reports and other documents contained in the Administrative Record file for this Site. The EPA and TCEQ encourage the public to review these documents to gain a more comprehensive understanding of the Site and the Superfund activities that have been conducted at the Site.

Community Participation

The public is invited to review and comment on this Proposed Plan and the documents contained in the Administrative Record file. This Proposed Plan highlights key information from the RI and FS reports, but it is not a substitute for those or other documents contained in the Administrative Record. EPA encourages the public to review those documents to obtain more information about the Site. The Administrative Record file is available at the

following information repositories:

Port Arthur Public Library
4615 9th Avenue
Port Arthur, Texas 77642
(409) 985-8838
Monday-Friday (8:00 a.m. to 4:30 p.m.)

U.S. Environmental Protection Agency Region 6
Seventh Floor Reception Area
1445 Ross Avenue, Ste 12D13
Dallas, Texas 75202-2733
(214) 665-6427
Monday- Friday (7:30 AM to 4:30 PM)

Texas Commission on Environmental Quality
12100 Park 35 Circle
Building E, 1st Floor
Austin, Texas 78753
(512) 239-2920
Monday- Friday (8:00 AM to 5:00 PM)

During the public comment period, written comments should be submitted to:

Carlos A. Sanchez
Remedial Project Manager
EPA Region 6 (6SF-A)
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-8507 or 1-800-533-3508 (Toll free)

The public comment period is scheduled to begin on July 27, 2005, and end on August 25, 2005. The EPA has scheduled a public meeting on August 11, 2005, to discuss the Proposed Plan and receive comments from the community. The public meeting will be held at the West Groves Education Center, located at 5840 West Jefferson, in Groves ,Texas, beginning at 6:00 PM. A court reporter will be present to record oral comments. EPA will conduct a short presentation and afterward will be available to meet with citizens. EPA will respond to all comments received during the public comment period using a document called a Responsiveness Summary. This document will be attached to the ROD and will be made available to the public in the information repository.

SITE BACKGROUND

The Palmer Barge Line Superfund Site is located on Pleasure Islet on the western shore of Sabine Lake, in Jefferson County, Texas. The Site is located approximately 4.5 miles east-northeast of the City of Port Arthur, Figure 1-1. The Palmer Barge Site encompasses approximately 17 acres and is located on Old Yacht Club Road on the South Industrial Islet. The Site is bounded to the north by vacant property, to the west by Old Yacht Club Road, to the south by State Marine Superfund Site, and to the east by Sabine Lake. There is very little topographical relief to the Site. The Site is located approximately 0.5 miles southwest of the confluence of the Neches River and the Sabine Neches Barge Canal.

The Site along with the adjacent properties to the north and south were used as a municipal landfill for the City of Port Arthur from 1956 to 1987. Although disposal at the landfill has long since ceased and the landfill contents have been covered with dredged sediments, the contents are still present on the Site in the subsurface soils. In April 1982, Palmer Barge Line Inc., purchased approximately 17 acres from the City of Port Arthur, for the purpose of servicing and maintaining barges and marine vessels. In July 1983, a trustee of Jefferson County, placed a lien on the Palmer Barge Line Property. In October 1994, Wrangler Capital assumed all claims from the Palmer Barge Line Inc. In July 1997, Wrangler Capital purchased Palmer Barge Line from receivership, and the company ceased operations on the property. The current owner is Mr. Chester Slay. At present, the Site is used by Mr. Slay for industrial purposes. Metal structures on-Site are being salvaged, and the salvaged metal is being used by the current owner to construct marine equipment on the Site.

During operation, the typical activities performed at the Site included cleaning, de-gassing, maintenance, and inspection of barges and other marine equipment. Cleaning operations included the removal of sludge and other residual material by pressure steaming the vessel holds, engines and boilers. Engines were de-greased, and thick accumulations of sludges were removed. De-gassing activities involved the removal of explosive vapors from vessel holds using nitrogen or boiler exhaust. Maintenance and inspection

activities included the replacement and/or repair of valves, engine repairs, and line leak repairs followed by pressure tests. A flare was located on-site to burn excess gases and liquids produced during facility operations.

EPA Region VI conducted an Expanded Site Inspection (ESI) of the Palmer Barge Line site during October 1999 to determine the presence, nature and extent of contamination on-site and off-site, and to determine migration routes and routes of exposure of site related constituents. During August of 2000, EPA Region 6 conducted a Removal Action to remove material stored on-site. Activities included waste removal, water treatment, oil/water separation, and sludge stabilization.

The Site was placed on the National Priorities List on July 27, 2000. On September 30, 2002, EPA Region VI issued an Administrative Order on Consent to Potentially Responsible Parties (PRPs).

SITE CHARACTERIZATION

EPA conducted an Expanded Site Inspection in 2000 to determine the presence and nature of constituent occurrence on-site and off-site and to determine migration routes and routes of exposure of site related constituents. Results indicated the presence of volatile organic constituents (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals. As part of the ESI, a site reconnaissance was performed which identified the following Areas of Concern (AOCs) at the Site:

- Wastewater Above-ground Storage Tanks (ASTs);
- Boiler House ASTs;
- Open Top Slop tanks;
- Horizontal ASTs;
- 12 ASTs; and
- Flare.

Based on the findings of the ESI, EPA conducted a Removal Action in August of 2000 and removed all of the above-ground storage tanks and their contents. One large tank remained on the northern portion of the site that contains sludge. The remaining large tank and sludge materials will be addressed in this Proposed Plan.

