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Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R06-93/084
September 1993

EPA

Superfund Record of Decision:

Texarkana Wood Preserving, TX

50272-101

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15. Supplementary Notes

PB94-964203

16. Abstract (Limit: 200 words)

The 25-acre Texarkana Wood Preserving site is a former wood treating facility located in Bowie County, Texas. Land use in the area is mixed industrial, residential, and agricultural. The site lies within the 100-year floodplain of Days Creek, an interstate tributary of the Sulphur River, which is located to the east of the site. The estimated 70 residences located within one-third mile of the site use municipal drinking water, but the aquifer underlying the site is considered to be a class II aquifer. Since the early 1900s, several lumber-related businesses have operated at the site, with documented creosote-based wood treating operations as early as 1954 in the southwest portion of the site. These treatment activities included improper processing of waste materials onsite and led to present site conditions. The site contains a heavily-contaminated process area consisting of a number of waste ponds on the west part of the site, water retention ponds on the east portion of the site, and a few disposal tanks which still remain onsite. In 1981, Texarkana Wood Preserving Company (TWPC) purchased the site. After the State observed illegal discharges into Days Creek, it conducted subsequent investigations from 1968 to 1984 that found TWPC to be either negligent or delinquent in its efforts to fulfill various wood treating permitting requirements. In 1984, TWPC ceased onsite wood treating operations. From 1986 to

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Texarkana Wood Preserving, TX
Second Remedial Action - Final
Contaminated Medium: gw
Key Contaminants: organics (PAHs, phenols)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 38
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

Abstract (Continued)

1988, EPA implemented measures to control surface runoff and site access, including constructing fences and a berm around the main operations pond, and pumping down onsite ponds to prevent overflow. A 1990 ROD addressed contaminated soil, sludge, and shallow ground water, as OU1. This ROD provides a final remedy for contaminated ground water in deeper zones, as OU2. The primary contaminants of concern affecting the ground water are organics, including PAHs and phenols.

The selected remedial action for this site includes extracting and treating contaminated ground water from the deeper aquifer onsite using the carbon adsorption water treatment system implemented in the 1990 ROD; reinjecting the treated water into the shallow aquifer; treating carbon residuals offsite or onsite using thermal destruction or recycling; and monitoring ground water. The estimated present worth cost for this remedial action is $320,000, which includes an estimated total O&M cost of $227,000 for 30 years.

PERFORMANCE STANDARDS OR GOALS:

Chemical-specific ground water cleanup goals are based on site-specific risk-based reference dose values, and include acenaphthene 6.1 mg/l; anthracene 30.7 mg/l; 2,4-dimethylphenol 2 mg/l; fluoranthene 4.1 mg/l; fluorene 4.1 mg/l; naphthalene 0.4 mg/l; phenanthrene 3 mg/l; and phenol 61.3 mg/l.

RECORD OF DECISION
CONCURRENCE DOCUMENTATION

FOR THE

TEXARKANA WOOD PRESERVING COMPANY SUPERFUND SITE
OPERABLE UNIT TWO

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Record of Decision

Texarkana Wood Preserving Company Superfund Site

Operable Unit Two

U.S. Environmental Protection Agency
Region 6
September 1993

DECLARATION
TEXARKANA WOOD PRESERVING COMPANY
RECORD OF DECISION

SEPTEMBER 1993

Statutory Preference for Treatment as a Principal Element is Met and a Five-Year Review is Required

SITE NAME AND LOCATION

Texarkana Wood Preserving Company
Texarkana, Bowie County, Texas

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for Operable Unit Two for the Texarkana Wood Preserving Company (TWPC) Superfund Site (Site) in Texarkana, Texas. This selection is made in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record file for this Site.

The State of Texas concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

This operable unit is the second of two operable units planned for the Site. Operable Unit One addresses the principal threat at the Site from the contaminants in the soil, sludge and the Gravel Zone ground water. Operable Unit Two involves remediation of the deeper ground water contaminated above the action levels in a limited area of the Silty Sand Zone around Monitoring Well-16.

The major components of the selected remedy include:

- o Extraction of the Silty Sand Zone contaminated ground water;
- o Treatment of this contaminated ground water by the carbon adsorption unit installed for Operable Unit One;
- o Injection of this treated ground water into the Gravel Zone; and
- o Real estate notice recordation.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action and is cost-effective. This remedy utilizes a permanent solution to the maximum extent practicable and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because the ground water remediation for Operable Unit Two might not be complete within five years after the start of Operable Unit One remediation, a five year review will be necessary for this unit. This review will be conducted in conjunction with the five year review to be performed for Operable Unit One on the Site.

9-30-93

Joe D. Winkle
Acting Regional Administrator
U. S. EPA - Region 6

Date

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I. LOCATION AND DESCRIPTION

The Texarkana Wood Preserving Company (TWPC) Superfund Site is located in Bowie County, Texas (Figure 1). The Bowie County line runs through the Site. The population of Texarkana is approximately 50,000. The Miller County, Arkansas line is approximately 2800 feet due east of the Site. As shown in Figure 2, Days Creek, an interstate tributary of the Sulphur River, is located less than 500 feet east of the Site. The Site is within the 100-year flood plain of Days Creek. Fish may be taken from this creek by fishermen. The Site is bounded on the west by the Texas and Pacific Railroad right-of-way, on the south and on the north by Lubbock Street. The Site is fenced and hazard signs are posted around the Site to discourage people from entering the Site. No one lives on the Site. Adjacent land uses include industrial, residential, and livestock grazing. A small residential community of approximately 70 families is located one-third of a mile from the Site. There are no schools in this subdivision. Although the community around the Site is connected to the city water system and does not use the ground water for drinking, the aquifers discussed in this ROD are considered to be Class II. Approximately 1,000 people live within one mile of the Site.

The Site topography could be described as level ground, sloping slightly to the southeast. Surface water runs from the northwestern portion of the Site to the drainage ditches along Lubbock street. Shortly after Lubbock street turns and runs east/west, the runoff heads south into a natural drainage ditch running through a field, eventually draining into Days Creek. Surface water on the eastern portion of the Site travels to the southeast, directly into Days Creek.

The Site stratigraphy consists of Quaternary Alluvium underlain by the Wilcox Formation. The Alluvium, called Surficial Silty Sand and Gravel Zone, consists of silty sand with gravel and minor sediments with depth. Surface sediments are predominantly silty sand with occasional silty clay and silt. The basal deposits are gravelly sand or silty, sandy gravel. The average thickness of the alluvium is 13½ feet and ranges from 9½ feet to 20 feet. The basal gravel has an average thickness of four feet and ranges in thickness from two feet to seven feet. The Quaternary Alluvium is unconformable and is underlain by the Wilcox Formation.

The Wilcox formation is representative of a fluvial deltaic depositional environment and consists of clayey and silty sands with clay, carbonaceous sediments and lignite. The Wilcox Formation is encountered at an average depth of 13½ feet. The upper portion of the Wilcox consists primarily of clayey sand and comprises alternating laminae of sand and clay, with greater than fifty percent of the sediment being sand. The thickness of the Clayey Sand Zone varies from approximately 30 feet to 50 feet.

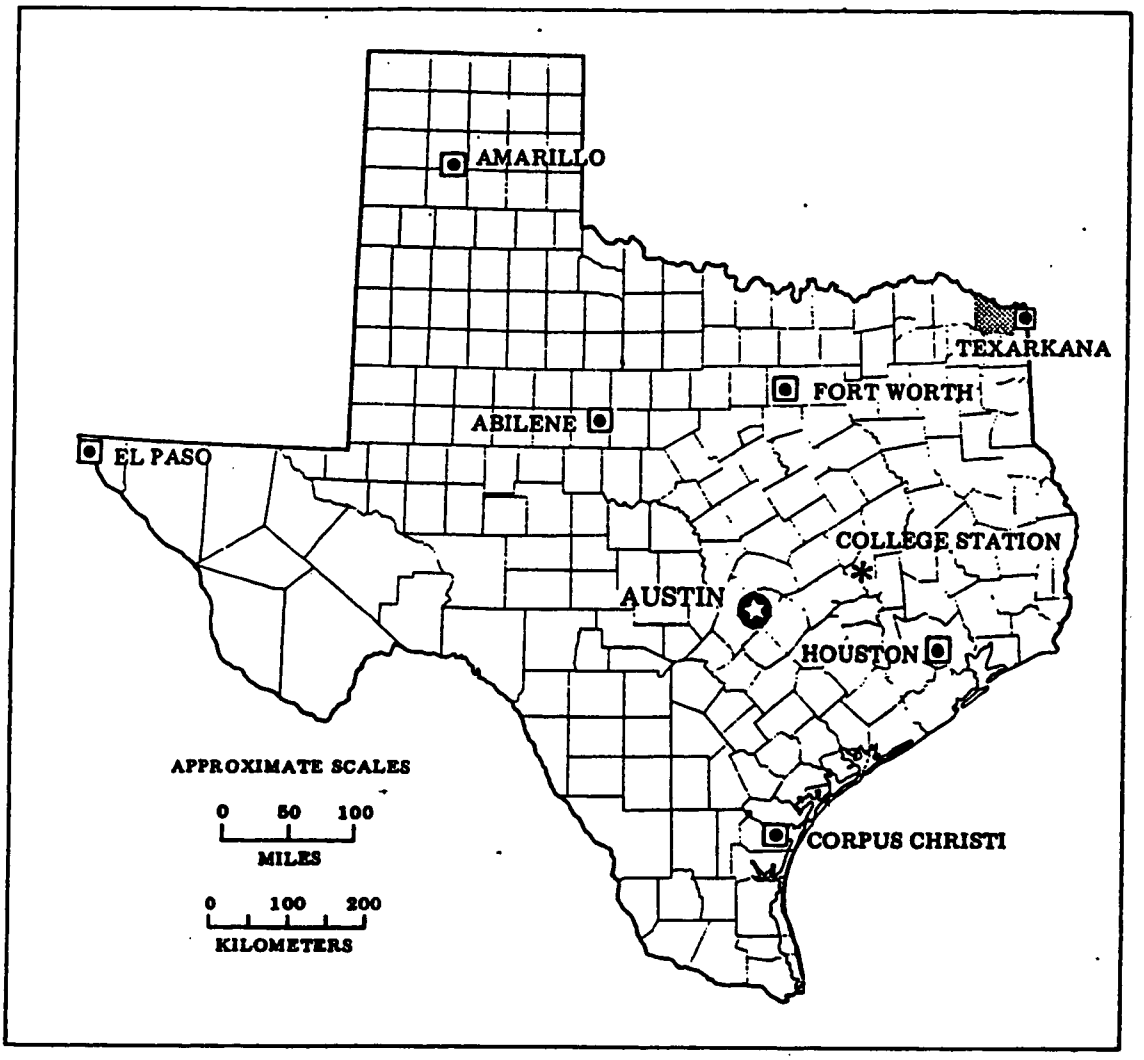
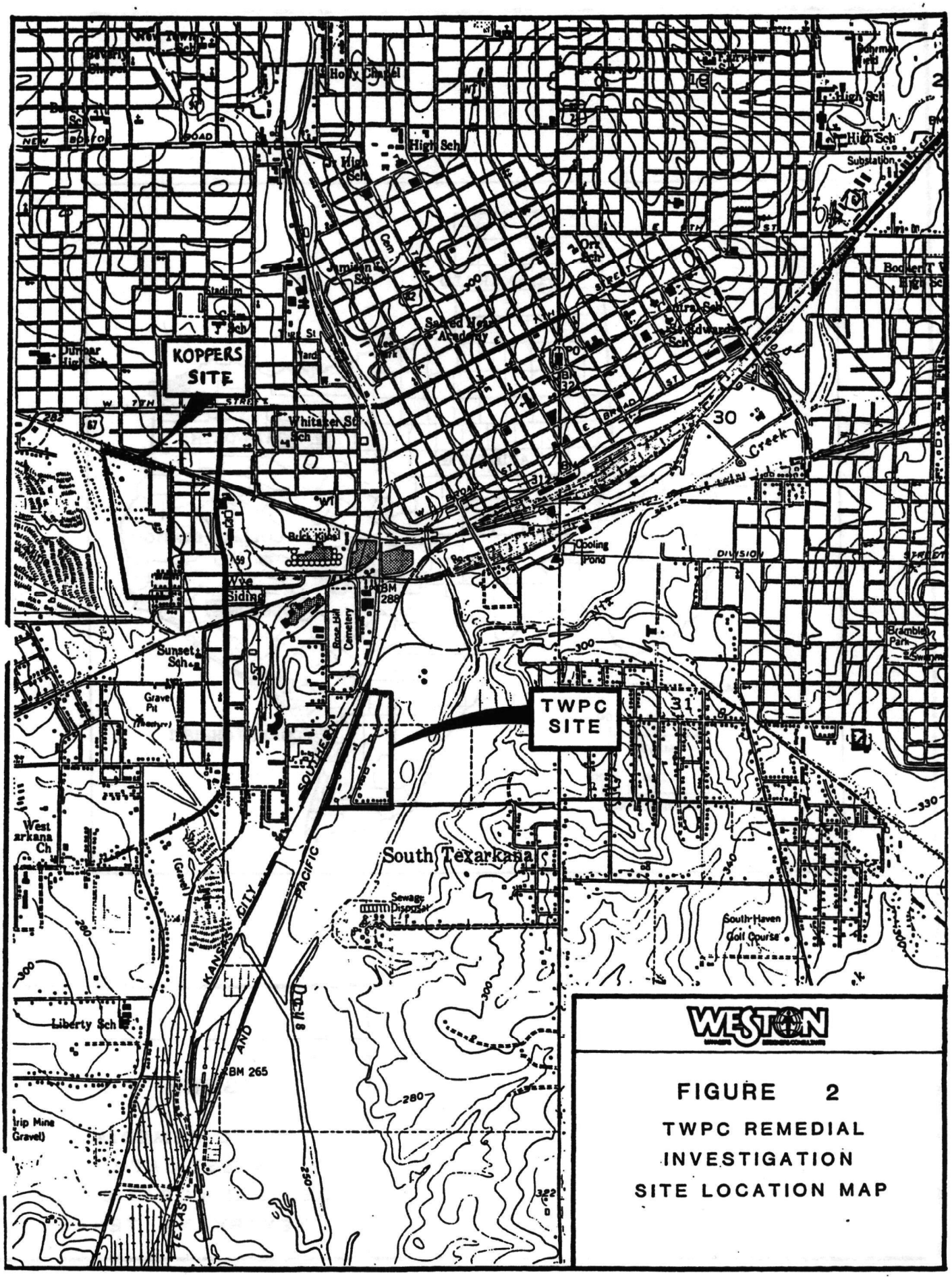


