U.S. ENVIRONMENTAL PROTECTION AGENCY

SUPERFUND PROPOSED PLAN FACT SHEET

ESCAMBIA WOOD TREATING COMPANY SUPERFUND SITE

OPERABLE UNIT 2 – GROUND WATER

SITE: Escamba Wood
BREAK: 4.10
OTHER:

Pensacola, Escambia County, Florida **June 2008**

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) invites comment on a proposed cleanup plan for part of the Escambia Treating Company (ETC) ***Superfund**** Site. This Proposed Plan and subsequent ***Record of Decision*** (ROD) explain options EPA evaluated for Operable Unit 2 (OU2) and provide the rationale for EPA's preferred alternative. OU2 refers to contaminated groundwater beneath and downgradient of the Site associated with releases from the Site. The overall strategy for the OU2 remediation is to focus on aggressive remediation of the source area and the most highly contaminated groundwater, and take active measures to address the more dilute contamination downgradient of the source area. The preferred alternative will fully address all groundwater contamination from the Site. EPA, in consultation with the Florida Department of Environmental Protection (FDEP), will select a remedy for OU2 only after public comments have been considered.

TECHNICAL ASSISTANCE GRANTS

EPA awarded a Technical Assistance Grant (TAG) to the community group, the Clarinda Triangle Association (CTA), to help the community increase its understanding of the cleanup and to provide feedback to EPA on actions at the ETC ***National Priorities List (NPL)*** Site. To date, approximately $50,000 has been awarded to CTA. Only one grant may be given per Site. The group must provide a 20% match in services or cash.

Contact the EPA Community Involvement Coordinator for further information.

This Proposed Plan is part of EPA's requirements under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund). Greater detail can be found in the Remedial Investigation (RI), Feasibility Study (FS), and other documents in the Administrative Record (AR).

The Administrative Record and an Information Repository for the Escambia Treating Company Site are at the:

West Florida Regional Library
200 W. Gregory Street
Pensacola, Florida 32501
850-435-1763

EPA Region 4 Superfund Record Center
61 Forsyth Street SW
Atlanta, Georgia 30303

Direct comments or questions to:
Erik Spalvins, Remedial Project Manager
OR
L'Tonya Spencer, Community Involvement Coordinator
Superfund Remedial Branch
U.S. EPA
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, Georgia 30303
(800) 435-9234
Hours: Mon-Fri 8:00am-4:30pm

* Terms first appearing in italics are defined in a glossary at the end of this fact sheet.

SITE BACKGROUND, OVERVIEW AND HISTORY

The ETC Site is located at 3910 North Palafox Street in the City of Pensacola, Escambia County, Florida, and is bordered on the north by residential neighborhoods, on the west by Palafox Street, on the east by a CSX Railroad switch yard, and on the south by an industrial park.

Site Background

The ETC Site began operations in 1942 to manufacture wood products treated with creosote. Wood products, primarily utility poles and foundation pilings, were treated in pressure cylinders. Southern yellow pine was debarked, formed, dried, impregnated with preservatives, and stored until delivered to customers. From 1944 to approximately 1970, coal-tar creosote was the primary wood preservative. Creosote is a mixture of more than 200 organic compounds that is distilled from coal tar at temperatures between 200°C and 400°C. Starting in 1963, Pentachlorophenol (PCP) dissolved in No. 6 diesel fuel was also used at the facility, and was the sole preservative in use from 1970 until 1982 when the facility closed.

Before pressure treatment, naturally-occurring moisture and resin were removed from the wood using a steam/vacuum process. Then preservative was impregnated into the wood under pressure. After treatment, the pressure was reduced, and the treated wood was removed from the cylinders on trams used to transport the wood. Following pressure reduction, excess wood preservative was allowed to drain from the treated wood along drip tracks before storage in one of the nine treated wood storage areas on-site.

Contaminated wastewater and runoff from the former treatment area were the primary wastes managed at the facility. In the early years of operation, all wastewater was sent to an unlined impoundment located in the northeastern part of the Site. This natural earthen impoundment was used from the mid-1940s through the mid-1950s.

After the mid-1950s, process wastewater and contaminated runoff were managed by two separate systems. Process wastewater was managed by an oil/water separator to recover treating chemicals and process water for reuse in the wood-treating process. The system consisted of two concrete impoundments. The "hot" pond received wastewater laden with PCP and creosote before its discharge via shower heads into the "cold" pond. The shower heads cooled the water, volatilizing some of the organic constituents. Water from this unit was discharged to the Pensacola sanitary sewer system or pumped back into the process vacuum line.

COMMUNITY INVOLVEMENT OPPORTUNITIES

Public Comment Period

Dates: June 14 through July 15, 2008
Purpose: To comment on the Proposed Plan for Escambia Treating Company Site OU2.

Public Meeting

Date: July 2, 2008
Time: 6:30 pm
Place: Pensacola Civic Center
201 E Gregory Street
Pensacola, Florida

Purpose: To discuss the Proposed Plan for Escambia Treating Company Site OU2.

Contaminated runoff from the treatment area was directed into a runoff collection and separation system. This system consisted of a concrete collection pad and a series of separation basins, which removed wood-treating solutions from the runoff water. Runoff was then pumped via a storm-drain system to an impoundment located in the southern section of the facility. The impoundment, which was constructed of sectionally poured concrete, had a holding capacity of 225,000 gallons. Wastewater in the impoundment, also known as the "swimming pool," was allowed to evaporate, and the remaining liquid was discharged to the Pensacola sanitary sewer system.

Regulatory History

The ETC Site has a long regulatory history that begins with the submittal of the Notification of Hazardous Waste Activity Form (CERCLA 103C) to EPA on August 15, 1980. ETC ceased operation in October 1982, but the three surface impoundments at the facility that contained sludge and wastewater required permitting and closure. ETC conducted partial removal actions in 1985 and 1988. These actions included the removal of sludge from the three surface impoundments, and the removal of contaminated wooden sidewalls from two of the impoundments. From 1985 to 1989, various violations were noted at the facility and enforcement actions were taken by EPA and FDEP. In April 1989, EPA conducted a compliance evaluation inspection at the ETC Site, and noted several violations. In June of 1990, a preliminary review and visual site inspection were conducted by EPA during the RCRA Facility Assessment (RFA) to identify Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs). The RFA was required pursuant to the Hazardous and Solid Waste Amendments (HSWA) of 1984, which expanded EPA's authority under RCRA to require corrective action for releases of hazardous waste or constituents from SWMUs for facilities such as ETC that sought a RCRA permit. The RFA identified 31 SWMUs and two AOCs of which 16 SWMUs and one AOC were deemed to require further action.

The EPA Environmental Response Team (ERT) was activated by EPA Region 4 to perform a preliminary assessment of the Site. The information obtained during this investigation indicated that a removal action was needed. The EPA initiated an extensive soil removal action at the ETC Site in 1991, and completed the action in 1992. Approximately 225,000 cubic yards (CY) of contaminated soil was excavated and is currently stockpiled under secure cover at the Site.

In 1994, the Site was added to the National Priorities List and EPA began a Remedial Investigation/Feasibility Study (RI/FS) to investigate the nature and extent of contamination and to develop and evaluate remedial alternatives.

In 1995, EPA nominated the ETC Site as part of a National Relocation Evaluation Pilot. EPA issued an Interim ROD in 1997 for the ETC Site which involved the relocation of households that were affected by contamination from the Site.

In 1998, EPA issued an Explanation of Significant Difference (ESD) to add site maintenance to the interim remedial action. Also in 1998, EPA designated the ETC area as a Brownfield Pilot program, issued the final RI/FS report for the Site, and divided the Site into two ***operable units***. Operable Unit 1 (OU1) addresses the ETC Site soils and soils in adjacent or nearby areas that were impacted by Site contaminants. Operable Unit 2 (OU2) addresses groundwater impacted by Site contaminants, and is the subject of this proposed plan.

