

**SECOND FIVE-YEAR REVIEW REPORT  
FOR THE  
CLEVE REBER SUPERFUND SITE  
ASCENSION PARISH, LOUISIANA**



**SEPTEMBER 2003**

**Prepared for:**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
DALLAS, TEXAS**

**Prepared by:**

**Tetra Tech EM Inc.  
Contract #68-W6-0037  
Work Assignment #113-FRFE-0610**

**SECOND FIVE-YEAR REVIEW FOR  
CLEVE REBER SUPERFUND SITE  
ASCENSION PARISH, LOUISIANA**

This memorandum documents the U.S. Environmental Protection Agency's (EPA) approval of the Cleve Reber Superfund Site Second Five-Year Review Report.

**Summary of Five-Year Review Findings**

The selected remedy called for excavation of contaminated soil, industrial wastes, and drums, incineration of contaminated soil, drainage of on-site ponds and treatment of pond water, backfilling of drained ponds, ground water monitoring, placement of a permanent cap over the landfill, and post-closure care and monitoring for a period of 30 years. The remedial action (RA) began in September 1993 with the site mobilization and ended in May 1996 after the completion of the remediation activities. The remedy is in the operation and maintenance phase. The remedy is performing as indicated and is currently protective of human health and the environment.

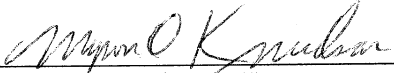
**Actions Needed**

No areas of noncompliance were identified in the information reviewed. The five-year review indicates that the selected remedy for the Cleve Reber Superfund site as specified in the ROD remains protective of human health and the environment.

It should be noted that the quantitation limit used to detect the analyte hexachlorobenzene was greater than the maximum contaminant level (MCL) established under the Safe Drinking Water Act, and the quantitation limits used to detect the analytes hexachlorobutadiene and hexachloroethane were greater than the target concentration levels established in the closure plan. The reason that higher quantitation limits were used to detect these analytes is that method SW-8120, which had been used in the past, was no longer available. Under the quantitation methods that were used to detect these analytes, no analytes were detected. Moreover, in the past, none of these analytes have been detected. So EPA has no reason to believe that these analytes are present in tested ground water. In the future, the companies that are performing operation and maintenance at the site have agreed to use quantitation limits that are equal to or less than the MCL for hexachlorobenzene, and less than or equal to the target levels for hexachlorobutadiene and hexachloroethane, respectively.

**Determinations**

I have determined the remedy for the Cleve Reber Superfund site is protective of human health and the environment, and will remain so provided the action items identified in this report are addressed as described above.

  
\_\_\_\_\_  
Myron O. Knudson, P.E.  
Director  
Superfund Division  
U.S. Environmental Protection Agency, Region 6

9-29-03  
\_\_\_\_\_  
Date

**CONCURRENCES:**  
**SECOND FIVE-YEAR REVIEW FOR**  
**CLEVE REBER SUPERFUND SITE**

**EPA ID# LAD980501456**

By: Bartolome J. Capellas Date: 9/22/2003  
Bartolome J. Capellas  
Remedial Project Manager

By: Sing Chia Date: 9/23/03  
Sing Chia, Chief  
LA/OK Project Management Section

By: James Costello Date: 9/23/03  
James Costello  
Site Attorney, Office of Regional Counsel

By: Mark Peycke Date: 09/25/03  
Mark Peycke, Chief  
Superfund Branch, Office of Regional Counsel

By: Wren Stenger Date: 9/26/03  
Wren Stenger, Chief  
LA/NM/OK Branch

By: Jane Buzzell Date: 9/26/03  
Jane Buzzell, Writer-Editor  
Superfund Division

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Steve Vargo, Acting Deputy  
Superfund Division

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## ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirement
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminant of concern
CRG	Cleve Reber Group
ECCO	Environmental Controls Company
EPA	U.S. Environmental Protection Agency Region 6
FS	Feasibility study
GVS	Gas vent system
HDPE	High-density polyethylene
LAC	Louisiana Administrative Code
LDEQ	Louisiana Department of Environmental Quality
MCL	Maximum contaminant level
MDL	Method Detection Limit
MSL	Mean sea level
µ/L	Microgram per liter
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and maintenance
OHM	OHM Remediation Services Corporation
OVA	Organic Vapor Analyzer
Parsons	Parsons Engineering Science, Inc
ppm	Part per million
PRQL	Project Required Quantitation Limit
PID	Photoionization detector
RA	Remedial action
RAO	Remedial action objective
RAC	Response Action Contract
RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
ROD	Record of Decision
Tetra Tech	Tetra Tech EM Inc.
UAO	Unilateral Administrative Order

## EXECUTIVE SUMMARY

Tetra Tech EM Inc. (Tetra Tech) received Work Assignment No. 113-FRFE-0610 from the U.S. Environmental Protection Agency (EPA) under Response Action Contract (RAC) No. 68-W6-0037. Under this work assignment, Tetra Tech was authorized to conduct the second five-year review of the remedial action implemented at the Cleve Reber Superfund (Cleve Reber) site in Ascension Parish, Louisiana. The purpose of the five-year review is to evaluate if the selected remedy has remained effective for the overall protection of human health and the environment.

The Cleve Reber site occupies about 25 acres. The site is surrounded by predominantly agricultural land and is scarcely populated. Swampy areas are located adjacent to the site to the east, south, and west. The nearest residence is located immediately north of the site, and additional residential properties are located further to the north. The Town of Sorrento is located about 2 miles to the northeast of the site.

The Cleve Reber site was originally used as a borrow pit for fill material used in the construction of Highway 70 and the Sunshine Bridge. After the bridge and highway were completed, the site was used as a disposal area for municipal waste. The site also accepted industrial waste from chemical plants located in the Ascension Parish area. A Louisiana court ordered the site to stop receiving waste in 1974; the site was abandoned later the same year. EPA conducted an emergency cleanup in 1983 and removed numerous drums and surface piles. A temporary cap was also constructed over the former landfill area to prevent infiltration of surface water.

Surface soil and surface water samples collected during the remedial investigation (RI) showed elevated levels of chlorinated organic compounds. In particular, surface soils contained elevated concentrations of hexachlorobenzene (5,100 milligrams per kilogram). A supplemental RI indicated that site-related contaminants had not migrated laterally beyond the site boundaries. However, contaminants had migrated to the Shallow Sand aquifer underlying the site. Information indicates that contaminants have not migrated to deeper aquifers in which local domestic wells are commonly screened.

In March 1987, EPA signed the Record of Decision (ROD) outlining the selected remedy for the site (EPA 1987). The remedy included the following: (1) excavation of contaminated soil, industrial wastes, and drums; (2) incineration of contaminated soil using a transportable incineration system; (3) draining of on-site ponds and treatment of pond water; (4) backfilling of drained ponds using ash from incinerated soil and clean backfill; (5) ground water monitoring; (6) placement of a cap over the landfill; and



(7) post-closure care and monitoring for 30 years. Remedial action activities began in September 1993 and were completed in May 1996. The site was deleted from the National Priorities List in December 1997. In September 1998, EPA published the first five-year review for the Cleve Reber site. EPA's findings determined that the selected remedy remained protective of human health and the environment.

Semi-annual operation and maintenance (O&M) ground water monitoring is currently being performed. Ground water samples are being analyzed for the following contaminants of concern (COC): carbon tetrachloride, tetrachloroethane, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, hexachlorocyclopentadiene, and mercury. Since O&M ground water monitoring began, concentrations of the COCs listed above have consistently been below detection limits.

No areas of noncompliance were identified in the information reviewed. The five-year review indicates that the selected remedy for the Cleve Reber site as specified in the ROD remains protective of human health and the environment.

### Five-Year Review Summary Form

**Site Name (from WasteLAN):** Cleve Reber Superfund Site

**EPA ID (from WasteLAN):** LAD980501456

**Region:** 6

**State:** LA

**City/County:** Ascension Parish

**NPL Status:** - Final : Deleted - Other (specify) \_\_\_\_\_

**Remediation Status** (choose all that apply): - Under Construction - Operating : Complete

**Multiple OUs?** - YES

**Construction Completion Date:** May 1996

: NO

**Has site been put into reuse?** - YES : NO

**Reviewing Agency:** : EPA - State - Tribe - Other Federal Agency \_\_\_\_\_

**Author Name:** Bill Clattenburg

**Author Title:** Alternate Project Manager

**Author Affiliation:** EPA Region 6 Contractor

**Review Period:\*\*** 12/02 to 7/03

**Date(s) of Site Inspection:** 5/07/03

**Type of review:** : Statutory - Policy (- Post-SARA - Pre-SARA  
 - NPL-Removal only - Non-NPL Remedial Action Site  
 - NPL State/Tribe-lead)

**Review Number:** - 1 (first) : 2 (second) - 3 (third) - Other (specify)

**Triggering Action:**

- Actual RA Onsite Construction at OU #1

- Actual RA Start at OU # \_\_\_\_\_

- Construction Completion

: Previous Five-Year Review Report

**Triggering Action Date (from WasteLAN):** September 1998

**Due Date (Five Years After Triggering Action Date):** September 2003

### **Five-Year Review Summary Form**

**Deficiencies:**

No deficiencies were observed during the five-year review.

**Recommendations and Follow-up Actions:**

The quantitation limits for the methods used to detect the analytes should be evaluated to insure the quantitation limits are less than or equal to the MCLs and target concentration levels.