FIGURE 1

TWPC REMEDIAL INVESTIGATION GENERAL LOCATION OF TEXARKANA, TEXAS



WESTON

FIGURE 2

TWPC REMEDIAL INVESTIGATION SITE LOCATION MAP

Sediments consisting primarily of silty sand and poorly-graded sand with occasional thin layers of carbonaceous material are encountered below the Clayey Sand Zone. The Silty Sand Zone is first found at a depth of 44 to 69 feet and extends to a depth of 90 to 99 feet.

The Lignite Zone, consisting of several lignite layers interspersed with clayey sand or silty clay, is first encountered at a depth of about 99 feet. This unit extends to a depth of approximately 115 feet. A deep clay is encountered lower. The elevation of the top of the Deep Clay Zone reflects the trend of the regional dip in the Wilcox towards the south east at approximately fifteen feet per mile.

Three different ground water zones comprise the hydrogeologic regime at the Site: 1) the Surficial Silty Sand and Gravel Zone; 2) the Clayey Sand and Silty Sand Zone; and 3) the Lignite and Deep Clay Zone. A simplified hydrogeologic description is presented in Figure 3 and Figure 4 presents a generalized geologic cross section of the Site. This ROD addresses the Silty Sand Zone and the Lignite Zone, both classified as Class II aquifers.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Site has been used for various lumber related activities since early 1900. Analysis of aerial photos indicates that wood preserving operations were underway as early as 1954 in the southwestern portion of the Site. The wood treating activities leading to the current Site configuration were begun in late 1971 by the TWPC and included the use of both creosote and pentachlorophenol (PCP). Figure 5 shows the location of the wood preserving operations identified throughout the Site history.

Between 1903 and 1910, the Site was owned and operated by several lumber companies including the National Lumber Company, the Southern Tie and Timber Treating Company, and the National Lumber and Creosoting Company. These three companies operated on a 15-acre tract east of the railroad, west of the north-south portion of Lubbock Street, north of the southern boundary now marked by the EPA fence, and south of Lubbock Street where it crosses the railroad tracks. The extent of wood treating activities during this period is unknown.

FIGURE 3
SIMPLIFIED HYDROGEOLOGIC CROSS-SECTION OF THE TEXARKANA WOOD PRESERVING SITE

Surficial Silty Sand- (Range 7 to 13 feet, average 9 feet thick) Silty Sand with occasional silty clay and silt. No monitoring wells. Laboratory hydraulic conductivity tests on 2 samples (avg. 3.26×10^{-8} cm/sec).

Gravel Zone- (Range 2 to 7 feet, average 4 feet thick) Gravelly sand or silty sandy gravel. Appears to thicken toward the North. 15 monitoring wells completed in zone. Confined system with gradient to southeast at average 35 to 40 feet per mile. Recharges Days Creek. Slug tests performed on 4 of 15 wells with mean hydraulic conductivity of 5.68×10^{-4} cm/sec. No pump test performed.

Clayey Sand Zone- (Range 20 to 50 feet, average 40 feet) Primarily clayey sand and comprises alternating laminae of sand and clay with greater than 50% sand. With depth the clayey sand zone grades into the silty sand zone. Clayey Sand Zone and Silty Sand Zone is basically a coarsing downward sequence with the finest sediments occuring just below the alluvium-Wilcox boundary and the coarsest sediments being found above the lignite. Laboratory hydraulic conductivity tests on 5 samples (ave. 3.95×10^{-8} cm/sec). Vertical seepage velocity ranges from 5.5×10^{-5} to 1.32×10^{-4} feet per day. Calculated minimum breakthrough time is approximately 500 years. Contamination in MW 16 and MW 19 indicate that migration is roughly 6 to 20 times faster than expected.

Silty Sand Zone- (Depth of contact gradational from 44 to 69 feet) Primarily silty sand and poorly graded sand with occasional thin layers of carbonaceous material. 5 monitoring wells installed to a predetermined depth of 60 feet. Gradient to the southeast at an average of 31 to 33 feet per mile and does not recharge Days Creek but continuous with regional flow. Slug tests performed on 2 of 5 wells about 1×10^{-5} cm/sec. No pump test performed. Horizontal seepage velocity ranges 3.2×10^{-4} to 1.1×10^{-3} feet per day (clay and silty sand).

Lignite- (Depth of contact 90 to 99 feet, 16 to 22 feet thick) Two lignite beds each one to two feet thick interbedded with clayey to silty sand and silty clay. Lignite beds may not be continuous. Only MW 15 and MW 21 penetrate to this depth. Two slug tests average about 3.8×10^{-5} cm/sec. horizontal conductivity.

Deep Clay- (Depth of contact 106 to 121 feet, minimum of 4 to 8 feet thick) Medium to high plasticity, very stiff to hard clay with silt. Lignite and clay appear to effectively inhibit downward migration of ground water into the deeper units of the Wilcox.

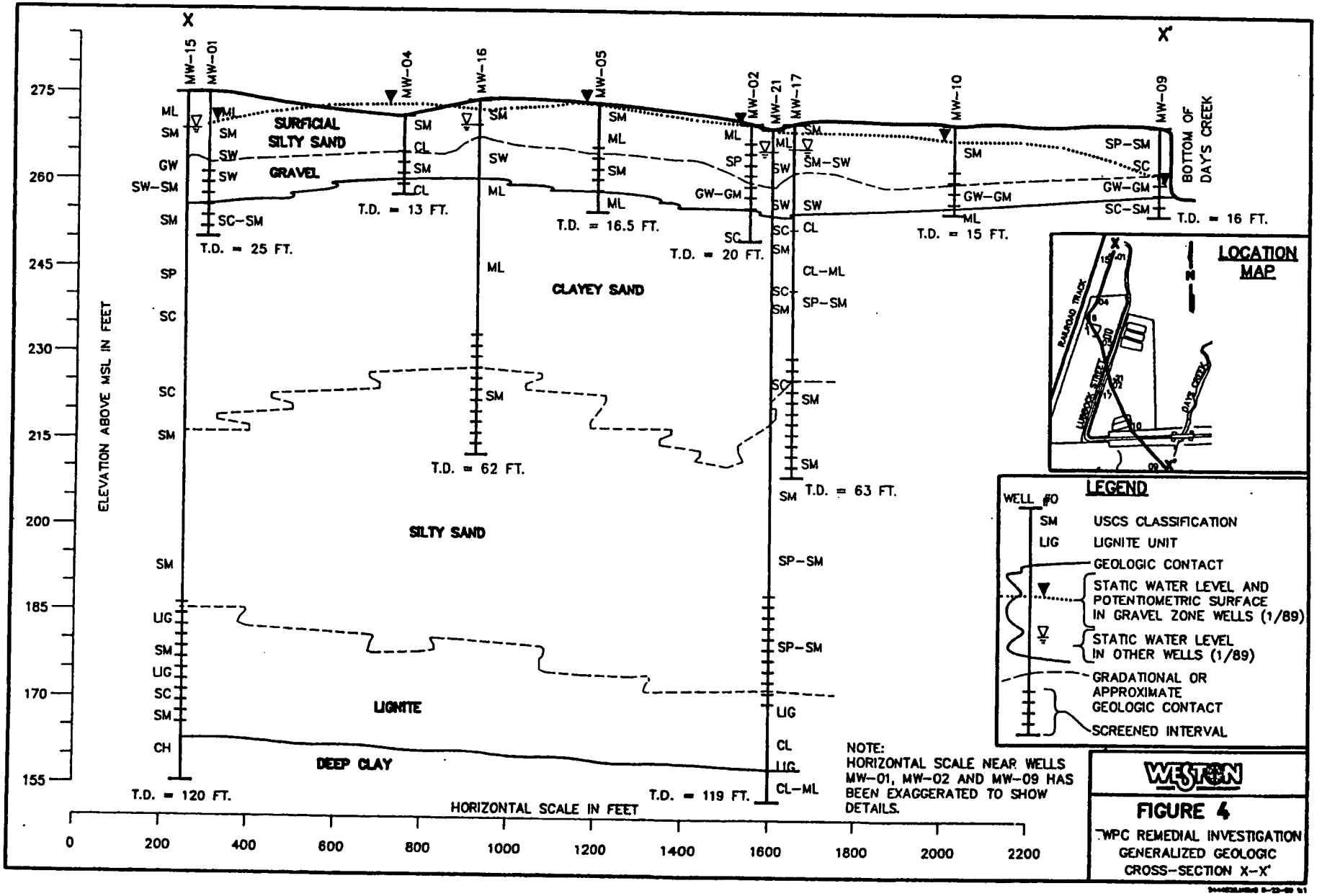


FIGURE 4

TWPC REMEDIAL INVESTIGATION
GENERALIZED GEOLOGIC
CROSS-SECTION X-X'

