

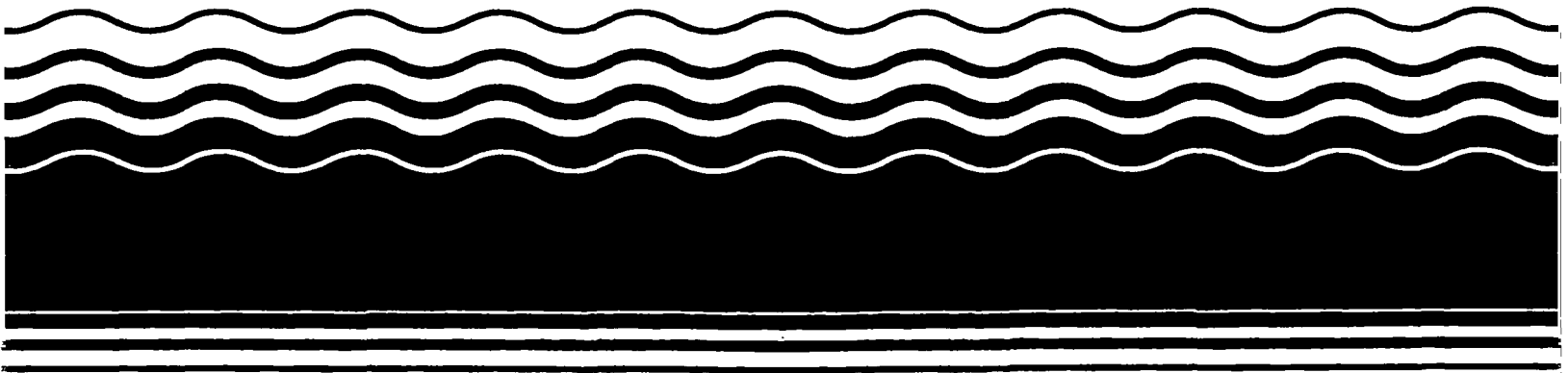
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March 1999

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

**Petrochem Recycling Corp./
Ekotek Plant
Salt Lake City, UT
12/9/1997**





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

**999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466**

EXPLANATION OF SIGNIFICANT DIFFERENCES

**Petrochem Recycling Corp./Ekotek, Inc., Superfund Site
Salt Lake County, Salt Lake City, Utah**

December 1997



Printed on Recycled Paper

**PETROCHEM RECYCLING CORP./EKOTEK, INC., SUPERFUND SITE
EXPLANATION OF SIGNIFICANT DIFFERENCES
DECEMBER 1997**

I. INTRODUCTION

This Explanation of Significant Differences (ESD) is being issued by the U.S. Environmental Protection Agency (EPA) to modify certain remediation criteria established in the Record of Decision signed by EPA on September 27, 1996 (ROD), and certain other components of the ROD, as described herein, which will be implemented at the Petrochem Recycling Corp./Ekotek, Inc., Superfund Site, located in Salt Lake City, Utah (Petrochem Site or Site).

The changes to the ROD have been made as a result of new information that EPA received subsequent to the issuance of the ROD. These changes do not fundamentally alter the site-wide remedy presented in the ROD. The site-wide remedy for the Petrochem Site remains protective of human health and the environment. This ESD is issued by EPA, the lead agency at the Site, after consultation with the Utah Department of Environmental Quality (UDEQ), the support agency at the Site.

The modifications to the remedy described in this ESD do not alter the selected remedy in any fundamental aspect regarding scope, cost, or performance. In accordance with Sections 117(c) and 121 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund), as amended, 42 U.S.C. Section 9601, *et seq.* ("CERCLA"), and the regulations at 40 C.F.R. Section 300.435(c)(2)(I), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), this ESD has been prepared for the following reasons:

- to provide the public with an explanation of the nature of the changes to the remedy;
- to summarize the circumstances that led to the changes to the remedy; and
- to affirm that the revised remedy complies with all statutory requirements.

This document presents a summary of the changes to the selected remedy and a synopsis of information on the Site. The Administrative Record, which contains the ESD and this documentation supporting the revisions, is available for public review at the locations indicated at the end of this report.

