

# **Five-Year Review Report**

## **First Five-Year Review Report for United Creosoting Company Superfund Site Conroe, Montgomery County, Texas**

September 2000

### **PREPARED BY:**

**CH2M HILL  
Contract Number 68-W6-0036  
Work Assignment Number 048-FRFE-06ZZ**

### **PREPARED FOR:**

**Region 6  
United States Environmental Protection Agency  
Dallas, Texas**

**FIVE-YEAR REVIEW**

**United Creosoting Company Superfund Site  
EPA ID# TXD980745574  
Conroe, Montgomery County, Texas**

This memorandum documents EPA's approval of the United Creosoting Company Five-Year Review Report prepared by CH2M Hill, Inc., on behalf of EPA.

**Summary of Five Year Review Findings**

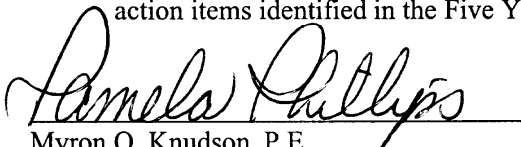
The remedy completed at the United Creosoting Company site continues to be protective of human health and the environment. No deficiencies were noted that currently impact the protectiveness of the remedy. Monitoring of the natural attenuation of shallow groundwater is a requirement of the most recent Record of Decision for the site, and a plan is scheduled to be prepared and implemented by the Texas Natural Resource Conservation Commission to provide for full implementation of the remedy. Institutional controls relating to potential future use of the affected groundwater and potential land use changes in the industrial area (where industrial target levels were achieved but residential target levels are exceeded) should be considered.

**Actions Needed**

Prepare a long-term groundwater monitoring plan to monitor the natural attenuation of groundwater at the site and provide for maintenance of groundwater monitoring wells. Consider implementation of institutional controls relating to the use of groundwater from the affected zone in the vicinity of the site, and relating to future land use in the industrial areas of the site.

**Determinations**

I have determined that the remedy for the United Creosoting Company EPA Superfund site is protective of human health and the environment, and will remain so provided the action items identified in the Five Year Review Report are addressed as described above.



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



Date


## Five-Year Review Report

### United Creosoting Company Superfund Site

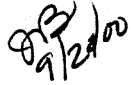
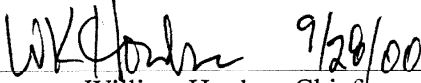
#### CONCURRENCE LIST



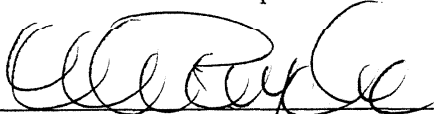
Earl Hendrick  
Remedial Project Manager

for 

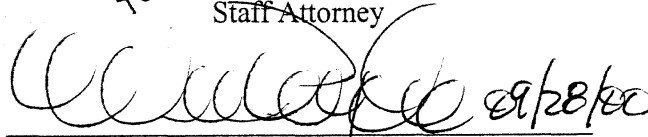
Gus Chavarria  
AR/OK/TX Project Management Section

  9/28/00

William Honker, Chief  
AR/OK/TX Superfund Branch



for Joseph Compton  
Staff Attorney

 9/28/00

Mark Peycke, Chief  
Superfund Branch  
Office of Regional Counsel

## Executive Summary

The first five-year review of the United Creosoting Company Superfund Site located in Conroe, Montgomery County, Texas, was completed in September 2000. The results of the five-year review indicate that the remedy is protective of human health and the environment. Overall, the remedial actions performed appear to be functioning as designed, and the site has been maintained appropriately. No deficiencies were noted that impact the protectiveness of the remedy. Monitoring of the natural attenuation of shallow groundwater is a requirement of the Record of Decision for the site, and a plan is scheduled to be prepared and implemented by the Texas Natural Resource Conservation Commission to provide for full implementation of the remedy. Institutional controls relating to potential future use of the affected groundwater and potential land use changes in the industrial area (where industrial target levels were achieved but residential target levels are exceeded) should be considered.

The remedy selected for the United Creosoting site involved excavation of soil above target action levels set for the residential and commercial properties now present at the site. Monitored natural attenuation was selected as appropriate for addressing affected shallow groundwater. The first Record of Decision, signed in 1986, provided an interim remedy; removal of soil in the residential area and placement under a temporary cap within the commercial area of the site pending ongoing review and selection of an appropriate treatment/disposal method. The second Record of Decision, signed in 1989, was a complement to the first; it selected Critical Fluid Extraction (CFE) as the treatment method for the affected soil. Remediation at the site began in 1992 with excavation of soil from the residential area (Phase A), and the CFE process was initiated in 1996 (Phase B). The CFE approach proved unsuccessful in treating the affected soils, however, and was terminated in 1998. A Record of Decision Amendment selecting completion of excavation and offsite disposal of affected soil was signed in 1998; this remedy was completed in 1999. All affected soil above applicable target action levels has now been removed from both the residential and commercial portions of the site. The ROD Amendment No. 1 reiterated the requirement for monitoring of the natural attenuation of groundwater.

Based on this five-year review, site documentation confirms the final remedial action at the site set forth in the Records of Decision (ROD), as amended, has been implemented as planned and continues to be protective of human health and the environment. Monitoring of the natural attenuation of groundwater needs to be implemented, and institutional controls should be considered, to ensure continued protectiveness of the remedy.

# Table of Contents

<b>Section</b>	<b>Page</b>
Executive Summary .....	ES-1
List of Acronyms .....	iii
Five-Year Review Summary Form .....	v
<b>1. Introduction .....</b>	<b>2</b>
<b>2. Site Chronology .....</b>	<b>3</b>
<b>3. Background .....</b>	<b>3</b>
<b>4. Remedial Actions .....</b>	<b>5</b>
4.1 Remedy Selection .....	5
4.2 Remedy Implementation .....	7
4.3 System Operations/Operations and Maintenance (O&M) .....	8
4.4 Progress Since Initiation of Remedial Action .....	8
<b>5. Five-Year Review Process .....</b>	<b>8</b>
<b>6. Five-Year Review Findings .....</b>	<b>9</b>
6.1 Interviews .....	9
6.2 Site Inspection .....	9
6.3 Standards Review .....	10
6.4 Data Review .....	13
<b>7. Assessment .....</b>	<b>15</b>
<b>8. Deficiencies .....</b>	<b>16</b>
<b>9. Recommendations and Follow-up Actions .....</b>	<b>16</b>
<b>10. Protectiveness Statement .....</b>	<b>16</b>
<b>11. Next Review .....</b>	<b>17</b>

## Figures

- Figure 1: Location Map  
Figure 2: Probable Location of Past Operations  
Figure 3: Current Site Layout  
Figure 2: Location of Existing Groundwater Monitor Wells

## Tables

- Table 1: Chronology of Site Events  
Table 2: Soil Target Action Levels  
Table 3: Recommendations and Follow-Up Actions

# Table of Contents

---

UNITED CREOSOTING COMPANY SUPERFUND SITE  
FIRST FIVE-YEAR REVIEW REPORT

## **Attachments**

Attachment 1: List of Documents Reviewed

Attachment 2: Interview Record Forms

Attachment 3: Site Inspection Checklist/Inspection Roster

Attachment 4: Site Inspection Photographs

## List of Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements
BAP	benzo(a)pyrene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CD	Consent Decree
CDC	Center for Disease Control
CFE	Critical Fluid Extraction
CFR	Code of Federal Regulations
COC	Contaminants of Concern
ERCS	Emergency Response Clean-up Service
EPA	United States Environmental Protection Agency
FR	Federal Register
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
MCLs	Maximum Contaminant Levels
O&M	Operation and Maintenance
OSWER	Office of Solid Waste and Emergency Response
OUs	Operable Units
PAHs	polycyclic aromatic hydrocarbons
PCP	pentachlorophenol
ppb	part per billion
ppm	part per million
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SVOC	semi-volatile organic compound
TAT	Technical Assistance Team
TBC	To Be Considered
2,3,7,8-TCDD	2,3,7,8-tetrachlorodibenzodioxin
TNRCC	Texas Natural Resource Conservation Commission
TWC	Texas Water Commission
VOC	volatile organic compound

## Five-Year Review Summary Form

### SITE IDENTIFICATION

**Site name (from WasteLAN):** United Creosoting Company

**EPA ID (from WasteLAN):** TXD980745574

**Region:** EPA Region 6

**State:** TX

**City/County:** Conroe/Montgomery

### SITE STATUS

**NPL Status:**  Final  Deleted  Other (specify):

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

**Multiple OUs?**  Yes  No

Note: Although not defined as separate OUs by the ROD, the site remediation was handled in 3 phases: the demolition of residences purchased by EPA; the residential area remediation (Phase A); and the industrial area remediation (Phases B and C).

**Construction completion date:**  
May 1999

**Has site been put into reuse?**  Yes  No [residential and commercial]

### REVIEW STATUS

**Reviewing agency:**  EPA  State  Tribe  Other Federal Agency:

**Author:** EPA Region 6, with support from RAC6 contractor CH2M HILL

**Review period:** December 1995 through July 2000

**Date(s) of site inspection:** July 12, 2000

**Type of review:**  Statutory

Policy

Post-SARA

Pre-SARA

NPL-Removal only

Non-NPL Remedial Action Site

NPL State/Tribe-lead

Regional Discretion

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

**Triggering action:**  Actual RA Onsite Construction  Actual RA Start

Construction Completion

Recommendation of Previous Five-Year Review Report

Other (specify):

**Triggering action date (from WasteLAN):** May 1992, initiation of Phase A remediation.

**Due date (five years after triggering action date):** May 1997



## Five-Year Review Summary Form

### Deficiencies:

As stated in ROD Amendment No. 1, monitoring of the natural attenuation of affected shallow groundwater is required. The last groundwater monitoring event was conducted in January 1998. A long-term groundwater monitoring plan should be prepared and implemented to meet the requirements of the remedy selected for this site. In addition, no institutional controls were specified by the RODs (at the time the RODs were signed, no current users of the affected groundwater zone were identified, and the area was determined to be within the service area of a municipal water supply). However, affected groundwater remains in-place beneath residential and industrial areas, until data is collected to demonstrate the completion of natural attenuation, and institutional controls to ensure groundwater use does not occur in the future should be considered. Affected soil remains in place in the industrial area of the site below industrial target action levels, but above residential target action levels, and institutional controls should be considered in that area to provide guidance related to potential future land use changes.

These deficiencies do not currently affect the protectiveness of the remedy, although the potential does exist for them to affect the effectiveness of the remedy at some point in the future if not addressed..

### Recommendations and Follow-up Actions:

Prepare a long-term groundwater monitoring plan to monitor the natural attenuation of groundwater at the site and provide for maintenance of groundwater monitoring wells. Consider implementation of institutional controls relating to the use of groundwater from the affected zone in the vicinity of the site, and relating to future land use in the industrial areas of the site.