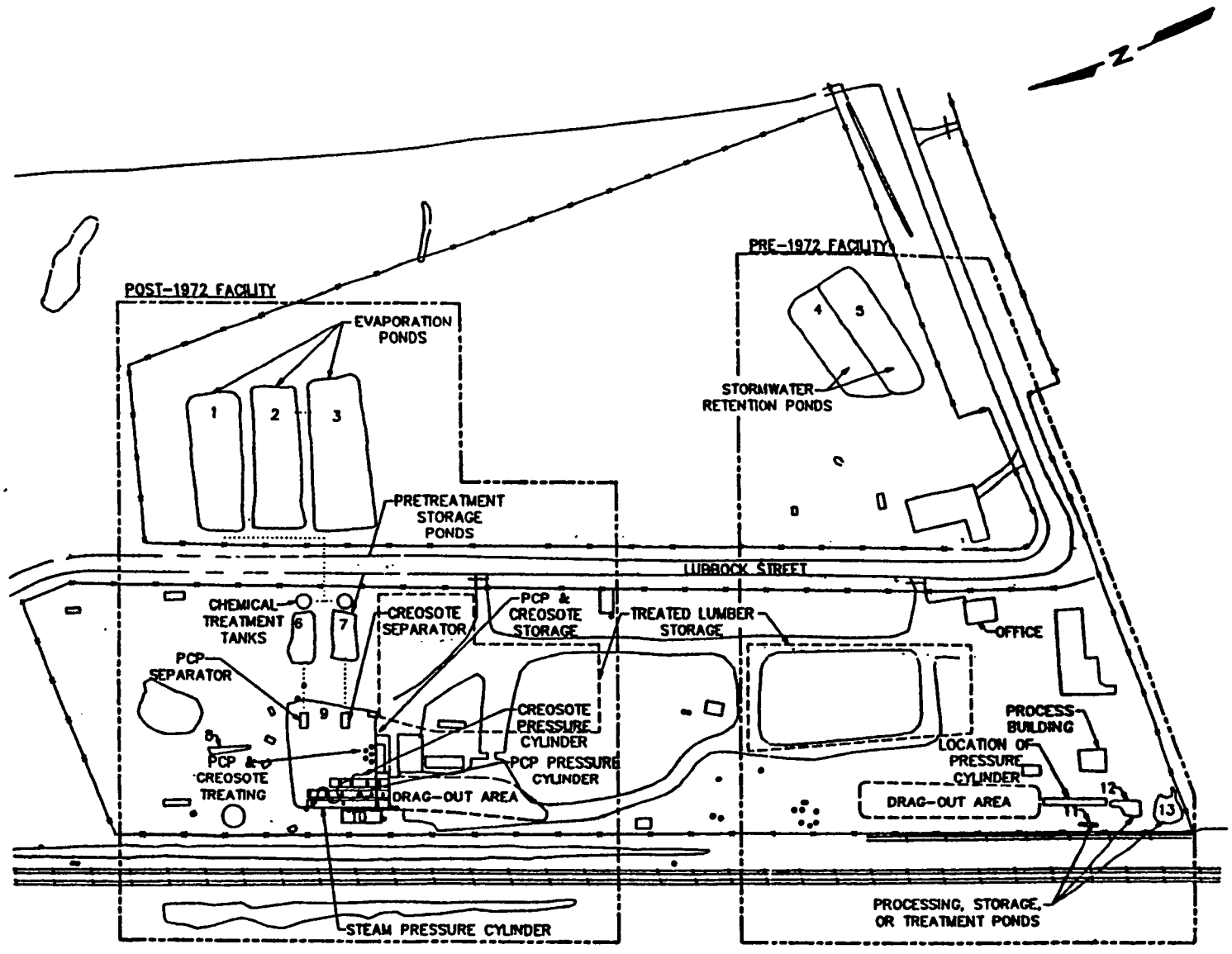

N
POST-1972 FACILITY
EVAPORATION PONDS
1
2
3
PRETREATMENT STORAGE PONDS
PRE-1972 FACILITY
4
5
STORMWATER RETENTION PONDS
LUBBOCK STREET
CHEMICAL TREATMENT TANKS
6
7
CREOSOTE SEPARATOR
PCP & CREOSOTE STORAGE
TREATED LUMBER STORAGE
OFFICE
PCP SEPARATOR
9
8
PCP & CREOSOTE TREATING
CREOSOTE PRESSURE CYLINDER
PCP PRESSURE CYLINDER
DRAG-OUT AREA
10
PROCESS BUILDING
LOCATION OF PRESSURE CYLINDER
DRAG-OUT AREA
12
11
13
STEAM PRESSURE CYLINDER
PROCESSING, STORAGE, OR TREATMENT PONDS

FIGURE 5

Several individuals owned portions of the Site between 1910 and 1920. In mid-1920, the Consolidated Lumber Company acquired 25.37 acres (which roughly corresponds to the boundaries now delineated by the EPA fence) and operated at the Site for about two years. The State Line Lumber Company took over the Site in 1933. Clara B. Butcher, or her heirs, owned the Site from 1933 until it was sold to TWPC in 1981. During that time, various companies leased the property. The Power Mill and Lumber Company (later the Thomas E. Power Lumber Co.) held a lease in 1942. In 1946, the Site was leased to the Charles H. Proetz Lumber Company for a minimum period of five years. Analysis of an aerial photo taken in 1954 indicates what appears to be creosoting operations in the southwestern corner of the Site. This is the first documentation of on-site creosoting activities.

In 1972, the processing area was moved from the south-western portion of the Site to the central portion of the Site. Therefore, the Site may be broken down into two parts, the pre-1972 treatment area and the post-1972 treatment area as shown in Figure 5. Both areas have a heavily contaminated process area consisting of a number of waste ponds on the west part of the Site and water retention ponds on the east portion of the Site. Most tanks have been scavenged from the Site, however, a few still remain in the main process area of the post-1972 treatment area. There are also a few buildings, and concrete slabs on the Site.

The portion of the Site east of Lubbock Street appeared to be occupied by office buildings or workshops. North of the apparent processing area, on the west side of Lubbock Street, the Site was used for lumber storage. There was a large building located just north of where the pretreatment storage ponds are today.

The TWPC first came to the attention of the State of Texas following discharges into Days Creek. The first State investigation occurred in December 1968. The following sixteen years, until the TWPC ceased operation in August 1984, were marked by a series of state investigations in which the TWPC was found to be either negligent or delinquent in their efforts to fulfill various wood treating permitting requirements.

The Site was nominated to be included on the National Priorities List (NPL) in December 1984. In June 1986, the Site was included on the third NPL update. Subsequently, EPA has taken measures to control surface runoff and Site access. Stabilizing actions taken by EPA from 1986 to 1988 included constructing fences to minimize access, constructing a berm around the main operations pond to prevent surface runoff and pumping down this and other ponds to prevent overflow. The pumped liquid, primarily rainwater runoff, was put in pond number 1.

Fourteen potentially responsible parties (PRPs), former owners and operators were identified in a PRP search conducted in 1985. On January 16, 1986, Notice Letters were sent to the PRPs notifying them of their potential liability and of planned investigations at the Site. The PRPs contacted were asked if they would like to either conduct or finance the Remedial Investigation and Feasibility Study (RI/FS) at the Site. Of the PRPs notified, all declined to participate in the RI/FS process. On December 17, 1986, Action Letters were sent to the PRPs informing them of an imminent and substantial endangerment to public health or welfare or the environment due to actual or threatened releases of hazardous substances on or from the Site. The Action Letters requested the PRP's to post warning signs and install a fence around the Site. All the notified PRPs declined to voluntarily install a fence or take any action. On February 5, 1987, Special Notice Letters were sent to each identified PRP asking them to participate in the RI/FS. All the PRPs declined to participate in the RI/FS.

On April 16, 1990, a revised PRP search was initiated by EPA to gather additional information on known PRPs, to identify and to obtain information on any additional PRPs. The main impetus behind this effort was to issue Special Notice Letters to all identified PRPs in order to request the PRPs to perform or finance the Remedial Design and Remedial Action (RD/RA) for Operable Unit One. The ROD was signed on, and became effective, September 25, 1990. The Special Notice Letters were issued to PRPs on October 5, 1990, starting the 60 day moratorium period to receive a Good Faith Offer to perform or finance the RD/RA. The end of the 60 day moratorium period was December 12, 1990, at which time, no "Good Faith Offers" had been received by EPA. All identified PRPs were subsequently notified that EPA would continue work at the Site and that EPA still might pursue them in a cost recovery action at a later date.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Texas Water Commission (TWC), predecessor to the Texas Natural Resources Conservation Commission (TNRCC) and EPA have provided significant public outreach to the Texarkana community by way of public meetings, fact sheets and media interviews. A Community Relations Plan for the Site was finalized in December 1987. It was revised by TWC and EPA in 1991. The Supplemental Remedial Investigation (SRI) report, the Focused Feasibility Study (FFS) report and the Proposed Plan were released to the public in January 1993. The Proposed Plan Summary was released to the public on January 21, 1993. All of these documents were made available in both the Administrative Record and in two information repositories maintained at the Texarkana Public Library and Texarkana City Hall. A public comment period was open from January 26, 1993, to March 24, 1993. In addition, a public meeting was held on

and the preferred alternative as presented in the Proposed Plan for the Site. At this meeting, representatives from EPA and TWC answered questions about this Site and the remedial alternatives under consideration. One comment was received during the public comment period. This comment and those expressed at the public meeting are addressed in the Responsiveness Summary which is attached as Appendix A to the ROD and will be released to Texarkana residents with a summary of the ROD after the ROD is signed. This decision document presents the selected remedial action for Operable Unit Two for the Site chosen in accordance with CERCLA, as amended by SARA, and the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Administrative Record, an index of which is attached as Appendix C.

IV. SCOPE AND ROLE OF OPERABLE UNITS WITHIN THE SITE STRATEGY

As with many Superfund sites, the problems at the TWPC are complex. During the investigation of the Site, EPA and TWC concluded that the deeper ground water aquifers might be contaminated. To expedite the remediation of the source and the Gravel Zone ground water, the Site remediation studies were separated into two parts, called operable units. These are:

- Operable Unit One: Contaminated Soil, Sludge and Gravel Zone Ground Water (average depth below grade of 13 feet)
- Operable Unit Two: Silty Sand Zone (average depth below grade of 50 feet) and Lignite Zone Ground Water (average depth below grade of 100 feet). These are Class II ground water zones.

Although this ROD addresses Operable Unit Two, a brief description of Operable Unit One is presented here to enable the reader to understand how EPA's remedy for Operable Unit Two relates to the total remediation of the Site. EPA determined that the principal threats to human health and the environment at the Site are contaminated soil, sludge and contaminates in the Gravel Zone ground water. The potential routes of exposure are through direct contact with and ingestion of the soil, sludge and the ground water. The remedial objectives for the soil and sludge are to prevent current or future exposure to the contaminated soil and sludge through treatment and to reduce the migration of contaminants to ground water. The remedial objectives for the contaminated Gravel Zone ground water are to reduce the amount of contamination, to return the ground water to its beneficial use and to prevent adverse impact to lower ground water zones. This ground water remediation will be accomplished with the installation and operation of a pumping and carbon adsorption treatment system. This system will remove the contaminants from the Gravel Zone ground water after the source contamination in the soil and sludge is removed.