URS Corporation (URS), on behalf of the PRPs, conducted a Remedial Investigation (RI) at the Site in July 2003, which characterized the nature and extent of constituents present in environmental media at the Site and in adjacent Sabine Lake surface water and sediments. A summary of the RI findings is listed below:

Hydrogeologic Findings

The majority of the Site sub-soil is derived from dredge sediment from Sabine Lake. As part of the island use as a municipal landfill by the City of Port Arthur, a layer of cap material was placed over the areas used as landfill. The origin of the cap material has not been determined. Aside from areas that are mowed or have gravel, or concrete foundations, most of the soil is covered by tall grasses. No distinct soil horizons have formed, nor is there a clearly distinct "trash layer" of municipal waste. Waste was encountered sporadically in the fill between about one foot to five feet below ground surface (BGS). The items encountered were primarily brick, metal, rubber and some glass. Beneath the fill that contained trash was additional fill, ranging from silty clay to silty sand. At a depth of about 18 feet BGS, the top of the native Sabine Lake sediments is encountered. This gray silty clay is much more homogeneous than the overlaying dredge fill and becomes firmer with depth.

Groundwater was encountered in the sandy portions of the dredge fill unit. Static water levels ranged from almost 9 feet above mean sea level (MSL) at an upgradient well to slightly over 1 foot above MSL at the edge of Sabine Lake. Groundwater flow direction is toward Sabine Lake.

Remedial Investigation Findings

Wastewater AST Area

Test samples were collected from four test trenches excavated on the north, south and east sides of the Wastewater Tank AST. VOCs detected included benzene at levels up to 39 ug/kg, isopropylbenzene up to 0.003 mg/kg, and methyl tertiary-butyl ether

(MTBE) at levels up to 0.030 mg/kg. Other constituents detected near the Wastewater AST area included seventeen (17) SVOCs, two (2) PCBs, and twelve (12) pesticides were detected. Pentachlorophenol (PCP) was encountered at the 2 to 4-foot interval at a concentration of 150 mg/kg.

Boiler House ASTs

Soil sampling conducted nearest to the former Boiler House found minimal VOCs, although two surface locations contained concentrations of 0.046 and 0.043 mg/kg of benzene. Other constituents detected included fifteen (15) SVOCs, eight (8) pesticides, and two (2) PCBs (Arochlor-1254 and 1260). The highest number of constituents were encountered at the 2 to 4-foot interval. Several metals were detected above the background levels near the Boiler House ASTs area. Eight of the ten samples had lead and zinc concentrations above the background.

Open Top Slop Tanks Area

Two test trenches were excavated and sampled in the vicinity of this former unit and AOC Flare. Unrelated to the AOC itself was the discovery of a drum of thick black sludge that the backhoe encountered during the initial excavation. A sample of this material and the soil it was in contact with was collected and found to contain 45 mg/kg of isopropylbenzene, 42 mg/kg of 2-methylnapthalene, 10 mg/kg of fluorene, 13 mg/kg of napthalene, 36 mg/kg of phenanthrene, and .190 mg/kg of heptachlor epoxide. This material was immediately excavated, drummed and was disposed of as a presumed hazardous waste. A few metals were detected and background levels were slightly exceeded for aluminum, chromium, and vanadium.

Horizontal ASTs

The ESI sampling did not identify site-related constituents in the Horizontal ASTs area and sampling for this area was not included in the RI. However, sampling was conducted for the Twelve ASTs area located adjacent to the Horizontal ASTs area. Samples were collected from one test pit and soil in the vicinity of the test pit. Constituents detected included: chromium, copper, lead, and zinc above background concentrations and MTBE at a concentration of 0.029 mg/kg. Antimony at a concentration of 0.168 mg/kg exceeded background.

Twelve ASTs Area

Samples near the Twelve ASTs area contained detections of benzene and MTBE up to 0.087 mg/kg. Numerous SVOCs were detected with 2-methylnapthalene, bis(2-ethylhexyl)phthalate, chrysene, and pyrene being detected above the practical quantitation limit (PQL). Several metals were detected above background at concentrations of 15.1 mg/kg antimony and 91.3 mg/kg arsenic.

Flare Area

One sample dug immediately next to the flare area contained detections of benzene, 4,4'-DDE, Arochlor-1254 and Arochlor-1260. No metals exceeded the background concentrations in the surface sample, but nine metals exceeded background in the sample from the 2 to 4-foot interval.

Area east of Flare in center of site

One sampling location was performed in approximately the middle of the site, to the east of Flare area and southeast of Wastewater ASTs area. Two samples from this location contained: low concentrations (less than 8.7 ug/kg) of benzene, pesticides and PCBs (Arochlor-1254 at 4.18 mg/kg). Metals were detected at concentrations as high as 1,640 mg/kg for lead, 5,950 mg/kg for zinc, and 45.6 mg/kg for mercury.

Sediment Sampling – Sabine Lake

Sediment sampling results indicated low levels of several PAHs. No pesticides, PCBs or VOCs were detected in the sediment samples collected. Metals detected in the sediment samples included chromium, copper, lead, manganese, nickel, and vanadium. Barium and zinc results had more variation, and there were some detections of mercury. Organic carbon results ranged from 8,630 mg/kg to 16,300 mg/kg.

SCOPE AND ROLE OF RESPONSE ACTION

This response action is the final site remedy and is

intended to fully address the threats to human health and the environment posed by the contaminants of concern identified at the Palmer Barge Site. The purpose of this response action is to implement a remedy that prevents exposure to contaminated soils and sediments at the Site. The proposed remedy would also reduce or eliminate future surface run-off of site contaminants to Sabine Lake that may accumulate in the sediments and pose a risk to ecological receptors.

