

**PB96-963126
EPA/ESD/R01-96/127
March 1997**

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

**Davis Liquid Waste,
Smithfield, RI
7/19/1996**



**DECLARATION FOR THE
EXPLANATION OF SIGNIFICANT DIFFERENCES
FOR CHANGING THE METHOD OF TREATING CONTAMINATED SOILS AND WASTES
FROM ON-SITE INCINERATION TO ON-SITE THERMAL DESORPTION**

SITE NAME AND LOCATION

Davis Liquid Waste Superfund Site
Smithfield, Rhode Island

STATEMENT OF PURPOSE

This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences ("ESD") for the Davis Liquid Waste Superfund Site ("Site") in Smithfield, Rhode Island.

STATUTORY BASIS FOR ISSUANCE OF THE ESD

Under Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), if EPA determines that the remedial action being undertaken at a site differs significantly from the Record of Decision ("ROD") for that site, EPA shall publish an explanation of significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made. The National Contingency Plan (NCP), 40 C.F.R. §300.435(c), and EPA guidance (Office of Solid Waste and Emergency Response ["OSWER"] Directive 9355.3-02), indicate that an ESD, rather than a ROD amendment, is appropriate where the changes being made to the remedy are significant but do not fundamentally alter the overall remedy with respect to scope, performance, or cost. Because the adjustments to the remedy selected in the ROD are significant but do not fundamentally alter the overall remedy with respect to scope, performance, or cost, the issuance of an ESD is appropriate in this case.

In accordance with Section 300.435(c) of the NCP, this ESD and supporting documentation will become part of the Administrative Record which is available for public review at both the EPA Region I Record Center in Boston, Massachusetts and the Town Clerk's Office in Smithfield, Rhode Island.

OVERVIEW OF THE ESD

Based on the information and data generated since the issuance of the September 29, 1987, ROD, one portion of the remedy as described in the ROD has been modified:

Excavation of Contaminated Soils and Wastes and On-site Incineration

The ROD calls for the excavation and on-site incineration of approximately 25,000 cubic yards of contaminated soils and wastes. The ROD also evaluated the use of thermal desorption for cleaning up the soils and waste at the Site. Thermal desorption was not selected because at the time of the ROD there was limited information available on the cost and full-scale performance of this technology. Since the ROD there has been extensive information gathered on the use and performance of full-scale thermal desorption units at other Superfund sites. The technology has been shown to be very effective in removing volatile organic compounds and capable of achieving the cleanup levels proposed for the Site. Based on the successful performance of this technology and updated cost information, EPA has selected on-site thermal desorption as the means of treating contaminated soils and waste at the Site. The use of thermal desorption will be protective of human health and the environment and will significantly reduce the overall cost of implementing this component of the overall Site remedy.

DECLARATION

For the foregoing reasons, by my signature below, I approve the issuance of an Explanation of Significant Differences for the Davis Liquid Waste Superfund Site in Smithfield, Rhode Island, and the changes stated therein.

July 19, 1996
Date

Linda M. Murphy
Linda M. Murphy, Director
Office of Site Remediation & Restoration

Davis Liquid Waste Superfund Site

Final

Explanation of Significant Differences

**for Changing the Method of Treating Contaminated Soils and Wastes
from On-Site Incineration to On-Site Thermal Desorption**

July 1996

Prepared by EPA Region I

TABLE OF CONTENTS

I.	INTRODUCTION	1
	A. Site Name, Location, and Description	1
	B. Identification of Lead and Support Agencies	2
	C. Citation of Legal Authority that Requires the ESD	2
	D. Summary of Significant Differences	2
	E. Availability of Documents	3
II.	SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, RESPONSE HISTORY, AND SELECTED REMEDY	4
	A. Site History and Contamination Problems	4
	B. Response History	5
	C. Summary of the Remedy as Originally Described in the ROD	6
III.	DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THOSE DIFFERENCES	7
	A. Summary of the Information that Gave Rise to the Significant Differences	7
	B. Proposed Change in Technology	9
IV.	SUPPORTING AGENCY COMMENTS	10
V.	AFFIRMATION OF THE STATUTORY REQUIREMENTS	10
VI.	PUBLIC PARTICIPATION ACTIVITIES	10
APPENDIX A	RI DEM Concurrence on the Draft ESD	
APPENDIX B	Response to Comments Received on the Draft ESD	
APPENDIX C	Comments Received on the Draft ESD	

EXPLANATION OF SIGNIFICANT DIFFERENCES
DAVIS LIQUID WASTE SUPERFUND SITE
SMITHFIELD, RHODE ISLAND

I. INTRODUCTION

This document constitutes a proposed Explanation of Significant Differences ("ESD") between the remedial actions as specified in the Record of Decision for the Davis Liquid Waste Site signed by the Regional Administrator on September 29, 1987 ("ROD") and those now planned under this proposed ESD. It also documents the conditions that gave rise to the need for this ESD.

A. Site Name, Location, and Description

Site Name: Davis Liquid Waste Superfund Site

Site Location: Smithfield, Rhode Island

Site Description: The Davis Liquid Waste Superfund Site (the "Site") is located on the property of William and Eleanor Davis in a semi-rural residential section of the Town of Smithfield, Providence County, Rhode Island. The approximately 10 acre site served as a disposal location for a variety of liquid and solid wastes containing hazardous substances during the 1970's and early 1980's. Mr. Davis permitted the dumping of the contents of drums and tank trucks into unlined lagoons and seepage pits at the Site. Periodically, contaminated soils were excavated and dumped at several locations on-site and covered with available soil. The Site and adjacent areas have also served as a staging and disposal location for numerous discarded tires. Estimates of the number of tires being stored on the property range from approximately 10 to 30 million.

Site investigations by the State of Rhode Island ("State") and the United States Environmental Protection Agency ("EPA") in the late 1970's and early 1980's helped provide sufficient information to have the Site placed on the Interim National Priorities List ("NPL") in June of 1982. These initial studies identified that contaminants from the Site were impacting nearby groundwater and surface water. Some contamination was detected in the private wells of nearby residences who depend on the groundwater as their sole source of potable water. On December 31, 1982, EPA placed the Site on the "Proposed NPL" of hazardous waste sites, and listed it as a final NPL site in September of 1983.

The Site is bounded on the east and west by forested uplands, and on the north and south by wetlands and swamp areas. Land within one mile of the Site is semi-rural in nature and is dominated by low density residential dwellings. Residential development in

**Explanation of Significant Differences
Davis Liquid Waste Superfund Site
July 1996**

the area has increased in the last five to ten years and has included the construction of larger subdivisions as well. Additional description of the Site can be found in the ROD.

B. Identification of Lead and Support Agencies

Lead Agency: United States Environmental Protection Agency

Contact: Neil Handler
Remedial Project Manager
(617) 573-9636

Support Agency: Rhode Island Department of Environmental
Management, Division of Site Remediation
("RI DEM")

Contact: Matt DeStefano
Project Manager
(401) 277-3872 Ext. 7141

C. Citation of the Legal Authority that Requires the ESD

Under Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), 42 U.S.C. § 9617(c), if EPA determines that the remedial action being undertaken at a site differs significantly from the Record of Decision for that site, EPA shall publish an explanation of significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made. The National Contingency Plan (NCP), 40 C.F.R. §300.435(c), and EPA guidance (Office of Solid Waste and Emergency Response ["OSWER"] Directive 9355.3-02), indicate that an ESD, rather than a ROD amendment, is appropriate where the changes being made to the remedy are significant but do not fundamentally alter the overall remedy with respect to scope, performance, or cost. Because the adjustments to the remedy selected in the ROD are significant but do not fundamentally alter the overall remedy with respect to scope, performance, or cost, the issuance of an ESD is appropriate in this case.

D. Summary of Significant Differences

EPA issued this proposed ESD because of changes in the remedy selected in the ROD for the cleanup of contamination in soil. Since the ROD there has been extensive information gathered on the use and performance of full-scale thermal desorption units at

other Superfund sites. The technology has proven very effective in treating soils contaminated with volatile organic compounds and has achieved cleanup levels below those identified for the Site. Based on the successful performance of this technology and updated cost information, EPA has selected on-site thermal desorption as the means of treating contaminated soils and waste at the Site. The use of thermal desorption will be protective of human health and the environment and will significantly reduce the overall cost of implementing this component of the overall Site remedy. The ROD calls for the excavation and on-site incineration of contaminated soils and wastes which are above the total volatile organic concentration of two (2) parts per million ("ppm"). EPA through this ESD still proposes the excavation and on-site treatment of contaminated materials to the levels identified in the ROD, but now proposes that treatment be achieved using a different thermal technology, thermal desorption.

Because thermal desorption, like incineration, removes contaminants through a thermal process, the use of thermal desorption does not fundamentally alter the remedy selected in the ROD.

E. Availability of Documents

This ESD and supporting documentation shall become part of the Administrative Record for the Site. Information pertinent to EPA's decision making process in publishing this proposed ESD is available for public review at information repositories at the following locations:

EPA Records Center
90 Canal Street, First Floor
Boston, Massachusetts
(617) 573-5729

Hours:

Mon-Fri: 10:00 a.m. - 1:00 p.m. and 2:00 p.m. - 5:00 p.m.

Smithfield Town Clerks Office
64 Farnum Pike
Smithfield, Rhode Island
(401) 233-1000

Hours:

Mon-Fri: 9:00 a.m. - 4:00 p.m.