### Protectiveness Statement(s):

The remedy completed for the United Creosoting Company site is protective of human health and the environment.

### Other Comments:

None.

## First Five-Year Review Report United Creosoting Company

---

The United States Environmental Protection Agency Region 6 has conducted a five-year review of the remedial actions implemented at the United Creosoting Company site located in Conroe, Montgomery County, Texas, for the period May 1992 through August 2000. The purpose of a five-year review is to determine whether the remedy at a site remains protective of human health and the environment. This report documents the results of the review for this site, conducted in accordance with EPA guidance on five-year reviews. EPA RAC6 contractor CH2M HILL provided support for preparation of this Five-Year Review Report.

Existing EPA guidance on five-year reviews includes the following:

- Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-02 (May 23, 1991), *Structure and Components of Five-Year Reviews* (introduced five-year review requirements).
- OSWER Directive 9355.7-02FS1 (August 1991), Factsheet: *Structure and Components of Five-Year Reviews*.
- OSWER Directive 9355.7-02A (July 26, 1994), *Supplemental Five-Year Review Guidance* (introduced level of review considerations for sites where response is ongoing).
- OSWER Directive 9355.7-03A (December 21, 1995), *Second Supplemental Five-Year Review Guidance* (identified three purposes of five-year review and emphasized that reviews must include a signed protectiveness determination, along with recommendations to correct deficiencies).

Guidance provided in these documents has been incorporated into the five-year review performed for this site, as have the concepts outlined in the *Draft Comprehensive Five-Year Review Guidance*, October 1999, OSWER Directive 9355.7-03B-P.

## 1.0 Introduction

The five-year review for the United Creosoting Company site is required by statute.

Statutory reviews are required for sites where, after remedial actions are complete, hazardous substances, pollutants, or contaminants will remain onsite at levels that will not allow for unrestricted use or unrestricted exposure. This requirement is set forth by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Statutory reviews are required only if the ROD was signed on or after the effective date of the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA §121(c), as amended by SARA, 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.

Under the NCP, the Code of Federal Regulations (CFR) states, in 40 CFR §300.430(f)(4)(ii):

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.

This is the first five-year review for the United Creosoting Company site. The triggering action for this statutory review is the date of initiation of the remedial action in December 1995. This

review is required because hazardous substances, pollutants, or contaminants were left onsite above levels that allow for unlimited use and unrestricted exposure.

## **2.0 Site Chronology**

A chronology of significant site events and dates is included in Table 1, provided at the end of the report text. Sources of this information are listed in Attachment 1, Documents Reviewed.

## **3.0 Background**

The United Creosoting Company site is located 40 miles north of Houston in the City of Conroe, Montgomery County, Texas (see Figure 1 for a location map). The site encompasses about 100 acres, bounded on the north and west by Alligator Creek, on the north by Delores Street, and on the east by a rail line. Figure 2 illustrates the re-developed layout of the site, which currently consists of a residential development and two commercial properties. Also shown is an overlay of the probable locations of historic operations, as determined from aerial photographs (Weston, 1985). Prior to the residential and commercial redevelopment, which began in the mid-1970's, the site was operated as a wood-preserving facility (from 1946 through the summer of 1972). Prior to 1972, the site included a coal-tar distillation still, a processing building, tanks, and pressure cylinders, two waste ponds, and several areas where treated lumber was stored.

In the wood-treating operation, formed lumber (including telephone poles and railroad ties) was treated in a two-step process by the pressurized addition of creosote and pentachlorophenol (PCP). Following the pressure treatment, the pressure cylinders were rinsed and the wastewater routed to one of two process waste ponds located onsite. The creosote, which contains polycyclic aromatic hydrocarbons (PAHs), was produced in an onsite coal tar distillation unit and stored onsite in lined pits just east of the process waste ponds. Coal tar pitch, an unusable by-product generated during creosote production, was apparently disposed in the larger process

waste pond. No evidence exists that PCP was produced onsite, but it was used for pressure treatment onsite, and prior to use, was stored onsite in one or more above-ground storage tanks.

In February 1970, the Texas Department of Water Resources (the predecessor agency to Texas Water Commission [TWC], which is now the Texas Natural Resource Conservation Commission [TNRCC]) conducted a site inspection and found no discharge of wastewater from the wood-treatment facility ponds (EPA, 1989). In 1972, the site was abandoned, and redevelopment occurred. During the summer of 1980, Montgomery County obtained soil from the former wood-treating facility to be used in improving local roads in a nearby subdivision. This soil consisted of surface soil and pond backfill located on what had become the Clarke Distributing Company property (Figure 2). After health complaints from citizens living near the improved roads, samples were collected, and leachate from the soil was found to contain PCP. The affected soil that had been placed during the improvements was removed and disposed of by landfarming (EPA, 1989).

In August 1982, TWC submitted the site as a candidate for cleanup under the Superfund program. The immediate concern at that time was the potential for contaminated surface water runoff from the former waste ponds in the the Tanglewood East subdivision (Figure 2).

Also in August 1982, TWC installed three monitoring wells onsite. Additional wells were installed by EPA and by the National Center for Groundwater Research in 1982 and 1983. The TWC collected additional soil, water and air samples from the site during the remainder of 1982 and early 1983. Analytical results of samples from the monitoring wells indicated PAH and PCP contamination in shallow groundwater (EPA, 1989).

The site was added to the National Priorities List (NPL) in 1983. Subsequent investigations showed PCP and dioxins/furans in vadose zone soils. Weston performed a Remedial Investigation in 1984 and 1985, and a Feasibility Study (FS) in 1996. A Record of Decision

(ROD) was signed in 1986; this ROD called for the purchase of residential properties and natural attenuation of groundwater as an interim remedy. A second ROD was issued in 1989; this ROD called for excavation, onsite chemical treatment, and onsite disposal of contaminated soils as a final remedy.

Phase A remedial activities, conducted in 1992 and 1993, consisted of excavation of soils from the residential areas and transport to an industrial portion of the site where they were stockpiled and covered as an interim remedy. Phase B remedial activities, conducted from 1996 through 1998, consisted of excavation of soils from the industrial portion of the site coupled with solvent extraction to remove contaminants. The approach was unsuccessful and was terminated in 1998.

An addendum to the ROD was issued in 1998 to include excavation and offsite disposal. These activities were completed as Phase C remediation and conducted in 1998 and 1999. The remedial actions undertaken at the site are described in more detail in the following paragraphs.

## **4.0 Remedial Actions**

The remedial action for the United Creosoting Company site was carried out in phases, required by two Records of Decision (RODs), and a ROD Amendment. The selection of remedy and remedy implementation are described in the following paragraphs.

### **4.1 Remedy Selection**

Based on information gathered via site inspections and various sampling events, EPA issued an administrative order in November 1983 requiring the current owner of the property containing the former waste ponds to perform interim response actions within the area of the former waste ponds. This work consisted of regrading exposed soil to divert surface water drainage away from the Tanglewood East subdivision, capping contaminated soil with a synthetic membrane cap and six inches of compacted clay, fencing the capped area, and constructing drainage ditches to

channel cap area runoff to the south of the Clarke property (vacant land). This work was completed in April 1984 (EPA, 1986).

An RI/FS was subsequently performed by the state, and based on these studies, a Record of Decision (ROD) was signed by EPA in September 1986. This ROD called for purchase of seven residential properties located on and adjacent to the former waste ponds (an eighth property was purchased later), relocation of the homeowners, consolidation in the former waste pond area of surface soil contaminated with greater than 100 ppm of PAH-contaminated soil and visibly-stained soil, construction of a temporary cap over the consolidated soil, periodic evaluation of the availability of offsite disposal facilities and emerging alternate technologies for dealing with the consolidated soil, backfill and restoration of the ground surface of excavated areas and groundwater attenuation through natural processes.

In 1989, a new ROD was signed to specify a final remedy for the contaminated soil, as a complement to the 1986 ROD. The 1989 ROD called for sampling in the residential area to better delineate soil above target residential action levels, excavation of soil above the target residential and commercial action levels, treatment of the excavated soil via Critical Fluid Extraction (CFE), disposal of the organic concentrate from the extraction process by offsite incineration, and disposal of the treated soil onsite.

Because of problems encountered with the CFE process, in 1998, an amendment to the 1989 ROD was issued to change the method of contaminated soil remediation from onsite treatment by CFE to offsite treatment, if required, and disposal. The target action levels and ARARs listed in the 1989 ROD were retained in the ROD amendment, as was monitored natural attenuation of groundwater (EPA, 1998).

The soil target action levels are listed in Table 2.

## 4.2 Remedy Implementation

The remedial action required by the two RODs and the ROD Amendment was implemented in phases. The Residential Remedial Action Phase, designated Phase A, was initiated in June 1992 and completed in January 1993 (Weston, 1996). This action included remedial activities for 38 residential properties and five vacant lots. One owner refused remediation (the property was later sold and the new owners requested remediation). The soil excavated during Phase A was stockpiled onsite in industrial and residential stockpiles according to the soil action levels established by the 1989 ROD.

Phase B Remediation, the Industrial Remedial Action Phase, was initiated in 1995. This action addressed the requirements set forth in the 1989 ROD, including sampling of the residential area, excavation of soil above residential and industrial action levels in the residential and commercial areas of the site, consolidation of excavated soil onsite, backfill and landscaping of excavated areas, treatment of excavated soil onsite by Critical Fluid Extraction (CFE), disposal of the organic extract from the CFE by offsite incineration, and disposal onsite of treated soil. The CFE contractor successfully remediated at a rate of only about 30 tons per day versus the contracted rate of 225 tons per day, however, and the State determined that the performance rate of the system could not satisfy the contract requirements. At a January 13, 1998, public meeting, the State presented the community with several options included continuing with the CFE, capping the wastes and offsite disposal. The community expressed concerns with the CFE process and requested the remaining contaminated soil be taken offsite for treatment and disposal (EPA, 1998). The CFE contract was terminated in February 1998. A report documenting the Phase B work was completed by Weston in July 1998 (Weston, 1998b).

The Phase C remediation was initiated in August 1998 with a focused site investigation designed to determine the extent of contamination remaining at the site (Weston, 1999). The Phase C remediation activities were conducted from February 1999 through August 1999. These activities included excavation and transport and disposal offsite of almost 30,000 tons of



contaminated soil, and backfill and grading/restoration of backfilled areas. The work conducted is documented in Weston's August 1998 Phase C Remediation Final Report (Weston, 1998). The final site layout is illustrated on Figure 3, along with air monitoring and surface water sampling locations used during the Phase C remediation.

### **4.3 Operations and Maintenance**

Because the soil remaining onsite is below target residential or industrial action levels, no operations and maintenance procedures are required for the soil remedy. Monitored natural attenuation was selected as the appropriate action for affected groundwater, and as a result, a long-term groundwater monitoring plan needs to be prepared and implemented.