**Protectiveness Statement(s):**

The remedy is protective of human health and the environment in the short term.

## 1.0 INTRODUCTION

Tetra Tech EM Inc. (Tetra Tech), under the direction of the U.S. Environmental Protection Agency Region 6 (EPA), has conducted the second five-year review of the remedial actions (RA) implemented at the Cleve Reber Superfund (Cleve Reber) site in Ascension Parish, Louisiana. This review was conducted from December 2002 through July 2003, and the results of the review are documented in this report. The purpose of five-year review is to determine whether the remedies at the site are protective of human health and the environment. The methods, findings, and conclusions of the review are documented in this five-year review report. In addition, the five-year review report identifies deficiencies found during the review, if any, and identifies recommendations to address them.

This review is required by statute. EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). 42 U.S.C. §9621(c), states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP at 40 CFR § 300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

Due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unrestricted use and unlimited exposure, a five-year review is required.

## **2.0 SITE CHRONOLOGY**

Table 1 presents a chronology of events for the Cleve Reber site.

## **3.0 BACKGROUND**

This section describes the location, description, and history of the Cleve Reber site.

### **3.1 SITE LOCATION**

The Cleve Reber site is located in Ascension Parish, Louisiana, about 1 mile south of Highway 22 on the east side of Highway 70 (see Figure 1). The site is surrounded by predominantly agricultural land and is scarcely populated. Swampy areas are located adjacent to the site to the east, south, and west. The nearest residence is located immediately north of the site, and additional residential properties are located further to the north. The Town of Sorrento is located about 2 miles to the northeast and has a population of about 1,000.

### **3.2 SITE DESCRIPTION**

The site originally consisted of four ponds and a landfill area. The majority of the site was covered with dense vegetative growth. As part of the RA, the ponds were drained and backfilled; the landfill area was excavated, backfilled and capped; and the dense vegetative growth was cleared. Currently, the site is rectangular in shape and covers an area of about 25 acres. The former landfill area is located in the center of the site. The landfill cap is about 1,200 feet long and about 500 feet wide. An elevated flood berm is located along the northern and western perimeter of the site. The site is essentially flat with elevations ranging from about 5 to 8 feet above mean sea level (msl) (CH2M Hill 1985). The perimeter of the site is secured by a 7-foot-high chain-link fence. See Figure 2 for a site layout map.

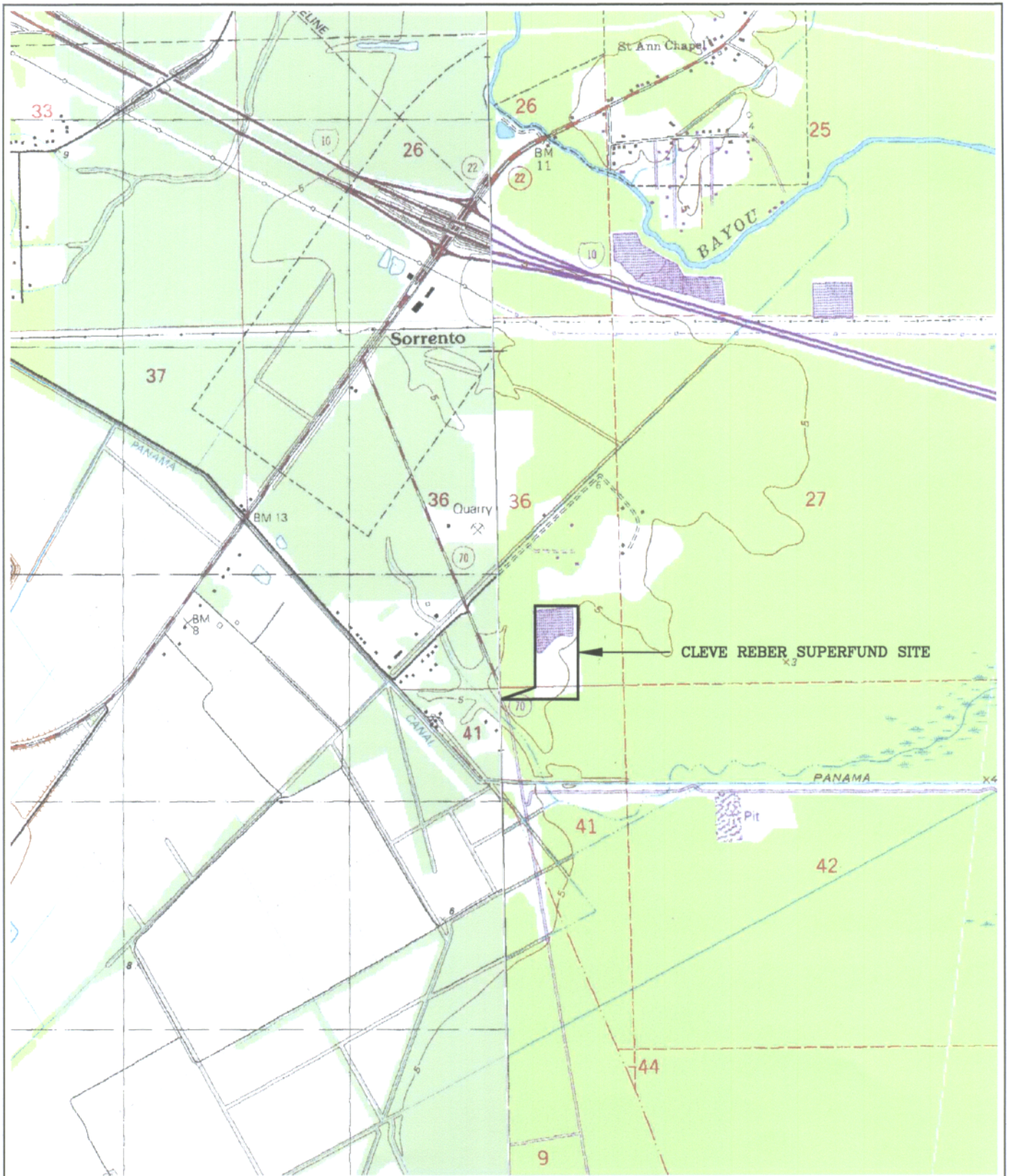
Surface water flow on site is diverted around the landfill cap to the east and south. The Panama Canal is the nearest surface water body and is located about 1,500 feet south of the site. The canal flows to the

**TABLE 1****CHRONOLOGY OF SIGNIFICANT EVENTS FOR THE CLEVE REBER SITE**

<b>Date</b>	<b>Description</b>
1970 to 1974	Received industrial and municipal waste off-site
July 1974	Louisiana State Court determined the site was in violation of the State Sanitary Code
1974	Site abandoned
June 1981	Louisiana Department of Natural Resources conducted sampling to determine site contaminants
July 14 to July 29, 1983	EPA performed emergency cleanup activities, which included removing drums and chemical piles
1984	EPA placed the Cleve Reber site on the National Priorities List
May 1985	EPA issued the RI/FS
September 1986	EPA completed a supplemental RI/FS
March 1987	EPA issued the ROD
September 1988	EPA issued the UAO
February 1989	EPA issued a design investigation report
February 1990	EPA issued a draft final design report
February 1991	EPA issued an amended UAO, which included the final design report
June 1992	CRG initiated ambient air monitoring
March 1993	CRG completed preconstruction studies
June 1993	CRG selected OHM Remediation Services Corporation as the remedial action contractor
September 1993	CRG began remediation activities
May 1996	CRG completed remediation activities and began post-closure care
December 1997	The site was deleted from the NPL
September 1998	EPA published the first five-year review

## Notes:

CRG Cleve Reber Group  
EPA U.S. Environmental Protection Agency  
FS Feasibility study  
NPL National Priorities List  
OHM OHM Remediation Services Corporation  
RI Remedial investigation  
ROD Record of Decision  
UAO Unilateral Administrative Order