SUMMARY OF SITE RISKS

The EPA considers two types of risk: cancer risk and non-cancer risk. Excess lifetime cancer risks that range from $1x10^{-6}$ to $1x10^{-4}$ (one-in-one-million to a one-in-ten-thousand risk) are considered by the EPA to be acceptable. Risks greater than $1x10^{-4}$ are considered unacceptable. For non-cancer risks, a hazard index less than 1 for an individual target organ or system is below the threshold for predicted health effects.

A baseline risk assessment was completed to determine the current and future effects of contaminants on human health and the environment. Based on current zoning and surrounding area, future land use for the former facility will be limited to industrial and/or commercial use after completion of the remedial action. Therefore, the human health risk assessment focused on health effects for future industrial and construction workers that could result from direct contact (incidental ingestion, inhalation, and dermal contact) with on-site soils, sediments in the drainage ditches and pond, and surface water.

Baseline Human Health Risk Assessment

The primary sources of information used in the human health baseline Human Health Risk Assessment (HHRA) are the Expanded Site Inspection Report (ESI) and the Remedial Investigation Report for the Palmer Barge Line Superfund Site. The Site Conceptual Exposure Model for the risk assessment indicates that the primary exposure scenarios of interest are on-site industrial worker exposure to constituents present in surface soil and off-site exposure to a recreational fisherman primarily via consumption of fish from Sabine Lake that may have accumulated site-related constituents from nearby sediments.

The primary constituents of concern detected at the Site are polycyclic aromatic hydrocarbons (PAHs), pesticides, and metals. Baseline risk calculations for surface soil were performed for each of the six AOCs based on analytical data reported in the RI. Risks for the recreational fisherman were estimated using data from the RI report supplemented by data from other investigations of Sabine Lake sediment and fish tissue concentrations. Each of the media and pathways evaluated in the baseline calculations resulted in risk estimates within the range of risk management criteria typically employed in the Superfund program ($1x10^{-6}$ to $1x10^{-4}$ cancer risk and a non-cancer hazard index of 1.0), with one exception. The maximum concentration of benzo(a)pyrene present in sediment resulted in an estimated cancer risk via fish consumption that is slightly above the upper end of the target risk range. However, actual fish tissue data collected by the Texas Department of Health from Sabine Lake in 1995 indicates that fish consumption from Sabine Lake does not represent a threat to human health.

Several surface soil sample locations with concentrations exceeding target cleanup levels were identified as "hot spots" to be addressed in the FS. The HHRA concluded that remedial action which addressed these identified "hot spots" would result in a reduced level of risk such that surface soils at the Site would be within the acceptable risk range.

Screening Level Ecological Risk Assessment

As part of the Screening Level Ecological Risk Assessment (SLERA), maximum concentrations of analytes detected in ecological exposure media were identified and screened against highly conservative Ecological Screening Levels (ESLs). The screening was completed to select constituents of potential concern (COPCs) for the Step 2 exposure and risk calculations. Exposure and risk characterizations of COPCs for direct contact were performed using the maximum detected concentrations and risks were characterized using Hazard Quotients. Wildlife ingestion exposure pathways were evaluated for bioaccumulative chemicals using dose modeling with

the maximum concentrations and the 95% UCLs. Risks to wildlife were characterized using Hazard Quotients calculated for no-observable-adverse-effect-levels (NOAELs) and lowest-observed-adverse-effect-level (LOAEL) endpoints.

Results of the SLERA showed that the COPCs identified in Sabine Lake surface water and sediment do not pose risks of sufficient magnitude to require significant remedial action. Therefore, the SLERA recommended to allow degradation to naturally attenuate organic COPCs and to implement on-site source control to prevent potential for future inputs to Sabine Lake.

Results of the SLERA indicated that the COPCs identified in on-site surface soil could pose an unacceptable risk to terrestrial biota by a direct contact pathway and to wildlife by a food/prey ingestion pathway, if receptors were present. The paucity of vegetation and minimal site use by terrestrial receptors justifies the conclusion that ecological risks are negligible and therefore exposure is low. However, as future long-term industrial use of the Site is uncertain, and potential exposure could occur if ecological succession were to proceed naturally. Thus, the SLERA proposed that soil remediation would be completed to adequately address uncertainty associated with the potential for future on-site ecological risk.

In order to evaluate potential response areas, Site soil concentrations from the ESI and RI data were compared to safe soil concentrations for worst case exposure to the American Robin. Safe soil concentrations were back-calculated for COPCs that exceeded LOAEL values. As a result, several ecological "hot spots" were identified as response areas in the FS.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives consist of medium-specific goals for protecting human health and the environment. Based on the conclusions of the HHRA and the SLERA, Remedial Action at the Site is required to reduce risk to human health and potential ecological receptors due to COPCs exceeding acceptable risk levels in surface soils. Human receptors susceptible to exposure include the on-site industrial worker. Exposure of the on-site industrial worker is assumed to occur by way of contact with constituents in surface soil by way of accidental ingestion, dermal contact, inhalation of wind blown dust from soil, and inhalation of vapors emanating from soil. The Remedial Action Objectives for the Site are as follows:

- Prevent ingestion/inhalation or direct contact with surface soil containing high concentrations of COPCs which may pose an unacceptable level of risk to human health.
- Prevent direct contact with surface soil containing high concentrations of COPCs which may pose an unacceptable level of risk to potential future ecological receptors.
- Prevent offsite migration of contaminated soils to surface water and Sabine Lake sediments.

As part of the HHRA and SLERA, a list of site-specific COPCs was developed. The list of site-specific COPCs and corresponding human health target cleanup levels is presented in the table below.

