United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

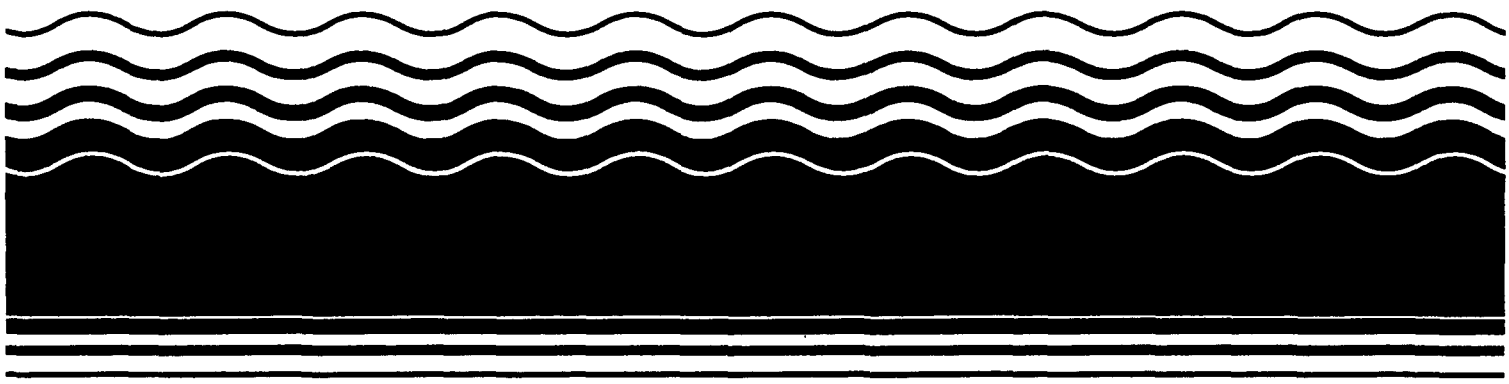
EPA/ROD/R06-93/082
September 1993

PB94-964202

EPA

Superfund Record of Decision:

Tenth Street Dump/ Junkyard (Amendment), OK



AMENDED RECORD OF DECISION

TENTH STREET SITE
OKLAHOMA CITY, OKLAHOMA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SEPTEMBER 1993

DECLARATION
TENTH STREET SITE

Statutory Preference for Treatment as a Principal Element is Not Met and Five-Year Review is Required

SITE NAME AND LOCATION

Tenth Street Site
3200 N.E. Tenth Street
Oklahoma City, Oklahoma

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Tenth Street Site, in Oklahoma City, Oklahoma, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (42 U.S.Code, Section 9601, et seq.), and, to the extent practicable, the National Contingency Plan (NCP)(40 CFR Part 300). This decision is based on the Administrative Record for this site.

The State of Oklahoma concurs with the selected remedy.

ASSESSMENT OF THE SITE

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

DESCRIPTION OF THE REMEDY

This Record of Decision (ROD) amends the original Record of Decision executed by the Regional Administrator on September 27, 1990. This amended remedy addresses approximately 9,800 cubic yards of soil at the site contaminated with polychlorinated biphenyls (PCBs) at or above 25 ppm. Specifically, this amended remedy addresses the threats to human health and the environment at the site by eliminating the inhalation, ingestion, and direct contact exposure pathways.

The major components of the selected remedy include:

- Excavation and placement of contaminated soil from the roadway right-of-way on the south side of N.E. Tenth Street onto the existing cap;

- Allowing the Oklahoma Department of Transportation's widening of Tenth Street to cover contaminated soil in the roadway right-of-way on the North side of N.E. Tenth Street;

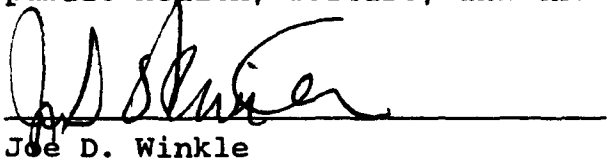
- Construction of a new cap meeting the technical requirements for caps under the Toxic Substances Control Act (TSCA), 40 CFR §761.75(b)(1) and (2) ;

- Maintenance of the cap and ground water monitoring.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. However, because contamination at the site presents only low level threats, and treatment of the contaminated soil at the site was not found to be practicable, this remedy does not satisfy the statutory preference for remedies that employ treatment as a principal element. The questionable success of alternative technologies, the comparable risks of off-site disposal, and the strong preference of the State for onsite disposal preclude the selection of a remedy in which the contaminants of concern would be treated.

Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of public health, welfare, and the environment.



9-30-93

Joe D. Winkle
Acting Regional Administrator
Region 6

Date

TENTH STREET SUPERFUND SITE
OKLAHOMA CITY, OKLAHOMA
AMENDED RECORD OF DECISION

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FIGURES

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DECISION SUMMARY
FOR THE
TENTH STREET SUPERFUND SITE
OKLAHOMA CITY, OKLAHOMA

I. INTRODUCTION

a. Site Name and Location

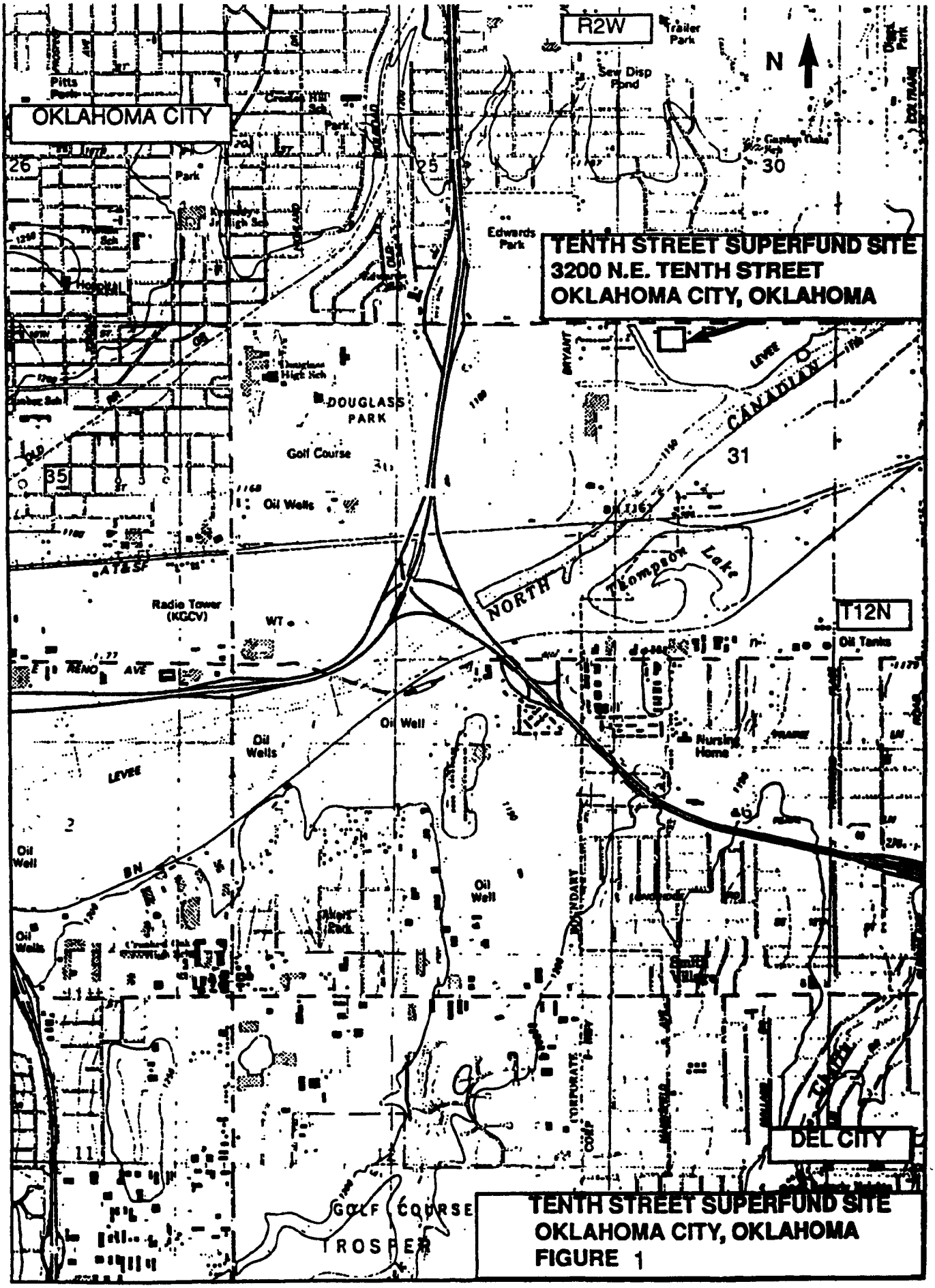
The Tenth Street Superfund Site (the "site") is located at 3200 Northeast Tenth Street, on the east side of Oklahoma City, Oklahoma (Section 31, Township 12 North, Range 2 West, of Oklahoma County) (Figure 1). The site is approximately 3.5 acres in size and is fenced. The site is situated immediately south of N.E. Tenth Street, between the North Canadian River on the east and south, and Bryant Avenue on the west (Figure 2).