The last monitoring event occurred in December 1997-January 1998 (Weston, 1998a). Currently, there are nine groundwater monitoring wells remaining at the site. Of these, four are shallow unconfined water-bearing unit wells (SW1 through SW4), one is a shallow semi-confined water-bearing unit well (DW4), and four are lower water-bearing unit wells (DW3, DW6, DW8, and DW10). These wells had not been sampled since the remedial investigation in 1984/1985, and no groundwater monitoring program is currently in place.

### **4.4 Progress Since Initiation of Remedial Action**

All remedial action construction requirements have been completed. Monitoring of the natural attenuation of groundwater as required by the RODs has not yet been initiated.

## **5.0 Five-Year Review Process**

This five-year review has been conducted in accordance with EPA's Draft *Comprehensive Five-Year Review Guidance*, dated October 1999 (EPA, 1999), which encompasses the guidance contained in existing final guidance documents. Interviews were conducted with relevant parties, a site inspection was conducted at the site, and a review of applicable data and documentation

covering the period of the review was evaluated. The findings of the review are described in the following section.

## **6.0 Five-Year Review Findings**

The information collected during the interviews, the site inspection, the standards review, and the data review are described in the following subsections.

### **6.1 Interviews**

Interviews were conducted with representatives from the city and state representatives at the City of Conroe offices and at the site on July 12, 2000. An interview was also conducted with the son of property owner Jack Clarke. Interview Record Forms which document the issues discussed during these interviews are provided in Attachment 2.

The overall impression from the interviews was that the Phase A remedy implementation went smoothly, even with many residents being temporarily relocated during the work, but that the failure of the Phase B remedy had a negative impact on the community. All respondents concurred, however, that the Phase C remedy provided a satisfactory conclusion to the cleanup efforts at the site. The only remaining concern expressed during the interviews was a desire expressed by the commercial property owner to have official clarification on what is considered acceptable future use of the commercial property. In addition, the TNRCC representative suggested consideration of institutional controls related to groundwater use in the residential and industrial areas and future land use in the industrial area.

### **6.2 Site Inspection**

A site inspection was conducted at the site on July 12, 2000. The completed site inspection checklist is provided in Attachment 3. Photographs taken during the site inspection are provided in Attachment 4. The site appears well-maintained and no vandalism was evident. Some

settlement was observed in the backfilled area along the western boundary of Clarke Distributing and the eastern boundary of the former Sisco Construction property (Photographs 1, 2 10, 11); the TNRCC representative indicated the remediation contractor was due back to repair the settlement.

All existing monitoring wells were located during the site inspection, including those on the commercial property and those in the residential area. All surface completions appeared in good condition, except for SW8, located on the east side of the Clarke Distributing Property, where the well cover was missing (Photograph 19, 20).

### **6.3 Standards Review**

Applicable or Relevant and Appropriate Requirements (ARARs) for this site were identified in two RODs, dated September 30, 1986, and September 29, 1989. Amendment No. 1 to the first ROD was signed on October 14, 1998, but no new ARARs were addressed in this amendment. The five-year review for this site included identification of and evaluation of changes in the ROD-specified ARARs to determine whether such changes may affect the protectiveness of the selected remedy.

The first United Creosoting Company ROD identified the following ARARs as having an impact on the proposed remedy:

1. The Center For Disease Control's (CDC's) 2,3,7,8-TCDD concentration recommendations for residential settings of 1.0 ppb in surface soil.
2. Superfund offsite policy that requires any offsite disposal facility to be fully permitted, meet RCRA requirements, and be certified to accept dioxin-contaminated wastes.

3. Uniform Relocation Act of 1970 applied to the relocation of seven residences affected by contamination at the site.

The second United Creosoting Company ROD identified the following ARARs as having an impact on the proposed remedy:

- A. Requirements of the Clean Air Act for the national ambient air quality standards, as regulated under 40 CFR Part 50, and the federally-approved State Implementation Plan.
- B. Requirements of the Clean Water Act for:
  - A. effluent guidelines and standards for the point source category, as regulated under 40 CFR Part 122.44
  - B. water quality standards promulgated under 40 CFR Part 131.
  - C. National Pollutant Discharge Elimination System (NPDES), as regulated under 40 CFR Part 125.
  - D. national pretreatment standards, as regulated under 40 CFR Part 403.
- C. Requirements for the transportation of hazardous materials, as regulated under 49 CFR Parts 107 and 171-177.
- D. Regulations for workers health and safety under the Occupational Health and Safety Act (OSHA).
- E. Requirements to evaluate the potential impacts to floodplains as regulated under the Executive Order on Floodplain Management, Executive Order No. 11988.
- F. Requirements under the Solid Waste Disposal Act and the Texas Solid Waste Disposal Act for:

- A. Standards for owners and operators of hazardous waste treatment, storage, and disposal facilities, as regulated under 40 CFR Parts 264 and 265.
- B. Standards applicable to transporters of hazardous waste, as regulated under 40 CFR Parts 262 and 263.
- C. Use and management of hazardous waste containers, as regulated under 40 CFR Part 264.171-264.178.
- D. Regulations for hazardous waste tanks at 40 CFR Part 264.190-264.197.
- E. Regulation for design and operation of hazardous waste piles at 40 CFR Part 264.251.
- F. Land Disposal Restrictions (LDRs), as regulated under 40 CFR Part 268.

The seven residences have been relocated, and the Uniform Relocation Act of 1970 is no longer applicable to the site remedy.

The remedy has changed from onsite treatment of contaminated soil to excavation and offsite disposal. Discharges of water related to the site remedy are no longer occurring, and the regulations and requirements of the Clean Water Act are no longer applicable to the site remedy.

No significant changes have occurred to the Clean Air Act that would call into question the effectiveness of the site remedy. There have been no changes to Executive Order No. 11988 (floodplains). No significant changes have occurred in the regulations governing the transportation of hazardous waste that would call into question the effectiveness of the remedy. No promulgated changes could be found in the CDC's concentration recommendations for 2,3,7,8-TCDD.

Regulations for worker health and safety have been promulgated at 29 CFR Part 1910. These regulatory requirements are specifically addressed in the site specific health and safety plan.

Wastes will no longer be managed onsite, and the requirements and regulations under the Solid Waste Disposal Act and the Texas Solid Waste Disposal Act pertaining to hazardous waste containers, tanks, and waste piles no longer apply onsite. Under the Superfund offsite disposal policy, the offsite disposal facility must comply with all RCRA requirements under 40 CFR Parts 264 and 265.

The EPA has promulgated changes in the LDRs with regards to the classification of contaminated soil (40 CFR 268.49, 63 FR 28602-28622). The remedy satisfies these ARAR requirements.

Shallow groundwater at the site is contaminated, and a monitoring program is required to verify that natural attenuation is occurring. The contaminated groundwater is not currently used as a drinking water source, and the contamination has not migrated to lower aquifers that are used for drinking water. The Safe Drinking Water Act and the Maximum Contaminant Levels (MCLs) were not mentioned in the RODs or Amendment No. 1. These should be considered in the future if groundwater uses change and/or it is determined that the contamination has migrated into a source of drinking water.

In summary, it appears that the remedy complies with all ARARs, and no new laws or regulations have been promulgated or enacted that would call into question the effectiveness of the remedy at the United Creosoting Company site to protect human health and the environment.

#### **6.4 Data Review**

A comprehensive sampling effort was conducted at the site following the Phase B remediation to accurately delineate the residential and commercial soil remaining above the target action levels. This work is documented in the Phase C remediation report (Weston, 1999). Fifty-two grids were established for analysis; five borings were advanced in each grid to a maximum depth of 212 feet above mean sea level, approximately equivalent to the top of the first water-bearing zone

(about 25 feet below ground surface [bgs]). In all, over 6,500 feet of soil boring were advanced, and approximately 1,300 samples collected for analysis (Weston, 1999). As a result of this investigation, 33 grids were determined to require further remediation to meet target action levels, which translated to a total of 24,217 cubic yards, of which 7,164 cubic yards required offsite disposal, with the remainder available for use as backfill on the commercial property. The final remediation work conducted is documented in the Phase C remediation report (Weston, 1999).

The monitoring wells at the site are screened in the unconsolidated sands, gravels, and clay in alluvial deposits of the Willis Sand Formation, which regionally consists of clayey sand and coarse gravel, and some localized clay beds; the occurrence of fossilized wood is common in this formation. At the site, the Willis formation is estimated to be 70 feet thick, dipping toward the Gulf of Mexico at about 10 feet per mile. The approximate elevation of the Willis formation at the site is 230 feet mean sea level. Groundwater is the major source of drinking water supply for Montgomery County, but from deeper sands in the Willis formation (the Chicot aquifer) and deeper formations (the Evangeline Aquifer).

The last groundwater monitoring event at the site was conducted in December 1997/January 1998 (Weston, 1998a). Before this sampling event, the monitoring wells had last been sampled during the RI, in 1985. Most of the wells installed previously were removed during the various removal actions, leaving nine existing wells: SW1, SW4, SW5, SW8 (shallow unconfined water-bearing unit wells), DW4 (shallow semi-confined water-bearing unit well), DW3, DW6, DW8, and DW10 (lower water-bearing unit wells). The locations of these wells are illustrated in Figure 4. A tenth well, DW1, was sampled during the December 1997/January 1998 event, but it was removed during the Phase C remediation (it was located at the corner of the former Sisco Construction property, north of the former waste ponds).

In the December 1997/January 1998 sampling event, several semi-volatile organic compounds (SVOCs) were reported in DW4 (including naphthalene, acenaphylene, phenanthrene, dibenzofuran, and PCP). At 0.013 mg/L, the PCP detection was above the maximum contaminant level (MCL) of 0.001 mg/L PCP (Weston, 1998a). No other SVOCs were detected in any other monitoring wells.

The sampling event also indicated the presence of octachlorinated dibenzodioxin (OCDD) and octachlorinated dibenzofuran (OCDF) above the MCL in seven of the ten wells sampled (SW4, SW5, SW8, DW1, DW3, DW4, and DW10) (Weston, 1998a). In the 1985 sampling events, SVOCs were detected in wells screened in the shallow unconfined water-bearing unit, and chlorinated dioxin isomers were detected in shallow groundwater near the former waste ponds. One former well, RU-30, contained an oily sludge which, when analyzed, revealed the presence of SVOCs, but no dioxin/furan compounds. The 1985 results are inconclusive, however, because the method detection limits were not as sensitive as those used in the later sampling event, nor was the analyte list as thorough.

Well yield was also calculated from data collected during the December 1997/January 1998 event. The results of the analysis indicate that the water-bearing units present at the site are capable of producing 150 gallons or more per day in a well (Weston, 1998a).

## 7.0 Assessment

Based on the site interviews, the site inspection, and the data review, it appears the remedy is functioning as intended by the RODs, as amended. The assumptions used at the time of the remedy selection are still valid, and no additional information has been identified that would call into question the protectiveness of the final remedy. A groundwater monitoring plan should be prepared and implemented, however, to meet the ROD-specified requirements for monitored natural attenuation of affected shallow groundwater. In addition, institutional controls related to



the use of groundwater in the affected zone and related to potential future land use changes in the industrial area should be considered to ensure continued protectiveness.