Contaminant Human Health Risk	Target Cleanup Level mg/kg
Heptachlor epoxide	8.9
Benzo(a)pyrene	2.3
Naphthalene	210
Lead	800

Remedial objectives for addressing future potential ecological risk were developed based on safe soil concentrations for the worst case exposure to a sensitive ground feeding bird, the American robin. Risk-based PRGs and safe soil concentrations to address potential ecological risk are also presented in the table below.

Contaminant Ecological Risk	Target Cleanup Level mg/kg
4,4-DDD	0.0864
4,4-DDE	0.0864
4,4-DDT	0.0865
Methoxychlor	0.09
Lead	497

SUMMARY OF REMEDIAL ALTERNATIVES

The remedial alternatives were developed to address the remedial action objectives and goals for the Site. For alternatives 2, 3, and 4 the common elements include:

- Deed Restriction - The current owner of the Site has agreed to allow the state to place a deed restriction on the Site, which would limit future use of the property to industrial purposes;
- Abandonment of existing monitoring wells - As the HHRA determined that groundwater at the Site does not contribute significantly to Site risk, five existing monitoring wells at the Site will be abandoned; and
- Wastewater AST demolition and sludge removal - Sludge contained within the Wastewater AST will be removed and disposed of off-site. The tank will be decontaminated and left on site. The property owner plans to reused the tank for scrap metal.

Alternative 1: No Further Action
Estimated Capital Cost: $0
Estimated Annual O&M Costs: $0
Estimated Present Worth (7%): $0

Regulations governing the Superfund program, 40 C.F.R. § 300.430(e)(6) require that the “no action” alternative be evaluated at every Site to establish a baseline for comparison. Under this alternative, no action would be taken to prevent exposure to the remaining contaminated soils and sediment at the Site.

ALTERNATIVE 2 - Institutional Controls

Estimated Capital Cost: $135,000
Estimated Annual O&M Costs: $500
Estimated Present Worth (7%): $141,000

Alternative 2 includes the following activities:

- Deed Restriction - To limit future use of the property to industrial purposes;
- Abandonment of existing monitoring wells - Five (5) existing monitoring wells at the Site will be abandoned; and
- Wastewater AST demolition and sludge removal - Sludge contained within the Wastewater AST will be removed and disposed of off-site. The tank will be decontaminated and left on site.
- The time to implement this remedy would be 1 to 3 months.

Alternative 2 involves no remedial action to address the contaminants that pose a risk to human health and the environment. Structural controls, such as posting of "no excavation" signs and fencing, would be implemented in addition to proprietary controls restricting future land use to industrial purposes only.

Effectiveness

Alternative 2 provides no physical control of exposure to impacted soils and no reduction in risk to human health. This alternative would not comply with any applicable or relevant and appropriate requirements, such as PRGs developed during the HHRA or safe soil concentrations developed based on the SLERA. The potential for sediment runoff from the Site that may contain COPCs would not be eliminated. This alternative would not provide protection to current or future site workers. Alternative 2 does not reduce the toxicity, mobility, or volume of the waste.

Implementability

There are no implementability issues associated with this alternative.

ALTERNATIVE 3 - EXCAVATION / ON-SITE DISPOSAL / SOIL COVER / ICs

Estimated Capital Cost: $305,000
Estimated Annual O&M Costs: $10,000
Estimated Present Worth (7%): $499,000

Alternative 3 includes the following activities:

- Excavation of approximately 1,061 cubic yards of the upper two feet of soil that exceed risk based levels at each of the response areas;
- Relocation of the excavated soils to a designated area on-site and consolidation. The area required for consolidation encompasses approximately 10,395 square feet;
- Confirmation sampling at each of the response areas. Confirmation samples would be collected from each response area and analyzed for COPCs.
- Backfilling of the response areas with clean soil;
- Placement of an isolation soil cover over the relocated and consolidated impacted soils consisting of a synthetic root penetration barrier and 24-inches of clean soil, including 3 to 4 inches of topsoil suitable for vegetation growth; and
- Installation of structural controls to protect human health. Structural controls to be installed as part of this alternative include fencing around the area designated for disposal and posting of "no trespassing" signs.
- The time to implement this remedy would be approximately 2 months.

Effectiveness

Placement of an isolation soil cover over surface soils reduces risk by eliminating potential pathways identified in the HHRA that included ingestion, dermal contact, and inhalation of dust/vapors. Alternative 3 complies with applicable or relevant and appropriate requirements by preventing exposure to contaminants that present a risk to human health and the environment. This alternative does not provide any reduction in the toxicity, mobility, or volume of impacted soil. Alternative 3 would involve the disturbance of surface soils exceeding acceptable risk levels. The potential for a slight, temporary increase of risk to the community and to field personnel exists; however, engineering controls (e.g., water sprays) may be implemented to reduce risk due to fugitive dust during construction.

Under Alternative 3, five response areas would be excavated and backfilled with clean soil or gravel. Therefore, the potential for sediment runoff from the Site that may contain COPCs will be eliminated. The soil cover over the consolidation area containing impacted soils would prevent or reduce the potential for runoff of contaminated soils.

To ensure long-term effectiveness of this alternative, maintenance of the isolation soil cover must be completed. Failure to properly maintain the cover could result in the potential for direct contact with impacted soils. This alternative would also rely on structural controls to reduce potential for exposure, and long-term maintenance of these controls would be required. Because this alternative would result in contaminated soils remaining onsite above health based levels, five year reviews will be conducted to ensure that the remedy continues to be protective of human health and the environment, in accordance with CERCLA 121(c).

Implementability

It is anticipated that no special techniques, materials, permits, or labor would be required to implement this Alternative. The area required to contain approximately 1,061 cubic yards of contaminated soils is approximately 10,395 square feet or a 110-foot by 110 foot cell. This amount of land is readily available onsite. The cover soil, which will consist of 24 inches of low permeability soil, is readily available, as is the synthetic root penetration barrier. The low permeability soil and topsoil required for construction is available locally.

