Superfund Record of Decision

Mountain Pine Pressure Treating, Inc.
Plainview, Yell County, Arkansas

September 2004

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6

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TABLE OF CONTENTS

DECLARATION 1
- SITE NAME AND LOCATION 1
- STATEMENT OF BASIS AND PURPOSE 1
- ASSESSMENT OF THE SITE 1
- DESCRIPTION OF THE SELECTED REMEDY 2
- STATUTORY DETERMINATIONS 3
- ROD DATA CERTIFICATION CHECKLIST 3
- AUTHORIZING SIGNATURE 4

THE DECISION SUMMARY 7
- SITE NAME, LOCATION, AND BRIEF DESCRIPTION 7
- SITE BACKGROUND AND ENFORCEMENT ACTIVITIES 7
  - Site History 7
  - History of Federal and State Investigations 8
  - History of CERCLA Removal Actions 9
  - History of CERCLA Enforcement Activities 10
  - National Priorities List 10
- COMMUNITY PARTICIPATION 10
- SCOPE AND ROLE OF RESPONSE ACTION 11
- SITE CHARACTERISTICS 11
  - Sources of Contamination 11
  - Conceptual Site Model 11
  - Sampling Strategy 12
  - Nature and Extent of Surface Water and Sediment Contamination 12
  - Nature and Extent of Soil Contamination 13
  - Nature and Extent of Ground Water Contamination 13
  - Asbestos-Containing Material 14
- CURRENT AND POTENTIAL FUTURE LAND AND GROUND WATER USES . . 14
- SUMMARY OF SITE RISKS 15
  - Identification of Chemicals of Concern 16
  - Exposure Assessment 19
  - Toxicity Assessment 20
  - Risk Characterization 22
- PRINCIPAL AND LOW-LEVEL THREAT WASTES 29
- REMEDIAL ACTION OBJECTIVES AND GOALS 30
- DESCRIPTION OF REMEDIAL ALTERNATIVES 31
  - Statutory Requirements/Response Objectives 31

Technology and Alternative Development and Screening 31
Summary of Remedial Alternatives for Soils and Sediment 32
Common Elements 36
COMPARATIVE ANALYSIS OF ALTERNATIVES 37
SELECTED REMEDY 41
Summary of the Rationale for the Selected Remedy 41
Description of the Selected Remedy 42
Summary of Estimated Remedy Costs 45
Expected Outcomes of Selected Remedy 47
STATUTORY DETERMINATIONS 50
Protection of Human Health and the Environment 50
Compliance with Applicable or Relevant and Appropriate Requirements 50
Cost Effectiveness 51
Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable 52
Preference for Treatment as a Principal Element 52
Five-Year Review Requirements 53
DOCUMENTATION OF SIGNIFICANT CHANGES 53

RESPONSIVENESS SUMMARY 54
STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES 54
TECHNICAL AND LEGAL ISSUES 58

002446

APPENDICES

Appendix A: ADEQ Concurrence Letter

Appendix B: Index of Administrative Record

002447

LIST OF FIGURES

Figure 1 Plainview Area

Figure 2 Site Plan

Figure 3 Sample Location Map for Soil and Sediment Sampling

Figure 4 Monitor Well Location and Ground Water Elevations for the Shallow Aquifer

Figure 5 Area and Volume of Soil and Sediment Exceeding the Remedial Goals

LIST OF TABLES

Table — Page

1 Summary of Chemicals of Concern and Exposure Point Concentrations 17

2 Exposure Assumptions 19

3. Cancer Toxicity Data Summary 21

4. Non-Cancer Toxicity Data Summary 22

5. Carcinogenic Risk Characterization Summary for Industrial Worker Scenario 23

6. Carcinogenic Risk Characterization Summary for Construction Worker Scenario 24

7. Carcinogenic Risk Characterization Summary for Recreational Youth Scenario
Off-Site Drainage Ditch 25

8. Carcinogenic Risk Characterization Summary for Recreational Youth Scenario
Porter Creek 25

9. Non-Carcinogen Risk Characterization Summary for Industrial Worker Scenario 26

10. Non-Carcinogen Risk Characterization Summary for Construction Worker Scenario . . 28

11. Non-Carcinogen Risk Characterization Summary for Recreational Youth Scenario
Off-Site Drainage Ditch 28

12. Non-Carcinogen Risk Characterization Summary for Recreational Youth Scenario
Porter Creek 29

13 Present Worth Cost Analysis of the Alternatives 40

14 Treatability Testing Results 44

15 Performance Standards for Solidification/Stabilization of Waste Material 45

16. Cost Estimate for the Selected Remedy 45

002449

17 Areas and Volume of Soils and Sediment Exceeding the Remedial Goals 49

002450

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002451

MOUNTAIN PINE PRESSURE TREATING, INC.
PLAINVIEW, YELL COUNTY, ARKANSAS
RECORD OF DECISION

DECLARATION

SITE NAME AND LOCATION

The Mountain Pine Pressure Treating, Inc., Superfund Site is in Plainview, Yell County, Arkansas. The National Superfund Database (CERCLIS) identification number for this Site is ARD049658628. This Site has not been divided into separate operable units and all areas and media within the Site are addressed together in this Record of Decision.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Mountain Pine Pressure Treating, Inc., Superfund Site (Site) in Plainview, Yell County, Arkansas, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300 et seq., as amended.

This decision was based on the Administrative Record, which has been developed in accordance with Section 113(k) of CERCLA, 42 U.S.C. § 9631(k), and which is available for review at the Plainview City Hall, 303 West Main Street, Plainview, Arkansas, at the Arkansas Department of Environmental Quality (ADEQ) offices in Little Rock, Arkansas, and at the United States Environmental Protection Agency (EPA) Region 6 offices in Dallas, Texas. The Administrative Record Index (Appendix B to the Record of Decision) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based.

The State of Arkansas (through the ADEQ) concurs with the Selected Remedy.

ASSESSMENT OF THE SITE

002452

The response action selected in this Record of Decision (ROD) is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

002453

DESCRIPTION OF THE SELECTED REMEDY

This ROD sets forth the selected remedy for the Site, which includes excavation of the contaminated soils and sediments exceeding the remedial goals, treatment of the contaminated soils and sediments through a stabilization/solidification mixing process, and return of the treated material to the excavated locations. The selected remedy is a comprehensive approach for this Site that addresses all current and potential future risks caused by the soils and sediments impacted by the prior wood preserving treatment process. Institutional controls will also be implemented to ensure future redevelopment of the Site is consistent with the long-term management of the treated waste at the Site and the acceptable risk levels remaining in the on-site soils. The major components of this remedy are:

- Stabilization and solidification of the contaminated soils and sediment exceeding the remedial goals for pentachlorophenol (PCP) and arsenic in the following areas of the facility: 1) the former Recovery Holding Pond (RHP); 2) the Spray Evaporation Pond (SEP), 3) the on-site drainage ditch; and, 4) two separate hot-spots in the surface soil. The soils and sediment will be treated and returned to the excavated locations without further consolidation except for the material removed from the drainage ditch;
- Construction of a soil cover over the treated areas and seeding of the area to control erosion;
- Demolition of the former process buildings and other ancillary buildings and structures to obtain access to all of the contaminated soils; Asbestos abatement will be required prior to the demolition of select structures to prevent the release of fibers into the atmosphere; The building debris may be disposed at either an on-site or off-site location;
- Treatment and discharge of surface water from the SEP and other areas to the on-site drainage ditch with eventual discharge to Porter Creek;
- Placement of an institutional control on the Site property, such as a property easement or other appropriate mechanism, to protect human health and prevent accidental exposure through the following actions: 1) alert prospective purchasers that hazardous substances are present at the Site and explaining the actions taken to address the Site contamination; 2) document the restricted activities that would interfere with or adversely affect the integrity or protectiveness of the remedy implemented at the Site; and, 3) ensure future Site development is consistent with the industrial/commercial human health exposure scenario (i.e., non-residential usage) that is the basis for the soil cleanup goals for PCP and arsenic; and,
- Operation and maintenance of the Site following treatment including a ground water monitoring program to evaluate potential leaching from the treated waste material. Included in this component is the installation of additional monitoring wells, if necessary.

STATUTORY DETERMINATIONS

The selected remedy for the soil and sediment contamination is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, and is cost-effective. The soils and sediment, contaminated with arsenic and PCP in several areas of the Site, are considered to be "low-level threat wastes" based on the absence of a highly toxic or highly mobile characteristic. While the soil and sediment contamination represents a low-level threat waste, the selected remedy does utilize treatment to reduce the toxicity, mobility, or volume of contamination and therefore satisfies the statutory preference for treatment as a principal element of the remedy.

Since the selected remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted to ensure that the remedy remains protective of human health and the environment. Pursuant to CERCLA Section 121(c), 42 U.S.C. § 9621(c), and as provided in the current guidance on Five Year Reviews [OSWER Directive 9355.7-03B-P, *Comprehensive Five-Year Review Guidance* (June 2001)], the EPA will conduct a statutory five-year review within five years from initiation of the remedial action.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record file for this Site.

- Chemicals of concern (COCs) and their respective concentrations (see the Identification of Chemicals of Concern Section);
- The baseline risk represented by the COCs (see the Risk Characterization Section);
- Cleanup levels established for the COCs and the basis for these levels (see the Remedial Action Objectives and Goals Section and the Expected Outcomes of Selected Remedy Section);
- Source materials constituting principal threat wastes have not been identified in the soil and sediment at this Site (see the Principal and Low-Level Threat Wastes Section);
- Current and potential future beneficial land and water uses used in the ROD (see the Current and Potential Future Land and Ground Water Uses Section);
- Potential land and water use that will be available at the Site as a result of the Selected Remedy (see the Expected Outcomes of Selected Remedy Section);

002455

- Decisive factor(s) that led to selecting the remedy (see the Summary of the Rationale for the Selected Remedy).

AUTHORIZING SIGNATURE

By: BW for Sam Coleman

Date: 9-29-04

Samuel Coleman, P.E., Director
Superfund Division
U.S. EPA Region 6

002456

RECORD OF DECISION
MOUNTAIN PINE PRESSURE TREATING, INC., SUPERFUND SITE
CONCURRENCE LIST

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002457

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002458

THE DECISION SUMMARY

SITE NAME, LOCATION, AND BRIEF DESCRIPTION

The Mountain Pine Pressure Treating, Inc., Superfund Site (Mountain Pine Site or Site), CERCLIS ID No. ARD049658628, is in Plainview, Yell County, Arkansas, approximately 60 miles northwest of Little Rock, Arkansas. The U.S. Environmental Protection Agency (EPA) is the lead agency for Site activities and is issuing this Record of Decision (ROD). The Arkansas Department of Environmental Quality (ADEQ) represents the State of Arkansas as the support agency for the Site and provided technical assistance to the EPA. The source of monies for the Remedial Investigation/Feasibility Study (RI/FS) is the Superfund.

The Mountain Pine Site is an abandoned wood-treating facility located on the southwestern edge of Plainview, Arkansas (Figure 1). The geographic center of the Mountain Pine Site is Latitude 34°59'00" North and Longitude 93°18'12" West. The 95-acre property consists of 45 acres of timberland and 50 acres of grassland, and is bordered on the north by State Highway 28, on the east by the City of Plainview, on the south by grass and woodlands, and on the west by Sunlight Bay Road. The Site consists of three abandoned facilities: (1) the Plainview Lumber Company, located in the northern area of the Site, which operated from 1965 to 1986 as a raw and treated-wood lumber yard; (2) the Mountain Pine Pressure Treating chromated copper arsenate (CCA) and pentachlorophenol (PCP) plants, located in the central area of the Site, which operated from 1965 to 1981; and (3) the new CCA Treatment Plant (new CCTAP), located in the eastern area of the Site, which operated from 1980 to 1986 followed by a brief period in the summer of 1989.

The area of the Site to be addressed in this remedial action encompasses approximately 19.44 acres centered around the Mountain Pine CCA and PCP plants and the “new CCATP”. The remainder of the property does not demonstrate levels of contamination requiring remedial action. Figure 1 illustrates the layout of the property and the current redevelopment plans for the Plainview Lumber Company (PLC) portion of the property.

SITE BACKGROUND AND ENFORCEMENT ACTIVITIES

Site History

The Mountain Pine Site is an abandoned wood preserving facility located on the western edge of Plainview, Arkansas, a city with a population less than 1,000. The Mountain Pine Pressure Treating, Inc., facility began operations in 1965 as a subsidiary of the PLC. The Mountain Pine facility operated from 1965 to 1981 and used two wood preserving processes at the facility, including PCP and CCA. The facility initially treated lumber with PCP and creosote. PCP granules were mixed on-site with diesel oil, and pressure was used to force the mixture into the lumber while inside a treatment cylinder. In the late 1970s, the process was transitioned to a CCA treatment process with an addition to the PCP plant on its northern side. The treated wood was removed from the cylinders and allowed to dry on a drip pad. Excess PCP or CCA from the drying wood flowed down the drip pad toward the Recovery Holding Pond (RHP). An oil-water separator at the edge of the RHP allowed recovery of the oil for reuse in the process. The RHP was designed to receive up to 2,000 gallons of wastewater in 24-hour period. When the RHP became full, the excess liquid was pumped to the Spray Evaporation Pond (SEP).

In 1980, the City of Plainview issued bonds guaranteed by the Arkansas Industrial Development Commission for the construction of the “new CCATP”, which was built to the east of the existing facility. After construction of the “new CCATP”, the PCP plant was unused. The “new CCATP” operated from 1980 to 1986 and used a closed-loop system whereby the excess CCA solution from the drip tracks flowed back toward a sump located under the treatment cylinder. The collected liquid from the sump was pumped back into a tank for reuse in the treatment process. The “new CCATP” appears to have been fully self-contained and did not utilize the existing wastewater treatment facilities.

History of Federal and State Investigations

Subsequent to the May 19, 1980, promulgation of the Hazardous Waste Management Regulations of the Resource Conservation and Recovery Act (RCRA), the Mountain Pine facility notified the EPA and the Arkansas Department of Pollution Control and Ecology (ADPC&E, predecessor to the ADEQ) that it was an existing facility engaged in the treatment and storage of K001. This waste is defined as the bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or PCP. The Mountain Pine facility submitted its Part A permit application on November 14, 1980, giving notice that it stored PCP and creosote in two surface impoundments.

Ground water monitoring requirements under RCRA 40 CFR 265 Subpart F were implemented in 1981 through the installation of four monitoring wells designated HE 1 - 4 (later designated MW 28 - 31 in the RI). Three separate ground water sampling events were conducted between October 1981 and August 1982 with the sample results below the Safe Drinking Water Act

002460

(SDWA) standards. Ground water monitoring ceased after the Mountain Pine facility filed for bankruptcy in September 1982.

The EPA conducted compliance inspections in February 1984 and again in January 1985. As a result of the inspections, Mountain Pine was found in violation of RCRA regulations which included: inadequate ground water monitoring, dikes without protective coverings, no operating records, no closure plan, no financial assurances, no contingency plan, no personnel training program, no inspection log, inadequate warning signs, no waste analysis plan, and no revised Part A application. In March 1985, the EPA issued a RCRA Compliance Order to Mountain Pine and assessed a $57,050 penalty. In November 1985, the ADPC&E terminated Mountain Pine's interim status to operate. While a settlement was reached between the EPA and Mountain Pine in June 1986, Mountain Pine was unable to pay a financial penalty. The EPA issued an order in October 1986 requiring the closure of the RHP and SEP in accordance with the RCRA regulatory standards. The Plainview Lumber Company declared bankruptcy without closing the impoundments. The EPA subsequently completed a RCRA Facility Assessment in July 1987 which identified 23 solid waste management units and eight areas of concern.

History of CERCLA Removal Actions

Heavy rains in November 1987 caused the RHP to breach its dike, allowing a release of water and suspected PCP. At the City of Plainview's request, the U.S. Army Corps of Engineers reinforced the dike, establishing a two-foot level of freeboard. An EPA site assessment inspection in November 1987 reported that rainfall had caused the RHP to overflow into the drainage ditch entering Porter Creek. The RHP had a PCP contaminated oil layer floating on PCP and CCA contaminated wastewater. The SEP was also close to overflowing with arsenic contaminated wastewater. In addition, the "new CCATP" basins were observed to have overflowed into Porter Creek.

After reports of heavy rain indicated that the freeboard on the RHP and SEP were endangered, the EPA conducted a sampling investigation in December of 1987, the results of which reported PCP concentrations of 69,000 parts per million (ppm) in the drain valve of a holding vessel, 30,700 ppm in soil at the base of the vessel, and 1,200 ppm in the oil phase of the recovery pond. Elevated levels of CCA were also reported. The dikes were leaking on the ponds, and pools of contaminants were identified.

A removal action was initiated by the EPA on December 11, 1987, and completed on April 13, 1988. The action was taken in response to an imminent threat to human health and the environment posed by the overflowing RHP. Oils were skimmed from the water surface in the RHP and the water

002461

was treated and discharged to the drainage ditch with eventual discharge into the adjacent Porter Creek. As a result of the action, 4,011,550 gallons of contaminated water were treated using sand and activated carbon beds and released to Porter Creek; 6,000 cubic yards of sludge and 5,000 cubic yards of contaminated soil were solidified using kiln dust and rice hulls and capped with soil; and, 30,000 gallons of CCA treating fluid were disposed at an off-site permitted facility.

A second removal response was initiated on August 30, 1990. Due to heavy rains in the area and the threat of off-site migration from the CCA plant, the concrete pit area required immediate pump down and storage of CCA contaminated waters. The removal action consisted of two phases, the first being the dewatering of two on-site concrete containment areas and the temporary storage of the liquids on-site in four oil-field “frac” tanks. The second phase consisted of properly disposing of the liquids at an off-site facility. These actions were completed and the removal action was closed on February 5, 1991.

The EPA re-mobilized to the Site in March 1994 to remove dioxin-containing waste (“Vulcan Glazed Penta”) from an on-site treatment cylinder. The waste was drummed and disposed at an off-site disposal facility.

History of CERCLA Enforcement Activities

The EPA identified two corporate potentially responsible parties connected to the past Site operations, Plainview Lumber Company and Yell Forestry Products. Reviews of the bankruptcy proceedings indicated that both filings have been closed with no remaining assets. Past or current land ownership through either the City of Plainview, Arkansas Industrial Development Commission, or the Arkansas Land Commissioner did not exercise any control over the former wood treating operations.