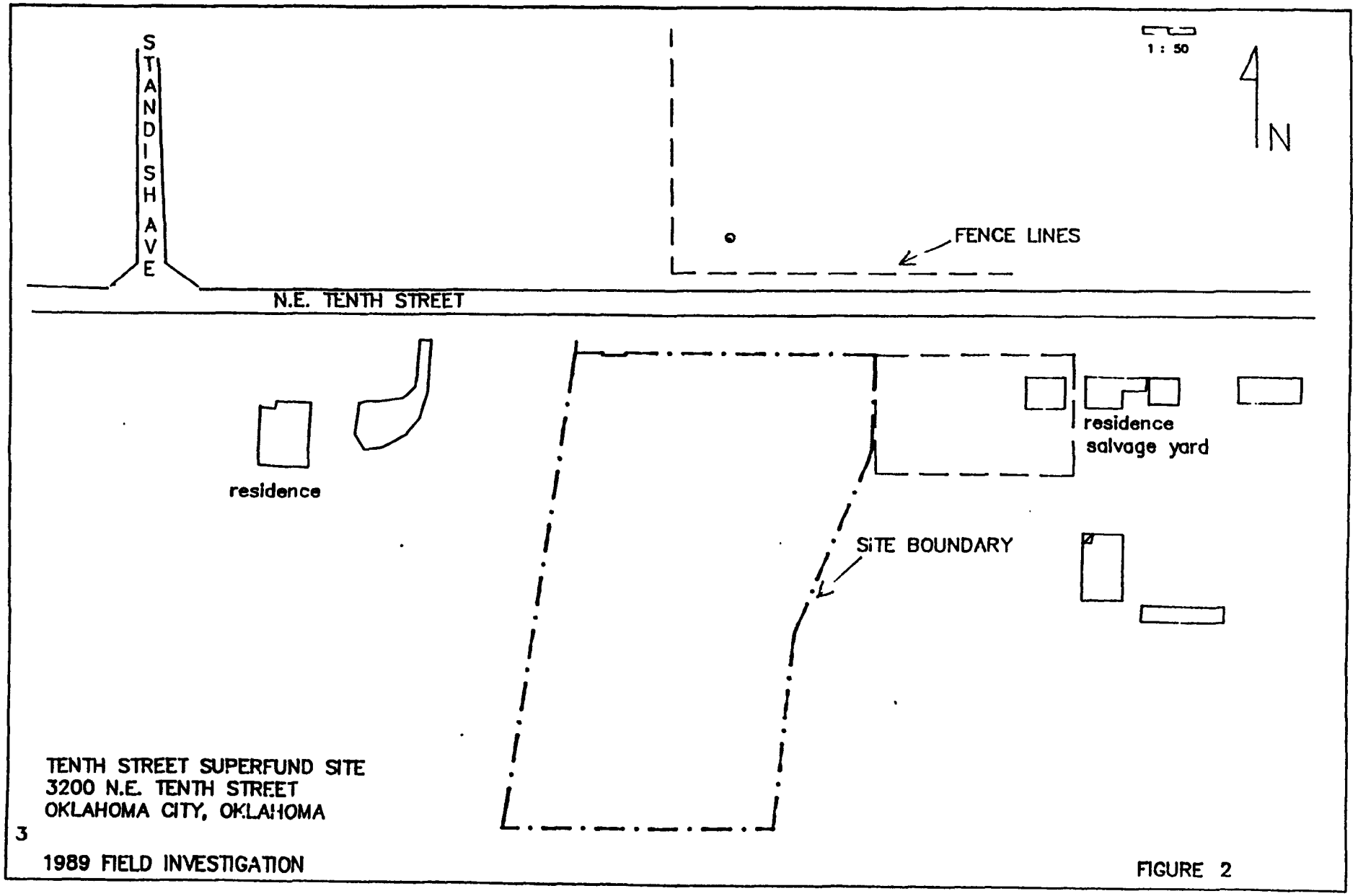
The site is in an area of mixed residential and industrial land use, and is surrounded on three sides by active automobile salvage yards. In the September 27, 1990, Record of Decision (ROD), the Environmental Protection Agency (EPA) assigned an industrial land use to this site. This industrial land use is maintained in this ROD.

b. Background

Between 1951 and 1959, the site was operated as a municipal solid waste landfill. From about 1959 until his death in 1979, Mr. Raymond Cobb leased the site and operated it as a salvage yard. During this time, used electrical transformers, as well as other materials such as used tires and paint thinners, were accepted by the salvage yard. Substantial quantities of dielectric fluid from the transformers were spilled on the ground during salvage operations. This dielectric fluid contained polychlorinated biphenyls (PCBs). After Mr. Cobb's death, Mr. Rolling Fullbright operated the site as an automobile salvage yard called Deadeye's Salvage Yard.

As the result of investigations during 1983, 1984 and 1985, EPA determined the site represented an unacceptable risk to human health and the environment. In August 1985, the EPA Region 6 Regional Administrator approved a removal action for the site. The removal action consisted of: (1) removal of electrical equipment and drums containing hazardous substances (e.g., benzene, acetone, and tetrachloroethylene) from the site; (2) decontamination and relocation of junk




STANDISH AVE
1 : 50
N
FENCE LINES
N.E. TENTH STREET
residence
residence
salvage yard
SITE BOUNDARY
TENTH STREET SUPERFUND SITE
3200 N.E. TENTH STREET
OKLAHOMA CITY, OKLAHOMA
3
1989 FIELD INVESTIGATION
FIGURE 2

automobiles; (3) consolidation of PCB contaminated soils to the center of the site and grading for drainage; (4) installation of a temporary cap, consisting of a visqueen layer overlain by approximately 18 inches of clay; and (5) erection of a fence.

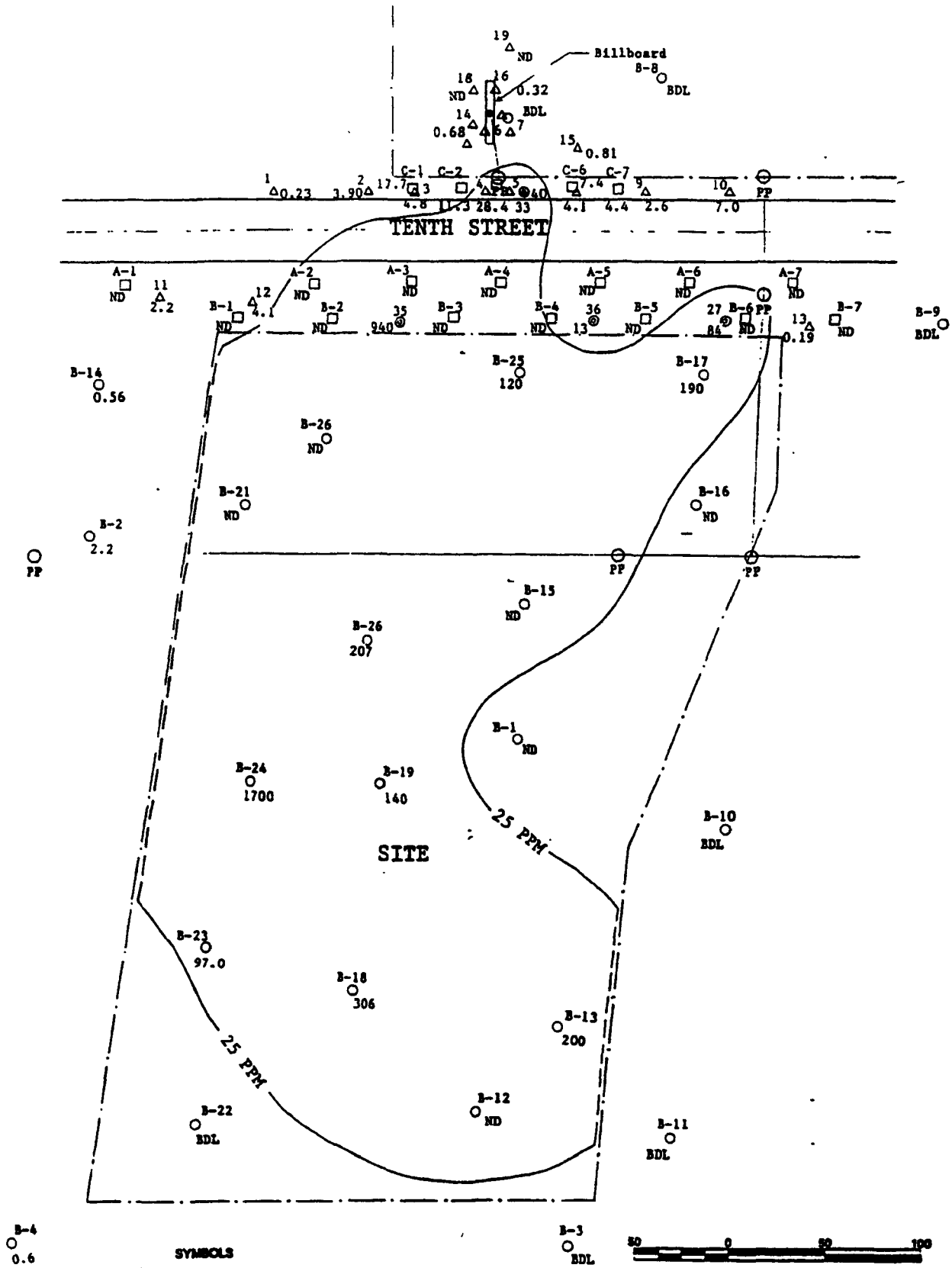
In July 1987, the site was placed on the National Priorities List (NPL). In 1989, EPA conducted a remedial investigation and feasibility study (RI/FS) for the site. The RI was finalized in March 1990, and EPA determined no ground water contamination was present at the site and that soil contamination with concentrations of PCBs at or above 25 parts per million (ppm) was limited to approximately 7,500 cubic yards of soil under the cap at the site. The FS and risk assessment were completed in July 1990. Based on concentration and risk, PCBs were determined to be the contaminants of concern.