In 2005, EPA issued the final ROD for OU1 (soils). Remedial action began in October 2007 and is scheduled for completion in 2009. The overall cleanup strategy for the OU1 final remedy is to treat principal threat wastes through solidification/stabilization and to permanently isolate surface and subsurface soil contaminated above the selected cleanup levels in an on-site containment system. The major components for the OU1 remedy include the permanent relocation of residents in the Clarinda Triangle neighborhood and the excavation and containment of contaminated soils, with treatment of the most contaminated soils by solidification/stabilization. The containment area is designed to be compatible with the intended future commercial use of the property. Once the contaminated soils are placed, the remedy provides for the operation and maintenance, and long-term monitoring of the containment system. Institutional Controls (ICs) will be used to restrict future use of the Site to commercial uses compatible with the remedy. Finally, to ensure the protectiveness of the remedy is maintained, Five-year reviews will be conducted.

Groundwater Investigations

Numerous groundwater sampling investigations have been conducted at the ETC Site since 1982. Groundwater investigations are very briefly summarized in this document. For more information, refer to the Preliminary Site

Characterization for the Escambia Treating Company Site (CDM 1995a), the Revised Final Work Plan for the RI/FS for Escambia Treating Company Site (CDM 1995b), and the RI for Escambia Treating Company Site, Operable Unit 2 (CDM, 2005).

Prior to the 2005 OU2 RI conducted by EPA, the following groundwater investigations were conducted at the Site:

- November 1982 –EPA's Environmental Services Division (ESD) conducted a RCRA compliance monitoring investigation at the ETC Site. Groundwater samples were collected from two existing on-site wells;
- August and September 1987 – The Florida Department of Environmental Regulation conducted an investigation at the ETC Site to determine if an old creosote pond (SWMU 10) located in the northeast corner of the abandoned facility was a source of groundwater contamination. The investigation involved the installation and sampling of a series of monitoring wells in the pond area. Contaminants identified included high concentrations of polynuclear aromatic hydrocarbons (PAHs) and PCP, which are associated with the creosote pond contents;
- December 1987 – The EPA's ESD conducted a RCRA sampling investigation and collected groundwater from five existing monitoring wells. Naphthalene was detected in a monitoring well near SWMU 10 at a concentration of 12,000 micrograms per liter (µg/L);
- 1991 – The EPA's ERT conducted a preliminary assessment (PA) at the ETC Site that included groundwater sampling. They concluded that creosote compounds, PCP and other volatile organic compounds (VOCs) had leached into the groundwater at the Site;
- October 1991 through October 1992 – EPA Soil Removal Action. The EPA excavated the most highly contaminated soil at the Site and stockpiled it on-site. Approximately 225,000 CY of soil contaminated with dioxins, PCP, and creosote constituents were excavated from SWMU 10 and the former process area. An EPA Superfund Removal Update dated March 1994 indicated that the excavations went to a depth of 40 feet where groundwater was encountered. Contaminant concentrations remained above action levels (except dioxin levels) and a visible light non-aqueous phase liquid (LNAPL) was present on top of the water table. According to the Removal Update, the lateral extent of contamination appeared to have been captured within the excavation area. Removal activities did not involve removal or treatment of contaminated groundwater;
- January 1992 – The EPA ERT performed another round of groundwater sampling and discovered that groundwater contaminant levels decreased, possibly as a result of the removal of contaminated soil that had been acting as an on-going source of contamination at the Site;
- December 1994 – The Site was formally listed on the NPL;
- 1998 – In 1998, the RI for OU1 (Soil) was completed, and a draft FS for OU1 was issued in June 1998. Discussions ensued among EPA and FDEP regarding selection of appropriate cleanup standards for soil, and EPA undertook additional sampling to define the extent of contamination using the more stringent FDEP cleanup standards;
- A revised OU1 FS incorporating the results of the additional sampling was issued in June 2005. The OU1 source soils RI included the installation of 24 monitoring wells, which documented the migration of the groundwater plume off-site.

The overall objective of the OU2 RI was to investigate the nature and extent of off-site groundwater contamination associated with the ETC Site. The RI took place in four phases:

- Phase I sample collection was conducted in July and August of 2000 and included sampling existing off-site wells installed in conjunction with the adjacent Agrico Site

investigation, collecting surface water and sediment samples from Bayou Texar, and using direct push methods to collect groundwater samples and hydrological data via cone penetrameter test (CPT) methods. Phase I sampling activities included the installation of 18 CPT probes advanced to depths of up to 180 feet below land surface (bls) to collect groundwater samples and data to define the lithology at the Site. The primary purpose of Phase I was to define the extent of the groundwater plume to the east and southeast of the Site;

- Phase II was initiated in July 2001 to refine the definition of the groundwater plume and included the installation of 18 new monitoring wells, collection of groundwater samples from 43 existing wells, completion of a tidal study, slug testing, and measurement of water levels to determine the groundwater gradient;
- Phase III was conducted in early 2004 to determine whether the groundwater contamination detected in the first two phases was due to more than one PAH source and to determine whether groundwater contamination was impacting Bayou Texar. This phase included the installation of nine new monitoring wells. In addition, water levels were measured in the nine new wells and 68 existing wells. A residential well survey was conducted to identify any domestic supply wells within the groundwater plume area;
- Phase IV was conducted in early 2005 to determine whether the groundwater plume had migrated east of Bayou Texar. Phase IV included the installation of six new monitoring wells, arranged in three two-well clusters on the east side of the Bayou.

In 2003 and 2004, the University of West Florida (UWF) collected water and sediment samples to evaluate the surface water and sediment quality in Bayou Texar (UWF, 2005). The UWF study focused on the contaminant plumes originating from the ETC and Agrico Sites. The UWF study was unable to determine whether the groundwater plume from the ETC Site was discharging into the Bayou.

In January 2007, Black & Veatch Special Projects conducted an additional groundwater investigation, focusing on the areas of highest concentrations of groundwater contamination. This better characterized the nature and extent of the groundwater plume in support of in-depth technology evaluations in this FS.

Community Relations

EPA has conducted community relations activities throughout the RI process, including public meetings and the establishment of an AR. The AR is a compilation of the materials EPA used in the decision making process. An Information Repository containing a copy of the AR and other information has been established at the West Florida Regional Library.

Informational Fact Sheets similar to this one have been issued periodically to help the community stay informed about progress and activities related to the Site. These updates have been published and distributed to interested parties in the community. The EPA has established a public website, www.etccleanup.org, to provide the most recent fact sheets, photographs of Site work, and air monitoring data to the public.

EPA has worked with the TAG grantee, the Clarinda Triangle Association (CTA), throughout the process to answer questions from the community and to provide feedback to EPA.

SITE CHARACTERISTICS

The ETC Site is located in the Coastal Lowlands subdivision of the physiographic division known as the Coastal Plain Province. The site-specific geology underlying the Site is considered typical for the area and is consistent with the regional zones within the Sand and Gravel Aquifer. The aquifer includes the Surficial Zone (SZ), the Lower Permeability Zone (LPZ), and the Main-Producing Zone (MPZ). The horizontal groundwater flow direction in all three water-bearing zones is to the east-southeast toward Bayou Texar.

The surficial zone consists of the saturated portion of fine to medium grained, well-sorted sands ranging in thickness from about 60 feet east of the ETC Site to about 20 feet closer to Bayou Texar. Groundwater in the surficial zone is unconfined and present on the ETC Site at depths ranging from 34 to 51 feet above mean sea level (amsl) or approximately 40 feet below ground surface, depending on seasonal rainfall amounts.

The lower permeability zone underlies the surficial zone and contains a layer of poorly sorted sands with a higher percentage of silty sand, clayey sand, silt, sandy clay, and clay in discrete and (assumed) discontinuous layers. The higher amount of clay and silt in the LPZ give it a lower permeability and a higher adsorptive capacity for binding contamination than the surficial zone of the aquifer. This layer ranges in thickness from about 58 feet at the Site to about 30 feet thick on the east side of Bayou Texar.