## **8.0 Deficiencies**

A groundwater monitoring program is not yet in place for monitoring of natural attenuation of groundwater. In addition, the lack of institutional controls to prohibit groundwater use in the affected zone or address future land use changes that might be inconsistent with the current industrial area soil target levels have not yet been required, but should be considered. Neither deficiency currently affects the protectiveness of the remedy, but should be addressed to ensure long-term protectiveness.

## **9.0 Recommendations and Follow-up Actions**

It is suggested that a groundwater monitoring program for long-term monitoring of the natural attenuation of affected groundwater be designed and implemented by the TNRCC, with EPA oversight (Table 3). Costs should be tracked for evaluation of projected O&M costs against actuals in the next five-year review. In addition, institutional controls to prohibit groundwater use in the affected zone and address future land use changes that might be inconsistent with the current industrial area soil target levels should be considered.

## **10.0 Protectiveness Statement**

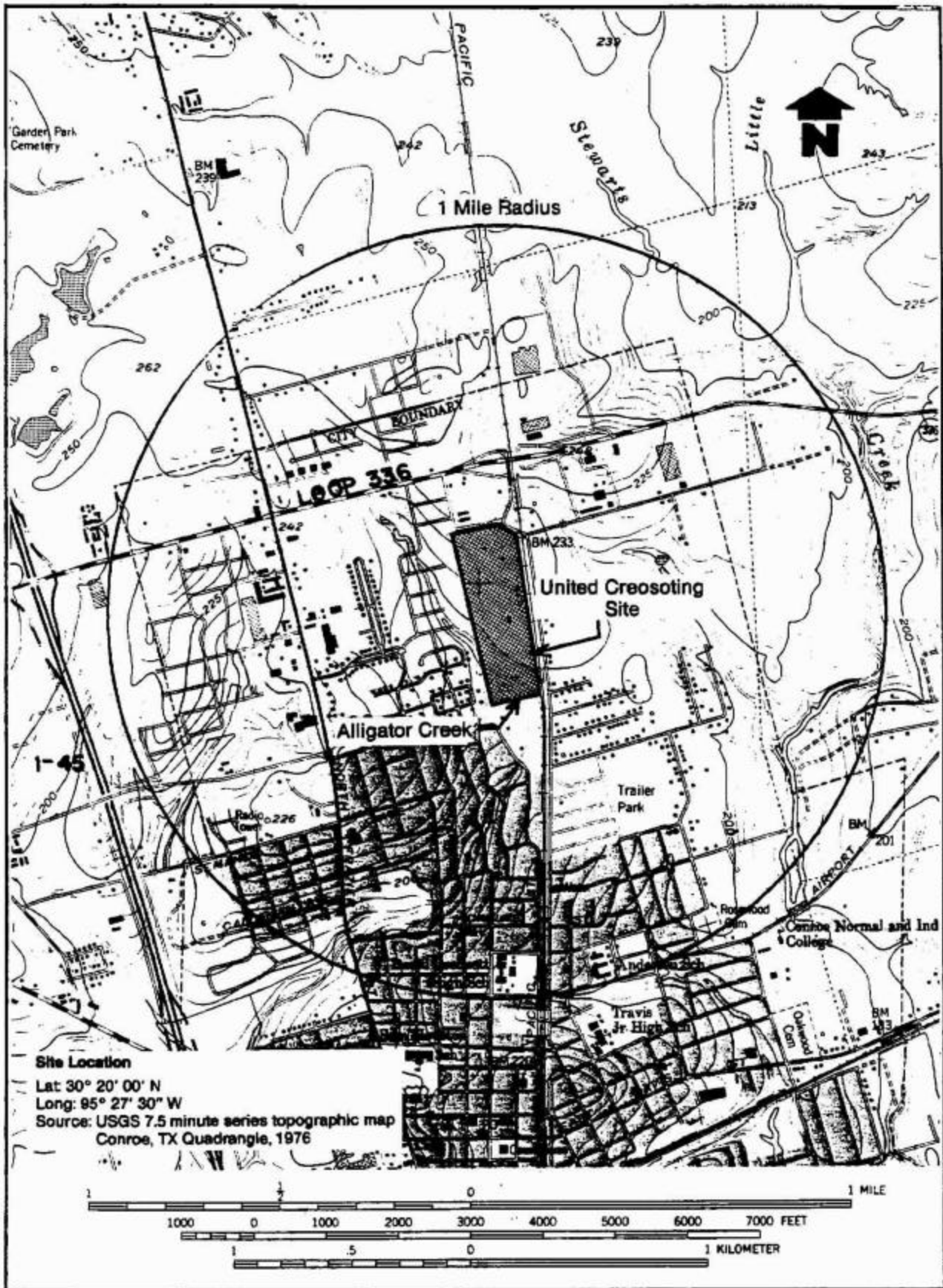
As documented in the Phase C remediation report, the United Creosoting site has been remediated to target action levels for residential and industrial use in the residential and commercial areas of the site, respectively. No wastes remain above these target levels, and although shallow groundwater is affected, natural attenuation is expected to serve as an appropriate remedial approach now that the source has been removed. The remediation completed in the residential areas of the site allows for unlimited use under a residential scenario, and the remediation completed in the commercial areas of the site allows for unlimited use under

an industrial scenario. Future land use changes in the area of the site cleaned to industrial target action levels will need to take into account the assumed use scenario. Because of this, institutional controls related to groundwater use and future land use in the industrial areas of the site should be considered.

Because the remedial actions at the United Creosoting Company site are protective, the remedy for the site is protective of human health and the environment.

### **11.0 Next Review**

Since the first five year review was due by May 1997, the next five year review should be completed during or before May 2002. The review should include an update to the status of the natural attenuation of groundwater based on data collected under the long-term groundwater monitoring program to be implemented during this next five-year review period.



**FIGURE 1 LOCATION MAP OF UNITED CREOSOTING**  
 [reproduced from Weston, 1985]



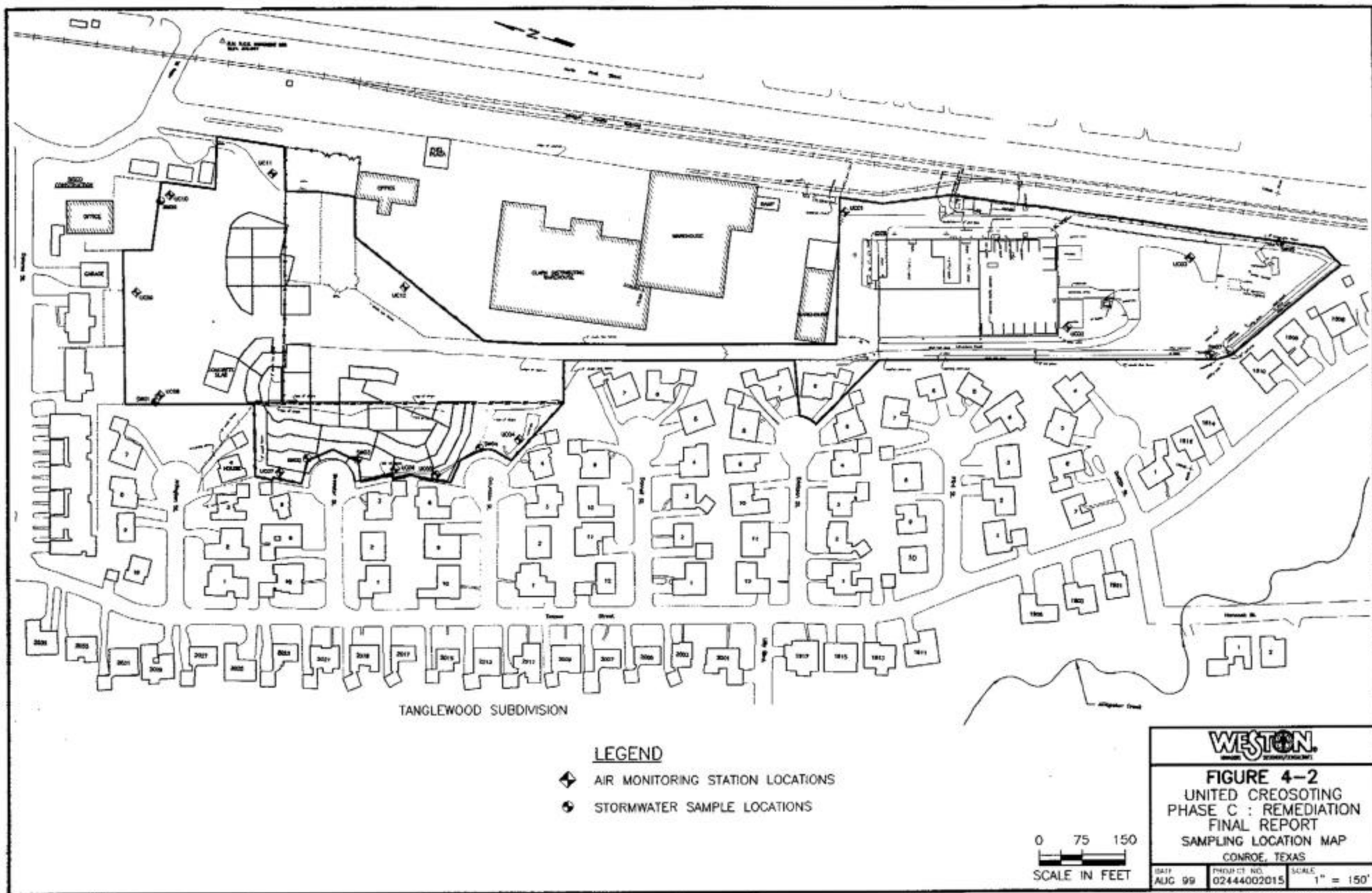


Figure 3 Current Site Layout  
[reproduced from Weston, 1998]