0 1000 2000  
SCALE IN FEET



CLEVE REBER SUPERFUND SITE  
ASCENSION PARISH, LOUISIANA

**FIGURE 1**  
SITE LOCATION MAP

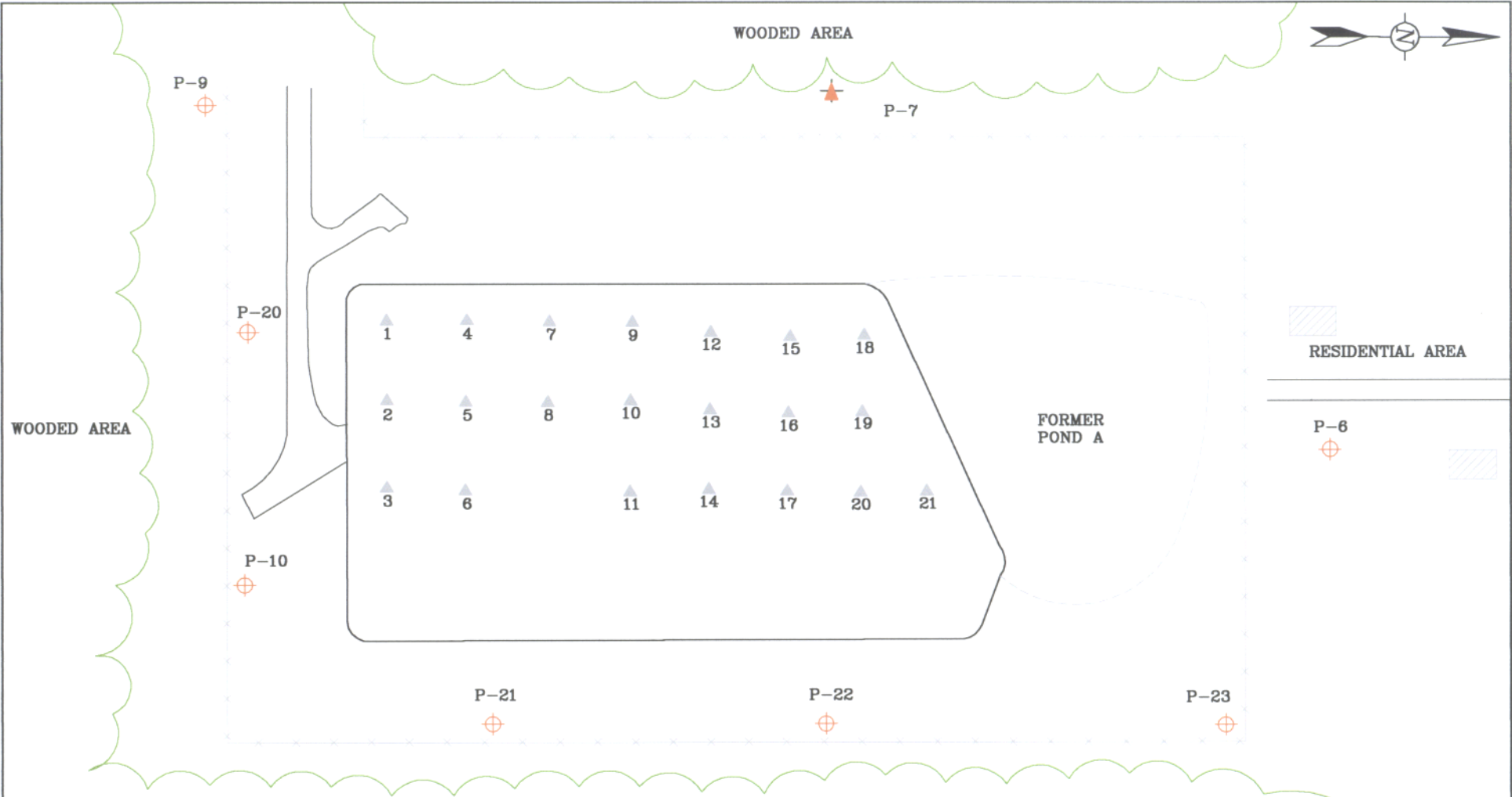
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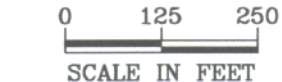
BY:



SOURCE: MODIFIED FROM USGS, SORRENTO LOUISIANA  
1962 PHOTOREVISED 1980



- LEGEND:**
- BACKGROUND MONITORING WELL
  - LOCATIONS OF GAS VENTING SYSTEMS
  - DETECTION MONITORING WELL
  - FENCE
  - FORMER POND A
  - RESIDENCE



SOURCE: MODIFIED FROM CLEVE REBER GROUP, NO DATE

CLEVE REBER SUPERFUND SITE  
ASCENSION PARISH, LOUISIANA

**FIGURE 2**  
SITE LAYOUT MAP

PREPARED FOR: EPA BY: Tetra Tech EM Inc.



east and empties into Blind River, which then empties into Lake Maurepas and Lake Pontchartrain. The site is located about 15 miles from Lake Maurepas and about 26 miles from Lake Pontchartrain (CH2M Hill 1985).

### **3.3 SITE HISTORY**

The Cleve Reber site was originally used as a borrow pit for fill material during the construction of Highway 70 and the Sunshine Bridge. After construction was completed, the site was used as a disposal area for municipal waste. The site also accepted industrial waste from chemical plants located in the Ascension Parish area. The Environmental Controls Company (ECCO), with Mr. Cleve Reber as president, leased the land in 1970, and the site began receiving municipal and industrial waste. In July 1974, a Louisiana court determined that the site was in violation of the state's sanitary code and directed ECCO to stop receiving waste. The site was abandoned later that year.

EPA conducted an emergency cleanup in 1983 and removed more than 1,100 drums and numerous waste piles. Following the emergency cleanup, a temporary clay cap was placed over the area to prevent infiltration. A remedial investigation (RI) conducted in 1984 indicated that site-related contaminants had migrated to the Shallow Sand aquifer underlying the site. Based on these findings, an expanded shallow ground water investigation was conducted in March 1985. The results of the investigation indicated that contamination was minimal and did not appear to pose a significant health concern. In July 1985, a study was conducted that involved sampling monitoring wells screened in the Shallow Sand aquifer for chlorinated organic compounds. The study used low method detection limits to analyze for chlorinated organic compounds. Hexachlorobenzene was detected in ground water samples collected from the Shallow Sand aquifer; however, none of the site-related contaminants were detected in nearby residential wells screened in deeper aquifers. An additional field investigation conducted in 1986 confirmed that there was no significant contamination of the Shallow Sand aquifer (Parsons Engineering Science, Inc. [Parsons] 1995).

In March 1987, EPA issued the Record of Decision (ROD) for the site. The ROD documented EPA's selection of a remedial action to address the contamination on the site. The ROD also listed remediation goals, and applicable or relevant and appropriate requirements (ARAR). Furthermore, the ROD stated

that about 15,000 cubic yards of drums and bulk sludges were to be removed as part of source control activities.

On September 31, 1988, EPA issued a CERCLA Section 106, 42 U.S.C. § 9606, unilateral administrative order (UAO) to certain responsible parties. On February 5, 1991, EPA issued an amended UAO (EPA 1991a). The UAO and the amended UAO ordered the responsible parties to conduct the RA as outlined in the ROD.

RA mobilization occurred in September 1993 and the remedy was completed in May 1996. The site was deleted from the National Priorities List in December 1997. See Table 1 for a chronology of significant events for the Cleve Reber site.

#### **4.0 REMEDIAL ACTION**

The remedy selection was presented in the ROD. Actual RA construction activities began in December 1993.

#### **4.1 REMEDY SELECTION**

The selected remedy identified in the ROD included the following components: (1) excavation of contaminated soil, industrial wastes, and drums; (2) incineration of contaminated soil using a transportable incineration system; (3) draining of on-site ponds and treatment of pond water; (4) backfilling of drained ponds using ash from incinerated soil and clean backfill; (5) ground water monitoring; (6) placement of a permanent cap over the landfill; and (7) post-closure care and monitoring for a period of 30 years.

The remedial action objectives of the selected remedy were based on the findings of the RI activities and the human health concerns identified by EPA (CH2M Hill 1988). Information from these sources identified contamination in various media that required remediation. The following were major public health concerns:

- Ingestion or dermal absorption of contaminated on-site soil, sediments, and surface water

- Ingestion of contaminated ground water. Contaminated ground water was not found off-site; however, the potential for off-site contamination exists at wells that may be screened in the shallow sand.

Based on these public health concerns, the remedial action objectives of the Cleve Reber site RA were as follows (CH2M Hill 1988):

- Eliminate the potential for unauthorized personnel to come in contact with site contaminants
- Reduce the potential for future migration of contaminants to shallow ground water
- Eliminate potentially contaminated aquatic organisms and the sources of contamination of these aquatic organisms

## **4.2 REMEDY IMPLEMENTATION**

The following sections discuss the RA conducted at the Cleve Reber site in response to the remedial action objectives outlined in the ROD.

### **4.2.1 Soil Excavation and Incineration**

According to the ROD, excavated material was to be incinerated on-site using a transportable incineration system. A temporary structure that housed the incinerator was built on top of the landfill area to prevent fugitive emissions from escaping during the excavation and incineration phases. About 26,000 tons of excavated waste were incinerated on-site; residual ash from the incinerated soil was then used as backfill. Fill material from a nearby borrow area was used in areas requiring additional backfilling (CRG 1996a). Major components of the incineration system included the waste staging area, the excavation building, and the incineration unit.

The waste staging area was divided into a feed preparation area and an ash storage area. The ash was stored in bins until analytical results verified that the ash was “clean” and could be used as backfill material.

The excavation building was designed to hold materials from the landfill area for temporary storage prior to incineration. Material was then transported to the incinerator building via a conveyor infeed system.

A temporary building was constructed to house the incineration unit. The incineration process consisted of two phases. During the first phase, soil was heated to temperatures of up to 1,400 °F. In the second phase, vapor from the soil combustion was heated to temperatures of up to 2,300 °F. The second phase was designed to break down organic compounds into water and carbon dioxide. The resulting off-gases were treated in a tandem scrubber air pollution control system where the gas stream was cooled to approximately 180 °F and scrubbed to remove any fine particulates, aerosols, submicron heavy metals, and acidic gases (OHM Remediation Services Corporation [OHM] 1993). The scrubber water was treated off-site and discharged to the Mississippi River.

#### **4.2.2 Drainage and Backfilling of Ponds**

About 63 million gallons of water were drained from the four on-site ponds (ponds A, B, C, and D). About 38 million gallons were removed from Pond A alone, the largest of the four ponds (Parsons 1996). Pond water was treated off-site and discharged to the Mississippi River. The effluent met standards set by EPA and Louisiana Department of Environmental Quality (LDEQ) (CRG 1996b). After the ponds were completely drained, they were backfilled with sand transported from the Mississippi River.