The FS concluded, based on a treatability study, the KPEG chemical dechlorination process was an innovative technology which would be capable of destroying the PCB contamination.

Additional investigations conducted during the remedial design (RD) have since increased the volume estimate to identify approximately 9,800 cubic yards of soil contaminated with PCBs at or above 25 ppm at the site. The majority of the contaminated soil is contained under the existing temporary cap constructed during EPA's removal action in 1985. However, some contaminated soil is present off-site in the roadway right-of-way on both the north and south sides of N.E. Tenth Street (Figure 3).

In addition to indicating no ground water contamination is present at the Tenth Street Site, the water table across the area was measured during the RI. The water table was approximately 8 feet below the original ground surface and ranges from 1151.75 feet above mean sea level (+MSL) to 1150.52 feet +MSL. The highest water level measured within the site boundary was 1150.82 feet +MSL; the deepest contamination is reported to be at 1154.5 feet +MSL, a difference of 3.68 feet.

Although insufficient information exists to classify the alluvial aquifer at the site, EPA believes the appropriate classification is Class II, potential drinking water supply. The aquifer is not contaminated with PCBs, meets primary drinking water standards, does not exceed 10,000 ppm total dissolved solids, and probably yields more than 150 gallons per day. No users of the alluvial aquifer have been identified; all known water supply wells in the immediate area are probably completed in the Garber-Wellington.



SYMBOLS

- 35 ◎ EPA FIT sampling 8/24/85 - 8/25/85
- B-1 ○ EPA FIT sampling 4/89
- A-1 □ EPA FIT sampling 8/13/90
- 1 △ URS Phase I & II Sampling 6/11/91 - 6/12/91 and 7/23/91 - 7/24/91
- ND No Data
- BDL Below Detection Limit

Tenth Street Superfund Site
90% Submittal - Design Analysis
PCB (PPM) Concentration Map
0 to 2 Feet Horizon

March, 1992

URS CONSULTANTS

FIGURE 3

c. State Agency Involvement

EPA is the lead agency for the Tenth Street Site. The Oklahoma Department of Environmental Quality (ODEQ) and its predecessor, the Oklahoma State Department of Health (OSDH), have provided administrative and technical support on this site, and have reviewed the Administrative Record and the Proposed Plan for this Amended ROD.

d. The Previous Record of Decision

The original ROD was signed on September 27, 1990, by the Regional Administrator for EPA Region 6. The ROD selected the chemical dechlorination process (KPEG), an innovative treatment technology, to treat the PCB contaminated soils with concentrations at or above 25 ppm.

II. SITE CONTAMINATION AND RISKS TO HUMAN HEALTH

During the RI, EPA conducted sampling of the soil, ground water and surface water to determine the nature and extent of contamination. Additional sampling was conducted during the RD phase for the original remedy. The results of these investigations indicated that soil contamination presents unacceptable long-term health risks. Based on concentration and risk, PCBs are the contaminants of concern for this site. PCBs are also hazardous substances as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §9601(14) and 40 CFR §302.4.

Aroclor 1260 is the predominant species present, but Aroclor 1242 and Aroclor 1254 are present in minor amounts. EPA estimates 9,800 cubic yards of soil are present at the site with PCB contamination at or above 25 ppm.

In its usual form, PCBs are immobile. Investigations conducted at this site revealed the PCB contamination appears to be strongly bonded with the soil and is very immobile. PCB concentrations in soil samples range from 41 ppm to 1,700 ppm. The average concentration of PCBs in the soil is 110 ppm.

EPA has performed two human health risk assessments for this site. A baseline risk assessment was conducted in July 1990, and was discussed in the September 27, 1990, ROD. As part of the ROD amendment process, a second risk assessment was prepared in March 1993. Both risk assessments examined potential threats to workers exposed to the site in an industrial setting, reflecting EPA's determination that the most likely potential future land use of the site is industrial. Both risk assessments considered the effects of direct exposure to the soil, without regard to the mitigating effects of the present cap.

Two exposure scenarios were examined in the 1993 risk assessment. The Central Tendency Exposure (CTE) addresses a worker on an industrial site for eight hours per day, five days a week, 50 weeks per year, with an average duration of exposure of nine years. The Reasonable Maximum Exposure (RME) differs in that it assumes a duration of exposure of 25 years. Pathways of exposure examined included ingestion of soil and dermal absorption of soil and dusts. Both exposure scenarios assumed a PCB concentration of 1700 ppm in the soil, which was the highest concentration detected during the RI.

The 1993 risk assessment indicated that for noncarcinogenic human health effects from PCBs, the Hazard Index (HI) for the CTE exposure was 1, and for the RME exposure the HI was 7. An HI greater than 1 indicates a potential for human health concern.

For carcinogenic effects from PCBs, the CTE exposure may result in 9 excess cancer cases (above the normal average cancer occurrences) in 10,000 individuals (a risk of 9×10^{-4}). For the RME exposure, 4 excess cancer cases may result in 1,000 individuals (a risk of 4×10^{-3}). Action is generally warranted at Superfund sites if, as at the Tenth Street Site, the cumulative carcinogenic risk to an individual based on the RME for both the current and future land use is less than 1×10^{-4} (OSWER Directive 9355.0-30).

Additionally, the RI indicated lead is present in the soil at this site. The average lead concentration in soil at the site is 1,100 ppm. This level slightly exceeds the EPA recommended cleanup range of 500 - 1,000 ppm for residential areas (OSWER Directive #9355.4-02). As EPA does not have a recommended model for an industrial exposure scenario, the 1993 risk assessment evaluated this site using EPA's Uptake/Biokinetic (UBK) model. The UBK model is used to predict blood lead levels in children ages birth to 7 years old (which represents the sensitive population) who are exposed in a residential setting. (This model cannot be modified to simulate an industrial exposure.) The UBK model predicted that 81% of children would develop a blood lead level below the 10 micrograms per deciliter (µg/dl) benchmark. For exposures to children in a residential setting, EPA recommends a model projection of 95% with blood lead levels below 10 µg/dl (Don Clay Memo, "Update on OSWER Soil Lead Cleanup Guidance", August 29, 1991). Therefore, the model indicates the site would pose an unacceptable lead exposure to children in a residential setting. However, because (1) the most likely future use of the site would be industrial rather than residential, and (2) the automobile salvage industry surrounding the site is generally associated with high lead levels and would continue to be a source of exposure and possibly recontaminate the site, EPA does not believe lead poses a significant risk at this site, and lead is, therefore, not a contaminant of concern to be addressed in this ROD.

However, as a point of clarification, the potential health threats from both PCBs and lead discussed above would only be posed by direct exposure to contaminated soil at the site. Currently, because of the protection offered by the temporary cap and fencing, threats to human health and the environment from direct exposure to the contaminated soil are minimal at the site.

The U.S. Fish and Wildlife Service granted a release from natural resources damages for the site on August 27, 1987. However, if not addressed by this remedy or some other measures, actual or threatened releases of hazardous substances from this site may occur, and may endanger public health, welfare, and the environment.

III. RATIONALE FOR AMENDING THE RECORD OF DECISION

a. Circumstances Leading to this ROD Amendment

Following the signature of the ROD on September 27, 1990, EPA began the RD phase of the KPEG chemical dechlorination process to address the PCB contaminated soils. The ROD had estimated costs for remediation of this site to be approximately $4 million.

The State of Oklahoma did not support the remedy selected in the September 27, 1990, ROD. The State believed that the risks posed by the site were minimal and that public health protection achieved through the use of physical and legal land use restrictions would be comparable to the protection achieved by the KPEG treatment process. The State also believed that the cost associated with KPEG was not warranted.

EPA proceeded with the design of the selected remedy in November 1990. EPA believed that issues with the State of Oklahoma could be resolved as the remedial design progressed, with the goal of minimizing project delays.

On October 25, 1991, EPA received from the remedial design contractor the 60% remedial design submittal, which included the proposed schedule and cost estimate. The contractor estimated the cost of the remediation to be $8.125 million. On November 22, 1991, EPA issued a stop work order to the remedial design contractor, suspending the remedial design. EPA intended to re-evaluate the appropriateness of the selected remedy.

b. Experience With the KPEG Process at Other Sites

As part of EPA's re-evaluation of the KPEG process, EPA considered information from the Industrial Transformer/Sol Lynn (IT) Superfund Site in Houston, Texas.

EPA had selected the KPEG chemical dechlorination process as an innovative technology treatment remedy for the IT site in a ROD issued in March 1988. The IT site's treatment unit became operational in November 1991. The Responsible Party for the IT site, Gulf State Utilities (GSU), began treating soil from the site with an average PCB concentration of 50 ppm in December 1991.

In February 1992, GSU contacted EPA and asked permission to discontinue treatment due to numerous problems with the treatment process. GSU claimed that due to the low production rate of the unit, the increasing odor problem, and the condition of the treated soil, continuation of the KPEG innovative technology was not justified.

