



## **Explanation of Significant Differences**

### **Fourth Street Abandoned Refinery Superfund Site Oklahoma City, Oklahoma**

**United States Environmental  
Protection Agency  
Region 6**

**Superfund Division**

**January 19, 2006**



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Concurrence page

**CONCURRENCE PAGE FOR THE  
FOURTH STREET ABANDONED REFINERY SUPERFUND SITE  
EXPLANATION OF SIGNIFICANT DIFFERENCES**

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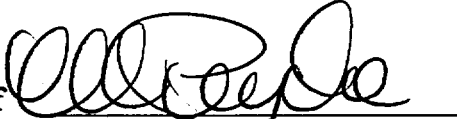
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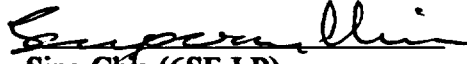
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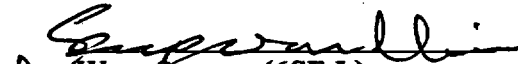
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## I. INTRODUCTION

Site Name: Double Eagle Refinery Co.  
CERCLA Id No.: OKD007188717  
Site Name: Fourth Street Abandoned Refinery  
CERCLA Id No.: OKD980696470  
Site Location: Intersection of Eastern Avenue (Martin Luther King Blvd.) and NE Fourth Street, Oklahoma City, Oklahoma.  
Support Agency: Oklahoma Department of Environmental Quality (ODEQ)  
Lead Agency: U.S. Environmental Protection Agency, Region 6 (EPA)

This decision document presents the Explanation of Significant Differences (ESD) for the Fourth Street Abandoned Refinery (FSR) Superfund Site (Site), located in Northeast Oklahoma City, Oklahoma. The ESD is issued in accordance with Section 117(c) of 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 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Section 300.435(c)(2)(I). The Director of the Superfund Division has been delegated the authority to sign this ESD.

## II. STATEMENT OF PURPOSE

The EPA is issuing this ESD for the FSR site and a similar ESD will be issued for the Double Eagle Refinery Co. (DER) Superfund site to document the final decision for the management of the shallow groundwater under these sites.

A Record of Decision (ROD) was signed on April 19, 1994 for the DER Groundwater Operable Unit, and a similar ROD was signed on September 30, 1993 for the FSR Groundwater Operable Unit. **These two sites are adjacent to each other, share similar past operations, contaminants, a common groundwater operable unit, and similar RODs.**

These documents are available in the Superfund Document Management System (SDMS) under Record Numbers 1008288 and 1000154.

The ROD actions required:

1. Installation of additional groundwater monitoring wells.
2. Establishment of a routine monitoring and maintenance program.
3. Installation of new monitoring wells to evaluate off site sources of contamination.
4. Conducting a Five-Year review once the surface source of contamination is stabilized.
5. Contingency action if the contaminant concentrations increase or the contaminant plume migrates to a usable water supply.

**ROD actions implemented:**

In reference to item number 1, a network of thirteen monitoring wells was installed to monitor the shallow and upper portions of the Garber-Wellington aquifer in the vicinity of these sites.

In reference to item number 2, a monitoring and maintenance program was established and inspections have been conducted by ODEQ to evaluate if natural attenuation and contaminant level reductions are taking place as predicted. Results from the last three years of semi-annual sampling are presented in the following inspection reports:

- First Semi-Annual Sampling Event, SDMS Record Number 905346.
- Second Semi-Annual Sampling Event, SDMS Record Number 927670.
- Third Semi-Annual Sampling Event, SDMS Record Number 918817.
- Fourth Semi-Annual Sampling Event, SDMS Record Number 934571.
- Fifth Semi-Annual Sampling Event, SDMS Record Number 155950.
- Sixth Semi-Annual Sampling Event, SDMS Record Number 169247.

In reference to item number 3, in 2003, ODEQ installed four additional wells and collected groundwater samples to evaluate potential off site sources of contamination. Findings from this investigation are presented in the 2005 report, SDMS Record Number 192099.

In reference to item number 4, on June 1, 2002, the EPA completed a combined Five-Year review of all operable units at DER and FSR. This report concluded that the remedies selected are protective of public health and the environment. The report is available under the SDMS Record Number 915719.

In reference to item number 5, the need for contingency actions has not been identified. Studies conducted by the EPA and ODEQ, in coordination with the U.S. Geological Survey (USGS) have provided a better definition of the groundwater flow direction, while verifying natural attenuation is reducing the levels of contaminants concentrations, SDMS Record Number 917489.

The RODs identified the upper groundwater zone non-usable (Class III aquifer) because of the presence of high Total Dissolved Solids (TDS); therefore, implementation of a groundwater recovery and treatment system was not considered appropriate at that time. Groundwater sampling and monitoring activities have confirmed this fact. This ESD is presented to document this fact after completion of three years of semi-annual sampling. The investigations have shown that natural attenuation is taking place, and the potential receptors or targets of contamination, the North Canadian River and the deeper usable portions of the Garber-Wellington aquifer, are not at risk at this time.

Therefore, further semi-annual groundwater monitoring will be discontinued. Monitoring

wells will be plugged and abandoned according to ODEQ regulations and the site will continue to be monitored by conducting Five-Year remedy reviews.

