



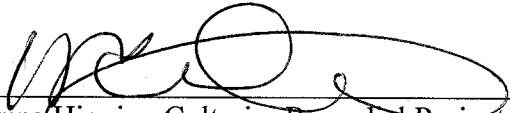
REGION 6

RECORD OF DECISION AMENDMENT SUMMARY
IMPERIAL REFINING COMPANY SUPERFUND SITE
ARDMORE, CARTER COUNTY, OKLAHOMA

OK0002024099

February 2009

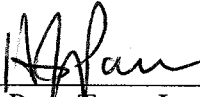
Concurrence Page for the Imperial Refining Company
Record of Decision Amendment



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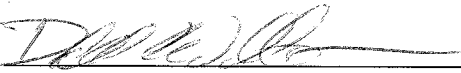
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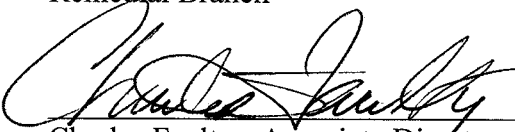
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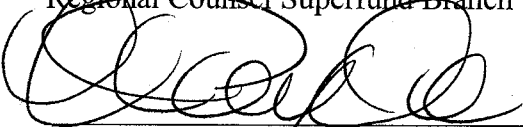
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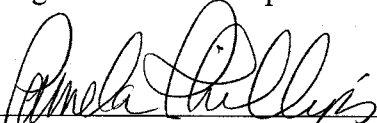
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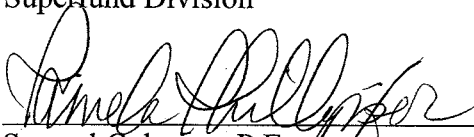
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LIST OF ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC(s)	Contaminant(s) of Concern
yd ³	cubic yard
EPA	United States Environmental Protection Agency
ft	Feet or Foot
Hwy	Highway
IC	Institutional Control
IRC	Imperial Refining Company
LDRs	Land Disposal Restrictions
mg/kg	milligrams per kilogram
N/A	Not Applicable
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
O&M	Operation and Maintenance
ODEQ	Oklahoma Department of Environmental Quality
RA	Remedial Action
RAO(s)	Remedial Action Objective(s)
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
TCLP	Toxicity Characteristic Leaching Procedure

I. INTRODUCTION

Site Name: Imperial Refining Company Superfund Site (OK0002024099)
Site Location: Ardmore, Carter County, Oklahoma
Lead Agency: U. S. Environmental Protection Agency, Region 6 (EPA)
Support Agency: Oklahoma Department of Environmental Quality (ODEQ)

This Record of Decision (ROD) Amendment will become part of the Administrative Record, which is developed in accordance with Section 113 (k) of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9613 (k), and 40 CFR Section 300.824(a)(2), and is available for review at the Ardmore Public Library, 320 E. Street N.W., Ardmore, OK, 73401; Phone (580) 223-8290; Monday through Thursday, 10:00 a.m. until 8:30 p.m.; Friday through Saturday, 10:00 a.m. until 4:00 p.m.; and, Sunday, 1:00 p.m. until 5:00 p.m.; and, the Oklahoma Department of Environmental Quality, 707 N. Robinson, 6th floor, Oklahoma City, OK, 73102; Phone (405) 702-6145; Monday through Friday 8:00 a.m. until 4:30 p.m.

II. STATEMENT OF BASIS AND PURPOSE

This ROD Amendment documents changes to the selected remedial action described in the original ROD dated December 26, 2007, for the Imperial Refining Company Superfund Site (Site), in Ardmore, Carter County, Oklahoma. The remedial action presented in this ROD Amendment is chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601 *et seq.*, as amended by the Superfund Amendments and Reauthorization Act of 1986, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300 as amended. The Director of the Superfund Division, United States Environmental Protection Agency (EPA) Region 6, is delegated the authority to approve this ROD Amendment.

The EPA is issuing this ROD Amendment to document the following Site circumstances that led to the need for this ROD Amendment: (1) the increase in waste/soil volume excavated, transported, and disposed offsite, (2) the increase in remediation cost, (3) the change in cleanup levels, (4) the areas where waste remains in-place, (5) the placement of institutional controls, and (6) the addition of operation and maintenance and five year reviews. The total volume of waste/soil excavated and disposed is estimated to be approximately 104,493.5 cubic yards (yd³)/105,778.77 tons; this represents an approximate increase of 74,972.5 yd³/55,962.77 tons over the estimated 29,521 yd³/49,816 tons presented in the 2007 ROD. The estimated remedial action (RA) cost of \$6,565,000 million is an increase of approximately \$2,174,859 million over the ROD estimate of \$4,390,141.

During the remedial action, waste was found along the borders of the property, throughout the ponds, and surrounding a high pressure gas line. Excavation and removal of waste along the borders is not feasible, safe or practical due to its proximity to sloped areas supporting the highway, the rail line, and business property, as well as its depth under significant volumes of uncontaminated overburden. Based on excavation activities and delineation pits throughout the

east and west ponds, waste is found at depths of 18 inches and greater. Due to the presence of 18 inches of uncontaminated overburden, the complete removal of surface sediment exceeding the ecological cleanup numbers, and the unknown locations at depth throughout the remaining areas of the ponds, no further excavation will occur in the ponds. Excavation in close proximity to the high pressure gas line is not recommended or considered safe; therefore, waste remains around the gas line within the easement boundaries.

Because waste remains in-place, cleanup levels for the Site were reevaluated and changed from residential to industrial land use. Due to the restriction for industrial use, the ODEQ will issue, file, and enforce institutional controls (Notices of Remediation or Related Action Taken Pursuant to the Federal Comprehensive Environmental Response, Compensation and Liability Act and Creation of Easement) for these areas. In addition, ODEQ will conduct operation and maintenance (O&M) activities, and EPA will conduct five year reviews.

The remedy activities included in this ROD Amendment to supplement the 2007 ROD remedy of Excavation and Offsite Disposal were chosen from the alternatives commented on and presented in the Proposed Plan released on September 3, 2007. Alternatives involving material being left in-place, the use of institutional controls, and the implementation of long-term monitoring were evaluated using the nine criteria, found to be protective, and are consistent with the NCP. These are discussed further in Section V. Description of New Alternative and Section VI. Evaluation of Alternatives.

III. SITE HISTORY

1. Background

The Imperial Refining Company (IRC) Superfund Site is the location of a former petroleum refinery that operated from 1917 to 1934. The legal description for the property is SE $\frac{1}{4}$, NE $\frac{1}{4}$, Section 20, and SW $\frac{1}{4}$, NW $\frac{1}{4}$, Section 21, T4S, R2E, Indian Meridian, which is located within the northeastern portion of the City of Ardmore, Carter County, Oklahoma. The IRC Site is divided into three parcels: the West (36.5 acres), East (14.5 acres) and East Railroad (21 acres). The Site covers approximately 72 acres and is bisected by U.S. Highway (Hwy) 142 and railroad tracks operated by the BNSF Railway Company (Figure 1). Numerous tanks and buildings were present on the Site during refinery operation, but all of the tanks and most of the buildings were dismantled sometime between 1934 and 1948 leaving the property in much the same condition as it is in today, mixed wooded areas and open fields.

The adjacent property to the north and east of Hwy 142 is occupied by a facility that manufactures roofing shingles. Waste-water processing lagoons operated by Valero Refining are located west of the Site, and the rest of the immediately adjacent property is largely undeveloped. Several small businesses, Valero's active oil refinery, and a small residential area with about a dozen houses (along the streets of Brooks, Akron, Commerce and Industrial) are located within $\frac{1}{4}$ mile north of the Site. An estimated 23,000 people live within a 4-mile radius of the Site.

The IRC began operations at the Site in 1917. The eastern portion of the property was purchased in April 1917, and the western portion was purchased three months later. IRC remained active for 17 years until it went bankrupt in 1934. Due to the absence of environmental regulations during the operational period of IRC, no permits, violations, inspections, or facility operation documentation have been identified, and no records have been found that describe the types of activities that took place on the Site (ODEQ 1997). Currently, the land is privately owned, and no commercial activities are taking place.

2. Preliminary Investigations

The ODEQ conducted a Preliminary Assessment in September 1997 (ODEQ 1997) and a Site Inspection in July 1998 (ODEQ 1998). Based on the results, elevated levels of benzene, ethylbenzene, toluene, xylenes and polycyclic aromatic hydrocarbons were present. ODEQ referred the property to the EPA for further action.

3. Removal Actions

The EPA subsequently conducted a Removal Assessment in 1998 to determine the absence/presence of hazardous materials and the types and concentrations of hazardous substances (E&E 1999) followed by a second Removal Assessment in 1999 to estimate waste pile volumes and evaluate disposal options (E&E 2000). A Removal Action to install a perimeter fence was conducted from June 29, 2004, through July 23, 2004 (EPA 2004).

The Site was proposed to the National Priorities List on May 11, 2000, [Federal Register: May 11, 2000 (Volume 65, No. 92, Page 30489-30495)] and was finalized on July 27, 2000 [Federal Register: July 27, 2000 (Volume 65, Number 145, Page 46096-46104)].

4. Remedial Investigation/Feasibility Study

The EPA and ODEQ negotiated a Cooperative Agreement under which the ODEQ was the lead agency for the Remedial Investigation/Feasibility Study (RI/FS) with EPA acting as the supporting agency. From early 2005 through early 2007, contractors for the ODEQ conducted a RI/FS including field sampling and investigation activities of soil, sediment, surface water, ground water, and animal tissue. The RI/FS reports identified the types, quantities, and locations of contaminants found in these samples and developed ways to address the contamination. In addition, a Human Health Risk Assessment and an Ecological Risk Assessment were performed to determine the current and future effects of contaminants on human health and the environment.

The Site is located in the southeast portion of the Caddo Anticline and the Ardmore Basin (ODEQ, 1998), and according to the water resources of southern Oklahoma map and information provided in the ODEQ Site Inspection report, water produced in these formations is of poor to fair quality (ODEQ, 1998; Hart, 1970). This is supported by Site data because during sample collection these wells could be bailed dry by hand, and were estimated to produce approximately 15.8 gallons of water per day. It was also determined that the groundwater is discontinuous across the Site, and appears to be present in larger volumes after wet weather. Based on the low yield, the poor water quality, discontinuity, and lack of interconnectivity with other aquifers or surface water, use of the ground water as a potential source of drinking water or other beneficial uses is unlikely (EPA, 1986). Although not used for residential purposes, a construction worker may encounter ground water during construction activities. Because organic and inorganic

contaminants were detected above screening levels, human risk was evaluated for the construction worker that may encounter the ground water during construction activities. The human health risk assessment did not identify excess cancer risks that exceed 1E-06 or non-cancer risk that exceed the criteria of one.