V. SUMMARY OF SITE CHARACTERISTICS

Both the pre-1972 and the post-1972 treatment areas have heavily contaminated process areas, consisting of a number of treatment, chemical storage and water retention ponds. The soil in these areas and the Gravel Zone ground water are contaminated with wood preserving wastes, PCP, and creosote.

For Operable Unit Two, the TWC initiated studies under an EPA Superfund cooperative agreement primarily to assess current ground water quality in the Silty Sand Zone and the Lignite Zone. This investigation involved the installation of two additional monitoring wells in the Silty Sand Zone, one additional well in the Gravel Zone and one aquitard monitoring well. Figure 6 indicates the locations of the previously installed monitoring wells that were tested during Operable Unit Two work. Figure 7 indicates the locations of the monitoring wells installed and tested during Operable Unit Two work. Water from these four new wells, the five wells previously installed during Operable Unit 1 in the Silty Sand Zone, one well previously installed in the Lignite Zone and seven wells previously installed in the Gravel Zone was sampled. This sampling confirmed a limited presence of Site contaminants at only one Silty Sand Zone well. Site contaminants were not detected at any other Silty Sand Zone or Lignite Zone well. Monitoring Well-16, located northwest of the post-1972 process area, was the only Silty Sand Zone well which detected Site contaminants. Non-carcinogenic polynuclear aromatic hydrocarbon (PAH) compounds (i.e. acenaphthylene, acenaphthene, anthracene, fluorene, fluoranthene, naphthalene, phenanthrene, and pyrene) and other semivolatile compounds (i.e. 2,4-dimethylphenol and phenol) were detected. The presence of many of these compounds was detected throughout the time series sampling event also. The maximum total concentration of semivolatile compounds found in the Silty Sand Zone is 2.2 milligrams per liter (mg/L) of water. Naphthalene accounted for 1.4 mg/L of this concentration. The contaminant concentration decreased over the time series test and becomes asymptotic near 0.33 mg/L within 24 hours.

To prevent the potential for contamination of the Silty Sand Zone during the Operable Unit Two investigation, no other exploratory wells were installed through the contaminated soil or contaminated Gravel Zone in the vicinity of Monitoring Well-16. Therefore, the closest monitoring well to Monitoring Well-16 is 170 feet away. Since contamination was not detected in any Silty Sand Zone monitoring well other than Monitoring Well-16, neither the size of the contamination plume nor the volume of contaminated water in this Zone is known. It is known that the plume does not extend to any of the other monitoring wells. It is believed that Silty Sand Zone ground water contamination does not extend beyond the Site boundaries because the direction of ground water movement in the Silty Sand Zone is to the southwest toward Days Creek.

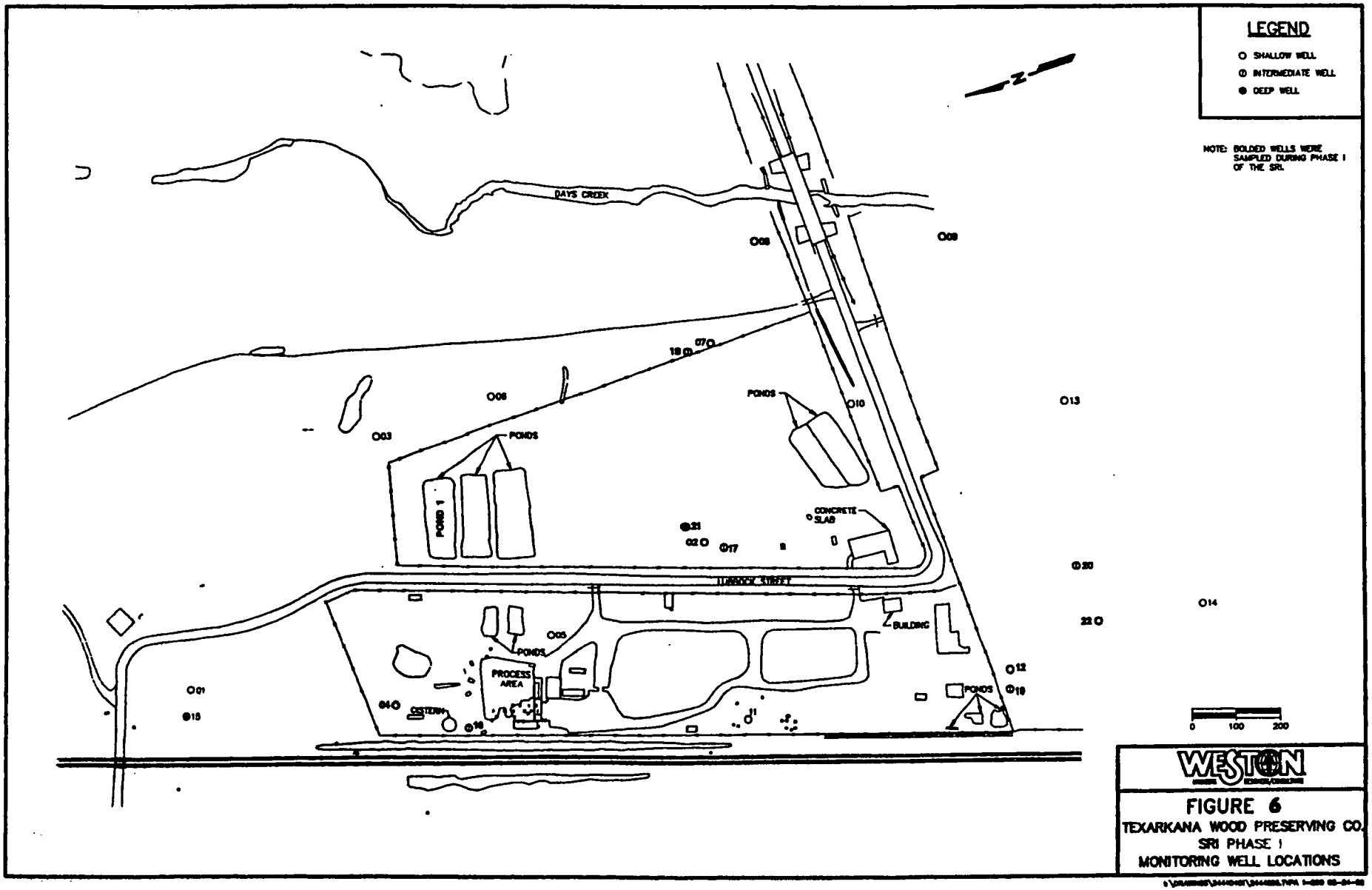


FIGURE 6
TEXARKANA WOOD PRESERVING CO.
SRI PHASE I
MONITORING WELL LOCATIONS

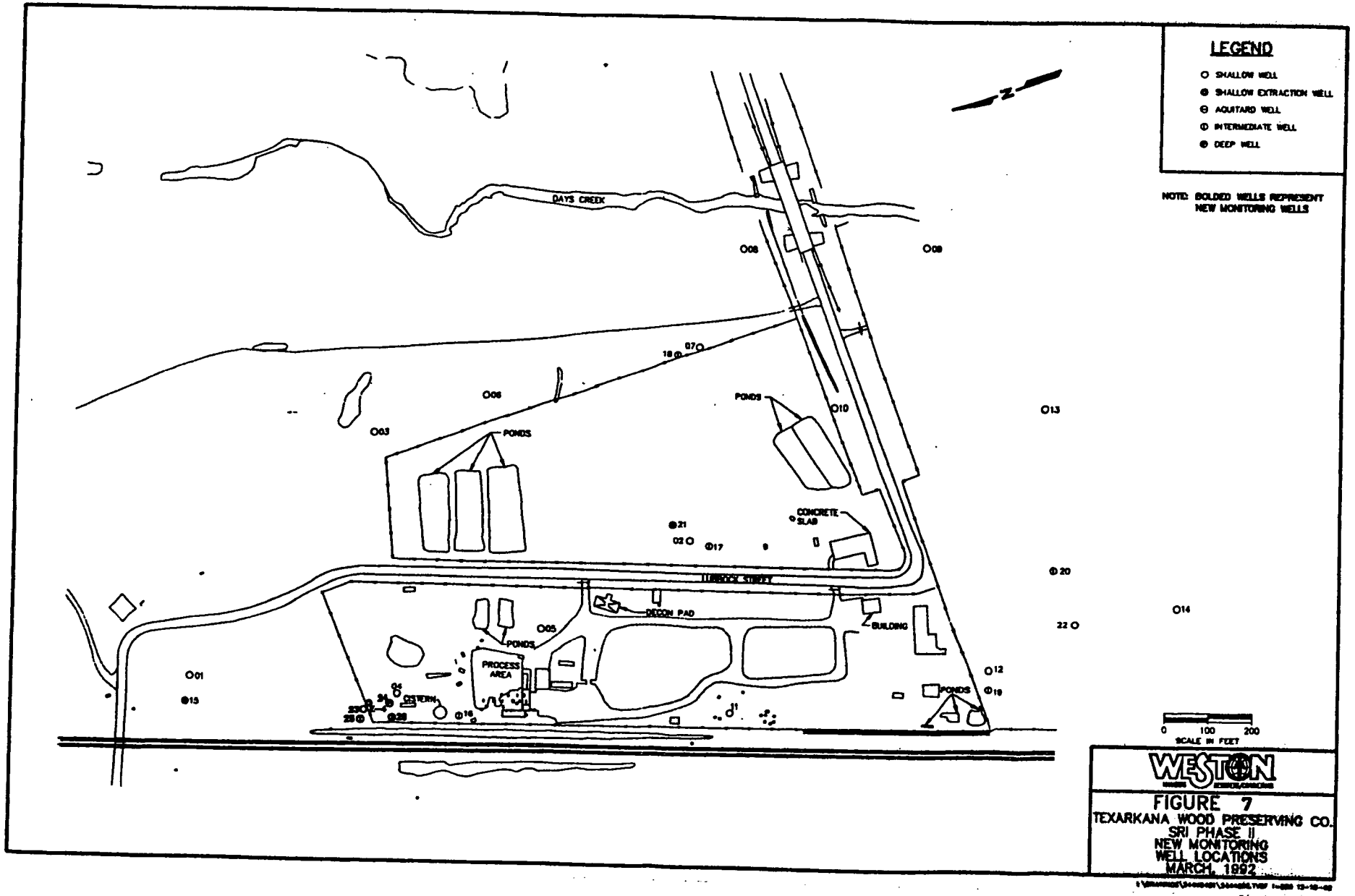


FIGURE 7
TEXARKANA WOOD PRESERVING CO.
SRI PHASE II
NEW MONITORING
WELL LOCATIONS
MARCH, 1992

VI. SUMMARY OF SITE RISKS AND REMEDIATION GOALS

A risk assessment is a scientific procedure which uses facts and assumptions to estimate the potential for adverse effect on human health from exposure to chemicals. Risk is determined by evaluating known chemical exposure limits and actual chemical concentrations on a site. The actual chemical concentrations are compared to the exposure to a known amount of the chemical shown to cause harm. The risk potential is expressed in terms of the chance of a disease occurring. Conservative assumptions that weigh in favor of protecting human health are made in these calculations. To protect human health, the EPA is most concerned with the probability that exposure to specific chemicals may result in cancer or in non-cancer health effects.