ALTERNATIVE 4 - EXCAVATION / OFF-SITE DISPOSAL / ICs

Estimated Capital Cost: $335,000
Estimated Annual O&M Costs: $500
Estimated Present Worth (7%): $411,000

Alternative 4 consists of the following activities:

- Excavation of approximately 1,061 cubic yards of the upper two feet of soil that exceed risk based levels at each of the response areas;
- Confirmation sampling at each of the response areas. Confirmation samples would be collected from each response area and analyzed for COPCs.
- Backfilling of the response areas with clean soil;
- Off-site disposal of the excavated soils at a permitted disposal facility; and
- Implementation of proprietary controls to restrict future land use to industrial purposes only.
- The time to implement this remedy is expected to be approximately 2 months.

The objective of this alternative is to protect human health and the environment by removing materials that exceed risk based levels from the Site. Pending results of waste characterization, it could be necessary to dispose of the excavated materials at a hazardous waste landfill.

Effectiveness

Alternative 4 is protective of human health by removing the source of the risk at the Site.
Alternative 4 complies with applicable or relevant and appropriate requirements by removing contaminants from the site that exceed risk based levels for protection of human health and the environment. This option does not provide any reduction in the toxicity, mobility, or volume of impacted soil through treatment. Alternative 4 would involve the disturbance of surface soils exceeding acceptable risk levels. The potential for a slight, temporary increase of risk to the community and to field personnel exists; however, engineering controls (e.g., water sprays) may be implemented to reduce risk due to fugitive dust during construction.
As part of Alternative 4, the response areas would be excavated and backfilled with clean soil or gravel. Therefore, the potential for sediment runoff from the site that may contain COPCs would be eliminated.
Alternative 4 ensures long-term effectiveness and permanence by removing the source of the risk from the Site.

Implementability

Implementability issues associated with this alternative include land disposal restrictions (LDR). Alternative 4 must be implemented in accordance with applicable State and Federal LDR rules. Successful implementation of this alternative requires that the impacted soils be characterized to determine the type of disposal facility that must be used. Should waste characterization results indicate that the impacted soils are considered hazardous, disposal at a hazardous waste landfill would be required. In addition, under Federal LDR rules, all hazardous waste must be treated before land disposal to meet Universal Treatment Standards (UTS). The results of the TCLP analysis for waste characterization will determine whether incineration or disposal in a hazardous waste landfill is necessary to meet the LDR requirements in the event that the soil is found to be a hazardous waste. However, it is anticipated that the impacted soils on-site will be characterized as non-hazardous waste. Non-hazardous soils will be transported to a solid waste landfill. Safety concerns during transportation are minimal due to the relatively small volume of soil to be transported, such that the volume of additional truck traffic should not constitute a significant additional risk.

EVALUATION OF ALTERNATIVES

Nine criteria are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy. The nine evaluation criteria are (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; 4) reduction of toxicity, mobility, or volume of contaminants through treatment; (5) short-term effectiveness; (6) implementability; (7) cost; (8) State/support agency acceptance; and (9) community acceptance. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. The nine evaluation criteria are discussed below.

1. **Overall Protection of Human Health and the Environment** *determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.*

Alternatives 3 and 4 are protective of human health and the environment through the use of engineering controls to reduce or control the risk of accidental exposure to contaminated soils and sediments that exceed risk based levels. Alternative 2 provides some controls from potential exposure of site contaminants through institutional controls. Alternative 1 does not reduce or control risks from potential exposure at the Site.

2. **Compliance with ARARs** *evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the Site or whether a waiver is justified.*

Alternatives 3 and 4 would meet their respective ARARs from Federal and State laws. Alternatives 3 and 4 could trigger the RCRA land disposal restrictions through the excavation and consolidation of the soils in an on-site location or the off-site disposal in a permitted RCRA landfill. Alternatives 1 and 2 do not meet Federal or State ARARs.

3. **Long-term Effectiveness and Permanence** *considers the ability of an alternative to maintain protection of human health and the environment over time*.

Alternatives 3 and 4 achieve long-term effectiveness through the use of engineering controls to prevent exposure to the soils and sediments. Alternative 4 provides the most effective and permanent solution through the off-site disposal of soils that exceed the PRGs. Alternatives 3 and 4 also utilize institutional controls to prevent accidental exposure to the contaminated soils and sediments. Alternatives 1 and 2 do not provide long-term effectiveness of permanence since exposure to site contaminants would not be addressed. Alternative 2 only uses institutional controls to prevent exposure to contaminated soils and sediments.

4. **Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment** *evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.*

The use of engineering controls for containment of the waste material in Alternatives 3 and 4 are appropriate since the contaminated soils and sediments represent a low level threat at this Site. Alternatives 2, 3, and 4 do not satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. Since Principal Threat waste are not present at the Site, treatment of contaminated materials is not warranted.

5. **Short-term Effectiveness** *considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.*

Alternatives 3 through 4 would be effective within 2 months or less through actions to address all or part of the contaminated soils and sediments. All of the alternatives have minimal impacts to the on-site workers, the surrounding community, and the environment during implementation. The off-site disposal of contaminated materials in Alternative 4 would result in truck traffic through the community during implementation.

6. **Implementability** *considers the technical and administrative feasibility of implementing the alternative such as relative availability of goods and services.*

The technical feasibility for consolidation and capping the materials in Alternatives 3 is the simplest in terms of readily available materials and equipment. Disposal of contaminated materials at an off-site facility under Alternative 4 will require additional actions to secure a disposal facility, costs, transportation, and supporting documentation. There are no expected administrative problems with any of the alternatives.