#### **4.2.3 Landfill Cap Construction**

After contaminated soil and drums were excavated and the landfill area was backfilled, a permanent cap was constructed over the landfill area to reduce infiltration and promote drainage. From bottom to top, the cap consists of the following components: (1) a gravel bed; (2) a gas venting layer; (3) 2 feet of compacted clay; (4) a sealed, high-density polyethylene (HDPE) liner; (5) a rainwater collection layer; (6) 18 inches of compacted clay; and (7) 6 inches of topsoil. See Figure 3 for a cross-section of the cap. The rainwater collection layer and gas venting layer are discussed below.

The rainwater collection layer is essentially a drainage network designed to divert infiltrated rainwater off of the cap. Any rainwater that percolates through the upper compacted clay layer becomes “trapped” in the rainwater collection layer and is diverted to a series of pipes located along the perimeter of the cap.

The gas vent layer includes a passive gas vent system (GVS) designed to relieve gas pressure generated during the natural decomposition of landfill waste. The GVS consists of a series of gas vents placed in

the gravel bed layer directly above the ash and fill material. The vents are connected to steel pipes that route gas through two 55-gallon drums containing activated carbon. The first drum is used to remove and collect condensate from the gas, and the second drum is used to remove organic compounds from the gas.

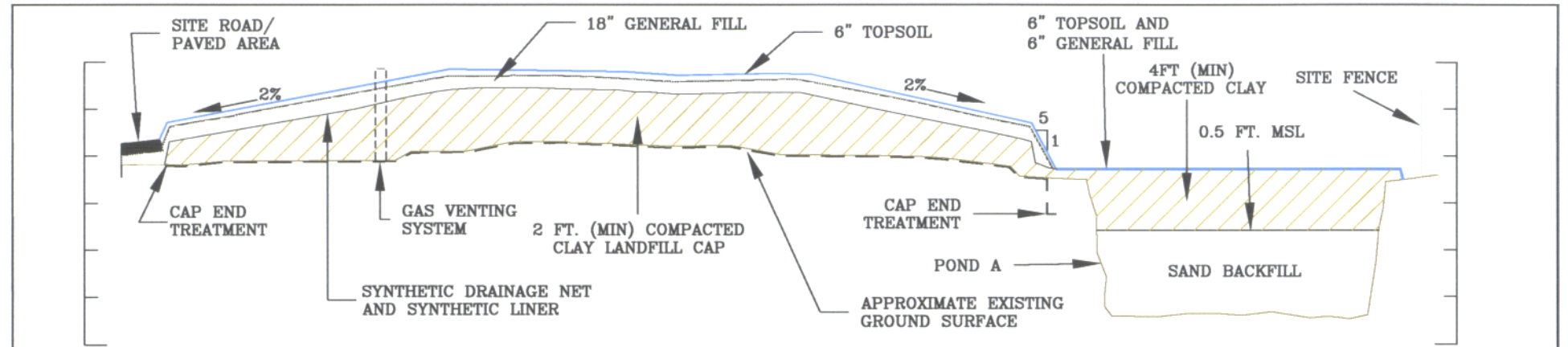
Gases emitted from the GVS are periodically monitored with a photo-ionization detector (PID) for organic compounds before entering the atmosphere. The carbon-activated charcoal in the drums is replaced if PID readings exceed 5 parts per million (ppm).

#### **4.2.4 Stormwater Drainage System**

A stormwater drainage system was constructed along the outer edge of the cap to prevent the accumulation of stormwater and to improve site drainage. The land elevation of the site is sloped to promote stormwater runoff. Stormwater runoff is diverted off-site through conduits to the adjacent swampy areas.

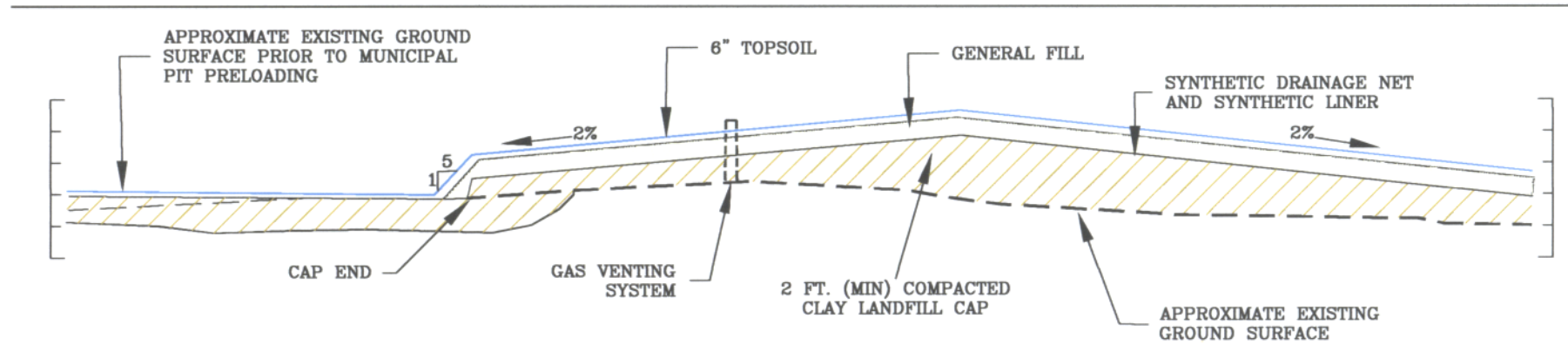
#### **4.2.5 Ground Water Monitoring Network**

To monitor ground water quality in the Shallow Sand aquifer, eight ground water monitoring wells were installed along the perimeter of the site (see Figure 2 for monitoring well locations). Upgradient monitoring well P-7 is located along the western border of the site; it is screened from about 35 to 40 feet below ground surface (bgs) within the Shallow Sand aquifer. Detection monitoring wells P-6, P-9, P-10, P-20, P-21, P-22, and P-23 are located around the perimeter of the site and are screened from 35 to 40 feet bgs within the Shallow Sand aquifer (Parsons 1996). Ground water monitoring will continue for 30 years.



NORTH - SOUTH SECTION THROUGH LANDFILL CAP

0 60 120 HORIZONTAL SCALE IN FEET  
 0 6 12 VERTICAL SCALE IN FEET



EAST - WEST SECTION THROUGH LANDFILL CAP

0 30 60 HORIZONTAL SCALE IN FEET  
 0 6 12 VERTICAL SCALE IN FEET

CLEVE REBER SUPERFUND SITE  
 ASCENSION PARISH, LOUISIANA

**FIGURE 3**  
 CAP DESIGN

PREPARED FOR:



BY:



## **5.0 FIVE-YEAR REVIEW PROCESS**

This five-year review was led by Mr. Bartolome J. Cañellas, EPA Remedial Project Manager. Based on information presented in the first Five-Year Review Report, this review consisted of a review of relevant documents (see Appendix A), a review of standards, interviews, and a site inspection.

Public notice of the five-year review was published in the local newspaper, and a five-year review fact sheet was distributed to the mailing list maintained for the site. The public notice and fact sheet are presented in Appendix B. A copy of the completed report will be available in the local site information repository at the LDEQ office located at 7290 Bluebonnet Boulevard in Baton Rouge, Louisiana. Notice of its completion will be placed in the local newspaper, and local contacts will be notified by letter.

## **6.0 FIVE-YEAR REVIEW FINDINGS**

The second five-year review included an interview of a resident located adjacent to the site, an inspection of the site, an ARAR review, and a review of the available site data.

### **6.1 INTERVIEWS**

Tetra Tech conducted a telephone interview with the resident located adjacent to the site. The resident, Mrs. Charlene Melancon, stated she does not have any negative comments or concerns regarding the site. She also stated she does not smell any odors associated with the site and the site is well maintained by CRG. The Superfund Site Survey Form for the interview is presented in Appendix C.

### **6.2 SITE INSPECTION**

A site inspection was performed by Tetra Tech on May 7, 2003. The site inspection evaluated the condition of the monitoring wells, condition of the landfill cap, postings, and site fencing. The site inspection indicated no sign or evidence of contamination at the site. The landfill cap and monitoring wells appeared to be in good condition and adequate signs are posted on the security fence. The Five-Year Review Site Inspection Report is presented in Appendix D. Photographs taken during the site inspection are contained in Appendix E. The site inspection checklist is presented in Appendix F.

### **6.3 ARAR REVIEW**

The ROD identified the following ARARs and supporting regulations pertaining to the Cleve Reber site:

- Federal requirements under the Resource Conservation and Recovery Act (RCRA) § 3005, 40 CFR 122
- Federal manifests for transportation under RCRA § 3002 (5), 40 CFR 262
- State hazardous waste manifest laws
- State permits or licenses for transportation of hazardous wastes
- Response in a flood plain, Federal Executive Order 11988

One of the requirements of a five-year review is to determine if there are any new ARARs pertaining to the site. Tetra Tech's analysis indicates that there are no newly promulgated ARARs that pertain to the Cleve Reber site. ARARs pertaining to RA activities at the Cleve Reber site are divided into chemical-specific, location-specific, and action-specific categories and are discussed below.