The main-producing zone consists of coarser sands and gravels; the top of this zone ranges in elevation from about -49 feet amsl at the ETC Site to -7 feet amsl near Bayou Texar. The bottom of this zone was not encountered during the remedial investigation at ETC; however, regionally the thickness of this zone is about 200 feet. This aquifer is not used to supply water in the area impacted by the Site.

Nature and Extent of Contamination

The creosote and PCP/diesel fuel wastes that leached into the Site soil and groundwater throughout the facility's history are the origin for the groundwater contamination. The contaminants of concern detected in both on-site and off-site monitoring wells reflect the typical constituents of coal-tar based creosote. The primary contaminant of concern for groundwater is naphthalene because it is the most mobile of the site-related contaminants. The extent of naphthalene contamination in the SZ, LPZ, and MPZ is shown in Figures 1, 2, and 3 and fully encompasses all site-related groundwater contamination. Groundwater contamination decreases gradually from the on-site source areas, forming a continuous plume in the three groundwater zones. The contaminant plume also has been divided into three areas to facilitate the development of the most effective treatment for each area.

Source Plume (SP) Area: This area represents high concentration naphthalene contamination bounded by the 7,000 µg/L naphthalene contour in groundwater. This area may contain residual (non-dissolved) naphthalene. This area will require the most aggressive treatment.

High Concentration Plume (HCP) Area: This portion of the plume represents dissolved naphthalene contamination less than 7,000 µg/L, but above the FDEP natural attenuation default criterion of 140 µg/L. This area would require active treatment to reach acceptable concentrations.

Dilute Plume (DP): This plume area is defined by lower concentrations of dissolved naphthalene (less than 140 µg/L) that extend downgradient of the SP and HCP. The 140 µg/L boundary value is the FDEP natural attenuation default criterion (NADC) for naphthalene. This area would be suitable for less active treatment.

Figure 4 illustrates the dissolved naphthalene concentration along a profile cross-section through the centerline of the dissolved plume from MW04 on-site to MW14 located 2,500 feet downgradient. This illustrates the assumed vertical extent of naphthalene in the SZ, LPZ, and MPZ along this cross-section. The contaminant isocontour plots indicate that the most highly contaminated portion of the dissolved plume is centered just to the east of the Site, under the adjacent CSX Rail Yard. The higher adsorptive capacity of the LPZ appears to retard migration from this zone and results in higher concentrations of naphthalene in the LPZ.