The risk in the United States of developing some form of cancer from everyday sources over a seventy-year life span is estimated to be three in ten. Activities such as too much exposure to the sun, occupational exposures, or smoking habits contribute to this high risk. The three in ten probability is the "natural incidence" of cancer. A risk level of one in one million means that one additional person out of one million people exposed could develop cancer as a result of long-term exposure to a remediated site. This can be described by scientific notation as 10^{-6}. To protect human health, the EPA has set the risk range of less than 10^{-4} to 10^{-6} excess cancer risk as a goal for remediated Superfund sites.

As stated in the Operable Unit One ROD, the future use of this Site will most likely be industrial. Therefore, an industrial exposure scenario was developed. This exposure scenario is based on an individual working on the Site eight hours a day, five days a week for forty years.

The risk assessment for Operable Unit One source contaminants in soil and shallow ground water was conducted during the Operable Unit One work and is located in Appendix B of the Operable Unit One FS. The risk assessment indicated that the chemicals which pose the greatest health threat to workers are carcinogenic polynuclear aromatic hydrocarbons (i.e. components of creosote), PCP, chlorinated dibenzo-p-dioxin and dibenzofuran. Under the future use evaluation, if Site conditions were not changed by the planned remedy selected for Operable Unit One, the increased chance of cancer for a long-term worker on the Site would be one in one hundred (10^{-2}). The remediation levels the EPA selected for Operable Unit One will reduce this risk to one in one million (10^{-6}), ten thousand times lower.

Sampling of all the Silty Sand Zone and Lignite Zone wells during the Operable Unit Two investigation indicated that all PAH contaminants and other semivolatile compounds found were non-carcinogenic. Consequently, the Silty Sand or Lignite Zone ground waters do not present a risk of an increase in cancer.

A Hazard Index was calculated to evaluate non-carcinogenic health effects of a person working on this Site and drinking ground water from the Silty Sand Zone. A Hazard Index of less than 1 indicates that adverse health effects are not anticipated from the potential contact with or exposure to the chemicals with concentrations existing at the Site. The Hazard Index is the total of the comparisons of the potential contact with or exposure to all the known ground water contaminants to the Reference Dose (RfD).

The Reference Dose is a function of the long-term contact for individuals, including sensitive subpopulations, such as children, with a chemical that is not anticipated to cause adverse health effects. Table 1 lists RfD values for all contaminants detected in the Silty Sand Zone ground water. These RfD values were used in the calculations for this ROD. EPA's Integrated Risk Information System (IRIS) is the source for all but two RfD values. The RfD for naphthalene is 0.04 mg/kg/day but is currently being reevaluated and will probably be increased. In order to be protective of human health, the more conservative RfD value of 0.004 mg/kg/day listed in EPA's Drinking Water Regulations and Health Advisories, May 1993, is used for the Hazard Index calculations for this ROD. IRIS does not list a RfD for phenanthrene. Therefore, a value developed by Region 3 of EPA was used.

The ground water exposure pathways used for a person at the Site are ingestion, inhalation and dermal absorption of water extracted from Monitoring Well-16 on the Site. The Reasonable Maximum Exposure (RME) values used in the risk assessment calculations for Operable Unit One represent the upper end of the distribution curve. Exposure assumptions discussed to this point in this ROD are based on RME values. The RME values are used to estimate the baseline risks and ultimately the remedial action goals at sites. However, most people are likely to be exposed to lower doses than this calculated value. Therefore, EPA now evaluates both RME and "central tendency" in the risk assessment at Superfund sites. The "central tendency" scenario represents the risk from more of an "average" exposure, compared to a "reasonable maximum" exposure. See Table 3 for the central tendency risk assumption comparison with the RME. Table 2 presents the final remediation levels for each contaminant when the corresponding risk level is 1. Naphthalene is the only contaminant in the Silty Sand Zone ground water with an actual concentration greater than the corresponding final remediation level.

Before the start of the time series sampling event for the SRI, the maximum total concentration of semivolatile compounds, including non-carcinogenic PAHs, found in the Silty Sand Zone was 2.2 milligrams per liter (mg/L) of water; naphthalene accounted for 1.4 mg/L of this concentration. At this concentration of naphthalene, the calculated Hazard Index is 3.4 using RME rates and 0.9 using Central Tendency rates.

TABLE 1
REFERENCE DOSE VALUES

Chemical Name	Oral RfD, mg/kg/day	Source
Acenaphthene	0.060	(1)
Anthracene	0.300	(1)
Dimethylphenol, 2,4-	0.020	(1)
Fluoranthene	0.040	(1)
Fluorene	0.040	(1)
Naphthalene	0.004	(2)
Phenanthrene	0.029	(3)
Phenol	0.600	(1)

(1) IRIS, EPA's Integrated Risk Information System, September, 1993.

(2) Drinking Water Regulations and Health Advisories, May, 1993, US EPA.

(3) Value obtained from Region 3, EPA.

TABLE 2
REMEDIATION GOALS and CORRESPONDING RISKS

Chemical Name	Remediation Level, mg/L	Corresponding Risk Levels Cancer	Non-Cancer
Acenaphthene	6.1	N/A	1.0
Anthracene	30.7	N/A	1.0
Dimethylphenol, 2,4-	2.0	N/A	1.0
Fluoranthene	4.1	N/A	1.0
Fluorene	4.1	N/A	1.0
Naphthalene	0.4	N/A	1.0
Phenanthrene	3.0	N/A	1.0
Phenol	61.3	N/A	1.0

The point of compliance is Monitoring Well 16. RfD's are the basis of he Goals.

TABLE 3
CENTRAL TENDENCY vs REASONABLE MAXIMUM EXPOSURE ASSUMPTIONS

	Average or Central Tendency	Reasonable Maximum Exposure
Contact Rates (CR) Worker Water Ingestion Rates	0.7L/day	1 L/day
Worker Body Weights (BW)	70 kg	70 kg
Worker Exposure Duration (ED)	9 years	25 years
Worker Exposure Frequency (EF)	250 days/year	250 days/year
Averaging Time (AT) Noncarcinogenic effects	ED	ED

References For Exposure Parameters

	Average or Central Tendency	Reasonable Maximum Exposure
Concentration Term (C) Site-specific value	US EPA, 1992	US EPA, 1992
Contact Rates (CR) Worker Water Ingestion Rates	50% Adult's Ingestion Rate US EPA, 1991	US EPA, 1991
Worker Body Weights (BW)	US EPA, 1991	Average Value, US EPA, 1991
Worker Exposure Duration (ED)	US EPA, 1989b	US EPA 1991
Worker Exposure Frequency (EF)	US EPA, 1991	Average value, US EPA, 1991
Averaging Time (AT) Noncarcinogenic effects	US EPA, 1989b	US EPA, 1989b

After three hours of pumping, the concentration of naphthalene was 0.41 mg/L. At this reduced concentration of naphthalene, the Hazard Index is calculated to be 1 using RME rates.

The maximum concentration value for naphthalene in ground water for residential exposure conditions in the TWC Risk Reduction Standards (promulgated under the Texas Water Code §5.103 and §26.011) is 1.46 mg/L. This value slightly exceeds the 1.4 mg of naphthalene/L initially detected in the ground water. Naphthalene is not included by TWC in the 1993 TWC list of 59 new or revised maximum contaminant levels for drinking water. Maximum Contaminant Levels (MCLs) do not exist for any of the contaminants detected. Therefore, extensive remediation is not warranted based strictly on the Hazard Index value.

The Drinking Water Regulations and Health Advisories, issued by EPA's Office of Drinking Water in May 1993, present limiting values for ingestion concentration for many organic compounds. Of the organics listed, naphthalene is the only organic present in the ground water at a concentration exceeding the limiting value. The drinking water equivalent level advisory value for naphthalene is 1 mg/L for an adult for longer term exposure.

Based on the Hazard Index, the lack of MCLs, the drinking water health advisories limiting values, the expected industrial future use of this Site, and the fact that the ground water zone is Class II, the remediation goal for the Silty Sand Zone is established as the removal and treatment of ground water with a total naphthalene concentration greater than 0.41 mg/L. This concentration is equivalent to a Hazard Index of 1 and was obtained during the timed pumping test. Remediation goals for the other contaminants are listed in Table 2.

No significant risks to terrestrial vegetation or wildlife, due to contaminants in the Silty Sand Zone, were identified.

VII. DESCRIPTION OF ALTERNATIVES

The following is a tabulation and description of the three alternatives for the Silty Sand Zone remediation considered by the EPA:

Alternative 1-A: No Action
Alternative 1-B: Extraction and Treatment (This alternative is designated "Limited Action" in the Proposed Plan and in the SRI/FFS. There is no change in the remedy.)
Alternative 2: Pump, Treatment and Injection

Common Elements

The goal of this remedial action is to restore the Class II ground water to its beneficial use. However, studies suggest that ground water extraction and treatment are not in all cases completely successful in reducing contaminants to the remedial goals in the aquifer. EPA recognizes that operation of an extraction and treatment system may reveal the technical impracticability of reaching the goals using this approach. Therefore, contingent remedial activities may be implemented, such as, discontinue pumping when cleanup goals have been attained or install additional extraction wells to facilitate or accelerate cleanup of the contaminant plume.

All ground water remedial action will occur after the contaminant source (contaminated soil and sludge) removal portion of the Operable Unit One remedial action. The carbon adsorption water treatment unit discussed here will be installed as part of Operable Unit One prior to Operable Unit Two remediation activities.

Recording of notice in public land records will be undertaken to warn of potential dangers from future use of ground water on the Site. The State of Texas does not have a mechanism to force a landowner to record anything on the deed. In the State of Texas, the water rights belong to the land owner. As such, the State has no mechanism to prohibit use of a stream or ground water. Therefore, it is particularly important that the ground water be remediated to protect public health.

Costs
All costs and time required to implement the alternatives are estimates. As explained in the January 1993 SRI/FFS, the costs have an expected degree of accuracy of +50% to -30%.

Alternative 1-A: NO ACTION

Present Worth: $ 266,000
Capital Costs: $ 39,000
Operation and Maintenance (O&M): $ 227,000
Years to Implement: 30 years after completion of Operable Unit One soil and sludge remediation

The Superfund program requires that a no action alternative be considered at every site as a basis of comparison when evaluating other alternatives. "No Action" would consist of future monitoring of the aquifer only. This alternative would not decrease the toxicity, mobility, or volume of contaminants or reduce public health or environmental risks through treatment.

Alternative 1-B: EXTRACTION AND TREATMENT

Present Worth: $ 320,000
Capital Costs: $ 93,000
Operation and Maintenance (O&M): $ 227,000
Years to Implement: 30 years after completion of Operable Unit One soil and sludge remediation

This alternative would reduce Site risk by decreasing ground water contamination present in the area surrounding Monitoring Well-16. All other wells in the Silty Sand Zone tested clean and would be used as monitoring wells. Following the source removal, the Operable Unit One extraction system and water treatment system for the Gravel Zone ground water would be installed and operated until steady state conditions are reached for that unit. As the water in the Gravel Zone above is being remediated, contaminated water would be pumped from Monitoring Well-16 on an intermittent basis. The withdrawal rate would be restricted so that a downward gradient would not be sustained between the Gravel Zone and the Silty Sand Zone. A temporary (not more than a few days) downward gradient would be acceptable immediately following the withdrawal of water. The gradient between the aquifers would be monitored by observing the water levels in the nearby extraction sumps. The extracted contaminated water would be mixed with Gravel Zone contaminated water and treated in the Operable Unit One carbon adsorption water treatment system. Carbon adsorption is a process where contaminants are removed from water by adsorption onto carbon in a treatment unit. These contaminants are retained on the carbon. As discussed in the Operable Unit One ROD, these contaminants on the carbon can then be thermally destroyed (on- or off-site), recycled or placed in a landfill. The decontaminated water will be injected into the Gravel Zone aquifer.