#### **6.3.1 Chemical-specific ARARs**

Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies used to determine acceptable concentrations of chemicals that may be found in or discharged to the environment (EPA 1989). If more than one chemical-specific ARAR exists for a contaminant of concern (COC), the most stringent level will be identified as an ARAR for the RA. The chemical-specific ARARs for the Cleve Reber site are EPA maximum contaminant levels (MCL) for drinking water.

To determine compliance with chemical-specific ARARs, Tetra Tech reviewed analytical results of O&M ground water samples collected from the monitoring well network. No COC concentrations have been detected in ground water samples. The detection limits for all of the COCs except hexachlorobenzene and hexachlorocyclopentadiene are below the MCLs for the COCs. The detection limit for hexachlorobenzene is above the MCL and the detection limit for hexachlorocyclopentadiene is equal to the MCL. Tetra Tech's review of current MCLs also indicates that MCLs for the COCs have not changed since RA activities began at the site. In addition, no newly promulgated chemical-specific ARARs apply



to the site. Therefore, all chemical-specific ARARs are currently being met, and the original cleanup levels remain protective of human health and the environment.

### **6.3.2 Location-specific ARARs**

Location-specific ARARs restrict actions or contaminant concentrations in certain environmentally sensitive areas. Examples of areas regulated under various Federal Laws include floodplains, wetlands, and locations where endangered species or historically significant cultural resources are present (EPA 1989). The ROD identified only one location-specific ARAR pertaining to the Cleve Reber site:

- Flood plain Management Order, Executive Order No. 11988. This Executive Order (40 CFR 6 Appendix A) dictates that federally funded or authorized actions within the 100-year flood plain avoid, to the maximum extent possible, adverse impacts associated with development of a flood plain. A facility located in a 100-year flood plain must be designed, constructed, operated, and maintained to prevent wash out of any hazardous waste by a 100-year flood, unless the owner or operator can demonstrate to the Regional Administrator's satisfaction that waste can be removed before flood waters arrive and that no adverse health hazards are at risk if flooding occurs.

Although not included as an ARAR in the ROD, Louisiana Administrative Code (LAC) 33, Chapter 7, Section 711, Subsection B3(b) states that perimeter levees designed to protect a facility against a 100-year flood shall (1) be engineered to minimize wind and water erosion, (2) have a grass cover or other protective cover to preserve the structural integrity, and (3) provide adequate freeboard above the 100-year flood elevation. The northeast portion of the site was originally below the 100-year flood plain of Lake Maurepas and was frequently flooded. As part of the RA, the surface elevation of the site was increased to be above the 100-year flood plain, and a flood berm with a minimum elevation of 7 feet msl was built along the northern and western perimeter of the site. The flood berm was constructed in accordance with the Stormwater Control Plan and apparent agreement with LAC 33, Chapter 7, Section 711, Subsection B3(b) (OHM 1994). The engineered cap also prevents any hazardous waste from coming into contact with surface water. Therefore, the increased site elevation, the flood berm, and the engineered cap sufficiently protect the site from inundation by a 100-year flood. During the site inspection, the flood berm appeared to be good condition.

A wetland assessment conducted by the U. S. Army Corps of Engineers confirmed that the Cleve Reber site is not characterized as a wetland area. This designation would remove the site from the guidelines

promulgated by Section 404 of the Clean Water Act (CH2M Hill 1988). Tetra Tech's review also indicates that no newly promulgated ARARs apply to the site and that all location-specific ARARs are currently being met.

### **6.3.3 Action-specific ARARs**

Action-specific ARARs are usually technology- or activity-based requirements or limitations on actions or conditions involving specific substance (EPA 1989). These action-specific requirements do not in themselves determine the remedial alternative; rather, they indicate how a selected alternative must be achieved (EPA 1988).

The ROD calls for the following action-specific ARARs to be met, based on the requirements of 40 CFR Part 264: (1) conduct and maintain post-closure care for 30 years; (2) maintain the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover; (3) maintain and operate a leachate collection system unless leachate is deemed to be no longer a threat to human health and the environment; (4) monitor ground water and adequately maintain the ground water recovery system; (5) develop a written post-closure plan that describes monitoring and maintenance activities and provides the name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and (6) document a description of the planned uses of the property during the post-closure period. Neither a leachate collection system nor a ground water recovery system were constructed as part of the remedial activities.

The post closure plan outlines the type and frequency of monitoring and maintenance activities to be performed at the site. Based on Tetra Tech's review of O&M activities at the Cleve Reber site, no newly promulgated action-specific ARARs apply to the site and all action-specific ARARs are currently being met.

## **6.4 DATA REVIEW**

Ground water monitoring events have been conducted semi-annually by CRG since the first five-year review. Ground water samples are analyzed for the following COCs: carbon tetrachloride,

tetrachloroethane, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, hexachlorocyclopentadiene, and mercury. Hexachlorobenzene, hexachlorobutadiene, hexachloroethane, and hexachlorocyclopentadiene are analyzed using EPA modified method SW8120; the modification allows for low level detection of these compounds. Table 2 presents the project required quantitation limits and the MCLs for the compounds.

The five-year review of post-closure ground water analytical data indicates that concentrations of all COCs have consistently been below detection limits. However, based on a review of the latest laboratory report, the detection limit used for hexachlorobenzene exceeds the MCL and the detection limits used for hexachlorobutadiene and hexachloroethane exceed the target concentration levels.

Method SW-8120, originally specified and used is no longer available. At that time concentrations were reported below detection limits. The PRPs have agreed to evaluate and use methods that will insure quantitation limits are less than or equal to MCLs and target concentration levels.

## **7.0 TECHNICAL ASSESSMENT**

Question A: Is the remedy functioning as intended by the decision documents?

The results of the site inspection and review of the ARARs and site data indicate that the remedy is functioning as intended by the ROD. The landfill cap has been well maintained, and the results of the ground water sampling activities indicate contamination is not migrating from the site.

Question B: Are the exposure assumption, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

The site inspection and ARAR review confirmed that the exposure assumption, toxicity data, cleanup levels, and remedial action objectives (RAO) used at the time of remedy selection are still valid.

**TABLE 2**

**TARGET ANALYTE LIST AND PROJECT REQUIRED QUANTITATION LIMITS**

Analyte	PRQL <sup>a</sup> (µg/L)	MCL <sup>b</sup> (µg/L)
Carbon tetrachloride	2.0	5.0
Hexachlorobenzene	1.0	1.0
Hexachlorobutadiene	1.0	0.14 <sup>c</sup>
Hexachloroethane	1.0	0.75 <sup>c</sup>
Hexachlorocyclopentadiene	5.0	50.0
Mercury	0.2	2.0
Tetrachloroethane	2.0	5.0

Notes:

<sup>a</sup> Project required quantitation limits of modified method SW 8120.

<sup>b</sup> EPA primary maximum contaminant level effective October 1996.

<sup>c</sup> This analyte does not have a promulgated health-based standard. Since there is not an MCL, trigger levels were set at 1.0 µg/L in the approved closure plan of 1986. EPA Region 3 risk based concentration (below achievable PRQL).

µg/L Micrograms per liter

MCL Maximum contaminant level

PRQL Project required quantitation limit

---

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

Based on the information obtained during this five-year review, no new information was discovered that could affect the protectiveness of the remedy.

## **8.0 ISSUES**

As part of the statutory five-year review, a site is reviewed to determine if the selected remedy is still functioning and to identify any areas of noncompliance. Based on the five-year review, it appears that the Cleve Reber site is currently operating according to requirements stated in the ROD.

## **9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

No deviations from the requirements in the ROD were noted during the review. Based on a review of post-closure care ground water monitoring data and O&M activities, the selected remedy and original cleanup levels remain protective of human health and the environment. However, Tetra Tech suggests the following as potential areas of improvement:

- The detection limit for all of the COCs should be below or equal to the MCLs and target levels. The responsible parties conducting the O&M have agreed to use alternate methods with appropriate quantitation limits.

## **10.0 PROTECTIVENESS STATEMENTS**

Because the RAs are protective, the site is protective of human health and the environment.

## REFERENCES

- CH2M Hill. 1985. Remedial Investigation Report. Volume I. May.
- CH2M Hill. 1988. Final Remedial Design Work Plan. February.
- Cleve Reber Group (CRG). 1996a. Cleve Reber Site Remediation, January 1992 to July 1996. Video Tape.
- CRG. 1996b. Letter Regarding NPDES Permit. From Vito A. Fiore, CRG Project Manager. To Conrad Apple, Louisiana Office of Public Health. April 6.
- Parsons Engineering Science, Inc. (Parsons). 1995. Remedial Action Closeout Report, Cleve Reber Site. December.
- Parsons. 1996. Post Closure Plan, Cleve Reber Site Remedial Action. July.
- OHM Remediation Services Corporation (OHM). 1993. Incineration Operations Plan for the Cleve Reber Project, Sorrento, Louisiana. September.
- OHM. 1994. Stormwater Control Plan for the Cleve Reber Project. January.
- U.S. Environmental Protection Agency (EPA). 1985. Remedial Action at Waste Disposal Sites Revised. October.
- EPA. 1987. Record of Decision for the Cleve Reber Site. April.
- EPA. 1989. OSWER Directive 9234.2-05FS. "CERCLA Compliance with Other Laws Manual-CERCLA Compliance with State Requirements." December.
- EPA. 1991a. Amended Unilateral Administrative Order for the Cleve Reber Site. February.
- EPA. 1991b. Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-02. May.
- EPA. 1994. OSWER Directive 9355.7-03A. December.
- EPA. 2003. "List of Drinking Water Contaminants and MCLs." Office of Water. Available on-line at: <http://www.epa.gov/safewater/mcl.html#mcls>. Last updated May 27, 2003.