II. SITE HISTORY AND BACKGROUND

a. Location

The Petrochem/Ekotek Site (the Site) is located in Township 1 North, Range 1 West, Section 23, and occupies approximately seven acres in an industrial corridor in the northern section of Salt Lake City, Utah.



b. Operational History

The Site was originally owned and operated as an oil refinery by O. C. Allen Oil Company, from 1953 to 1968. In 1968, Flinco, Inc. purchased the facility and operated the refinery until 1978. During that time Flinco changed its name to Bonus International Corp. In 1978 Axel Johnson, Inc., acquired the facility and operated it through its Delaware-based subsidiary, Ekotek, Inc. At this time, Ekotek, Inc. converted the Site into a hazardous waste storage and treatment, and petroleum recycling facility. Steven Self and Steve Miller purchased the site from Axel Johnson, Inc. in 1981 and reincorporated as Ekotek Incorporated, a Utah corporation. From 1980 to 1987, the facility operated under Resource Conservation and Recovery Act (RCRA) interim status, and received a hazardous waste storage permit in July 1987 for a limited number of these activities. Ekotek, Inc. declared bankruptcy in November of 1987. Petrochem Recycling Corp. leased the facility in 1987 from Ekotek, Inc. and continued operations until February 1988. The Ekotek bankruptcy estate released the property (Parcel Numbers 0823407001 and 0823407002) pursuant to state statute, Utah Code Annotated Section 59-2-1336. Delinquent County taxes attributed to the property have not been paid. Ownership of the Site is uncertain at present following the bankruptcy proceedings of Ekotek Incorporated, the owner of the Site in 1989. A transfer of title to the property to either the county or a potential purchaser may occur as a result of a final tax sale. The tax sale must be initiated within four and a half years after the initial date of the delinquent taxes.

c. History of Site Investigations

In 1980, Ekotek, Inc., filed a RCRA Part A permit application and achieved Interim Status. A RCRA Part B permit was issued in 1987 to Ekotek, Inc. Site operations were shut down in February 1988, after the issuance to Petrochem Recycling Corporation of a Notice of Violation by the Utah Bureau of Solid and Hazardous Waste and by the Bureau of Air Quality. In November 1988, Region VIII EPA Emergency Response Branch initiated a removal action at the site.

Sources of contamination at the Site included approximately 60 aboveground tanks, 1200 drums and 1500 smaller containers, three surface impoundments, an underground drain field, numerous piles and pits of waste material, underground tanks, incineration furnaces, and contaminated soils. Contaminants associated with on-site sources include a wide range of organic substances such as chlorinated solvents and other volatile organic compounds, polynuclear aromatic hydrocarbons, phthalates, pesticides, Aroclor 1260, dioxin and furans. Heavy metals are also present in on-site sources.

On August, 2, 1989, an Administrative Order on Consent (AOC) for Emergency Surface Removal (Docket CERCLA-VIII-89-25) was issued to 27 Potentially Responsible Parties (PRPs) to undertake actions to clean up the Site. These PRPs operated as members of a voluntary association termed the Ekotek Site Remediation Committee (ESRC). As part of the emergency response, the ESRC removed surface and underground storage tanks, containers, contaminated sludges, pooled liquids, and processing equipment from the Site.



EPA began site assessment field operations in November 1989, at which time all contaminant sources discussed above were present on-site. Pursuant to section 105 of CERCLA, 42 U.S.C. Section 9605, EPA proposed the Site for listing on the National Priorities List (NPL), set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on July 29, 1991; and listed the Site on the NPL promulgated on October 14, 1992; 57 Fed. Reg. 47180, 47200 (October 14, 1992). Only one operable unit has been designated for the Site.

An Administrative Order on Consent (AOC) for the performance of the Remedial Investigation/Feasibility Study (RI/FS) was signed in July 1992 (Docket No. CERCLA (106) VIII-92-21). Members of the ESRC were Respondents for the RI/FS AOC. The Phase I field investigation was undertaken from December 1992 to March 1993 and Phase II investigations were conducted from August to October 1993. A final RI report was issued in July 1994 and the final FS report was issued in January 1995. Two addenda to the FS were submitted on February 24, 1995 and April 7, 1995.