Following the request from GSU to cease treatment of the soils, EPA undertook an evaluation to determine the validity of GSU's concerns about the effectiveness and efficiency of the KPEG chemical dechlorination process. EPA Region 6 requested the assistance of the EPA Office of Research and Development, Risk Reduction Engineering Lab to assess the following factors affecting the KPEG process:

1. The offensive odor that persists during treatment of the soil, and the residual odor in the soil after treatment.

2. Treating the soil increased the volume of the soil by approximately 100%.

3. The leaching of residual reagent from the soil following treatment.

4. The physical characteristics of the treated soil, which required storage in 30 yard roll-off boxes because of its physically "soupy" nature, resulted in the need for stabilization before using as backfill.

5. The rate of production of the treatment unit was averaging one to two tons/day, although it was estimated in the IT site's RD at 20 tons/day.

On February 25, 1992, a representative from the EPA Office of Research and Development (ORD) visited the IT site to evaluate the problems with the KPEG innovative technology treatment process. The evaluation included meetings with the vendor operating the chemical dechlorination equipment; the managing consultant for the project; and representatives of GSU. An onsite inspection of the equipment and review of the treatability study and design documents was also conducted. ORD summarized their evaluation in a memo to EPA Region 6 dated February 27, 1992, stating that three fundamental problems are associated with using the chemical

dechlorination treatment process: poor materials handling abilities, low production rates, and poor soil quality. ORD concluded that it was not possible to set a reliable schedule for completion of the remediation using the KPEG chemical dechlorination process. EPA sent a follow-up letter to the vendor, asking for their input into solving problems involving the KPEG process. The vendor did not offer viable solutions to solve these inherent problems.

EPA Region 6 concluded, based on the assessment by ORD, that the KPEG chemical dechlorination process was no longer feasible at the IT site. Following treatment of approximately 140 tons of contaminated soil and upon approval from EPA on March 6, 1992, the process was demobilized.

c. Rationale for Changing the Remedy

This amendment is necessary because of (1) the implementation difficulties with the an innovative technology of the KPEG chemical dechlorination process discussed above, and (2) the increased costs associated with this innovative technology at this site.

Even though treatability tests were conducted as part of the FS for both the IT and Tenth Street Sites, this does not ensure that full scale production is always successful. EPA feels because the contaminants, soil conditions, and treatment processes are very similar, the problems at the IT site described above would likely be encountered at the Tenth Street Site. The innovative technology of the KPEG chemical dechlorination process therefore appears technically impracticable, and thus would prevent an effective implementation of the KPEG process at the Tenth Street Site.

Additionally, the increased cost estimate of $8.125 million greatly exceeds the costs projected in the September 27, 1990, ROD. Based on actual costs incurred for the KPEG process at other sites, remediation costs at the Tenth Street Site would likely exceed $10 million. This additional cost would not result in an increase in overall protection to human health and the environment. Actually , the problems with the KPEG innovative technology treatment process may increase the risks at the site.

Therefore, EPA has determined that because of the technical difficulties and increased costs, the innovative technology of the KPEG chemical dechlorination process is no longer appropriate for the Tenth Street Site.

IV. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Amended Proposed Plan for the Tenth Street Site was released for public comment in July 1993, pursuant to 40 CFR §300.435(c)(2)(ii) and §117 of CERCLA, 42 U.S.C. §9617. This document, as well as other site related documents, were made available to the public as part of the Administrative Record, which has been updated in accordance with 40 CFR §300.825(a)(2). Information repositories for the Administrative Record were located at the EPA Region 6 offices at 1445 Ross Avenue, Suite 1200, Dallas, Texas, and at the Ralph Ellison Library, 2000 N.E. 23rd Street, Oklahoma City, Oklahoma. These locations, as well as the preferred remedial alternative, were identified in the Amended Proposed Plan and announced in notices in The Daily Oklahoman on July 12, 1993, and in The Black Chronicle on July 15, 1993. The public comment period for the proposed plan began on July 15, 1993 and ended on August 14, 1993. EPA conducted a public meeting on July 29, 1993, to discuss the preferred remedial alternative and to accept verbal comments. Responses to the written and verbal comments received during this period are included in the Responsiveness Summary, which is included as part of this Amended ROD. This Amended ROD will be added to the Administrative Record for this site. An update to the Administrative Record Index is included as an Appendix III of this document.

V. REMEDIATION GOALS

a. Areas of Concern

EPA classifies low-level threat wastes as those source materials that generally can be reliably contained and that would present only a low risk in the event of a release. Wastes that generally will be considered to constitute low-level threat wastes include, but are not limited to:

1. Nonmobile contaminated source material of low toxicity - surface soils containing contaminants of concern that generally are relatively immobile in air or ground water (i.e., nonliquid, low volatility, low leachability contaminants such as high molecular weight compounds) in the specific environmental setting.

Contamination at the Tenth Street Site is limited to immobile contaminants (PCBs) and only in soil.

Additionally, EPA's Guidance on Remedial Actions for Superfund Sites with PCB Contamination (OSWER Directive No. 9355.4-01, August 1990) identifies principal and low-level threats for Superfund sites with PCB contamination. For sites in industrial areas such as the Tenth Street Site, principal threats are generally defined as concentrations of

500 ppm or greater. Due to the consolidation and mixing of contaminated soils during the removal action, it is not practicable to separate soils from the Tenth Street Site into those with PCB concentrations above and below 500 ppm. However, the average concentration of PCBs in soils at the Tenth Street Site is 110 ppm PCBs, which is considered a low-level threat.

Based on the above criteria, the contamination at this site presents only low-level threats.

However, as stated in Section II, "Site Contamination and Risks to Human Health", risk assessments conducted for the site show the site poses unacceptable risks to human health, and remedial action is necessary to ensure continued protection from exposure to contaminated soils.

b. Remedial Objectives

The objective of remediation at this site, as stated in the September 27, 1990, ROD, is to protect human health and the environment "...by preventing current or future exposure to the contaminated soil through treatment and/or containment, and reducing or controlling the potential migration of contaminants from the soil to ground water." This continues to be the objective of remediation at this site.

The target action level for this remedial action addresses PCB contamination in soil at or above 25 ppm. This standard assumes the industrial land use specified in the September 27, 1990, ROD, and is based on the Toxic Substances Control Act (TSCA) PCB Spill Cleanup Policy (40 CFR §761 Subpart G).

EPA estimates 9,800 cubic yards of soil with PCB contamination at or above 25 ppm are present at the Tenth Street Site and subject to this remedial action.

No ground water contamination has been identified at the Tenth Street Site.

VI. DESCRIPTION OF ALTERNATIVES

Six remedial alternatives were developed for the Tenth Street Site in the 1990 FS. An Addendum to the FS was prepared in April 1993 which updates these six alternatives. These documents can be found in the Administrative Record for the Tenth Street Site. The remedial alternatives are:

Alternative 1: No Action
Alternative 2: Capping in Place
Alternative 3: Excavation and Off-site Disposal

Alternative 4: Excavation, Onsite Chemical Dechlorination (KPEG) and Disposal
Alternative 5: Excavation, Onsite Thermal Treatment and Disposal
Alternative 6: Excavation, Off-site Thermal Treatment and Disposal

The original remedy selected for the site in the September 27, 1990, ROD, was Alternative 4: Excavation and Onsite Chemical Dechlorination (KPEG) and Disposal. EPA has determined this remedy is no longer appropriate for this site; however, for comparison purposes only, the Alternative 4 is described below.

a. Common Elements

All alternatives address the approximately 9,800 cubic yards of soil with concentrations of PCBs at or above 25 ppm. Alternatives 1 and 2 would leave the contaminated soil in place on the site. Monitoring would be conducted to ensure no migration of PCBs to the ground water. Alternatives 3, 5, and 6 would excavate the contaminated soil for either treatment or off-site disposal. All alternatives except Alternative 1 would be subject to the requirements of the Occupations Safety and Health Act (OSHA) of 1970 {29 U.S.C. 651 et seq.}, the EPA regulations set forth in 40 CFR Part 300, and the Oklahoma Clean Air Act. An air monitoring program and dust control measures would be implemented to reduce/minimize any potential adverse short-term health effects during excavation and treatment activities.

b. Description of Alternatives

Alternative 1: No Action

Estimated Capital Costs: $2,500
Estimated Annual (O&M) Costs: $14,900
Estimated Total Present Worth Costs: $229, 500
Estimated Implementation Timeframe: 30 years for Operation and Maintenance (O&M)

The Superfund program requires that the "No Action" alternative be evaluated at every site to establish a baseline for comparison. Under this alternative, deed notices would discourage soil excavation and construction activities on the site. The ground water monitoring wells located downgradient from the site would be sampled and analyzed for PCBs at least annually to ensure no migration of PCBs to ground water has occurred. The TSCA PCB disposal requirements (40 CFR 761 Subpart D) and the PCB Spill Cleanup Policy would not apply to this alternative because the soils would be left in place and no waste would be generated.