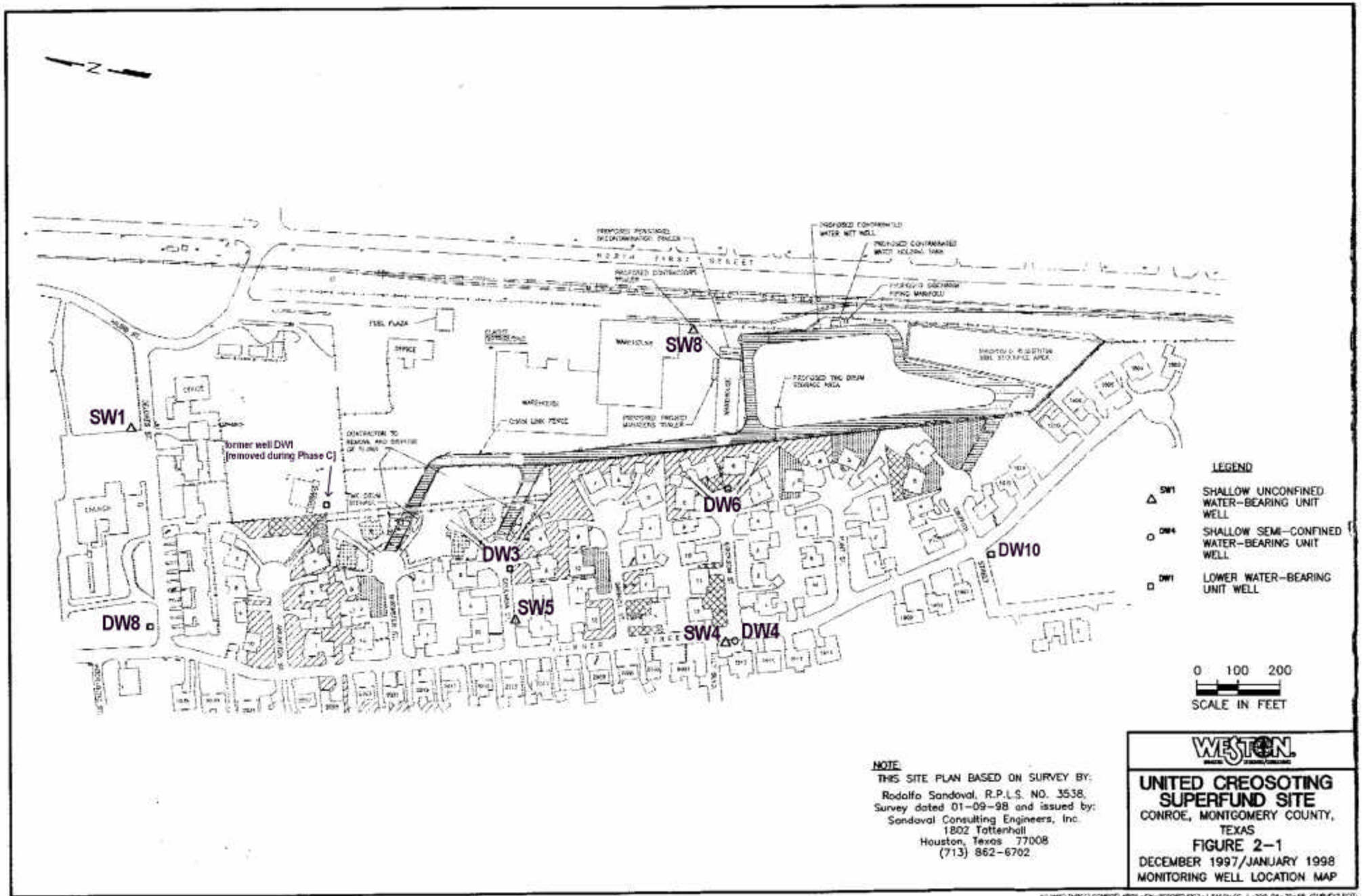


Figure 4 Locations of Existing Groundwater Monitor Wells [reproduced from Weston, 1998a]

<b>Table 1 Chronology of Site Events</b>	
<b>Date</b>	<b>Event</b>
1946 through 1972	Site operated as a wood-treating facility
February 1970	TDWR conducted site inspection and found no offsite discharge of wastewater.
1977	TDWR conducted site inspection and discovered the waste ponds were being backfilled. Redevelopment for commercial and residential use had begun at this time.
1980	Montgomery County used soil from the site for improvements to community roads. Citizens complained of health effects from the soil; samples confirmed PCP content up to 20.3 mg/L in soil leachate. Contaminated soil removed and disposed.
August 1982	TDWR installed three monitoring wells onsite.
1982-1983	Additional monitoring wells installed by EPA and National Center for Groundwater Research. PAH and PCP contamination of shallow groundwater confirmed.
September 1983	Site proposed to the NPL
November 1983- April 1984	Response action completed by Clark Distributing Company -- Ordered by EPA in November 1983 (consisted of regrading, capping contaminated soils, fencing, construction of drainage ditches to control runoff).
March 1984- December 1985	Remedial Investigation conducted by Weston for TWC and EPA.
May 1986	Feasibility Study completed by Weston for TWC and EPA.
September 30, 1986	Record of Decision signed (selected interim remedy, including purchase and demolition of six residences, relocation of homeowners, consolidation of surface soil >100 ppm PAH and/or visibly contaminated, construction of temporary cap over consolidated soil, periodic evaluation of the availability of offsite disposal facilities and emerging alternate technologies, natural attenuation of contaminated shallow groundwater).
September 1989	Feasibility Study Amendment completed by Weston.
September 29, 1989	Record of Decision signed (selected excavation of contaminated soil and treatment with Critical Fluid Extraction with subsequent offsite incineration of liquid residual and onsite burial of treated soils).
1992-1993	Phase A Remediation conducted (consolidation and capping).
May 1996	Focused Remedial Alternative Assessment completed by Weston.
1996-1998	Phase B Remediation conducted (Critical Fluid Extraction).
September 1998	Record of Decision Amendment No. 1 signed, replacing the Critical Fluid Extraction with offsite disposal.

<b>Table 1 Chronology of Site Events</b>	
<b>Date</b>	<b>Event</b>
1998-1999	Phase C Remediation conducted (offsite disposal).
September 2000	First Five-Year Review Report completed

<b>Table 2 Soil Target Action Levels</b>		
	<b>Residential</b>	<b>Industrial</b>
<b>Carcinogenic compounds</b>		
total 2,3,7,8-TCDD equivalents (dioxins and furans)	1 ppb	20 ppb
total BAP equivalents (carcinogenic PAHs expressed as benzo(a)pyrene equivalents)	330 ppb	40,000 ppb
<b>Noncarcinogenic compounds</b>		
total pentachlorophenol (PCP)	150 ppm	150 ppm
total non-carcinogenic polycyclic aromatic hydrocarbons (PAHs)	2,000 ppm	2,000 ppm
Note: These target levels apply to a depth equal to the approximate upper surface of groundwater. Remediation of shallow groundwater is by natural attenuation (EPA, 1998).		



<b>Table 3 Recommendations and Follow-up Actions</b>				
<b>Recommendations/ Follow-up Actions</b>	<b>Party Responsible</b>	<b>Oversight Agency</b>	<b>Milestone Date</b>	<b>Follow-up Actions: Affects Protectiveness (Y/N)</b>
Prepare and implement long-term groundwater monitoring plan, to monitor the natural attenuation of affected shallow groundwater.	TNRCC	EPA	2001	Y (potentially)
Consider institutional controls related to potential future use of affected groundwater zone and potential land use changes in the industrial area of the site (where target remediation levels for soil were set for industrial exposure).	TNRCC and EPA	EPA	2002 (date of next five- year review)	Y (potentially)

**Attachment 1**  
**Documents Reviewed**

## Attachment 1 Documents Reviewed

- U. S. Environmental Protection Agency (EPA), 1986. Superfund Record of Decision: United Creosoting, Texas. EPA/ROD/R06-86/014. Final, September 1986.
- U. S. Environmental Protection Agency (EPA), 1989. Superfund Record of Decision: United Creosoting, Texas. EPA/ROD/R06-89/053. Final, September 1989.
- U.S. Environmental Protection Agency (EPA), 1991. Structure and Components of Five-Year Reviews. Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-02. May 23, 1991.
- U.S. Environmental Protection Agency (EPA), 1991. Factsheet: *Structure and Components of Five-Year Reviews*. OSWER Directive 9355.7-02FS1. August 1991.
- U.S. Environmental Protection Agency (EPA), 1994. Supplemental Five-Year Review Guidance. OSWER Directive 9355.7-02A. July 26, 1994.
- U.S. Environmental Protection Agency (EPA), 1995. Second Supplemental Five-Year Review Guidance. OSWER Directive 9355.7-03A. December 21, 1995.
- U. S. Environmental Protection Agency (EPA), 1998. Superfund Record of Decision Amendment No. 1: United Creosoting, Texas. October 1998.
- U. S. Environmental Protection Agency (EPA), 1999. Comprehensive Five-Year Review Guidance. EPA540R-98-050. OSWER Directive 9355.7-03B-P. Draft, October 1999.
- Weston, 1985. Final Site Investigation Report, United Creosoting Company Site, Conroe, Texas. December 1985
- Weston, 1986. Feasibility Study, United Creosoting Company Site, Conroe, Texas. May 1986.
- Weston, 1989. Feasibility Study Amendment, Preferred Alternatives Analysis. September 1989.
- Weston, 1990. Data Evaluation Report, Focused Site Investigation, United Creosoting, Conroe, Texas. July 1990.
- Weston, 1996. Focused Remediation Alternative Assessment (FRAA), United Creosoting Superfund Site, Conroe, Texas. August 1996.

Weston, 1998a. Final December 1997/January 1998 Groundwater Monitoring Report, United Creosoting Superfund Site, Conroe, Montgomery County, Texas. May 1998.

Weston, 1998b. Remedial Action Report, United Creosoting Superfund Site, Phase B Industrial Remediation, Conroe, Montgomery County, Texas. July 1998.

Weston, 1999. Draft Phase C Remediation Final Report, United Creosoting Superfund Site, Conroe, Texas. August 1999.

**Attachment 2**  
**Interview Record Forms**

<b>Five-Year Review Interview Record</b> United Creosoting Site Conroe, Texas		<b>Interviewee: Alan Etheredge/TNRCC</b> Phone: 512-239-2139 email: aethered@tnrcc.state.tx.us			
<b>Site Name</b>		<b>EPA ID No.</b>		<b>Date of Interview</b>	<b>Interview Method</b>
United Creosoting Superfund Site		EPA ID# TXD980745574		July 13, 2000	via email
<b>Interview Contacts</b>	<b>Organization</b>	<b>Phone</b>	<b>Email</b>	<b>Address</b>	
Earl Hendrick	EPA Region 6	214-665-8519	hendrick.earl@epa.gov	1445 Ross Ave Dallas, Texas 75204	
Margaret O'Hare	CH2M HILL, as rep of EPA	972-980-2170	mohare@ch2m.com	5339 Alpha Road Suite 300 Dallas, Texas 75240	
Katie Swanson	CH2M HILL, as rep of EPA	972-980-2170	kswanso2@ch2m.com	5339 Alpha Road Suite 300 Dallas, Texas 75240	
<b>Interview Questions</b>					
1. What is your overall impression of the work conducted at the site? (general sentiment)					
<b>Response:</b> "The Phase A Residential Remediation went generally well considering that it involved the relocation of a number of families during the work; the Phase B Industrial Remediation went very poorly as a result of the mode of failure and protracted termination process relating to the innovative technology; The Phase C Industrial Remediation was very successfully concluded."					
2. From your perspective, what effect have remedial operations at the site had on the surrounding community?					
<b>Response:</b> "The residential remediation was very unsettling for much of the community due to the difficulties associated with temporary relocation and difficulties attendant with restoration of properties; Phase B had significant impacts in terms of noise, visual disturbance (elevated flare events at night) odors, etc., none of which were accepted by the community; Phase C had virtually no impact on the community."					
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? Please provide details.					
<b>Response:</b> "One property owner (Mr. John Sisco) has filed lawsuits against several of TNRCC's contractors regarding the remediation; the TNRCC is not aware of any other concerns and is not involved in the Sisco suit to date."					