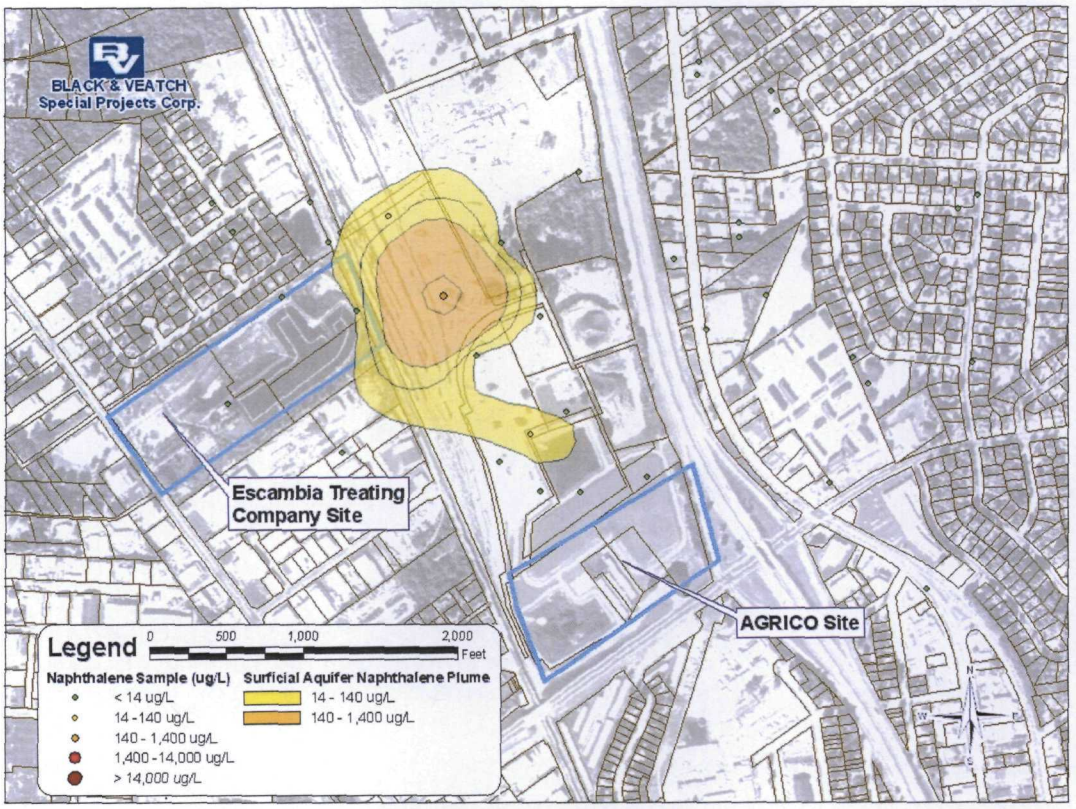

Figure 1. Extent of Naphthalene contamination in Surficial Zone

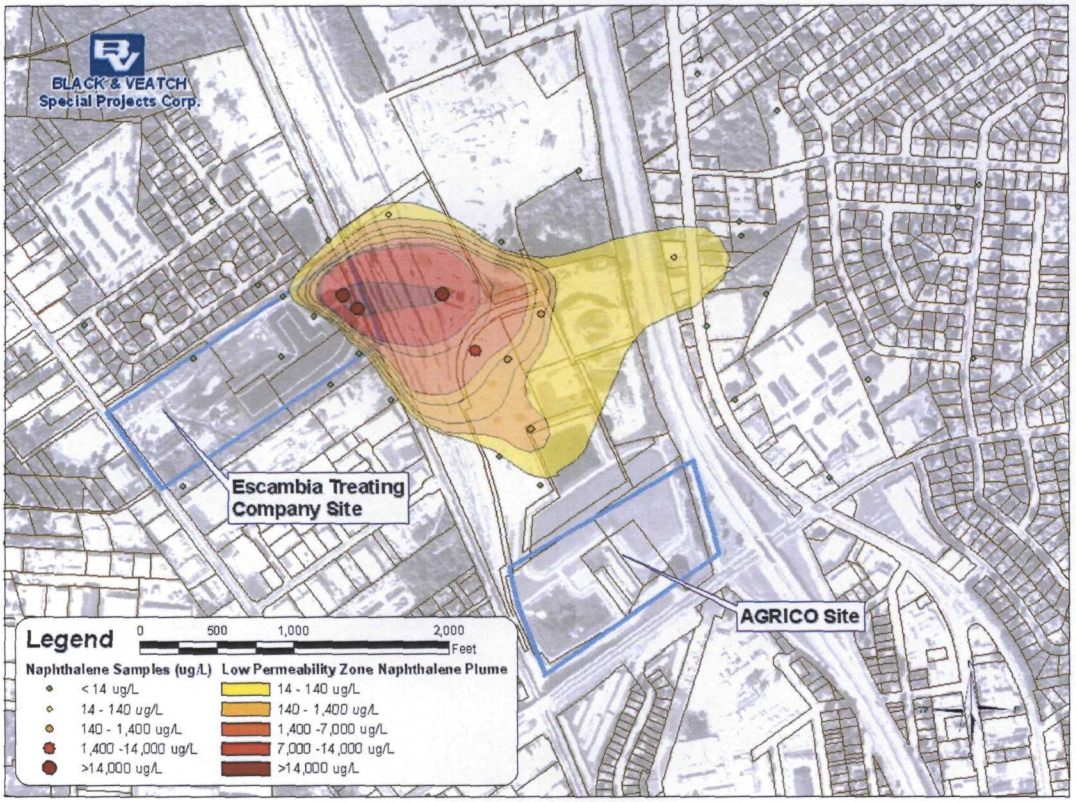

Figure 2. Extent of Naphthalene contamination in Low Permeability Zone

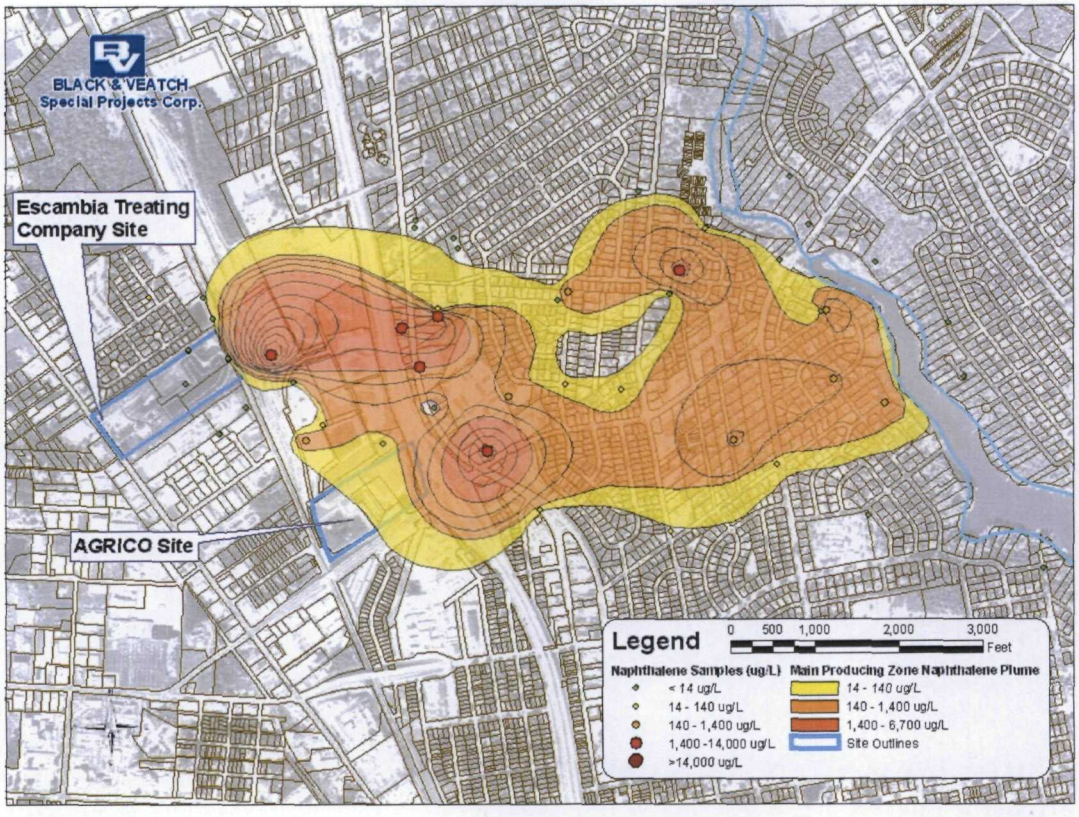

Figure 3. Extent of Naphthalene contamination in Main Producing Zone

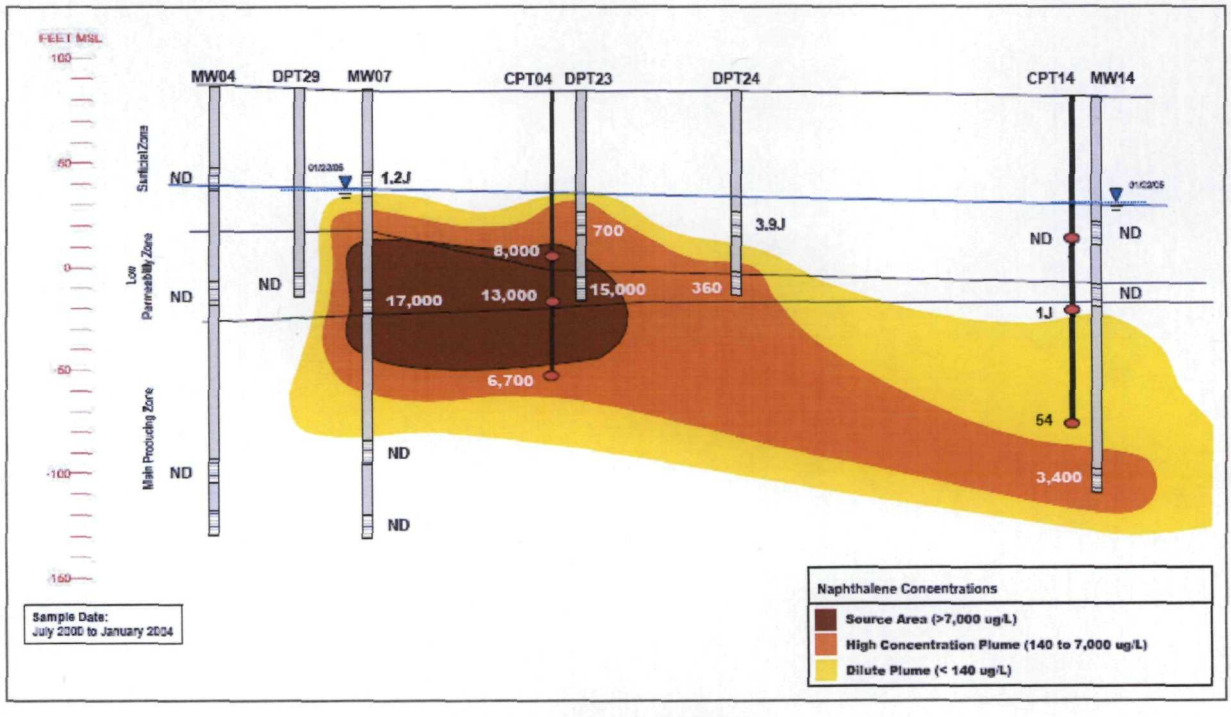

Figure 4. Cross-section of Naphthalene contamination showing plume areas based on concentration

SCOPE OF PROPOSED PLAN

This proposed plan addresses the second of two designated operable units to address contamination related to the ETC Site. The first operable unit (OU1) addressed the existing soil stockpile, soil contamination on-site, and soil contamination in areas adjacent to or near the Site, and includes the National Relocation Evaluation Pilot Project. The remedy for OU1 is underway. This second operable unit (OU2) addresses remediation of on and off-site groundwater contamination.

STUDY FINDINGS AND RISK

The Baseline Risk Assessment is an evaluation of whether existing or future exposure to Site contamination could pose an unacceptable risk to people or the environment. In estimating potential risks, EPA assumes that no action would be taken to address contamination at the Site. This evaluation serves as the baseline for determining whether a cleanup is necessary.

Human Health Risks

A Baseline Risk Assessment for Human Health was conducted in 2002. The risk assessment concluded that no excess health risk is associated with the current use scenario because drinking water is supplied to the affected area by a public water supply which is not impacted by the Site. EPA is not aware of any in-use private or public drinking water supply wells within the ETC Site contaminant plume. This is based on a 2004 well survey, information from the state water management district, and well surveys conducted for the nearby Agrico Chemical Superfund Site.

In the future, however, water supply wells for residential use may be installed within the contaminant plume. The risk assessment determined that unacceptable risk could exist for future child residents and future child/adult residents. In the future, potentially complete exposure routes are the ingestion of groundwater and inhalation of vapors released while showering.

It is EPA's current judgment that implementation of the Preferred Alternative or one of the other alternatives identified in this Proposed Plan, is necessary to protect human health and the environment from releases of hazardous substances, pollutants or contaminants from this Site (OU2), which may present an imminent or substantial endangerment to public health or welfare.

Ecological Risks

The major ecological feature of concern near the ETC Site is Bayou Texar. In 2002, a Screening-Level Ecological Risk Assessment was conducted for groundwater at ETC. None of the chemicals retained in the risk assessment were detected in surface water or sediment samples collected from Bayou Texar. However, non-site related contaminants were found in Bayou Texar. Also, 68 storm water culverts were found to discharge into Bayou Texar. It was determined that any contribution of ETC-related contaminants to overall ecological risk in Bayou Texar is not measureable. Therefore, the Ecological Risk Assessment process was not continued. While no current impacts to Bayou Texar were identified, the EPA notes that addressing the human health risks associated with groundwater contamination will also fully mitigate the potential for future site-related impacts to Bayou Texar.