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

A. Site History and Contamination Problems

During the 1970's and the early 1980's, site owner William Davis used the Site to dispose of a variety of liquid and solid wastes containing hazardous substances. Mr. Davis permitted the dumping of the contents of drums and tank trucks into unlined lagoons and seepage pits at the Site. The proximity of these disposal areas to the water table and surrounding wetland areas allowed contaminants to migrate and infiltrate into the surface water and groundwater. Periodically, contaminated soils were excavated and dumped at several locations on-site and covered with available soil. Because very few records exist concerning the waste products disposed of and the disposal practices, it is difficult to estimate the volume of waste disposed of at the Site. General categories of wastes believed to have been disposed of at the Site include solvents, inks, laboratory pharmaceuticals, manufacturing residues, miscellaneous chemical processing wastes, and waste oils.

Site investigations by the State and EPA in the late 1970's and early 1980's revealed the presence of high levels of organic contamination in the surface water exiting the Site and in some of the nearby residential wells. The contaminants detected include tetrachloroethylene, chloroform, trichloroethylene, and benzene. These investigations led to the proposed listing of the Site on the NPL in 1982 and final listing of the Site in September of 1983. After listing, the State took the initial lead in investigating the nature and extent of contamination at the Site. In order to assist the State with access issues, EPA took over the lead for project management of the Remedial Investigation/Feasibility Study in October, 1984.

The Remedial Investigation ("RI"), which was completed in November of 1986, identified extensive contamination of the soil, groundwater, sediment, and surface water at the Site. The RI also identified areas of the Site where drums and other types of containerized wastes were buried. Contamination of each media consisted primarily of volatile organic compounds including tetrachloroethylene, trichloroethylene, ethylbenzene, benzene, toluene, and xylene.

Contaminants were found in both the shallow overburden aquifer and the deeper bedrock aquifer. Both of these aquifers were used by residents near the Site as their sole source of potable water.

Currently no public water supply is available. The State of Rhode Island has been providing bottled water to some of the residents near the Site since the early 1980's.

B. Response History

Although the disposal activities of the property owner, Mr. Davis, are believed to have ended by the early 1980's, there were still numerous drums being stored at the Site at the time the RI was initiated in 1984. EPA determined that many of these drums, which were in various stages of decay, still contained hazardous substances. To address these drums, EPA initiated a removal action in August, 1985. The removal action consisted of the sampling, analysis, packing, and disposal of approximately 600 intact and crushed drums.

The remedy identified in the ROD consists of three primary components: 1) an alternative water supply for residents affected or potentially affected by groundwater contamination from the Site, 2) an on-site groundwater extraction and treatment system, and 3) the excavation and on-site incineration of contaminated soils and wastes. In July, 1988, EPA initiated work on the construction of the alternative water supply. Most of the construction work, including the installation of the transmission mains, distribution mains, and a storage tank was completed as of September, 1990. To provide water to this new service area it was necessary for EPA to modify the Town of Smithfields' existing water system and design two new booster pump stations and renovate a third existing pump station. This design work was completed in August, 1995 and funding for construction was made available in March, 1996. The construction contract was awarded in June, 1996 and is expected to take approximately 15 to 18 months to complete once the notice to proceed is issued.

The design of the on-site groundwater extraction and treatment system is approximately 90% complete and is anticipated to be completed by the Fall of 1996. Design work for treatment of contaminated soils and wastes has been delayed because of the presence of tires stored over these areas.

The Site has been used by the property owner as a storage and staging area for discarded tires. Estimates for the number of tires being stored at the property range from approximately ten to thirty million. Approximately one-third of these tires are being stored over areas which EPA believes may contain contaminated soils. In December of 1994, the Superior Court of the State of Rhode Island issued an order requiring Mr. Davis to

**Explanation of Significant Differences
Davis Liquid Waste Superfund Site
July 1996**

begin removing tires from the Site. During the removal of tires in early 1995, Mr. Davis notified EPA and RI DEM that he had discovered approximately nine drums in various stages of decay. EPA and RI DEM sampled the drums and found that a number of them contained hazardous substances similar to those detected in the soil and groundwater at the Site during previous sampling activities. As a result the drums were disposed of through a removal action authorized by the EPA Regional Administrator in April of 1995.

C. Summary of the Remedy as Originally Described in the ROD

The ROD described in detail each of the alternatives evaluated for remediating the contamination at the Site and the chosen alternative for each contaminated media of the Site. The chosen remedial alternatives are summarized below.

Source Control Component - Excavation of approximately 25,000 cubic yards of raw waste and contaminated soils located in the unsaturated zone and treatment on-site in a mobile incineration facility. All soils and wastes with volatile organic concentrations above 2 ppm would be excavated and treated by incineration to reduce total volatile organic concentrations to below the 2 ppm cleanup level. Treated soils would be tested for EP toxicity. Those soils with concentrations that are below the EP toxicity levels would be used to back fill excavated areas. The soils with concentrations above the EP toxicity levels would be placed in a RCRA Subtitle C landfill on-site. The source control component of the remedy was anticipated to take one year to design and construct and two years of operation to treat the estimated 25,000 cubic yards of material.

Management of Migration Components - 1) The design and construction of an alternative water supply to serve those residents impacted by groundwater contamination from the Site, as well as those areas that are down gradient from the contaminated plume that could potentially be affected. The proposed project consists of a connection to the existing Town of Smithfield water supply system, requiring approximately 2,100 feet of transmission main, 21,000 feet of distribution mains, a storage tank, and a booster pumping station. The estimated population to be served ultimately is approximately 475 persons. 2) The active restoration of the overburden and bedrock aquifers contaminated with volatile organic compounds using on-site treatment involving air stripping and carbon adsorption and recirculation of treated water to the aquifer. Additional components of the treatment

train may address the removal of oils, floatable solids, and inorganic compounds. A cleanup level of 5 parts per billion has been established for benzene, trichloroethylene, and tetrachloroethylene. EPA estimated in the ROD that this target remediation level could be achieved within 5 to 10 years.

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THOSE DIFFERENCES

A. Summary of the Information that Gave Rise to Significant Differences

On-site low temperature soil treatment (e.g., thermal desorption) and on-site thermal destruction (e.g., incineration) were both evaluated as part of the detailed analysis for source control components in the April 1987, Feasibility Study (FS) for the Site and the ROD. The technologies were evaluated by EPA for their performance, technical reliability, implementability and constructability, safety, compliance with applicable or relevant and appropriate requirements (ARARs), and protectiveness of human health and the environment. Also given important consideration were the overall costs of each alternative.

The principal differences between these two technologies, as identified in the FS, was that incineration was given a higher rating for performance and reliability than thermal desorption (e.g., a rating of high versus medium). It appears that this difference in rating was based on the fact that at the time of the FS, the thermal desorption technology was still in its infancy and there was a limited amount of performance data available from full-scale operating systems.

Since the FS, thermal desorption has been widely used at Superfund sites to treat contaminated soils similar to those found at the Site. The performance data gathered from other sites since the FS has shown this technology to be very effective in removing volatile organic compounds and capable of achieving the cleanup levels proposed for the Site. The effectiveness of thermal desorption as well as the appropriateness of its use at a site such as the Davis Liquid Waste Site is further affirmed by the information and recommendations presented in the September 1993, OSWER Directive 9355.0-48FS Guidance on "Presumptive Remedies: Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soils" (EPA 540-F-93-048). The Presumptive Remedy Guidance identifies that for sites containing VOC-contaminated soil if the material is to be

excavated, than thermal desorption is the preferred technology for treatment.

EPA did consider as part of its development of the ESD the application of soil vapor extraction (SVE) at the Site. SVE, an in-situ treatment process, is one of the other technologies recommended in the Presumptive Remedy Guidance. Although SVE has been proven to be effective and appropriate to use at many Superfund Sites it was not believed to be the most appropriate technology to be used at this Site because of the presence of buried raw wastes, drums, and/or containers. These buried materials are not amenable to treatment using SVE. In order to ensure that these buried materials will stop contaminating the groundwater they must be excavated and treated and disposed of. The excavation and thermal desorption of these wastes provides a level of protectiveness and certainty which cannot be achieved at the Site by using SVE.

The other principal factor which at the time of the FS appears to have affected the selection of incineration over thermal desorption was cost. The FS identified that the total estimated present worth cost of on-site incineration and on-site low temperature soil treatment were \$14,912,000 and \$16,098,000 respectively. With the increased usage of thermal desorption since the FS, the cost of implementing this technology has decreased. As identified in the OSWER Guidance on Presumptive Remedies, the average cost per ton for treatment using thermal desorption is \$250 and incineration is \$400. Thus when the unit costs are multiplied by the estimated volume of material requiring treatment (e.g., 25,000 yd³ or 40,500 tons) thermal desorption could provide a savings of millions of dollars.

A Responsible Party for the Site, after petitioning EPA to reopen the administrative record, has completed additional pre-design work including a treatability study of the effectiveness of thermal desorption on Site soils. The results of the treatability work confirm the effectiveness of thermal desorption in achieving the cleanup goals identified in the ROD.

In summary, the use of thermal desorption at the Site would represent a significant savings and still provide a level of protection for human health and the environment equal to that achieved by incineration.

B. Proposed Change in Technology

All contaminated soils and wastes with volatile organic concentrations at or above 2 ppm will be excavated and treated on-site using thermal desorption to reduce total volatile organic concentrations to below the 2 ppm cleanup level. Treated soils will be tested for their toxicity using the Toxicity Characteristic Leaching Procedure (TCLP). Those soils with concentrations that are below the TCLP regulatory levels will be used to back fill excavated areas. The soils with concentrations above the TCLP regulatory levels will either be placed in a RCRA Subtitle C landfill on-site or disposed of off-site at an EPA approved facility. The source control component of the remedy is anticipated to take 12 to 18 months to design and construct and then approximately one year to treat the estimated 25,000 cubic yards of material.

Since the ROD there has been some additional sampling at the Site which may indicate that the volume of material requiring treatment is greater than that estimated in the ROD. However, the sampling has been limited by the presence of tires over much of the Site. Therefore, until these tires are removed a more definitive estimate of the volume of soil requiring treatment can not be made.