**APPENDIX A**

**DOCUMENTS REVIEWED FOR FIVE-YEAR REVIEW**

**(One Page)**

## **DOCUMENTS REVIEWED FOR FIVE-YEAR REVIEW**

U.S. Environmental Protection Agency (EPA). 1987. Record of Decision for the Cleve Reber Site. April.

Cleve Reber Group (CRG). 1996. Post-Closure Plan. July.

CRG. Semi-Annual Monitoring Reports. April 1999, October 1999, April 2000, October 2000, April 2001, October 2001, April 2002, and October 2002.



**APPENDIX B**  
**PUBLIC NOTICE AND FACT SHEET**  
**(Three Pages)**

# Legal Notices

## CLEVE REBER SUPERFUND SITE PUBLIC NOTICE

EPA Region 6 and LDEQ Begin Five-Year Review of Site Remedy

The U.S. Environmental Protection Agency Region 6 (EPA) and the Louisiana Department of Environmental Quality (LDEQ) have begun the second Five-Year Review of the remedy for the Cleve Reber Superfund Site. The review will let us know if the remedy performed is still protecting the public health and the environment. The site is located in Sorrento, Ascension Parish, Louisiana. Once completed, the results of the Five-Year Review will be made available to the public at [www.epa.gov](http://www.epa.gov) and at the following information repositories:

EPA, Region 6  
1445 Ross Avenue  
Dallas, Texas 75202

LDEQ  
7290 Bluebonnet Blvd.  
Baton Rouge, Louisiana 70810

Information about the Site also is available on the Internet at [www.epa.gov/region6/superfund](http://www.epa.gov/region6/superfund). For more information about the Site, contact: Bartolome Cañellas (214) 665-6662 or 1-800-533-3508 (toll-free), or by e-mail at [canellas.bart@epa.gov](mailto:canellas.bart@epa.gov). Mike Bradley (LDEQ) at (225) 765-2587 or 1-888-763-5424 (toll-free), or by e-mail at [mike\\_b@ldeq.org](mailto:mike_b@ldeq.org).

All media inquiries should be directed to the EPA Press Office at (214) 665-2200.

To be published in Ascension Citizen April 15, 2003



# FIVE-YEAR REVIEW

## CLEVE REBER SUPERFUND SITE

Sorrento, Louisiana

April 2003

### CHECKING UP ON SUPERFUND SITES: THE FIVE-YEAR REVIEW

The U.S. Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality are conducting a second 5-Year Review of the Cleve Reber Superfund site, located in Sorrento, Ascension Parish, Louisiana. EPA performs five-year reviews at selected Superfund sites to let us know if the cleanup at the site is still protecting public health and the environment. During the review, EPA will study information on the site, including the effectiveness of the cleanup and the laws that apply; inspect the site; interview people in the nearby area; and complete a report based on our findings.

### SITE HISTORY

The Cleve Reber site was originally used as a borrow pit for fill material used in the construction of Highway 70 and the Sunshine Bridge. After the bridge and highway were completed, the site was used as a disposal area for municipal waste. The site also accepted industrial waste from chemical plants located in the Ascension Parish area. A Louisiana court ordered the site to stop receiving waste in 1974; the site was abandoned later that same year. EPA conducted an emergency cleanup in 1983 and removed numerous drums and surface piles. A temporary cap was put over the former landfill area to prevent infiltration of surface water. Surface soil and surface water samples collected during a remedial investigation at the site showed elevated levels of chlorinated organic compounds.

In March 1987, EPA signed a Record of Decision (ROD) outlining the following selected remedy for the site: (1) excavation of contaminated soil, industrial wastes, and drums; (2) incineration of contaminated soil using a transportable incineration system; (3) draining of on-site ponds and treatment of pond water; (4) backfilling of drained ponds using ash from incinerated soil and clean backfill; (5) ground water monitoring; (6) placement of a cap

### The Five-Year Review is:

- a regular inspection of a Superfund site;
- conducted at sites that need continued monitoring;
- a way to determine if a cleanup is protecting public health and the environment; and
- a chance for you to tell EPA about this site

over the landfill; and (7) post-closure care and monitoring for 30 years. Remedial actions began in September 1993 and were completed in May 1996. The site was deleted from the National Priorities List in December 1997. The first 5-year review of the site (completed in September 1998) indicated the selected remedy for the Cleve Reber site, as specified in the ROD, remains protective of human health and the environment.

### YOU CAN HELP

We want to hear from you. During the review we will consider any information or concerns that people may have about the site. If you are familiar with the site, you may know things that can help the review team. Here are some examples:

- Broken fences, illegal dumping, or other problems;
- buildings or land being used in new ways around the site;
- any unusual activities at the site such as vandalism or trespassing; and
- how the cleanup at the site has helped the area.

If you have any questions, concerns, or comments about the site, please call EPA's toll free number at 1-800-533-3508.

## HOW TO GET MORE INFORMATION

If you have further questions regarding the Cleve Reber site, please call:

Bartolome Cañellas  
Remedial Project Manager  
U.S. EPA, Region 6 (6SF-LP)  
1445 Ross Avenue  
Dallas, Texas 75202  
214-665-6662  
canellas.bart@epa.gov

Janetta Coats  
Community Involvement Coordinator  
U.S. EPA (6SF-PO)  
1445 Ross Avenue  
Dallas, Texas 75202  
214-665-7308  
1-800-533-3508  
coats.janetta@epa.gov

Mike Bradley  
Louisiana Department of Environmental Quality  
7290 Bluebonnet Blvd.  
Baton Rouge, Louisiana 70810  
Customer Information: 1-888-763-5424  
Office of Environmental Services: 225-765-2587  
mike\_b@ldeq.org

Inquiries from the news media should be directed to the Region 6 Press Office at 214-665-2200, or the EPA Superfund Hotline at 1-800-533-3508.

Information can also be accessed via the U.S. EPA Internet Homepage at:

USEPA Headquarters: [www.epa.gov](http://www.epa.gov)

USEPA Region 6: [www.epa.gov/earth1r6](http://www.epa.gov/earth1r6)

USEPA Region 6 Superfund Division:  
[www.epa.gov/region6/superfund](http://www.epa.gov/region6/superfund)



**U.S. EPA REGION 6**  
**1445 Ross Avenue (6SF-PO)**  
**Dallas, Texas 75202-2733**

First Class Mail  
Postage and Fees Paid  
EPA

**APPENDIX C**  
**SUPERFUND SITE SURVEY FORM**  
**(Two Pages)**

**SUPERFUND SITE SURVEY - FORM A**

**Site Name:** Cleve Reber

**EPA Work Assignment No.:** 113-FRFE-0610

**Subject:** 5-Year Review Background Information Survey

**Date:** June 5, 2003

**Contact Made By:**

**Name:** Bill Clattenburg

**Title:** Project Manager

**Organization:** Tetra Tech EM Inc.

**Telephone No.:**

**Street Address:**

**E-Mail:**

**City, State, Zip:**

**Name:**

**Title:**

**Organization:**

**Telephone No.:**

**Street Address:**

**E-Mail:**

**City, State, Zip:**

**Individual Contacted:**

**Name:** Charlene Melancon

**Title:** Resident

**Organization:**

**Telephone No.:** (225) 675-5560

**Street Address:** Located just north of site

**E-Mail Address:**

**City, State, Zip:**

**Survey Questions**

1. What is your impression of the project (general sentiment)?

Good. No concerns or negative comments.

2. What effect have site operations had on the surrounding community?

Minimal.

3. Are you aware of any community concerns regarding the site or its operation and administration? If so, please provide details.

No.

**SUPERFUND SITE SURVEY - FORM A (continued)**

**Site Name:** Cleve Reber

**EPA Work Assignment No.:**

**Subject:** 5-Year Review Background Information Survey

**Date:** June 5, 2003

**Survey Questions (Cont.)**

4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.

No.

5. Do you feel well informed about the site's activities and progress?

Yes.

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

No odors associated with the site and the site is well maintained.

**APPENDIX D**

**FIVE-YEAR REVIEW SITE INSPECTION REPORT  
FOR  
CLEVE REBER**

**(Five Pages)**



**FIVE-YEAR REVIEW SITE INSPECTION REPORT  
FOR  
CLEVE REBER SUPERFUND SITE  
ASCENSION PARISH, LOUISIANA**

**JUNE 2003**

**PREPARED BY:**

**Region 6  
United States Environmental Protection Agency  
Dallas, TX 75202-2733**

Work Assignment No.	:	113-FRFE-0610
EPA Region	:	6
Date Prepared	:	June 20, 2003
Contract No.	:	68-W6-0037
Prepared by	:	Tetra Tech EM Inc.
Telephone No.	:	214-754-8765
EPA Project Officer	:	Mr. Hank Thompson
Telephone No.	:	(214) 665-2251
EPA Work Assignment Manager	:	Mr. Bartolome J. Cañellas
Telephone No.	:	(214) 665-6662

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2.0	BACKGROUND .....	D-1
3.0	SITE VISIT ACTIVITIES .....	D-2
4.0	FINDINGS .....	D-3

## **1.0 INTRODUCTION**

Tetra Tech EM Inc. (Tetra Tech) received Work Assignment No. 113-FRFR-0610 from the U.S. Environmental Protection Agency (EPA) under Response Action Contract (RAC) No. 68-W6-0037. Under this work assignment, Tetra Tech is authorized to conduct a five-year review of the remedial action (RA) implemented at the Cleve Reber Superfund (Cleve Reber) site located in Ascension Parish, Louisiana.