WHAT IS RISK AND HOW IS IT CALCULATED?

Human Health Risk

A Superfund human health risk assessment estimated the "baseline risk." This is an estimate of the likelihood of health problems occurring if no cleanup action were taken at a site. To estimate the baseline risk at a Superfund site, EPA undertakes a four-step process:

Step 1: Analyze Contamination
Step 2: Estimate Exposure
Step 3: Assess Potential Health Dangers
Step 4: Characterize Site Risk

In Step 1, EPA looks at the concentrations of contaminants found at a site as well as past scientific studies on the effects these contaminants have had on people (or animals, when human studies are unavailable). Comparisons between site-specific concentrations and concentrations reported in past studies help EPA to determine which contaminants are most likely to pose the greatest threat to human health.
In Step 2, EPA considers the different ways that people might be exposed to the contaminants identified in Step 1, the concentrations that people might be exposed to, and the potential frequency and duration of the exposure. Using the information, EPA calculates a "reasonable maximum exposure" (RME) scenario, which portrays the highest level of human exposure that could reasonably be expected to occur.
In Step 3, EPA uses the information from Step 2 combined with information on the toxicity of each chemical to assess potential health risks. EPA considers two types of risk: cancer risk and non-cancer risk. The likelihood of any kind of cancer resulting from a Superfund site is generally expressed as an upper bound of probability; for example a "1 in 10,000" chance." In other words, for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure to site contaminants. EPA's target range for acceptable cancer risk is "1 in 1,000,000" to "1 in 10,000." These probabilities are often expressed in scientific notation (i.e., 1×10^{-6} or 1E -6 to 1×10^{-4} or 1E -4). An extra cancer case means that one more person could get cancer than would normally be expected to from all other causes. For non-cancer health effects, EPA calculates a "hazard index." The key concept here is that a "threshold level" (measured usually as a hazard index less than 1) exists below which non-cancer health effects are no longer predicted.
In Step 4, EPA determines whether site risks are great enough to cause health problems for people at or near the Superfund site. The results of the three previous steps are combined, evaluated, and summarized.

Ecological Risk

Current EPA guidance recommends an eight-step process for designing and conducting ecological risk assessments (ERAs) for the Superfund Program. Steps 1 and 2 constitute a screening level ecological risk assessment (SLERA), which compares existing site data to conservative screening level values to identify those chemicals which can confidently be eliminated from further evaluation, and those for which additional evaluation is warranted. At the end of Step 2, all involved parties meet and discuss whether: there is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risk; if the information is not adequate to make a decision at this point, the ERA process will continue to Step 3; or the information indicates a potential for adverse ecological effects, and a more thorough assessment is warranted.
If further evaluation is warranted, Step 3 of the eight-step process is initiated as the planning and scoping phase for implementing a baseline ecological risk assessment (BERA). Step 3 includes several activities, including refinement of the list of contaminants of potential concern (COPCs), further characterization of ecological effects, refinement of information regarding contaminant fate and transport, complete exposure pathways, ecosystems potentially at risk, selecting assessment endpoints, and developing a conceptual model with working hypotheses or questions that the site investigation will address. In Step 4, a sampling and analysis plan (SAP) is developed and used to gather further data to support the BERA. Step 5 is a site visit to verify the Step 4 sampling design. Step 6 of the process is the actual data collection for the BERA. Step 7 is the summary and analysis of the data, and prediction of the likelihood of adverse effects based on the data analysis, which is presented as the risk characterization. It also includes consideration of uncertainties and ecological significance of risks in view of the types and magnitude of effects, spatial and temporal patterns, and likelihood of recovery. Step 8, the final step, results in a discussion of significant risks, recommended cleanup (if any), and future efforts.

Remedial Action Objectives and Cleanup Goals

Remedial Action Objectives (RAOs) provide an overall goal to guide the comparison and selection of remedial options. The cleanup of groundwater is integrated with the remedy for OU1 (soils). The remedy for OU1 (soils) addressed the removal of contaminated surface and subsurface soils which could act as a source for further groundwater contamination. EPA identifies the following as RAOs for contaminated groundwater at the Site:

- Prevent further contamination of groundwater by aggressive treatment of the source area;
- Prevent future exposure to contaminated ground water by treating the aquifer to meet health-based cleanup standards; and
- Eliminate any future potential degradation of natural resources (Bayou Texar) from site-related contaminants.

The proposed action will eliminate groundwater contamination and potential future exposure. The site-specific cleanup goals are listed in Table 1. The cleanup goals were calculated in the Human Health Risk Assessment and reflect the current federal regulatory drinking water standards or maximum contaminant levels (MCLs) and current FDEP Groundwater Cleanup Target Levels (GCTLs). The cleanup goals also consider site-specific cleanup levels based on reaching concentrations of contaminants corresponding to a site-specific Hazard Quotient of less than 1 and a site-specific cumulative excess lifetime cancer risk more protective than 10^{-6}, or one in one million.

Table 1: Cleanup Goals

Contaminant of Concern	Cleanup Goal (µg/L)	Health-based Standard for Cleanup Goal
2,4,-Dinitrotoluene	0.05	State GCTL
2,6-Dinitrotoluene	0.05	State GCTL
2-Methylnaphthalene	10	HQ = 1
Acenaphthene	20	State GCTL
Benzene	1	State GCTL/MCL
Carbazole	1.8	State GCTL
Dibenzofuran	28	State GCTL
Naphthalene	10	HQ = 1
Nitrobenzene	3.5	State GCTL
Pentachlorophenol	1	Federal MCL and State GCTL/MCL
Remedial Goals include applicable criteria specified by Florida Administrative Code (F.A.C.) 62-777 and 62-550		

Description Of Alternatives

The alternatives for groundwater remediation are described below. The alternatives are grouped by each of the three plume areas, Source Plume (SP), High Concentration Plume (HCP), and Dilute Plume (DP). Remedial strategies were tailored specifically to conditions within each zone. The alternatives developed for each zone are composed of the technologies that best fit the range of contaminant concentrations within each zone. Alternatives have been developed using various combinations of these general response actions to provide a range of alternatives with respect to the time and methodology required for restoration.

Additional information on the cleanup options developed for OU2 can be found in the April 2008 ***Feasibility Study for OU2 (groundwater)*** in the ***Administrative Record*** at the West Florida Regional Library. EPA is seeking comments on these options and the preferred alternative described in this document before selecting a remedy for OU2. (See page 1 for meeting and public comment period).

Source Plume (SP) Alternatives

ALTERNATIVE SP-1: No Action with Monitoring
Estimated Capital Cost: $0
Estimated Present Worth Cost for Monitoring: $54,300
Time Until Cleanup Goals Obtained: Too long to quantify

This alternative is a required component of the FS, and provides a comparative basis for the other alternatives. Under the no action alternative, no action is taken for any of the plume areas, so that Alternative SP-1 is only considered with alternatives HCP-1 and DP-1. The Site would remain in its present condition and only monitoring would be performed. The timeframe to achieve cleanup goals is estimated to be many, many decades.

ALTERNATIVE SP-2: Groundwater Recovery, Treatment, and Re-Injection
Estimated Capital Cost: $6,637,000
Estimated O&M Cost: $923,000
Estimated Present Worth Cost: $7,560,000
Time Until Cleanup Goals Obtained: Several decades

Alternative SP-2 is a variation of the classic "pump and treat" groundwater remediation scheme commonly applied to groundwater contamination sites. The general strategy for this alternative consists of extracting (pumping) contaminated groundwater through horizontal recovery wells placed within the SP area, treating the extracted contaminated groundwater by an ex-situ technology train, and re-introducing the treated groundwater back into the impacted portion of the SP area through horizontal injection wells.