7. **Cost** *includes estimated capital and operation and maintenance costs as well as present worth costs. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.*

Capital costs range from $135,000 for Alternative 2 to $335,103 for Alternative 4. Annual operation and maintenance costs for the Site range from $500 for Alternatives 2 and 4 to $10,000 for Alternative 4.

8. **State/Support Agency Acceptance** *considers whether the State agrees with U.S. EPA's analyses and recommendations of the RI/FS and the Proposed Plan.*

TCEQ has been provided the opportunity to review the RI/FS reports and the Proposed Plan. TCEQ's support for the preferred alternative will be evaluated during the public comment period.

9. **Community Acceptance** *considers whether the local community agrees with U.S. EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.*

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the ROD for the Site.

SUMMARY OF THE PREFERRED ALTERNATIVE

Each of the four (4) alternatives presented in the FS, was evaluated on its ability to meet the nine evaluation criteria. The alternative that best meets the evaluation criteria is Alternative 4. This alternative consists of the excavation of impacted soils and disposal at an off-site permitted facility.

- Alternative 4 achieves Remedial Action Objectives and does so within a reasonable time frame;
- This alternative ensures long-term effectiveness and permanence with no O&M issues;
- Major components of this alternative are all well-demonstrated to be implementable and reliable technologies for remediation of sites having similar COPCs;
- This alternative eliminates potential sediment runoff that may contain COPCs from entering Sabine Lake.
- Alternative 4 is easily implemented;
- Alternative 4 is cost-effective.

In summary, Alternative 4 is the most protective of human health ecological receptors, easily implemented, and cost-effective alternative evaluated in the FS.
The preferred alternative can change in response to public comment or new information presented during the public comment period.

For specific information about the Palmer Barge Line Site or the Superfund process, please contact:

Carlos A. Sanchez.
Remedial Project Manager
EPA Region 6 (6SF-A)
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-665-8507 or 1-800-533-3508 (Toll-free)

Inquires from the news media are to be directed to Dave Bary, U.S. EPA Region 6 Press Office, at (214) 665-2208.

The local Information Repository containing the RI/FS and other Site documents is located at:

Port Arthur Public Library
4615 9th Avenue
Port Arthur, Texas 77642
(409) 985-8838
Monday-Friday (8:00 a.m. to 4:30 p.m.)

On the Web
On the internet, information about U.S. EPA and the Superfund Program can be found at:

U.S. EPA Headquarters: http://www.epa.gov
U.S. EPA Region 6: http://www.epa.gov/region6
U.S. EPA Region 6 Superfund Program:

http://www.epa.gov/region6/superfund

Call U.S. EPA at 1-800-533-3508 to receive a Spanish translation of this fact sheet.

* * *

Para recibir una traducción en español de esta Hoja de Datos, comunicarse con la Agencia de Protección del Medio Ambiente de los EEUU (la EPA) al número de teléfono 1-800-533-3508.

GLOSSARY OF TERMS

Administrative Record - All documents which the EPA considered or relied upon in selecting the response action at a Superfund site, culminating in the Record of Decision for a Remedial Action or, an Action Memorandum for a Removal Action.

Human Health Risk Assessment (HHRA) - Estimates the current and possible future risks if no action were taken to clean up a site. The EPA's Superfund risk assessors determine how threatening a hazardous waste site is to human health and the environment. They seek to determine a safe level for each potentially dangerous contaminant present (e.g., a level at which ill health effects are unlikely and the probability of cancer is very small). Living near a Superfund site doesn't automatically place a person at risk, that depends on the chemicals present and the ways people are exposed to them.

Ecological Risk Assessment - A process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more chemical, physical, or biological stressors.

Feasibility Study (FS) - A detailed evaluation of alternatives for cleaning up a site. A FS is usually performed concurrently with the Remedial Investigation.

Five-Year Reviews - A review generally required by statute or program policy when hazardous substances remain at a site above levels which permit unrestricted use and unlimited exposure. Five-Year Reviews provide an opportunity to evaluate the implementation and performance of a remedy to determine whether it remains protective of human health and the environment. Reviews are performed five years following the initiation of a Superfund response action, and are repeated every succeeding five years so long as future uses at a site remain restricted.

Ground Water - Water found beneath the ground surface that fills pores between soil, sand, and gravel particles to the point of saturation. When it occurs in a sufficient quantity and quality, ground water can be used as a water supply.

Institutional Controls (ICs) - Non-engineered instruments, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy. ICs work by limiting land or resource use and/or by providing information that helps modify or guide human behavior at a site. Some common examples of ICs include zoning restrictions, building or excavation permits, well drilling prohibitions, and easements or covenants.

Microgram per Deciliter (µg/dL) - Units of measure used to express the concentrations of metals (e.g., lead) or organics in liquids (e.g., blood).

Milligram per Kilogram (mg/kg) - Units of measure used to express the concentrations of metals (e.g., lead) or organics in soil or sediments. As an example, one mg/kg of lead in soil would be equivalent to one cent in $10,000.

National Priorities List (NPL) - The EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term Remedial Action (RA) under Superfund. A site must be on the NPL to receive money from the Trust Fund for a RA. The NPL is based primarily on the score a site receives from the Hazard Ranking System. The EPA updates the NPL at least once a year.

Potentially Responsible Parties (PRP) - Any individual or company, including owners, operators, transporters or generators, who is potentially responsible for, or contributing to a spill or other contamination at a Superfund site.

