EPA Superfund
Explanation of Significant
Difference for the
Record of Decision:

Odessa Chromium I Superfund Site
Ector County, Texas
10/8/99

144342

EXPLANATION OF SIGNIFICANT DIFFERENCE

I. INTRODUCTION

Site Name and Location:

Odessa Chromium I Superfund Site
Odessa, Ector County, Texas

Lead and Support Agencies:

Texas Natural Resource Conservation Commission (TNRCC) -- Lead Agency
U.S. Environmental Protection Agency (EPA) -- Support Agency

Statute which requires Explanation of Significant Difference (ESD):

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 117(c) and National Oil and Hazardous Substances Contingency Plan (NCP), Section 300.435(c)(2)(i).

Purpose of ESD:

The purpose of this ESD is to acknowledge the addition of ***in-situ treatment*** to the remedial action to address residual chromium contamination in the soil and aquifer. The delay in achieving timely cleanup goals at the site required the TNRCC to propose and EPA to add this treatment to the remedial action described in the March 18, 1988, Record Of Decision (ROD). Circumstances that gave rise to the need for this ESD include:

- The site was estimated to have a four-year duration or less in operating the ground water extraction system; however, after in excess of an additional year of extended operation at the site, remediation goals have still not been achieved at the site.

- The Lead Agency, TNRCC, proposed and, with EPA's approval, conducted an experimental in-situ treatment in a three-step process in December 1998 and January 1999. These well and leach field results proved highly successful in chromium concentration reduction, thereby providing technical evidence that accelerated achievement of the remediation goals was attainable with the addition of the in-situ treatment to the ROD.

Administrative Record:

This ESD will become part of the Administrative Record of the Odessa Chromium I Superfund Site. The administrative record is available to the public for review during regular business hours at the following three locations. Advance scheduling to view records is requested:

U.S. Environmental Protection Agency
Region 6
12th Floor Library
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-6427, or
(214) 665-6424

Texas Natural Resource Conservation Commission
12100 Park 35 Circle
Building D, Room 190
Austin, Texas 78753
(512) 339-2920

Ector County Library
321 West 5th Street
Odessa, Texas 79761
(915) 332-0633

Permian Basin Regional Planning Commission
2910 La Force Blvd.
Midland International Airport
Midland, Texas 79711
(915) 563-1061

II. SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

The Odessa Chromium I Superfund Site (site) is located and bounded approximately by 48th Street to the north, West County Road to the east, 43rd Street to the south, and one-half block west of Brazos to the west. The Record of Decision (ROD), signed on March 18, 1988, requires ground water recovery followed by electrochemical treatment.

The treatment plant building location is 4318 Brazos Street, and all wells on the site are located in the Trinity Zone Aquifer. The added in-situ treatment is to accelerate and achieve cleanup. Because of higher levels of site chromium contamination and being in the deep Trinity aquifer, the engineer's

estimate for this ESD includes three in-situ treatments and continuing periods of pump and treat operations to achieve remediation goals.

Remedy set forth in the Record of Decision:

The Record of Decision for the Odessa Chromium I Site requires the following actions to address the chromium contaminated ground water:

- Demolition and disposal of building at 4318 Brazos;
- Extraction of contaminated groundwater from the Trinity Aquifer;
- Electrochemical treatment of groundwater which exceeds the Primary Drinking Water Standard for Chromium;
- Reinjection of treated groundwater into the Trinity Aquifer; and
- Monitoring of the site for a minimum of 30 years.

III. DESCRIPTION OF THE SIGNIFICANT DIFFERENCE AND THE BASIS FOR THE DIFFERENCE

This ESD adds one component, in-situ treatment, to the original remedy. The actual decrease in chromium concentrations, when compared to the Remedial Investigation (RI) scheduled decrease, was due to the following significant differences:

- Residual chromium [Cr(VI)] contamination in the aquifer was not as responsive to the pump and treat operations as predicted. The following reasons are the basis for this occurrence:

  (1) Cr (VI) was evident in the vadose zone during excavation of the treatment plant slab footings at the site. Therefore; the Cr (VI) is likely present in the vadose zone at greater depths. The RI was limited in scope and evidently missed localized deposits of Cr (VI) in the soils. For this reason, a leach field was installed at the site.