ALTERNATIVE SP-3a: In-situ Enhanced Bioremediation Using Oxygen Amendment and Natural Groundwater Flow
Estimated Capital Cost: $3,778,000
Estimated O&M Cost: $1,303,000
Estimated Present Worth Cost: $5,081,000
Time Until Cleanup Goals Obtained: Approximately 11 years

Alternative SP-3a is an in-place aerobic bioremediation scheme. Aerated groundwater is created at the upgradient end of the SP area and migrates through the SP area by natural, west-to-east groundwater flow. The subsurface conditions necessary for accelerated growth and metabolism of the microbes are created by placing oxygen releasing materials (or injecting gaseous oxygen) into the SP area through wells. Two configurations of wells are used to aerate groundwater: a line of vertical wells placed parallel to the rail tracks along the west boundary of the CSX Rail Yard, and a matrix of horizontal wells placed under the CSX Rail Yard parallel to the rail tracks (perpendicular to the direction of groundwater flow).

ALTERNATIVE SP-3b: In-situ Enhanced Bioremediation Using Horizontal Extraction and Re-Injection Wells
Estimated Capital Cost: $8,911,000
Estimated O&M Cost: $1,004,000
Estimated Present Worth Cost: $9,915,000
Time Until Cleanup Goals Obtained: Approximately 7 years

Alternative SP-3b is an in-place aerobic bioremediation scheme using an alternating sequence of horizontal extraction and injection wells installed parallel to the natural groundwater flow direction. Aeration occurs by placing oxygen releasing materials (or injecting gaseous oxygen) into horizontal injection wells. Pumping the groundwater between extraction and injection wells enhances the migration of aerated groundwater throughout the SP area.

ALTERNATIVE SP-4: In-situ Chemical Oxidation and In-Situ Enhanced Bioremediation Using Vertical and Horizontal Wells
Estimated Capital Cost: $6,712,000
Estimated O&M Cost: $2,141,000
Estimated Present Worth Cost: $8,862,000
Time Until Cleanup Goals Obtained: Approximately 2 years

Alternative SP-4 expands on the design of Alternative SP-3a. Alternative SP-4 uses In-situ Chemical Oxidation (ISCO) to aggressively treat the highest naphthalene concentrations. Once the ISCO has consumed much of the contamination, the in-place aerobic bioremediation scheme would be carried out similar to SP-3a. A series of vertical extraction wells would be installed downgradient of the SP area and used to contain the ISCO process by returning treated groundwater to the injection wells. This would improve the efficiency of injections and the distribution of injected groundwater (Figure 5).

ALTERNATIVE SP-5: In-situ Chemical Oxidation Using Horizontal Extraction and Re-Injection Wells
Estimated Capital Cost: $42,231,000

Estimated O&M Cost: $8,835,000
Estimated Present Worth Cost: $51,065,000
Time Until Cleanup Goals Obtained:
Approximately 2 years to several decades

Alternative SP-5 is similar to Alternative SP-3b in its overall design and intent. The difference is that Alternative SP-5 achieves contaminant degradation with ISCO technology using alternating horizontal extraction and injection wells placed parallel to the natural groundwater flow direction. Using ISCO in the source zone will transform contaminants into benign end products more rapidly than treatment by enhanced bioremediation. ISCO involves the injection of an oxidant such as hydrogen peroxide, ozone, persulfate or a combination thereof.

High Concentration Plume (HCP) Alternatives

ALTERNATIVE HCP-1: No Action with Monitoring
Estimated Capital Cost: $0
Estimated Present Worth Cost for Monitoring: $54,300
Time Until Cleanup Goals Obtained: Too long to quantify

This alternative is a required component of the FS, and provides a comparative basis for the other alternatives. Under the no action alternative, no action is taken for any of the plume areas, so that Alternative HCP-1 is only considered with alternatives SP-1 and DP-1. The Site would remain in its present condition and only monitoring would be performed. The timeframe to achieve cleanup goals is estimated to be many, many decades.

ALTERNATIVE HCP-2: In-Situ Chemical Oxidation and In-Situ Enhanced Bioremediation
Estimated Capital Cost: $10,931,000
Estimated O&M Cost: $1,093,000
Estimated Present Worth Cost: $12,024,000
Time Until Cleanup Goals Obtained:
Approximately 4 years

Alternative HCP-2 (which corresponds to alternative SP-4) uses two separate technologies to address different portions of the HCP plume at the Site. ISCO technology would be used for groundwater in the HCP containing concentrations of naphthalene between 2,000 and 7,000 µg/L. For portions of the HCP area having naphthalene concentrations less than 2,000 µg/L, ISEB would be employed. The use of ISCO is chemically compatible with ISEB and would encourage aerobic conditions that favor bioremediation.

ALTERNATIVE HCP-3: In-Situ Enhanced Bioremediation Using Oxygen Amendment and Natural Groundwater Flow
Estimated Capital Cost: $5,408,000
Estimated O&M Cost: $1,093,000
Estimated Present Worth Cost: $6,501,000
Time Until Cleanup Goals Obtained:
Approximately 7 years

Alternative HCP-3 relies solely on in-situ biodegradation processes. Similar to SP-3a, it relies on enhancing the subsurface conditions required by microbial populations to effectively metabolize creosote-based contaminants. Enhancing conditions consists of injecting oxygen-releasing material through a series of vertical injection wells strategically placed throughout the HCP area. This in-situ remedial technology complements the ISCO application in Alternatives SP-4 or SP-5.

ALTERNATIVE HCP-4: In-Situ Enhanced Bioremediation with Groundwater Recovery, Treatment, and Re-injection
Estimated Capital Cost: $5,109,000
Estimated O&M Cost: $2,673,000
Estimated Present Worth Cost: $7,782,000
Time Until Cleanup Goals Obtained:
Approximately 7 years

Alternative HCP-4 consists of two separate remedial components: an enhanced aerobic bioremediation treatment component, similar to SP-3b, for most areas within the HCP area, and hydraulic containment of the plume at the eastern extent to control further migration of contaminated groundwater to Bayou Texar. This in-situ technology uses the bioremediation approach described in Alternative HCP-3; introduction of an oxygen-supplying material to the aquifer will create aerobic conditions favorable to the growth and propagation of microbial populations.

Dilute Plume (DP) Alternatives

ALTERNATIVE DP-1: No Action with Monitoring
Estimated Capital Cost: $0
Estimated Present Worth Cost for Monitoring: $54,300
Time Until Cleanup Goals Obtained: Too long to quantify

This alternative is a required component of the FS, and provides a comparative basis for the other alternatives. Under the no action alternative, no action is taken for any of the plume areas, so that Alternative DP-1 is only considered with alternatives HCP-1 and DP-1. The Site would remain in its present condition and only monitoring would be performed. The timeframe to achieve cleanup goals is estimated to be many, many decades.

ALTERNATIVE DP-2: Monitored Natural Attenuation
Estimated Capital Cost: $0
Estimated O&M Cost: $757,000
Estimated Present Worth Cost: $757,000
Time Until Cleanup Goals Obtained:
Approximately 7 years a few decades

Alternative DP-2 assumes that the source and high concentration plume areas will be treated to reduce contaminant levels. This alternative relies on natural attenuation processes already occurring in the plume to reduce contaminant levels below the cleanup goals. The dilute plume is defined as having concentrations below the Florida Natural Attenuation Default Concentration of 140 µg/L Naphthalene. Once the source area is addressed, the timeframe to achieve cleanup goals is estimated as one to two decades.

ALTERNATIVE DP-3: In-Situ Enhanced Bioremediation
Estimated Capital Cost: $2,215,000
Estimated O&M Cost: $377,000
Estimated Present Worth Cost: $2,592,000
Time Until Cleanup Goals Obtained:
Approximately 7 years

Alternative DP-3 is the application of in situ enhanced bioremediation to the entire dilute zone. This alternative utilizes the same technology and approach of the in situ enhanced bioremediation portion of Alternative HCP-3, with injections of oxygen-supplying slurry at different depths within the Sand and Gravel Aquifer to address the dilute groundwater. It is estimated that one round of injections would be needed to adequately supply the aerobic conditions that would remedy the dilute zone for effective remediation.