Record of Decision (ROD) - The final Remedial Action plan for a site. The purpose of the ROD is to document the remedy selected, provide a rationale for the selected remedy, and establish performance standards or goals for the site under consideration. The ROD provides a plan for site design and remediation, and documents the extent of human health or environmental risks posed by the site. It also serves as legal certification that the remedy was selected in accordance with the requirements of the Superfund statute and regulations. The ROD is one of the most important documents in the remedy selection process, because it documents all activities prior to selection of a remedy and provides a conceptual plan for activities subsequent to the ROD.

Remedial Investigation (RI) - An investigation to determine the nature and extent of contamination at a site. The scope of an RI can vary widely from a small specific activity to a complex study. The next, or concurrent step, following an RI is a Feasibility Study.

Removal Action - An action based on the type of situation, the urgency and threat of the release or potential release, and the subsequent time frame in which the action must be initiated. The Removal Actions for the Palmer Barge Site consisted of a "time-critical" Removal Actions where the EPA determined, based on the evaluation of the Site, that a Removal Action is appropriate to contain and/or prevent releases of contaminants that may pose a risk to human health and the environment.

Responsiveness Summary - A summary of oral and/or written public comments received by the EPA during a public comment period on key EPA documents, such as the Proposed Plan for the Palmer Barge Site and EPA's response to those comments. A responsiveness summary is included in the Record of Decision for a site.

ATTACHMENT 1
COMMENT SHEET

Your comments on the Proposed Plan for the Palmer Barge Line Superfund Site are important to the EPA and the TCEQ and will help us evaluate the EPA's preliminary recommendation of the Preferred Alternative for the Site. You may use the space below to write your comments. Use additional sheets if necessary. Please mail your comments to:

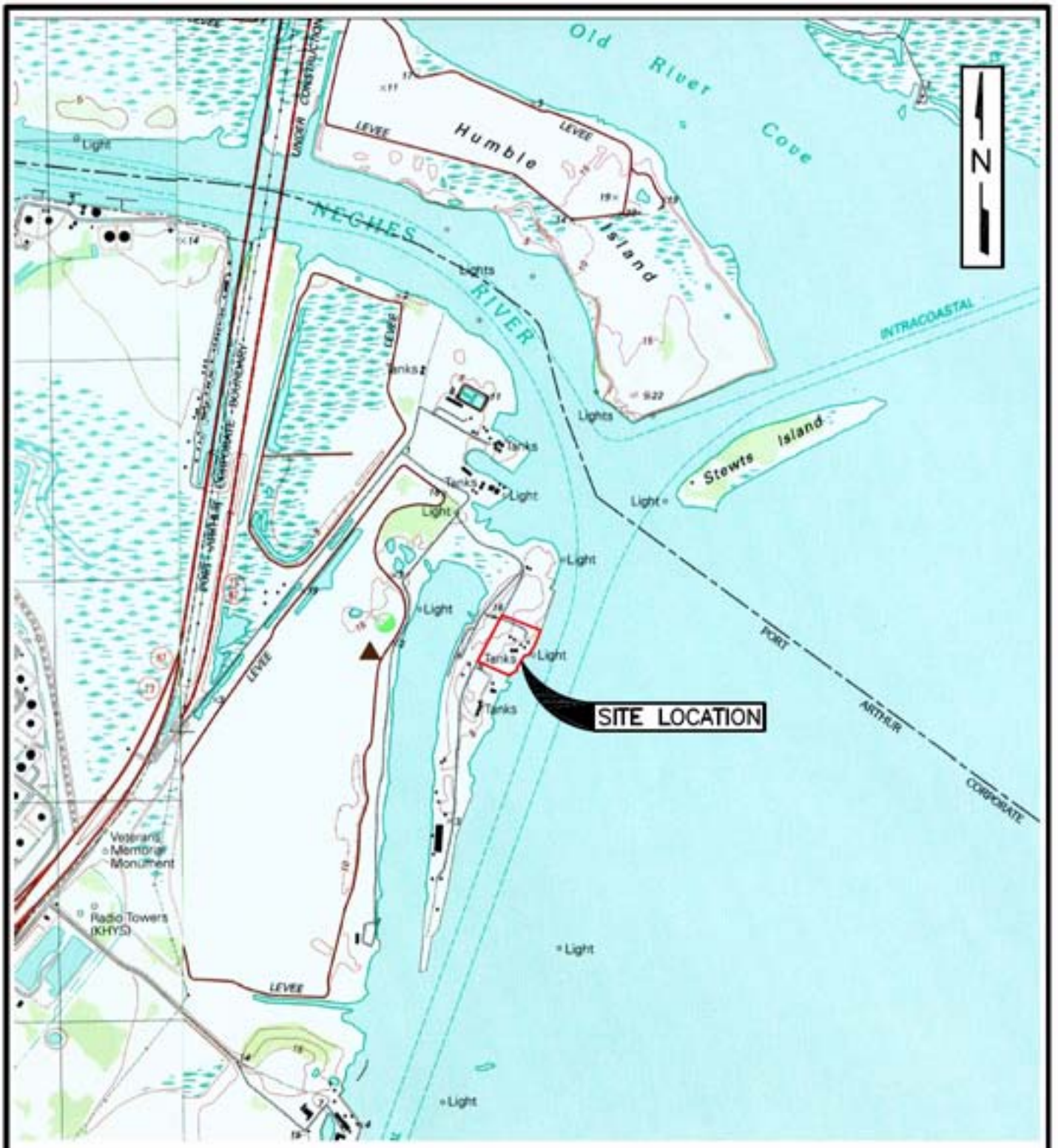
Carlos A. Sanchez, Remedial Project Manager
U.S. Environmental Protection Agency; Superfund Division (6SF-A)
1445 Ross Avenue, Suite 1200; Dallas, TX 75202-2733

Your comments **must** be postmarked **on or before August 25, 2005**, the end of the 30-day public comment period. You may also provide oral or written comments during the scheduled public meeting announced in this Proposed Plan. Those with computer communications capabilities may submit their comments to the EPA via the internet at "sanchez.carlos@epa.gov" (without quotation marks). The EPA will respond to all significant comments in a "Responsiveness Summary" that will be included with the Record of Decision, identifying the Selected Remedy, the Palmer Barge Site. If you have any questions about the comment period or the Palmer Barge Site, please contact Carlos A. Sanchez at (214) 665-8507 or the EPA's toll-free number at 1-800-533-3508.