The successful application of thermal desorption at Superfund sites has been demonstrated over the past 10 years and has included extensive evaluations under the EPA Superfund Innovative Technology Evaluation program. Thermal desorption is considered by EPA as a proven means for removing volatile organics from soils, sludge, and sediments and can achieve the desired removal needed to meet the cleanup goals for the Site. Thermal Desorption is identified as the preferred technology for treatment in the EPA Presumptive Remedy Guidance for sites containing VOC-contaminated soil requiring excavation.

Incineration and thermal desorption are similar in that they both use heat to remove contaminants from the soil. The technologies differ by the amount of heat that is applied. Incineration heats VOCs to the point where they are destroyed or decomposed while thermal desorption uses a lower temperature to physically drive-off and remove contaminants from the media being treated. The contaminants removed must then be collected and treated separately. In many instances this treatment occurs at a separate off-site location.

Thermal desorption is more limited as to the size of the material it can treat and therefore will require a more extensive materials separation process than incineration. In addition, thermal desorption will be unable to treat any drums or large containerized wastes encountered during excavation. Therefore, these materials will either have to be shredded and treated on-site or taken to an off-site location for disposal. The quantity of material identified in the ROD as needing off-site disposal is estimated to be 2,500 cubic yards. Even with the additional costs of having to dispose of this material, the cost savings for employing thermal desorption over incineration are nonetheless expected to be substantial.

IV. SUPPORTING AGENCY COMMENTS

The Rhode Island Department of Environmental Management Division of Site Remediation has participated with EPA in developing the change to the selected remedy which are described herein and concurs with the approach adopted by EPA.

V. AFFIRMATION OF THE STATUTORY REQUIREMENTS

EPA has determined that the selected remedy specified in the ROD, with the above-described changes, remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action as identified in the ROD, and is cost-effective. In addition, the revised remedy uses permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

VI. PUBLIC PARTICIPATION ACTIVITIES

This ESD, accompanied by supporting information and analysis, was made available for public review and comment for 30 days at the locations and times listed in Section E., above. During the 30-day time period EPA received two sets of comments. At the request of one of the individuals commenting, the comment period was extended by an additional 23 days during which time one set of supplemental comments was received by EPA.

A copy of the comments and EPAs' responses to the comments are attached to the ESD as Appendices C and B, respectively. All of the comments submitted came from representatives of parties who

Explanation of Significant Differences
Davis Liquid Waste Superfund Site
July 1996

are involved in contribution litigation with respect to the Site. In general the comments were supportive of changing the method of on-site treatment from incineration but all sets of comments expressed a preference for using soil vapor extraction (SVE) over thermal desorption as the technology of choice. EPA has identified in Section III.A., of the ESD and Appendix B to the ESD the reasons why it selected thermal desorption in lieu of SVE for the Site.

In accordance with Section 117(d) of CERCLA, this ESD will become part of the Site's Administrative Record which is available for public review at both the EPA Region I Record Center at 90 Canal Street in Boston, Massachusetts (617/573-5729) and at the Smithfield Town Clerk's Office at 64 Farnum Pike in Smithfield, Rhode Island (401/233-1000).

APPENDIX A

RI DEM Concurrence on the Draft ESD



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
DIVISION OF SITE REMEDIATION
291 Promenade Street
Providence, R.I. 02908-5767

7 March 1996

Ms. Linda Murphy, Director
Office of Site Remediation and Restoration
U.S. Environmental Protection Agency - Region 1
John F. Kennedy Federal Building (HSV-CAN5)
Boston, MA 02203-2211

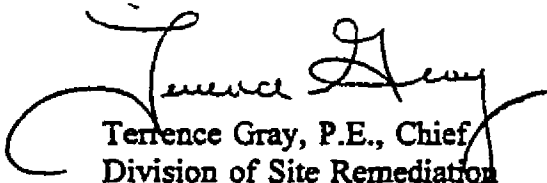
RE: Davis Liquid Waste Superfund Site, Smithfield, Rhode Island

Dear Ms. Murphy,

This Division has conducted a review of the Draft Explanation of Significant Differences (ESD) for the source control component of the remedy at the Davis Liquid Waste Superfund Site. As a result of this review, our agency has generated the attached review comments. With the incorporation of our enclosed technical comments, the Division is in favor of proceeding within the framework of this ESD.

If you have any questions regarding these issues, please feel free to contact me at (401) 277-3872, extension 7100.

Sincerely,



Terrence Gray, P.E., Chief
Division of Site Remediation

cc: J. Fester, RIDEM-DSR
R. Boynton, USEPA-Region 1

davessd.comvmd

**Davis Liquid Waste Superfund Site
Draft Explanation of Significant Differences (Version 1)
January 1996**

Division of Site Remediation Comments:

SPECIFIC COMMENTS:

- 1. Page 7, Section II. (C) Summary of Remedy as Originally Described in the ROD:
Sentence 1, Paragraph 1:**

"The active restoration of the overburden and bedrock aquifers contaminated with volatile organic compounds using onsite treatment involving air stripping and carbon adsorption and recirculation of treated water to the aquifer."

It should be clarified that treated water will be discharged into a nearby surface water, not injected back into the aquifer.

- 2. Page 10, Section V. Affirmation of the Statutory Requirements:
Paragraph 1:**

"... complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective."

It should be made clear in this section that the ESD also meets all ARARs identified at the time the original ROD was signed.

APPENDIX B

**Response to Comments Received Pursuant to the
Draft Explanation of Significant Differences
for Changing the Method of Treating Contaminated Soils and Wastes
from On-site Incineration to On-Site Thermal Desorption**

**Davis Liquid Waste Superfund Site
Smithfield, Rhode Island**

July 1996

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	SPECIFIC COMMENTS AND RESPONSES	1
	A. Procedural Comments	1
	B. General Comments	4
	C. Technical Comments	6

ATTACHMENT #1 THERMAL DESORPTION COST ESTIMATE

I. Introduction

On April 9, 1996 EPA issued for public comment a draft Explanation of Significant Differences (ESD) between the remedial action to be undertaken at the Davis Liquid Waste Superfund Site (the "Site") and the remedial action as set forth in the September 29, 1987 Record of Decision (ROD) for the Site. The change consists of using on-site thermal desorption as the means of treating contaminated soils and wastes at the Site in place of on-site incineration.

During the 30-day public comment period EPA received two sets of comments on the draft ESD. At the request of one of the individuals commenting, the comment period was extended by an additional 23 days during which time one set of supplemental comments was received by EPA. A copy of the comment letters are included as Appendix C to the ESD, and will be referenced herein, respectively, as 1) Brennan, 2) BFI-RI, and 3) Brennan Supplemental. All of the comments submitted came from representatives of parties who are involved in contribution litigation with respect to the Site. In general the comments were supportive of changing the method of on-site treatment from incineration but both sets of comments expressed a preference for using soil vapor extraction (SVE) over thermal desorption as the technology of choice.

It should be noted that EPA's responses to comments are confined to those comments or portions of comments which deal with the changes being discussed in the proposed ESD. Therefore, comments outside of the scope of the proposed ESD, such as those dealing with the management of migration components of the overall site remedy, are not addressed. To the extent that comments overlap or reiterate similar concerns, EPA has attempted to group these comments together and provide one comprehensive response.

II. Specific Comments and Responses

A. Procedural Comments

1. EPA's comment period provides inadequate time for the litigants in the Davis case to review, consider, and evaluate all of the documentation and data identified in the original ROD Administrative Record and the Proposed Administrative Record for the ESD. (Brennan, Brennan Supplemental)

Section 300.435(c) of the NCP and Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA") clearly identify the public participation and community relations requirements for an ESD. To summarize, the requirements consist of 1) the publication of a notice in a major local newspaper of general circulation briefly summarizing the ESD and the reasons for proposing the change and 2) making the ESD and

supporting information available to the public as part of the administrative record established under Section 300.815 in the local information repository. These requirements were met on April 9, 1996 when EPA published a notice of the proposed ESD in the Providence Journal and made the ESD as well as supporting information available to the public at the local repository in the Smithfield Town Hall.

In an effort to increase the level of public involvement and participation with respect to the ESD, EPA at its discretion initiated a 30-day comment period during which it accepted comments from the public on the proposed ESD. No comments were received from the public during this time period other than those provided by counsel representing two parties (out of approximately 129 parties) involved in contribution litigation with respect to the Site. It was at this time that one of the individuals commenting (i.e., Brennan) requested additional time to review and respond to the proposed ESD. EPA, although not required to do so, agreed to extend the comment period by another 23 days and received one set of additional comments during that time (i.e., Brennan Supplemental). A Freedom of Information Act request was also submitted on behalf of Mr. Brennan during the extended comment period requesting copies of documents from EPA related to the proposed ESD. The request was responded to by EPA and documents provided within the time prescribed by law.

As can be seen by the activities described above, EPA more than complied with the spirit as well as the letter of CERCLA for providing public participation in the ESD process. The administrative process pursued here by EPA clearly conforms with the discussion provided in the Preamble to the NCP [See Section 300.435(c)(2)] and attempts to balance the public's continuing need for information about, and input into, post-ROD remedial action decisions, with the agency's need to move forward expeditiously with design and implementation of the remedy after fundamental decisions have been made in the ROD. EPA has provided more than sufficient time for the individuals commenting to review, consider, and evaluate the documentation and data identified in the original ROD Administrative Record and the Proposed Administrative Record for the ESD.

It is worth noting that in 1991, the parties represented by the individuals commenting were named as third party Defendants in cost recovery litigation related to the Site. Since then, there has been sufficient time for the litigants to review the documentation and data contained in the Administrative Record for the Site.