COMPARISON OF ALTERNATIVES

A summary of EPA's comparison of the alternatives for addressing contamination at ETC OU2 is discussed below. More details on this comparison can be found in the OU2 FS in the IR at the library. The objective of this section is to compare and contrast the alternatives so that a preferred alternative can be selected for presentation in the Proposed Plan.

The alternatives are presented here to give a range of potential actions that could be taken to remediate this Site. EPA will recommend the cleanup alternative which provides the best balance of the first seven criteria. If an alternative does not meet threshold criteria, EPA does not consider the alternative further. After seeking concurrence from the State of Florida and considering public comment, EPA will determine state and community acceptance and may modify the preferred alternative accordingly.

For OU2 of the ETC Site, these alternatives include:

Source Plume (SP) Alternatives
- No Action with Monitoring
- SP-1: No Action with Monitoring
- SP-2: Groundwater Recovery, Treatment, and Re-Injection
- SP-3a: In-situ Enhanced Bioremediation Using Oxygen Amendment and Natural Groundwater Flow
- SP-3b: In-situ Enhanced Bioremediation Using Horizontal Extraction and Re-Injection Wells
- SP-4: In-situ Chemical Oxidation and In-Situ Enhanced Bioremediation Using Vertical and Horizontal Wells
- SP-5: In-situ Chemical Oxidation Using Horizontal Extraction and Re-Injection Wells

High Concentration Plume (HCP) Alternatives
- HCP-1: No Action with Monitoring
- HCP-2: In-Situ Chemical Oxidation and In-Situ Enhanced Bioremediation
- HCP-3: In-Situ Enhanced Bioremediation Using Oxygen Amendment and Natural Groundwater Flow
- HCP-4: In-Situ Enhanced Bioremediation with Groundwater Recovery, Treatment, and Re-injection

Dilute Plume (DP) Alternatives
- DP-1: No Action with Monitoring
- DP-2: Monitored Natural Attenuation
- DP-3: In-Situ Enhanced Bioremediation

Overall Protection of Human Health and the Environment - Alternatives that combine chemical oxidation and bioremediation (SP-4 and HCP-2) offer the benefits of both direct degradation (through the ISCO component) and the long-term, on-going treatment provided by in situ biodegradation and were ranked highest. Other active remedial alternatives were ranked next highest and the No Action alternatives were ranked lowest.

Compliance with ARARs - The No Action alternatives (SP-1, HCP-1, and DP-1) do not achieve RAOs or comply with cleanup goals. Except for any contaminant mass that exists until cleanup goals are met, no temporary (short-term) non-compliance with ARARs is expected in any of the remaining alternatives. All SP, HCP, DP alternatives incorporating active remediation likely would comply with all location- and action-specific ARARs and would be designed to comply with all chemical-specific ARARs within a reasonable timeframe.

Long-Term Effectiveness and Permanence - Because no remedial actions would occur with Alternatives SP-1, HCP-1, and DP-1, long-term risk of exposure to contaminated groundwater would remain. Alternatives with an ISCO component (e.g., SP-4, SP-5 and HCP-2) could reach RAOs and ARARs sooner, and the bioremediation components of those alternatives would continue to provide effectiveness and permanence over the long-term. Alternatives without an ISCO component (e.g., SP-3a, SP-3b, HCP-3, HCP-4, DP-2 and DP-3) also are expected to provide long-term effectiveness and permanence to the protection against exposure and risk; however, achieving those goals using only bioremediation may require a longer period of time.

Reducing Toxicity, Mobility or Volume through Treatment (T/M /V) - Alternatives SP-1, HCP-1, and DP-1 provide no mechanisms to determine if reduction is occurring. All other alternatives would meet the statutory preference for treatment as a principal element for remediation, and would provide reduction in contaminant volume over time.

Short-Term Effectiveness - Alternatives SP-1, HCP-1, and DP-1 provide no active mechanisms for remediation. Therefore, these alternatives do not provide any short-term effectiveness at reducing risk and exposure to contaminated media. Alternatives with an ex-situ component (e.g., SP-2, SP-3b and HCP-4) have a higher exposure risk to the community and to remedial workers during remediation than in-situ alternatives. The in-situ alternatives that can rapidly degrade contaminants through chemical oxidation (e.g., SP-4, SP-5, and HCP-2) are most effective in the short-term.

Implementability - All of the alternatives are proven technologies and relatively straightforward to implement.

Cost - Cost of alternatives ranked from most to least expensive:

Source Plume (SP) Alternatives
SP-5: $51,065,000
SP-3b: $9,915,000
SP-4: $8,862,000
SP-2: $7,560,000
SP-3a: $5,081,000
SP-1: $54,300

High Concentration Plume (HCP) Alternatives
HCP-2: $12,024,000
HCP-4: $7,782,000
HCP-3: $6,501,000
HCP-1: $54,300

Dilute Plume (DP) Alternatives
DP-3: $2,592,000
DP-2: $757,000
DP-1: $54,300

State Acceptance - The Florida Department of Environmental Protection has been directly involved in the development and review of the RI, FS, and Proposed Plan for ETC OU2. State support for the proposed cleanup plan is anticipated.

Community Acceptance - Community acceptance of the Preferred Alternative will be evaluated after the Proposed Plan comment period ends and will be described in the Responsiveness Summary of the ROD for OU2.

CRITERIA FOR EVALUATING REMEDIAL ALTERNATIVES

In selecting a preferred cleanup alternative, EPA uses the following criteria to evaluate those screened in the **Feasibility Study (FS)**. The first two criteria are threshold criteria and must be met for an option to be considered further. The next five are balancing criteria for weighing the merits of those that meet the threshold criteria. The final two criteria are used to modify EPA's proposed plan based on state and community input. All nine criteria are explained in more detail here.

1. **Overall Protection of Human Health and the Environment** – Eliminates, reduces, or controls health and environmental threats through institutional or engineering controls or treatment.
2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** – Compliance with Federal/State standards and requirements that pertain to the site or whether a waiver is justified.
3. **Implementability** – Technical feasibility and administrative ease of conducting a remedy, including factors such as availability of services.
4. **Short-Term Effectiveness** – Length of time to achieve protection and potential impact of implementation.
5. **Long-Term Effectiveness and Permanence** – Protection of people and environment after cleanup is complete.
6. **Reduce Toxicity, Mobility, or Volume by Treatment** – Evaluates the alternative's use of treatment to reduce the harmful effects of principal contaminants and their ability to move in the environment.
7. **Cost** – Benefits weighed against cost.
8. **State Acceptance** – Consideration of state's opinion of the preferred alternative(s).
9. **Community Acceptance** – Consideration of public comments on the Proposed Plan.

EPA'S PREFERRED ALTERNATIVE

EPA's Preferred Alternative is aggressive treatment of areas that act as a source for continued contamination of the aquifer. This involves using an aggressive treatment, in-situ chemical oxidation, to destroy contaminants in the source and high concentration areas. Treatment of the source and high concentration areas will continue using in-situ enhanced bioremediation. Areas with lower levels of contamination also will be treated using in-situ enhanced bioremediation, which encourages the decomposition of contaminants by enhancing natural biological activity. Once the source areas have been addressed, the levels of contaminants moving from the ETC Site will decrease, enabling natural processes already taking place to fully remediate the contamination. EPA's preferred alternative will reach the most stringent risk-based cleanup goals and eventually no site-related contamination will remain.

More specifically, the Preferred Alternative is the combination of alternatives SP-4, HCP-3, and DP-2. The Preferred Alternative combines in-situ chemical oxidation and in-situ enhanced bioremediation in the Source Plume and High Concentration Plume areas (SP-4 and HCP-3) and monitored natural attenuation for Dilute Plume areas (DP-2). This alternative uses strategically placed vertical and horizontal injection wells to aggressively remediate contaminants in the source and high concentration areas and provides active remediation at lower concentration areas. Because the contaminant plume is located under industrial and residential land-use areas of a sizable metropolitan area, the level of intrusiveness for the remedial alternatives was considered. In-situ treatment options therefore were the most favored remedial options. In addition, selection of a single remedial technology was not appropriate due to the heterogeneous lithology and subsurface conditions at this Site.