National Priorities List

The EPA published a proposed rule on April 23, 1999, to add the Mountain Pine Pressure Treating Site to the National Priorities List (NPL) of Superfund sites [Federal Register Listing (FRL-6329-8), Volume 64, Number 78, Pages 19968 - 19974]. The Site was added to the NPL in a final rule published on July 22, 1999 [Federal Register Listing (FRL-6401-5), Volume 64, Number 140, Pages 39878 - 39885].

COMMUNITY PARTICIPATION

002462

The EPA held an open house on February 9, 2004, at the First State Bank in Plainview to update the community on activities at the Site. The RI/FS reports and Proposed Plan for the Mountain Pine Site were made available to the public on February 23, 2004. The documents are in the Administrative Record file and the information repository maintained at the EPA Docket Room in Region 6, at the ADEQ offices in Little Rock, Arkansas, and at the Plainview City Hall in Plainview, Arkansas. The notice of the availability of these documents was published in the Yell County Record on February 18, 2003. A public comment period was held from February 23, 2004, to March 23, 2004. A formal public meeting was held on March 4, 2004, at the First State Bank in Plainview to present the Proposed Plan and answer questions on the remedial alternatives. The EPA's response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD.

SCOPE AND ROLE OF RESPONSE ACTION

This response action is the final Site remedy and is intended to address fully the threats to human health and the environment posed by the conditions at this Site. The purpose of this response action is to implement a site-wide strategy for preventing exposure to contaminated soils and sediments and minimizing future migration of contaminants to the ground water. The prior removal actions completed at the Site de-watered the SEP and RHP to prevent the overflow of contaminated surface water to the drainage ditches, and stabilized the RHP sludges to permit the addition of a soil cover over the former RHP. This response action addresses the remaining Site risks that were not addressed by the prior removal actions.

SITE CHARACTERISTICS

This section summarizes information obtained as part of the RI/FS activities at the Site.

Sources of Contamination

The area of the Site to be addressed in this remedial action encompasses approximately 19.44 acres centered around the CCA and PCP plants and the "new CCATP". The remainder of the property does not demonstrate levels of contamination requiring remedial action.

Conceptual Site Model

The conceptual site model (CSM) is based on the following exposure pathways: 1) ingestion and direct contact with surface and subsurface soil, sediment, and surface water; and, 2) inhalation of

002463

airborne contaminants in outdoor air originating from soil. The receptors include future on-site industrial and construction workers, and off-site recreational youths exposed to surface water and sediment in the off-site drainage ditch and Porter Creek. Assumptions applied to these pathways include: 1) an industrial worker is exposed to the upper 2 feet of surface soil across the Site (19 acres); 2) an industrial worker is exposed exclusively to the upper 2 feet of surface soil at only one of the following areas: RHP, area around the SEP, CCA/PCP plant, "new CCATP", and the former incinerator area; 3) an industrial worker is exposed exclusively to the soil in the RHP below 2 feet; and, 4) a construction worker is exposed to the upper 4 feet of soil across the Site. The potential drinking water aquifer underlying the Site has not been impacted by contamination above drinking water standards; however the potential exists that contamination could migrate downward into this aquifer. The concentration levels of soil and groundwater contaminants used in the risk assessment are based on the average (95% upper confidence limit) or the maximum concentrations detected during the RI activities. There are no ecological habitats or ecological exposures at the Site.

Sampling Strategy

The EPA initiated the RI for the Site in 1999 and finalized the RI Report in February 2002. Data needs identified in the RI Report were addressed in an Addendum to the RI Report finalized in October 2003. The RI was conducted to further characterize the nature and extent of contamination originally documented by the earlier investigations, and provide data to support the completion of human health and ecological risk assessments. The RI data collection efforts included the collection and analysis of additional on-site soil, ground water, sediment, and surface water samples. The initial RI field investigation, conducted between April 2000 and May 2000, collected a total of 332 samples of the various media (Figure 3). The sampling program included 148 surface soil samples, 107 subsurface soil samples, 28 surface water samples, 28 sediment samples, and 21 ground water samples. Analyses performed on these samples included: PCP, dioxin/furans, Target Analyte List metals and hexavalent chromium, water quality parameters, and physical soil parameters. Sample analysis for metals included both total concentration and toxicity characteristics for waste determination using the Toxicity Characteristic Leaching Procedure.

Nature and Extent of Surface Water and Sediment Contamination

Surface water is present in the SEP and in two drainage ditches that flow west and then southwest toward Porter Creek with eventual discharge into Nimrod Lake, approximately one mile south of the Site. Nimrod Lake is the source of drinking water for the City of Plainview, and serves as a recreational and commercial fishing area. Prior field work has documented that the SEP and drainage ditches are dry during the summer months. Arsenic was detected in 26 of 28 surface water samples

002464

with the highest concentration at 2.91 mg/L, and PCP was detected in 16 surface water samples with the highest concentration at 0.001 mg/L. In sediment samples, arsenic was detected in 13 of 28 samples ranging from 0.12 mg/kg to 48,400 mg/kg, and PCP was detected in 19 samples with the highest concentration at 30 mg/kg. These detections are generally confined to on-site drainage ditch locations, particularly near the former process areas which include the former CCA/PCP plants and the "new CCATP", as well as the RHP and SEP, located south of the former PCP and CCA plants (Figure 3).

Nature and Extent of Soil Contamination

The surface soils consist of a silty to clayey loam. Arsenic and PCP were detected over a large area of the Site above background levels in surface soil (0 to 0.5 feet and greater than 2 feet), and are the primary indicators for the nature and extent of contamination. Generally the highest concentrations of these constituents were identified near the former process areas at the CCA/PCP plant, with the highest detections found near the RHP and the SEP (Figure 3). PCP was detected in 112 of the 144 surface soil samples and 31 of the 97 subsurface soil samples, at concentrations ranging from 0.0032 mg/kg to 2,400 mg/kg. Analytical results for subsurface soil samples identify the RHP as a potential source of PCP contamination to the upper water-bearing zone although ground water data indicates migration has been minimized by the subsurface conditions. Arsenic was detected above the Site background concentration of 10.9 mg/kg in 73 of the 144 surface soil samples and 17 of the 99 subsurface soil samples analyzed, ranging from 11.1 mg/kg to 1,260 mg/kg. No soil samples collected from below the confining clay layer contained arsenic above the Site background concentration. Dioxin/Furans was detected in 128 of the 140 surface soil samples with the highest concentration at 0.005 mg/kg.

Nature and Extent of Ground Water Contamination

Groundwater samples were collected from two different depths that are considered representative of a perched groundwater zone and a shallow aquifer. Twenty ground water monitoring wells were installed during the RI with ten in the perched zone and ten in the shallow aquifer (Figure 4). Four wells installed in the shallow aquifer as part of the Mountain Pine RCRA ground water monitoring program were also sampled. Also, one of the perched zone wells installed during the RI was dry and no sample was collected from the well. Therefore, a total of nine perched water, and fourteen shallow aquifer samples were collected for the RI sampling effort.

The perched ground water zone is approximately 5 feet thick and occurs between 4 and 9 feet below ground surface in a clayey alluvium. Ground water flows to the west-northwest which is consistent with the slope of the Site topography and drainage features. Surface water from the Spray Evaporation Pond is probably recharging the perched zone and the ground water eventually discharges into the nearby drainage ditches and surrounding creeks. A discontinuous clay layer separates the upper and lower water bearing zones and produces confined conditions in the deeper ground water zone. The shallow aquifer consists of a sand horizon in a weathered shale approximately 24 to 38 feet below ground surface. Ground water flow in the shallow aquifer is to the west with an approximate gradient of 0.008 ft/ft (Figure 4). Slug tests conducted on the shallow aquifer indicate an average hydraulic conductivity of 6.2×10^{-4} cm/sec. Ground water sampling indicated the presence of metals slightly above background but below health based or screening level criteria.

Historical wood-treating operations are often a source of NAPLs in the ground water, which can produce dissolved plumes of PCP. A separate NAPL was not detected in the monitoring wells and the low dissolved phase concentration detected in the one perched zone well does not indicate the presence of a separate NAPL in the ground water. The downward contaminant migration appears to have been attenuated in the clay unit resulting in the absence of ground water contamination in the shallow aquifer.

Asbestos-Containing Material

An asbestos survey was performed in 2002 and friable asbestos was identified as pipe and tank insulation in the former PCP process building. Non-friable asbestos was also identified in the black kiln mastic in the kiln building. The asbestos is in a severely damaged condition.

CURRENT AND POTENTIAL FUTURE LAND AND GROUND WATER USES

Land Uses

The Site is currently vacant and overgrown with grass and the buildings are deteriorating from age and lack of maintenance. While the PCP plant remains in place with some buildings, tanks, cylinders, and boilers, the CCA operating equipment was removed from the Site leaving only the concrete foundations. The SEP contains water while the RHP is overgrown with grass as a result of backfilling with clay and contaminated soil and capping with a soil cover.

Past land use on the facility and the City of Plainview redevelopment plans for the Site forms the basis for reasonable exposure assessment assumptions and risk characterization conclusions. According to the City of Plainview, the zoning for the former facility will be limited to industrial and/or

002466

commercial use after completion of the remedial action. Surrounding property use is residential and the off-site drainage ditches and along Porter Creek can be utilized for recreational use.

Ground Water Uses

Currently, the Site is abandoned, and ground water at the Site is not used. The ground water in the perched zone appears to be associated with the standing water of the on-site drainage ditches and the SEP, which indicates that water from the perched zone is possibly seeping into ditches and through the southern berm of the SEP onto surface soil. The perched water zone does not demonstrate sufficient yield to be considered a source of drinking water since a production rate of only 0.06 gpm was measured at MW-114. The minimum to maximum range of total dissolved solids (TDS) in the perched water zone was 459 to 2070 mg/L, exceeding the drinking water criteria of 500 mg/L. Analytical results from groundwater samples from the eight on-site wells completed in this perched zone were not considered in the human health risk assessment.

Ground water from the shallow aquifer (about 25 feet below land surface) is of sufficient yield and quality and can be considered as a potential water supply. EPA's Ground Water Protection Strategy and Classification Guidelines define the various ground water classes based on the ground water use. There are no known populations currently obtaining drinking water from the shallow aquifer. The former facility did not obtain their water supply from the shallow aquifer. Because the shallow aquifer is not considered irreplaceable (i.e. no reasonable alternative source of drinking water would be available to substantial populations) nor ecologically vital to any habitat, the Class I classification can be eliminated. The shallow aquifer does not have a total dissolved solids value of 10,000 mg/L or higher eliminating the Class III classification. The shallow aquifer is not currently being used, eliminating the Class IIA classification. However, there is potential for drinking, agriculture, or other beneficial uses, and the shallow aquifer is best classified as Class IIB. The analytical results of samples from twelve on-site monitor wells completed in the shallow aquifer were included in the baseline human health risk assessment.

SUMMARY OF SITE RISKS

A baseline risk assessment was performed to estimate the probability and magnitude of potential adverse human health effects from exposure to contaminants associated with the Site assuming no remedial action was taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The public health risk assessment followed a four step process: 1) identification of the chemicals of concern from those hazardous substances which, given the specifics of the Site were of significant concern; 2) exposure

002467

assessment, which identified actual or potential exposure pathways, characterized the potentially exposed populations, and determined the extent of possible exposure; 3) toxicity assessment, which considered the types and magnitude of adverse health effects associated with exposure to hazardous substances, and 4) risk characterization and uncertainty analysis, which integrated the three earlier steps to summarize the potential and actual risks posed by hazardous substances at the Site, including carcinogenic and non-carcinogenic risks and a discussion of the uncertainty in the risk estimates. A summary of those aspects of the human health risk assessment which support the need for remedial action is discussed in the following sections. The risk assessment is based on data collected during the 2000 RI field effort.

Identification of Chemicals of Concern

The chemicals of potential concern were selected to represent potential Site related hazards based on toxicity, concentration, frequency of detection, and mobility and persistence in the environment and can be found in the Human Health Risk Assessment. From this, a subset of the chemicals were identified in the FS as presenting a significant current or future risk and are referred to as the chemicals of concern (COCs) in this ROD. Table 1 summarizes the COCs and contains the exposure point concentrations used to evaluate the reasonable maximum exposure scenario (RME) in the baseline risk assessment for the COCs. Estimates of average or central tendency exposure concentrations for the COCs and all chemicals of potential concern can be found the Human Health Risk Assessment.

Arsenic and PCP are the principal constituents of the two treatment liquids used during wood treating operations at the Site and are the two primary COCs selected for evaluation in the Human Health Risk Assessment. Dioxin/furans were not selected as a COC because the exposure point concentration at the 95% upper confidence limit (UCL) is 0.48 parts per billion (ppb), which is below the EPA recommended range of 5 to 20 ppb established for commercial industrial settings, or even the more stringent 1 ppb set for residential settings (OSWER Directive 9200.4-26: Approach for Addressing Dioxin in Soil for CERCLA and RCRA sites).

Soil in and around the Mountain Pine Site was sampled extensively in previous investigations and during the 2000 RI field effort. In the 2000 RI field effort, three soil stations were identified to establish site-specific background for metals of primary interest (arsenic, chromium, copper, and zinc). COCs were identified by comparing the maximum detected concentration of each chemical detected in soil (0 to 2 feet and 0 to 4 feet bls) with the EPA Region 6 media screening levels (MSLs) for residential soils. If the maximum detected chemical concentration in soil was less than the MSL for carcinogens or 10 percent of the Region 6 MSL (corresponding to a hazard quotient = 0.1) for

002468

noncarcinogens, it was eliminated from consideration as a COC. The essential human nutrient metals, including sodium, potassium, calcium, and magnesium, were eliminated from consideration as COCs. The principal COC for the soil pathway is arsenic and PCP.

COCs in surface water were identified by comparing the maximum detected concentration of each chemical with the lowest value of the following criteria: National Recommended Water Quality Criteria (NRWQC) for the consumption of water and organisms; Federal MCLs; EPA Region 6 Tap Water MSLs calculated with a target risk of 1 x 10^{-6} or a hazard quotient of 0.1 (calculated as 10 percent of the Region 6 MSLs for non-carcinogens). If the maximum chemical concentration in surface water was less than the risk-based screening criteria, it was eliminated from consideration as a COC. The principal COC for the water pathway is arsenic.

COCs in sediments were identified by comparing the maximum concentration of each chemical detected in either on-site or off-site sediment with the Region 6 residential soil screening level. Essential human nutrient metals (sodium, potassium, calcium and magnesium) were eliminated from consideration as COPCs. The principal COC for the sediment pathway is arsenic.

Maximum detected contaminant concentrations in the shallow aquifer were compared to the following two criteria: Maximum Contaminant Levels (MCLs) established under the SDWA, and if no MCLs were available, the EPA Region 6 Tap Water MSLs calculated with a target risk of $1x10^{-6}$ for carcinogens and using a hazard quotient of 0.1 for non-carcinogens. Chemicals with maximum concentrations below these screening levels or those chemicals considered essential human nutrient metals (sodium, potassium, calcium, and magnesium) were eliminated as COCs. Ground water sampling indicated the presence of metals, including arsenic, slightly above background but below health based criteria. PCP was not detected in the shallow aquifer ground water.

Table 1
Summary of Chemicals of Concern and Exposure Point Concentrations

Receptor	Exposure Medium	Chemical of Concern	Maximum Concentration (mg/kg or mg/L)	Exposure Point Concentration (mg/kg)	Statistical Measure
Industrial Worker	On-Site Soil (0- 2 ft)	Pentachlorophenol	2400	47	95% UCL
		Arsenic	1300	47	95% UCL
	On-Site Sediment	Pentachlorophenol	30	30	Maximum Detection

002469

Table 1
Summary of Chemicals of Concern and Exposure Point Concentrations

Receptor	Exposure Medium	Chemical of Concern	Maximum Concentration (mg/kg or mg/L)	Exposure Point Concentration (mg/kg)	Statistical Measure
		Arsenic	48,000	34,000	95% UCL
	On-Site Surface Water	Pentachlorophenol	0.001	0.00038	95% UCL
		Arsenic	2.9	2.2	95% UCL
	RHP Soil (0-2 ft)	Pentachlorophenol	97	97	Maximum Detection
		Arsenic	62	62	Maximum Detection
	RHP Soil (>2 ft)	Pentachlorophenol	2000	2000	Maximum Detection
		Arsenic	440	440	Maximum Detection
	SEP Area Soil	Pentachlorophenol	2400	2400	Maximum Detection
		Arsenic	1300	1300	Maximum Detection
	Incinerator Area Soil	Arsenic	17	17	Maximum Detection
	CCA/PCP Area Soil	Pentachlorophenol	3.6	3.6	Maximum Detection
		Arsenic	75	75	Maximum Detection
	New CCATP Area Soil	Pentachlorophenol	120	120	Maximum Detection
		Arsenic	130	130	Maximum Detection

Table 1
Summary of Chemicals of Concern and Exposure Point Concentrations

Receptor	Exposure Medium	Chemical of Concern	Maximum Concentration (mg/kg or mg/L)	Exposure Point Concentration (mg/kg)	Statistical Measure
Construction Worker	On-Site Soil (0-4 ft)	Pentachlorophenol	2400	59	95% UCL
		Arsenic	1300	44	95% UCL
Recreational Youth	Off-Site Drainage Ditch Surface Water	Pentachlorophenol	0.00076	0.00076	Maximum Detection
		Arsenic	0.024	0.024	Maximum Detection
	Porter Creek Surface Water	Arsenic	0.0062	0.0062	Maximum Detection
	Porter Creek Sediment	Arsenic	8.5	8.5	Maximum Detection
	Off-Site Drainage Ditch Sediment	Arsenic	17	17	Maximum Detection

Key: **mg/kg**: milligrams per kilogram; **mg/L**: milligrams per Liter; **95% UCL**: 95% Upper Confidence Limit

The table presents the COCs and exposure point concentration for each of the COCs detected in the media (*i.e.*, the concentration that will be used to estimate the exposure and risk from each COC in the soil, sediment, and surface water). The table includes the maximum concentrations detected for each COC, the exposure point concentration (EPC), and how the EPC was derived. The 95% UCL on the arithmetic mean or the maximum detected concentration was used as the exposure point concentration for the COCs.

Exposure Assessment

Potential human health effects associated with exposure to the COCs were estimated through the development of several hypothetical exposure pathways. These pathways were developed to reflect the potential for exposure to hazardous substances based on the present uses, potential future uses, and location of the Site. Exposure assessment is the determination or estimation of the magnitude,

002471

frequency, duration, and route of potential exposure. This section summarizes the potential receptors and the pathways that were considered complete based on the Conceptual Site Model and the description presented in the Summary of Potential and Future Land and Water Uses in this ROD. The three exposure pathways evaluated for this Site include the Future Industrial Worker and Future Construction Worker, and a Recreational Youth for the off-site drainage ditch and Porter Creek. The exposure assumptions used for the exposure pathways for each scenario are summarized in Table 2. A more thorough description of all exposure pathways evaluated in the risk assessment, including estimates for an average exposure scenario, can be found in the Human Health Risk Assessment.