Alternative 2: Capping in Place

Estimated Capital Cost: $407,800
Estimated Annual (O&M) Costs: $15,600
Estimated Total Present Worth Costs: $648,000
Estimated Implementation Timeframe: 3 months construction; 30 years for O&M

Under this alternative, the waste would remain in place. A new, multimedia cap meeting the requirements for chemical waste landfill covers (found at 40 CFR §761.75 (b)(1) and (2)) would be constructed over the existing cap. Off-site contamination in the roadway right-of-way on the south side of N.E. Tenth Street would be excavated and placed onto the existing cap. All soil contaminated with PCBs above 25 ppm would be capped under either the new cap or, in the case of off-site contamination in the roadway right-of-way on the north side of N.E. Tenth Street, the new, widened pavement, which would serve as a cap. EPA and the Oklahoma Department of Transportation have agreed clean fill soil would be placed over the existing soil prior to construction of the new road to ensure no disturbance of PCB contaminated soil during construction. The downgradient ground water monitoring wells would be sampled and analyzed for PCBs annually to ensure no migration of PCBs to ground water. The site will be fenced and deed notices filed to restrict access to the site. TSCA's PCB disposal requirements and PCB Spill Cleanup Policy would not apply to this alternative because the soils would be left in place and no waste would be generated. However, this alternative does comply with the 25 ppm cleanup level established in the TSCA Spill Cleanup Policy.

Alternative 3: Excavation and Off-Site Disposal

Estimated Capital Cost: $5,507,600
Estimated Annual (O&M) Costs: $0
Estimated Total Present Worth Costs: $5,507,600
Estimated Implementation Timeframe: 3 months

Under this alternative, the estimated 9,800 cubic yards of contaminated soil would be excavated and disposed of in an off-site commercial landfill approved under TSCA to accept PCB contaminated soils. The excavated area would be backfilled with clean soil. The final surface would be graded and seeded to blend with the surrounding area. No after action monitoring and/or maintenance would be required. This alternative would meet TSCA's PCB disposal requirements and the PCB Spill Cleanup Policy.

Alternative 4: Excavation, Onsite Chemical Dechlorination, and Onsite Disposal

Estimated Capital Cost: $8,125,000
Estimated Annual (O&M) Costs: $0
Estimated Total Present Worth Costs: $8,125,000
Estimated Implementation Timeframe: 18 - 20 months

Under this alternative, the estimated 9,800 cubic yards of contaminated soil would be excavated and treated. This remedy was described in the September 27, 1990, ROD as follows:

> "Contaminated soil is mixed with an alkaline reagent consisting of potassium or sodium hydroxide in a solution of mixed polyethylene glycol and dimethyl sulfoxide. The reagent mixture dechlorinates the aryl halide to form a PEG ether and a totally dechlorinated species.
>
> "In soil processing, the soil/reagent mixture is heated to 30° - 150° C with mixing until the reaction has been completed. At the end of the reaction, reagent is recovered by decantation and washing the soil with several volumes of water. The decontaminated soil is then discharged" and placed backed on the site.

EPA no longer considers the KPEG innovative treatment technology to be appropriate for this site due to the reasons discussed in Section III, "Rationale for Amending the Record of Decision".

Alternative 5: Excavation, Onsite Thermal Treatment and Disposal

Estimated Capital Cost: $11,068,600
Estimated Annual (O&M) Costs: $0
Estimated Total Present Worth Costs: $11,068,600
Estimated Implementation Timeframe: 6-9 months

Under this alternative, the estimated 9,800 cubic yards of contaminated soil would be excavated and treated in a mobile incinerator which would be brought to the site. The thermal destruction unit would comply with the technical standards for PCB incinerators found at 40 CFR §761.70. Emissions resulting from the incineration would be scrubbed before venting to the atmosphere. Scrubber water would be incinerated or treated by filtration through activated carbon columns. The spent carbon would then be incinerated. The incinerator would operate with a demonstrated removal efficiency (DRE) of 99.9999 percent for PCBs. After incineration, the ash would be graded and seeded to blend with the surrounding area. If necessary, supplemental clean

soil would be added to site. No after action monitoring and/or maintenance would be required. The alternative would meet TSCA PCB incineration requirements, the TSCA PCB Spill Cleanup Policy, and the Oklahoma Clean Air Act.

Alternative 6: Excavation, Off-site Thermal Treatment and Disposal

Estimated Capital Cost: $34,207,100
Estimated Annual (O&M) Costs: $0
Estimated Total Present Worth Costs: $34,207,100
Estimated Implementation Timeframe: 3 months

Under this alternative, the estimated 9,800 cubic yards of contaminated soil would be excavated and transported to an off-site, TSCA permitted, commercial incinerator. The excavated area would be backfilled with clean fill soil and graded and seeded to blend with the surrounding area. No after action monitoring and/or maintenance would be required. The alternative would meet TSCA requirements for PCB disposal and incineration, and the TSCA PCB Spill Cleanup Policy.

VII. EVALUATION OF ALTERNATIVES

EPA uses the nine criteria set forth in 40 CFR §300.430(e)(9)(iii) to evaluate alternatives for addressing a Superfund site. These nine criteria are categorized into three groups; threshold, primary balancing, and modifying. The threshold criteria must be met in order for an alternative to be eligible for selection. The primary balancing criteria are used to weigh major tradeoffs among alternatives. The modifying criteria are taken into account after state and public comment is received on the Proposed Plan of Action.

a. Explanation of Evaluation Criteria

The nine criteria used in evaluating all of the alternatives are as follows:

Threshold Criteria

- Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls or institutional controls. Total elimination of risk is often impossible to achieve. However, a remedy must eliminate, reduce or control exposures to assure that human health and the environment are protected.

- Compliance with ARARs addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes and/or provide grounds for invoking a waiver.

Primary Balancing Criteria

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

- Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies that may be employed in a remedy. Factors considered include the nature of the treatment process and the materials they will treat; the amount of hazardous materials that will be destroyed by the treatment process; how effectively the process reduces or destroys the toxicity, mobility or volume of contaminated material; the degree to which the treatment is irreversible; the type and quantity of contamination that will remain after treatment; and the degree to which treatment reduces the inherent hazards posed by principle threats at the site.

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

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

- Cost includes capital and operation and maintenance (O&M) costs. Costs are compared to the overall effectiveness that will result from implementing the alternative.

Modifying Criteria

- State Acceptance indicates whether, based on its review of the Amended Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative, or whether the State comments on ARARs or the proposed use of waivers.

- Community Acceptance allows for a public comment period for interested persons or organizations to comment on the proposed remedy. EPA considers these comments in making its final remedy selection. The comments are addressed in the Responsiveness Summary which is attached to this Amended ROD.

b. Comparative Analysis

The original remedy selected for the site in the September 27, 1990, ROD, was Alternative 4: Excavation and Onsite Chemical Dechlorination (KPEG) and Disposal. EPA has determined this remedy, which utilized an innovative treatment technology, is no longer appropriate for this site; however, for comparison purposes only, the KPEG alternative is retained for analysis. A brief synopsis of this analysis is contain in Table 1.

Overall Protection of Human Health and the Environment

Under Alternative 1, No Action, the site does not protect human health and the environment due to off-site PCB contamination above 25 ppm in the roadway right-of-way. Additionally, because of the temporary nature of the original cap construction, and the lack of cap maintenance, Alternative 1 may not provide adequate protection of human health and the environment in the future from risks associated with the PCB contaminated soil under the cap, and will not be considered further in this analysis as an option for this site.

Under Alternative 2, Capping in Place, a new cap would be constructed of low permeability clay and a flexible membrane liner (FML), with a drainage layer and vegetative cover. The new cap would be constructed over the existing cap. Integrity would be much more reliable as a result of more stringent construction standards and continued maintenance. Also, site access would be restricted and deed notices would discourage excavation or construction activities at the site. Although no migration of PCBs to ground water is predicted, contamination will remain at the site and the potential for contaminant migration to the ground water will exist. Therefore, ground water monitoring will be conducted to verify no PCB migration is occurring. Alternative 2 provides adequate protection of human health and the environment.

Alternatives 3, 4, 5 and 6 would provide a higher degree of protection of human health and the environment at the site than Alternative 1. Alternatives 3, 4, 5 and 6 achieve protection by eliminating, reducing, or controlling risk through removal and/or treatment of the PCB contaminated soil. However, these alternatives do not provide a greater

TABLE 1

COMPARISON OF ALTERNATIVES AT TENTH STREET SITE OKLAHOMA CITY, OKLAHOMA

ALTERNATIVE	1	2	3	4	5	6
CRITERIA	No Action	Capping in Place	Off-site Landfill	Chemical Dechlorination (KPEG)	Onsite Incineration	Off-site Incineration
Overall Protection	Inadequate	Adequate	Adequate	Very Good	Very Good	Very Good
Compliance with ARARs	None	None	TSCA; Complies	TSCA; Complies	TSCA; Complies	TSCA; Complies
Long-term Effectiveness	Unlikely	Adequate; Requires Long-term Maintenance	Good; Requires Long-term Maintenance	Permanent	Permanent	Permanent
Reduction in Toxicity Mobility or Volume	None	None	None	Destroys to ≤ 2 ppm	99.9999 % Destruction	99.9999 % Destruction
Short-term Effectiveness	Very Good; Has No Excavation; Lowest Risk	Very Good; Has No Excavation; Lowest Risk	Good; PCB Dust Control Required; Possible Transport Spill	Good; PCB Dust Control and Process Emission Controls Required	Good; PCB Dust Control and Process Emission Controls Required	Good; PCB Dust Control Required; Possible Transport Spill
Implementability	Very Good	3-6 Months; Simple; Established Technology	3 Months; Simplest; Commercial Landfill	18-20 Months; Questionable	6-12 Months; Complicated; Requires Specialists	3 Months; Simplest; Commercial Incinerator
Costs (Total Present Worth)	$232,000	$648,000	$5,507,600	$8,125,000	$11,068,600	$34,207,100

degree of protection than Alternative 2, so long as the integrity of the cap is maintained.