4. Are you aware of any significant events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or emergency response from local authorities? If so, please give details.

**Response:** “The City of Conroe responded to the fire which destroyed a barn which was located on the site during Phase B. I am not aware of any other significant event of the sort listed above.”

5. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe purpose and results.

**Response:** “As the lead agency for all phases of the RA [Remedial Action] the TNRCC conducted extensive visits, inspections, etc., during the RA in administrating the RA contracts.”

6. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give summarize the events and results of the responses.

**Response:** “None other than conducting the RA at the site.”

7. Were any problems or difficulties encountered after the initiation of remedial action which impacted construction progress and implementability? Please briefly summarize the problems/difficulties.

**Response:** “During Phase B significant problems were associated with the implementation of the innovative technology (these might have been avoided if the technology had been subject to a more rigorous pilot program prior to final implementation); also during Phase B the quantity of material anticipated to require action was found to be significantly lower than anticipated, complicating contract administration.”

8. Were or have any problems been encountered at either site which required or will require changes in the Record of Decision or remedial action performed? (Brief summary)

**Response:** “Yes. Please see ROD and all subsequent amendments.”

9. Have there been any significant changes in the site status or maintenance requirements since completion of remedial action? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

**Response:** “No.”

10. Have there been opportunities to optimize the operation, maintenance, or sampling efforts at the site since the start of the remedial action? Please describe changes and the resultant or desired cost savings or improved efficiency

**Response:** “No, other than abandonment of the innovative technology and selection of the offsite disposal remedy.”

11. What is the status of groundwater monitoring plan preparation?

**Response:** “The TNRCC has yet to task a contractor with development of a post-source-control groundwater monitoring plan.”

12. Do you feel well-informed about the site’s activities and progress?

**Response:** “Yes.”

13. Do you have any comments, suggestions, or recommendations regarding the site?

**Response:** “The regulatory agencies could consider more rigorous institutional controls (deed notice) in regard to land use constraints in the industrial remediation area and groundwater contamination in all areas of the site.”



<b>Five-Year Review Interview Record</b> United Creosoting Site Conroe, Texas		<b>Interviewee:</b> Craig Lonon, City Administrator phone: 409-760-4600			
<b>Site Name</b>		<b>EPA ID No.</b>		<b>Date of Interview</b>	<b>Interview Method</b>
United Creosoting Superfund Site		EPA ID# TXD980745574		July 12, 2000	In person
<b>Interviewee Contact Information</b>		Craig Lonon, City Administrator City of Conroe 300 W. Davis, 3 <sup>rd</sup> Floor, P.O. Box 3066 Conroe, Texas 77305			
<b>Interviewers</b>	<b>Organization</b>	<b>Phone</b>	<b>Email</b>	<b>Address</b>	
Earl Hendrick	EPA Region 6	214-665-8519	hendrick.earl@epa.gov	1445 Ross Ave Dallas, Texas 75204	
Margaret O'Hare	CH2M HILL, as rep of EPA	972-980-2170	mohare@ch2m.com	5339 Alpha Road Suite 300 Dallas, Texas 75240	
Katie Swanson	CH2M HILL, as rep of EPA	972-980-2170	kswanso2@ch2m.com	5339 Alpha Road Suite 300 Dallas, Texas 75240	
<b>Interview Questions</b>					
1. What is your overall impression of the work conducted at each site? (general sentiment)					
<b>Response:</b> Mr. Lonon indicated the city was disappointed in the innovative technology effort, which did not go as planned, but he indicated they believe the Phase C remediation was completely satisfactory. The proximity to the residences should have played a bigger role in the selection of the innovative technology originally selected for onsite implementation.					
2. From your perspective, what effect have remedial operations at the site had on the surrounding community?					
<b>Response:</b> Mr. Lonon indicated the length of time it took to complete the remediation and the mishaps that occurred during remediation created some ill-will, that has eased since the remedy has been completed.					
3. Are you aware of any community concerns regarding the site or its operation and administration? Please provide details.					
<b>Response:</b> No current community concerns.					

4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or emergency response from local authorities? If so, please give details.

**Response:** Mr. Lonon indicated that the majority of community concerns had to do with the time it took to complete the remediation, as well as noise and odors during implementation. Mr. Lonon recalled an incident in which the innovative remedy contractor had an exceedance of discharge limits to the stream, and there was the stack explosion incident (CFE). Now that the remedy is complete, Mr. Lonon indicated there are no routine communications with the community regarding the site.

5. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe purpose and results.

**Response:** See response above.

6. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.

**Response:** Mr. Lonon indicated there was a time during the innovative technology remediation where it appeared the TNRCC would go forward with the innovative technology despite the problems.

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

**Response:** Mr. Lonon indicated that during the early stages of remediation, the city believed the site was being take care of and they were well-informed, but looking back may not have been as well-informed as they should have been. Once the residents started complaining, the city made sure they were well-informed, and stayed more involved from that time on (the agencies provided monthly reports to the city). The lesson-learned was that things improved when the agencies and city communicated more with each other and the community.

8. Do you have any comments, suggestions, or recommendations regarding the site?

**Response:** Mr. Lonon indicated the city has no current concerns or recommendations regarding the site.

<b>Five-Year Review Interview Record</b> United Creosoting Site Conroe, Texas		<b>Interviewee:</b> Jack Clarke, III, son of Jack Clarke, owner of Clarke Distributing Company			
<b>Site Name</b>		<b>EPA ID No.</b>		<b>Date of Interview</b>	<b>Interview Method</b>
United Creosoting Superfund Site		EPA ID# TXD980745574		July 12, 2000	In person
<b>Interviewee Contact Information</b>			Jack Clarke, III, son of property owner Jack Clarke Clarke Distributing Company email: jack@jdc3.com phone: 830-367-3106		
<b>Interviewers</b>	<b>Organization</b>	<b>Phone</b>	<b>Email</b>	<b>Address</b>	
Earl Hendrick	EPA Region 6	214-665-8519	hendrick.earl@epa.gov	1445 Ross Ave Dallas, Texas 75204	
Margaret O'Hare	CH2M HILL, as rep of EPA	972-980-2170	mohare@ch2m.com	5339 Alpha Road Suite 300 Dallas, Texas 75240	
Katie Swanson	CH2M HILL, as rep of EPA	972-980-2170	kswanso2@ch2m.com	5339 Alpha Road Suite 300 Dallas, Texas 75240	
<b>Interview Questions</b>					
1. What is your overall impression of the work conducted at the site? (general sentiment)					
<b>Response:</b> Speaking on behalf of his father, the owner, Mr. Clarke indicated the situation has been livable the past six months; the completion of the remediation was satisfactory. They were not pleased during the early stages, in particular with the treatment system, and believed the situation was very bad, but the end result has been satisfactory.					
2. From your perspective, what effect have remedial operations at the site had on the surrounding community?					
<b>Response:</b> Mr. Clarke indicated the residents received a letter indicated their properties are clean, but after remediation the Clarke property is left with restricted use due to the waste left onsite. Clarke has not received a letter from the State, and is concerned about possible future use restrictions.					
3. Are you aware of any community concerns regarding the site or its operation and administration? Please provide details.					
<b>Response:</b> The relationship between the residents and the city was not good during the Phase B remediation, but now that the remediation is complete, the relationship has improved. As an industrial property owner, Mr. Clarke is concerned about his future relationship with the city.					

4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or emergency response from local authorities? If so, please give details.

**Response:** Mr. Clarke could not recall any incidents, or any complaints from his commercial tenants. He indicated that the remediation contractor RECON was very professional and kept everything under control during the work. Clarke was pleased with RECON's work. Mr. Clarke indicated he feels confident, now, that the current subsidence problem will be well taken care of.

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

**Response:** Mr. Clarke indicated he has been well-informed. He indicated that during the CFE effort, the agencies seemed reluctant to admit the failure, but even then they were relatively well-informed.

6. Do you have any comments, suggestions, or recommendations regarding the site?

**Response:** None, except they want to know what comes next. Mr. Clarke expressed concern with how future uses of the property could be implemented, considering future use restrictions.

**Attachment 3**  
**Site Inspection Checklist**

# United Creosoting Company Five-Year Review Site Inspection Checklist

N/A means “not applicable.”

I. SITE INFORMATION	
<b>Site Name:</b> United Creosoting Company Site	<b>EPA ID:</b> TXD980745574
<b>City/State:</b> Conroe, Montgomery County, Texas	<b>Date of Inspection:</b> July 12, 2000
<b>Agency Completing 5 Year Review:</b> EPA Region 6	<b>Weather/temperature:</b> Clear, warm
<b>Remedy Includes:</b> (Check all that apply) <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input checked="" type="checkbox"/> Groundwater pump and treatment <input checked="" type="checkbox"/> Surface water collection and treatment <input type="checkbox"/> Other: long-term groundwater monitoring	
<b>Attachments:</b> <input type="checkbox"/> Inspection team roster attached <input checked="" type="checkbox"/> Site map attached	
II. INTERVIEWS (Check all that apply)	
<b>1. O&amp;M site manager:</b> Name: Alan Etheredge Title: TNRCC Date: July 12, 2000 Interviewed: <input type="checkbox"/> at site <input checked="" type="checkbox"/> at office <input checked="" type="checkbox"/> by phone <input type="checkbox"/> by email <u>Problems, suggestions:</u> <input type="checkbox"/> Additional report attached (see Attachment 2). Note, no groundwater monitoring has been done in several years, there is no O&M grant. Mr. Etheredge indicated in his response that the regulatory agencies should consider more rigorous institutional controls (deed notice) in regard to land use constraints in the industrial remediation area and groundwater contamination in all areas of the site.	
<b>2. O&amp;M staff:</b> Name: Title: Date: Interviewed: <input checked="" type="checkbox"/> at site <input checked="" type="checkbox"/> at office <input checked="" type="checkbox"/> by phone <u>Problems, suggestions:</u> <input checked="" type="checkbox"/> Additional report attached (if additional space required).	

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:**

**Contact:**

Name:

Title:

Date:

Phone Number:

Problems, suggestions:                    9 Additional report attached (if additional space required).

**Agency:**

**Contact:**

Name:

Title:

Date:

Phone Number:

Problems, suggestions:                    9 Additional report attached (if additional space required).

**Agency:**

**Contact:**

Name:

Title:

Date:

Phone Number:

Problems, suggestions:                    9 Additional report attached (if additional space required).