Table 2
Exposure Assumptions

Factor	Media	Industrial Worker	Construction Worker	Recreational Youth Drainage Ditch	Recreational Youth Porter Creek
Ingestion Rate	Soil/Sediment	50 mg/day	480 mg/day	100 mg/day	100 mg/day
	Surface Water	0.05 L/hr	NA	0.05 L/hr	0.05 L/hr
Skin Surface Area		2679 cm^2	2679 cm^2	4785 cm^2	4785 cm^2
Particulate Emission Factor (m^3/kg)		5.46×10^{-8}	5.46×10^{-8}	5.46×10^{-8}	5.46×10^{-8}
Inhalation Rate (m^3/day)		20	20	20	20
Exposure Frequency (days/year)	Soil	250	40 days	NA	NA
	Sediment	25	NA	60	30
	Surface Water	25	NA	60	30
Exposure Duration (years)		25	1	10	10
Body Weight (kg)		70	70	43	43
Average Time (days)	non-cancer	9125	365	3650	3650
	cancer	25,550	25,550	25,550	25,550

002472

Table 2 **Exposure Assumptions**					
Factor	**Media**	**Industrial Worker**	**Construction Worker**	**Recreational Youth Drainage Ditch**	**Recreational Youth Porter Creek**
Dermal Absorption Factor	Dermal absorption factors are chemical-specific and are provided in Appendix B, Tables 4.01b - 4.27b of the Human Health Risk Assessment				

Toxicity Assessment

Excess lifetime cancer risks were determined for each exposure pathway by multiplying a daily intake level with the chemical specific cancer potency factor. Cancer potency factors have been developed by the EPA from epidemiological or animal studies to reflect a conservative "upper bound" of the risk posed by potentially carcinogenic compounds. That is, the true risk is unlikely to be greater than the risk predicted. The resulting risk estimates are expressed in scientific notation as a probability (e.g. 1×10^{-6} for 1/1,000,000) and indicate (using this example), that an average individual is not likely to have greater that a one in a million chance of developing cancer over 70 years as a result of site-related exposure (as defined) to the compound at the stated concentration. All risks estimated represent an "excess lifetime cancer risk" - or the additional cancer risk on top of that which we all face from other causes such as cigarette smoke or exposure to ultraviolet radiation from the sun. The chance of an individual developing cancer from all other (non-site related) causes has been estimated to be as high as one in three. The EPA's generally acceptable risk range for site related exposure is 10^{-4} to 10^{-6}. Current EPA practice considers carcinogenic risks to be additive when assessing exposure to a mixture of hazardous substances.

Carcinogenic and noncarcinogenic risk estimates were calculated using a reasonable maximum exposure (RME). Excess lifetime cancer risk is calculated from the following equation: Risk = CDI x SF, where:

- Risk = a unitless probability (*e.g.*, 2×10^{-5}) of an individual's developing cancer
- CDI = chronic daily intake averaged over 70 years (mg/kg-day)
- SF = slope factor, expressed as (mg/kg-day)-1.

A summary of the cancer toxicity data relevant to the COCs is presented in Table 3.

Table 3
Cancer Toxicity Data Summary

Chemical of Concern	Oral Cancer Slope Factor (mg/kg)/day	Dermal Cancer Slope Factor (mg/kg)/day	Inhalation Cancer Slope Factor (mg/kg)/day	Weight of Evidence/Cancer Guideline Description	Source	Date
Pentachlorophenol	0.12	0.12	0.12	B2	IRIS	2000/2001
Arsenic	1.5	1.5	15	A	IRIS	2001

Key

IRIS: Integrated Risk Information System, U.S. EPA

HEAST: Health Effects Assessment Summary Tables

EPA Group:
A - Human carcinogen
B1 - Probable human carcinogen - Indicates that limited human data are available
B2 - Probable human carcinogen - Indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen

The potential for non-carcinogenic effects is evaluated by comparing an exposure level over a specified time period (*e.g.*, life-time) with a reference dose (RfD) derived for a similar exposure period. An RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effect. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ < 1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic noncarcinogenic effects from that chemical are unlikely. The Hazard Index (HI) is generated by adding the HQs for all chemical(s) of concern that affect the same target organ (*e.g.*, liver) or that act through the same mechanism of action within a medium or across all media to which a given individual may reasonably be exposed. A HI < 1 indicates that, based on the sum of all HQ's from different contaminants and exposure routes, toxic noncarcinogenic effects from all contaminants are unlikely. A HI > 1 indicates that site-related exposures may present a risk to human health.

The HQ is calculated as follows: Non-cancer HQ = CDI/RfD, where:
CDI = Chronic daily intake
RfD = reference dose.

CDI and RfD are expressed in the same units and represent the same exposure period (*i.e.*, chronic, subchronic, or short-term). Table 4 lists the COCs and their respective non-cancer toxicity data.

002474

Table 4
Non-Cancer Toxicity Data Summary

Chemical of Concern	Chronic Oral RfD Value (mg/kg-day)	Chronic Dermal RfD (mg/kg-day)	Chronic Inhalation RfD (mg/kg-day)	Primary Target Organ	Sources of RfD: Target Organ	Dates of RfD:
Pentachlorophenol	0.03	0.03	0.03	Liver/ Kidney/ Fetotoxicity	IRIS/ EPA Region 6	2001/ 2000
Arsenic	0.0003	0.0003	no value	Skin	IRIS	2001

Key: IRIS: Integrated Risk Information System, U.S. EPA

Risk Characterization

Tables 5 - 8 depict the carcinogenic risk summary for the COCs in soil, sediment, and surface water. The risk characterization reflects the actual or potential ingestion, inhalation, and dermal exposure for on-site future industrial workers and construction workers, and off-site recreational youth corresponding to the reasonable maximum exposure (RME) scenario. Only those exposure pathways deemed relevant to the remedy selection are presented in this ROD. The carcinogenic risk to future industrial workers from exposure to the site-wide soils (0 - 2 ft) is within the EPA's acceptable risk range, while the exposure to site-wide surface water and sediment (principally found in the SEP and drainage ditch) exceeds the EPA's acceptable risk range (Table 5). The carcinogenic risk for industrial workers from exposure to surface soil in selected process areas or waste management areas exceeds the EPA's acceptable risk range (Table 5). The carcinogenic risk to future construction workers from exposure to arsenic and PCP in the on-site soils are within the EPA's acceptable risk range (Table 6). The carcinogenic risks to recreational youth from exposure to arsenic and PCP in the off-site areas of the drainage ditch and Porter Creek are within the EPA's acceptable risk range (Tables 7 and 8). Readers are referred to the Human Health Risk Assessment for a more comprehensive risk summary of all exposure pathways evaluated for all chemicals of potential concern and for estimates of the central tendency risk.

002475

Table 5
Carcinogenic Risk Characterization Summary
Industrial Worker Scenario Based on Reasonable Maximum Exposure

Exposure Medium	Chemical of Concern	Carcinogenic Risk			
		Ingestion	Inhalation	Dermal	Exposure Routes Total
On-Site Soil (0-2 ft)	Pentachlorophenol	9.9×10^{-7}	7.3×10^{-10}	2.7×10^{-6}	3.7×10^{-6}
	Arsenic	1.2×10^{-5}	9.1×10^{-8}	4.0×10^{-6}	1.6×10^{-5}
				Total Carcinogenic Risk =	**6.0×10^{-5}**
On-Site Sediment	Pentachlorophenol	6.3×10^{-8}	4.6×10^{-11}	1.7×10^{-7}	2.3×10^{-7}
	Arsenic	8.9×10^{-4}	6.6×10^{-6}	2.9×10^{-4}	1.2×10^{-3}
				Total Carcinogenic Risk =	**1.3×10^{-3}**
On-Site Surface Water	Pentachlorophenol	6.4×10^{-9}	NA	1.4×10^{-7}	1.4×10^{-7}
	Arsenic	4.6×10^{-4}	NA	2.5×10^{-5}	4.9×10^{-4}
				Total Carcinogenic Risk =	**4.9×10^{-4}**
RHP Soil (0 - 2 ft)	Pentachlorophenol	2.0×10^{-6}	1.5×10^{-9}	5.4×10^{-6}	7.5×10^{-6}
	Arsenic	1.6×10^{-5}	1.2×10^{-7}	5.2×10^{-6}	2.2×10^{-5}
				Total Carcinogenic Risk =	**3.6×10^{-4}**
RHP Soil (>2 ft)	Pentachlorophenol	4.2×10^{-5}	3.1×10^{-8}	1.1×10^{-4}	1.5×10^{-4}
	Arsenic	1.2×10^{-4}	8.6×10^{-7}	3.7×10^{-5}	1.5×10^{-4}
				Total Carcinogenic Risk =	**3.1×10^{-4}**
SEP Area Soil	Pentachlorophenol	2.0×10^{-6}	1.5×10^{-9}	5.4×10^{-6}	7.5×10^{-6}
	Arsenic	1.6×10^{-5}	1.2×10^{-7}	5.2×10^{-6}	2.2×10^{-5}
				Total Carcinogenic Risk =	**3.1×10^{-4}**
Former Incinerator Area Soils	Arsenic	4.4×10^{-6}	3.2×10^{-8}	1.4×10^{-6}	5.9×10^{-6}
				Total Carcinogenic Risk =	**1.1×10^{-5}**

Table 5
Carcinogenic Risk Characterization Summary
Industrial Worker Scenario Based on Reasonable Maximum Exposure

Exposure Medium	Chemical of Concern	Carcinogenic Risk			
		Ingestion	Inhalation	Dermal	Exposure Routes Total
CCA/PCP Area Soils	Pentachlorophenol	7.5×10^{-8}	5.5×10^{-11}	2.0×10^{-7}	2.8×10^{-7}
	Arsenic	2.0×10^{-5}	1.5×10^{-7}	6.3×10^{-6}	2.6×10^{-5}
	Total Carcinogenic Risk =				**2.2×10^{-4}**
New CCATP Area Soils	Pentachlorophenol	2.5×10^{-6}	1.8×10^{-9}	6.7×10^{-6}	9.3×10^{-6}
	Arsenic	3.5×10^{-5}	2.6×10^{-7}	1.1×10^{-5}	4.6×10^{-5}
	Total Carcinogenic Risk =				**1.7×10^{-4}**

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of an adult's exposure to soil, sediment, and surface water for 25 years, as well as the toxicity of the chemicals of concern. The chemicals of concern contributing most to this risk level are pentachlorophenol and arsenic. This risk level indicates that if no clean-up action is taken, an individual would have an increased probability of developing cancer as a result of specific site-related exposure scenarios to the COCs.

Table 6
Carcinogenic Risk Characterization Summary
Construction Worker Scenario Based on Reasonable Maximum Exposure

Chemical of Concern	Carcinogenic Risk			
	Ingestion	Inhalation	Dermal	Exposure Routes Total
Pentachlorophenol	7.6×10^{-8}	5.8×10^{-12}	2.1×10^{-8}	9.7×10^{-8}
Arsenic	7.0×10^{-7}	5.4×10^{-10}	2.4×10^{-8}	7.3×10^{-7}
Total Carcinogenic Risk =				**2.7×10^{-6}**

002477

Table 6
Carcinogenic Risk Characterization Summary
Construction Worker Scenario Based on Reasonable Maximum Exposure

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of an adult's exposure to soil for 1 year, as well as the toxicity of the chemicals of concern. The chemicals of concern contributing most to this risk level are pentachlorophenol and arsenic. This risk level indicates that if no clean-up action is taken, an individual would not have an increased probability of developing cancer as a result of site-related exposure to the chemicals of concern.

Table 7
Carcinogenic Risk Characterization Summary
Recreational Youth Scenario for Off-Site Drainage Ditch Based on Reasonable Maximum Exposure

Chemical of Concern	Exposure Medium	Carcinogenic Risk			
		Ingestion	Inhalation	Dermal	Exposure Routes Total
Pentachlorophenol	Surface Water	6.5×10^{-9}	NA	2.5×10^{-10}	6.7×10^{-9}
Arsenic	Surface Water	2.6×10^{-6}	NA	1.2×10^{-9}	2.6×10^{-6}
	Sediment	1.4×10^{-6}	5.2×10^{-9}	4.1×10^{-7}	1.8×10^{-6}
Total Carcinogenic Risk =					**1.4×10^{-6}**

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of a recreational youth's exposure to surface water and sediment in the off-site drainage ditch for 10 years, as well as the toxicity of the chemicals of concern. The chemicals of concern contributing most to this risk level are arsenic. This risk level indicates that if no clean-up action is taken, an individual would not have an increased probability of developing cancer as a result of site-related exposure to the chemicals of concern.

002478

Table 8
Carcinogenic Risk Characterization Summary
Recreational Youth Scenario for Porter Creek Based on Reasonable Maximum Exposure

Chemical of Concern	Exposure Medium	Carcinogenic Risk			
		Ingestion	Inhalation	Dermal	Exposure Routes Total
Arsenic	Surface Water	3.8×10^{-7}	NA	1.8×10^{-7}	5.6×10^{-7}
	Sediment	3.5×10^{-7}	1.3×10^{-9}	1.0×10^{-7}	4.5×10^{-7}
				Total Carcinogenic Risk =	**1.1×10^{-6}**

This table provides risk estimates for the significant routes of exposure. These risk estimates are based on a reasonable maximum exposure and were developed by taking into account various conservative assumptions about the frequency and duration of a recreational youth's exposure to surface water and sediment in the off-site Porter Creek for 10 years, as well as the toxicity of the chemicals of concern. The chemicals of concern contributing most to this risk level are arsenic. This risk level indicates that if no clean-up action is taken, an individual would not have an increased probability of developing cancer as a result of site-related exposure to the chemicals of concern.

Tables 9 - 12 depict the non-carcinogenic risk summary for the COCs in soil, sediment, and surface water. The risk characterization reflects present and potential future ingestion, inhalation, and dermal exposure for on-site future industrial workers and construction workers, and off-site recreational youth corresponding to the reasonable maximum exposure (RME) scenario. Only those exposure pathways deemed relevant to the remedy selection are presented in this ROD. The non-carcinogenic risk to future industrial workers from exposure to the site-wide soils (0 - 2 ft) is within the EPA's acceptable risk range, while the exposure to site-wide surface water and sediment (principally found in the SEP and drainage ditch) exceeds the EPA's acceptable risk range (Table 9). The non-carcinogen risk for industrial workers from exposure to surface soil only in selected process areas or waste management areas exceeds the EPA's acceptable risk range around the SEP area and in the RHP at depths greater than 2 feet (Table 9). The non-carcinogenic risk to future construction workers from exposure to arsenic and PCP in the on-site soils are within the EPA's acceptable risk range (Table 10). The non-carcinogenic risks to recreational youth from exposure to arsenic and PCP in the off-site areas of the drainage ditch and Porter Creek are within the EPA's acceptable risk range (Tables 11 and 12).

Table 9
Non-Carcinogen Risk Characterization Summary
Industrial Worker Scenario Based on Reasonable Maximum Exposure

Exposure Medium	Chemical of Concern	Primary Target Organ	Non-Carcinogen Hazard Quotient			
			Ingestion	Inhalation	Dermal	Exposure Routes Total
On-Site Soil (0 - 2 ft)	Pentachlorophenol	Liver/Kidney	7.74×10^{-4}	5.67×10^{-7}	0.0021	0.0028
	Arsenic	Skin	0.077	—	0.025	0.10
	Total Hazard Index =					< 1
On-Site Sediment	Pentachlorophenol	Liver/Kidney	4.89×10^{-5}	3.59×10^{-8}	1.31×10^{-4}	1.80×10^{-4}
	Arsenic	Skin	5.6	—	1.8	7.4
	Total Hazard Index =					7.4
On-Site Surface Water	Pentachlorophenol	Liver/Kidney	0.04	1.47×10^{-5}	0.1	0.1
	Arsenic	Skin	2	—	1	3
	Total Hazard Index =					3
RHP Area Soil (0 - 2 ft)	Pentachlorophenol	Liver/Kidney	0.0016	1.2×10^{-6}	0.0042	0.0058
	Arsenic	Skin	0.1	—	0.033	0.13
	Total Hazard Index =					< 1
RHP Area Soil (>2 ft)	Pentachlorophenol	Liver/Kidney	0.033	2.4×10^{-5}	0.087	0.12
	Arsenic	Skin	0.72	—	0.23	0.95
	Total Hazard Index =					> 1
SEP Area Soil	Pentachlorophenol	Liver/Kidney	0.04	1.47×10^{-5}	0.1	0.1
	Arsenic	Skin	2	—	1	3
	Total Hazard Index =					3

002480

Table 9
Non-Carcinogen Risk Characterization Summary
Industrial Worker Scenario Based on Reasonable Maximum Exposure

Exposure Medium	Chemical of Concern	Primary Target Organ	Non-Carcinogen Hazard Quotient			
			Ingestion	Inhalation	Dermal	Exposure Routes Total
Former Incinerator Area Soil	Arsenic	Skin	2.7×10^{-2}	—	8.8×10^{-3}	3.6×10^{-2}
					Total Hazard Index =	< 1
CCA/PCP Area Soil	Pentachlorophenol	Liver/Kidney	5.9×10^{-5}	4.3×10^{-8}	1.6×10^{-4}	2.2×10^{-4}
	Arsenic	Skin	0.12	—	0.039	0.16
					Total Hazard Index =	< 1
New CCATP Area Soil	Pentachlorophenol	Liver/Kidney	0.002	1.4×10^{-6}	0.0052	0.0072
	Arsenic	Skin	0.22	—	0.069	0.28
					Total Hazard Index =	< 1

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of > 1 indicates that the potential for adverse non-cancer effects in an industrial worker can occur from exposure to the COCs under specific exposure scenarios at the Site.

Table 10
Non-Carcinogen Risk Characterization Summary
Construction Worker Scenario Based on Reasonable Maximum Exposure

Exposure Medium	Chemical of Concern	Primary Target Organ	Non-Carcinogen Hazard Quotient			
			Ingestion	Inhalation	Dermal	Exposure Routes Total
On-Site Soil (0-4 ft)	Pentachlorophenol	Liver/Kidney	0.0015	1.13×10^{-7}	4.11×10^{-4}	0.0019
	Arsenic	Skin	0.11	—	0.0037	0.11
					Total Hazard Index =	< 1

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of < 1 indicates that the potential for adverse non-cancer effects in a construction worker would not occur from exposure to the COCs in the site-wide soils.