Onsite contamination includes waste material, soil and sediment (Weston 2006). Arsenic and benzo(a)pyrene are the primary contaminants of concern (COCs). The primary sources of contaminants are waste in an underground storage tank and waste piles characterized as dry, asphalt-like material. The waste material is found throughout the Site, and the benzo(a)pyrene concentrations range from 2.5 milligram per kilogram (mg/kg) to 570 mg/kg. In addition to the waste material, surface soil [0-1 foot (ft) below ground surface] and sediment (0-1 ft below ground surface) have elevated concentrations of benzo(a)pyrene and arsenic. The soil concentrations range from 1 mg/kg to 90 mg/kg for arsenic and 0.04 mg/kg to 10.2 mg/kg for benzo(a)pyrene. Sediments in onsite intermittent drainages are indistinguishable from Site soils except by their location within drainages; therefore, the drainage sediments are considered soils for the remedial action as these remain dry most of the year.

5. Selected Remedy

After review and response to comments, the original ROD was signed on December 26, 2007 (EPA 2007). Remedial Action Objectives (RAOs) were developed for Site soil, sediment, and waste material and are listed below.

Surface Soil

- Prevent exposure to current and future human and ecological receptors through ingestion, dermal contact, and inhalation of contaminated soil containing arsenic and benzo(a)pyrene concentrations in excess of 5E-05 and 2.5E-05 excess cancer risk, respectively.

Pond and Creek Sediment

- Prevent exposure to current and future human receptors through ingestion, dermal contact, and inhalation of contaminated sediment containing arsenic concentrations in excess of 5E-05 excess cancer risk.
- Prevent exposure to current and future ecological receptors through direct contact, foodchain uptake, and incidental ingestion of contaminated sediment containing benzo(a)pyrene concentrations in excess of levels that are protective of ecological receptors.

Waste Material

- Prevent exposure to human and ecological receptors through ingestion and dermal contact.
- Prevent further migration of waste material contamination.

In order to achieve these RAOs, numerical risk-based cleanup levels were established for each environmental medium based on the residential scenario (Table 1).

Table 1 – Cleanup Levels for Contaminants of Concern under a Residential Scenario

Media: Soil			
Site Area: West and East Parcel			
Available Use: Residential			
Contaminant of Concern	Cleanup Level	Basis for Cleanup Level	Risk at Cleanup Level
Arsenic	20 mg/kg	Background level	5.00E-05
Benzo(a)pyrene	1.55 mg/kg	Human Health Risk Assessment	2.50E-05
Media: Sediment			
Site Area: East and West Ponds, Sand Creek			
Available Use: Residential			
Contaminant of Concern	Cleanup Level	Basis for Cleanup Level	Risk at Cleanup Level
Arsenic	20 mg/kg	Background level	5.00E-05
Benzo(a)pyrene	0.782 mg/kg	Ecological Risk Assessment Invertebrate Toxicity Test Results	N/A

Note: mg/kg: milligrams per kilogram
N/A: Not Applicable

The 2007 ROD addressed the Site as one operable unit where the final response action of Excavation and Offsite Disposal will address Site contaminants and waste material through the following:

- 13,083 yd³ of waste material will be removed and disposed offsite at an appropriately regulated facility based on results from toxicity characteristic leaching procedure (TCLP) analyses. This addresses the principal threat waste at the Site.
- 16,438 yd³ of arsenic and benzo(a)pyrene contaminated soil will be excavated and disposed offsite at an appropriately regulated facility based on results from TCLP analyses.
- 1,633 yd³ of arsenic and benzo(a)pyrene contaminated sediment will be excavated and disposed offsite at an appropriately regulated facility based on results from TCLP analyses.

6. Remedial Design

A detailed remedial design was not performed due the simplicity of the Excavation and Offsite Disposal remedy. A value engineering evaluation and the remedial design and remedial action work plan were completed on January 30, 2008 (Shaw 2008a). During work plan development additional field activity was not considered necessary as the extent of waste was presumed to be known.

7. Remedial Construction Activities

The EPA began onsite RA construction February 13, 2008. As excavation of the waste material began and continued into the following weeks, it became clear that the vertical and horizontal extents were understated, and the original volume estimate was low. Although, the expectation was to exceed the original volume and cost estimates, attempts were made to meet the residential cleanup levels. As excavation activities progressed, waste was found to exist in locations where removal would be both impracticable and dangerous. Due to the increase in horizontal and

vertical extent, the increase in volume, and the locations where waste will be left in-place, aspects of the original remedy were reevaluated and are presented in Section IV. Basis for the Document.

IV. BASIS FOR THE DOCUMENT

The following sub-sections describe, in detail, the Site information and circumstances that prompted and support the fundamental change in the remedy identified in the 2007 ROD. A summary comparison of these differences is presented in Section V. Sub-Section 13. Comparison of the 2007 ROD with the ROD Amendment.

8. Cost

The original cost estimate to implement the remedial action described in the 2007 ROD was \$4.4 million (net present worth). Costs were estimated at a discount rate of 7% with no operation and maintenance (O&M) or five year reviews. Due to the increase in waste volume, a revised cost estimate for the project is projected to be \$6,565,000. The difference between the 2007 ROD estimate and the revised cost estimate is due to the increased costs associated with the increased volume of waste material excavated, transported, and disposed offsite as well as the inclusion of backfill material necessary for Site restoration and grading. In addition, five year reviews and O&M will be required and the estimated cost, projected for a timeframe of 30 years is \$179,131.47 (Table 2). A complete breakdown of the final costs and details related to O&M activities will be presented in the final RA Report and the final O&M Plan.

9. Volume (Figure 2)

Refinery wastes were encountered at depths up to 10 feet below ground surface and in locations not previously identified during the remedial investigation. Therefore, the discovery and excavation of these new locations increased the volume of waste material disposed. Because these were defined as principal threat wastes, excavation, transportation, and offsite disposal was necessary to eliminate the waste as a source of contamination for soil, sediment, and surface water as well as eliminate the threat to human health and the environment. The estimated volume of material excavated, transported, and disposed offsite is 104,493 yd³/105,778.77 tons which represents an increase of 74,972.5 yd³/55,962.77 tons over the estimated 29,521 yd³/49,816 tons presented in the 2007 ROD. A complete breakdown of the final volume will be presented in the final RA Report.

10. Cleanup Levels

The cleanup scenario presented in the 2007 ROD is based on the child resident. When the industrial and residential soil scenarios were compared, it was noted that cleanup to a residential scenario minimally increased soil volume (690 yd³) and cost (\$252,068); it would result in unlimited use and unrestricted exposure; and would be protective for all other human and terrestrial ecological receptors. Therefore, in order to be protective for Site reuse under a residential scenario and meet the RAOs, cleanup levels in the 2007 ROD were established for the primary contaminants of concern, arsenic (5E-05 excess lifetime cancer risk) and benzo(a)pyrene (2.5E-05 excess lifetime cancer risk).

The widespread extent, depth, and location of the waste material discovered across the Site during the remedial action have made excavation impracticable and potentially dangerous in some areas. Because of this, waste material remains in-place (see Sub-Section 11. Waste Left

In-place), which makes the residential scenario no longer suitable for this Site. Therefore, current and future land use information and the final human health and ecological risk assessments (Weston 2006) were reviewed and used to establish a cleanup scenario appropriate for existing Site circumstances.

Current and future zoning maps produced by the City of Ardmore depict portions of the Site west of Hwy 142 and east of the railroad tracks as light industrial and the portion of the Site east of Hwy 142 and west of the railroad tracks as heavy industrial (Figures 3 and 4). The human health risk assessment evaluated risk for the industrial worker and shows that the excess lifetime cancer risk for an industrial worker fell within the risk range of $1E-04$ to $1E-06$ and the non-carcinogenic risk is less than 1. The excess lifetime cancer risk is primarily associated with the ingestion and dermal contact pathways related to arsenic and benzo(a)pyrene in the soil and sediment. Because the exposure pathways and contaminants of concern are the same as those identified for the future child resident, the RAOs presented in the 2007 ROD remain unchanged. Therefore, changing from a residential scenario to an industrial scenario is protective, and in order to meet the RAOs under an industrial scenario, revised cleanup levels are established.

In the absence of Federal or State cleanup standards for soil contamination, the Site cleanup levels are based on the baseline risk assessment. The arsenic cleanup level remains set at 20 mg/kg which is within the range for Oklahoma background soils, represents an excess upper bound lifetime cancer risk to an individual of $5E-05$ which is within EPA's cancer risk range of $1E-06$ to $1E-04$, is below the non-cancer benchmark of 1, and is considered protective of human health and the environment. Using all assumptions and calculations presented in the human health risk assessment, the cleanup level for benzo(a)pyrene ($2.5E-05$ excess lifetime cancer risk) under an industrial reuse scenario is 5.27 mg/kg, which is within EPA's cancer risk range of $1E-06$ to $1E-04$ and is considered protective of human health and the environment. Despite the change in the cleanup level, these risk drivers remain co-located with other metals and organics as well as areas of ecological risk associated with the upland habitat (soil) and wet areas (sediment not in the ponds or creek); therefore, revision of the ecological cleanup levels is not necessary.

Because the Site will be restricted to industrial use and is not available for unlimited use and unrestricted exposure, institutional controls, O&M, and five year reviews will be required. These activities are applicable to the Site, specifically the West and East Parcels, and details related to these activities are described in Section V. Description of New Alternative.

11. Waste Left In-Place (Figure 5)

The widespread extent, depth, and location of the waste material discovered across the Site during the remedial action have made excavation impracticable and potentially dangerous in some areas. Excavation and removal activities progressed to the extent practicable; however, there will be areas where waste remains. This material has been identified as a non-hazardous waste. Site TCLP data indicate that the leaching potential of this material is low as all results have been below regulatory limits for characteristic hazardous waste categories and land disposal restrictions. As such, backfill of the excavated areas and areas above the waste material eliminates the potential for direct contact, ingestion, and migration as well as provides for slope control, drainage control, and the establishment of vegetation.

- a. **Ponds:** All surface sediments that exceeded the ecological cleanup level have been excavated and confirmation samples have been collected. The confirmation sample results are below the ecological cleanup level of 0.782 mg/kg. Based on excavation activities along the drainages and shore lines, waste was documented at depths greater than 18 inches and extending out into the ponds. Additional delineation pits were excavated within the east and west ponds to identify the extent of the waste layer. The delineation pits indicated that the waste is widespread and continued to be present under at least 18 inches of uncontaminated overburden. The presence of the overburden and its thickness is expected to act as a barrier between the waste and the surface sediments as well as provide ample non-contaminated burrowing material above the waste for benthic invertebrates. This is supported by the surface sediment results from the remedial investigation and those confirmation samples collected during the remedial action. In addition, erosion and scouring of the overburden is not expected as these ponds are stagnant for most of the year and high flow velocity currents are rare.
- b. **Northern Site Boundary with Atlas Roofing, Inc.:** The northern boundary of the eastern parcel is a slope approximately 10 to 15 feet in height. Atlas Roofing, Inc., is built on the land at the top of this slope. Excavation activities along this border indicate that waste materials extend into this slope; the exact extent is unknown. Excavation and removal of waste along this border is not feasible or practical as this may alter the stability and integrity of the slope.
- c. **Site Boundaries with Hwy 142:** The situation is similar to the northern border with Atlas Roofing, Inc. The highway sits atop a slope approximately 10 to 15 feet in height. Excavation activities along the eastern and western borders of Hwy 142 indicate that waste materials extend into this slope and under the highway exposing itself on the opposite side. Excavation and removal of waste along these borders and under the highway is not feasible or practical as this may alter the stability and integrity of the slope and the highway.
- d. **Northern and Western Site Boundaries with Valero Refinery property:** During excavation activities, it was determined that waste extends across the shared western and northern property boundaries with Valero Refinery. ODEQ's Resource Conservation and Recovery Act (RCRA) section will be working with Valero Refinery to address the waste along these borders.
- e. **Oneok Gas Pipeline:** Excavation in close proximity to the high pressure gas line was not recommended or considered safe; therefore, waste is left around the gas line and within the easement boundaries.
- f. **Site Boundary with BNSF Railway:** During excavation activities, it was determined that waste extends across the shared property boundary with BNSF Railway; the exact extent is unknown. Excavation in close proximity to the rail line is not recommended as this may alter the stability and integrity of the slope and rail line construction; therefore, waste will be left on the BNSF property.