**Agency:**

**Contact:**

Name:

Title:

Date:

Phone Number:

Problems, suggestions:                    9 Additional report attached (if additional space required).

4. **Other interviews** (optional) 9 N/A ; Additional report attached (if additional space required).

Jack Clarke, III, son of property owner, Clarke Distributing Company (see Attachment 2)

III. ONSITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
<b>1. O&amp;M Documents</b> <input checked="" type="checkbox"/> O&M Manual <input type="checkbox"/> As-Built Drawings <input checked="" type="checkbox"/> Maintenance Logs <u>Remarks:</u> Note, there are no onsite documents. As-built drawings are readily available in the TNRCC Central Records system in Austin, Texas.	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A
<b>2. Health and Safety Plan Documents</b> <input checked="" type="checkbox"/> Site-Specific Health and Safety Plan <input checked="" type="checkbox"/> Contingency plan/emergency response plan <u>Remarks:</u> There are no site conditions that would restrict normal emergency response	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A <input type="checkbox"/> N/A
<b>3. O&amp;M and OSHA Training Records</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
<b>4. Permits and Service Agreements</b> <input checked="" type="checkbox"/> Air discharge permit <input checked="" type="checkbox"/> Effluent discharge <input checked="" type="checkbox"/> Waste disposal, POTW <input checked="" type="checkbox"/> Other permits <u>Remarks:</u>	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A
<b>5. Gas Generation Records</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
<b>6. Settlement Monument Records</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
<b>7. Groundwater Monitoring Records</b> <u>Remarks:</u> Note, there are no onsite documents. As-built drawings are readily available in the TNRCC Central Records system in Austin, Texas.	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<b>8. Leachate Extraction Records</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
<b>9. Discharge Compliance Records</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A



<b>10. Daily Access/Security Logs</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A																				
<b>IV. O&amp;M Costs</b>																							
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A																							
<b>1. O&amp;M Organization</b> <input type="checkbox"/> State in-house <input type="checkbox"/> Contractor for State <input checked="" type="checkbox"/> PRP in-house <input checked="" type="checkbox"/> Contractor for PRP <input checked="" type="checkbox"/> Other:																							
<b>2. O&amp;M Cost Records</b> <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Funding mechanism/agreement in place  <input checked="" type="checkbox"/> Breakdown attached <input type="checkbox"/> N/A  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"><u>From (Date):</u></td> <td style="width: 25%;"><u>To (Date):</u></td> <td style="width: 25%;"><u>Total cost:</u></td> <td style="width: 25%;"><input checked="" type="checkbox"/> Breakdown attached</td> </tr> <tr> <td><u>From (Date):</u></td> <td><u>To (Date):</u></td> <td><u>Total cost:</u></td> <td><input checked="" type="checkbox"/> Breakdown attached</td> </tr> <tr> <td><u>From (Date):</u></td> <td><u>To (Date):</u></td> <td><u>Total cost:</u></td> <td><input checked="" type="checkbox"/> Breakdown attached</td> </tr> <tr> <td><u>From (Date):</u></td> <td><u>To (Date):</u></td> <td><u>Total cost:</u></td> <td><input checked="" type="checkbox"/> Breakdown attached</td> </tr> <tr> <td><u>From (Date):</u></td> <td><u>To (Date):</u></td> <td><u>Total cost:</u></td> <td><input checked="" type="checkbox"/> Breakdown attached</td> </tr> </table>	<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached	<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached	<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached	<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached	<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached			
<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached																				
<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached																				
<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached																				
<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached																				
<u>From (Date):</u>	<u>To (Date):</u>	<u>Total cost:</u>	<input checked="" type="checkbox"/> Breakdown attached																				
<b>3. Unanticipated or Unusually High O&amp;M Costs During Review Period</b> <u>Describe costs and reasons:</u>	<input type="checkbox"/> N/A																						
<b>V. ACCESS AND INSTITUTIONAL CONTROLS</b>																							
<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A																							
<b>A. Fencing</b>																							
<b>1. Fencing damaged</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Gates secured	<input checked="" type="checkbox"/> N/A																				
<b>B. Other Access Restrictions</b>																							
<b>1. Signs and other security measures</b> <u>Remarks:</u>	<input checked="" type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A																					

<b>C. Institutional Controls</b>			
<b>1. Implementation and enforcement</b>			
Site conditions imply ICs not properly implemented:	<u>9</u> Yes	<u>9</u> No	<u>9</u> N/A
Site conditions imply ICs not being fully enforced:	<u>9</u> Yes	<u>9</u> No	<u>9</u> N/A
Type of monitoring (e.g, self-reporting, drive by): none in-place			
Frequency:			
Responsible party/agency: TNRCC			
Contact: Allan Etheredge			
Name:			
Title: Chief of Public Works			
Date: June 27, 2000			
Phone Number: (501 )982-6071			
Reporting is up-to-date:	<u>9</u> Yes	<u>9</u> No	<u>9</u> N/A
Reports are verified by the lead agency:	<u>9</u> Yes	<u>9</u> No	<u>9</u> N/A
Specific requirements in deed or decision documents have been met:	<u>9</u> Yes	<u>9</u> No	<u>9</u> N/A
Violations have been reported:	<u>9</u> Yes	<u>9</u> No	<u>9</u> N/A
Other problems or suggestions:	<u>9</u> Additional report attached (if additional space required).		
<b>2. Adequacy</b>	<u>9</u> ICs are adequate	<u>9</u> ICs are inadequate	<u>9</u> N/A
<u>Remarks:</u>			
<b>D. General</b>			
<b>1. Vandalism/trespassing</b>	<u>9</u> Location shown on site map	<u>9</u> No vandalism evident	
<u>Remarks:</u>			
<b>2. Land use changes onsite</b>			<u>9</u> N/A
<u>Remarks:</u>			
<b>3. Land use changes offsite</b>			<u>9</u> N/A
<u>Remarks:</u>			
<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b>		<u>9</u> Applicable	<u>9</u> N/A
<b>1. Roads damaged</b>	<u>9</u> Location shown on site map	<u>9</u> Roads adequate	<u>9</u> N/A
<u>Remarks:</u>			

<b>B. Other Site Conditions</b>			
Remarks:			
<b>VII. LANDFILL COVERS</b>		<u>9</u> Applicable	<u>  </u> N/A
<b>A. Landfill Surface</b>			
1. <b>Settlement</b> (Low spots) Areal extent:      Depth: Remarks:	<u>9</u> Location shown on site map	<u>9</u> Settlement not evident	
2. <b>Cracks</b> Lengths: Remarks:	<u>9</u> Location shown on site map Widths:                      Depths:	<u>9</u> Cracking not evident	
3. <b>Erosion</b> Areal extent: Remarks:	<u>9</u> Location shown on site map Depth:	<u>9</u> Erosion not evident	
4. <b>Holes</b> Areal extent: Remarks:	<u>9</u> Location shown on site map Depth:	<u>9</u> Holes not evident	
5. <b>Vegetative Cover</b> <u>9</u> Cover properly established Remarks:	<u>9</u> No signs of stress	<u>9</u> Grass	<u>9</u> Trees/Shrubs
6. <b>Alternative Cover</b> (armored rock, concrete, etc.) Remarks:	<u>9</u> N/A		
7. <b>Bulges</b> Areal extent: Remarks:	<u>9</u> Location shown on site map Height:	<u>9</u> Bulges not evident	

<b>8. Wet Areas/Water Damage</b>		<b>9</b> Wet areas/water damage not evident
<b>9</b> Wet areas	<b>9</b> Location shown on site map	Areal extent:
<b>9</b> Ponding	<b>9</b> Location shown on site map	Areal extent:
<b>9</b> Seeps	<b>9</b> Location shown on site map	Areal extent:
<b>9</b> Soft subgrade	<b>9</b> Location shown on site map	Areal extent:
<u>Remarks:</u>		
<b>9. Slope Instability</b>		<b>9</b> No evidence of slope instability
Areal extent:		
<u>Remarks:</u>		
<b>B. Benches</b>		<b>9</b> Applicable <b>9</b> 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>		<b>9</b> N/A or okay
<u>Remarks:</u>		
<b>2. Bench Breached</b>		<b>9</b> N/A or okay
<u>Remarks:</u>		
<b>3. Bench Overtopped</b>		<b>9</b> N/A or okay
<u>Remarks:</u>		
<b>C. Letdown Channels</b>		<b>9</b> Applicable <b>9</b> N/A
(Channel lined with erosion control mats, riprap, 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>		<b>9</b> No evidence of settlement
Areal extent:		
Depth:		
<u>Remarks:</u>		
<b>2. Material Degradation</b>		<b>9</b> No evidence of degradation
Material type:		
Areal extent:		
<u>Remarks:</u>		
<b>3. Erosion</b>		<b>9</b> No evidence of erosion
Areal extent:		
Depth:		
<u>Remarks:</u>		

<p>4. <b>Undercutting</b> Areal extent: Depth: <u>Remarks:</u></p>	<p><u>9</u> Location shown on site map <u>9</u> No evidence of undercutting</p>	
<p>5. <b>Obstructions</b> Type: Areal extent: <u>Remarks:</u></p>	<p><u>9</u> Location shown on site map Height:</p>	<p><u>9</u> N/A</p>
<p>6. <b>Excessive Vegetative Growth</b> <u>9</u> Evidence of excessive growth <u>9</u> Location shown on site map <u>Remarks:</u></p>	<p><u>9</u> No evidence of excessive growth <u>9</u> Vegetation in channels but does not obstruct flow Areal extent:</p>	
<p><b>D. Cover Penetrations</b></p>	<p><u>9</u> Applicable</p>	<p><u>9</u> N/A</p>
<p>1. <b>Gas Vents</b> <u>9</u> Active            <u>9</u> Passive <u>9</u> Properly secured/locked <u>9</u> Evidence of leakage at penetration <u>Remarks:</u></p>	<p><u>9</u> Routinely sampled <u>9</u> Functioning <u>9</u> Needs O&amp;M</p>	<p><u>9</u> N/A <u>9</u> Good condition</p>
<p>2. <b>Gas Monitoring Probes</b> <u>9</u> Routinely sampled <u>9</u> Properly secured/locked <u>9</u> Evidence of leakage at penetration <u>Remarks:</u></p>	<p><u>9</u> Functioning <u>9</u> Needs O&amp;M</p>	<p><u>9</u> N/A <u>9</u> Good condition</p>
<p>3. <b>Monitoring Wells (within surface area of landfill)</b> <u>9</u> Routinely sampled <u>9</u> Properly secured/locked <u>9</u> Evidence of leakage at penetration <u>Remarks:</u></p>	<p><u>9</u> Functioning <u>9</u> Needs O&amp;M</p>	<p><u>9</u> N/A <u>9</u> Good condition</p>
<p>4. <b>Leachate Extraction Wells</b> <u>9</u> Routinely sampled <u>9</u> Properly secured/locked <u>9</u> Evidence of leakage at penetration <u>Remarks:</u></p>	<p><u>9</u> Functioning <u>9</u> Needs O&amp;M</p>	<p><u>9</u> N/A <u>9</u> Good condition</p>
<p>5. <b>Settlement Monuments</b> <u>Remarks:</u></p>	<p><u>9</u> Located            <u>9</u> Routinely surveyed</p>	<p><u>9</u> N/A</p>