Table 11
Non-Carcinogen Risk Characterization Summary
Recreational Youth Exposure Scenario for Off-Site Drainage Ditch Based on Reasonable Maximum Exposure

Chemical of Concern	Primary Target Organ	Exposure Medium	Non-Carcinogen Hazard Quotient			
			Ingestion	Inhalation	Dermal	Exposure Routes Total
Pentachlorophenol	Liver/Kidney	Surface Water	1.26×10^{-5}	NA	4.82×10^{-7}	1.31×10^{-5}
		Sediment	—	—	—	---
Arsenic	Skin	Surface Water	0.040	NA	3.87×10^{-6}	0.040
		Sediment	0.022	NA	0.0063	0.028
					Total Hazard Index =	< 1

002482

Table 11 **Non-Carcinogen Risk Characterization Summary** **Recreational Youth Exposure Scenario for Off-Site Drainage Ditch Based on Reasonable Maximum Exposure**
This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of < 1 indicates that the potential for adverse non-cancer effects in a recreational youth would not occur from exposure to the COCs in the sediment and surface water of the off-site drainage ditch.

Table 12
Non-Carcinogen Risk Characterization Summary
Recreational Youth Exposure Scenario for Porter Creek Based on Reasonable Maximum Exposure

Chemical of Concern	**Primary Target Organ**	**Exposure Medium**	**Non-Carcinogen Hazard Quotient**			
			Ingestion	**Inhalation**	**Dermal**	**Exposure Routes Total**
Arsenic	Skin	Surface Water	0.006	NA	5.67×10^{-4}	0.006
		Sediment	0.0054	NA	0.0016	0.007
					Total Hazard Index =	< 1

This table provides hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients) for all routes of exposure. The Risk Assessment Guidance (RAGS) for Superfund states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse non-cancer effects. The estimated HI of < 1 indicates that the potential for adverse non-cancer effects in a recreational youth would not occur from exposure to the COCs in the sediment and surface water of Porter Creek.

Estimates of exposure and risk are subject to a number of uncertainties that may lead to either an overestimate or an underestimate of risk. Assumptions made in the risk assessment that are likely to overestimate risk include the use of a simplifying assumption that no contaminant loss would occur over the duration of the 10 to 25-year exposure. Overestimating risk can also occur through the use of conservative exposure factors, use of conservative exposure point concentrations, and the use of conservative RfDs and SFs. Factors that are likely to underestimate risk include errors associated with sampling and analysis that may result in lower sample concentrations and yield an underestimate of the true risk or hazard, and toxicity values that are not available for every chemical, for every exposure duration, or for all exposure routes.

It is the EPA's current judgment that the selected remedy identified in this ROD is necessary to protect public health and welfare and the environment from actual or threatened releases of hazardous substances into the environment.

PRINCIPAL AND LOW-LEVEL THREAT WASTES

Principal threat wastes are those source materials that are highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. The source materials include liquids and other highly mobile materials (e.g., solvents) or materials having high concentrations of toxic compounds. Low level threat wastes are source materials that generally can be reliably contained and that would present only a low risk in the event of release. The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable.

The Site investigation did not identify liquids or semi-liquid wastes that would appear to be a highly mobile source material. Also, the risk evaluation did not identify any wastes that are highly toxic to human health under the industrial/commercial exposure scenario. The former RHP contains wood preserving wastes that have been stabilized through the addition of rice hulls and kiln dust as part of the prior emergency response action at the Site. While the untreated soils in the RHP may act as potential source of contamination to the shallow aquifer, the subsurface conditions limit the potential mobility of any contaminants leaching from the soil. Therefore, the EPA has determined the contaminated soils and sediment to be a low-level threat waste based on the overall risk posed by the contamination and the low mobility of the contaminants in the soil and sediment.

REMEDIAL ACTION OBJECTIVES AND GOALS

Remedial action objectives (RAOs) were developed for the Mountain Pine Site for those COCs that pose a carcinogenic risk above EPA's target cancer risk range or non-carcinogenic hazard to human health and the environment based on site-specific risk calculations. RAOs are also defined such that Applicable or Relevant and Appropriate Requirements (ARARs) are met. The Remedial Action Objectives were developed based on the following:

- The reasonable anticipated land use scenario is based on the future redevelopment of this vacant Site for industrial or commercial use, consistent with the City of Plainview redevelopment plans;
- Potential ecological risks will not be a factor because the future planned industrial use will likely not support an ecological habitat.

002484

The remedial action objectives for this Site are:

- Prevent direct contact, ingestion, and inhalation of surface and subsurface soils that exceed human health based levels, based on industrial and construction worker scenarios, for the chemicals of concern arsenic and PCP;
- Prevent off-site migration of arsenic and PCP to surface water and wetland sediments that exceed human and ecological based levels for the chemicals of concern; and,
- Prevent or minimize potential leaching of PCP and arsenic from the soils to the ground water.

The remedial cleanup goals for this Site are 287 mg/kg for arsenic and 130 mg/kg for PCP in soil and sediment. The areal extent of soil and sediment exceeding the remedial cleanup goals is approximately 218,000 ft^2, or 5 acres.

DESCRIPTION OF REMEDIAL ALTERNATIVES

Statutory Requirements/Response Objectives

Under its legal authorities, the EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA, 42 U.S.C. § 9621, establishes several other statutory requirements and preferences, including: (1) a requirement that EPA's remedial action, when complete, must comply with all applicable, relevant, and appropriate federal and more stringent state environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked; (2) a requirement that EPA select a remedial action that is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (3) a preference for remedies in which treatment permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances. Response alternatives were developed to be consistent with these statutory mandates.

Technology and Alternative Development and Screening

Presumptive remedies are preferred technologies for common categories of sites, based on the EPA's experience and its scientific and engineering evaluation of alternative technologies. The presumptive remedies for wood treater sites provides guidance on selecting remedies for cleaning up soils, sediments, and sludges that are contaminated primarily with creosote, PCP, and/or CCA [see Presumptive Remedies for Soils, Sediments, and Sludges at Wood Treater Sites, OSWER Directive

002485

9200.5-162, EPA/540/R-95/128]. The presumptive remedies for wood treater sites with soils, sediments, and sludges contaminated with organic contaminants are bioremediation, thermal desorption, and incineration. The presumptive remedy for soils, sediments, and sludges contaminated with inorganic contaminants is immobilization. At wood treater sites, inorganic contamination can be commingled with organic contamination and one or more technologies may be necessary to treat the soils, sediments, and sludges.

The development of the remedial alternatives for addressing risks to human health from the contaminated soils and sediments at the Mountain Pine Site included the use of bioremediation, and immobilization (stabilization/solidification). The use of thermal desorption and incineration were not included in the remedial alternative development due to inefficiencies associated with heating soils with a high clay and silt content, the high arsenic content in the soils and sediment, and the presence of the nearby residential area. Remedial alternatives that utilize bioremediation require the combination of an additional technology or engineering control to treat the arsenic. Site-specific treatability studies were conducted to ensure that a solidification/stabilization formulation can be developed that meets site-specific requirements for low leachability of both organic and inorganic contaminants, low permeability, and high compressive strength. Engineering controls were evaluated in the remedial alternatives since the contaminated soils and sediments were identified as a low-level threat waste that can be can be reliably contained and would present only a low risk in the event of release.

CERCLA and the National Contingency Plan (NCP) set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, a range of alternatives were developed to address the soil and sediment contamination at the Mountain Pine Site. In summary, seven remedial alternatives involving differing treatment and engineering control options for the soil and sediment contamination were selected for detailed analysis. Detailed descriptions of the remedial alternatives for addressing the contamination associated with the Site can be found in the RI/FS reports. The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy or procure contracts for construction. The present-worth costs associated with the ground water monitoring requirements are calculated using a discount rate of seven percent and a 2 to 10-year time interval.

Summary of Remedial Alternatives for Soils and Sediment

Alternative 1: No Further Action

Estimated Capital Cost: $0
Estimated Annual O&M Costs: $0
Estimated Present Worth (7%): $0

002486

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

002487

Alternative 2: Consolidation and Capping in RHP and SEP
Estimated Capital Cost: $2,050,000
Estimated Annual O&M Costs: $101,000 - $56,000
Estimated Total O&M Costs: $480,000
Estimated Present Worth (7%): $2,530,000
Time Needed to Implement Remedy: 3 - 6 months

This alternative includes the excavation of all soils that exceed the cleanup goal for arsenic and PCP (approximately 5 acres), consolidation of the soil and sediment into the RHP and SEP, and then covering the two separate areas with a low permeability cap. The estimated volume of contaminated soil to be excavated is 22,100 cubic yards. The actual extent of the excavation and the volume of the excavated material would be based on post-excavation confirmatory sampling. The SEP would be dewatered and the water treated prior to discharge into the drainage ditch. To obtain access to all of the contaminated soils, this alternative also includes building demolition, including the CCA and PCP plants, the "new CCTAP", and other ancillary buildings and structures. Prior to demolition, asbestos will be removed from the structures to prevent the release of fibers to the atmosphere. The building debris, after decontamination, if necessary, would be disposed either on-site or off-site in a solid waste landfill or hazardous waste landfill, or a combination of both. The time to implement this remedy is expected to be 3 to 6 months.

The surface water from the SEP may be treated through a granular activated carbon (GAC) unit to remove the contaminants. The contaminants in the water adsorb onto the carbon particles and the treated water exits the GAC unit. Disposal of the spent carbon granules will be accomplished through off-site disposal or regeneration at a permitted facility. Disposal of the treated water may be accomplished via discharge into the drainage ditch which flows into the nearby Porter Creek. The treated water will be required to meet the discharge standards under the National Pollutant Discharge Elimination System (NPDES).

Ground water monitoring would be conducted around each of the disposal areas to detect potential leachate from the former pond areas. For cost estimating purposes, the ground water monitoring is predicted to continue for 10 years.

Placement of an institutional control on the Site property, such as a property easement or other appropriate mechanism, to protect human health and prevent accidental exposure through the following actions: 1) alert prospective purchasers that hazardous substances are present at the Site and explaining the actions taken to address the Site contamination; 2) document the restricted activities that would interfere with or adversely affect the integrity or protectiveness of the remedy implemented at the Site;

and 3) ensure future site development is consistent with the industrial/commercial human health exposure scenario (i.e., non-residential usage) that is the basis for the soil cleanup goals for PCP and arsenic.

Alternative 3: In-Situ Bioremediation in Recovery Holding Pond and Immobilization in Spray Evaporation Pond
Estimated Capital Cost: $6,930,000
Estimated Annual O&M Costs: $103,000 - $49,000
Estimated Total O&M Costs: $457,000
Estimated Present Worth (7%): $7,387,000
Time Needed to Implement Remedy: 3 - 6 months

Alternative 3 consists of in-situ biological treatment of the PCP contaminated soils in the RHP by injecting air until biodegradation has achieved the cleanup goals followed by capping with soil. Other areas with soil containing PCP above the cleanup goal would be consolidated into the RHP. Arsenic contaminated soils would be consolidated and immobilized in the SEP and covered with a low permeable cap. This alternative also includes the use of institutional controls, structure and building demolition with off-site disposal, dewatering the SEP with treatment and discharge of the water, and ground water monitoring as described in Alternative 2. Ground water monitoring would be performed for a period of ten years to verify the effectiveness of the treatment process in reducing or preventing further leaching of contaminants to the ground water. The time to implement this remedy is expected to be 3 to 6 months.

Alternative 4: Excavation and On-Site Containment in CAMU
Estimated Capital Cost Cost: $3,360,000
Estimated Annual O&M Costs: $ 94,000 - $48,000
Estimated Total O&M Costs: $504,000
Estimated Present Worth (7%): $3,864,000
Time Needed to Implement Remedy: 6 - 12 months

Alternative 4 involves consolidation of soil and sediments that exceed the cleanup goals (approximately 5 acres) into an on-site Corrective Action Management Unit (CAMU) with a low permeability liner and cap to reduce infiltration and control leachate through a leachate collection system. This alternative also includes the use of institutional controls, structure and building demolition, dewatering the SEP with treatment and discharge of the water, and ground water monitoring as described in Alternative 2. Ground water monitoring would be performed for a period of ten years to verify the effectiveness of the engineering control in reducing or preventing further leaching of contaminants to the ground water. The

002489

structure and building demolition debris would also be disposed in the CAMU. The volume of material is estimated at approximately 22,100 cubic yards and the CAMU cell would be approximately 200 feet by 400 feet. The time to implement this remedy is expected to be 6 to 12 months.

Alternative 5: Excavation, Immobilization, and On-Site Containment in CAMU
Estimated Capital Cost: $6,110,000
Estimated Annual O&M Costs: $ 91,000 - $41,000
Estimated Total O&M Costs: $462,000
*Estimated Present Worth (7%): $*6,572,000
Time Needed to Implement Remedy: 6 - 12 months

Alternative 5 includes all of the remedy components from Alternative 4 plus the excavated material would be immobilized with additives prior to placement in a CAMU constructed in the dewatered SEP. Since the treated wastes would prevent or reduce the potential leaching of contaminants to ground water, the CAMU would be constructed without the low permeability liner or leachate collection system described in Alternative 4. This alternative also includes the use of institutional controls, structure and building demolition, dewatering the SEP with treatment and discharge of the water, and ground water monitoring as described in Alternatives 2 and 4. Ground water monitoring would be performed for a period of ten years to verify the effectiveness of the treatment process in reducing or preventing further leaching of contaminants to the ground water. The time to implement this remedy is expected to be 6 to 12 months.

Alternative 6: Excavation, Ex-Situ Bioremediation, and Off-Site Disposal
Estimated Capital Cost: $11,470,000
Estimated Annual O&M Costs: $58,000
Estimated Total O&M Costs: $238,000
*Estimated Present Worth (7%): $*11,708,000
Time Needed to Implement Remedy: 6 - 12 months

Alternative 6 consists of the same remedy components of Alternative 3 except that the treated materials are disposed off-site following treatment. All of the other remedy components from Alternative 3 would be implemented including ground water monitoring during biologic treatment of the PCP contaminated soils. Ground water monitoring would be performed for a period of five years to verify the effectiveness of the treatment process in reducing or preventing further leaching of contaminants to the ground water. This alternative also includes the use of institutional controls, structure and building demolition with off-site disposal, and dewatering the SEP with treatment and discharge of the water as described in Alternative 2. The time to implement this remedy is expected to be 6 to 12 months.

002490

002491

Alternative 7: Excavation, Immobilization and Capping
Estimated Capital Cost: $5,160,000
Estimated Annual O&M Costs: $ 101,000
Estimated Total O&M Costs: $182,000
*Estimated Present Worth (7%): $*5,342,000
Time Needed to Implement Remedy: 3 - 6 months

Alternative 7 includes the same waste treatment process as described in Alternative 5. The treated waste would then be returned to each of the excavated areas instead of consolidation in a CAMU. Wastes present in the RHP and SEP and the two outlying areas would be excavated, treated, returned to the excavated areas, and covered with soil. The wastes from the drainage ditch would be consolidated into either the Recovery or Spray Evaporation Ponds to avoid potential leaching along the drainage area. This alternative also includes the use of institutional controls, structure and building demolition with off-site disposal, dewatering the SEP with treatment and discharge of the water, and ground water monitoring as described in Alternative 2. Ground water monitoring would be performed for a period of two years to verify the effectiveness of the treatment process in reducing or preventing further leaching of contaminants to the ground water. The time to implement this remedy is expected to be 3 to 6 months.

Common Elements

Alternatives 2 through 7 contain the following common elements:

- The surface water would be pumped from the SEP to a wastewater treatment system prior to discharge to the drainage ditch and eventually into Porter Creek.
- The contaminated soils and sediment would be excavated prior to either treatment, consolidation, and/or off-site disposal.
- To obtain access to all of the contaminated soils, demolition of the buildings includes the CCA and PCP plants, the "new CCTAP", and other ancillary buildings and structures. Prior to demolition, asbestos will be removed from the structures to prevent the release of fibers to the atmosphere. The building debris, after decontamination, if necessary, would be disposed either on-site or off-site in a solid waste landfill or hazardous waste landfill, or a combination of both.
- A ground water monitoring program would be implemented around the disposal areas to ensure that contaminants are not leaching into the ground water. The anticipated length of the monitoring period varies between two years and ten years in Alternatives 2 through 7.
- Placement of an institutional control on the Site property, such as a property easement or other appropriate mechanism, to protect human health and prevent accidental exposure through the

002492

following actions: 1) alert prospective purchasers that hazardous substances are present at the Site and explaining the actions taken to address the Site contamination; 2) document the restricted activities that would interfere with or adversely affect the integrity or protectiveness of the remedy implemented at the Site; and 3) ensure future site development is consistent with the industrial/commercial human health exposure scenario (i.e., non-residential usage) that is the basis for the soil cleanup goals for PCP and arsenic.

COMPARATIVE ANALYSIS OF ALTERNATIVES

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

1. **Overall Protection of Human Health and the Environment** addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

All of the alternatives, except the no further action alternative, are protective of human health and the environment by eliminating, reducing, or controlling risks posed by the Site through treatment of soil contaminants, engineering controls, and/or institutional controls. Alternative 6 would eliminate the risk of direct exposure to contaminants in soils and sediments by potential human receptors through excavation and off-site disposal. Alternatives 3, 5, and 7 would reduce the risk of exposure through treatment of the contaminated soils and sediment and engineering controls for the treated waste disposed at the Site. Alternatives 2 and 4 utilize engineering controls to control the risk of exposure through consolidation and capping of the contaminated soils and sediment into one or more disposal areas at the Site. Alternatives 2 through 7 also utilize institutional controls to prevent accidental exposure to the treated or contained waste following completion of the cleanup activities, and ensures that future site development is consistent with the soil and sediment cleanup levels for an industrial/commercial facility. Alternative 1 does not reduce or control risks from potential exposure at the Site. Because Alternative 1 does not provide for protection of human health and the environment, it will not be discussed in the following sections.

2. **Compliance with Applicable or Relevant and Appropriate Requirements ("ARAR").** Section 121(d) of CERCLA, 42 U.S.C. § 9621(d), and NCP § 300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate Federal and State requirements, standards, criteria, and limitations which are collectively referred to as ARARs, unless such ARARs are waived under CERCLA section 121(d)(4), 42 U.S.C. § 9621(d)(4).

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those State standards that are identified by a State in a timely manner and that are more stringent than Federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. Only those State standards that are identified in a timely manner and are more stringent than Federal requirements may be relevant and appropriate.