Name:_____ Address:_____

City:_____ State:_____ Zip Code:_____

Telephone No.:_____ E-Mail Address:_____



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SOURCE:
US GEOLOGICAL SURVEY, PORT ARTHUR NORTH QUADRANGLE, 7.5 MINUTE SERIES (TOPOGRAPHIC), AND WEST OF GREENS BAYOU QUADRANGLE, TEXAS-LOUISIANA, 1993.

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Site Location Map

Project: Feasibility Study Report
Palmer Barge Line Superfund Site
Port Arthur, Jefferson County, Texas

Client: Palmer Barge Line Superfund Site

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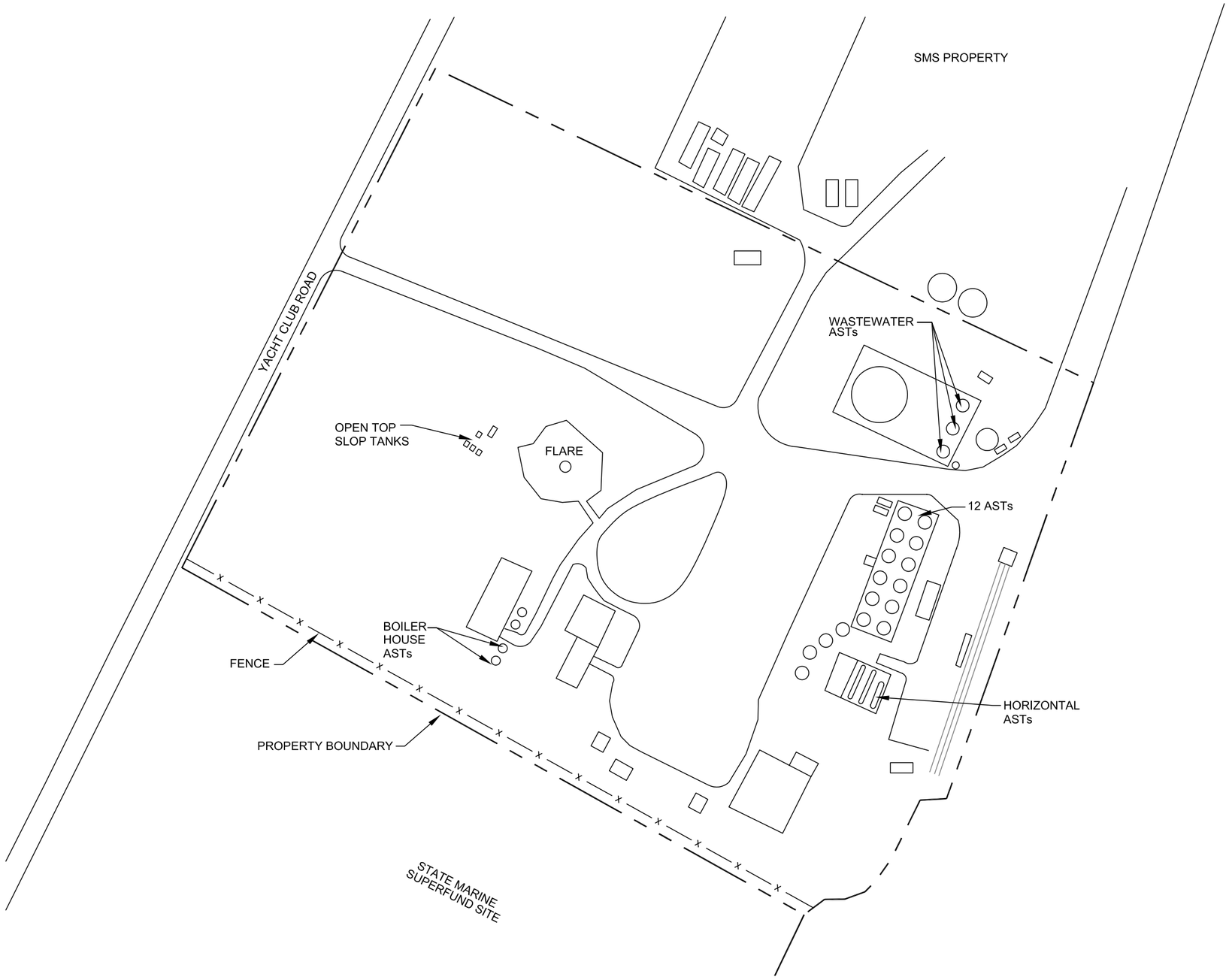
	Check by:	Date:			



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PALMER BARGE SUPERFUND SITE
8700 Ferry Road
Port Arthur, TX

Figure 1-2
Location of AOCs

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PALMER BARGE SUPERFUND SITE
8700 Ferry Road
Port Arthur, TX

Figure 3-1
Identified Response Areas for Soil Remedy

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PALMER BARGE SUPERFUND SITE
8700 Ferry Road
Port Arthur, TX

Figure 3-3
Identified Response Areas -
Areas of Potential Ecological Risk

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