The hazardous substances present at the site and the data or information documenting a release or threatened release of a hazardous substance at or in connection with the Site is described in the Administrative Record for the Site, including but not limited to the RI Report. The release migration, including present and potential future pathways, possible or known routes of exposure of the hazardous substances, population at risk, and threats to human health and the environment are described in the Administrative Record for the Site, including but not limited to the Baseline Risk Assessment for the Site.

Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action on July 19, 1995, in two major local newspaper of general circulation. EPA provided extensive opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Ecosystems Protection and Remediation Assistant Regional Administrator based the selection of the response action.

The decision by EPA on the remedial action to be implemented at the Site is embodied in a final Record of Decision (ROD) executed on September 27, 1996. The State had a reasonable opportunity to review and comment on the remedial action and the ROD. The ROD includes EPA's explanation for any significant differences between the final plan and the proposed plan as well as a responsiveness summary to the public comments received. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b). The ROD is supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action.

Since February, 1997, EPA and the ESRC representatives have been in negotiations for an agreement to implement the remedy selected in the ROD. This agreement, in the form of a consent decree for remedial design and remedial action (RD/RA), if agreed upon, will be filed in the U.S. District Court for Utah. Since the time of the ROD, EPA has obtained new information which has resulted in the need for this ESD. The consent decree would provide for implementation of the remedy selected in the ROD including the modifications of this ESD.



III. DESCRIPTION OF THE ROD

The purpose of the remedy is to eliminate the pathway of direct exposure to soils of an industrial worker through excavation and offsite disposal of hot spot soils; containment onsite of low-level contaminated soils under 42-inch soil cap; eliminate partitioning of LNAPL to the ground water through removal and treatment of LNAPL; and eliminate the potential future ingestion of contaminated drinking water through intrinsic remediation/attenuation of the ground water.

The components of the selected remedy include: Remove/Dispose Hot Spot Soils; Consolidate/Cap Soils that Exceed Soil Performance Standards; Partial Removal/Disposal of Soil and Buried Debris and Cap Remaining Debris; Remove/Treat 100% LNAPL; Intrinsic Remediation of Ground Water; and Access and Land Use Restrictions for the Petrochem/Ekoteck Site.

The changes documented in this ESD are based on new information that EPA received subsequent to the issuance of the ROD. EPA determined that the information supports the need to correct and/or clarify certain aspects of the remedy described in the ROD. These changes do not fundamentally alter the overall approach of the site-wide remedy or any individual component of the site-wide remedy. The changes to the performance standards in this ESD may alter the amount of soil which exceeds the Hot Spot performance standards and which must be sent for offsite disposal as well as alter the amount of soil consolidated and contained onsite under the 42 inch cap. The volumes specified in the ROD were estimates. The actual volumes will be determined during the implementation of the remedy.

IV. SIGNIFICANT DIFFERENCES TO THE REMEDY

The significant differences between the remedy described in the 1996 ROD and in this ESD are:

1. The Soil Performance Standard for 2,3,7,8,-TCDD(TEF) will be revised from 1.86E-06 mg/kg to 3.7E-05 mg/kg for cancer risk of 1E-06 (site wide) and the Soil Hot Spot Performance Standard will be revised from 0.186 ug/kg to 3.7 ug/kg for cancer risk of 1E-04 (hot spot);
2. The Soil Performance Standard for PCBs will be revised from 0.15 mg/kg to 2.7 mg/kg (ppm);
3. The Soil Hot Spots Performance Standard for PCBs will be revised from 10 mg/kg to 25 mg/kg (ppm); and
4. The Contingency Measures section of the ROD will be revised to permit, as an alternative to discharge to the POTW, the discharge of ground water to re-injection wells or to a surface water/storm drain via the substantive requirements of a UPDES permit.

Only those changes described in Section IV, Paragraphs 1 through 4 above are being made to the selected remedy described in the 1996 ROD. All other aspects of the selected remedy documented



in the 1996 ROD remain the same. A more detailed description of the revised components to the remedy follows.