2. The proposed Administrative Record for the ESD appears to be incomplete in that documents including the draft Scope of Work for the soil remedy submitted by one party as well as related documents and/or deliverables such as the Preliminary Remedial Design for the soil remedy have not been included. EPA needs to provide the

public with the status of the remedial action, the costs incurred to date, the projected costs, and an explanation of the appropriateness of the 1987 ROD remedy given the current conditions at the site nearly 10 years later in 1996. (Brenan)

In conformance with CERCLA and the NCP, EPA made available as part of the Administrative Record all of the supporting information which formed the basis of the decision to issue the proposed ESD. The specific documents mentioned or the additional information requested by the commenter did not form, and were not needed to form the basis of EPA's decision and therefore were not included in the Administrative Record.

3. The public is entitled to know EPA's best current estimation as to the volumes of contaminated soils and/or waste at the site which may have to be remediated, the extent and current conditions of groundwater contamination including whether that contamination has diminished or increased or any longer poses a potential risk, and the projected time frame for addressing both soil and groundwater contamination. (Brenan)

The information requested by the commenter regarding the extent of contamination and estimated volume of contaminated soils and/or wastes is included in "Pre-Design Engineering Report I" and "Final Pre-Design Engineering Report II" which are included as part of the Administrative Record for the proposed ESD. The projected time for EPA to treat the soils and wastes at the Site using thermal desorption is approximately 12 to 15 months, similar to that estimated for on-site incineration in the ROD.

4. The proposed ESD appears to be influenced by factors other than technical and scientific concerns. We are concerned that the proposed ESD is, at least in significant part, a product of settlement negotiations and financial tradeoffs between the United States and certain litigants rather than a reasoned decision with respect to the costs and benefits of technologies available in 1996. In this regard, there is correspondence from July 24, 1995, which is not in the Administrative Record but should be, which sets forth the United States' positions on pump and treat, soil vapor extraction, and low temperature thermal desorption. (Brenan, Brenan Supplemental)

EPA has clearly stated in the ESD the basis for proposing the ESD. The change in the remedy described in the ESD is solely based on sound scientific, technical, and economic reasoning. Based on such reasoning, EPA has concluded that the use of thermal desorption at the Site will provide a level of protection for human health and the environment equal to that achieved by incineration, and will do so in a more cost-effective manner.

The correspondence referred to by the commenter was from the Justice Department to certain parties to the litigation for

purposes of settlement discussions. The correspondence set forth the intentions of Justice Department trial counsel and EPA staff regarding negotiations, and their understanding of certain of CERCLA's requirements as it related to the negotiations. As such the correspondence did not form any basis for EPA's decision and therefore was not included in the Administrative Record.

B. General Comments

1. *The ESD, as proposed, is too narrow in focus and fails to consider appropriate remedial technologies. For on-site soils where VOCs are the constituents of concern, EPA's presumptive remedy is soil vapor extraction (SVE) and this technology should, at a minimum, have been evaluated. (Brenan, BFI-RI, Brenan Supplemental)*

EPA evaluated the use of SVE in the Feasibility Study (FS) and again reconsidered its use more recently during EPA's development of the proposed ESD. EPA believes that SVE is certainly an effective and appropriate technology to use at many Superfund Sites but does not believe it is the most appropriate technology to be used at this Site. The primary reason for this is that during the Remedial Investigation (RI) EPA found that there were portions of the Site in which raw wastes and drums/containers were buried. These areas, which are scattered across the Site, are not amenable to treatment using SVE. In order to ensure that these raw wastes and drums/containers will stop contaminating the groundwater, they must be excavated and treated or disposed of. Therefore, the excavation and thermal desorption of these wastes provides a level of protectiveness and certainty which cannot be achieved at the Site by using SVE.

An additional concern regarding the use of SVE on the remaining portions of the Site relates to its ability to meet cleanup levels. The concern arises partially from the close proximity of the water table to the ground surface and the reduced effectiveness of SVE under such conditions. The application of SVE in these areas will at best delay the clean up process and may ultimately mean that cleanup levels can not be achieved using SVE alone. If SVE were attempted, and then failed, any hoped for cost savings could well be eliminated if another source control remedial technology had to be employed.

For these reasons, it is not in the best interests of the public or environment to use SVE to cleanup the Site or portions of the Site. SVE does not achieve the same overall level of protectiveness and reliability that EPA believes can be achieved at the Site through excavation and the use of thermal desorption as proposed in the ESD.

2. The ESD is flawed and its conclusions are in error because the proposed ESD presents an inaccurate comparison of the costs of incineration to the costs of its selected option, low temperature thermal desorption. The use of unit costs, as presented in the presumptive remedy guidance is far too gross an estimate to be used when millions of dollars are under consideration. A cost estimate, at least as detailed as that presented in the ROD and FS, needs to be presented. (Brenan)

While EPA believes that unit costs alone provide a sufficient basis for comparing thermal desorption to incineration costs, EPA has prepared a more detailed cost estimate for the on-site construction and implementation of thermal desorption at the Site (See Attachment #1). The pre-treatment and post-treatment activities for thermal desorption are similar to those of incineration. Both technologies require mobilization and demobilization to and from the Site, have similar processing area requirements, and involve the excavation, sorting, and disposal of treated materials. The costs for these activities are therefore expected to be similar with the exception of the costs associated with the disposal of materials unsuitable for treatment. Thermal desorption is expected to incur higher disposal costs for these materials given the limitations on the size and types of materials that it can treat. These disposal costs have been accounted for in the attached cost estimate.

The major cost difference between the two technologies is reflected in the unit cost of treatment as shown in Item 5 of Attachment #1. Based upon the average cost of treatment (e.g., \$250/ton) as identified in the Presumptive Remedies Guidance (EPA 540-F-93-048) the cost to treat contaminated materials at the Site using thermal desorption is estimated to be approximately \$9.1 million (See Item 5 of Attachment #1). The corresponding cost of incineration would be approximately \$16.2 million based upon the average cost (e.g., \$400/ton) identified in the Presumptive Remedies Guidance. Even with the inclusion of the off-site disposal costs of approximately \$3.2 million (See Item 6 of Attachment #1), and the assumption that incineration would entail no off-site disposal costs, the use of thermal desorption is expected to provide an overall cost-savings of approximately \$4 million.

It should be noted that the cost of treatment for both technologies is volume dependent. Because the unit cost of thermal desorption is less than that of incineration the cost savings will increase or decrease roughly in proportion to any increase or decrease in the volume of material requiring on-site treatment.

The more detailed cost estimate supports EPA's conclusions as set forth in the proposed ESD, i.e., that the use of thermal desorption versus incineration at the Site will provide a more cost-effective means for the cleanup of the Site without sacrificing the protectiveness and reliability of the remedy.

C. Technical Comments

1. The ESD does not describe nor summarize the "information and data generated since the issuance of the September 29, 1987 ROD," nor does it indicate the sources of this information which formed the basis of EPA's proposed ESD. (Brenan)

EPA, in conformance with CERCLA and the NCP, has included all of the information which formed the basis of its decision to issue the proposed ESD, including pertinent post-ROD data, in the Administrative Record for the ESD. The sources of such information are indicated on the documents contained in the Administrative Record. Although some of the documents may contain additional data pertaining to other components of the overall site remedy it is the data which relates to the source control component of the overall site remedy that is being considered here.

2. The statement by EPA that "EPA has selected on-site thermal desorption as the means of treating contaminated soils and waste at the Site" is not entirely accurate. As indicated in the ESD, there are approximately 2500 yd³ of "waste" estimated to still be on site which are not treatable by thermal desorption. The ESD fails to consider the cost for treatment of this material and therefore, the performance and cost of LTTD have not been appropriately considered. (Brenan)

Contrary to what the commenter has stated, the costs associated with the off-site treatment and disposal of the estimated 2500 yd³ of "waste" which may not be amenable to thermal desorption have been factored into EPA's cost analysis (See Item 6 of Attachment #1) and overall decision to propose this change. Even with the "waste" disposal cost included, the use of thermal desorption still provides a significant cost-savings over incineration without sacrificing any of the protectiveness or reliability. It should be noted that, depending on which thermal desorption technology is selected, the volume of drums or large containerized wastes requiring off-site treatment and disposal may be significantly reduced from the quantity shown above, thereby providing additional cost savings.

3. There appears to be a discrepancy between the site size in the ROD (15-acres) and in the ESD (10-acres). There is no explanation in the ESD as to which 5 acres have been eliminated for the purposes of the ESD or why. (Brenan)

The size of the site identified in the ROD is different from that identified in the ESD because the ROD language, which was taken from the Remedial Investigation Report, refers to the approximate size of the area studied by EPA during the Remedial Investigation (RI). The size of the site identified in the ESD encompasses the approximate area where excavation and activities to support the

excavation and treatment will take place, an area expected to be smaller in size than the area studied during the RI.

4. By selecting the LTTD process, the EPA apparently has concluded that semivolatile organics and metals are not critical for selecting the primary treatment processes. If this is, in fact, the case, other treatment processes that were originally screened out during the FS review because they were capable of treating only VOCs, should be evaluated, such as in-situ soil vapor extraction. Numerous in-situ technologies are now available for treatment of VOC contaminated soil that are far less costly than incineration or LTTD. These technologies do not require excavation of contaminated soils and, therefore, do not release VOCs into the atmosphere. Releases or emissions of VOCs to the atmosphere caused by excavation activities were not considered in the ESD or the FS. (Brenan)

As clearly identified in the ROD the primary reason for treating the raw waste and contaminated soils at the Site is to reduce the toxicity and mobility of the contaminants contained therein and thereby reduce their impacts on the groundwater. The ROD further identifies volatile organic compounds (VOCs) as the contaminants of primary concern because they contribute the greatest potential risk to the groundwater. Therefore, for people nearby the Site who are dependent on the groundwater as a drinking water source, VOCs pose the greatest potential risk. Some semi-volatile organic compounds and metals were found in the soils at the Site. However, because of the differences in physical properties (e.g., solubility, partitioning coefficient) and concentrations detected of these compounds, they do not present the same risks to the groundwater as VOCs do.