All five (excluding Alternative 1, No Action) remaining alternatives would adequately reduce excess cancer risk from exposure to soils with PCB contamination at or above 25 ppm, and prevent migration of contamination from the site, thereby providing overall protection of human health and the environment.

Compliance with ARARs

Of the remaining five alternatives, all would comply with their respective ARARs. Alternative 2, because it would leave the waste in place, would not generate a waste subject to the PCB disposal regulations of TSCA, which require incineration, treatment or placement in a chemical waste landfill; these are, however, requirements to be considered. The TSCA PCB Spill Cleanup Policy is also a requirement to be considered. This policy's 25 ppm cleanup level will be complied with.

Because the contaminated soil is not left in place, the TSCA PCB disposal regulations and the TSCA PCB Spill Cleanup Policy do apply to Alternatives 3, 4, 5 and 6. These alternatives would comply with these requirements.

PCBs are not regulated by the Resource Conservation and Recovery Act (RCRA) as a hazardous waste and RCRA is not applicable to this remedy.

All alternatives, except Alternative 1, would be subject to the requirements of the Occupational Safety and Health Act (OSHA) of 1970 {29 U.S.C. 651 et seq.}, the EPA regulations set forth in 40 CFR Part 300, and the Oklahoma Clean Air Act.

No other ARARs have been identified for this site.

Long Term Effectiveness and Permanence

Alternatives 4, 5 and 6 provide the highest degree of long-term effectiveness and permanence as they use irreversible treatment technologies to eliminate hazards posed by contamination at this site.

Alternative 3 would provide a level of effectiveness and permanence to the site equivalent to Alternatives 4, 5, and 6. However, the PCBs would not be destroyed, but rather relocated to a TSCA regulated chemical waste landfill. Therefore, long-term management of the waste will be required similar to that of Alternative 2.

Although Alternative 2 does not remove contamination from the site and would require periodic maintenance and monitoring, it can be fully effective as long as cap integrity is maintained. Long-term maintenance of the cap, which is provided for in this alternative, would effectively control residual risk at the site. Cap technology has been proven to have good reliability. Monitoring will be conducted to ensure the cap remains effective at preventing migration of PCBs to ground water and exposure to contaminated soils.

Reduction in Toxicity, Mobility or Volume Through Treatment

Because no treatment is involved, Alternatives 2 and 3 would not reduce the toxicity, mobility or volume of the contaminants. Alternative 4 can destroy PCBs below 2 ppm through chemical dechlorination. Alternatives 5 and 6 would destroy 99.9999% of the PCB contamination in the soil through an incineration treatment process.

Short-term Effectiveness

Alternative 2 presents the least amount of risk to workers, the community and the environment during the implementation stage. Only contaminated soil in the roadway right-of-way on the south side of N.E. Tenth Street would be excavated and, therefore, the lowest level of potentially PCB contaminated particulate emissions would be created. Construction would be completed in 3 months.

Alternatives 4 and 5 would create particulate emissions from the excavation, stockpiling, and handling of contaminated soil. Emission control systems would be required on the treatment processes to reduce or eliminate the release of hazardous substances from the site. Alternative 4 would require 18-20 months to implement, while Alternative 5 could be complete in 6-9 months.

Alternatives 3 and 6 would have similar levels of short-term effectiveness, with particulate emissions resulting from the excavation and loading of contaminated soils. Additionally, potential releases of contaminants could occur along the route of transportation to an off-site facility. Each of these alternatives could be completed in 3 months.

As fugitive dust emissions would be generated by each of these alternatives, air monitoring and particulate controls would be required to mitigate potential impacts on workers the community and the environment.

All alternatives require site workers to have received OSHA health and training for hazardous waste operations and to comply with requirements for protective equipment.

Implementability

Experience at other sites indicates Alternative 2 would be relatively simple to implement and construct. The engineering of protective caps is well established. Labor and materials are readily available through many sources. No special permits are required. Additional land will have to be acquired in order to install the new cap over the existing cap.

Alternatives 3 and 6 would be the simplest to implement as no treatment or construction would be required onsite. No special techniques, materials, permits or labor would be required for implementation. Commercial facilities are readily available.

Based on experience at other sites, Alternative 4 would be very difficult to implement. Vendor availability is limited. Treatment rates are low. Treated soil is of very poor quality. Odors associated with the treatment process and treated soil are objectionable and no odor controls have been developed. Residual process reagent leaches from the treated soil. Because of the poor physical integrity of the treated soil, additional stabilization is required prior to replacement of the soil into the excavated area. Because of the doubling of soil volume in treatment/stabilization, some soil may require off-site disposal.

Alternative 5 is the most complex alternative to implement. Despite anticipated frequent downtime due to mechanical complexity, incineration could reliably meet the required treatment levels. It would require specially trained operators. During operation, constant monitoring of the emissions and periodic monitoring of the residues would be required.

Cost

The total present worth for Alternative 2 is $648,000. Capital costs for construction are $408,000. Annual operations and maintenance costs are $15,600, with and estimated present worth of $240,000.

Estimated capital costs are $5,508,000 for Alternative 3; $8,125,000 for Alternative 4; $11,069,000 for Alternative 5; and $34,207,000 for Alternative 6. No further operation and maintenance is required for these alternatives.

These costs are detailed in the FS Addendum, which is included in the Administrative Record.

State Acceptance

After review of the Proposed Plan and the Administrative Record, the State of Oklahoma has indicated that the risks posed by this site do not warrant implementation of any of the presented alternatives except Alternative 2.

The State of Oklahoma had previously stated the low degree of risk posed by the site and the lack of a treatment process with a proven operating experience (other than incineration) make additional cleanup of this site unnecessary. 40 CFR §300.510 (a) and (b)(1) prevent EPA from implementing a fund-financed remedy unless the State provides assurance to share 10 % of the cost of remedial action. The State has indicated that because of the limited availability of matching funds and the low risks, and consequently low priority, of this site, the State did notbelieve the original remedy was appropriate to this site and would not provide the 10 % State match. EPA believes the same circumstances would prevent the State from providing the 10 % match for any other treatment remedies. Therefore, EPA believes only Alternative 2 is acceptable to the State of Oklahoma in this circumstance.

The State of Oklahoma through the Oklahoma Department of Environmental Quality (ODEQ) has been provided the opportunity to review and comment on this Amended ROD. The State concurs with the selected remedy of capping in place.

Community Acceptance

At the Public Meeting held on July 29, 1993, some members of the community expressed a preference for off-site disposal. The location of the flood plain and the appropriateness of a containment remedy in the floodplain was questioned. One commentor suggested long-term storage until a new treatment process capable of destroying PCBs without incineration is developed. Several professional environmental consultants felt treatment processes offered by their respective firms may be appropriate for the site. All comments are addressed in the Responsiveness Summary attached to this ROD.

VIII. SELECTED REMEDY

Based on consideration of the requirements of CERCLA, the detailed analysis of the alternatives using the nine criteria, and public comments, both the EPA and ODEQ have determined that Alternative 2, Capping in Place, is the most appropriate alternative for remediating the soil contamination at the Tenth Street Site. The major components of this remedy include:

- Elimination of exposure pathways by construction of a multi-media cap over the existing cap, capping in place of approximately 9,800 cubic yards of soils with PCB concentrations equal to or greater than 25 ppm (Figure 4).

- The multi-media cap shall comply with the requirements for soil and liners of chemical waste landfills specified at 40 CFR §761.75 (b)(1) and (2).

- Contaminated soil on the south side of N.E. Tenth Street will be excavated and returned to the site prior to construction of the new cap.

- Contaminated soils on the north side of N.E. Tenth Street will be capped in place by the Oklahoma Department of Transportation's widening of the Tenth Street pavement. Clean soil will be placed over the contaminated soil prior to commencement of operations in order to prevent exposure. Oklahoma County has agreed to accept responsibility for costs associated with removal of the new pavement should remediation be determined necessary in the future.

- Erection of a fence to prevent public access.

- Prior to any soil handling activities an air monitoring plan will be activated to ensure no health based exposure levels are exceeded.

- Annual ground water monitoring of the downgradient monitoring wells will be conducted to ensure no migration of contamination. Should ground water contamination by PCBs be confirmed, EPA shall evaluate the need to conduct additional investigations. A second operable unit for ground water may, or may not, be declared.

- Routine inspection and maintenance of the cap will be conducted at least annually.

- Because this remedy leaves waste in place, Five Year Reviews of the site are required to determine if the remedy remains protective of human health and the environment.

- EPA and ODEQ have determined, based on information provided by the Corps of Engineers, the Oklahoma City Chief Engineer, and the Oklahoma Climatological Survey, that the site is adequately protected from a 100-year flood and no additional engineering controls are required.

This remedy meets the remedial objectives for the site, as expressed in Section V. b., "Remedial Objectives", by controlling exposure to PCBs in soil at concentrations above 25 ppm, and preventing migration of PCBs to ground water, through containment by capping in place.