V. DETAILED DESCRIPTION OF CHANGES TO THE ROD

1. Soil Performance Standard for 2,3,7,8,-TCDD(TEF).

The algorithms, exposure assumptions, and toxicity values used in the calculation of the remediation levels for 2,3,7,8,-TCDD(TEF) [dioxin] were re-examined. It was determined that a numerical entry error occurred during the original calculation of the dioxin performance standard. New values, 0.037 ug/kg (3.7E-05 mg/kg) for cancer risk of 1E-06 (site wide) and 3.7 ug/kg (3.7E-03 mg/kg) for cancer risk of 1E-04 (hot spots) were calculated based upon the same equations and assumptions in the August 2, 1994 Baseline Human Health Risk Assessment for the Petrochem Site for the commercial and industrial worker for exposure to soil via ingestion and dermal absorption, but with the correct numerical entries.

The revised Soil Performance Standard (SPS) for TCDD is derived based upon the following formula:

$$\text{SPS} = \frac{\text{TR} \cdot \text{BW} \cdot \text{AT} \cdot 365 \text{ days/year}}{\text{EF} \cdot \text{ED} \cdot [(\text{SF}_o \cdot 1\text{-}06 \cdot \text{IR}) + (\text{SF}_o \cdot 0.9 \cdot 1\text{-}06 \cdot \text{SA} \cdot \text{AF} \cdot \text{ABS})]}$$

TR (target risk) 1E-06

BW (body weight) 70 kg

AT (averaging time) 70 years

EF (exposure frequency) 250 days/year

ED (exposure duration) 25 years

SF_o (slope factor oral) 1.5E+05 mg/kg-day⁻¹

1E-06 kg/mg (conversion factor)

IR (ingestion rate for soil) 50 mg/day

0.9 (adjustment factor for conversion from administered to absorbed dose for TCDD)

SA (Skin surface area) 3100 cm²

AF (Soil to skin adherence factor) 0.016 mg/cm²

ABS (absorption factor) 0.03

The SPS formula augments the risk based concentration (RBC) formula utilized in the risk assessment by incorporating an adjustment factor to convert administered to absorbed dose. Additionally, a default value of 0.87 was utilized in the risk assessment for ABS (fractional absorption factor). The default value was updated to 0.03 as per Dermal Exposure Guidance, (EPA/600/8-91/011E, January 1992). Lastly, based upon a recent update to the Exposure Factors Handbook (EPA/600/P-95/002Ba, August 1996) the AF (Soil to skin adherence factor) was updated from 1 to 0.016 mg/cm²-day.



2. Soil Performance Standard for PCBs.

EPA relies upon the Agency's Integrated Risk Information System (IRIS) for calculation of risk-based cleanup concentrations. IRIS, an electronic data base containing EPA's information on human health effects, was revised for polychlorinated biphenyls (PCBs) on June 1, 1997. Specifically, the slope factor for PCBs was revised subsequent to the release of the ROD, and several new slope factors (including those for the central tendency exposure condition) of PCBs became available. The slope factor is the result of application of a low-dose extrapolation procedure and is presented as the risk per mg/kg/day. EPA recommends the use of a new slope factor of 2.0 per mg/kg-day, updated from 7.7 mg/kg-day, for the reasonable maximum exposure condition for PCBs in soil that are high risk and persistent. This slope factor is appropriate for deriving Soil Performance Standards for Aroclors 1260 and 1254 (PCB types found at Site) at the Site because these chemicals are high risk and persistent and the medium of exposure is in soil. The revised Soil Performance Standard of 2.7 mg/kg is based upon the same equations and assumptions in the August 2, 1994 Baseline Human Health Risk Assessment for the Petrochem Site for the commercial and industrial worker for exposure to soil via ingestion and dermal absorption, but utilizing in those equations the new slope factor and the updated AF (Soil to skin adherence factor) detailed in Section V.1..