### **III. SITE HISTORY AND CONTAMINATION**

#### **History**

The DER collected, stored, and re-refined used oils and distributed the recycled product. The refinery was active as early as 1929. Historical aerial photographs were available as early as 1941. Generally, early refining was conducted on the western portion of the site and expanded toward the eastern portion as the operations increased. The DER recycled approximately 500,000 to 600,000 gallons of used motor oil per month into finished lubricating oil. The recycling process consisted of the addition of sulfuric acid, settling, and filtration with bleaching clays via a filter press. This process generated approximately 80,000 gallons of oily sludge per month. Sludges were initially sent to an off-site disposal facility, now the Hardage Criner Superfund Site located in Criner, Oklahoma. Later, sludges were disposed of in onsite impoundments and a sludge lagoon until the late 1960's to early 1970's.

The FSR collected, stored, and re-refined used oils and distributed the recycled product. The refinery was active in the early 1940's and was noted on historical aerial photographs as early as 1941. Refining operations were conducted on land owned by the Chicago, Rock Island and Pacific Railway Company. Planet Oil and Refining Company participated in the waste oil reclamation business during the early part of the 1940's through the early 1960's. Elliot Refining Company conducted waste oil reclamation activities during the late 1940's through the 1960's. Salyer Refining Company performed waste oil reclamation operations from the late 1940's through the 1960's. These three companies conducted waste oil reclamation activities on-site. Operations ceased in the late 1960's or early 1970's.

Refinery operations at the FSR site apparently recycled used oils in a similar manner to that process employed at the DER site. Sulfates in the waste suggest the use of sulfuric acid in clarification of the used oils. Sludges generated by the reclamation process were disposed of in on-site impoundments.

The DER and FSR sites were added to the National Priorities List (NPL) in March 1989.

#### **Site contamination.**

The contaminants found at these sites were primarily organic chemicals and heavy metals related to the refinery processes. The most commonly found pollutants were chlorinated hydrocarbons, and benzene compounds such as; Xylene, Ethylbenzene, Trichloroethane, Chrysene, Phenanthrene, and Naphthalene. Lead was the primary metal contaminant found in groundwater samples. Some or all of the contaminants identified are "hazardous substances" as defined in Section 104(14) of CERCLA, 42, U.S.C. Section 9601(14), and 40 C.F.R. Section

302.4. Approximately 43,000 cubic yards of contaminated soils and sediments were identified in DER and 47,00 cubic yards in FSR.

#### **IV. SELECTED REMEDY**

The selected groundwater remedy addresses the principal threat at the site by monitoring the groundwater to ensure that the contaminant levels are reduced with time because of natural attenuation, once the surface contamination was removed.

#### **V. BASIS FOR THE DOCUMENT**

Information based in the three years of semi-annual sampling reports, information from the EPA, ODEQ, and USGS investigations, and information from the evaluation of potential offsite sources of contamination is the basis for this ESD.

#### **VI. DESCRIPTION OF SIGNIFICANT DIFFERENCES**

This ESD documents a final decision to discontinue further semi-annual monitoring. At this time, studies conducted indicate that no further action is necessary in regards to the groundwater.

#### **VII. LEAD AND SUPPORT AGENCY COMMENTS**

The EPA and the State of Oklahoma, through the ODEQ, agree there is no need to further monitor the shallow groundwater at this time, since studies are showing that currently the natural attenuation is reducing the concentrations of contaminants.

The support agency, ODEQ, has been consulted and provided the opportunity to comment on this ESD in accordance with NCP §§ 300.435 (c)(2) and 300.435 (c)(2)(i) and CERCLA § 121 (f). Its concurrence is presented in a separate letter dated January 17, 2006.

#### **VIII. STATUTORY DETERMINATIONS**

The EPA has determined that these significant changes comply with the statutory requirements of CERCLA § 121, 42 U.S.C. § 9621, are protective of human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, are cost-effective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory

review will be conducted no less often than each five years after the initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

**IX. PUBLIC PARTICIPATION**

This ESD will become part of the Administrative Record (NCP 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 Oklahoma Department of Environmental Quality, Land Protection Division, 707 North Robinson, Oklahoma City, Oklahoma, Monday - Friday, 8:00 a.m. to 4:30 p.m. and, at the United States Environmental Protection Agency, Region 6, 12th Floor Library, 1445 Ross Avenue, Dallas, Texas, 75202, Monday - Friday, 7:30 a.m. to 4:30 p.m. As required by NCP § 300.435(c)(2)(i)(B), a Notice of Availability and a brief description of the ESD has been published in the local newspaper.


**X. AUTHORIZING SIGNATURE**

I have determined the remedy for the DER and FSR sites, as modified by this ESD is protective of human health and the environment, and will remain so provided the actions presented in this report are implemented as described above.

This ESD documents the significant changes related to the remedy at the DER and FSR Superfund sites. The EPA selected these changes with the concurrence of the ODEQ.

U.S. Environmental Protection Agency

By: 

 Samuel Coleman, P.E.  
Director  
Superfund Division

Date: 11/19/06