<b>E. Gas Collection and Treatment</b>		<u>9</u> Applicable	<u>9</u> N/A
<b>1. Gas Treatment Facilities</b> <u>9</u> Flaring <u>9</u> Thermal destruction <u>9</u> Collection for reuse <u>9</u> Good condition <u>9</u> Needs O&M <u>Remarks:</u>			<u>9</u> N/A
<b>2. Gas Collection Wells, Manifolds and Piping</b> <u>9</u> Good condition <u>9</u> Needs O&M <u>Remarks:</u>			<u>9</u> N/A
<b>3. Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings) <u>9</u> Good condition <u>9</u> Needs O&M <u>Remarks:</u>			<u>9</u> N/A
<b>F. Cover Drainage Layer</b>		<u>9</u> Applicable	<u>9</u> N/A
<b>1. Outlet Pipes Inspected</b> <u>9</u> Functioning <u>Remarks:</u>			<u>9</u> N/A
<b>2. Outlet Rock Inspected</b> <u>9</u> Functioning <u>Remarks:</u>			<u>9</u> N/A
<b>G. Detention/Sedimentation Ponds</b>		<u>9</u> Applicable	<u>9</u> N/A
<b>1. Siltation</b> <u>9</u> Siltation evident Areal extent:      Depth: <u>Remarks:</u> Not built as part of remedy but simply to provide stormwater runoff control. Normally dry			<u>9</u> N/A
<b>2. Erosion</b> <u>9</u> Erosion evident Areal extent:      Depth: <u>Remarks:</u>			<u>9</u> N/A
<b>3. Outlet Works</b> <u>9</u> Functioning <u>Remarks:</u>			<u>9</u> N/A
<b>4. Dam</b> <u>9</u> Functioning <u>Remarks:</u>			<u>9</u> N/A
<b>H. Retaining Walls</b>		<u>9</u> Applicable	<u>9</u> N/A
<b>1. Deformations</b> <u>9</u> Location shown on site map <u>9</u> Deformation not evident Horizontal displacement:      Vertical displacement:      Rotational displacement:			

2. <b>Degradation</b> <u>Remarks:</u>	<u>9</u> Location shown on site map	<u>9</u> Degradation not evident
<b>I. Perimeter Ditches/Off-site discharge</b>		
1. <b>Siltation</b> Areal extent: <u>Remarks:</u>	<u>9</u> Location shown on site map Depth:	<u>9</u> Siltation not evident
2. <b>Vegetative Growth</b> Areal extent: <u>Remarks:</u>	<u>9</u> Location shown on site map Type:	<u>9</u> Vegetation does not impede flow
3. <b>Erosion</b> Areal extent: <u>Remarks:</u>	<u>9</u> Location shown on site map Depth:	<u>9</u> Erosion not evident
4. <b>Discharge Structure</b> <u>9</u> Functioning <u>Remarks:</u> No discharge structure, drainage managed by site grading.	<u>9</u> Location shown on site map <u>9</u> Good Condition	<u>9</u> N/A
<b>VIII. VERTICAL BARRIER WALLS</b>		
		<u>9</u> Applicable     : N/A
1. <b>Settlement</b> Areal extent: <u>Remarks:</u>	<u>9</u> Location shown on site map Depth:	<u>9</u> Settlement not evident
2. <b>Performance Monitoring</b> <u>9</u> Performance not monitored <u>9</u> Performance monitored <u>9</u> Evidence of breaching <u>Remarks:</u>	Frequency: Head differential:	<u>9</u> N/A
<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b>		
		: Applicable <u>9</u> N/A
<b>A. Groundwater Extraction Wells, Pumps, and Pipelines</b>		
		<u>9</u> Applicable     : N/A
1. <b>Pumps, Wellhead Plumbing, and Electrical</b> <u>9</u> All required wells located <u>Remarks:</u>	<u>9</u> Good condition <u>9</u> Needs O&M	: N/A

<p>2. <b>Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b>  <input checked="" type="checkbox"/> System located                      <input checked="" type="checkbox"/> Good condition                      <input checked="" type="checkbox"/> Needs O&amp; M  <u>Remarks:</u></p>	<p>: N/A</p>
<p>3. <b>Spare Parts and Equipment</b>  <input checked="" type="checkbox"/> Readily available                      <input checked="" type="checkbox"/> Good condition  <input checked="" type="checkbox"/> Requires Upgrade                      <input checked="" type="checkbox"/> Needs to be provided  <u>Remarks:</u></p>	<p>: N/A</p>
<p><b>B. Surface Water Collection Structures, Pumps, and Pipelines</b>                      <input checked="" type="checkbox"/> Applicable                      : N/A</p>	
<p>1. <b>Collection Structures, Pumps, and Electrical</b>  <input checked="" type="checkbox"/> Good condition                      <input checked="" type="checkbox"/> Needs O&amp; M  <u>Remarks:</u></p>	<p><input checked="" type="checkbox"/> N/A</p>
<p>2. <b>Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b>  <input checked="" type="checkbox"/> Good condition                      <input checked="" type="checkbox"/> Needs O&amp; M  <u>Remarks:</u></p>	<p><input checked="" type="checkbox"/> N/A</p>
<p>3. <b>Spare Parts and Equipment</b>  <input checked="" type="checkbox"/> Readily available                      <input checked="" type="checkbox"/> Good condition  <input checked="" type="checkbox"/> Requires Upgrade                      <input checked="" type="checkbox"/> Needs to be provided  <u>Remarks:</u></p>	<p><input checked="" type="checkbox"/> N/A</p>
<p><b>C. Treatment System</b>                      <input checked="" type="checkbox"/> Applicable                      : N/A</p>	
<p>1. <b>Treatment Train</b> (Check components that apply)  <input checked="" type="checkbox"/> Metals removal                      <input checked="" type="checkbox"/> Oil/water separation                      <input checked="" type="checkbox"/> Bioremediation  <input checked="" type="checkbox"/> Air stripping                      <input checked="" type="checkbox"/> Carbon adsorbers                      <input checked="" type="checkbox"/> Filters (list type):  <input checked="" type="checkbox"/> Additive (list type, e.g., chelation agent, flocculent)  <input checked="" type="checkbox"/> Others (list):  <input checked="" type="checkbox"/> Good condition                      <input checked="" type="checkbox"/> Needs O&amp;M  <input checked="" type="checkbox"/> Sampling ports properly marked and functional  <input checked="" type="checkbox"/> Sampling/maintenance log displayed and up to date  <input checked="" type="checkbox"/> Equipment properly identified  <input checked="" type="checkbox"/> Quantity of groundwater treated annually (list volume):  <input checked="" type="checkbox"/> Quantity of surface water treated annually (list volume):  <u>Remarks:</u></p>	
<p>2. <b>Electrical Enclosures and Panels</b> (properly rated and functional)  <input checked="" type="checkbox"/> Good condition                      <input checked="" type="checkbox"/> Needs O&amp; M  <u>Remarks:</u></p>	<p><input checked="" type="checkbox"/> N/A</p>



3. <b>Tanks, Vaults, Storage Vessels</b>	9 Good condition	9 Proper secondary containment	9 Needs O&M	9 N/A
Remarks:				
4. <b>Discharge Structure and Appurtenances</b>	9 Good condition	9 Needs O&M	9 N/A	
Remarks:				
5. <b>Treatment Building(s)</b>	9 Good condition (esp. roof and doorways)	9 Needs Repair	9 N/A	
9 Chemicals and equipment properly stored				
Remarks:				
6. <b>Monitoring Wells (pump and treatment remedy)</b>	9 All required wells located	9 Properly secured/locked	9 Functioning	9 Routinely sampled
9 N/A				
9 Good condition				
9 Needs O&M				
Remarks:				
D. <b>Monitored Natural Attenuation</b>	: Applicable			9 N/A
1. <b>Monitoring Wells (natural attenuation remedy)</b>	: All required wells located	: Properly secured/locked	: Functioning	9 Routinely sampled
9 N/A				
9 Good condition				
9 Needs O&M				
Remarks: All wells were located during the site inspection; one well's condition was questionable, and the inspection team could not be sure it actually was the well. See photo log. Groundwater monitoring program is not yet in place.				
<b>X. OTHER REMEDIES</b>				
			9 Applicable	: N/A
If there are remedies applied at the site which 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.				

## XI. OVERALL OBSERVATIONS

### A. Implementation of the Remedy

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.)

The current remedy is effective and functioning as designed. The remedy was chosen to remove the principal health threats that presented excess lifetime cancer risk, and prevent further actual or threatened releases of hazardous substances from the site. As stated in ROD Amendment No. 1, monitoring of the natural attenuation of affected shallow groundwater is required. The last groundwater monitoring event was conducted in January 1998. A long-term groundwater monitoring plan should be prepared and implemented to meet the requirements of the remedy selected for this site. In addition, no institutional controls were specified by the RODs (at the time the RODs were signed, no current users of the affected groundwater zone were identified, and the area was determined to be within the service area of a municipal water supply). However, affected groundwater remains in-place beneath residential and industrial areas, until data is collected to demonstrate the completion of natural attenuation, and institutional controls to ensure groundwater use does not occur should be considered. Affected soil remains in place in the industrial area of the site below industrial target action levels, but above residential target action levels, and institutional controls should be considered in that area to provide guidance relative to potential future land use changes.

### B. Adequacy of O&M

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.

O&M procedures specific to the soil remedy are not required. The site has been returned to use as commercial and residential property. Groundwater monitoring is planned, but the responsible agency, TNRCC, has not yet been able to finalize the plans and secure a contractor.

### C. Early Indicators of Potential Remedy Failure

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.

None currently observed. However, TNRCC points out that the lack of specific institutional controls related to affected groundwater use and the industrial area soil (above residential target levels) may lead to remedy failure if groundwater use occurs in the vicinity or the zoning of the industrial area is at some point changed to residential. A site-specific example is the case where a residential property owner refused remediation of a residential yard and subsequently sold the property without disclosure of that information. Formal institutional controls could help prevent that type of situation.

### D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Not applicable.

**Attachment 3  
Inspection Team Roster  
United Creosoting Company Site  
July 12, 2000**

<b>Name</b>	<b>Agency</b>	<b>Phone Number</b>
Earl Hendrick	EPA Region 6	(214) 665-8519
Alan Etheredge	TNRCC	(512) 239-2139
Margaret O'Hare	CH2M HILL	(972) 980-2170
Katie Swanson	CH2M HILL	(972) 980-2170