Based on the rapid decline in contaminant concentration experienced during the SRI/FFS, treatment of this water is expected to be complete before the Gravel Zone water treatment is complete. Thus, it would not add to the time already required to remediate the ground water on this Site. Monitoring of the Silty Sand Zone and Lignite Zone aquifers would occur concurrently with the monitoring of the Gravel Zone ground water for Operable Unit One. Although natural attenuation is not specified as a part of the remedy, it would occur during the 30 year monitoring period. Real estate notice recordation would be undertaken.

During the remediation of the contaminated soil and sludge, water from Monitoring Well-16 and other wells in the Silty Sand Zone would be sampled and analyzed. Thus, any change in the extent of contamination in the Silty Sand Zone would be detected. If Site contaminants are detected above action levels in any of the wells presently testing clean, the wells would be added to the pump and treatment system.

reduce public health or environmental risks by removing and treating the contaminated ground water in the Silty Sand Zone.

Alternative 2: EXTRACTION, TREATMENT AND INJECTION

Present Worth: $ 2,250,000
Capital Costs: $ 1,252,000
Operation and Maintenance (O&M): $ 998,000
Years to Implement: 30 years after completion of the Operable Unit One soil and sludge remediation

The contaminated ground water within the Silty Sand Zone would be removed via existing wells and additional wells that would have to be installed for this alternative. The required number of wells is uncertain due to the lack of information regarding the size of the affected ground water plume in the Silty Sand Zone down gradient of Monitoring Well-16. The contaminated ground water plume does not appear to extend off the Site.

Water from these wells would be pumped to the water treatment system to be installed to treat the contaminated water in the Gravel Zone. After treatment, the water would be injected into either the Gravel Zone or the Silty Sand Zone through new wells. The remedy of the Gravel Zone conflicts with this alternative. The start of this alternative treatment would have to be delayed until treatment of the Gravel Zone water is completed or there would be the possibility of additional contamination of the Silty Sand Zone with untreated contaminated water from the Gravel Zone. Based on the rapid decline in contaminant concentration observed during the SRI/FFS, treatment of the Gravel Zone water is expected to be complete within two to five years. Thus, additional time would be required to remediate this Site. Monitoring of this aquifer would occur concurrently with the monitoring of the Gravel Zone ground water for Operable Unit One. Although natural attenuation is not specified as a part of the remedy, it would occur during the 30 year monitoring period. Real estate notice recordation would be undertaken.

During the remediation of the contaminated soil and sludge, water from Monitoring Well-16 and other wells in the Silty Sand Zone would be sampled and analyzed. Thus, any change in the extent of contamination in the Silty Sand Zone would be detected. If Site contaminants are detected above action levels in any of the wells presently testing clean, the wells would be added to the pump and treatment system.

This alternative would decrease the volume of contaminants and reduce public health or environmental risks by removing and treating the contaminated ground water in the Silty Sand Zone. However, it could increase the mobility of the contaminants, albeit below the treatment level, remaining in the Gravel Zone after completion of Operable Unit One activities.

VIII SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

Criteria

EPA is required to evaluate the remedial alternatives it considers for a Superfund site against 9 criteria to determine which alternative provides the best balance between the criteria and which should be implemented at the site. An explanation of the criteria follows:

The first two criteria are criteria which the remedial action must meet.

- Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls or institutional controls.

- Compliance with Applicable or Relevant and Appropriate Requirements (ARAR) addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes and/or provide grounds for invoking a waiver.

The next five criteria are analyzed to determine how the alternatives compare to one another and to identify tradeoffs between them.

- Long-term effectiveness and permanence refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

- Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies that may be employed in a remedy. The specific factors to be considered are the amount of waste to be destroyed or treated; the expected degree of reduction in volume, mobility or toxicity; the degree to which the remediation will be irreversible; and the nature and quantity of treatment residuals that will remain on the site.

- Short-term effectiveness refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impact on human health and the environment during the construction and implementation period.

- Implementability is the technical and administrative feasibility of implementing a remedy, including the availability of materials and services needed to implement the chosen solution.

- Cost includes capital and operation and maintenance costs.

The final two criteria are modifying criteria.

- State Acceptance indicates whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative.

- Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the RI/FS report and the Proposed Plan.

Table 4 presents a symbolic ranking of the comparative analysis for the ground water alternatives. The symbolic ranking is based on the narrative analysis that follows.

Analysis

Overall Protection. Overall protection of human health and the environment is provided by Alternatives 1-B and 2. These alternatives utilize active treatment to prevent further migration of the contaminant plume, thus minimizing the potential for establishing an exposure pathway which might endanger human health and the environment. However, Alternative 2 might increase contaminant mobility. The potential for downward migration of contaminated ground water is deemed to be too great a risk for even the most stringent of well installation protocols, especially in view of the very limited contamination present. Alternative 1-A does not provide any protection to human health and the environment.

Compliance with Applicable or Relevant and Appropriate Requirements, ARARs. ARARs are the federal and state requirements that a selected remedy must meet. However, there are no specific remediation levels defined for the Silty Sand Zone contaminants in state or federal regulations. Alternatives 1-B and 2 would treat water from the Silty Sand Zone to at least the same standards used for the Gravel Zone water. Alternative 1-A does not provide for any treatment.

Long-term Effectiveness and Permanence. The goals for all of the remedial alternatives are to prevent human exposure to contaminated ground water and prevent contamination of the underlying aquifer. The preferred Alternative 1-B and Alternative 2 both meet these goals by requiring the removal and treatment of the contaminated ground water using the carbon adsorption unit provided for Operable Unit One. This method of treatment has proven satisfactory in reducing the contaminant levels in ground water to background level and, thus is effective and permanent. Therefore, the risk from ingestion of, or direct contact with, the contaminated ground water will be eliminated. In addition, these alternatives provide that contingency measures be implemented if contaminant concentrations or extent of contamination increase over time. Alternative 1-A does not provide any long-term effectiveness or permanence other than by natural attenuation.

TABLE 2
Comparative Analysis of Ground Water Alternatives Based on the Nine Criteria

Overall Protection:		
	Most Protective	Alternative 2, Extraction, Treatment and Injection Alternative 1-B, Extraction and Treatment
	Least Protective	Alternative 1-A, No Action
Compliance with ARARs:		
	Most Compliance	Alternatives 1-B and 2, Extraction and Treatment; Extraction, Treatment and Injection
	Least Compliance	Alternative 1-A, No Action
Long-term Effectiveness and Permanence:		
	Most Effective	Alternatives 1-B and 2, Extraction and Treatment; Extraction, Treatment and Injection
	Least Effective	Alternative 1-A, No Action
Reduction of Toxicity, Mobility, and Volume:		
	Most Reduction	Alternative 2, Extraction, Treatment and Injection Alternative 1-B, Extraction and Treatment
	Least Reduction	Alternative 1-A, No Action
Short-term Effectiveness:		
	Most Effective	Alternative 2, Extraction, Treatment and Injection Alternative 1-B, Extraction and Treatment
	Least Effective	Alternative 1-A, No Action
Implementability:		
	Easiest to Implement	Alternative 1-A, No Action Alternative 1-B, Extraction and Treatment
	Hardest to Implement	Alternative 2, Extraction, Treatment and Injection
Cost:		
	Least Costly	Alternative 1-A, No Action Alternative 1-B, Extraction and Treatment
	Most Costly	Alternative 2, Extraction, Treatment and Injection

Reduction of Toxicity, Mobility, or Volume of the Contaminants through Treatment. Alternatives 1-B and 2 meet the EPA's preference that the toxicity, mobility and volume of the contaminants be reduced through active treatment. The treatment technology to be used for Alternatives 1-B and 2 is carbon absorption. Carbon adsorption is well proven and fully capable of removing the contamination from the ground water to the manageable activated carbon. For Alternative 2 however, the potential for downward migration of affected ground water and/or dense, non-aqueous phase liquids is a risk. Monitoring will detect any movement of the waste volume laterally or vertically. Alternative 1-A does reduce toxicity, mobility or volume of the contaminants in the ground water.

Short-term Effectiveness. The No Action Alternative would present no additional risks to the public or on-site workers. During the construction of the extraction wells for Alternative 2 and the monitoring of the ground water for Alternatives 1-B and 2, precautions would be taken to eliminate any risk from contact with the drilling spoils and well water. The actual time required to address the ground water contamination is expected to be two to five years. Air emissions from any water treatment action will be addressed and, therefore, should not constitute a threat.

Implementability. There are no implementability concerns posed by either Alternative 1-A or 1-B. The construction techniques associated with installing additional wells would not hinder implementation of Alternative 2, but there is a possibility of increasing the mobility of any contaminants remaining in the Silty Sand Zone after treatment. The potential for downward migration of contaminated ground water is deemed to be too great a risk for even the most stringent of well installation protocols, especially in view of the very limited contamination present. The water treatment system for Operable Unit One has sufficient capacity to handle the water resulting from either Alternative 1-B or Alternative 2.

Cost. The cost of 1-B is estimated to be $320,000. The cost of No Action Alternative 1-A is estimated to be $54,000 less, but the opportunity to reduce the volume of contaminants would be lost. Alternative 2 would cost at least seven times that of Alternative 1-B.

State Acceptance. The State of Texas through the Texas Natural Resource Conservation Commission supports EPA's decision of limited pumping and treating the ground water identified as Alternative 1-B.

Community Acceptance. Judging from the comments received during the public meeting and public comment period, the community supports EPA's decision of limited pumping and treating the ground water identified as Alternative 1-B. All the comments received during the public meeting and the public comment period and EPA responses are in Appendix A.

IX. SELECTED REMEDY

Based on consideration of the requirements of CERCLA as amended, the detailed analysis of the alternatives, and public comments, the EPA has determined that Alternative 1-B: Extraction and Treatment (of ground water for a period of 2 to 5 years) is the most appropriate remedy for the deep ground water remediation. The criteria that weighed the heaviest in this selection are Compliance with ARARs; Long-term Effectiveness and Permanence; Reduction of Toxicity, Mobility, and Volume; and Cost.

The remediation goal for the Silty Sand Zone is the removal and treatment of ground water with a concentration of naphthalene greater than 0.41 mg/L. This goal is protective of human health and the environment. The goal was selected to reduce or eliminate the risks associated with potential exposure to the contaminants via ingestion of contaminated ground water.

The goal of this part of the remedial action is to restore the ground water to a useable state. Based on information obtained during the remedial investigation, and the analysis of all remedial alternatives, the EPA and the State of Texas believe that the selected remedy will achieve this goal. However, studies suggest that it may not be possible to reduce contaminants to the remediation goals established for the Silty Sand Zone within the desired time frame. Ground water contamination may be persistent. The practicability of achieving cleanup goals in the Silty Sand Zone aquifer cannot be determined until the extraction system has been implemented and plume response monitored over time. It may become apparent, during the implementation or operation of the ground water extraction systems and its modifications, that contaminant levels will have ceased to decline and will remain constant at levels higher than the remediation goal over some portion of the contaminated plume. In such a case, the system performance standards and/or the remedy may be reevaluated. If Site contaminants are detected above action levels in any of the wells presently testing clean, the wells will be added to the pump and treatment system.