V. DESCRIPTION OF NEW ALTERNATIVE

The 2007 ROD identified Excavation and Offsite Disposal as the remedy for soil, sediment and waste. This component remains unchanged and was implemented to the extent practicable. In total, approximately 104,493.5 yd³ of waste/soil and approximately 1699.5 yd³ of sediment were removed from the Site and shipped to an offsite landfill. The following component is included to address those areas where waste remains.

12. Containment: This alternative includes the placement of a clay barrier over waste material that remains in-place. This alternative will achieve all RAOs by preventing exposure and mitigating migration through engineering controls, institutional controls, and monitoring during O&M and five year reviews. The materials left in-place are identified as non-hazardous waste and all TCLP data indicate that the leaching potential of this material is low as all results have been below regulatory limits for characteristic hazardous waste categories and land disposal restrictions. The backfill material is identified as a clayey sand and is expected to have a low hydraulic conductivity (within the range of 10⁻³ centimeters per second to 10⁻⁵ centimeters per second) which limits water infiltration and further reduces the potential for leaching (Shaw 2008b). As such, backfill of the excavated areas and areas above the waste material eliminates the potential for direct contact, ingestion, and migration as well as provides for slope control, drainage control, and the establishment of vegetation. Although not a cap, this barrier meets the minimum requirements for and objectives of a Resource Conservations and Recovery Act Subtitle D landfill cap.

Because the contaminants will remain in-place, this remedy will be compliant with the Oklahoma Solid Waste Management Act. The Site will be restricted to industrial use through the use of institutional controls, available for limited reuse in areas where the waste remains in-place, will require O&M, and will require five year reviews.

a. Clay Barrier:

- i. Ponds:** Due to the presence of uncontaminated overburden, the complete removal of surface sediment exceeding the ecological cleanup numbers, and the unknown locations of waste at depth throughout the remaining areas of the ponds, no further excavation will occur. Excavated areas were backfilled with clean material and an institutional control (IC) will be placed on the ponds. O&M activities will be conducted by ODEQ and five year reviews will be conducted by EPA.
- ii. Northern Site Boundary with Atlas Roofing, Inc.:** An engineering evaluation identified suitable slope stabilization and construction activities and an appropriate backfill material for placement on the waste (Shaw 2008b). As backfill material was imported, a slope of no greater than 3 feet vertical to 1 foot horizontal was maintained along this border to minimize erosion and facilitate slope support, drainage control, and re-vegetation. Atlas Roofing, Inc. will place an IC on the Atlas Roofing, Inc. property. O&M activities will be conducted by ODEQ in coordination with Atlas Roofing, Inc. and five year reviews will be conducted by EPA.

- iii. **Site Boundaries with Hwy 142:** An engineering evaluation identified suitable slope stabilization and construction activities and backfill material for placement on the waste (Shaw 2008b). As backfill material was imported, a slope of no greater than 3 feet vertical to 1 foot horizontal was maintained along this border to minimize erosion and facilitate slope support, drainage control, and re-vegetation. The Oklahoma Department of Transportation will place an IC on Hwy 142 and its associated utility easements. O&M activities will be conducted by ODEQ in coordination with the Oklahoma Department of Transportation, and five year reviews will be conducted by EPA.
 - iv. **Northern and Western Boundaries with Valero Refinery property:** Backfill of the excavated areas and areas above the waste material provides for slope control, drainage control, and establishment of vegetation. As backfill was placed, the drainage along this boundary was re-directed away from these waste areas in an effort to mitigate erosion, ensure drainage control, and facilitate re-vegetation. At this time, Valero is working with the ODEQ to develop plans related to the waste that remains on their property. O&M activities will be conducted by ODEQ, and five year reviews will be conducted by EPA.
 - v. **Oneok Gas Pipeline:** As backfill material was imported, a gentle slope was maintained along this border to minimize erosion and facilitate slope support, drainage control, and re-vegetation. The clay backfill was placed on either side of the pipeline and clay overburden, at a depth of approximately two feet, was placed along the top of the gas line to provide a barrier for the pipeline and promote surface water runoff. ODEQ will place an IC on the easement and conduct O&M activities in coordination with Oneok. Five year reviews will be conducted by EPA.
 - vi. **Site Boundary with BNSF Railway:** Backfill of the excavated areas and areas above the waste material provides for slope control, drainage control, and establishment of vegetation. BNSF will place an IC on the railroad right-of-way. O&M activities will be conducted by ODEQ in coordination with BNSF, and five year reviews will be conducted by EPA to ensure protectiveness.
- b. Operations and Maintenance:** Because waste will remain in-place and the Site will be restricted to industrial use, O&M activities will be conducted by ODEQ no less often than once per year and will be required to ensure remedy protectiveness. O&M activities will include Site inspections for erosion, property uses, and enforcement of the ICs. This activity may also include maintenance of the slopes through grading, seeding, or importing of backfill that may be needed. Maintenance of these slopes will provide continued slope support, continued drainage control, continued vegetation growth, and ensure that exposure and migration is not occurring. Areas of primary interest will include the slopes along Hwy 142, Atlas Roofing Inc., Oneok Gas Pipeline, BNSF Railway, and Valero Refining.
- c. Institutional Controls:** Because waste remains in-place and the Site will be restricted to industrial use, institutional controls will be required. The purpose of this IC is to

inform the general public of the restrictions and circumstances of the Site so that the risk of exposure is minimized. In accordance with Oklahoma Statutes, 27A § 2-7-123 (B), the ODEQ has the authority to file a *Notice of Remediation or Related Action Taken Pursuant to the Federal Comprehensive Environmental Response, Compensation and Liability Act* (Appendix A, template example). This notice will identify the reason for notice, the affected property, the remedy activities conducted on the Site, the engineering controls used on the Site, continuing operation, maintenance and monitoring activities that will be conducted, and the land use restrictions. This notice will also describe the proper management and disposal of the material should construction activity within these areas be required. This notice will run with the land and no change of ownership will change the land use restrictions. Any changes to these restrictions will be proposed to ODEQ for review and if approved, ODEQ may remove or alter the notice and land use restrictions. During O&M activities, these ICs will be reviewed to ensure that the restrictions remain in-place and that any Site activities adhere to these restrictions. The expected timeframe for filing the ICs is approximately 3 months.

d. Five Year Reviews: Because this remedy will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a five year review will be required for this remedial action no less often than every five years and will be conducted by EPA in coordination with ODEQ. The purpose of the five year review is to evaluate the Site remedy for continued protectiveness. A Site inspection will be conducted to provide information about Site status and to visually confirm and document the conditions of the remedy, the Site, and the surrounding area. Observations will be made for any evidence of erosion and potential contaminant migration, property uses, trespass and vandalism and any corrective measures that were taken during operations and maintenance. As Site condition and data warrant, sediment sampling may be conducted once every five years in order to evaluate the continued protectiveness of the sediment overburden in the ponds. Data and other pertinent Site specific information will be reviewed to determine whether maintenance procedures, as implemented, will maintain the effectiveness of response actions. This will include review of sampling and monitoring plans, results from monitoring activities, O&M reports, and previous five year reviews.

In addition to Site-specific information, the original assumptions regarding current and future land/groundwater uses and contaminants of concern will be reviewed to make sure that these are still valid. Along with this, physical features and the understanding of physical Site conditions will be reviewed for any changes that may effect changes in standards and assumptions that were used at the time of remedy selection. The five year review will also evaluate any changes in the promulgated standards or “to be considered” standards as well as risk parameters that may impact the protectiveness of the remedy.

13. COMPARISON OF THE 2007 ROD WITH THE ROD AMENDMENT

Table 3 outlines the differences between the original 2007 ROD and this ROD Amendment.

Table 3: Comparisons of the Differences between the 2007 ROD and 2009 ROD Amendment			
Component	2007 ROD	2009 ROD Amendment	Difference
<u>Soil Cleanup Levels</u>	Residential: 20 mg/kg arsenic 1.55 mg/kg benzo(a)pyrene	Industrial: 20 mg/kg arsenic 5.27 mg/kg benzo(a)pyrene	Residential Scenario verses Industrial Scenario
<u>Soil and Waste Volume</u>	29,521 yd ³	104,493.5 yd ³	74,972.5 yd ³ increase
<u>Waste Left In-place</u>	All waste removed	Waste Remains In-place	Waste Remains In-place
<u>Institutional Controls</u>	No ICs	ICs included	No cost Difference
<u>O&M</u> (present value cost estimated for 30 year time period)	No Cost	\$119,532.57	\$119,532.57 increase
<u>Five Year Reviews</u> (present value cost estimated for 30 year time period)	No Cost	\$59,598.90	\$59,598.90 increase
<u>Remedial Cost</u>	\$4,390,141	\$6,565,000	\$2,174,859 increase

14. CHANGES IN REMEDIAL ACTION OBJECTIVES

The ROD signed on December 26, 2007, identified the RAOs for Site soil, sediment, and waste material as listed below.

Surface Soil

- Prevent exposure to current and future human and ecological receptors through ingestion, dermal contact, and inhalation of contaminated soil containing arsenic and benzo(a)pyrene concentrations in excess of 5E-05 and 2.5E-05 excess cancer risk, respectively.

Pond and Creek Sediment

- Prevent exposure to current and future human receptors through ingestion, dermal contact, and inhalation of contaminated sediment containing arsenic concentrations in excess of 5E-05 excess cancer risk.
- Prevent exposure to current and future ecological receptors through direct contact, foodchain uptake, and incidental ingestion of contaminated sediment containing benzo(a)pyrene concentrations in excess of levels that are protective of ecological receptors.

Waste Material

- Prevent exposure to human and ecological receptors through ingestion and dermal contact.
- Prevent further migration of waste material contamination.

Implementation of the additional component described in this ROD Amendment does not alter the RAOs as identified in the 2007 ROD.

15. CHANGES IN THE EXPECTED OUTCOMES

The expected outcome of the 2007 ROD was that the Site would be available for unlimited use and unrestricted exposure and that the remedy would be permanent and protective because all contaminated media would be disposed offsite. However, the widespread extent, depth, and location of the waste material discovered across the Site during the remedial action have made excavation impracticable and potentially dangerous in some areas. Because of this, waste material will be left in-place which makes the unlimited use and unrestricted exposure scenario no longer suitable for this Site. Therefore, current and future land use information, the final human health risk assessment, and the final ecological risk assessment were reviewed and used to establish a cleanup scenario appropriate for existing Site circumstances.