VOCs in the soil continue to be EPA's principle contaminant of concern. Thermal desorption will be effective in treating and removing VOCs and will also provide more effective ancillary treatment of semi-volatile compounds. This is an additional benefit of implementing thermal desorption.

As part of its evaluation of thermal desorption in the FS and the ESD, EPA did consider the potential impacts that emissions could have. EPA has concluded that through the use of available and commonly used engineering controls and appropriate air monitoring the risks posed by any fugitive emissions can be minimized. The long-term benefits of removing the contaminated soils, raw wastes, drums and/or containers outweigh any short-term risks posed by emissions during excavation.

5. The analytical data from the site investigation and characterization is limited and does not adequately segment areas of soil contamination. Rather than develop one overall site-wide remedy, EPA should have considered remedies applicable to particular areas of concern. (Brenan)

EPA believes that the extensive sampling and monitoring performed during the Remedial Investigation and Pre-Design field work have adequately characterized the nature and extent of contamination at the Site for the purposes of this ESD. The most recent sampling of the soil at the Site during the Pre-Design field work in the fall of 1991 identified the continued presence of high concentrations of contaminants in and around the areas where dumping took place and drums were stored or discarded. The types of contaminants found in these areas were similar and consisted primarily of VOCs. Of the technologies available to treat VOCs and achieve the certainty and reliability needed, EPA identified thermal desorption as being the most appropriate one for this Site. Please refer to EPA's General Comments Response #1 for a further explanation of why EPA did not select SVE for the Site or portions of the Site.

6. In proposing a change to the remedy, EPA should have considered making changes to the groundwater remedy for several reasons. (Brenan)

This proposed ESD addresses only the source control component of the overall site remedy discussed in the ROD. At this time EPA does not believe that changes to other components of the remedy are warranted.

7. The ESD acknowledges that EPA does not know the quantity and kind of contaminated soils needing remediation. EPA should quantify the volumes and nature of contaminated material, if any. At this point, while it is clear that incineration is inappropriate, opposed by the public, and not in keeping with current EPA thinking, there is not enough information available to confirm that the LTTD alternative, as opposed to SVE or some combination of innovative technologies, is the most cost-effective alternative for remediation of on-site contaminated soils. (Brenan)

EPA will certainly agree that there are areas of the Site about which EPA has more information than it does about others. However, the information contained in the Administrative Record supporting the ROD and this proposed ESD demonstrates that EPA has in its possession sufficient information to select the proposed cleanup technology. Regardless of how much sampling is done up front there will always be a level of uncertainty as to the extent and volume of materials requiring treatment which will only be eliminated by the actual performance and completion of the work. EPA believes that it has reached the appropriate balance among the quantity of data, time and money expended in gathering data, and the level of certainty needed to make this change. Further study would only delay addressing public health and environmental risks while yielding only small incremental benefits, if any. Furthermore, as discussed above and in the ESD, the data gathered clearly indicate that thermal desorption is the most appropriate technology for the Site, and that SVE would be less effective and protective of human health and the environment at the Site.

8. The ESD needs to clearly state that there are no federal or Rhode Island cleanup standards for VOCs in soils. The cleanup level of 2 ppm was selected to achieve an acceptable level of risk as calculated in the 1986 risk assessment under the "premise" of future residential land use for the site. The ESD should have recognized that the land use of this property has not been and presumably will not be for residential development, particularly since the site has been used for industrial purposes including as a tire recycling center for a number of years and continues to be used for this purpose. Finally, the ROD allowed treated soils to be backfilled so long as they passed the EP toxicity test. In changing the remedy, the EPA should have recognized there is no reason to excavate any soils at all that pass EP toxicity criteria. (Brenan)

The commenter is correct that there are no national cleanup standards for VOCs in the soil. The variability of conditions and site-specific factors renders such an approach inappropriate. EPA notes that the State of Rhode Island has recently promulgated draft soil screening cleanup levels which do not apply at this Site as they were not promulgated at the time the ROD was issued.

Similarly to the approach EPA takes at other Superfund sites to determine soil cleanup levels, EPA used site-specific information and assumptions to set cleanup levels for the Davis Liquid Waste Site. The ROD clearly identifies that the soil cleanup levels were determined based on the risks posed by the soil leaching contaminants into the groundwater above allowable drinking water standards. As part of the analysis in the RI and ROD EPA did consider the current use of the Site and surrounding areas (e.g., portions covered with tires and other areas undeveloped) as well as make a reasonable assumption for the future use of the Site and surrounding areas (e.g., residential). The future use assumption is still reasonable and applicable given such developments as the increased growth in the number of residences nearby the Site and tires being removed from the Site by the property owner under a State Superior Court Order. Therefore, the information already provided in the ROD is sufficient to explain the basis for EPA's establishment of the soil cleanup level and no further change to the text of the ESD is warranted.

It appears that the commenters' last two statements misapprehend the basis in the ROD for when EPA would apply the EP toxicity criteria to soils at the Site. The ROD identifies that soils at the Site exceeding a concentration of 2 parts per million (ppm) for total VOCs will be excavated and treated. Treatment of such soils will continue until the levels are below the cleanup standard of 2 ppm. It is only after achieving this cleanup standard that soils are to be tested for the EP toxicity criteria. The toxicity testing was a means of determining what further treatment or precautions were necessary, if any, for the final disposition of the treated soils and wastes.

The ESD modifies the testing by using the Toxicity Characteristic Leaching Procedure (TCLP) in place of the EP toxicity criteria. Those soils with concentrations that are below the TCLP regulatory levels will be used to back fill excavated areas. The soils with concentrations above TCLP regulatory levels will either be placed in a RCRA Subtitle C landfill on-site or disposed of off-site at an EPA approved facility.

9. *The statements "A cleanup level of 5 parts per billion has been established for benzene, trichloroethylene, and tetrachloroethylene. EPA estimates that this target remediation level can be achieved within 5 to 10 years." is inconsistent with current government findings. The time frame postulated for cleanup in the ESD, ROD, and FS of 5-10 years is not substantiated by any modeling of the groundwater or contaminant fate and transport. (Brenan)*

The statements referenced above and made in the ESD regarding the management of migration component were taken from the remedy as originally described in the ROD. The information was included in the ESD for background purposes only. This proposed ESD addresses only the source control component of the overall site remedy selected in the ROD. At this time EPA does not believe that changes to other components of the remedy are warranted.

10. *The proposed change from the ROD permitting off-site disposal of treated soils requires an explanation from EPA. Off-site disposal of such soils appears to contradict the original intention of the FS and the ROD. (Brenan)*

EPA's intent for including such language is to provide some flexibility if, for example, there is only a very small volume of treated material which does not pass the TCLP test. Under such circumstances it may not be in the best interests of the public and environment to construct an on-site RCRA Subtitle C landfill.

11. *There are several technical differences between incineration and LTTD that are not adequately addressed in the ESD. Specifically: incineration oxidizes VOCs, SVOCs, and vaporizes some metals while LTTD without an afterburner merely vaporizes VOCs, but generally does not treat or reduce SVOC and metals contamination. The ESD should explain the differences between incineration, LTTD and SVE and explain why these differences do or do not significantly change and/or fundamentally alter the overall remedy with respect to cost and performance. (Brenan)*

The text of the ESD and the supporting Administrative Record, adequately explain the difference between incineration and thermal desorption. Please refer to EPA's General Comments Response #1 and Technical Comments #4 for further explanation of why thermal desorption is the technology of choice for the Site.

12. EPA needs to clarify what is meant by the following statements in the ESD " The contaminants removed must be collected and treated separately. In many instances this treatment occurs at a separate off-site location." At a minimum, the ESD must identify the contaminants, how they are going to be collected, and the location of any off-site treatment. (Brenan)

The statements above were made in the context of explaining the difference between the ultimate fate of VOCs when using incineration versus thermal desorption. In incineration the high temperatures cause the destruction of VOCs while in thermal desorption the VOCs are physically driven out of the soil. Depending upon the type of off-gas treatment on the thermal desorption unit the VOCs can be destroyed through the use of an afterburner or other type of oxidative unit or transferred to another medium such as activated carbon and then treated and disposed of either on-site or off-site (depending upon the concentration of VOCs in the off-gas).

A number of different types of thermal desorption units (with an equal number of means for off-gas control) may be applicable to this Site. Each type of thermal desorption unit may have different capabilities in terms of the type and size of drums or other containerized wastes that can be treated. Because of this range of capabilities as well as the possibility that new thermal desorption technologies will be developed in the interim, EPA has not specified in the ESD the particular type of thermal desorption unit and off-gas treatment to be applied at the Site. EPA has also not specified the off-site location for any wastes requiring further treatment or disposal as this will be dependent on the capabilities of thermal desorption technology selected. EPA believes that the approach it is taking will provide the greatest flexibility during the contractor selection process and allow for the selection of the most appropriate thermal desorption vendor for the Site.