Statutory Determinations

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences that the remedy selected must meet. Section 121 of CERCLA specifies that when complete, the selected remedial action for a site must comply with applicable or relevant and appropriate environmental standards ("ARARs") established under federal and state environmental laws unless a statutory waiver is justified.

The selected remedy also must be cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Finally, this statute includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as their principal element. The following sections of this ROD discuss how the selected ground water remedy meets these statutory requirements.

Protection of Human Health and the Environment:

The selected ground water remedy protects human health and the environment by pumping contaminated ground water from the Silty Sand Zone, blending it with contaminated Gravel Zone ground water and then treating the blended contaminated ground water by carbon adsorption. The treated ground water will be injected into the Gravel Zone aquifer. The currently planned ground water monitoring system will be maintained or an additional system will be designed and installed during Operable Unit One activities to ensure that the remedial action goals for the ground water are met.

The capture and treatment of the contaminated ground water will eliminate threats of direct contact and ingestion posed by the Site. By maintaining a ground water monitoring program in conjunction with the pump and treatment system, elimination of the threats posed by possible ingestion or direct contact can be assured. There are no short-term threats associated with the selected remedy that cannot be readily controlled. Also, no adverse cross-media impacts are expected from the selected ground water remedy.

Compliance with Applicable or Relevant and Appropriate Requirements:

As stated previously, the wastes on this Site are not RCRA hazardous wastes. Accordingly, all regulations which govern the disposal of these wastes are not applicable, rather they may be considered relevant and appropriate.

The selected Silty Sand Zone ground water remedy of extraction and treatment, followed by injection into the Gravel Zone will comply with all applicable or relevant and appropriate action-specific and location-specific requirements (ARARs). There are no chemical-specific requirements. However, one chemical-specific advisory was considered. The ARARs and chemical-specific advisory follow:

Action-specific Ground Water Remediation ARARs:

Resource Conservation and Recovery Act (RCRA) requirements, 40 CFR 264.117(a)(1) post-closure and monitoring requirements for 30 years or another period determined by the Regional Administrator;

RCRA requirements, 40 CFR 264.190-198, tanks used in hazardous waste treatment, storage and disposal facilities for the Ground Water Treatment Unit; and

RCRA requirements, 40 CFR 264.190-192, 40 CFR 264.601 treatment of hazardous waste in the Ground Water Treatment Unit.

Location-Specific Ground Water Remediation ARARs:

RCRA requirements, 40 CFR 264.18 for location of the Ground Water Treatment Unit in the 100-year floodplain, 40 CFR 6, Appendix A.

To Be Considered:

Drinking Water Regulations and Health Advisories by Office of Water, U. S. Environmental Protection Agency, dated May 1993.

Cost Effectiveness:

The remedial action satisfies the threshold criteria set forth in 40 CFR §300.430(f)(1)(i) (A) and (B). The selected ground water remedy is cost effective, its present worth value being $320,000. The estimated cost of the selected remedy is less than the cost associated with installation of additional extraction and reinjection wells ($2.25 million) but is more than the cost associated with no action.

Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable:

EPA has determined that the selected ground water remedy represents the maximum extent to which permanent solution and treatment technologies can be utilized in a cost-effective manner for deep ground water remediation at the Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA determines that the selected ground water remedy provides the best balance of trade-offs in terms of reduction of mobility, toxicity or volume achieved through treatment, short-term effectiveness, implementability and costs and due to the statutory preference for treatment as a principal element and considering state and community acceptance.

The selected ground water remedy satisfies the long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, and implementability criteria better than all of the other alternatives investigated. The remedy is more expensive than discharging the extracted ground water on the ground or into a publicly owned water treatment works. The short-term risks associated with the selected ground water remedy are possible exposure of workers and the community to the ground water treatment system; however, these potential risks are easily controlled and, therefore, all but eliminated.

Preference for Treatment as a Principal Element:

The ground water alternative uses treatment as the primary remediation technology for the principal threat posed by the contaminated water. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied.

X. DOCUMENTATION OF NO SIGNIFICANT CHANGES

The Proposed Plan for the Site was released for public comment on January 21, 1993. The Proposed Plan identified Alternative 1-B (extraction of contaminated water from Monitoring Well-16, treatment o this water in the Operable Unit One water treatment system and reinjection of the treated ground water) as the preferred alternative. The name of this alternative has been changed from 'Limited Action', as used in the SRI/FFS and the Proposed Plan, to 'Extraction and Treatment' in this ROD. EPA reviewed all written and oral comments submitted during the public comment period and determines that no significant changes to the remedy, as it was originally identified in the Proposed Plan, were necessary.

APPENDIX B
THE STATE OF TEXAS, LETTER OF CONCURRENCE

John Hall, Chairman
Pam Reed, Commissioner
Peggy Garner, Commissioner

93 AUG 16 PM 12:40

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

August 10, 1993

Allyn M. Davis, Ph.D., Director
Hazardous Waste Management Division
U.S. Environmental Protection Agency
Region VI
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: Texarkana Wood Preserving Company Superfund Site
Draft Record of Decision, Second Operable Unit

Dear Dr. Davis:

The proposed Record of Decision (ROD) has been reviewed for the referenced site. We concur on the remedy selection, as described in the draft ROD of August 1993. The selected remedy calls for ground water in the Silty Sand Zone aquifer to be extracted at MW-16 and treated with the ground water for the First Operable Unit. We anticipate that state matching funds will be available to allow our required assurance prior to a fund-financed remedial action.

Sincerely,

Anthony C. Grigsby

Anthony C. Grigsby
Executive Director

ACG/STC/ls

P.O. Box 13087 • 1700 North Congress Avenue • Austin, Texas 78711-3087 • 512/463-7830

APPENDIX A
RESPONSIVENESS SUMMARY

TEXARKANA WOOD PRESERVING COMPANY SITE
RESPONSIVENESS SUMMARY

This Community Relations Responsiveness Summary has been prepared to provide written responses to comments submitted regarding the Proposed Plan at the Texarkana Wood Preserving Company Superfund Site. The summary is divided into two sections.

Section I: Background of Community Involvement and Concerns. This section provides a brief history of community interest and concerns raised during the remedial planning activities at the Site.

Section II: Summary of Major Comments Received. The comments (both oral and written) are summarized. EPA's responses are provided.

I. Background of Community Involvement and Concerns

The community of Texarkana is acutely aware of the problems associated with this Site. This awareness is evident by the number of community environmental action groups and residents in Texarkana expressing concerns that thermal destruction during Operable Unit One remediation will cause adverse health affects to those who live in the area. Similar concerns were not expressed regarding the remedy for the deeper groundwater.

II. Summary of Major Comments Received

Public notice announcing the public comment period and invitation to a public meeting was given on January 21, 1993, in the Texarkana Gazette, a widely circulated local newspaper. The Proposed Plan Summary was released to the general public on January 21, 1993. The public comment period began on January 21, 1993, and ended on March 24, 1993. A public meeting was held on January 26, 1993, at the Texarkana Regional Arts Center, 4th & Texas Boulevard, Texarkana, Texas. The purpose of this meeting was to discuss the proposed alternatives and the preferred alternative.

Approximately fifteen people were in attendance and four people asked questions or made comments. One letter was received with comments.

The comments and questions received during the public comment period follow.

1. Comment:
I agree with your choice of soil treatment and limited water treatment. However, I would recommend careful monitoring of the aquifer and reserving the option of more aggressive pumping and air sparging later if the residual risks appear to be excessive. Keep options open.

Response:
Residual contamination in the aquifers will be monitored and more aggressive pump and treatment will be implemented if warranted. However, treatment will be by carbon adsorption; air sparging would release the contaminants to the atmosphere.

2. Comment:
I feel like I have not had ample time to review this study.

Response:
The EPA extended the 30-day public comment period an additional 30 days to provide ample time for the public to review and comment on the proposed remedy.

3. Comment:
I do not see that anything is being done on the western side of Lubbock Street.

Response:
The contamination in the Silty Sand Zone at Monitoring Well-16 is west of Lubbock Street and that is where the remediation of the Silty Sand Zone will occur. Additionally, remediation of the Gravel Zone will occur on both the east and west sides of Lubbock Street. Because no contaminants were found in the Lignite Zone, no remediation will occur in that Zone.

4. Comment:
At what level is the Lignite Zone?

Response:
The Lignite Zone is about 90 feet to 115 feet below the surface at the Site.

5. Comment:
Was contamination found in any of the other wells?

Response:
No contaminants above action levels were found at any other well in either the Lignite Zone or the Silty Sand Zone.

6. Comment:
How many other wells are there in the Lignite and Silty Sand Zones?

Response:
There are five other monitoring wells in addition to Monitoring Well-16.

7. Comment:
If we could pump our product under 100 pounds pressure for about 12 hours into the contaminated well, we could kill the contaminants. There would be no reason to pump those wells for 30 years.

Response:
The EPA Risk Reduction Laboratory in Cincinnati, Ohio has been requested to investigate and test the benefits and applicability of this product to Superfund remediation. The time required for remediation of the Silty Sand Zone water is expected to be no more than several months. Monitoring of the remediated Zone will continue for 30 years.

8. Comment:
Have you tested for migration of contaminants from the Site?

Response:
Yes, we have in the Gravel Zone, about 400 feet east toward Days Creek. The contaminated ground water plume has not reach Days Creek, as evidenced by the testing of several monitoring wells located east of the Site but west of Days Creek.

9. Comment:
You're not allowing us enough time to comment on your recommended alternative.

Response:
EPA extended the 30-day public comment period an additional 30 days in order to give the public time to study the several alternatives and to comment on them.

10. Comment:
How much liability insurance is the construction contractor required to have?

Response:
The contractor is required to have full comprehensive public liability, contractual, property damage and automobile insurance. In addition, the contractor is required to have performance and payment bonds. A full listing of all required insurance is contained in TWC's bid and contract documents. (At the time of this response, these requirements are detailed in Article 19, Insurance, of the TWC bid specifications.)

11. Comment:
Who monitors the testing of the soil and water during the remediation?

Response:
After TWC awards the remediation contract, the selected contractor will prepare a Quality Assurance/ Quality Control Plan for TWC's review and approval. This plan will specify all sampling and handling procedures and analyses required. During the remediation of the contaminated soil, TWC's contractor will take soil samples and have them analyzed by a laboratory approved by the TWC. TWC's oversight engineer will specify where the samples are to be taken and will split samples with the contractor. TWC will have some of these split samples analyzed at a different approved laboratory. To determine the reliability of the contractor's selected laboratory, the results from the two different laboratories will be compared. After the completion of the soil remediation and after the water treatment facilities are constructed, both the TWC and the construction contractor will collect and analyze water samples to determine that the treatment system operates properly before the contractor is released from obligations concerning the Site. Thereafter, during the

remediation of the ground water, TWC may contract with a certified laboratory to collect and analyze the water samples or TWC may collect the water samples themselves and have them analyzed by an approved laboratory.

12. Comment:
How about using evaporation to remove the contaminants from the ground water?

Response:
Evaporation was not one of the alternatives considered during the Operable Unit One investigation. There are 16,000,000 gallons of contaminated water in the Gravel Zone. The cost to evaporate this much water would be considerably more than treating the water by carbon adsorption. Also, several of the contaminants are volatile and would evaporate with the water; thus, they would not be treated but rather would be released to the atmosphere. For Operable Unit Two, it is far less expensive to use the same water treatment unit already supplied for Operable Unit One than to bring another unit onto the Site.