Current and future zoning maps produced by the City of Ardmore depict portions of the Site west of Hwy 142 and east of the railroad tracks as light industrial and the portion of the Site east of Hwy 142 and west of the railroad tracks as heavy industrial. The human health risk assessment evaluated risk for the industrial worker and showed that the excess lifetime cancer risk for an industrial worker fell within the risk range of $1E-04$ to $1E-06$ and the non-carcinogenic risk was less than 1. The excess lifetime cancer risk is primarily associated with the ingestion and dermal contact pathways related to arsenic and benzo(a)pyrene in the soil and sediment.

In the absence of Federal or State cleanup standards for soil contamination, the Site cleanup levels are based on the baseline risk assessment and the industrial reuse scenario. The arsenic cleanup level remains set at 20 mg/kg which is within the range for Oklahoma background soils, represents an excess upper bound lifetime cancer risk to an individual of $5E-05$ which is within EPA's cancer risk range of $1E-06$ to $1E-04$, is below the non-cancer benchmark of 1, and is considered protective of human health and the environment. Using all assumptions and calculations presented in the human health risk assessment, the cleanup level for benzo(a)pyrene ($2.5E-05$ excess lifetime cancer risk) under an industrial reuse scenario is 5.27 mg/kg, and is considered protective of human health and the environment.

Although other contaminants were not identified to have risk outside of the risk range (greater than $1E-4$), the revised cleanup levels for the industrial scenario were compared against the locations of other contaminants and the ecological risks identified in the ecological risk assessment. Despite the change in the cleanup level, these risk drivers remain co-located with other metals and organics as well as areas of ecological risk associated with the upland habitat (soil) and wet areas (sediment not in the ponds or creek); therefore, revision of the ecological cleanup levels is not necessary.

Because the Site will be cleaned up for industrial uses and there are areas where waste remains in-place, the Site will be restricted to industrial use and will not be available for unlimited use and unrestricted exposure. Institutional controls, O&M, and five year reviews will be required to ensure continued protectiveness and are applicable to the Site, specifically the West and East Parcels.

VI. EVALUATION OF ALTERNATIVES

The EPA uses nine NCP criteria to evaluate alternatives for the cleanup of a release. These nine criteria are categorized into three groups: threshold, balancing, and modifying. The threshold criteria must be met in order for an alternative to be eligible for selection. The threshold criteria are overall protection of human health and the environment and compliance with applicable or relevant and appropriate requirements (ARARs). The balancing criteria are used to weigh major tradeoffs among alternatives. The five balancing criteria are long-term effectiveness and permanence; reduction of toxicity, mobility or volume through treatment; short-term effectiveness; implementability; and cost. The modifying criteria are state acceptance and community acceptance. The following briefly describes the evaluation criteria.

EVALUATION CRITERIA FOR SUPERFUND ALTERNATIVES	
Overall Protectiveness of Human Health and the Environment	determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
Compliance with ARARs	evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.
Long-term Effectiveness and Permanence	considers the ability of an alternative to maintain protection of human health and the environment over time.
Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment	evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
Short-term Effectiveness	considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
Implementability	considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
Cost	includes estimated capital and annual operations and maintenance costs, as well as present worth cost. 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.
State/Support Agency Acceptance	considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.
Community Acceptance	considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

In the following analysis, the original Excavation and Offsite Disposal remedy is compared with the Excavation and Offsite Disposal plus Containment alternative in relation to each of the nine criteria.

1. Overall Protection of Human Health and the Environment

Both alternatives will provide adequate protection of human health and the environment by eliminating, reducing, and/or controlling risk through excavation and offsite disposal, containment, engineering controls, institutional controls, and Site monitoring through O&M and five year reviews.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

These alternatives will comply with the Endangered Species Act, 16 U.S.C. §§ 1531 *et seq.* and the Executive Order on Floodplain Management, and will meet substantive requirements of the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 61; the Oklahoma Clean Air Act, 27A O.S. § 2-6-101 *et seq.*; and ODEQ's Air Pollution Control rules OAC 252:100 relevant to particulate matter and air pollutants as specified in the 2007 ROD. Based on TCLP results, the material will be disposed offsite in an appropriate permitted and regulated landfill. Land disposal restrictions (LDRs) will not apply to offsite disposal alternatives if the contaminants in soils, sediments, and waste material are non-hazardous. The alternative that includes onsite containment is not required to meet LDR standards or minimum technology requirements if contamination is non-hazardous. Because the contaminants will be left in-place, these alternatives will be compliant with the Oklahoma Solid Waste Management Act, 27A O.S. § 2-10-101 *et seq.* and ODEQ's Solid Waste Management rules, OAC 252:515.

3. Long-term Effectiveness and Permanence

Excavation and Offsite Disposal will be the most effective and permanent in the long-term as the potential for exposure or offsite migration is completely eliminated through removal of contamination from the Site. This alternative will not require five year Reviews, O&M or institutional and engineering controls. Excavation and Offsite Disposal plus Containment will provide the same level of long-term protectiveness in areas where contamination is removed; however, for areas where contamination remains, construction of a clay barrier will be necessary to reduce the potential for exposure and contaminant migration. This alternative will be effective and permanent in the long-term as long as O&M is performed, five year Review are conducted and institutional controls are enforced.

4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment

Neither alternative will reduce toxicity, mobility, and volume through treatment. Excavation and Offsite Disposal removes contamination from the Site; therefore, only mobility is reduced although not through treatment. Excavation and Offsite Disposal plus Containment will be least effective at reducing toxicity, mobility, and volume through treatment because contamination will be left onsite and neither toxicity or volume of material will be addressed. This alternative only reduces mobility although not through treatment.

5. Short-term Effectiveness

Each alternative is effective in the short-term and will attain RAOs in 3 to 6 months. Each alternative may present potential risks to the onsite workers and the community through potential dust emissions during excavation and offsite disposal as well as during placement of the clay barrier. Field dust suppression activities will be conducted to reduce dust emissions. There is additional potential risk for both the onsite worker and the community during offsite trucking for disposal and backfilling. All activities will be in compliance with Occupational Safety and Health Administration requirements 29 CFR 1910 and 1926 for worker safety.

6. Implementability

Each alternative is a common, easily implemented practice, and equipment and services are readily available. Although easily implemented, containment requires long-term O&M, five year reviews, and enforcement of institutional controls.

7. Cost

The addition of containment has increased costs related to O&M and five year reviews. For comparison and reporting purposes, costs for these activities were evaluated over a 30-year period discounted at a rate of 7 %; however, these activities will be required as long as the property remains restricted and waste remains in-place. The estimated cost for the addition of O&M and five year reviews is approximately \$179,131.47 (Table 2).

8. State/Support Agency Acceptance

The State of Oklahoma supports the Selected Remedy (Appendix B).

9. Community Acceptance

Throughout the Site project there has been continued public interest. During the public comment period for the ROD Amendment Proposed Plan, both oral and written comments were received. Additional information is provided in Section XI. Public Participation, and the responses to these comments are included in the Responsiveness Summary (Appendix C). Based on the comments, some in the community remain concerned about the waste remaining in place but understand the reasons for leaving the waste in-place and changing the land use cleanup levels to an industrial reuse scenario.

VII. SUPPORT AGENCY COMMENTS

The Oklahoma Department of Environmental Quality, the support agency, has been consulted and provided the opportunity to comment on this ROD Amendment in accordance with 40 CFR §§ 300.435(c)(2) and 300.435(c)(2)(i) and CERCLA § 121(f), 42 U.S.C. § 9621(f). The ODEQ has concurred with this ROD Amendment (Appendix B).

VIII. STATUTORY DETERMINATIONS

The EPA has determined that the new alternative complies with the statutory requirements of CERCLA Section 121, 42 U.S.C. § 9621, and, to the extent practicable, the NCP; 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; is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. However, it does not satisfy the statutory preference for treatment that permanently and significantly reduces the mobility, toxicity or volume of hazardous substances as a principal element.

1. Protection of Human Health and the Environment

The supplemental Containment component, along with Excavation and Offsite disposal, will meet RAOs and cleanup levels as well as provide adequate protection of human health and the environment by eliminating, reducing, and controlling risk and potential migration through construction of a barrier, the use of engineering controls, and the implementation of ICs, O&M activities, and five year reviews. Attainment of the cleanup levels reduces potential human health risk levels such that exposure to soil and sediment through ingestion and dermal contact does not exceed a non-carcinogenic hazard index of 1, an excess cancer risk of $5E-05$ arsenic (20 mg/kg), and an excess cancer risk of $2.5E-05$ benzo(a)pyrene (5.27 mg/kg) under an industrial scenario. In addition, attainment of cleanup levels reduces potential ecological risk levels for terrestrial receptors such that exposure to soil through ingestion and dermal contact will be acceptable.

All human and ecological risks related to waste material will be mitigated by the placement of the clay barrier and its continued maintenance during O&M. These alternatives are anticipated not to pose any unacceptable short-term risks to either onsite workers or the community. No cross-media impacts are expected due to excavation and offsite disposal of contamination.

These remedial actions will be effective and permanent in the long-term provided long-term monitoring, O&M, five year reviews, and enforcement of institutional controls are performed. The Site will be available for industrial use which is compatible and consistent with future land zoning maps.

2. Compliance with Applicable or Relevant and Appropriate Requirements

ARARs include substantive provisions of any promulgated Federal or more stringent State environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements for a CERCLA site or action. Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Relevant and appropriate requirements are requirements that, while not legally “applicable” to circumstances at a particular CERCLA site, address problems or situations sufficiently similar to those encountered at the Site that their use is well-suited.

The containment alternative will comply with all Federal and State ARARs that are more stringent. The State of Oklahoma has indicated that no state ARARs are more stringent than the Federal ARARs for this Site (ODEQ, 2007). Section 121(d) of CERCLA states that remedial actions must attain or exceed ARARs. The ARARs for this Site are divided into three categories, chemical-specific, action specific, and location-specific. ARARs pertaining to the containment alternative supplement those identified in the original 2007 ROD. No additional chemical-specific or location specific ARARs were identified. The supplemental action-specific ARARs are listed in Table 4.

3. Cost-Effectiveness

The containment alternative is cost-effective because the remedy's costs are proportional to its overall effectiveness [see 40 CFR § 300.430(f)(1)(ii)(D)]. Overall effectiveness was evaluated by assessing three of the five balancing criteria -- long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness, in combination. The overall effectiveness was compared to the alternative's costs to determine cost-effectiveness. The relationship of the overall effectiveness was determined to be proportional to the costs and hence represents a reasonable value for the money to be spent.

Containment is effective in the short-term and offers only a reduction in mobility for contaminants remaining onsite, although not through treatment. Long-term protectiveness and overall effectiveness will be maintained provided ICs are implemented and O&M and five year reviews occur. The cost of \$179,131.47 is proportional to the overall short-term and long-term benefits provided.

4. Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The EPA has determined that the Excavation and Offsite Disposal plus Containment alternative represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practical manner at the Site. Based on current data, removal of waste in several locations across the Site cannot be practically or safely removed. This Alternative provides the best balance of trade-offs in terms of the five balancing criteria, considering State and community acceptance, while also considering the statutory preference for treatment as a principal element and the bias against offsite treatment and disposal.