ARARs are divided into chemical-specific, action-specific, and location-specific categories. Chemical-specific requirements include promulgated health- or risk-based standards, numerical values, or methodologies that, when applied to site-specific conditions, establish the acceptable amount or concentration of a contaminant that may be detected or discharged in the environment. Action-specific requirements include technology or activity based requirements or limitations on actions taken with respect to hazardous substances, pollutants, and contaminants. There were no location-specific ARARs pertinent to the Mountain Pine Site.

All of the alternatives would meet their respective ARARs from Federal and State laws. Alternatives 2 through 6 could trigger the RCRA land disposal restrictions through the excavation and consolidation of the soils and sediment or the off-site disposal in a permitted RCRA landfill.

3. **Long-term Effectiveness and Permanence** refers to expected residual risk and the ability to maintain reliable protection of human health over time, once cleanup levels have been met.

Alternative 6 would effectively reduce the risk to human receptors by permanently removing the contaminated soils and sediments. Alternatives 3, 5, and 7 utilize treatment of the soils and sediments to improve the long-term permanence of the action and reduce the residual risk of exposure. Alternatives

002494

2 and 4 achieve long-term effectiveness only through the use of engineering controls to prevent exposure to the soils and sediments. Alternatives 2 through 7 also utilize institutional controls to prevent accidental exposure to the treated or untreated soils and sediments.

4. **Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment** refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

Alternatives 2 and 4 do not include treatment as a component of the remedy and would not reduce the toxicity or volume of the contamination at the Site. However, the use of engineering controls to reduce the mobility of contaminants through containment in Alternatives 2 and 4 is appropriate since the contaminated soils and sediments represent a low-level threat at this Site. Alternatives 3 and 6 include the use of biological treatment as a remedy component to reduce the toxicity of PCP through destruction of the contaminant. Stabilization/ solidification is used as a treatment component to reduce the mobility of the arsenic in Alternatives 3 and 6, and reduce the mobility of both arsenic and PCP in Alternatives 5 and 7. However, the stabilization/ solidification technology also creates an approximate 20% increase in the overall volume of waste material through the addition of reagents to immobilize the arsenic and PCP. The off-site disposal of the treated and immobilized waste material in Alternative 6 would be in a permitted disposal facility designed to prevent migration of the contaminants. Alternatives 3, 5, 6, and 7 utilize treatment of the soils and sediments through biodegradation and/or immobilization and thus satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element

5. **Short-term Effectiveness** addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and the environment during implementation.

Alternatives 2 through 7 would be effective within 12 months or less through actions to address all or part of the contaminated soils and sediments. Since Alternatives 3 and 6 require the longest to complete biological treatment of PCP, these alternatives are not as effective in completing the cleanup in the shortest time frame. All of the alternatives have minimal impacts to the on-site workers, the surrounding community, and the environment during implementation. The off-site disposal of treated waste material in Alternative 6 would result in truck traffic through the community during implementation.

6. **Implementability** considers the technical and administrative feasibility of a remedy such as relative availability of goods and services and coordination with other governmental entities.

002495

The technical feasibility for consolidation and capping the materials in Alternatives 2 and 4 is the simplest in terms of readily available materials and equipment. The treatment technologies utilized in Alternatives 3, 5, 6, and 7 are also technically feasible but are dependent on establishing the correct treatment reagents for immobilization. There are no expected administrative problems with any of the alternatives. Disposal of treated waste materials at an off-site facility will require additional actions to secure a disposal facility, costs, transportation, and supporting documentation on the treatment results. Additional administrative actions are necessary to document the construction of the CAMU in Alternatives 4 and 5.

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

Capital costs range from $2.5 million for Alternative 2 to $11.7 million for Alternative 6. Alternative 7 capital costs are $5.2 million which is the least expensive of the alternatives utilizing treatment but more expensive than the containment only options in Alternatives 2 and 4 at $2.1 million and $3.9 million, respectively. The total operation and maintenance costs for Alternative 7 are estimated at $182,000 for two years of ground water monitoring. Operation and maintenance costs for all alternatives range from $182,000 to $504,000 with the cost difference dependent on the length of ground water monitoring. Cost summaries are found in Table 13.

Table 13
Present Worth Cost Analysis of the Alternatives

Remedial Alternative	Capital Cost	Present Worth of Total O&M Cost	Estimated Years of O&M	Total Present Worth Cost
1	$0	$0	0	$0
2	$2,050,000	$480,000	10	$2,530,000
3	$6,930,000	$457,000	10	$7,387,000
4	$3,360,000	$504,000	10	$3,864,000
5	$6,110,000	$462,000	10	$6,572,000
6	$11,470,000	$238,000	5	$11,708,000
7	$5,160,000	$182,000	2	$5,342,000

002496

8. **State Agency Acceptance** considers whether the State agrees with U.S. EPA's analyses in the FS Report and Preferred Remedy in the Proposed Plan.

The State of Arkansas, through the Arkansas Department of Environmental Quality, supports Alternative 7 (see Appendix A).

9. **Community Acceptance** considers whether the local community agrees with U.S. EPA's analyses and preferred alternative described in the Proposed Plan.

The community provided comments on the proposed remedy components and offered suggestions on improving the future redevelopment of the property. The EPA has considered these comments before making a final remedy selection. The EPA's response to comments are included in the Responsiveness Summary.

SELECTED REMEDY

The selected remedy for the Site is Alternative 7, Excavation, Immobilization and Capping. Alternative 7 will provide the maximum practical treatment of the soils and sediments and avoid longer treatment times and unnecessary waste handling. Based on information obtained during the remedial investigation and on a careful analysis of all remedial alternatives, EPA and the State of Arkansas believe that the selected remedy will achieve this goal.

Summary of the Rationale for the Selected Remedy

While Alternatives 2 and 4 prevent direct exposure, the wastes remain untreated with a higher risk of accidental exposure during future property redevelopment. Alternatives 3 and 6 rely on a longer-term biological treatment for a portion of the contaminated soil which increases the short-term risks to accidental exposure but does increase the permanence of the alternatives through destruction of the PCP. Likewise, Alternative 5 includes immobilization of the soils and sediment but the added consolidation in a CAMU does not provide any added benefit while increasing material handling and construction costs. Alternative 6 does provide for off-site disposal of all the treated wastes which would prevent any accidental exposure, but also depends on a longer term biological treatment of the PCP contamination with the added risks of accidental exposure. Alternative 7 has the benefit of addressing all wastes through a short-term treatment program, minimal waste handling, and minimal delays in Site reuse and redevelopment.

002497

The selected remedy constitutes a site-wide cleanup strategy and is intended to address fully the threats to human health and the environment posed by the conditions at this Site. The vacant land at the Site poses a potential threat to human health if the property is redeveloped as a commercial/industrial facility according to the City of Plainview planning report. While the PCP and arsenic contaminated soils and sediments are considered a low-level threat waste which is appropriate for containment through engineering controls, the preferred alternative does satisfy the statutory mandate for permanence and treatment to the maximum extent practicable. However, the existing soil and sediment contamination does not pose a current or near-term threat to the surrounding residents or users of Porter Creek. In addition, the underlying shallow aquifer has not been significantly impacted by past Site operations.

Description of the Selected Remedy

The selected remedy will achieve the remedial action objectives of: 1) prevent human exposure, based on industrial and construction worker scenarios, through dermal contact, ingestion, or inhalation, to soil and sediment containing arsenic and PCP above risk-based standards; 2) prevent off-site migration of arsenic and PCP to surface water and wetland sediments; and, 3) prevent or minimize potential leaching of PCP and arsenic from the soils to the ground water. The Selected Remedy consists of the following components:

- Stabilization and solidification of the contaminated soils and sediment exceeding the remedial goals for PCP and arsenic in the following areas of the facility: RHP, SEP, the drainage ditch, and two hot-spots. The soils and sediment will be treated and returned to the excavated locations without further consolidation except for the material removed from the drainage ditch;
- Construction of a soil cover over the treated areas and seeding of the area to control erosion;
- Demolition of the former process buildings and other ancillary buildings and structures to obtain access to all of the contaminated soils; Asbestos abatement will be required prior to the demolition of select structures to prevent the release of fibers into the atmosphere; The building debris may be disposed at either an on-site or off-site location;
- Treatment and discharge of surface water from the SEP and other areas to the on-site drainage ditch with eventual discharge to Porter Creek;
- Placement of an institutional control on the Site property, such as a property easement or other appropriate mechanism, to protect human health and prevent accidental exposure through the following actions: 1) alert prospective purchasers that hazardous substances are present at the Site and explaining the actions taken to address the Site contamination; 2) document the restricted activities that would interfere with or adversely affect the integrity or protectiveness of the remedy implemented at the Site; and, 3) ensure future site development is consistent with

002498

the industrial/commercial human health exposure scenario (i.e., non-residential usage) that is the basis for the soil cleanup goals for PCP and arsenic; and,

- Operation and maintenance of the Site following treatment including a ground water monitoring program to evaluate potential leaching from the treated material. Included in this component is the installation of additional monitoring wells, if necessary.

The EPA conducted a treatability test using samples obtained from the RHP, SEP, and one hot spot location to verify the application of the technology and provide a reasonable basis for estimating the proposed treatment costs. The EPA tested 30 different combinations of reagents and soil to determine a cost-effective mix that would meet the NCP expectations for a 90 to 99 percent reduction in the mobility of the contaminants. Treatment of the soils and sediments is anticipated to be through a multi-step mixing process that will utilize a number of reagents to effectively bind the arsenic and PCP into a solid matrix that will resist contaminant leaching. The reagents utilized during the treatability testing include: 1) portland cement to provide a stable, low permeability matrix for long-term management of the treated waste and reduce potential leaching; 2) activated carbon to assist in the adsorption and binding of the PCP into the matrix and reduce potential leaching; and 3) ferrous sulfate to chemically bind the arsenic into the matrix and reduce potential leaching.

Since the soil samples typically formed a clay ball that affected the workability and treatment of the samples, an additional mixability study was completed on the soils from the SEP and RHP using agricultural lime (calcium carbonate), hydrated lime (calcium oxide), and Class F flyash. The RHP and SEP soil became increasingly stiffer as the percentage of agricultural lime was increased up to 15% by weight. However, the addition of agricultural lime did not significantly improve the workability of the soil for mixing with other reagents. The soil still tended to clump and the mixability only improved slightly with increasing amounts of agricultural lime. Adding flyash to either the RHP or SEP samples did not appear to improve the mixability of either soil sample. The addition of hydrated lime significantly improves the mixability of both the SEP and RHP soils and prevents the formation of clay balls that would reduce the effectiveness of the mixing process. Approximately 2 - 4% (dry weight of soil) of hydrated lime was required to break down and dry out the soil. The soil was crumbly with particles ranging from 1/8" - 1/4" in size.

The results of the treatability testing verified that the technology is suitable for immobilization of the arsenic and PCP in the soils and sediment at the Site. The mix designs selected for cost estimating purposes and further testing during the on-site pilot tests are listed in Table 14.

002499

Table 14
Treatability Testing Results

Location	Cement (by weight)	Ferrous Sulfate (by weight)	Granular Activated Carbon (by weight)	Hydrated Lime (by weight)
RHP Soils with PCP	10%	4%	4%	1%
SEP Soils and Sediments with Arsenic	7%	6%	1%	4%

The performance of the selected remedy during treatment of the contaminated soils and sediment will be measured against specific numerical performance standards that measure the reduction in contaminant mobility. The Site specific performance goals have been developed to ensure that the treated wastes can be treated and managed on-site without potentially degrading ground water quality in the shallow aquifer. The EPA has established as a guideline in the NCP that treatment should generally achieve reductions of 90 to 99 percent in the concentration or mobility of individual COCs. For purposes of protecting ground water quality from potential leachate generated by the treated waste material disposed at the Site, the Synthetic Precipitation Leaching Procedure (SPLP), SW-846 Method 1312, will be used to simulate the effect of infiltration from rainfall and a perched ground water zone. Based on the results of the treatability testing conducted on samples from the RHP, SEP, and one hot spot, the selected remedy can achieve the goal of a 90 to 99 percent reduction in the mobility of the COCs. The performance goals are 20 µg/L for arsenic and 500 µg/L for PCP in the leachate concentration extracted from the treated waste sample (following a 28 day curing period) using the SPLP method. The performance goals represent a 94% and 95% reduction in mobility for arsenic and PCP, respectively. However, an allowance is made for 20 percent of the samples collected from the treated oily sludge material to exceed the SPLP performance standards by a factor of two times, and 10 percent of the samples to exceed the standard by a factor of five times, while not relaxing the average for all samples treated. While the treatability testing demonstrated the success of the stabilization/solidification process, the inclusion of the allowance procedures acknowledges the likelihood that variabilities will exist in oily sludge material. Without the allowances in the SPLP performance goals, the treatment process may be unrealistically stringent resulting in higher costs without an appreciable increase in the protectiveness of the remedy. The performance goals for the selected remedy are listed in Table 15.

002500

Table 15
Performance Standards for Solidification/Stabilization of Waste Material

Test	Method	Leachate Design Criteria	Initial Waste Characterization Leachate	Percent Reduction in Mobility
Toxicity	SPLP SW 846 1312	Arsenic - 20 µg/L	Arsenic - 334 µg/L	94%
		PCP - 500 µg/L	PCP - 10,750 µg/L	95%
Unconfined Compressive Strength	ASTM D2166 or ASTM D1633	50 psi @ 28 days Average of all samples	NA	
		40 psi @ 28 days Minimum of any sample	NA	
Hydraulic Conductivity	ASTM D5084	1 x 10^{-6} cm/sec @ 28 days Average of all samples	NA	
		1 x 10^{-5} cm/sec @ 28 days Maximum of any sample	NA	

Summary of Estimated Remedy Costs

The cost estimate summary information in Table 16 is based on the best available information regarding the anticipated scope of the selected remedy. Changes in the cost elements are likely to occur as a result of changes in the price of reagents used in the treatment process, qualifying bids for performance of the remedial action, and progress of the treatment process due to Site and weather conditions. Major changes may be documented in the form of a memorandum in the Administrative Record file, an ESD, or a ROD amendment. The total present worth cost is calculated using a 7% discount rate and a 2-year O&M period. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

TABLE 16
COST ESTIMATE FOR THE SELECTED REMEDY

Description of Capital Costs	Units	Unit Cost	Quantity	Cost
General Site Work				
• Air Monitoring	hour	$65	1200	$78,000
• Clear and Grub Site	AC	$2500	5	$12,500
• Install Ground Water Monitoring System	LS	$60,000	1	$60,000
• Erosion Fencing	LS	$15,000	1	$15,000
• Support Facilities	LS	$25,000	1	$25,000
• Haul Road Construction	LS	$30,000	1	$30,000
Surface Water Treatment System				
• Preparation and Permits	LS	$15,000	1	$15,000
• Facility Operation	LS	$125,000	1	$125,000
• Water Treatment	gal	$7	5,000	$35,000
Asbestos Abatement				
•Technician	LS	$800	1	$800
•Asbestos Removal	LS	$5200	1	$5200
• Summary Report	LS	$300	1	$300
Building Demolition				
• Preparatory Testing	LS	$5000	1	$5000
• Building Demolition and Site Rehab.	LS	$60,000	1	$60,000
• Transport and Off-Site Debris Disposal	ton	$50	700	$35,000
• Concrete and Steel On-Site Disposal	LS	$10,000	1	$10,000
• Confirmation Testing	LS	$500	10	$5,000
Soil and Sediment Excavation and Staging				
• Air Dry SEP Sediment	LS	$10,000	1	$10,000
• Excavate Drainage Ditch	CY	$7	2500	$17,500
• Excavate SEP Sediment	ton	$2	15,000	$30,000
• Excavate RHP Soil	ton	$8	17,000	$136,000
• Excavate Hot Spot	CY	$7	1000	$7000
• Confirmation Sampling	EA	$125	60	$7500
• Sample Analysis	EA	$625	60	$37,500
Immobilize Soil and Sediment				
• Equipment Mobilization	LS	$30,000	1	$30,000
• Treatment of Soil with Arsenic	ton	$47.23	15,000	$708,450
• Treatment of Soil with PCP	ton	$61.32	17,000	$1,042,440

TABLE 16
COST ESTIMATE FOR THE SELECTED REMEDY

Description of Capital Costs	Units	Unit Cost	Quantity	Cost
Prepare SEP and RHP Areas for Cover				
• Place and Compact Blended Soil Into SEP	tons	$4	17,000	$70,800
• Grade SEP Berms	days	$1200	2	$2400
• Confirmation Sampling in Excavations	EA	$500	10	$5000
• Compact Fill Material in Excavations	CY	$5	2500	$12,500
• Place and Compact Blended Soil Into RHP	ton	$4	20,230	$80,920
Construct Soil Cover				
• Soil Cover	CY	$10	10,200	$102,000
• Vegetative Cover	SY	$0.40	25,000	$10,000
• Rehab Borrow Pit	SY	$0.40	15,000	$6,000
Subtotal				**$2,822,810**
Subcontractor General Conditions		$2,822,810	12%	$338,737
Bonding		$3,161,547	3%	$94,846
Contingency (20%)		$3,256,393	20%	$651,278
Subtotal				**$3,907,671**
General Requirements (10%)		$3,907,671	10%	$390,767
General and Administrative (12%)		$3,907,671	12%	$468,921
Services During Construction (10%)		$3,907,671	10%	$390,767
Total - All Capital Costs				**$5,158,126**
Description of O&M Costs	**Units**	**Unit Cost**	**Quantity**	**Cost**
Mowing	EA	$200	3	$600
Ground Water Monitoring and Reporting	hour	$90	400	$36,000
Sample Analyses	EA	$250	76	$19,000
Project Management Costs	hour	$120	120	$14,400
Subtotal				$70,000
Subcontractor General Conditions		$70,000	20%	$14,000
Subtotal				$84,000

TABLE 16 COST ESTIMATE FOR THE SELECTED REMEDY				
Description of Capital Costs	**Units**	**Unit Cost**	**Quantity**	**Cost**
Contingency		$84,000	20%	$16,800
Total Annual O&M Costs				**$100,800**

Notes:
Capital Cost estimates are not discounted because the construction work will be performed in the first year.