ATTACHMENT #1

THERMAL DESORPTION COST ESTIMATE

TASK/ITEMS	QUANTITY	UNITS @	UNIT COST	TOTAL COST	COMMENTS
I. DIRECT CAPITAL COSTS					
1. ADVANCE SITEWORK					
CONSTRUCT TD OPERATIONS AND SOIL STAGING AREA					
CLEAR AREA	1	acre	\$5,000	\$5,000	Size estimated for staging and stockpile area
LINER	21780	sq ft	\$1	\$21,780	Estimate 0.5 acres for staging/operating area
BUILD BASE	2420	cu yds	\$8	\$19,360	Clean fill to be hauled in from off-site, placed and compacted to a depth of 2' in cleared area

				\$46,140	
2. MOBILIZE TD					
TRANSPRT/SET UP	1	lump sum	\$350,000	\$350,000	Vendor estimates ranged from \$50K to \$400K
UTILITIES	1	lump sum	\$30,000	\$30,000	Assumption is that utilities will be run to site for GWTP prior to this, so only minor work needed

				\$380,000	
3. EXCAVATION AND TRANSPORT OF SOIL					
EXCAVATION	25000	cu yds	\$15	\$375,000	Assume \$15/yd due to Level C work
ENCLOSURE	5000	sq ft	\$20	\$100,000	Assume steel framed tension structure (50'x100')
MOVE ENCLOSURE	5	move	\$33,000	\$165,000	Structure has wheels but still 5 moves req'd
AIR MONITORING	200	days	\$400	\$80,000	Assume four samples/day @ \$100 each
AIR TREATMENT	1	lump sum	\$75,000	\$75,000	Assume air from enclosure is treated with vapor phase carbon

				\$795,000	
4. SIEVING SOIL					
SIEVING	200	days	\$300	\$60,000	Rental and maintenance of screen--all
TRANSPORT	200	days	\$500	\$100,000	Use of small rubber tire loader
ENCLOSURE	2000	sq ft	\$20	\$40,000	Assume steel framed tension structure
AIR MONITORING	200	days	\$400	\$80,000	Assume four samples/day @ \$100 each
AIR TREATMENT	1	lump sum	\$75,000	\$75,000	Assume air from enclosure is treated with vapor phase carbon

				\$355,000	
5. TREATMENT OF SOILS WITH TD UNIT (1)					
OPTIMIZATION STUDY	1	lump sum	\$125,000	\$125,000	
TREATMENT	36450	tons	\$250	\$9,112,500	Based on cost range identified in EPA 540-F-93-048
AIR MONITORING	200	days	\$200	\$40,000	Assume two samples/day at \$100 each

				\$9,277,500	

TASK/ITEMS	QUANTITY	UNITS @	UNIT COST	TOTAL COST	COMMENTS
6. TREATMENT OF BURIED DEBRIS (2) TREATMENT	4050	tons	\$800	\$3,240,000 ----- \$3,240,000	Assume off-site incineration of drums and miscellaneous buried debris
7. STOCKPILE AND TEST TREATED SOIL VERIFICATION	250	samples	\$1,000	\$250,000	Sample collection rate decreases with time
TRANSPORT	200	days	\$500	\$100,000 ----- \$350,000	Assume separate small rubber tire loader
8. TREATMENT OF LARGE PARTICLES (3) MAT'L HANDLING	70	days	\$350	\$24,500	Assume treatable quantity generated every 3rd day
STEAM CLEAN	190	days	\$300	\$57,000 ----- \$81,500	Assume that 10% of 38,450 cu yds requires steam cleaning; therefore 3,645 cu yds cleaned at 1 cu yd/half hour
SUBTOTAL, DIRECT CAPITAL COSTS				\$14,525,140 -----	
II. INDIRECT CAPITAL COSTS					
ENGINEERING	15	% of	\$14,525,140	\$2,178,771	% consistent with those identified in FS for incineration
CONTINGENCY	15	% of	\$14,525,140	\$2,178,771 -----	
SUBTOTAL, INDIRECT CAPITAL COSTS				\$4,357,542	
TOTAL ESTIMATED PRESENT WORTH COST				\$18,882,682 -----	

- Notes:
- (1) Assumed TD would be operating 24 hours per day, 7 days per week (w/approximately 20% down time), assumed a unit throughput of 10 tons/hr for a total operational time of 200 days. Estimated cost range in EPA 540-F-93-048 document is \$200 to \$300 per ton (avg. \$250). Did not include bulking factor in volume estimate which could increase volume by 20%. Density of soil assumed to be 120 lbs/cu ft for conversion from cu yds to tons.
 - (2) Assumed that technology to be used for disposal of debris (i.e., drums, paint cans) would involve off-site incineration. Cost shown for ROD est. volume is based on disposing of a solid waste.
 - (3) Assumed that MOM groundwater treatment system would be in operation at the site and that waste water generated during large particle decontamination would be treated in that facility.

APPENDIX C

Comments Received Pursuant to the
Draft Explanation of Significant Differences
for Changing the Method of Treating Contaminated Soils and Wastes
from On-site Incineration to On-Site Thermal Desorption

Davis Liquid Waste Superfund Site
Smithfield, Rhode Island

July 1996

2000 One Logan Square
Philadelphia, PA 19103-6993
215-963-5000
Fax: 215-963-5299

Morgan, Lewis
& Bockius LLP
C O U N S E L O R S A T L A W

Denis V. Brennan
215-963-5407

COMMENTS POSTMARKED
ON 5/9/96 1/2

May 9, 1996

Neil Handler
Remedial Project Manager
U.S. EPA, Office of Site
Remediation and Restoration
JFK Federal Building (HBO)
Boston, Massachusetts 02203

Re: Comments Upon EPA's Proposed Explanation
of Significant Differences for the Davis Liquid
Superfund Site in Smithfield, Rhode Island

Dear Mr. Handler:

On April 9, 1996, EPA published a notice in the Providence Journal Bulletin that it intended to issue an Explanation of Significant Differences ("ESD") recommending what it describes as a significant change for the remedy previously selected in the 1987 Record of Decision ("ROD") for the Davis Liquid Superfund Site in Smithfield, Rhode Island ("Davis Site"). The ROD was based upon data and analyses in the Remedial Investigation (RI) and Feasibility Study (FS) and their appendices. In compliance with the newspaper notice, which we did not learn about until substantially later, requiring that public comments be postmarked no later than May 9, 1996, we, on behalf of our client, a litigant, hereby provide the following comments:

Neil Handler
May 9, 1996
Page 2

Procedural Comments

P.1. EPA has failed to provide our client and others similarly situated with adequate notice and opportunity to comment on the proposed ESD. The parties most interested in and most likely to submit comments on EPA's proposed ESD are those named as defendants and third-party defendants in the ongoing lawsuit with regard to the Davis Site, United States of America v. William M. Davis, et al., (D.R.I. C.A. #90-0484-P). EPA's failure to directly notify the litigants in that lawsuit is not in compliance with the spirit or intent of § 117(d) of the Comprehensive, Environmental, Restoration, Compensation and Liability Act ("CERCLA") and unfairly penalized them by providing inadequate time to prepare and submit comments on the complex environmental issues presented by EPA's proposed ESD.

P.2. EPA's failure to provide prompt notice and a reasonable opportunity to comment to litigants who are currently required to defend themselves at the Davis Site and who, therefore, are at risk for remedial response costs incurred at the site is especially troubling for those parties which were never provided with notice or an opportunity to comment upon the remedial action originally selected by EPA for the Davis Site in the 1987 ROD.

Neil Handler
May 9, 1996
Page 3

P.3. EPA's comment period provides inadequate time to review, consider, and evaluate all of the documentation and data identified in the proposed Administrative Record for the ESD. This procedural defect is magnified because EPA ignored or failed to timely respond to Freedom of Information Act ("FOIA") requests submitted with regard to this site. To comment upon the proposed change, a party must understand the proposed remedy change in light of the original remedial decision. Even the full 30 day comment period is inadequate to review and analyze all of the information in the original Administrative Record and the new proposed ESD Administrative Record.

P.4. The proposed Administrative Record for the ESD appears to be incomplete. We understand that documentation which was before the Agency and was instrumental in the Agency's decision to issue an ESD has not yet been made available to the public and is not included in the proposed Administrative Record for the ESD. Those documents include the draft Scope of Work for the soil remedy submitted by one party as well as related documents and/or the deliverables such as the Preliminary Remedial Design for the soil remedy.

P.5. Furthermore, the limited written comment period fails to provide an adequate opportunity for public response to the

Neil Handler
May 9, 1996
Page 4

proposed ESD. In light of the passage of nearly ten years since the RI/FS was performed and the ROD remedy selected and EPA's acknowledgement that it is making a significant change to the ROD remedy, and the restricted time available to provide comments and pose questions to the Agency, pursuant to EPA's OSWER Guidance on Preparing Superfund Decision Documents 9355.3-02, along with the proposed ESD EPA needs to provide the public with the status of the remedial action, the costs incurred to date, the projected costs, and an explanation of the appropriateness of the 1987 ROD remedy given the current conditions at the site nearly 10 years later in 1996.

P.6. The public is entitled to know EPA's best current estimation as to the volumes of contaminated soils and/or waste at the site which may have to be remediated, the extent and current conditions of groundwater contamination including whether that contamination has diminished or increased or any longer poses a potential risk, and the projected timeframe for addressing both the soil and groundwater contamination. In light of the eight year delay in the construction of the public waterline, it is critical that EPA provide the public with this information.

Neil Handler
May 9, 1996
Page 5

P.7. The proposed ESD appears to be influenced by factors other than technical and scientific concerns. We are concerned that the proposed ESD is, at least in significant part, a product of settlement negotiations and financial tradeoffs between the United States and certain litigants rather than a reasoned decision with respect to the costs and benefits of technologies available in 1996. In this regard, there is correspondence from July 24, 1995, which is not in the Administrative Record but should be, which sets forth the United States' positions on pump and treat, soil vapor extraction, and low temperature thermal desorption.

P.8. Finally, we are providing the following general and technical comments but are requesting an extension of the comment period to allow all parties to supplement their comments once they have had a fair opportunity to review and consider all relevant data.

General Comments

G.1. We concur with EPA's decision to modify the ROD for the Davis site as related to remediation of on-site soils and further concur that current state-of-the-art remedial technologies for volatile organic compounds (VOCs), the contaminants of concern for the site, exist that are substantially more cost effective than incineration. However,

Neil Handler
May 9, 1996
Page 6

EPA's decision to review and significantly change the decisions made by the ROD in 1987 in light of current remediation science requires reevaluation of the conclusion drawn not only in the ROD but also in the remedial investigation, and feasibility study as well.