The Excavation and Offsite Disposal plus Containment alternative will be most effective and permanent in the long-term provided O&M and five year reviews occur and institutional and engineering controls are enforced. Although, it does not reduce contaminant toxicity, mobility, or volume through treatment, it eliminates the exposure pathway and mitigates the potential for contaminant migration. Potential risks to the onsite workers and the community through the placement of the clay barrier is minimal. This alternative is a common practice that is easily implemented because equipment and services are readily available. The present worth cost is proportional to its overall effectiveness.

5. Preference for Treatment as a Principal Element

The EPA expects to use treatment to address the principal threats posed by a site, wherever practicable, and engineering controls for waste that poses a relatively low long-term threat or where treatment is impracticable. This remedy does not satisfy the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment). Although identified as a principal threat waste, the waste materials are not identified as a characteristic hazardous waste under 40 CFR § 261.24 based on current Site data. TCLP data indicate that the leaching potential of this material is low as all results have been below regulatory limits for characteristic hazardous waste categories and land disposal restrictions. As

such, backfill of the excavated areas and areas above the waste material eliminates the potential for direct contact, ingestion, and migration as well as provides for slope control, drainage control, and the establishment of vegetation.

6. Five Year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a five year review will be required for this remedial action no less often than every five years.

XI. PUBLIC PARTICIPATION

This ROD Amendment will become part of the Administrative Record (40 CFR § 300.825(a)(2)), which has been developed in accordance with Section 113 (k) of CERCLA, 42 U.S.C. § 9613 (k), and which is available for review at the Ardmore Public Library, 320 E. Street N.W., Ardmore, OK, 73401; Phone (580) 223-8290; Monday through Thursday, 10:00 a.m. until 8:30 p.m.; Friday through Saturday, 10:00 a.m. until 4:00 p.m.; and, Sunday, 1:00 p.m. until 5:00 p.m.; and, the Oklahoma Department of Environmental Quality, 707 N. Robinson, 6th floor, Oklahoma City, OK, 73102; Phone (405) 702-6145; Monday through Friday 8:00 a.m. until 4:30 p.m. As required by 40 CFR § 300.435(c)(2)(i)(B), a Notice of Availability and a brief description of the ROD Amendment will be published in the local paper.

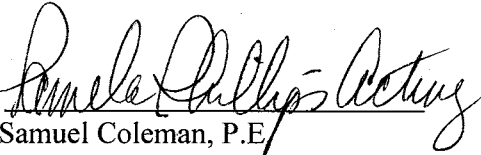
In preparation of these changes, a July 2008 notice was published in the local paper inviting the community to an open house discussion. The open house was held on Thursday, July 17, 2008, and included a short presentation, Site discussion, and question and answer session. Some concerns with the change to an industrial scenario and the prospect of waste being left in-place were raised. After explanations related to Site inspections, the use of ICs, and the requirement for five year reviews, the community had a better understanding of future activities and requirements that would be performed by EPA and ODEQ to ensure protectiveness.

The ROD Amendment Proposed Plan was released to the public on November 3, 2008. The comment period began on November 3, 2008, and ended on December 3, 2008. During the comment period, EPA and ODEQ held a public meeting on November 18, 2008, to present and discuss the ROD Amendment Proposed Plan. Based on the comments, some in the community remain concerned but understand the reasons for leaving the waste in-place and changing the land use cleanup levels to an industrial reuse scenario.

X. AUTHORIZING SIGNATURES

This ROD Amendment documents the changes to the remedy at the Imperial Refining Company Superfund Site. These changes are selected by EPA with concurrence from the Oklahoma Department of Environmental Quality.

U.S. Environmental Protection Agency

By: 
Samuel Coleman, P.E.
Director
Superfund Division

Date: 2/20/09

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Table 2: Cost Estimate for Operation and Maintenance

O&M Costs

Description	Quantity	Units	Cost Per Unit	Total Estimated Cost	Notes
O&M Cost Yr 1-30					
Site Maintenance					
Soil for Erosion	75	CY	\$23.00	\$1,725.00	
Seeding	2	acre	\$10.00	\$20.00	
Backfill Equipment	1	week	\$2,500.00	\$2,500.00	rental fee for dozer
Backfill Equipment Operator	10	HR	\$60.00	\$600.00	
Field Staff for seeding and backfill	20	HR	\$100.00	\$2,000.00	Assume oversight for seeding and backfilling. Each event estimated to take 10hrs.
Site Inspections	8	HR	\$100.00	\$800.00	1 person hourly rate + travel + other external cost
Subtotal				\$7,645.00	
Contingency	20%			\$1,529.00	
Subtotal				\$9,174.00	
Project Management	5%			\$458.70	
TOTAL ANNUAL O&M COST (1-30)				\$9,632.70	

PERIODIC COSTS

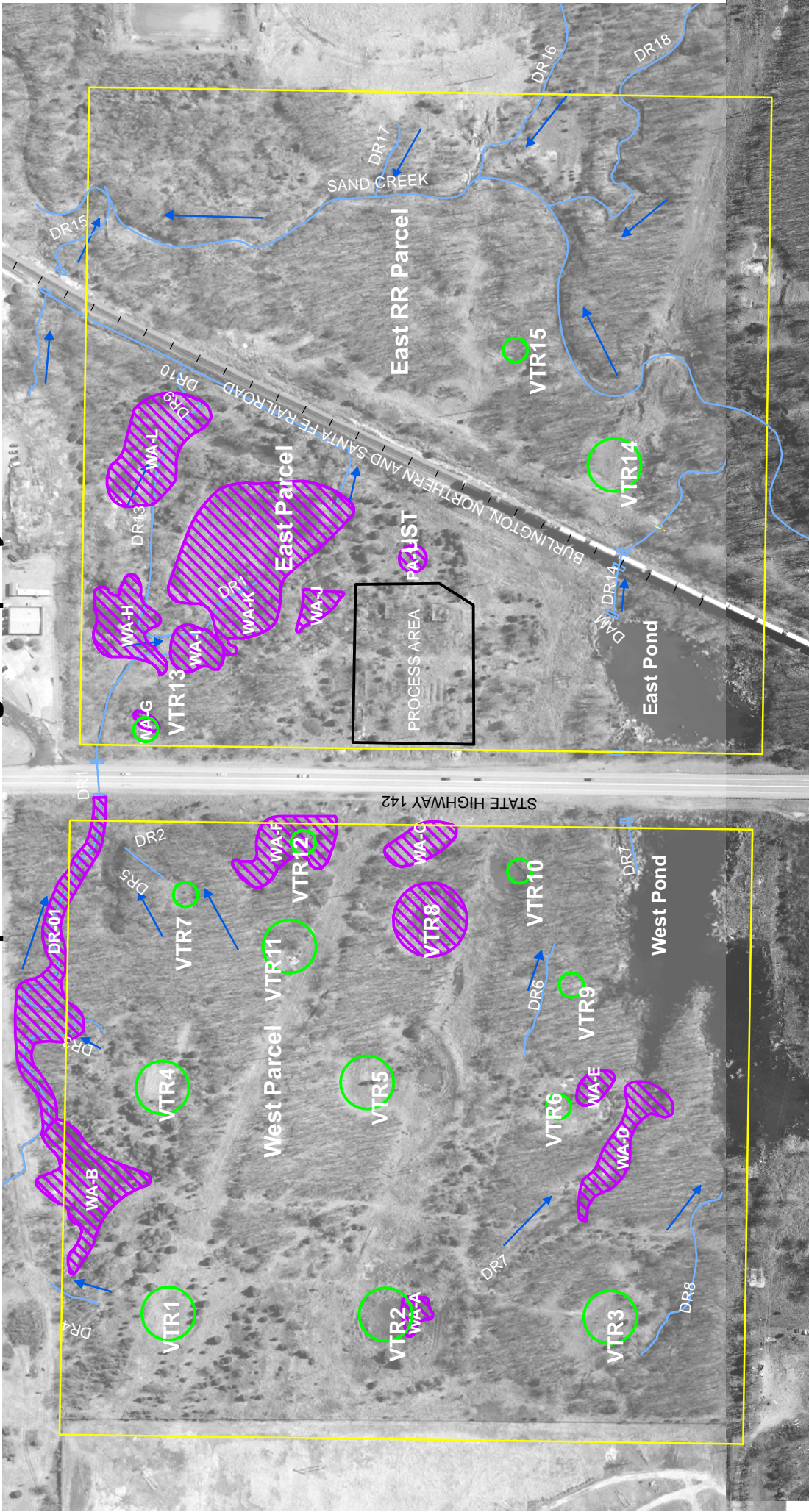
Description	Year	Quantity	Units	Unit	Cost	Notes
Five Year Review Report	5	1	LS	\$20,000.00	\$20,000.00	
Update Institutional Controls Plan	5	1	LS	\$1,000.00	\$1,000.00	
Monitoring/Sampling						
Pond Sediment sampling		1	LS	\$2,000.00	\$2,000.00	Two persons for two days: 10 hours per day
Laboratory Chemical Analysis		6	EA	\$220.00	\$1,320.00	Estimated \$20/sample for arsenic analysis and \$200/sample for Benzo(a)pyrene. 3 samples for each pond.
Chemical Data Management		6	EA	\$50.00	\$300.00	1 for each event (1 hr per sample per analyte * \$50/hr)
Field Staff Travel		1	LS	\$2,000.00	\$2,000.00	includes lodging/per diem/rental car/gas
Sample equipment and supplies		1	LS	\$1,000.00	\$1,000.00	includes sample supplies/boat/sediment sample equipment
Subtotal					\$27,620.00	
Five Year Review Report	10	1	LS	\$20,000.00	\$20,000.00	
Update Institutional Controls Plan	10	1	LS	\$1,000.00	\$1,000.00	
Monitoring/Sampling						
Pond Sediment sampling		1	LS	\$2,000.00	\$2,000.00	Two persons for two days: 10 hours per day
Laboratory Chemical Analysis		6	EA	\$220.00	\$1,320.00	Estimated \$20/sample for arsenic analysis and \$200/sample for Benzo(a)pyrene. 3 samples for each pond.
Chemical Data Management		6	EA	\$50.00	\$300.00	1 for each event (1 hr per sample per analyte * \$50/hr)
Field Staff Travel		1	LS	\$2,000.00	\$2,000.00	includes lodging/per diem/rental car/gas
Sample equipment and supplies		1	LS	\$1,000.00	\$1,000.00	includes sample supplies/boat/sediment sample equipment
Subtotal					\$27,620.00	
Five Year Review Report	15	1	LS	\$20,000.00	\$20,000.00	
Update Institutional Controls Plan	15	1	LS	\$1,000.00	\$1,000.00	
Monitoring/Sampling						
Pond Sediment sampling		1	LS	\$2,000.00	\$2,000.00	Two persons for two days: 10 hours per day
Laboratory Chemical Analysis		6	EA	\$220.00	\$1,320.00	Estimated \$20/sample for arsenic analysis and \$200/sample for Benzo(a)pyrene. 3 samples for each pond.
Chemical Data Management		6	EA	\$50.00	\$300.00	1 for each event (1 hr per sample per analyte * \$50/hr)
Field Staff Travel		1	LS	\$2,000.00	\$2,000.00	includes lodging/per diem/rental car/gas
Sample equipment and supplies		1	LS	\$1,000.00	\$1,000.00	includes sample supplies/boat/sediment sample equipment
Subtotal					\$27,620.00	
Five Year Review Report	20	1	LS	\$20,000.00	\$20,000.00	
Update Institutional Controls Plan	20	1	LS	\$1,000.00	\$1,000.00	
Monitoring/Sampling						
Pond Sediment sampling		1	LS	\$2,000.00	\$2,000.00	Two persons for two days: 10 hours per day
Laboratory Chemical Analysis		6	EA	\$220.00	\$1,320.00	Estimated \$20/sample for arsenic analysis and \$200/sample for Benzo(a)pyrene. 3 samples for each pond.
Chemical Data Management		6	EA	\$50.00	\$300.00	1 for each event (1 hr per sample per analyte * \$50/hr)
Field Staff Travel		1	LS	\$2,000.00	\$2,000.00	includes lodging/per diem/rental car/gas
Sample equipment and supplies		1	LS	\$1,000.00	\$1,000.00	includes sample supplies/boat/sediment sample equipment
Subtotal					\$27,620.00	
Five Year Review Report	25	1	LS	\$20,000.00	\$20,000.00	
Update Institutional Controls Plan	25	1	LS	\$1,000.00	\$1,000.00	
Monitoring/Sampling						
Pond Sediment sampling		1	LS	\$2,000.00	\$2,000.00	Two persons for two days: 10 hours per day
Laboratory Chemical Analysis		6	EA	\$220.00	\$1,320.00	Estimated \$20/sample for arsenic analysis and \$200/sample for Benzo(a)pyrene. 3 samples for each pond.
Chemical Data Management		6	EA	\$50.00	\$300.00	1 for each event (1 hr per sample per analyte * \$50/hr)
Field Staff Travel		1	LS	\$2,000.00	\$2,000.00	includes lodging/per diem/rental car/gas
Sample equipment and supplies		1	LS	\$1,000.00	\$1,000.00	includes sample supplies/boat/sediment sample equipment
Subtotal					\$27,620.00	
Five Year Review Report	30	1	LS	\$20,000.00	\$20,000.00	
Update Institutional Controls Plan	30	1	LS	\$1,000.00	\$1,000.00	
Monitoring/Sampling						
Pond Sediment sampling		1	LS	\$2,000.00	\$2,000.00	Two persons for two days: 10 hours per day
Laboratory Chemical Analysis		6	EA	\$220.00	\$1,320.00	Estimated \$20/sample for arsenic analysis and \$200/sample for Benzo(a)pyrene. 3 samples for each pond.
Chemical Data Management		6	EA	\$50.00	\$300.00	1 for each event (1 hr per sample per analyte * \$50/hr)
Field Staff Travel		1	LS	\$2,000.00	\$2,000.00	includes lodging/per diem/rental car/gas
Sample equipment and supplies		1	LS	\$1,000.00	\$1,000.00	includes sample supplies/boat/sediment sample equipment
Subtotal					\$27,620.00	