LS = lump sum; CY = cubic yard; SF = square foot; SY = square yard; EA = each; AC = acre

Expected Outcomes of Selected Remedy

The expected outcome of the selected remedy is that the contaminated soils and sediment will no longer present an unacceptable risk to future industrial and construction workers via ingestion, inhalation, or dermal exposure and the property will be suitable for redevelopment as an industrial and commercial property. The remedial action is expected to achieve the remedial objectives and goals within approximately 6 months. The Site will be available for socio-economic or community revitalization projects following implementation of the selected remedy. Since the existing redevelopment plans are for industrial or commercial reuse, there are no anticipated environmental or ecological benefits from the selected remedy.

Soil cleanup levels for the COCs in surface and subsurface soil exhibiting an unacceptable cancer risk have been established such that they are protective of human health. The remedial goal for arsenic has been set at 287 mg/kg based on a future industrial worker cancer risk of 1×10^{-4} considering exposures via ingestion, inhalation, and dermal contact. The arsenic remedial goal is based on the potential carcinogenic risk because this value is more conservative than the corresponding value of 464 mg/kg for a non-carcinogenic effects exceeding a hazard index of 1. The remedial goal for PCP has been set at 130 mg/kg based on a future industrial worker cancer risk of 1×10^{-5} considering exposures via ingestion, inhalation, and dermal contact. The PCP remedial goal is based on the potential carcinogenic risk because this value is more conservative than the corresponding value of 16,664 mg/kg for a non-carcinogenic effects exceeding a hazard index of 1.

Cleanup goals for the COCs in sediment exhibiting an unacceptable cancer risk have been established such that they are protective of human health. The remedial goal for arsenic has been set at 287 mg/kg based on a future industrial worker cancer risk of 1×10^{-5} considering exposures via ingestion and dermal contact. The arsenic remedial goal is based on the potential carcinogenic risk

002504

because this value is more conservative than the corresponding value of 4,640 mg/kg for a non-carcinogenic effects exceeding a hazard index of 1.

The area extent and volume of the surface and subsurface soil and sediment exceeding the remedial goals is summarized in Table 17 and presented in Figure 5. The remedial goals were also applied to soils greater than 2 feet in the RHP to include a potential exposure scenario from deeper excavations related to redevelopment of the Site. This is a conservative exposure scenario and is also protective of a construction worker scenario. The volume of subsurface soils exceeding the arsenic and PCP cleanup goals overlap in the RHP which reduces the total volume of subsurface soils exceeding the cleanup goals. Confirmation sampling will be used to verify the attainment of the remedial goals at depth within each of these areas. These soil cleanup levels attain the EPA's risk management goal for remedial actions and have been determined by the EPA to be protective.

002505

Table 17
Areas and Volume of Soils and Sediment Exceeding the Remedial Goals

COC	Area of Soil	Remedial Goal	Area (ft^2)	Volume (yd^3)
Arsenic	Surface	287	7,850	400 (3)
	Subsurface		46,000	10,000 (1)
PCP	Surface	130	10,000	750 (2)
	Subsurface		46,000	10,000 (1)
Total	Surface	NA	17,850	1,150
	Subsurface		46,000	10,000
COC	**Area of Sediment**	**Remedial Goal**	**Area (ft^2)**	**Volume (yd^3)**
Arsenic	Central Drainage Ditch	287	47,000	3,400 (3)
	SEP		102,000	7,550 (2)
Total	Sediment	287	154,000	10,950

Key:
(1) Volume of material is based on an approximate depth of 8 to 9 feet in the RHP
(2) Volume of material is based on an average depth of 2 feet.
(3) Volume of material is based on a depth of 0.5 to 2 feet.

Site-specific soil concentrations protective of ground water were not developed because the Site conditions (soil with low permeability and moderate organic content), the hydraulic properties of the aquifer (confined conditions with upward vertical gradient), and the chemical characteristics of the COCs (low mobility) combine to minimize the potential for migration of COCs in ground water. The calculation of a site-specific soil concentration for the protection of ground water would result in an unnecessary decrease in the soil cleanup goals.

Site-specific soil and sediment concentrations protective of ecological receptors were not developed because the current pathways for exposure to the COCs will no longer be complete under the future industrial use of the property. Redevelopment of the property as an industrial and commercial facility will no longer provide a suitable habitat for ecological receptors.

002506

STATUTORY DETERMINATIONS

Under CERCLA section 121, 42 U.S.C. § 9621, the EPA must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA 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 discuss how the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The selected remedy protects human health and the environment through the stabilization/solidification of the contaminated soil and sediment. The treatment process will immobilize the hazardous substances present in the soil and sediment. The matrix binding the waste together will have a high unconfined compressive strength, low permeability, and will significantly reduce future leaching of contaminants from the waste into the ground water. The utilization of an on-site treatment process will also reduce the short-term risks by eliminating the transport of untreated waste. The placement of a natural soil cover will also prevent direct contact with the treated material. Since the Site is currently vacant, there is no direct human health threat. The current cancer risk to human health through exposure to surface water and sediment in the drainage ditch or Porter Creek is less than 1×10^{-6} (RME) for a current recreational user. For non-carcinogenic threats, the hazard index is less than 1 (RME) for a current recreational user. There are no adverse impacts identified to any private water wells. Placement of an institutional control on the Site property, such as a property easement or other appropriate mechanism, will be used to protect human health and prevent accidental exposure through the following actions: 1) alert prospective purchasers that hazardous substances are present at the Site and explaining the actions taken to address the Site contamination; 2) document the restricted activities that would interfere with or adversely affect the integrity or protectiveness of the remedy implemented at the Site; and, 3) ensure future site development is consistent with the industrial/commercial human health exposure scenario (i.e., non-residential usage) that is the basis for the soil cleanup goals for PCP and arsenic.

Compliance with Applicable or Relevant and Appropriate Requirements

002507

The selected remedy complies with those Federal and State requirements that are applicable or relevant and appropriate for this remedial action. There were no location-specific ARARs pertinent to the selected remedy.

Chemical-Specific ARARs

- OSWER Directive 9200.4-26, Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites, recommends the cleanup goal of 5 - 20 ppb for dioxin (TEQ) in soils at commercial and industrial sites.
- ADEQ Regulation No. 22.103(k) which excludes environmental remediation activities carried out within the site boundaries from the solid waste management requirements.
- ADEQ Regulation No. 2 which specifies water quality standards for surface water and implementation procedures for application of the surface water quality standards. The requirements are applicable to the discharge of water from the SEP and other excavations containing water that must be removed to complete the remedial action.
- Toxic Substances Control Act (TSCA) asbestos abatement projects (40 CFR 763.121) which specifies operational and personal protection requirements for asbestos abatement workers not covered under 20 CFR 1925.58 or under an OSHA-approved states asbestos abatement plan. These requirements are applicable to the structure and building demolition due to the presence of asbestos within the structures.
- National Emission Standards, (40 CFR Part 61.145) which specifies national standards for asbestos abatement during demolition or renovation. These requirements are applicable to the structure and building demolition due to the presence of asbestos within the structures.
- ADEQ Regulation No. 21 which specifies standards for demolitions, renovations, and disposal of friable asbestos-containing material in order to reduce visible emissions of asbestos-containing materials.

Action-Specific ARARs

- ADEQ Regulation §264.310 and §22.1301 which specifies final cover systems on hazardous and solid waste landfills are relevant and appropriate to the long-term management of the treated waste at the Site. The final covers are designed to minimize infiltration and erosion.

Cost Effectiveness

002508

The estimated present worth cost of the selected remedy is $5,342,000, and the range of costs for Alternatives 2 through 7 is $2,530,000 to $11,708,000. The selected remedy is cost-effective and represents a reasonable value for the money to be spent. In making this determination, the following standard was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness." (NCP 300.430(f)(1)(ii) (D)). The overall effectiveness of the remedy is determined by evaluating three of the five balancing criteria used in the detailed analysis of the alternatives: (1) long-term effectiveness and permanence; (2) reduction in toxicity, mobility, and volume through treatment; and (3) short-term effectiveness. Overall effectiveness was then compared to costs to determine cost-effectiveness. The selected remedy attains the same long-term effectiveness as the more expensive Alternatives 3, 5, and 6; achieves an equal or greater reduction in toxicity, mobility, and volume as the less expensive Alternatives 2 and 4 and an equal reduction within an appropriate time frame as Alternatives 3, 5, and 6; and, is equally effective in the short-term when compared with all the alternatives. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs, and hence, this alternative represents a reasonable value for the money to be spent.

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

The selected remedy meets the statutory requirement to utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. The EPA has determined that the selected remedy provides the best balance of trade-offs in terms of long-term effectiveness and permanence, reduction in toxicity, mobility, or volume achieved through treatment, short-term effectiveness, implementability, and cost, while also considering the statutory preference for treatment as a principal element, the bias against off-site land disposal of untreated waste, and state and community acceptance.

The selected remedy satisfies the criteria for long-term effectiveness through treatment to reduce the mobility of the COCs in the treated soils and sediment. The selected remedy does not present short-term risks different from the other treatment alternatives. There are no special implementability issues that set the selected remedy apart from any of the other alternatives evaluated since the treatability testing has confirmed the viability of the treatment process. The selected remedy provides the most effective treatment method and will cost less than off-site disposal or other treatment options.

Preference for Treatment as a Principal Element

002509

Principal threat wastes were not identified at the Site, and while the contaminated soils and sediment are considered a low-level threat waste, the selected remedy does satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. The treatment process will effectively reduce the mobility of the arsenic and PCP through a multi-step mixing process that will utilize a number of reagents to effectively bind the arsenic and PCP into a solid matrix that will resist contaminant leaching. Performance goals for the treatment process are expected to achieve a 94 to 95 percent reduction in the mobility of arsenic and PCP as measured in a leachate extracted from the treated material. The performance goals for the selected remedy is within the NCP guideline of 90 to 99 percent reduction in mobility established for treatment technologies.

Five-Year Review Requirements

Since the selected remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review must be conducted within five years of the initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment. Pursuant to CERCLA Section 121(c), 42 U.S.C. § 9621(c), and as provided in the current guidance on Five Year Reviews [OSWER Directive 9355.7-03B-P, *Comprehensive Five-Year Review Guidance* (June 2001)], EPA must conduct a statutory review within five years from the initiation of construction at the Site.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Site was released for public comment on February 23, 2004. The Proposed Plan identified Alternative 7, In-Situ Immobilization and Capping, as the preferred alternative for the contaminated soil and sediment. Based upon its review of the written and verbal comments submitted during the public comment period, the EPA determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

RESPONSIVENESS SUMMARY

STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

The EPA has prepared this Responsiveness Summary for the Site, as part of the process for making a final remedy selection. This Responsiveness Summary documents, for the Administrative Record, public comments and issues raised during the public comment period on the EPA's recommendations presented in the Proposed Plan, and provides the EPA's responses to those comments. The EPA's actual decisions for the Site are detailed in the ROD. Pursuant to Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9617, the EPA has considered all comments received during the public comment period in making the final decision contained in the ROD for the Site.

Overview of Public Comment Period.

The EPA issued its Proposed Plan of Action detailing remedial action recommendations for public review and comment on February 23, 2004. Documents and information EPA relied on in making its recommendations in the Proposed Plan were made available to the public on or before February 23, 2004, in three Administrative Record File locations, including the Plainview City Hall located in Plainview, Arkansas. The 30-day public comment period ended on March 23, 2004. The EPA held a public meeting to receive comments and answer questions on March 4, 2004, at the First State Bank in Plainview, Arkansas. All written comments as well as the transcript of oral comments received during the public comment period are included in the Administrative Record for the Site and are available at the three Administrative Record repositories.

This Responsiveness Summary summarizes comments submitted during the public comment period and presents the EPA's written response to each issue, in satisfaction of community relations requirements of the NCP. The EPA's responses to comments received during the public meeting are provided below and in some cases include subsequent expanded responses to those comments as appropriate.

Summary of Public Comments and EPA Responses

Comment: Combining cement with certain additives has not always been successfully used to "immobilize" PCPs at wood treatment sites elsewhere in the country. GETG [Greenfield Environmental Trust Group, Inc.] understands that EPA is performing certain tests (called "treatability tests") that

002511

involve using different additives with cement to figure out which mixture will effectively bind PCPs to the cement and soil at the MPPT Site. The success of these tests will determine whether Alternative #7 will really work at the MPPT Site and, therefore, whether the City should support this Alternative. The Chamber should request that the EPA keep it informed on a regular basis about the results of the treatability tests. In the event that the treatability tests do not conclusively establish the efficacy of this aspect of the proposed remedy, the EPA should hold a further public meeting to discuss, and receive comments on, any subsequent preferred alternative and/or proposed modifications to Alternative #7.

EPA Response: The EPA has completed the treatability testing using samples obtained from the RHP, SEP, and one hot spot location. Copies of the final treatability report were provided to ADEQ and included in the Administrative Record at each of the Site repositories. The results of the treatability testing have confirmed that the technology is suitable for immobilization of the arsenic and PCP in the soils and sediment at the Site. The EPA tested 30 different combinations of reagents and soil to determine a cost-effective mix that would meet the NCP expectations for a 90 to 99 percent reduction in the mobility of the contaminants. Based on the results of the treatability testing, the mix designs selected for cost estimating purposes and further testing during the on-site pilot tests include the following:

Location	Cement (by weight)	Ferrous Sulfate (by weight)	Granular Activated Carbon (by weight)	Hydrated Lime (by weight)
RHP Soils with PCP	10%	4%	4%	1%
SEP Soils and Sediments with Arsenic	7%	6%	1%	4%

Since the soil samples typically formed a clay ball that affected the workability and treatment of the samples, an additional mixability study was completed on the soils from the SEP and RHP using agricultural lime (calcium carbonate), hydrated lime (calcium oxide) as well as Class F flyash. The RHP and SEP soil became increasingly stiffer as the percentage of agricultural lime was increased up to 15% by weight. However, the addition of agricultural lime did not significantly improve the workability of the soil for mixing with other reagents. The soil still tended to clump and the mixability only improved slightly with increasing amounts of agricultural lime. Adding flyash to either the RHP or SEP samples did not appear to improve the mixability of either soil sample. The addition of hydrated lime significantly improves the mixability of both the SEP and RHP soils. Approximately 2 - 4% (dry weight of soil) of hydrated lime was required to break down and dry out the soil. The resulting soil was crumbly with particles ranging from 1/8" - 1/4" in size

002512

Comment: Combining a cement blend with contaminated soils will increase the actual volume of the soil. The "treatability tests" should also determine how much the cement will increase the volume of soil—an increase of 10%, for example, may not be a problem; however, an increase of 50%, or even 100%, in the soil volume could interfere with the flexibility and options for redevelopment of the MPPT Site. It is important that EPA look into this issue (including as it relates to volume height when compared with surrounding MPPT Site property) and work with the Chamber and the City on how best to deal with adverse reuse and other impacts, if any.

EPA Response: Evaluation of volume increase and height of treatment containment areas are required as standard procedures in treatment studies. The expected increase by volume of the treated material is expected to be less than 20% based on the total weight of reagents utilized during the treatment process. While the EPA will make all reasonable efforts to avoid impacting future redevelopment where practical and where there will be no impact on the remedy. The EPA's primary responsibility at the Site is to provide a remedy that is protective of human health.

Comment: The FS calls for fences to be placed around all final capped areas as part of Alternative #7, thus preventing anyone from gaining access to these areas of the MPPT Site. These fenced areas would be situated on the Site in a way that could seriously constrain future redevelopment options and layouts, since the caps would block future construction of roads, buildings, parking lots, etc. that might intersect with the areas that have been capped. GETG understands that it is possible to mix a type of cement that can handle heavy loads or is ***"load bearing."*** We recommend that EPA design Alternative #7 so that the final cement-soil mixture is ***load bearing*** and, therefore, able to handle the weight of future buildings, heavy equipment, vehicles and other non-intrusive uses.

EPA Response: EPA agrees that fencing of final capped areas after RA activities have been completed under Alternative #7 is unnecessary for protection of human health and the environment. In addition, the addition of fill material to raise the center of the RHP to promote drainage is also unnecessary since the performance standards for the treated waste is expected to resist potential leaching of contaminants. The selected remedy will therefore not include fencing or the addition of fill material prior to the soil over the RHP. These modifications are not considered significant under 40 CFR 300.430(f)(3)(ii) as it does not significantly affect the scope, performance, or cost of the selected alternative and it could have been reasonably anticipated. The EPA has determined that the use of "load bearing" cement is not necessary to provide a remedy that is protective of human health and the environment. Regular cement or other binding agents will be sufficient to achieve a remedy that is protective of human health and the environment where such agents are used. However, the performance goal for unconfined compressive strength of the treated soils and sediment is 50 psi. As stated in Response #2, EPA's primary responsibility at the Site is to provide a remedy that is protective

002513

of human health and the environment. As such, GETC may wish to coordinate with the State of Arkansas to seek an "enhancement of the remedy" under 40 CFR 300.515(f)(ii).

Comment: Instead of using "soil with grass" covers or caps, concrete or asphalt would provide a better barrier to exposure pathways and better support site redevelopment by allowing cars, for example, to park on the asphalt or concrete surface. Also, asphalt or concrete would afford a more permanent cover, eliminate the need to mow the grass and guard against the incursion of deep root bearing vegetation that could adversely impact this portion of the remedy.

EPA Response: The EPA has determined that the use of asphalt or concrete caps is not necessary to provide a remedy that is protective of human health and the environment. GETC may wish to coordinate with the State of Arkansas to seek an "enhancement of the remedy" under 40 CFR 300.515(f)(ii).

Comment: The new drainage system at the Site will be as much a part of the remedy as the immobilization of soil and sediments. Before installing the new drainage system at the Site, the EPA should consult with the Chamber and the City on how best to design a new surface water runoff and drainage system that coordinates the future reuse of the Site with the drainage needs of the remedy. This would also lessen the possibility that Site stakeholders might request the re-opening of the remedy at a later date so as to relocate remedy-driven drainage systems that inadvertently impaired Site reuse.

EPA Response: The existing basic ditches providing drainage at the Site will continue to be used under the Selected Remedy. The spray evaporation pond will be drained, the sediments excavated and treated, and returned to the former pond and covered with soil. Contamination in on-site drainage ditches will be excavated, treated, and placed in the stated area designated in the follow-up Remedial Design. Excavated ditch areas will be restored by adding soil and sloped to drain to the existing drainage system. Also see generally Response #2, Response #3, and Response #4 for concerns regarding future Site reuse.

Comment: The contaminated material in the outlying "hotspots" should be consolidated into the RHP and/or the SEP to simplify future operation and maintenance activities and to limit the extent of overall Site restrictions.

EPA Response: The EPA has determined that consolidation of the contaminated material in the outlying "hotspots" is not necessary to provide a remedy that is protective of human health and the environment. GETC may wish to coordinate with the State of Arkansas to seek an "enhancement of the remedy" under 40 CFR 300.515(f)(ii).