3. Soil Hot Spot Performance Standard for PCBs

EPA carefully reviewed its *Guidance on Remedial Actions for Superfund Sites with PCBs Contamination*, OSWER Directive 9355.4-01, before making its decision to change PCB cleanup levels at the Petrochem Site. The *Guidance* describes how to develop remedial alternatives that are consistent with PCB-related Applicable or Relevant and Appropriate Requirements (ARARs) and "to-be-considered" criteria.

The guidance states that, for sites in *industrial* areas, cleanup actions should be considered when PCB levels range from 10 to 25 parts per million (ppm). Among the reasons for choosing 25 ppm are:

- there is less access in industrial areas than in other areas and, therefore, less frequency of exposure and less risk posed by the PCBs; and
- a 42-inch cap that covers PCB-containing soils further reduces access to the contaminants.

This cleanup level is consistent with the PCB Spill Policy, which recommends a cleanup level of 25 to 50 ppm for sites in *industrial* or other *reduced access* areas." The cleanup level is also consistent with the PCB guidance document. At the Petrochem Site, the PCB level remaining on site will not exceed 25 ppm.

4. Groundwater Contingency Measures: Discharge of Ground Water.

At the time of the ROD it was assumed that the POTW would be able to accept treated ground water



generated from either the containment and/or the arsenic remediation contingency plans, if invoked. Based upon potential capacity issues at the POTW, an additional alternative may be considered permitting treated ground water to also be discharged to the underlying aquifer via re-injection wells or to a surface water/storm drain. These alternative measures for disposal of treated ground water would be evaluated at the time EPA determines they are needed, depending on whether either or both of the groundwater contingency measures (for containment and for arsenic) are invoked and if, in fact, capacity issues do exist at the POTW for the amounts of ground water being disposed. Discharge to a surface water/storm drain would comply with the requirements of a UPDES permit.

These additional components must also comply with all applicable and relevant and appropriate requirements (ARARs), pursuant to Section 121 of CERCLA. In addition to the ARARs set forth in the ROD, these revised activities must comply with Section 3020 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901, et seq., which bans the injection of contaminated materials into drinking water formations unless specified conditions are met, designated by EPA as a relevant and appropriate requirement; and the Underground Injection Control program regulations at 40 C.F.R. Parts 144-147, which establish standards for construction and operation of injection wells and provide for the protection of underground sources of drinking water by ensuring that injected waters meet MCLs and risk based concentrations. The UIC regulations are designated by EPA as applicable to the activity described above.

VI. SUMMARY OF STATE COMMENTS AND AVAILABILITY OF ADMINISTRATIVE RECORD

UDEQ has been provided with the opportunity to review and comment on this ESD and the documents that serve as the basis for this ESD. UDEQ commented to EPA on these documents, and supports the changes to the Soil Performance Standard for 2,3,7,8-TCDD(TEF) and the Soil Performance Standard for PCBs. UDEQ, however, does not support the change to the Soil Hot Spot Performance Standard for PCBs based, in part, on its interpretation of EPA's PCB Spill Cleanup Policy. Finally, UDEQ supports the ground water contingency measure change. UDEQ's comments, dated October 30, 1997, can be found in the Administrative Record for the Site.

Documents referenced within this ESD are part of the Administrative Record for the Petrochem/Ekoteck Inc. Site. The complete administrative record for the Site is available for public review at the following locations:

EPA Superfund Records Center
999 18th Street, Fifth Floor
Denver, Colorado 80202
Hours: Monday-Friday 8:00am - 4:30pm
Telephone: (303) 312-6473

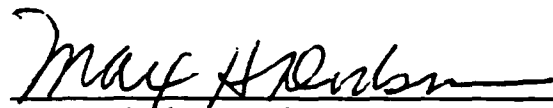
Mr. Walter Jones
Marriott Library
Western Americana and Special Collections
University of Utah
Salt Lake City, UT 84122
Telephone: (801) 581-8863



VII. AFFIRMATION OF STATUTORY REQUIREMENTS

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA, in consultation with UDEQ, believes that the remedy remains protective of human health and the environment, complies with Federal and State requirements that are both applicable or relevant and appropriate to this remedial action or involves appropriate waivers of these requirements, and is cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for the Site.

VIII. APPROVAL



Max H. Dodson, Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

12/9/97
Date