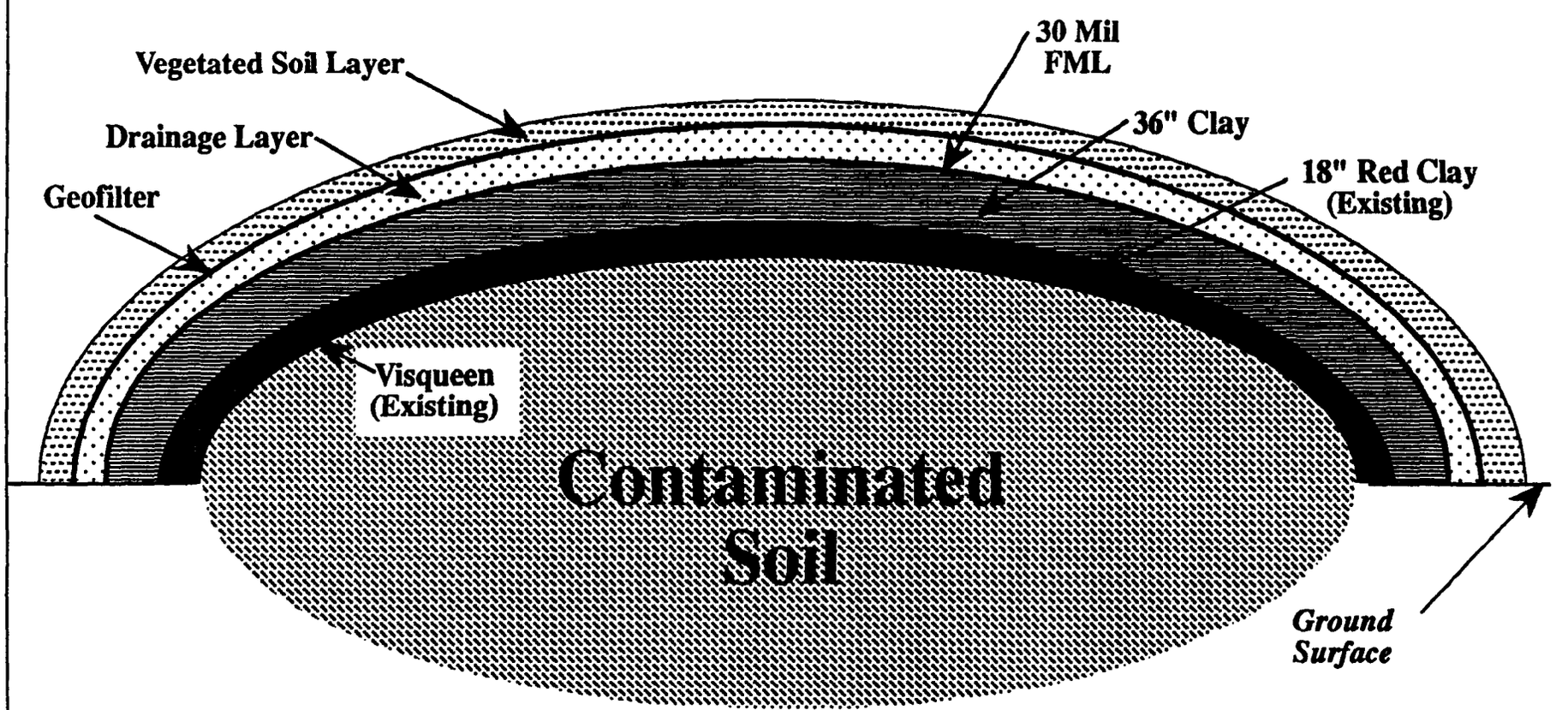
Figure 4

Tenth Street Superfund Site

Landfill Cap

Design is conceptual

Specifications to be determined during Remedial Design



EPA believes that by eliminating exposure to soils contaminated with PCBs above 25 ppm at the site, the increased risk posed by those soils will be controlled to a level consistent with an industrial land use. The 25 ppm PCB remediation goal for sites with limited access, such as the Tenth Street Site, is a health based criterion established under the Toxic Substances Control Act (TSCA) and is contained in 40 CFR §761.125, "Requirements for PCB Spill Cleanup".

EPA believes the selected alternative provides the best balance among alternatives with respect to the criteria used to evaluate remedies. Based on the information currently available, EPA believes the selected alternative will (1) provide protection of human health and the environment; (2) comply with ARARs; (3) provide good short and long-term effectiveness; (4) be implementable; (5) be cost effective; and (6) is acceptable to both the State and community. Although this remedy will not meet the statutory preference for remedies which employ treatment of principle threats, it is consistent with EPA regulations, policy and guidance on containment of low-level threat material.

IX. STATUTORY DETERMINATIONS

EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences that the selected remedy must meet. Section 121 of CERCLA specifies that when complete, the selected remedial action for this site must comply with ARARs established under Federal and State environmental laws unless a statutory waiver is justified. The selected remedy also must be cost effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as their principal element. The following sections discuss how the selected remedy meets these statutory requirements at the Tenth Street Site.

Protection of Human Health and the Environment:

The selected remedy protects human health and the environment by capping soils contaminated with PCBs above 25 ppm. Containment of the contaminated soil beneath a multi-media cap controls risks due to direct contact, inhalation or ingestion of PCBs, and prevents migration of PCBs to the ground water.

The capping of the soils with concentrations of PCBs above 25 ppm meets the remedial objectives established in the 1990 ROD and stated in Section V.b. of this ROD. The remediation goal for

this site of 25 ppm PCBs in soil is based on a health-based criterion in the TSCA Spill Cleanup Policy. EPA determined in the September 27, 1990, ROD that the most likely future land use of the site is industrial; this land use is maintained in this ROD.

EPA's investigations have determined that PCBs at the Tenth Street Site are not likely to migrate to the ground water. Further, installation of the multi-media cap should prevent the formation of significant quantities of leachate. Because of the specific site conditions, any leachate which is generated is not likely to contain PCBs.

Although no ground water contamination has been detected, annual monitoring of the downgradient monitoring wells well be conducted to ensure no migration of PCBs to ground water is occurring. Should contamination be detected, additional evaluations shall be conducted in the future.

Compliance with Applicable or Relevant and Appropriate Requirements:

The selected remedy will comply with all applicable relevant and appropriate action-, chemical-, and location-specific requirements (ARARs). The ARARs are presented as follows:

Action-specific Remediation ARARs:

The EPA regulations addressing the Superfund program as set forth in 40 CFR Part 300 are applicable.

Dust Suppression - The State of Oklahoma has set **applicable** standards for net ground level concentrations of particulate emissions. The levels are established in the Oklahoma Clean Air Act, Subchapter 29. The activities at the site will be monitored for this standard. If the standards are exceeded, then dust suppression activities will be implemented.

Chemical-specific Remediation ARARs:

The remediation goal is based on a health-based criterion in the TSCA Spill Cleanup Policy. The criterion of 25 ppm PCBs was selected as the remediation goal for the site. Because this is a policy and not a requirement, the Spill Policy is **not** an ARAR for this site; however, this policy was used to establish the health-based remediation goal in the 1990 ROD for the site, which establishes it as a remediation requirement.

The requirements for chemical waste (PCB) landfills specified at 40 CFR §761.75(b)(1) and (2) are not ARARs for the cap to be constructed over the site, but will be

complied with.

Location-specific Remediation ARARs:

Construction in a 100-year flood plain requires additional engineering controls for protection from a 100-year flood event (40 CFR §761,75(b)(4)). Prior to 1950, the Tenth Street Site was in the North Canadian River channel. The Corps of Engineers channelized the North Canadian River for flood control, expanding and relocating the channel to its current location. Although the Federal Emergency Management Agency (FEMA) Flood Rate Insurance Map shows the site in the 100-year flood plain, the Corps of Engineers and the City Engineer of Oklahoma City have stated the project design flood for the river channelization project had a 100-year frequency, which was to remain contained in the channel. EPA accepts these assertions in determining the site is adequately protected from a 100-year flood. Additionally, the FEMA map shows the 100-year flood elevation at the site is 1163 feet +MSL. The currently existing temporary cap exceeds this elevation; construction of an additional cap thickness will further elevate the cap above the flood elevation. EPA has determined no additional engineering controls for flood protection are required.

Cost-Effectiveness:

The selected remedy is cost-effective because it has been determined to provide overall effectiveness proportional to its cost of $648,000. The selected remedy effectively reduces the hazards posed by contaminants at the site at a cost which is an order of magnitude below the other alternatives' costs.

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

EPA has determined that the selected remedy represents the maximum extent to which permanent solution and treatment technologies can be utilized in a cost-effective manner for the Tenth Street Site. EPA has determined that the selected remedy provides the best balance in terms of long-term effectiveness and permanence; reduction through treatment of toxicity, mobility, or volume; short-term effectiveness; implementability; costs; the statutory preference for treatment of principal threats; and considering State and community acceptance.

The selected remedy does not include treatment as a principal element. Treatment was found to be impracticable based on the low level threats posed by the PCB contaminated soil; the implementation problems of the previously selected innovative technology; the strong preference by the State for the selected alternative; and an order of magnitude increase in cost over

those projected in the September 27, 1990, ROD, with no increase in the overall protection offered by the remedy.

The capping in place alternative does provide long-term effectiveness by eliminating any exposure pathways associated with the soil by permanently containing the contaminated soil beneath the cap. The alternative does not achieve a reduction of toxicity, mobility, or volume through treatment because the alternative does not involve treatment. The remedy will be implemented quickly, minimizing short-term effects. Only a minimal amount of excavation will occur.