13. Comment:
Since the TWC has to pay for 10 percent of the cost, how much input does TWC have in selecting the remedy?

Response:
The decision is made by EPA, not TWC. We requested their comments; they were the lead agency for developing the alternatives which were considered for remediation. They do have the same right to comment on all the alternatives and the proposed remedy just as each citizen does.

14. Comment:
Is there a geologist present at this meeting?

Response:
Yes. The TWC has a geologist present.

15. Comment:
In the index to the Administrative Record, the printed index, the page numbers do not match with the microfiche numbers. You use subcontractors for incinerators and remedial investigations and feasibility studies and I don't believe you're any more competent to oversee the work of those subcontractors as you are to oversee the work of a simple microfiche worker.

Response:
The Agency places much emphasis on sound contract management. Because the Agency has limited Community Relations staff, subcontractors are utilized to address extensive Community Relations work. For this project, a subcontractor, at EPA's direction, places copies of Site reports and documents in the information repositories. To save space, much of this information is provided on microfiche. Based on our investigation, part of microfiche material for this project was erroneously

placed in the files of other Superfund projects that use the same repository. We are working with the public library to correct this situation.

16. Comment:
When will you be coming back with the final decision?.

Response:
TWC and EPA will release to the press for distribution information as future plans for this project are finalized.

17. Comment:
Will the citizens of Texarkana be notified of all of the eligible contractors?

Response:
The TWC will review the qualifications of all contractors interested in bidding for the remediation of this Site and select only those found to be qualified to submit bids for the remediation work. Bids will be received and opened and read aloud by the TWC in Austin, Texas at a meeting open to all. TWC will then review the bids and select the lowest bidder that is both responsive and responsible.

18. Comment:
In other words, the public will not know who the successful bidder is until after the award has been made.

Response:
Correct. However, by attending the bid opening meeting, anyone can learn the amount of each contractor's bid and determine which contractor has the lowest bid. However, the announcement of the selected bidder is made at a later meeting and is announced to all at the same time. This is consistent with standard procurement procedures on public projects using the sealed bid process.

19. Comment:
Will the public have an input on blocking some of the possible bidders from getting the contract?

Response:
By federal and state procurement procedures, the public can not block any bidder from getting the contract. However, both the TWC and EPA will review the financial and technical qualifications of the bidders. Also, the contract will not be awarded to any firm that is on a current list of debarred or suspended bidders or is in tax arrears to the State of Texas.

APPENDIX C
ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000001 - 000002
DOCUMENT DATE: 02/28/91
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: Texas Water Commission ("TWC")
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for February 1991 summarizing work completed at the site

DOCUMENT NUMBER: 000003 - 000004
DOCUMENT DATE: 03/30/91
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for March 1991 summarizing work completed at the site

DOCUMENT NUMBER: 000005 - 000005
DOCUMENT DATE: 04/30/91
NUMBER OF PAGES: 001
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for April 1991 summarizing work completed at the site

DOCUMENT NUMBER: 000006 - 000008
DOCUMENT DATE: 09/30/91
NUMBER OF PAGES: 003
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for September 1991 summarizing work completed at the site

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000009 - 000010
DOCUMENT DATE: 10/30/91
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for October 1991 summarizing work completed at the site

DOCUMENT NUMBER: 000011 - 000011
DOCUMENT DATE: 10/30/91
NUMBER OF PAGES: 001
AUTHOR: Bryon Heineman, Remedial Project Manager ("RPM")
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in October 1991 (The November 1991 date listed in the heading is incorrect.)

DOCUMENT NUMBER: 000012 - 000012
DOCUMENT DATE: 10/30/91
NUMBER OF PAGES: 001
AUTHOR: Bryon Heineman, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Site status summary of work completed in FY 1991 and of work planned in FY 1992

DOCUMENT NUMBER: 000013 - 000014
DOCUMENT DATE: 11/30/91
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for November 1991 summarizing work completed at the site

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000015 - 000015
DOCUMENT DATE: 11/30/91
NUMBER OF PAGES: 001
AUTHOR: Bryon Heineman, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in November 1991 (The December 1991 date listed in the heading is incorrect.)

DOCUMENT NUMBER: 000016 - 000017
DOCUMENT DATE: 12/30/91
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for December 1991 summarizing the work completed at the site

DOCUMENT NUMBER: 000018 - 000018
DOCUMENT DATE: 12/30/91
NUMBER OF PAGES: 001
AUTHOR: Bryon Heineman, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in December 1991

DOCUMENT NUMBER: 000019 - 000020
DOCUMENT DATE: 01/30/92
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Montly Progress Report" for January 1992 summarizing work completed at the site

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000021 - 000021
DOCUMENT DATE: 01/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in January 1992

DOCUMENT NUMBER: 000022 - 000023
DOCUMENT DATE: 02/28/92
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for February 1992 summarizing the work completed at the site

DOCUMENT NUMBER: 000024 - 000024
DOCUMENT DATE: 02/28/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in February 1992

DOCUMENT NUMBER: 000025 - 000026
DOCUMENT DATE: 03/30/92
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for March 1992 summarizing work completed at the site

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000027 - 000027
DOCUMENT DATE: 03/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in March 1992

DOCUMENT NUMBER: 000028 - 000031
DOCUMENT DATE: 04/09/92
NUMBER OF PAGES: 004
AUTHOR: TWC Staff
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Superfund Fact Sheet
DOCUMENT TITLE: Fact Sheet for March 1992 summarizing site activities

DOCUMENT NUMBER: 000032 - 000057
DOCUMENT DATE: 04/13/92
NUMBER OF PAGES: 026
AUTHOR: Donald R. Ripley, P.E., Project Director
COMPANY/AGENCY: Roy F. Weston, Inc.
RECIPIENT: Scott Crouch, Project Manager, Superfund Investigation Section, Pollution Cleanup Division, TWC
DOCUMENT TYPE: Cover Letter and Attachment
DOCUMENT TITLE: Groundwater sample data for semivolatiles and dioxins/furans

DOCUMENT NUMBER: 000058 - 000059
DOCUMENT DATE: 04/30/92
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for April 1992 summarizing the work completed at the site

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000060 - 000060
DOCUMENT DATE: 04/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in April 1992

DOCUMENT NUMBER: 000061 - 000116
DOCUMENT DATE: 05/18/92
NUMBER OF PAGES: 056
AUTHOR: Staff Consultants
COMPANY/AGENCY: Roy F. Weston, Inc.
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Project Plan
DOCUMENT TITLE: "Supplemental Remedial Investigation Quality Assurance Project Plan"

DOCUMENT NUMBER: 000117 - 000120
DOCUMENT DATE: 05/20/92
NUMBER OF PAGES: 004
AUTHOR: Cliff McIntyre, Bowie County Environmental Officer
COMPANY/AGENCY: Bowie County, TX
RECIPIENT: Bryon Heineman, RPM, U.S. EPA Region 6
DOCUMENT TYPE: Cover Letter and Attachment
DOCUMENT TITLE: Attached letter addressed to Mr. Owen Douglas (Roy F. Weston, Inc.) regarding site operations observed by Mr. Cliff McIntyre on May 12, 1992

DOCUMENT NUMBER: 000121 - 000129
DOCUMENT DATE: 05/29/92
NUMBER OF PAGES: 009
AUTHOR: Donald R. Ripley, P.E., Project Director
COMPANY/AGENCY: Roy F. Weston, Inc.
RECIPIENT: Gary McGill, TWC
DOCUMENT TYPE: Cover Letter and Attachment
DOCUMENT TITLE: Attached letter from Roy F. Weston, Inc. addresses concerns raised by Mr. Cliff McIntyre (Bowie Co. Environmental Officer) about site conditions observed on May 12, 1992

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000130 - 000132
DOCUMENT DATE: 05/30/92
NUMBER OF PAGES: 003
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for May 1992 summarizing work completed at the site

DOCUMENT NUMBER: 000133 - 000134
DOCUMENT DATE: 06/30/92
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for June 1992 summarizing work completed at the site

DOCUMENT NUMBER: 000135 - 000135
DOCUMENT DATE: 06/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly status summary of work completed in June 1992

DOCUMENT NUMBER: 000136 - 000136
DOCUMENT DATE: 07/30/92
NUMBER OF PAGES: 001
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for July 1992 summarizing work completed at the site (The second page of this document is missing.)

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000137 - 000137
DOCUMENT DATE: 07/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in July 1992

DOCUMENT NUMBER: 000138 - 000139
DOCUMENT DATE: 08/30/92
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for August 1992 summarizing work completed at the site

DOCUMENT NUMBER: 000140 - 000140
DOCUMENT DATE: 08/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in August 1992

DOCUMENT NUMBER: 000141 - 000143
DOCUMENT DATE: 09/10/92
NUMBER OF PAGES: 003
AUTHOR: Scott T. Crouch, Project Manager, Superfund Investigation Section, Pollution Cleanup Division
COMPANY/AGENCY: TWC
RECIPIENT: Donald R. Ripley, Project Director, P.E., Roy F. Weston, Inc.
DOCUMENT TYPE: Cover Letter and Attachment
DOCUMENT TITLE: Comments on the first three (3) sections of the "Supplemental Remedial Investigation and Focused Feasibility Study Report"

ADMINISTRATIVE RECORD INDEX

ADDENDUM

SITE NAME: TEXARKANA WOOD PRESERVING SITE
SITE NUMBER: TXD 008056152

DOCUMENT NUMBER: 000144 - 000145
DOCUMENT DATE: 09/30/92
NUMBER OF PAGES: 002
AUTHOR: Scott Crouch, Project Manager
COMPANY/AGENCY: TWC
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Monthly Progress Report
DOCUMENT TITLE: "Federal Superfund Monthly Progress Report" for September 1992 summarizing work completed at the site

DOCUMENT NUMBER: 000146 - 000146
DOCUMENT DATE: 10/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in October 1992

DOCUMENT NUMBER: 000147 - 000152
DOCUMENT DATE: 11/05/92
NUMBER OF PAGES: 006
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: Scott Crouch, Project Manager, Superfund Investigation Section, Pollution Cleanup Division, TWC
DOCUMENT TYPE: Memorandum and Attachment
DOCUMENT TITLE: EPA comment on "Supplemental Remedial Investigation and Focused Feasibility Study Draft Report"

DOCUMENT NUMBER: 000153 - 000153
DOCUMENT DATE: 11/30/92
NUMBER OF PAGES: 001
AUTHOR: Earl Hendrick, RPM
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Site Files
DOCUMENT TYPE: Status Summary
DOCUMENT TITLE: Monthly site status summary of work completed in November 1992

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ADDENDUM

SITE NAME:	TEXARKANA WOOD PRESERVING SITE
SITE NUMBER:	TXD 008056152
DOCUMENT NUMBER:	000154 - 000456
DOCUMENT DATE:	12/30/92
NUMBER OF PAGES:	303
AUTHOR:	Staff Consultants
COMPANY/AGENCY:	Roy F. Weston, Inc.
RECIPIENT:	U.S. EPA Region 6 Site Files
DOCUMENT TYPE:	**Draft Report**
DOCUMENT TITLE:	"Supplemental Remedial Investigation and Focused Feasibility Study Report" (This entry is a sample of actual entry to be placed in index when this report is final.)

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