Tetra Tech visited the site to verify that all components of the remedies are operating in accordance with criteria established in the Record of Decision (ROD). This report summarizes the results of that visit.

## **2.0 BACKGROUND**

Background information presented herein includes a brief discussion of the history of the site. A complete background description, which includes a discussion of the site location, site description, and site history, can be found in the Five-year Review Report for the Cleve Reber Superfund Site.

The Cleve Reber site was originally used as a borrow pit for fill material used in the construction of Highway 70 and the Sunshine Bridge. After the bridge and highway were completed, the site was used as a disposal area for municipal waste. The site also accepted industrial waste from chemical plants located in the Ascension Parish area. A Louisiana court ordered the site to stop receiving waste in 1974; the site was abandoned later that same year. EPA conducted an emergency cleanup in 1983 and removed numerous drums and surface piles. A temporary cap was put over the former landfill area to prevent infiltration of surface water. Surface soil and surface water samples collected during a remedial investigation at the site showed elevated levels of chlorinated organic compounds.

In March 1987, EPA signed a ROD outlining the following selected remedy for the site: (1) excavation of contaminated soil, industrial wastes, and drums; (2) incineration of contaminated soil using a transportable incineration system; (3) draining of on-site ponds and treatment of pond water; (4) backfilling of drained ponds using ash from incinerated soil and clean backfill; (5) ground water monitoring; (6) placement of a cap over the landfill; and (7) post-closure care and monitoring for 30 years. Remedial actions began in September 1993 and were completed in May 1996. The site was deleted from the National Priorities List in December 1997. The first 5-year review of the site (completed

in September 1998) indicated that the selected remedy for the site, as specified in the ROD, remains protective of human health and the environment.

### **3.0 SITE VISIT ACTIVITIES**

A site visit was conducted on May 7, 2003, to assess the condition of the site and of the protective measures employed to protect human health and the environment from the contaminants still present at the sites.

The following individuals attended the site inspection:

- Mike Bradley, Louisiana Department of Environmental Quality (LDEQ)
- Vito Fiore, Vulcan Chemicals
- Bill Frizzell, Vulcan Chemicals
- Bart Cañellas, EPA
- Bill Clattenburg, Tetra Tech

The inspection evaluated the condition of the monitoring wells, condition of the landfill cap, postings, and site fencing. Photographs taken during the site visit are presented in Appendix E, and the completed five-year review site inspection checklist is presented in Appendix F. A summary of the findings from the site visit follows.

The weather conditions during the inspection were partly cloudy with temperatures in the mid-80s. Evidence of recent precipitation, such as ponding, was not evident.

All monitoring wells visually inspected appeared in good condition, were clearly labeled, and were securely encased (lock and cover). The monitoring well casings were freshly painted and labeled.

The landfill cap appeared to be in condition. Grass was established on the cap and signs of erosion were not evident. Settlement, cracking, or holes were not observed during the inspection. The side slopes of the cap appeared stable.

The site is secured by a chain-link fence with barb wire on top and signs were observed at the gate and on the fence at various locations.

#### **4.0 FINDINGS**

Visually, there is no sign or evidence of contamination at the site. The landfill cap and monitoring wells appear to be in good condition. The vegetation at the site appears similar in type and density as the typical surrounding environment. Since the selected remedy for the site did not require long-term operation and maintenance, there were no engineered systems to be evaluated.

**APPENDIX F**

**FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST**

**(13 Pages)**

## FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

“N/A” refers to “not applicable.”

<b>I. SITE INFORMATION</b>	
<b>Site Name:</b> Cleve Reber Superfund Site	<b>Date of Inspection:</b> 5/07/03
<b>Location and Region:</b> Ascension Parish, Louisiana, Region 6	<b>EPA ID:</b> LAD 980501456
<b>Agency, office, or company leading the five-year review:</b> Tetra Tech EM Inc.	<b>Weather/temperature:</b> Partly Cloudy/ +/- 85 °F
<b>Remedy Includes:</b> (Check all that apply) : Landfill cover/containment : Access controls : Institutional controls <input type="checkbox"/> Ground water pump and treatment <input type="checkbox"/> Surface water collection and treatment <input type="checkbox"/> Other	
<b>Attachments:</b> <input type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached	
<b>II. INTERVIEWS</b> (Check all that apply)	
<b>1. O&amp;M Site Manager</b> <u>Vito Fiore</u> <u>Vice President Technical</u> <u>5/07/03</u> <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed: <input type="checkbox"/> by mail <input type="checkbox"/> at office <input type="checkbox"/> by phone                      Phone no. Problems, suggestions: <input type="checkbox"/> Report attached _____	
<b>2. O&amp;M Staff</b> <u>Bill Frizzell</u> <u>Environmental Technician</u> <u>5/07/03</u> <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed: <input type="checkbox"/> by mail <input type="checkbox"/> at office <input type="checkbox"/> by phone                      Phone no. Problems, suggestions: <input type="checkbox"/> Report attached _____	

**3. Local regulatory authorities and response agencies** (i.e.; State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.). Fill in all that apply.

Agency Louisiana Department of Environmental Quality  
 Contact Mike Bradley Environmental Program Specialist 5/07/03  
 Name Title Date

Problems, suggestions:  Report attached\_\_\_\_\_

Agency  
 Contact  
 Name Title Date Phone no.

Problems, suggestions:  Report attached

**4. Other interviews** (optional): : Report attached to Five-Year Review Report

Charlene Melancon - Resident located adjacent to site.


**III. ONSITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

**1. O&M Documents**

- O&M manual  Readily available  Up to date : N/A
- As-built drawings  Readily available  Up to date : N/A
- Maintenance logs  Readily available  Up to date : N/A

Remarks:

**2. Site-Specific Health and Safety Plan**

- Readily available  Up to date : N/A
- Contingency plan/emergency response plan  Readily available  Up to date : N/A

Remarks: \_\_\_\_\_



<b>3. O&amp;M and OSHA Training Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
Remarks:			
<b>4. Permits and Service Agreements</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<input type="checkbox"/> Air discharge permit	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<input type="checkbox"/> Effluent discharge	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<input type="checkbox"/> Other permits	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
Remarks:			
<b>5. Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<b>6. Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<b>7. Ground Water Monitoring Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<b>8. Leachate Extraction Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<b>9. Discharge Compliance Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<input type="checkbox"/> Air	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
<input type="checkbox"/> Water (effluent)	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
Remarks: <u>No discharge from the site other than surficial stormwater runoff.</u>			
<b>10. Daily Access/Security Logs</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	: N/A
Remarks:			
<b>IV. O&amp;M COSTS</b>			
<b>1. O&amp;M Organization</b>	<input type="checkbox"/> Contractor for State		
<input type="checkbox"/> State in-house	<input type="checkbox"/> Contractor for PRP		
: PRP in-house			
<input type="checkbox"/> Other			



<b>B. Other Access Restrictions</b>				
1. <b>Signs and other security measures</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A Remarks: <u>Warning signs posted on fence. Monitoring wells closed and locked.</u>				
<b>C. Institutional Controls</b>				
1. <b>Implementation and enforcement</b>				
Site conditions imply ICs not properly implemented			<input type="checkbox"/> Yes : No <input type="checkbox"/> N/A	
Site conditions imply ICs not being fully enforced			<input type="checkbox"/> Yes : No <input type="checkbox"/> N/A	
Type of monitoring (e.g., self-reporting, drive by)			<u>Ground water monitoring</u>	
Frequency			Semi-annual	
Responsible party/agency			<u>PRP</u>	
Contact				
Name	Title	Date	Phone no.	
Vito Fiore	Vice President Technical	5/7/03	(205) 298-3428	
Reporting is up-to-date			: Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Reports are verified by the lead agency			: Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Specific requirements in deed or decision documents have been met			<input type="checkbox"/> Yes <input type="checkbox"/> No : N/A	
Violations have been reported			<input type="checkbox"/> Yes <input type="checkbox"/> No : N/A	
Other problems or suggestions:			<input type="checkbox"/> Report attached	
2. <b>Adequacy</b> : ICs are adequate <input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A Remarks:				
<b>D. General</b>				
1. <b>Vandalism/trespassing</b> <input type="checkbox"/> Location shown on site map : No vandalism evident Remarks:				
2. <b>Land use changes onsite</b> : N/A Remarks:				
3. <b>Land use changes offsite</b> : N/A Remarks:				