PRESENT VALUE ANALYSIS

Cost Type	Year	Total Cost	Total Cost Per Year	Discount Factor (7%)	Present Value	Notes
Annual O&M Cost	1-30	\$288,981.00	\$9,632.70	12.41	\$119,532.57	
Periodic Cost	5	\$27,620.00	\$27,620.00	0.71	\$19,692.68	
Periodic Cost	10	\$27,620.00	\$27,620.00	0.51	\$14,040.61	
Periodic Cost	15	\$27,620.00	\$27,620.00	0.36	\$10,010.76	
Periodic Cost	20	\$27,620.00	\$27,620.00	0.26	\$7,137.53	
Periodic Cost	25	\$27,620.00	\$27,620.00	0.18	\$5,088.96	
Periodic Cost	30	\$27,620.00	\$27,620.00	0.13	\$3,628.36	
					\$179,131.47	

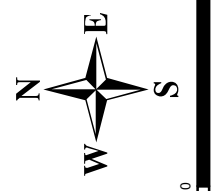
Table 4: Action-Specific ARARs		
Potential Applicable Relevant and Appropriate Requirements	Description	Comment
Federal		
Closure and Post Closure Part 264 Subpart G	Establishes requirements for closure and post closure.	Relevant since wastes remain onsite.
State		
Oklahoma Solid Waste Management Act 27A O.S. § 2-10-101 <i>et seq.</i> Solid Waste Management rules OAC 252:515	The Oklahoma solid waste management regulations apply to the design, permitting, operations, and closure of solid waste disposal facilities used for non-hazardous industrial, commercial, agricultural, infectious, and domestic wastes and waste tires.	Relevant since wastes remain onsite.

Figure 1 - Site Features
Imperial Refining Company



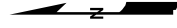
Legend

- Tar-mat Waste Area (WA-A)
- Site Boundary
- Process Area
- Historical Road
- Vertical Tank Remenant (VTR1)
- Drainage Flow Direction
- Railroad
- Drainage (DR1)





LEGEND
 --- SITE BOUNDARY
 □ EXCAVATION AREA



0 200 400
 SCALE IN FEET

IMAGE SOURCE: ADS, 2005
 TDD NO. T0606060402-01
 CERCLIS NO. C06002024099



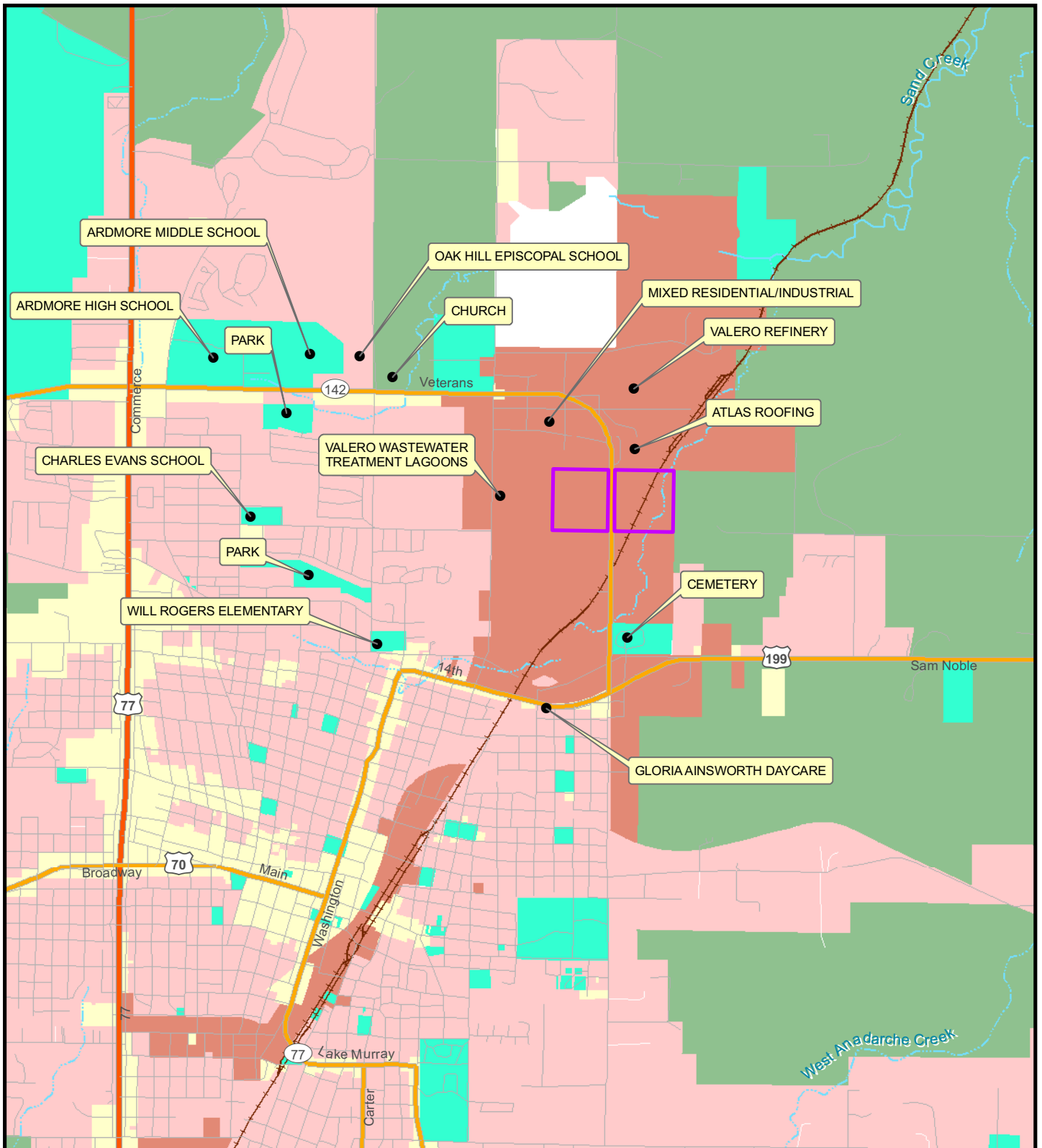
**USEPA REGION 6
 START-3**

FIGURE 2
 EXCAVATION AREAS MAP
 IMPERIAL REFINING COMPANY
 ARDMORE, CARTER COUNTY, OKLAHOMA

DATE	PROJECT NO.	SCALE
DEC 2008	200606102.006.0203.01	AS SHOWN

File: h:\aer\109_sand\09_Paper\109ER\3-DATA\3-D\06061020300\109ER\AreaMap_Armdamr_Armdamr.dwg, 01-Dec-08 08:51:10 (GMT)





LEGEND

- SITE BOUNDARY
- NO CLASSIFICATION
- AG - AGRICULTURE
- COM - COMMERCIAL
- IND - INDUSTRIAL
- PUB - PUBLIC FACILITIES
- RES - RESIDENTIAL