G.2. The ESD, as proposed, is too narrow in focus and fails to consider appropriate remedial technologies. For on-site soils where VOCs are the constituents of concern, EPA's presumptive remedy is soil vapor extraction (SVE) and this technology should, at a minimum, have been evaluated. Furthermore, the length of time since the RI/FS was conducted and the additional data collected (particularly in the groundwater) when coupled to recent governmental findings on the cost and ineffectiveness of pump and treat remedies, suggest that EPA's groundwater remedies also be revisited.

G.3. The ESD is flawed and its conclusions are in error because the proposed ESD presents an inaccurate comparison of the costs of incineration to the costs of its selected option, low temperature thermal desorption. The use of unit costs, as presented in the presumptive remedy guidance, is far too gross an estimate to be used when millions of dollars are under

Neil Handler
May 9, 1996
Page 7

consideration. A cost estimate, at least as detailed as that presented in the ROD and FS, needs to be prepared.

G.4. There is insufficient data upon which to base the proposed ESD. The ESD, as well as the ROD, FS, and RI, all recognize the imprecision of the site characterization data which is being used as the basis for evaluating and selecting a remedial alternative. These uncertainties are now compounded by the age of most of the data. Moreover, as set forth below, there are uncertainties as to the volumes of material to be treated and further uncertainties as to various cost projections and comparisons.

Technical Comments

T.1. Pg. 1, ¶3 states: "Because the adjustments to the remedy selected in the ROD are significant but do not fundamentally alter the overall remedy with respect to scope, performance, or cost."

Comment. While we agree that the 1987 ROD should not be implemented, the ESD contains inadequate documentation to support its conclusion as to the similarity of scope, performance, and cost of the proposed alternative remedy. These individual items are discussed further in our comments to the ESD.

T.2. Pg. 1, ¶5 states: "Based on the information and data generated since the issuance of the 29 September 1987 ROD,

Neil Handler
May 9, 1996
Page 8

one portion of the remedy as described in the ROD has been modified."

Comment. The ESD does not describe nor summarize the "information and data generated," nor does it indicate the sources of this information. Without inclusion (or, at the very least, a summary) of the specific data referenced, it is not possible to evaluate the reasonableness of EPA's conclusion that only one portion of the ROD should be modified. For example, we understand that additional groundwater and residential well sampling was conducted subsequent to the ROD yet that information is not referenced in the ESD and it is not clear that it was considered in the development of the ESD. Since the ROD is being revisited for the purpose of reviewing the source control alternatives, all data, including data relevant to groundwater and residential water, should be reviewed to determine the appropriateness of changing the ROD remedy.

T.3. Pg. 2, ¶1 states: "EPA has selected on-site thermal desorption as the means of treating contaminated soils and waste at the site."

Comment. This statement is not entirely accurate. As discussed in several of the comments below, the FS, ROD, and even Pg. 9, ¶4 of the ESD clearly indicate that approximately 2500 yd³ of "waste" estimated to still be on site are not

Neil Handler
May 9, 1996
Page 9

treatable by low temperature thermal desorption (LTTD). Significantly, the FS estimated off-site treatment of waste material would cost \$6.2 million or 48% of the total capital costs of the LTTD option as evaluated in the FS. The ESD fails to consider this cost from the FS. Therefore, the performance and cost of LTTD have not been appropriately considered. Moreover, the ESD, ROD, and FS do not define exactly what constitutes this "waste," a serious omission considering the proportion this cost contributes to the estimated project costs.

T.4. Pg. 1, ¶2 discusses "The approximately 10-acre site..."
Comment. There appears to be a discrepancy between the site size in the ROD and in the ESD. The ROD identifies the site as being 15-acres. There is no explanation in the ESD as to which 5 acres have been eliminated for the purposes of the ESD or why.

T.5. Pg. 3, ¶1 states: "The use of thermal ... will significantly reduce the overall cost..."

Comment. Although we believe there are adequate soil remedies much less costly than incineration, the conclusion that thermal desorption will significantly reduce costs is not supported by any data in the ESD and is, therefore, speculative.

Neil Handler
May 9, 1996
Page 10

T.6. Pg. 3, ¶2. states: "Because thermal desorption, like incineration, removes contaminants through a thermal process, the use of thermal desorption does not fundamentally alter the remedy selected in the ROD."

Comment. EPA bases this argument on the fact that both technologies are thermal processes. There are, however, significant differences between incineration and LTTD. Incineration operates at considerably higher temperatures than LTTD. Incineration destroys volatile organic compounds (VOCs) as well as semivolatile organic compounds and volatilizes some metal constituents. The LTTD process volatilizes the VOCs but does not remove most semivolatile organic compounds or metals from soils. Even the VOCs volatilized by LTTD are destroyed in the air stream only if an afterburner is employed. The use of an afterburner in the proposed LTTD process is included in the FS but is not mentioned in the ESD and, in fact, may not be necessary.

By selecting the LTTD process, the EPA apparently has concluded that semivolatile organics and metals are not critical for selecting the primary treatment processes. If this is, in fact, the case, other treatment processes that were originally screened out during the FS review because they were capable of treating only VOCs, should be evaluated, such as in-situ soil

Neil Handler
May 9, 1996
Page 11

vapor extraction (SVE). Indeed, SVE is EPA's primary presumptive remedy at VOC contaminated sites.

Numerous in-situ technologies are now available for treatment of VOC contaminated soil that are far less costly than incineration or LTLD. Indeed, the EPA's Superfund Innovative Technology Evaluation (SITE) program has provided the proving ground for innovative in-situ technologies, including SVE, the primary prescriptive remedy for VOC contaminated sites, that may be applicable to this site. Furthermore, these technologies do not require excavation of contaminated soils and, therefore, do not release VOCs into the atmosphere. The release of VOCs during excavation and in soils handling is well documented (Air/Superfund National Technical Guidance Study Series Estimation of Air Emissions from Cleanup Activities at Superfund Sites), and potentially can contribute to short-term risks. Releases or emissions of VOCs to the atmosphere caused by excavation activities were not considered in the ESD or the FS.

T.7. Pg. 4, ¶3 states: "The Remedial Investigation...identified extensive contamination of the soil, groundwater, sediment, and surface water at the site."

Neil Handler
May 9, 1996
Page 12

Comment. The analytical data from the site investigation and characterization is limited and does not adequately segment areas of soil contamination. The remedial investigation (RI) completed in 1986 contains data that contamination in the soils on site was localized in several discrete areas and identified those areas by the nature of suspected materials disposed in each. Rather than develop one overall site-wide remedy, EPA should have considered remedies applicable to particular areas of concern. AOC specific remedies such as stabilization and/or capping (e.g., for metals), may be appropriate and cost-effective technologies for specific AOCs.

T.8. Pg. 4, ¶4 states: "Contaminants were found in both the shallow overburden aquifer and the deeper bedrock aquifer."

Comment. In proposing a change to the remedy, EPA should have considered making changes to the groundwater remedy for several reasons. The ROD remedy, a pump-and-treat system is based on data gathered from pre-1986. The ROD and RI/FS indicated that contaminants in groundwater decreased during the course of the site investigations. Because more than 10 years have passed from the time of the RI sampling on which the ROD was premised, and since the contaminant concentrations and/or profiles will have changed, there are serious questions about whether the groundwater remedy selected in 1987 is cost-effective. The

Neil Handler
May 9, 1996
Page 13

National Resource Council (NRC) and EPA have recognized the serious technical limitations of pump-and-treat remedies, especially in bedrock aquifers. The NRC criticized the inability of many pump-and-treat systems to reach health-based cleanup goals (NRC, Alternatives for Groundwater Cleanup, 1994). A survey of pump-and-treat remedies instituted at a number of Superfund sites indicated that original FS operation and maintenance (O&M) cost projections were generally greatly exceeded by in-place systems because expected levels of cleanup were not being achieved in the time frames projected, thus requiring many more years of treatment. (Travis, Curtis C., and Doty, Carolyn B. 1990. "Can Contaminated Aquifers at Superfund Sites Be Remediated?" Environmental Science and Technology 24(10): 1464-66.

T.9. Pg. 5, ¶5 states: "Estimates for the number of tires being stored at the property range from approximately 10 to 30 million. Approximately one-third of these tires are being stored over areas which EPA believes may contain contaminated soils."

Comment. The ESD acknowledges that EPA does not know the quantity and kind of contaminated soils needing remediation. EPA should quantify the volumes and nature of the contaminated material, if any. At this point, while it is clear that incineration is inappropriate, opposed by the public, and not in keeping with current EPA thinking, there is not enough

Neil Handler
May 9, 1996
Page 14

information available to confirm that the LTLD alternative, as opposed to SVE or some combination of innovative technologies, is the most cost-effective alternative for remediation of on-site contaminated soils.

T.10. Pg. 6, ¶3 states: "All soils and wastes with volatile organic concentrations...would be excavated to below the 2 ppm cleanup level...These soils...below the EP toxicity levels...backfill excavated areas. The soils with concentrations above the EP toxicity levels would be placed in a RCRA Subtitle C landfill on-site."