<b>VI. GENERAL SITE CONDITIONS</b>
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<b>A. Roads</b> : Applicable <input type="checkbox"/> N/A			
<b>1. Roads damaged</b> <input type="checkbox"/> Location shown on site map : Roads adequate <input type="checkbox"/> N/A Remarks:			
<b>B. Other Site Conditions</b>			
Remarks: Site was in good condition during visit. The vegetation in the areas remediated appear very similar in nature and in health as the vegetation in the surrounding environment that was not part of the remediation.			
<b>VII. LANDFILL COVERS</b> : Applicable <input type="checkbox"/> N/A			
<b>A. Landfill Surface</b>			
<b>1. Settlement</b> (Low spots) <input type="checkbox"/> Location shown on site map : Settlement not evident Areal extent Depth Remarks:			
<b>2. Cracks</b> <input type="checkbox"/> Location shown on site map : Cracking not evident Lengths Widths Depths Remarks:			
<b>3. Erosion</b> <input type="checkbox"/> Location shown on site map : Erosion not evident Areal extent Depth Remarks:			
<b>4. Holes</b> <input type="checkbox"/> Location shown on site map : Holes not evident Areal extent Depth Remarks:			
<b>5. Vegetative Cover</b> : Grass : Cover properly established : No signs of stress <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks:			

<b>6. Alternative Cover</b> (armored rock, concrete, etc.) : N/A Remarks:	
<b>7. Bulges</b> Areal extent Depth Remarks:	<input type="checkbox"/> Location shown on site map : Bulges not evident
<b>8. Wet Areas/Water Damage</b> <input type="checkbox"/> Wet areas <input type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade <u>Remarks:</u>	: Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Areal extent <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Areal extent <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Areal extent <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Areal extent
<b>9. Slope Instability</b> <input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map : Areal extent Remarks:	No evidence of slope instability
<b>B. Benches</b> <input type="checkbox"/> Applicable : N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)	
<b>1. Flows Bypass Bench</b> Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
<b>2. Bench Breached</b> Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
<b>3. Bench Overtopped</b> Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
<b>C. Letdown Channels</b> <input type="checkbox"/> Applicable : N/A (Channel lined with erosion control mats, rip rap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)	
<b>1. Settlement</b> Areal extent Depth Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of settlement
<b>2. Material Degradation</b> Material type Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of degradation Areal extent

<b>3. Erosion</b> Areal extent Depth Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of erosion
<b>4. Undercutting</b> Areal extent Depth Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of undercutting
<b>5. Obstructions</b> <input type="checkbox"/> Location shown on site map Size Remarks:	Type Areal extent <input type="checkbox"/> No obstructions
<b>6. Excessive Vegetative Growth</b> <input type="checkbox"/> No evidence of excessive growth <input type="checkbox"/> Vegetation in channels does not obstruct flow <input type="checkbox"/> Location shown on site map Remarks:	Type Areal extent
<b>D. Cover Penetrations</b> :    Applicable <input type="checkbox"/> N/A	
<b>1. Gas Vents</b> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks:	<input type="checkbox"/> Active                      :    Passive <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled                      :    Good condition <input type="checkbox"/> Needs O&M <input type="checkbox"/> N/A
<b>2. Gas Monitoring Probes</b> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks:	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M                      :    N/A
<b>3. Monitoring Wells (within surface area of landfill)</b> :    Properly secured/locked                      :    Functioning                      :    Routinely sampled                      :    Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs O&M <input type="checkbox"/> N/A Remarks:	
<b>4. Leachate Extraction Wells</b> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks:	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M                      :    N/A

<b>5. Settlement Monuments</b>	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	: N/A
Remarks:			
<b>E. Gas Collection and Treatment</b>	<input type="checkbox"/> Applicable	: N/A	
<b>1. Gas Treatment Facilities</b>	<input type="checkbox"/> Flaring	<input type="checkbox"/> Thermal destruction	<input type="checkbox"/> Collection for reuse
	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs O&M	
Remarks:			
<b>2. Gas Collection Wells, Manifolds, and Piping</b>	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs O&M	
Remarks:			
<b>3. Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings)	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs O&M	<input type="checkbox"/> N/A
Remarks:			
<b>F. Cover Drainage Layer</b>	<input type="checkbox"/> Applicable	: N/A	
<b>1. Outlet Pipes Inspected</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks:			
<b>2. Outlet Rock Inspected</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks:			
<b>G. Detention/Sedimentation Ponds</b>	<input type="checkbox"/> Applicable	: N/A	
<b>1. Siltation</b>	Areal extent	Depth	<input type="checkbox"/> N/A
	<input type="checkbox"/> Siltation not evident		
Remarks:			
<b>2. Erosion</b>	Areal extent	Depth	
	<input type="checkbox"/> Erosion not evident		
Remarks:			
<b>3. Outlet Works</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks:			
<b>4. Dam</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks:			

<b>H. Retaining Walls</b>	<input type="checkbox"/> Applicable : N/A
<b>1. Deformations</b> Horizontal displacement Rotational displacement Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Deformation not evident Vertical displacement
<b>2. Degradation</b> Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Degradation not evident
<b>I. Perimeter Ditches/Off-Site Discharge</b>	<input type="checkbox"/> Applicable : N/A
<b>1. Siltation</b> Areal extent Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Siltation not evident Depth
<b>2. Vegetative Growth</b> <input type="checkbox"/> Vegetation does not impede flow Areal extent Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A Type
<b>3. Erosion</b> Areal extent Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Erosion not evident Depth
<b>4. Discharge Structure</b> Remarks:	<input type="checkbox"/> Functioning <input type="checkbox"/> N/A
<b>VIII. VERTICAL BARRIER WALLS</b> <input type="checkbox"/> Applicable : N/A	
<b>1. Settlement</b> Areal extent Remarks:	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident <input type="checkbox"/> Depth
<b>2. Performance Monitoring</b> <input type="checkbox"/> Performance not monitored Frequency Head differential Remarks:	Type of monitoring <input type="checkbox"/> Evidence of breaching



**IX. GROUND WATER/SURFACE WATER REMEDIES**  Applicable : N/A

**A. Ground Water Extraction Wells, Pumps, and Pipelines**  Applicable : N/A

**1. Pumps, Wellhead Plumbing, and Electrical**

- Good condition       All required wells located       Needs O&M       N/A

Remarks:

**2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**

- Good condition       Needs O&M

Remarks:

**3. Spare Parts and Equipment**

- Readily available       Good condition       Requires upgrade       Needs to be provided

Remarks:

**B. Surface Water Collection Structures, Pumps, and Pipelines**  Applicable : N/A

**1. Collection Structures, Pumps, and Electrical**

- Good condition       Needs O&M

Remarks:

**2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**

- Good condition       Needs O&M

Remarks:

**3. Spare Parts and Equipment**

- Readily available       Good condition       Requires upgrade       Needs to be provided

Remarks:

<b>C. Treatment System</b>		<input type="checkbox"/> Applicable	:	N/A
<b>1. Treatment Train</b> (Check components that apply)				
<input type="checkbox"/> Metals removal	<input type="checkbox"/> Oil/water separation	<input type="checkbox"/> Bioremediation		
<input type="checkbox"/> Air stripping	<input type="checkbox"/> Carbon absorbers			
<input type="checkbox"/> Filters				
<input type="checkbox"/> Additive (e.g., chelation agent, flocculent)				
<input type="checkbox"/> Others				
<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs O&M			
<input type="checkbox"/> Sampling ports properly marked and functional				
<input type="checkbox"/> Sampling/maintenance log displayed and up to date				
<input type="checkbox"/> Equipment properly identified				
<input type="checkbox"/> Quantity of ground water treated annually				
<input type="checkbox"/> Quantity of surface water treated annually				
Remarks:				
<b>2. Electrical Enclosures and Panels</b> (Properly rated and functional)				
<input type="checkbox"/> N/A	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs O&M		
Remarks:				
<b>3. Tanks, Vaults, Storage Vessels</b>				
<input type="checkbox"/> N/A	<input type="checkbox"/> Good condition	<input type="checkbox"/> Proper secondary containment	<input type="checkbox"/> Needs O&M	
Remarks:				
<b>4. Discharge Structure and Appurtenances</b>				
<input type="checkbox"/> N/A	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs O&M		
Remarks:				
<b>5. Treatment Building(s)</b>				
<input type="checkbox"/> N/A	<input type="checkbox"/> Good condition (esp. roof and doorways)	<input type="checkbox"/> Needs repair		
<input type="checkbox"/> Chemicals and equipment properly stored				
Remarks:				
<b>6. Monitoring Wells</b> (Pump and treatment remedy)				
<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition	
<input type="checkbox"/> All required wells located	<input type="checkbox"/> Needs O&M	<input type="checkbox"/> N/A		
Remarks:				

<b>D. Monitored Natural Attenuation</b>
<b>1. Monitoring Wells</b> (Natural attenuation remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs O&M <input type="checkbox"/> N/A Remarks:
<b>X. OTHER REMEDIES</b>
If there are remedies applied at the site that are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. N/A
<b>XI. OVERALL OBSERVATIONS</b>
<b>A. Implementation of the Remedy</b>
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). <u>The purpose of the remedy was to 1) eliminate the potential of unauthorized personnel to come in contact with site contaminants; 2) reduce the potential for future migration of contaminants to shallow ground water; and 3) eliminate potential contamination of aquatic organisms. Based on the observations made during the site inspection, the remedy appears to be effective and functioning as designed.</u>
<b>B. Adequacy of O&amp;M</b>
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.  <u>There are no O&amp;M issues at the site.</u>
<b>C. Early Indicators of Potential Remedy Failure</b>
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. <u>None were suggested</u>
<b>D. Opportunities for Optimization</b>
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. <u>None were suggested, nor were any readily evident.</u>