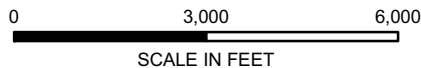
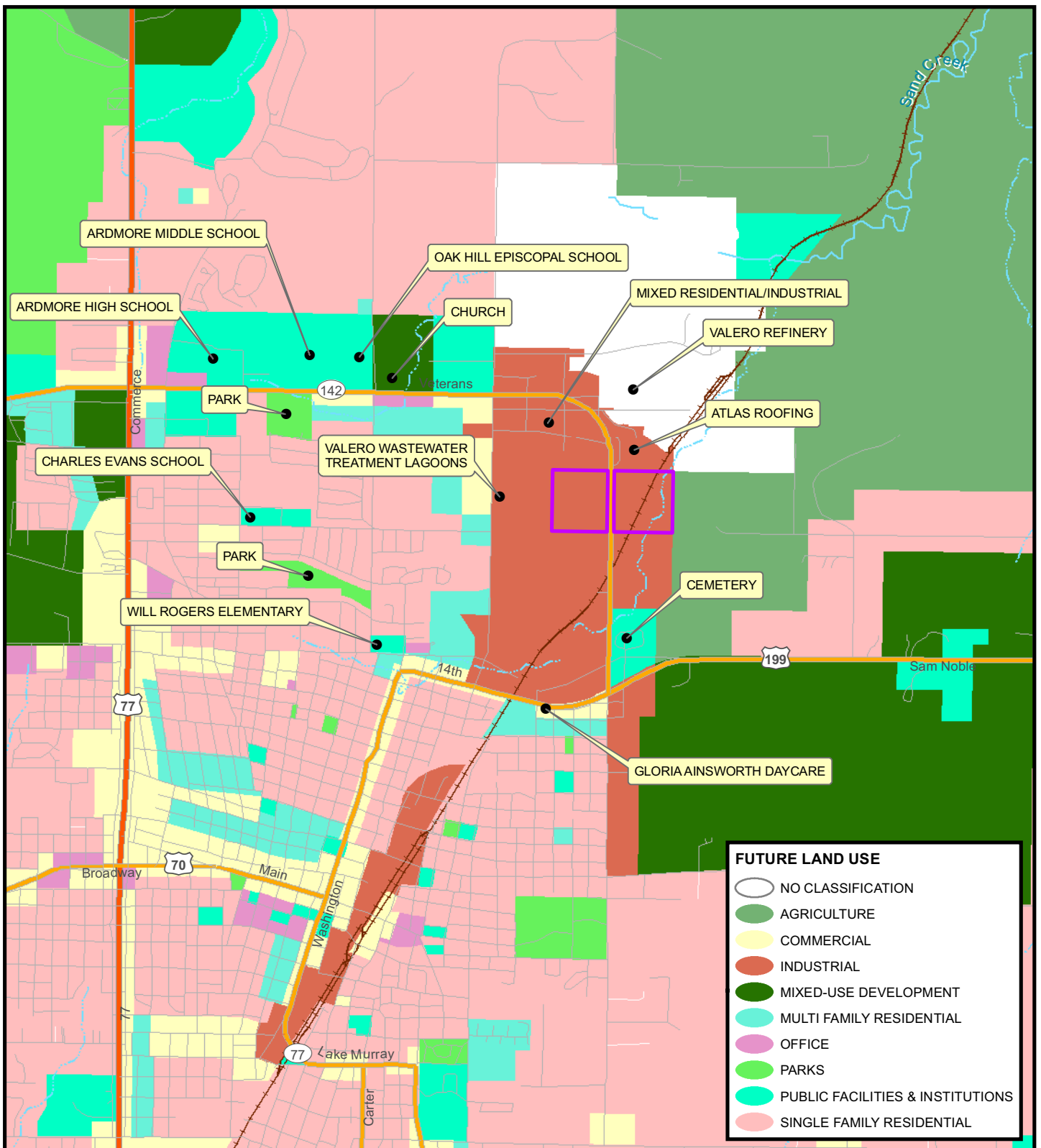


FIGURE 3
CURRENT ZONING MAP
RI REPORT
IMPERIAL REFINING COMPANY
ARDMORE, CARTER COUNTY, OKLAHOMA

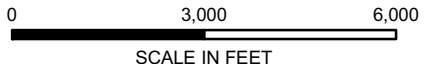
DATE SEPT 2006	PROJECT NO 13499.001.001.0036	SCALE AS SHOWN
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SOURCE: 1) ZONING BOUNDARIES PROVIDED BY THE CITY OF ARDMORE - 2005 2) NAIP AERIAL IMAGES PROVIDED BY THE OKLAHOMA CENTER FOR GEOGRAPHIC INFORMATION, CARTER COUNTY, OKLAHOMA - 2003



FUTURE LAND USE

- NO CLASSIFICATION
- AGRICULTURE
- COMMERCIAL
- INDUSTRIAL
- MIXED-USE DEVELOPMENT
- MULTI FAMILY RESIDENTIAL
- OFFICE
- PARKS
- PUBLIC FACILITIES & INSTITUTIONS
- SINGLE FAMILY RESIDENTIAL



LEGEND
 — SITE BOUNDARY



FIGURE 4
 FUTURE LAND USE MAP
 RI REPORT
 IMPERIAL REFINING COMPANY
 ARDMORE, CARTER COUNTY, OKLAHOMA

SOURCE: 1) ZONING BOUNDARIES PROVIDED BY THE CITY OF ARDMORE - 2005 2) NAIP AERIAL IMAGES PROVIDED BY THE OKLAHOMA CENTER FOR GEOGRAPHIC INFORMATION, CARTER COUNTY, OKLAHOMA - 2003

DATE SEPT 2006	PROJECT NO 13499.001.001.0036	SCALE AS SHOWN
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- LEGEND**
- WATER LINE
 - ONECK PIPELINE
 - SITE BOUNDARY
 - ▨ WASTE LEFT IN PLACE

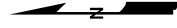


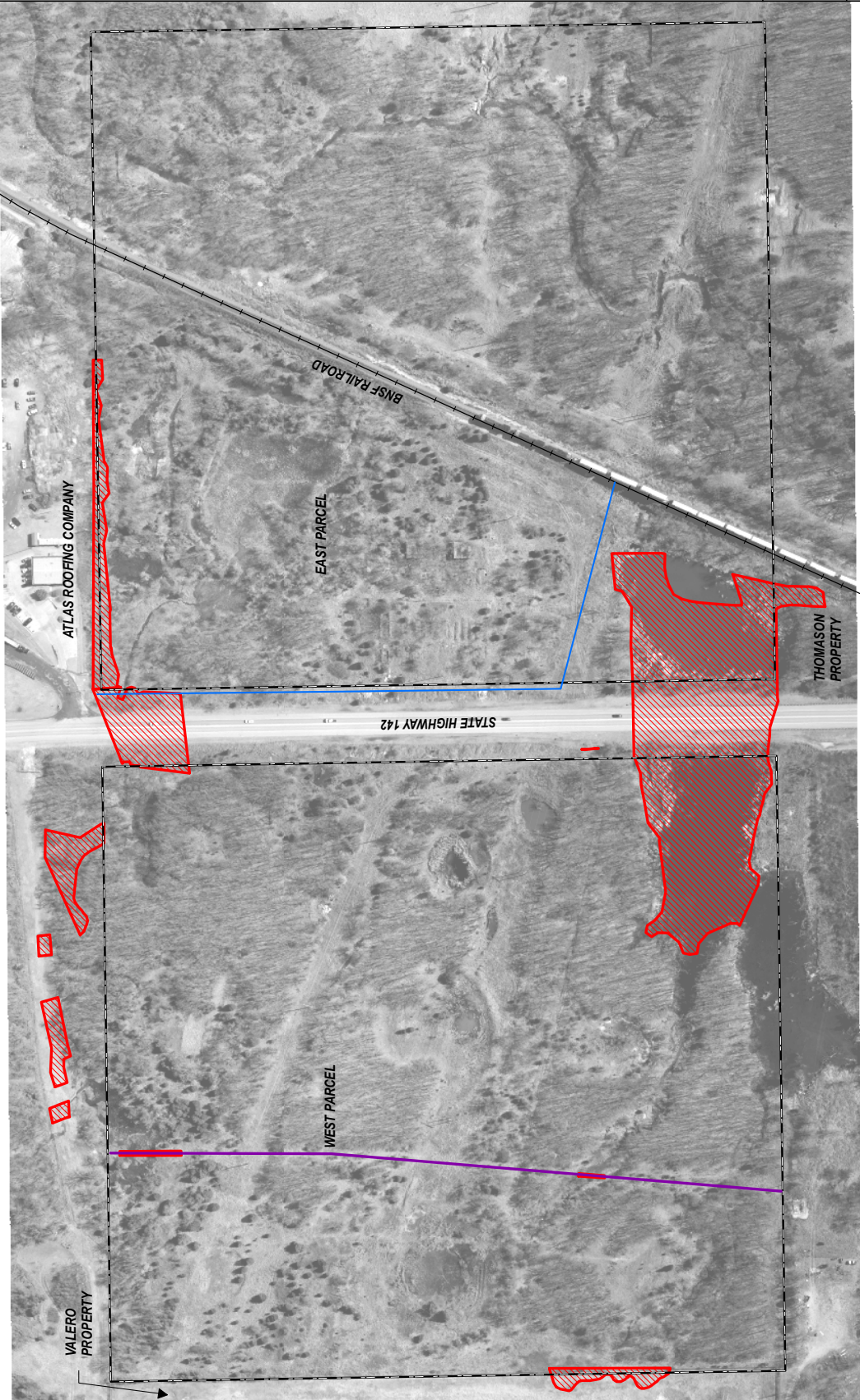
IMAGE SOURCE: AAS, 2005
 TDD NO. TOC00050903-092
 CERLIS NO. 09000202009



FIGURE 5
WASTE LEFT IN PLACE
 IMPERIAL REFINING COMPANY
 ARDMORE, CARTER COUNTY, OKLAHOMA

DATE	PROJECT NO.	SCALE
DEC 2008	20060102.006.0253.01	AS SHOWN

File: \\msw01gpc\carlos\Projects\ImpRef\START3\060102\006\MapPlan_08-feb-09_10.25.mxd



**Appendix A:
Institutional Control Template Example
Oklahoma Department of Environmental Quality**

**NOTICE OF REMEDIATION OR RELATED ACTION TAKEN PURSUANT TO THE
FEDERAL COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION
AND LIABILITY ACT and CREATION OF EASEMENT
IMPERIAL REFINING SUPERFUND SITE**

LEGAL BASIS FOR NOTICE: The Oklahoma Department of Environmental Quality (“DEQ”) hereby files this NOTICE OF REMEDIATION OR RELATED ACTION TAKEN PURSUANT TO THE FEDERAL COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT AND CREATION OF EASEMENT (hereinafter “Notice”) pursuant to Oklahoma Statutes, 27A § 2-7-123 (B). This Notice does not grant any right to any person not already allowed by law. This Notice shall not be construed to authorize or encourage any person or other legal entity to cause or increase pollution, to avoid compliance with State or Federal laws and regulations regarding pollution or to in any manner escape responsibility for maintaining environmentally sound operations.

The DEQ may take administrative or civil action to recover costs or to compel compliance with the below described “Land Use Restrictions” and to prevent damage to, or interference with the below described “Engineering Controls” and “Continuing Operation, Maintenance and Monitoring.” The Land Use Restrictions, Engineering Controls and Continuing Operation, Maintenance and Monitoring will apply to the Affected Property and to persons who own and/or use the Affected Property until such time as the DEQ files a subsequent Notice that changes or removes the Land Use Restrictions, Engineering Controls and Continuing Operation, Maintenance and Monitoring set forth below. Activities that cause or could cause damage to the Remedy or the Engineering Controls described herein below, or recontamination of soil or groundwater are prohibited.

The owner of the below described Affected Property has the legal authority to create, and does hereby voluntarily create, an easement granted to the DEQ and its employees and agents, for ingress and egress through, across and onto the Affected Property to assure the ongoing protection of the remedy, engineering controls and land use restrictions described herein below. This easement touches and concerns the land; runs with the land; is legally binding on all future owners of the Affected Property and will only be removed or modified if and when the DEQ modifies or removes its land use restrictions or engineering controls in the manner described herein below.

REASON FOR NOTICE: The below described Affected Property was contaminated with materials that required remediation pursuant to State and Federal environmental laws and regulations. The Affected Property was remediated to a risk-based standard.