002514

Comment: The Chamber and the City should be actively involved in the design and drafting of Institutional Controls for the Site since the controls will inevitably affect critical issues involving Site access, Site activities and Site reuse. In addition, since any work in restricted areas will likely be subject to health and safety protocols, intimate local knowledge of, and design assistance with, the restrictions will help ensure that the remedy will be protected and that the rural Plainview community will have a practical and meaningful appreciation of the restrictions.

EPA Response: Institutional controls will be needed for the Site, such as a property easement or other appropriate mechanism, to protect human health and prevent accidental exposure through the following actions: 1) alert prospective purchasers that hazardous substances are present at the Site and explaining the actions taken to address the Site contamination; 2) document the restricted activities that would interfere with or adversely affect the integrity or protectiveness of the remedy implemented at the Site; and, 3) ensure future Site development is consistent with the industrial/commercial human health exposure scenario (i.e., non-residential usage) that is the basis for the soil cleanup goals for PCP and arsenic. The EPA will coordinate with the local and State governments during the preparation and implementation of the institutional controls for the Site.

Comment: The FS does not discuss excavation of the waste materials in its analysis of Alternative #7 (except, of course, for digging in the on-site ditches). The FS seems to suggest that the cement mixture would be placed or "injected" into the areas of contamination without actually removing the contaminants. However, EPA's ***"Proposed Plan"*** for the MPPT Site says that the contaminated soils would be excavated, combined with the cement mixture, and then returned to their original location. This discrepancy between the Proposed Plan and the FS needs to be clarified. GETG believes that it is important that EPA actually dig out the contaminated soil and mix it with cement at the surface. If the cement is just "injected," it may not bind to all contaminated soils. Also, if the contaminated soils are not excavated, there is a greater chance that some contaminants could be skipped or left in the ground, making Alternative #7 much less effective and much less protective.

EPA Response: The contaminated soils and sediments will be excavated, combined with the reagents, and then returned to the excavated locations consistent with the Proposed Plan. The title description of Alternative 7 was changed to Excavation, Immobilization, and Capping in the ROD to more accurately describe the treatment process.

TECHNICAL AND LEGAL ISSUES

The Selected Remedy is consistent with the potential property redevelopment for industrial or light commercial use. Institutional controls will be a necessary component of the long-term Site management to ensure future property development is consistent with the soil cleanup levels and restricted ground water usage.

FIGURES

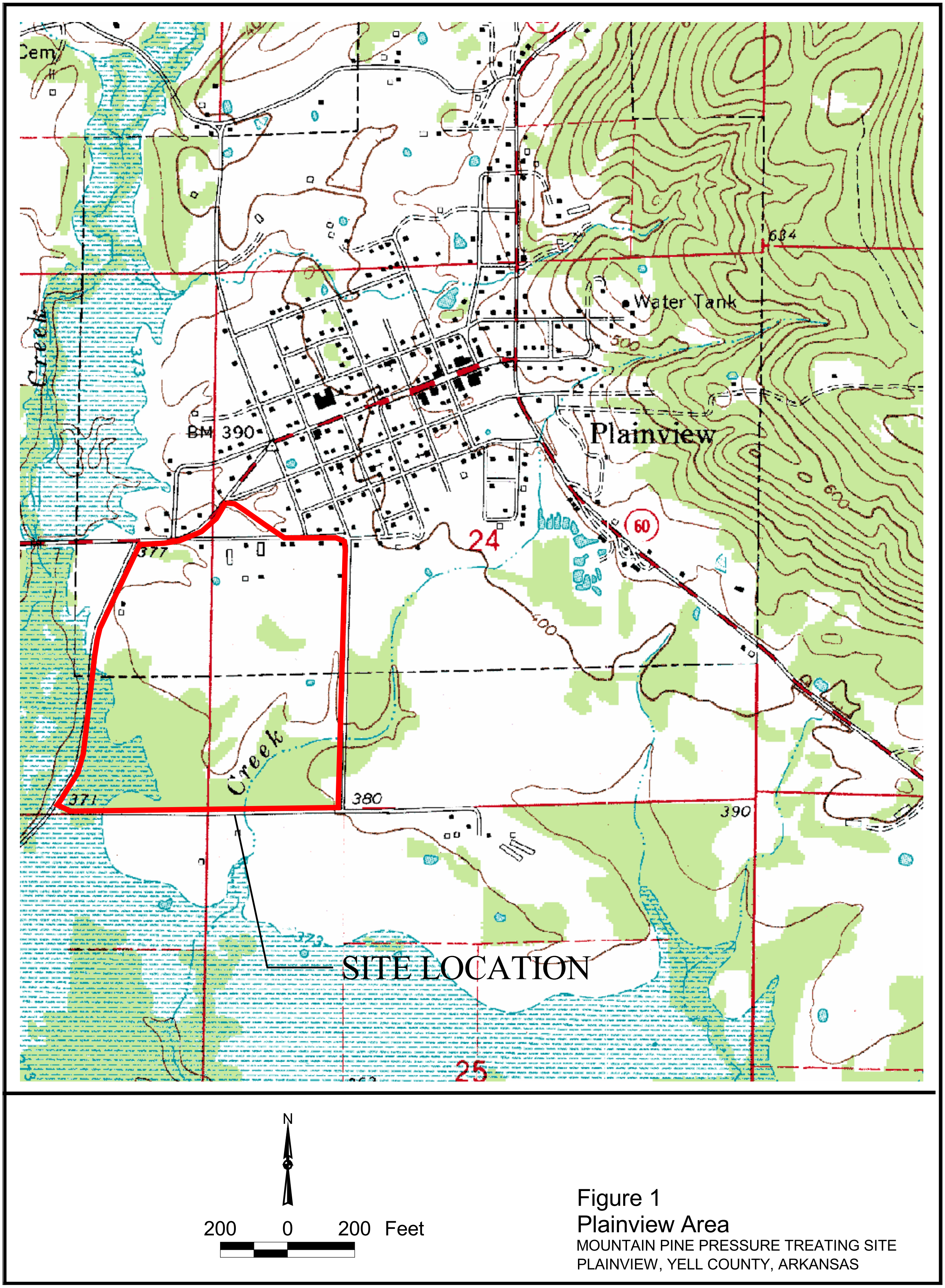

Figure 1
Plainview Area
MOUNTAIN PINE PRESSURE TREATING SITE
PLAINVIEW, YELL COUNTY, ARKANSAS

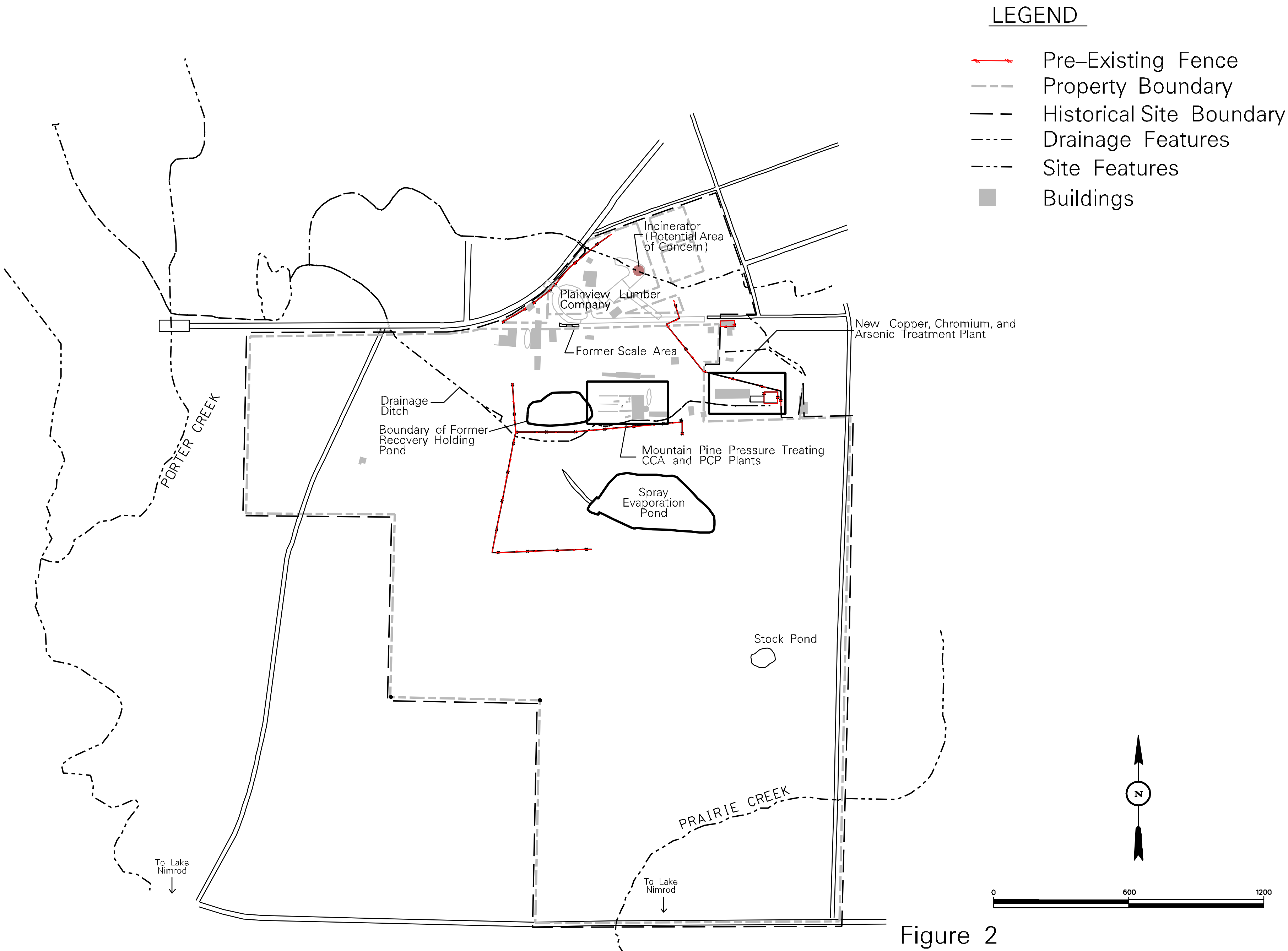

Figure 2
Site Plan
MOUNTAIN PINE PRESSURE TREATING SITE
PLAINVIEW, YELL COUNTY, ARKANSAS

002519

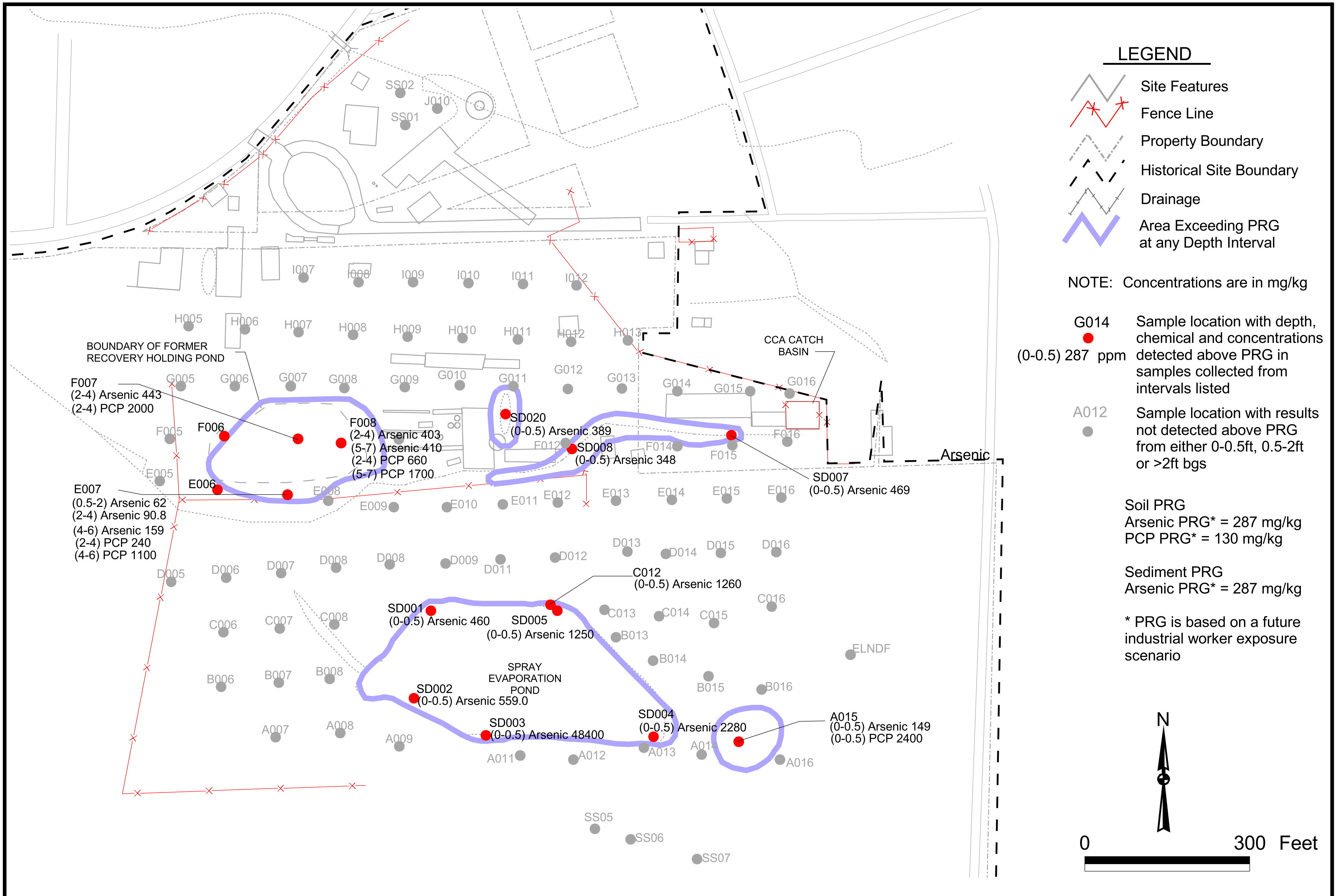

Figure 3
Sample Location Map For Soil And Sediment Sampling
MOUNTAIN PINE PRESSURE TREATING SITE
PLAINVIEW, YELL COUNTY, ARKANSAS

002520

00
25
21

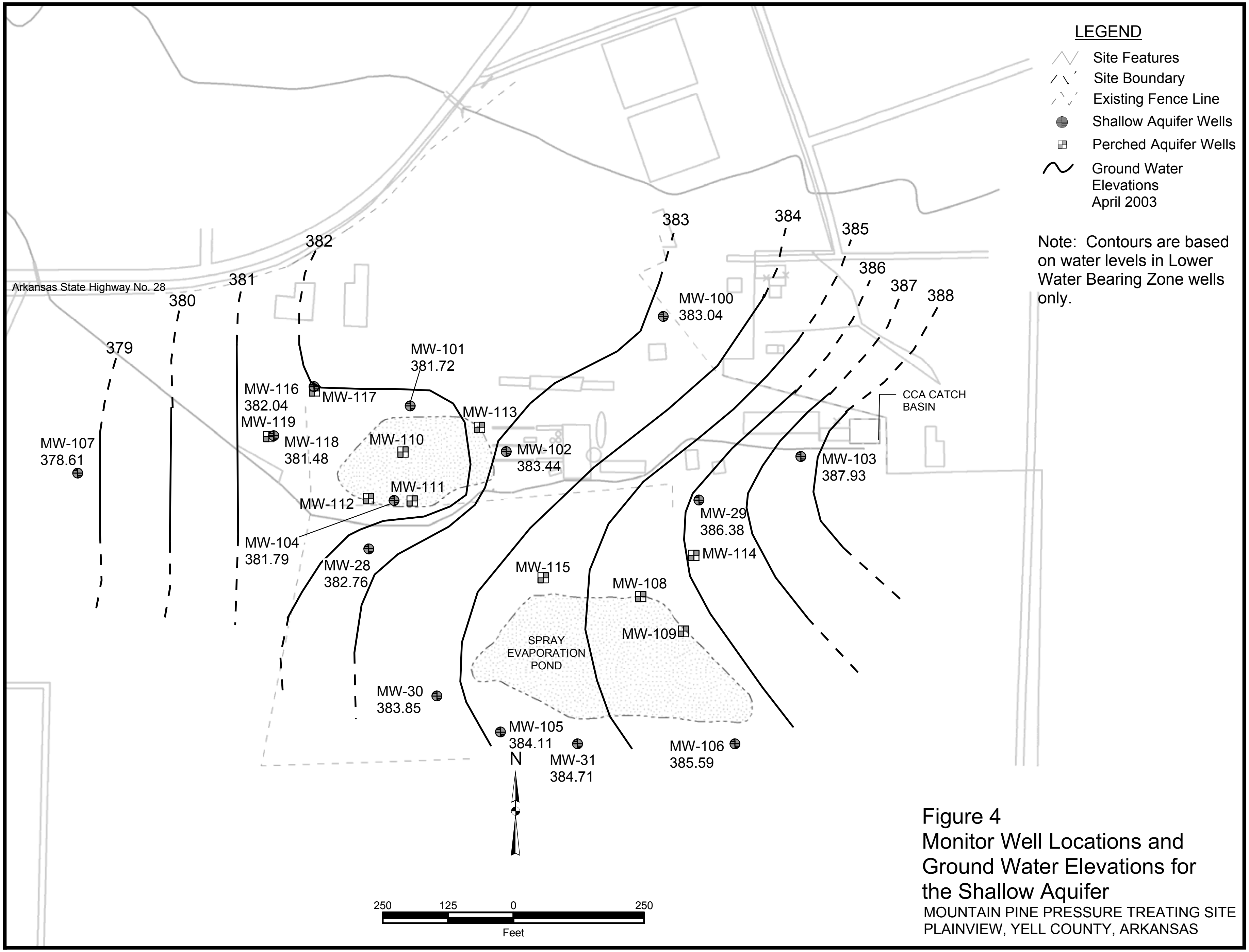

Figure 4
Monitor Well Locations and Ground Water Elevations for the Shallow Aquifer
MOUNTAIN PINE PRESSURE TREATING SITE
PLAINVIEW, YELL COUNTY, ARKANSAS