Alternative treatment technologies have been attempted at the site through the selection of the chemical dechlorination process selected in the 1990 ROD. This technology was determined to no longer be appropriate for the Tenth Street Site due to poor performance at other Superfund sites.

Preference for Treatment as a Principal Element:

EPA's selected soil remedy does not employ treatment as a principal element. The alternatives investigated for this site included those which employ treatments which would satisfy CERCLA's preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances, pollutants, and contaminants over remedies that do not employ such treatment. However, the treatment technology that is available is an order of magnitude higher in cost and does not afford a greater overall benefit.

EPA's Guidance on Remedial Actions for Superfund Sites with PCB Contamination (OSWER Directive No. 9355.4-01, August 1990) identifies principal and low threat areas for Superfund sites with PCB contamination. For sites in industrial areas such as the Tenth Street Site, principal threats are generally defined as concentrations of 500 ppm or greater. As mentioned earlier, the average concentration of PCBs in the soil at the site was 110 ppm, which is considered a low-level threat. The guidance suggests that principal threats be addressed through treatment while low-level threats may be suitable for containment remedies. Exceptions to this suggestion are cost of treatment versus cost of containment, the site is located in a sensitive area such as a wetland, or containment is not feasible because the site is located in a flood plain. None of the exceptions apply to the Tenth Street Site.

Based on the above reasons, additional treatment does not appear to be appropriate or beneficial.

X. DOCUMENTATION OF SIGNIFICANT CHANGES

The Amended Proposed Plan for the Tenth Street Site was released for public comment in July 1993. The Amended Proposed Plan identified Alternative 2, Capping in Place, as the preferred alternative. EPA conducted a public meeting on July 29, 1993, to discuss the preferred alternative and obtain verbal comment from the public and other interested parties. EPA reviewed all written and verbal comments submitted during the public comment period. Upon review of theses comments, EPA determined that no significant changes to the proposed remedy, as identified in the Amended Proposed Plan, were necessary.

APPENDIX I

RESPONSIVENESS SUMMARY

STATE OF OKLAHOMA
DEPARTMENT OF
TRANSPORTATION
200 N. E. 21st Street
Oklahoma City, OK 73105-3204

July 19, 1993

Ms. Melanie Ontiveros, P.E.
Community Relations Coordinator
U.S. EPA (Region 6)
1445 Ross Avenue (6H-MC)
Dallas, Texas 75202-2733

Dear Ms. Ontiveros:

Re: Proposed Plan to address soil contamination at the Tenth Street Superfund site in Oklahoma City.

The Oklahoma Department of Transportation (ODOT) supports the Environmental Protection Agency's preferred alternative of Capping In Place soils that have been contaminated by polychlorinated biphenyls (PCBs) at the Tenth Street Superfund site in Oklahoma City. ODOT feels that because PCBs are not highly mobile this remedial action will be an adequate solution.

Sincerely,

R. J. Driskill, P.E.
Planning Engineer

RJD/jck

cc: Scott Thompson, Solid Waste Managemet Service, ODEQ

MARK S. COLEMAN
Executive Director

DAVID WALTERS
Governor

State of Oklahoma

DEPARTMENT OF ENVIRONMENTAL QUALITY

August 9, 1993

Mr. Donald H. Williams, Chief
Oklahoma/Texas Remedial Section
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Dear Mr. Williams:

Attached is an explanation of the position of the Oklahoma Department of Environmental Quality (DEQ) on the proposed plan for the Tenth Street Superfund site. This can be considered as our comments on the preferred alternative. If you have any questions do not hesitate to call me at (405)271-7169.

Sincerely,

Dennis J. Hrebec

Dennis J. Hrebec, Ph.D.
Director, Superfund Program
Solid Waste Management

Attachment

1000 Northeast Tenth Street, Oklahoma City, Oklahoma 73117-1212

The purpose of this document is to explain the position of the Oklahoma Department of Environmental Quality (DEQ) regarding the proposal by the United States Environmental Protection Agency (EPA) to construct a permanent cap on the Tenth Street Superfund Site in Oklahoma City, Oklahoma. A public meeting was held in Oklahoma City on July 29, 1993, regarding the proposed plan by EPA. At this meeting public concerns were expressed that the installation of a cap on the site was inappropriate because of the possible occurrence of catastrophic flooding or ground water contamination.

Site History

The Tenth Street site was operated at 3200 NE Tenth Street in Oklahoma City as a salvage yard from 1959 until 1979 by an individual who reclaimed electrical transformers and capacitors containing polychlorinated biphenyls (PCBs). A second individual then operated an auto salvage yard on the site until 1985. EPA detected PCBs in the soil on the site in sampling events from 1983 through 1985. They also found other compounds present in drums on the site. In August of 1985, EPA began an emergency response action and decontaminated and relocated the auto salvage operation, removed and disposed of electrical equipment and the drums that were on the site. Contaminated soils were consolidated on the site and a temporary clay cap was placed over the contaminated soils. Vegetation was established on the cap and fencing was installed around the site to limit access.

In 1987, EPA added the site to the National Priorities List (NPL) to determine whether any further action was necessary. EPA completed a remedial investigation and a feasibility study for the site in 1989. The Agency chose an innovative technology called KPEG that would reportedly destroy the PCBs by chemical dechlorination. A remedial design was started by EPA for this remedy. The KPEG process was also implemented at two other Superfund sites in New York and Texas that were contaminated with PCBs. Significant problems were encountered with the KPEG process, and EPA discontinued the implementation of KPEG at these two sites and chose different alternatives. Subsequently, EPA terminated the remedial design for the 10th Street Superfund Site.

Alternatives Presented by EPA

EPA is now in the process of choosing a new remedy. The alternatives that have been presented by EPA for consideration include:

Alternative 1 - No Action
Estimated capital cost - $2,500

Alternative 2 - Capping in Place
Estimated capital cost - $407,800
(This is the alternative preferred by EPA)

Alternative 3 - Excavation and Offsite Disposal
Estimated capital cost - $5,507,600
(The offsite disposal is by landfilling the contaminated soil)

Alternative 5 - Excavation and Onsite Thermal Treatment and Disposal
Estimated capital cost - $11,068,600
(A mobile incinerator would be placed on the site to treat the contaminated soil)

Alternative 6 - Excavation and Offsite Thermal Treatment and Disposal
Estimated capital cost - $34,207,100
(Contaminated soil would be shipped to a permitted commercial incinerator)

DEQ Evaluation
While the Tenth Street site was being operated as a salvage yard, actual exposure of salvage yard workers and customers to PCBs either was occurring or was highly likely. The relocation of the salvage yard and the installation of a temporary cap eliminated this exposure route and significantly reduced the likelihood of any future exposure to the contamination.

The possibility that the PCBs could leach from the contaminated soils and affect groundwater is highly unlikely. The PCB contaminated soils were exposed on the surface for many years before the temporary clay cap was placed over them, and at the time of the EPA studies no groundwater contamination had yet occurred. PCBs bind to soils very strongly and do not mix well with water. Therefore, they are not expected to pose a threat to groundwater. DEQ agrees with the concerns expressed at the recent public meeting that too much time has elapsed since the groundwater elevations have been checked and groundwater samples have been taken. We believe that EPA should perform these tasks in the very near future. If a permanent cap is constructed over the contaminated soils, long term groundwater monitoring will be conducted to observe whether any groundwater impacts occur in the future. The five year review of the remedy, conducted by EPA, will determine whether the remedy is still adequately protective of public health and the environment.

The concerns regarding the possible effects of flooding on the site are understandable given the recent problems of flooding along the Mississippi River and some of its major tributaries. It should be noted that the Mississippi River and its tributaries drain much larger areas with higher precipitation rates than does the North Canadian River. The map of the area prepared by the Federal Emergency Management Agency (FEMA) does indicate that the Tenth Street site could be in the 100-year flood plain. However, EPA has consulted with the Corps of Engineers and the City Engineer for Oklahoma City who both stated that the North Canadian River was channelized to contain a 100-year flood event. This means that the site should no longer be in the current 100-year flood plain.

Another concern expressed at the public meeting regarding the effects of flooding was that, under saturated conditions, the PCBs might move into the groundwater. This is highly unlikely because the movement of PCBs through the subsurface is not dependent upon saturated conditions, but is dependent upon the characteristics of PCBs. The large molecular size of PCBs and their very strong attraction to organic carbon present in soils are factors which effectively limit PCB migration in the subsurface. PCB contaminated soils on the site were periodically exposed to rainfall for many years, and the investigation of the site revealed no evidence of the migration of PCBs into groundwater.

The low degree of risk presently posed by the site does not justify the selection of any alternative put forth by EPA other than Alternative 2 - Capping In Place. The other alternatives proposed by EPA are not justifiable for the Tenth Street site. Alternative 1 - No Action, is not acceptable because the present cap on the site is temporary in nature. Alternative 3 - Excavation and Offsite Disposal is not useful because it merely moves the waste from one location to another without achieving any significant improvement in

environmental protection. Alternatives 5 and 6 involve incineration, which is currently a controversial technology and most incineration projects face a great deal of public opposition. Although incineration would destroy the PCBs, it would be at an enormous cost that is excessive considering the low risk posed by the small volume of contaminated soils on the Tenth Street site. If EPA identifies any additional effective and cost-efficient technologies to remediate the site, the DEQ is willing to consider them.