AFFECTED PROPERTY: The Imperial Refining Company (IRC) Superfund Site is the location of a former petroleum refinery that operated from 1917 to 1934. IRC remained active for 17 years until it went bankrupt in 1934. The primary sources of contaminants are vertical

tank remnants, waste in a UST, and waste piles characterized as dry, asphalt-like material. Chemical constituents associated with the waste material have affected soil and sediment. The Site was addressed as one operable unit where the final response action addressed Site contaminants and waste material that pose a current or future health risk.

[Insert description of property affected by this IC.]

REMEDY:

Remediation activities (“Remedy”) at the Affected Property included:

- a. Excavation and removal of 105,993 cubic yards of waste and contaminated soil and sediment;
- b. Offsite disposal of 107,299.88.35 tons of waste and contaminated soil and sediment.
- c. Surface Water discharge and sampling.
- d. Confirmation soil and sediment sampling.
- e. Import of approximately 64,366.5 cubic yards of backfill.
- f. Site grading for drainage followed by seeding.

Remedial construction completion was accomplished on September 18, 2008, with the signing of the Preliminary Close Out Report.

ENGINEERING CONTROLS: The engineering controls at this site include clay barriers located throughout the Site. The clay barriers and the underlying waste that was left in place are the subject of this notice along with the restricted Site use of industrial.

CONTINUING OPERATION, MAINTENANCE AND MONITORING:

LAND USE RESTRICTIONS: The land use restrictions for the above-described Affected Property are listed below and apply to the entirety of the Affected Property described herein above.

- a. No digging at or below five (5) feet from the surface in areas where waste remains in place.
- b. No activities that will cause erosion of the soil at or near locations where waste remains in place.
- c. No residential use.
- d. Maintenance activities required within the areas where waste remains in place require ODEQ notification prior to commencement. Any activity within these areas requires the establishment of health and safety protocols to ensure worker safety and require that the waste materials encountered are managed properly while onsite and then disposed offsite in an appropriately permitted and regulated landfill.
- e. No activities that will disturb or cause erosion of the sediments within the ponds located on the Site.

Changes to the Land Use Restrictions Changes to land use restrictions must be approved by the Department of Environmental Quality or its successor agency. The person requesting the

change in land use must demonstrate to the DEQ's satisfaction that contamination at the site has reached levels appropriate for the proposed new land uses and that further remediation is not necessary or that additional institutional or engineering controls are adequate to achieve levels protective of human health and the environment for the proposed uses.

The DEQ may require oversight costs, work plans, sampling, reports, and public participation as part of its review of the new information to support the requested change in land use restrictions. The person requesting the change will be required to follow agency procedures effective at the time of the request.

The DEQ at its discretion may determine, based on the new information submitted, that contaminants are present at the Site at levels that will not pose a risk to human health or the environment if the new land use restrictions being requested are allowed. Upon making this determination, the DEQ will file a recordable notice of remediation pursuant to state law in the land records in the office of the county clerk where the Site is located designating the new land use restrictions.

This Notice and the Land Use Restrictions contained herein run with the land and no change of ownership of the Affected Property will change the Land Use Restrictions described herein above. This Notice and the Land Use Restrictions contained herein are effective upon the date of signature by the Executive Director of the DEQ.

Steven A. Thompson, Executive Director
Oklahoma Department of Environmental Quality

Date

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My Commission expires:

_____, 20____.

I hereby certify that I have the legal right to, and do hereby, create an easement and encumber the real property as described in the foregoing Notice. I hereby voluntarily grant an easement to the DEQ and its employees and agents, for ingress and egress through, across and onto the

Affected Property to assure the ongoing placement, operation and protection of the remedy, engineering controls and land use restrictions described herein above.

I have had notice and an opportunity to meet with representatives of the Oklahoma Department of Environmental Quality to comment on the foregoing Notice and agree herewith. I hereby agree to the filing of the foregoing Notice and Easement.

Owner of the Affected Property

Date

(Spouse of, and/or, Owner of the Affected Property)

Date

Subscribed and sworn to before me this ____ day of _____, 20____.

Notary Public

My Commission expires:

_____, 20____.

**Appendix B:
Record of Communication from the
Oklahoma Department of Environmental Quality**



STEVEN A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

BRAD HENRY
Governor

January 21, 2009

Sam Coleman (6SF-D)
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Dear Mr. Coleman:

In response to your letter dated December 18, 2008, the Oklahoma Department of Environmental Quality (DEQ) fully supports the Record of Decision Amendment for the Imperial Refinery Company Superfund Site. The selected remedy includes excavation and off-site disposal of waste material, soil, and sediment plus containment for waste material that remains in-place was arrived at through the concerted efforts of our two agencies.

The DEQ believes that the proposed remedy for the Imperial Refinery Company Superfund Site will provide long-term protection for public health and the environment.

Sincerely,

A handwritten signature in black ink, appearing to read 'Scott Thompson', with a long, sweeping horizontal line extending to the right.

Scott Thompson
Director, Land Protection Division

**Appendix C:
ROD Amendment
Responsiveness Summary**

STAKE HOLDER COMMENTS AND AGENCY RESPONSES

The Responsiveness Summary provides information about the views of the public and the support agency regarding both the alternatives and general concerns about the Site submitted during the public comment period. The concerns of the community should be considered when selecting a remedial alternative. Since the Site was listed on the NPL in July 2000, much Site information has been exchanged with the area residents and community leaders.

The public comment period for the ROD Amendment Proposed Plan was held from November 3, 2008, to December 3, 2008. A public meeting was held on November 18, 2008, to present the preferred alternative in the ROD Amendment Proposed Plan. During the public meeting ODEQ and EPA provided verbal discussion to questions from the public. The questions and answers discussed during this meeting can be found in the meeting transcript included as part of the Administrative Record. Formal answers to the questions raised during the public meeting are addressed below. Based on the comments, some in the community remain concerned but understand the reasons for leaving the waste in-place and changing the land use cleanup levels to an industrial reuse scenario.

During the public comment period, one letter was received. ODEQ's and EPA's responses to the verbal and written comments are as follows.

Comment 1: Verbal comments raised by Mr. Blake Rudd at the public meeting:

- a) Does Valero have a time line on removing that stuff [reference made to the waste that remains on the Valero property]?
- b) Did they drill any monitoring wells on the Site to check for ground water contamination?

EPA and ODEQ Response 1:

- a) No. At this time, Valero is working with the State's hazardous waste group to develop plans related to the waste that remains on their property.
- b) During the remedial investigation, groundwater samples were collected from the seven monitoring wells onsite. The Site is located in the southeast portion of the Caddo Anticline and the Ardmore Basin (ODEQ, 1998), and according to the water resources of southern Oklahoma map and information provided in the ODEQ Site Inspection report, water produced in these formations is of poor to fair quality (ODEQ, 1998; Hart, 1970). This is supported by Site data because during sample collection these wells could be bailed dry by hand, and were estimated to produce approximately 15.8 gallons of water per day. It was also determined that the groundwater is discontinuous across the Site, and appears to be present in larger volumes after wet weather. Based on the low yield and the poor water quality, use of the ground water for residential purposes is unlikely. Although not used for residential purposes, a construction worker may encounter ground water during construction activities. Because organic and inorganic contaminants were detected above screening levels, human risk was evaluated for the construction worker that may encounter the ground water during construction activities. The human health risk assessment did not identify excess cancer risks that exceed 1E-06 or non-cancer risk

that exceed the criteria of one.

Comment 2: Verbal comments raised by Ms. Phyllis Wells at the public meeting:

- a) Where is the Valero area [reference to the location where waste remains in-place on the Valero property]?
- b) Where are the red areas on the bottom [reference is being made to the ponds on the southern end of the property that have been highlighted by a red outline indicating that waste remains]?
- c) They are building homes across from the Valero property on the other side of Refinery Road. Those houses over there are not going to be contaminate? That land is not contaminated, or do you know? Do they have a repository?

EPA and ODEQ Response 2:

- a) The Valero property is located between Hwy 142 and Refinery Road and south of Akron Street. The Valero property is just north and west of the Imperial Refining western parcel boundary.
- b) The east and west ponds are located along the southern boundaries of the Imperial Refining eastern and western parcels. The east pond is east of Hwy 142, west of the rail road tracks, and north of the Hwy 142 bridge. The west pond is west of Hwy 142 and north of the Hwy 142 bridge.
- c) The property referred to is the location of another refinery that operated in Ardmore during the past. This area is identified as the Pure Oil Refinery Site and is being cleaned up by Chevron, under the oversight of ODEQ. Chevron is cleaning up contamination to residential levels by excavating the material and shipping it to an offsite landfill for disposal. Documents and information related to the cleanup at the Pure Oil Refinery Site can be viewed at the Ardmore Public library or by contacting Kendall Posey, ODEQ, at 405-702-5100.

Comment 3: Verbal comments raised by Ms. Sheryl Ellis at the public meeting:

- a) What is in-place or do you know that your institutional controls will actually work over time to keep this land commercial?
- b) Is it physically posted over time?

EPA and ODEQ Response 3:

- a) The institutional control (IC) will be filed in the land records in the office of the county clerk where the Site is located. The IC will run with the land and no change of ownership of the Affected Property will change the land use restrictions described within the IC. Changes to land use restrictions must be approved by the Department of Environmental Quality or its successor agency. The IC also provides that DEQ may take administrative or civil action to recover costs or to compel compliance with the land use restriction and to prevent damage to, or interference with the engineering controls and continuing operation, maintenance and monitoring activities that will be conducted. In

addition, ODEQ will be conducting Site inspections annually, and EPA will be conducting five year reviews. These activities will ensure that the remedy remains protective, that the IC, with all of its restrictions, remains in-place, and that compliance with the IC is maintained.

- b) No. The IC is not physically posted at the Site. This legal document is filed by ODEQ, with the coordination of the property owner, with the office of the county clerk where the Site is located.

Comment 4: Verbal comments raised by Ms. Virginia Perry at the public meeting:
Is there anything on the other side of 199 that's going to be industrial only?

EPA and ODEQ Response 4:

No. The ICs will only be placed on the Imperial Refining Company Site and adjacent property where waste remains in-place and land use is restricted to industrial use.

Comment 5: Written comments submitted during the public comment period and received by EPA/ODEQ on November 19, 2008, from Ms. Laura H. Schneider, and Mr. William J. Hogan:

- a) It is our understanding that no waste remains or was identified on the East Railroad Parcel. Therefore, we request that this parcel be excluded from the description of the Affected Property subject to institutional controls.
- b) We request that the land use restrictions, which are part of the institutional control, be stated such that they allow for commercial and/or retail use.

EPA and ODEQ Response 5:

- a) During the remedial investigation, no waste was identified on the East Railroad Parcel. In addition, based on the risk assessment, no areas were identified for excavation based on contaminated soil. Sediment was identified for removal based on an ecological cleanup level. These sediments were removed and the confirmation sample indicates that the cleanup levels were met. As such, this parcel is available for unlimited use and unrestricted exposure and can be used without restriction. The EPA and ODEQ agree that this parcel should be excluded from the restrictions on land use.
- b) Current zoning maps from the City of Ardmore indicate the Site will remain zoned for industrial land use. The EPA defines the industrial use scenario as including commercial use. As such, since the Site was cleaned up for future industrial use, any commercial reuse of the property would be consistent with the cleanup goals and the expected future reuse scenario as defined by EPA. However, future reuse should be consistent with and in accordance with local laws, restrictions, and regulations.