  (2) The initial characterization of the extent of contamination exceeding the remedial goal was incomplete; therefore, the extent of the Cr (VI) contamination in the aquifer was greater than had been estimated.

  (3) There is also the likelihood that Cr (VI) distribution within the plume contained higher concentrations that were not identified in the original RI.

- The in-situ treatment being used is ferrous sulfate heptahydrate, commercial grade $FeSO_47H_2O$ with hydrochloric acid added to the solution to inhibit oxidation of the Fe(II) solution. Implementation of the in-situ treatment accelerates the achievement of the remediation goals as the treatment injects the ferrous sulfate directly into the contaminated plume. The additional benefits are its usage provides less expenditure of funds and appreciable decrease in time to achieve the remediation goal and thus accelerates the protectiveness of Trinity Aquifer usage. The accelerated protectiveness of the Trinity Aquifer usage coupled with the additional benefits of less expenditure and time reductions in achieving remediation goals have been estimated by the Site Engineer as follows:

  (1) The remaining contaminated wells at Odessa Chromium I are four recovery wells (RW-2, RW-4, RW-6, RW-102) plus one monitoring well (MW-111), all of which are screened in the deep Trinity aquifer. The pumping cost is approximately $492,500 per year to operate. Pump and treat operations are estimated to continue at the earliest until November 2000, to achieve remediation goals without in-situ treatment. The total costs to conduct future treatment, without in-situ treatment, would be a minimum of $738,750 to achieve the remediation goals.

  (2) The ferrous sulfate treatment plan proposes to treat the five remaining wells, extend the leach field, and continue treatment of the leach field at the Odessa Chromium I site. Treatment of each well is estimated to cost $5,000, and treatment and the extension of the leach field are estimated to cost $6,000. The cost of each future ferrous sulfate treatment would be $31,000. The estimated time frame for achieving the remediation goals is November 1999. The cost of continued operation of the pump and treat system to that date would be $246,250, and the combined cost of three treatments with ferrous sulfate treatment would be $339,250. This approach lessens project costs by $399,500. This does not include lower costs to EPA and TNRCC for project oversight and management, travel costs, and the contractor's lower costs for operation and maintenance and potential change orders.

IV. SUPPORT AGENCY COMMENTS

The Texas Natural Resource Conservation Commission proposed in-situ treatment and requested this ESD, as evidenced by the attached letter dated March 16, 1999.

V. PUBLIC PARTICIPATION ACTIVITIES

This ESD will become part of the Administrative Record for the Odessa Chromium I Superfund Site. Because there has been little community interest in the site, this ESD will be made available to the

public but will not be distributed for public comment. For additional information regarding this ESD, please contact the EPA Project Manager for the Odessa Chromium I Superfund Site:

Ernest R. Franke, P.E., R.P.L.S.
Remedial Project Manager
U.S. Environmental Protection Agency
1445 Ross, Avenue (6SF-AP)
Dallas, Texas 75202-2733
(214) 665-8521

VI. STATUTORY DETERMINATIONS

Considering the new information developed during the remedial action and the resulting changes from the selected remedy described in the ROD, the EPA believes that the remedy remains protective of human health and the environment and does so at an additional benefit of time and cost reduction. The revised remedy utilizes permanent solutions to the maximum extent practicable for this site and is time effective and cost effective. The treatment complies with the NCP and other Federal and State requirements that are applicable or relevant and appropriate to this remedial action.

10/25/99

Gregg A. Cooke
Regional Administrator
U.S. Environmental Protection Agency
Region 6

Date