00
25
22

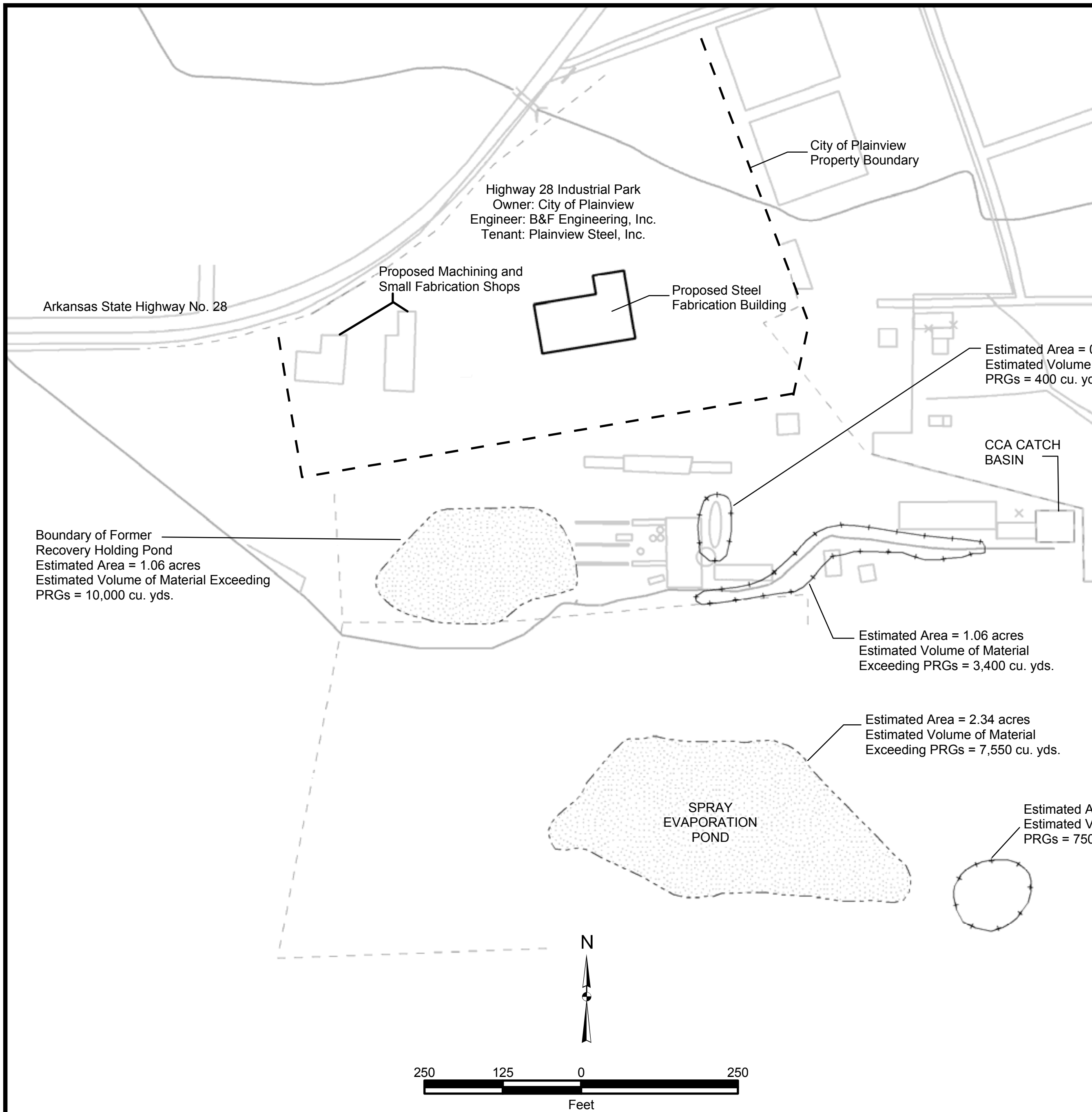

Figure 5
Area and Volume of Soil and Sediment Exceeding Remedial Goals
MOUNTAIN PINE PRESSURE TREATING SITE
PLAINVIEW, YELL COUNTY, ARKANSAS

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002523

APPENDIX A
ADEQ CONCURRENCE LETTER

ADEQ

A R K A N S A S
Department of Environmental Quality

September 27, 2004

Mr. Sam Coleman
Chief, AR/OK Branch
Superfund Division (6SF)
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202

RE: Record of Decision
Mountain Pine Pressure Treating Superfund Site, Plainview, Arkansas

Dear Mr. Coleman:

The Arkansas Department of Environmental Quality (ADEQ) has reviewed and concurs with the Record of Decision (ROD) for the Mountain Pine Pressure Treating Superfund Site in Plainview, Arkansas.

If you have any questions, please contact Mr. Jerry Neill at (501) 682-0846.

Sincerely,

Marcus C. Devine
Director

cc: Ernest Franke, EPA
Mike Bates
Chris Hemann
Brian Wakelyn
Jerry Neill
Masoud Arjmandi

HAZARDOUS WASTE DIVISION
8001 NATIONAL DRIVE / POST OFFICE BOX 8913 / LITTLE ROCK, ARKANSAS 72219-8913 / TELEPHONE 501-682-0833 / FAX 501-682-0565
www.adeq.state.ar.us

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002526

APPENDIX B
INDEX OF ADMINISTRATIVE RECORD

Prepared for

United States Environmental Protection Agency

Region 6

RECORD OF DECISION ADMINISTRATIVE RECORD INDEX

for

MOUNTAIN PINE PRESSURE TREATING SUPERFUND SITE

EPA ID No. ARD049658628

ESS II
Task Order No. 091-021

Carlos Sanchez
Remedial Project Manager
U.S. EPA Region 6

Prepared by

Science Applications International Corporation
555 Republic Drive, Suite 300
Plano, TX 75074

October 14, 2004

PREAMBLE

The purpose of this document is to provide the public with an index to the Administrative Record File (AR File) for the U.S. Environmental Protection Agency's (EPA) selected remedial action to respond to conditions at the Mountain Pine Pressure Treating 4 Superfund site (the "Site"). EPA's action is authorized by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9601 et seq.

Section 113 (j)(1) of CERCLA, 42 U.S.C. Section 9613 (j)(1), provides that judicial review of the adequacy of a CERCLA response action shall be limited to the Administrative Record (AR). Section 113 (k)(1) of CERCLA, 42 U.S.C. Section 9613 (k)(1), requires the EPA to establish an AR upon which it shall base the selection of its remedial actions. As the EPA decides what to do at the site of a release of hazardous substances, it compiles documents concerning the site and it's decision into an "AR File." This means that documents may be added to the AR File from time to time. After the EPA Regional Administrator or the Administrator's delegate signs the Action Memorandum or the Record of Decision memorializing the selection of the action, the documents which form the basis for the selection of the response action are then known as the Administrative Record "AR."

Section 113(k)(1) of CERCLA requires the EPA to make the AR File available to the public at or near the site of the response action. Accordingly, the EPA has established a repository where the AR File may be reviewed near the Site at:

Plainview City Hall
303 West Main Street
P.O. Box 117
Plainview, Arkansas 72857
Contact: Harold Blalock
(479) 272-4242

The public also may review the AR File at the EPA Region 6 office in Dallas, Texas, by contacting the Remedial Project Manager at the address listed below. The AR File is available for public review during normal business hours. The AR File is treated as a non-circulating reference document. Any document in the AR File may be photocopied according to the procedures used at the repository or at the EPA Region 6 office. This index and the AR File were compiled in accordance with the EPA's Final Guidance on Administrative Records for Selecting CERCLA Response Actions, Office of Solid Waste and Emergency Response (OSWER) Directive Number 9833.3A1 (December 3, 1990).

Documents listed as bibliographic sources for other documents in the AR File might not be listed separately in the index. Where a document is listed in the index but not located among the documents which the EPA has made available in the repository, the EPA may, upon request, include the document in the repository or make the document available for review at an alternate location. This applies to documents such as verified sampling data, chain of custody forms, guidance and policy documents, as well as voluminous site-specific reports. It does not apply to documents in EPA's confidential file. (Copies of guidance documents also can be obtained by calling the RCRA/Superfund/Title 3 Hotline at (800) 424-9346.)

These requests should be addressed to:

Carlos A. Sanchez
Remedial Project Manager
U.S. EPA Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-8507

The EPA response selection guidance compendium index has not been updated since March 22, 1991 (see CERCLA Administrative Records: First Update of the Compendium of Documents Used for Selecting CERCLA Response Actions [March 22, 1991]); accordingly, it is not included here. Moreover, based on resource considerations, the Region 6 Superfund Division Director has decided not to maintain a Region 6 compendium of response selection guidance. Instead, consistent with 40 CFR Section 300.805(a)(2) and 300.810(a)(2) and OSWER Directive No. 9833.3A-1 (page 37), the AR File Index includes listings of all guidance documents which may form a basis for the selection of the response action in question.

The documents included in the AR File index are arranged predominantly in chronological order. The AR File index helps locate and retrieve documents in the file. It also provides an overview of the response action history. The index includes the following information for each document:

- **Doc ID**- The document identifier number.
- **Date** - The date the document was published and/or released. “01/01/2525" means no date was recorded.
- **Pages** - Total number of printed pages in the document, including attachments.
- **Title -** Descriptive heading of the document.
- **Document Type** - General identification, (e.g. correspondence, Remedial Investigation Report, Record of Decision.)
- **Author -** Name of originator, and the name of the organization that the author is affiliated with. If either the originator name or the organization name is not identified, then the field is captured with the letters “N/A”.
- **Addressee**- Name and affiliation of the addressee. If either the originator name or the organization name is not identified, then the field is captured with the letters “N/A”.

RECORD OF DECISION

FINAL

10/14/2004

ADMINISTRATIVE RECORDS

Site Name: MOUNTAIN PINE PRESSURE TREATING
CERCLIS: ARD049658628
OUID:
SSID: MOUNTAIN PINE PRESSURE
Action:

Docid: 176385
Bates: **To:**
Date: 10/14/2004
Pages: 0
Title: RECORD OF DECISION ADMINISTRATIVE RECORD INDEX FOR MOUNTAIN PINE PRESSURE TREATING SUPERFUND SITE
Doc Type: INDEX

	Name	Organization
Author:	NONE,	SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

	Name	Organization
Addressee:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 161870
Bates: 000001 **To:** 000094
Date: 10/01/1999
Pages: 94
Title: FIELD SAMPLING PLAN FOR THE MOUNTAIN PINE PRESSURE TREATING SUPERFUND SITE
Doc Type: SAMPLING / ANALYSIS
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL

	Name	Organization
Addressee:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 161872
Bates: 000095 **To:** 000193
Date: 10/01/1999
Pages: 99
Title: QUALITY ASSURANCE PROJECT PLAN
Doc Type: WORK PLAN / AMENDMENT
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL

	Name	Organization
Addressee:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

Site Name: MOUNTAIN PINE PRESSURE TREATING
CERCLIS: ARD049658628
OUID:
SSID: MOUNTAIN PINE PRESSURE
Action:

Docid: 161873
Bates: 000194 **To:** 000225
Date: 10/01/1999
Pages: 32
Title: SITE MANAGEMENT PLAN FOR THE MOUNTAIN PINE PRESSURE TREATING SUPERFUND SITE
Doc Type: WORK PLAN / AMENDMENT
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL

	Name	Organization
Addressee:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 911250
Bates: 000226 **To:** 000656
Date: 10/01/2001
Pages: 431
Title: FINAL HUMAN HEALTH RISK ASSESSMENT FOR THE MOUNTAIN PINE PRESSURE TREATING SITE
Doc Type: HEALTH ASSESSMENT

	Name	Organization
Author:	NONE,	CH2M HILL

	Name	Organization
Addressee:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 161868
Bates: 000657 **To:** 001017
Date: 11/01/2001
Pages: 361
Title: FINAL ECOLOGICAL RISK ASSESSMENT
Doc Type: HEALTH ASSESSMENT
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL
	NONE,	SCIENCE APPLICATIONS INTERNATIONAL CORPORATION GEOMARINE, INCORPORATION

	Name	Organization
Addressee:	NONE,	NONE

Site Name: MOUNTAIN PINE PRESSURE TREATING
CERCLIS: ARD049658628
OUID:
SSID: MOUNTAIN PINE PRESSURE
Action:

Docid: 161247
Bates: 001018 **To:** 001771
Date: 02/01/2002
Pages: 754
Title: FINAL REMEDIAL INVESTIGATION REPORT FOR THE MOUNTAIN PINE PRESSURE TREATING SUPERFUND SITE
Doc Type: REPORT / STUDY
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL
	NONE,	SCIENCE APPLICATIONS INTERNATIONAL CORPORATION GEOMARINE, INCORPORATION

	Name	Organization
Addressee:	NONE,	NONE

Docid: 912100
Bates: 001772 **To:** 001798
Date: 03/25/2002
Pages: 27
Title: COMMUNITY INVOLVEMENT PLAN
Doc Type: COMMUNITY RELATIONS PLAN

	Name	Organization
Author:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

	Name	Organization
Addressee:	NONE,	NONE

Docid: 162523
Bates: 001799 **To:** 001918
Date: 10/01/2003
Pages: 120
Title: ADDENDUM TO THE REMEDIAL INVESTIGATION REPORT FOR MOUNTAIN PINE PRESSURE TREATING SUPERFUND SITE
Doc Type: REPORT / STUDY
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL
	NONE,	SCIENCE APPLICATIONS INTERNATIONAL CORPORATION GEOMARINE, INCORPORATION

	Name	Organization
Addressee:	NONE,	NONE

FINAL

10/14/2004

ADMINISTRATIVE RECORDS

Site Name: MOUNTAIN PINE PRESSURE TREATING
CERCLIS: ARD049658628
OUID:
SSID: MOUNTAIN PINE PRESSURE
Action:

Docid: 161939
Bates: 001919 **To:** 002174
Date: 02/01/2004
Pages: 256
Title: FEASIBILITY STUDY
Doc Type: REPORT / STUDY
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL
	NONE,	SCIENCE APPLICATIONS INTERNATIONAL CORPORATION GEOMARINE, INCORPORATION

	Name	Organization
Addressee:	NONE,	NONE

Docid: 161641
Bates: 002175 **To:** 002177
Date: 02/09/2004
Pages: 3
Title: SITE STATUS SUMMARY
Doc Type: FACTSHEET
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

	Name	Organization
Addressee:	NONE,	NONE

Docid: 162243
Bates: 002178 **To:** 002188
Date: 02/19/2004
Pages: 11
Title: EPA PROPOSES FINAL SITE REMEDY
Doc Type: REPORT / STUDY

	Name	Organization
Author:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

	Name	Organization
Addressee:	NONE,	NONE

Site Name: MOUNTAIN PINE PRESSURE TREATING
CERCLIS: ARD049658628
OUID:
SSID: MOUNTAIN PINE PRESSURE
Action:

Docid: 162616
Bates: 002189 **To:** 02195
Date: 02/20/2004
Pages: 7
Title: REMEDIAL PROPOSED PLAN ADMINISTRATIVE RECORD INDEX FOR MOUNTAIN PINE PRESSURE TREATING SUPERFUND SITE
Doc Type: INDEX

	Name	Organization
Author:	NONE,	SCIENCE APPLICATIONS INTERNATIONAL CORPORATION GEOMARINE, INCORPORATION

	Name	Organization
Addressee:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 175581
Bates: 002196 **To:** 002220
Date: 03/04/2004
Pages: 25
Title: TRANSCRIPT OF THE PUBLIC MEETING FOR THE MOUNTAIN PINE PRESSURE TREATING PROPOSED PLAN
Doc Type: PUBLIC MEETING TRANSCRIPT

	Name	Organization
Author:	SHEPHERD, LARRY W	CERTIFIED COURT REPORTER

	Name	Organization
Addressee:	NONE,	NONE

Docid: 175583
Bates: 002221 **To:** 002224
Date: 03/15/2004
Pages: 4
Title: [PUBLIC COMMENT ON THE FEASIBILITY STUDY 1.3]
Doc Type: PUBLIC COMMENT

	Name	Organization
Author:	WEINREICH, MARC	GREENFIELD ENVIRONMENTAL TRUST GROUP, INC

	Name	Organization
Addressee:	BLALOCK, HAROLD	PLAINVIEW AREA CHAMBER OF COMMERCE

RECORD OF DECISION

FINAL

10/14/2004

ADMINISTRATIVE RECORDS

Site Name: MOUNTAIN PINE PRESSURE TREATING
CERCLIS: ARD049658628
OUID:
SSID: MOUNTAIN PINE PRESSURE
Action:

Docid: 175712
Bates: 002225 **To:** 002248
Date: 04/19/2004
Pages: 24
Title: SOLIDIFICATION / STABILIZATION TREATABILITY STUDY WORKPLAN
Doc Type: WORK PLAN / AMENDMENT
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL, INCORPORATED

	Name	Organization
Addressee:	FRANKE, ERNEST	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 175578
Bates: 002249 **To:** 002264
Date: 09/13/2004
Pages: 16
Title: FEASIBILITY STUDY ADDENDUM NO. 1
Doc Type: MEMORANDUM
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL, INCORPORATED

	Name	Organization
Addressee:	FRANKE, ERNEST	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 175577
Bates: 002265 **To:** 002376
Date: 09/22/2004
Pages: 112
Title: SOLIDIFICATION / STABILIZATION TREATABILITY STUDY RESULTS
Doc Type: REPORT / STUDY
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	CH2M HILL, INCORPORATED

	Name	Organization
Addressee:	FRANKE, ERNEST	U.S. ENVIRONMENTAL PROTECTION AGENCY

RECORD OF DECISION

FINAL

10/14/2004

ADMINISTRATIVE RECORDS

Site Name: MOUNTAIN PINE PRESSURE TREATING
CERCLIS: ARD049658628
OUID:
SSID: MOUNTAIN PINE PRESSURE
Action:

Docid: 175771
Bates: 002377 **To:** 002442
Date: 09/29/2004
Pages: 66
Title: HUMAN HEALTH RISK ASSESSMENT, ADDENDUM NO. 1
Doc Type: ELECTRONIC RECORD
REPORT / STUDY

	Name	Organization
Author:	NONE,	CH2M HILL, INCORPORATED

	Name	Organization
Addressee:	FRANKE, ERNEST	U.S. ENVIRONMENTAL PROTECTION AGENCY
	MALOTT, VINCENT	U.S. ENVIRONMENTAL PROTECTION AGENCY

Docid: 175576
Bates: 002443 **To:** 002538
Date: 09/29/2004
Pages: 96
Title: SUPERFUND RECORD OF DECISION
Doc Type: RECORD OF DECISION / AMENDMENT
ELECTRONIC RECORD

	Name	Organization
Author:	NONE,	U.S. ENVIRONMENTAL PROTECTION AGENCY

	Name	Organization
Addressee:	NONE,	NONE

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002538