The proximity of the ETC Site to another active CERCLA Site (the Agrico Superfund Site) to the southwest requires close coordination and consultation with risk managers for that Site. The concern was that implementing remedial alternatives at the ETC Site might adversely impact the ongoing remedial activities at the Agrico Site. This consideration was included in the development and evaluation of remedial alternatives for ETC.

The EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The EPA expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA 121(b): (1) be protective of human health and the environment; (2) comply with ARARs (or justify a waiver); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element to the extent practical.

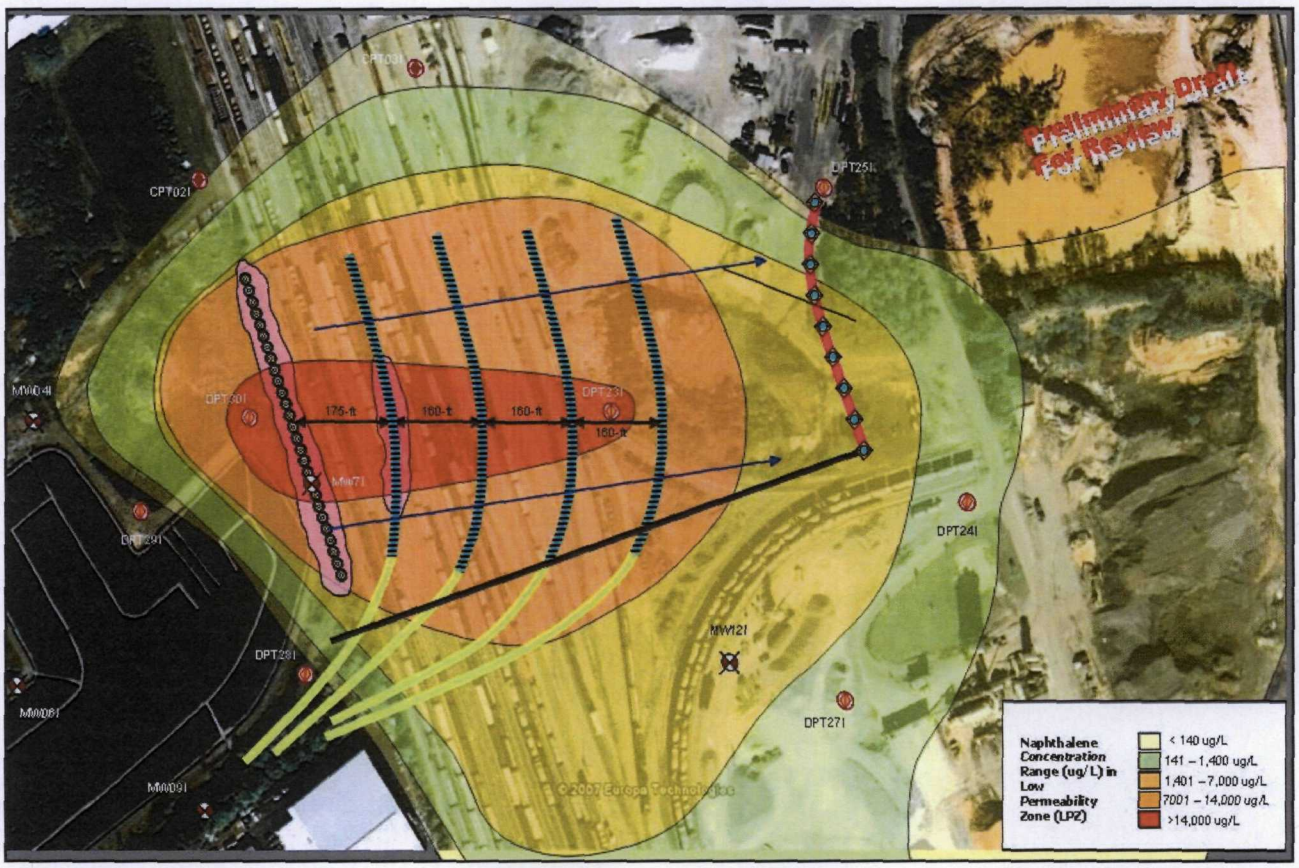

Figure 5. Conceptual diagram of SP-4: In-situ Chemical Oxidation and In-Situ Enhanced Bioremediation Using Vertical and Horizontal Wells

GLOSSARY

Administrative Record: Material documenting EPA's selection of cleanup remedies at Superfund Sites, a copy of which is placed in the **information repository** near the Site.

Applicable or Relevant and Appropriate Requirements (ARARs): Refers to Federal and State requirements a selected remedy must attain which vary from site to site.

Baseline Risk Assessment: A qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and the environment by the presence or potential presence of specific contaminants.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): Also known as **Superfund**, is a federal law passed in 1980 and modified in 1986 by the Superfund Amendment and Reauthorization Act (SARA); the act created a trust fund, to investigate and cleanup abandoned or uncontrolled hazardous waste sites. The law authorizes the federal government to respond directly to releases of hazardous substances that may endanger public health or the environment. EPA is responsible for managing the Superfund.

Confining Unit: Relatively impermeable layer or strata that separates the surficial aquifer from the deeper aquifer (preferred source of drinking water). Often this layer has formed by deposition of sedimentary rocks.

Contaminants of Concern (COCs): Chemical constituents associated with a Superfund Site that have been released into the environment and pose a risk to human health.

Feasibility Study: Study conducted after the Remedial Investigation to determine what alternatives or technologies could be applicable to cleanup the site-specific COCs.

Groundwater: The supply of fresh water found beneath the Earth's surface (usually in aquifers) which is often used for drinking water.

Hot Spots: Subsurface areas of the Site where a high concentration of contamination has been found.

Information Repository: A library or other location where documents and data related to a Superfund project are placed to allow public access to the material.

Institutional Controls: Restriction that prevents an owner inappropriately developing a property. The restriction is designed to prevent harm to workers or the general public and maintain the integrity of the remedy.

Monitored Natural Attenuation (MNA): This term refers to the reliance on natural attenuation processes to achieve site-specific remediation objectives. The natural attenuation processes that are at work in such remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater.

National Contingency Plan (NCP): The Federal Regulation that guides the Superfund program. The NCP was revised in February 1990.

Nonaqueous Phase Liquid (NAPL): A liquid consisting of organic compounds that do not dissolve in water or mix with water. The liquid could be lighter or heavier than water.

Operable Units (OUs): Different phases of a Superfund Project. Often a Superfund Site is divided in phases to better address different pathways and areas of contamination.

Operation and Maintenance (O&M): Activities conducted at sites after cleanup remedies have been constructed to ensure that they continue functioning properly.

Proposed Plan: A Superfund public participation fact sheet which summarizes the preferred cleanup strategy for a Superfund Site.

Record of Decision (ROD): A public document describing EPA's rationale for selection of a Superfund remedy.

Remedial Investigation / Feasibility Study (RI/FS): A two part investigation conducted to fully assess the nature and extent of a release, or threat of release, of hazardous substances, pollutants, or contaminants, and to identify alternatives for clean up. The Remedial Investigation gathers the necessary data to support the corresponding Feasibility Study.

Responsiveness Summary: A summary of oral and written comments received by EPA during a comment period on key EPA documents, and EPA's responses to those comments. The responsiveness summary is a key part of the ROD, highlighting community concerns for EPA decision-makers.

Superfund: The common name used for the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), the federal law that mandates cleanup of abandoned hazardous waste sites.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for the Escambia Treating Company Superfund Site is important in helping EPA select a remedy for the Site. You may use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

Name_____
Address_____
City_____State_____Zip_____

Place Stamp Here

Erik Spalvins, Remedial Project Manager
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ESCAMBIA TREATING COMPANY SUPERFUND SITE
PUBLIC COMMENT SHEET

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