Comment. The ESD needs to clearly state that there are no federal or Rhode Island cleanup standards for VOCs in soils. The cleanup level of 2 ppm was selected to achieve an acceptable level of risk as calculated in the 1986 risk assessment under the "premise" of future residential land use for the site. The ESD should have recognized that the land use of this property has not been and presumably will not be for residential development, particularly since the site has been used for industrial purposes including as a tire recycling center for a number of years and continues to be used for this purpose. Furthermore, the proposed construction of a Subtitle C landfill on the Davis property is in direct conflict with the ROD's assumption that the property may still be used in the future for residential development. The ESD also needs to recognize that the ROD cleanup levels may be excessive in light

Neil Handler
May 9, 1996
Page 15

of EPA's current policy which, as presented in the OSWER Directive No. 9355.7-04 (Land Use in the CERCLA Remedy Selection Process), is to develop remedial action objectives based on a reasonably anticipated future use of the land for commercial/industrial purposes. Finally, the ROD allowed treated soils to be backfilled so long as they passed the EP toxicity test. In changing the remedy, the EPA should have recognized there is no reason to excavate any soils at all that pass EP toxicity criteria.

T.11. Pg. 7, ¶1 states: "A cleanup level of 5 parts per billion has been established for benzene, trichloroethylene, and tetrachloroethylene. EPA estimates that this target remediation level can be achieved within 5 to 10 years."

Comment. This statement, adopting EPA's old 1987 ROD estimate, is inconsistent with current government findings. The time frame postulated for cleanup in the ESD, ROD, and FS of 5-10 years is not substantiated by any modeling of the groundwater or contaminant fate and transport. To continue to suggest that 5-10 years is the expected time frame in the absence of such modeling or documentation is inappropriate in light of recent GAO and NRC findings that pump-and-treat schemes installed at Superfund sites have not accomplished the cleanup objectives established nor the time frame proposed. The time necessary to achieve cleanup with pump-and-treat schemes has indeed been

Neil Handler
May 9, 1996
Page 16

found to be substantially longer than estimated in the past, if it could be achieved at all, adding significantly to the costs to remediate. This finding was particularly true for pump and treat applied to fractured bedrock aquifers such as the bedrock aquifer at this site. See "The Effectiveness of Groundwater Pumping as a Restoration Technology" NTIS, May 1991 and "Alternatives for Groundwater Cleanup," NRC, June 1994. Furthermore, the nature of the VOC contaminants at issue (PCE, TCE, DCE, vinyl chloride) suggest that even at the time of the RI, natural degradation was taking place. This degradation would continue to alter the nature and extent of groundwater contamination; these changes need to be reviewed now prior to continuing or finalizing a groundwater remedial plan. Finally, the impact of the soil source control measures on the time to remediate groundwater has not been adequately addressed and may have significant bearing on the selection of an appropriate groundwater remedy.

T.12. Pg. 7, ¶3 and 4 states that at the time of the ROD "...the thermal desorption technology was still in its infancy and there was a limited amount of performance data available from full-scale operating systems." "Since the FS, thermal desorption has been widely used at Superfund sites to treat contaminated soils similar to those found at the Site ... (and) has shown this technology to be very effective in removing volatile organic compounds ..." "The Presumptive Remedy Guidance identifies that for sites containing VOC-contaminated soil if the material is

Neil Handler
May 9, 1996
Page 17

to be excavated, (then) thermal desorption is the preferred technology for treatment."

Comment. The ESD is deficient in that it fails to acknowledge that other technologies, less costly than either incineration or LTTD, have also been proven effective in the last ten years. SVE technology (introduced in the FS report as "soil venting" [see pages 3-5 of FS report]) was screened out in the FS as an applicable technology because it was not fully proven and was only capable of removing volatile compounds. However, as discussed earlier, the proposed ESD selected LTTD as the alternative technology over incineration implying that semivolatiles and metals are not of primary concern. Based on that same rationale, the feasibility of using SVE to treat contaminated soils needs to be evaluated and compared to LTTD using, at a minimum, the evaluation criteria presented in the FS, namely, technical feasibility (performance, reliability, implementability/constructability, and safety), institutional requirements, public health and environmental impacts, and costs. The Presumptive Remedy Guidance document, OSWER Directive 9355.0-48FS cited by the ESD identifies SVE as the remedy of choice for VOC-contaminated soils and several disposal areas on site may be suitable for this in situ remedial application. The Seventh Edition of the Innovative Treatment Technologies: Annual Status Report, 1995, indicates

Neil Handler
May 9, 1996
Page 18

that SVE has been utilized at 130 sites since the publication of the 1987 ROD and that SVE appears to be the source control remedy of choice in EPA Region I being used at 15 of 22 sites documented in the report. Indeed, the Administrative Record for the ESD identifies a petition by another party proposing that SVE be considered as an appropriate alternative to the selected remedy but EPA has not yet provided a formal, public response to this petition.

T.13. Pg. 8, ¶2 states: "With the increased usage of thermal desorption since the FS, the cost of implementing this technology has decreased. As identified in the OSWER Guidance on Presumptive Remedies, the average cost per ton for treatment using thermal desorption is \$250 and incineration is \$400. Thus the use of thermal desorption could provide a savings of millions of dollars."

Comment. EPA's use in the ESD of unit costs from the presumptive remedy guidance is inappropriate and insufficient to document the reported savings of millions of dollars. The ESD should provide a line-by-line cost estimate as was done in the FS in order to properly attribute costs and/or savings. According to the FS, \$6.2 million of the \$12.9 million in total capital costs or 48% of the total capital cost for LTTD, were allocated toward the off-site disposal of wastes that could not be handled in the LTTD process. The cost that was allocated toward the operation of the thermal desorption treatment unit

Neil Handler
May 9, 1996
Page 19

was \$1.8 million, only 14% of the total cost. Without a detailed cost estimate that identifies quantities of treatable soil and quantities of untreatable waste, it is not possible to define any cost savings from the use of LTTD. Comparable consideration of SVE would likely show even greater savings for that remedy since the unit cost for SVE in the Presumptive Remedy Guidance is \$50/ton. See also, comments T.4 and T.7.

T.14. Pg. 8, ¶5 states: "The soils with concentrations above the TCLP regulatory levels will either be placed in a RCRA Subtitle C landfill on-site or disposed off-site at an EPA approved facility."

Comment. The proposed change from the ROD permitting off-site disposal requires explanation from EPA. Off-site disposal of such soils appears to contradict the original intention of the FS and the ROD.

T.15. Pg. 8, ¶6 states: "Since the ROD there has been some additional sampling at the site that may indicate whether the volume of material requiring treatment is greater than that estimated in the ROD ... Therefore, until these tires are removed a more definitive estimate of the volume of soil requiring treatment cannot be made."

Comment. See comments T.8 and T.11. It is premature for EPA to select LTTD as a treatment alternative when in fact a reasonable estimate of the quantity of soils requiring treatment has not yet been determined. The ENSafe Review of

Neil Handler
May 9, 1996
Page 20

Record of Decision incorporated as part of the proposed Administrative Record for the ESD suggests that 38,000 to 50,000 cubic yards or more may need to be excavated. If increased volumes of soils must be treated, other alternatives (such as SVE or SVE in combination with LTLD) may well prove to be much more cost effective than LTLD alone.

T.16. Pg. 9, ¶12 states: "Thermal desorption is identified as the preferred technology for treatment in the EPA Presumptive Remedy Guidance for sites containing VOC-contaminated soil requiring excavation."

Comment. At the outset, EPA's statement is improper because it assumes that all contaminated soils must be excavated. There is no evidence in the FS and the ROD to support that assumption. Furthermore, in the Presumptive Remedies Guidance, EPA has determined that SVE is the primary presumptive remedy for VOC-contaminated soil present at CERCLA sites. Thermal desorption and incineration are second and third respectively on this prioritized list of presumptive remedies. Site data suggests that SVE is a feasible remedy for much of the Davis site.

Because the ESD's primary focus for soil remediation is to remove the VOCs, SVE technology should be considered and evaluated for use at this site. At an average cost of \$50/ton

Neil Handler
May 9, 1996
Page 21

for SVE, as compared to \$250/ton for LTLD (as presented in the Presumptive Remedy Guidance), the overall cost savings and reduced remediation time could be significant if SVE is implemented.

SVE is an in-situ technology, performed with minimum disturbance to the soil and surrounding environment. In-situ technologies are generally favored over technologies that require soil excavation (referred to as ex-situ technologies) because of the potential time and cost savings. The use of in-situ technologies at the site was discussed in the FS (Pg. 3-5), which states "in-situ treatment applications are potentially preferable over on-site or off-site treatment because excavation and corresponding site restoration activities are not required and minimal disruption of hazardous constituents occurs." Furthermore, the short term environmental impacts of the remedy (such as significant air emissions) are greater for excavation and treatment, than for in-situ treatment.

T.17. Pg. 9, ¶3 states: "Incineration heats VOCs to the point where they are destroyed or decomposed while thermal desorption uses a lower temperature to...drive off and remove contaminants (physically) from the media being treated."

Neil Handler
May 9, 1996
Page 22

Comment. There are several technical differences between incineration and LTTD that are not adequately addressed in the ESD. Specifically: incineration oxidizes VOCs, SVOCs, and vaporizes some metals while LTTD without an afterburner merely vaporizes VOCs, but generally does not treat or reduce SVOC and metals contamination. SVE also vaporizes VOCs. The ESD should explain the differences between incineration, LTTD and SVE and explain why these differences do or do not significantly change and/or fundamentally alter the overall remedy with respect to cost and performance.

T.18. Pg. 9, ¶3 states: "The contaminants removed must be collected and treated separately. In many instances this treatment occurs at a separate off-site location."

Comment. EPA needs to clarify what is meant by this statement in the ESD. At a minimum, the ESD must identify the contaminants, how they are going to be collected, and the location of any off-site treatment.

T.19. Pg. 9, ¶4 states: "Thermal desorption will be unable to treat any drums or large containerized wastes encountered during excavation. Therefore, these materials will either have to be shredded and treated on-site or taken to an off-site location for disposal."

Comment. See comment T.14. In addition, the ESD does not specify the location of this newly proposed off-site location

Neil Handler
May 9, 1996
Page 23

or provide cost estimates to support the conclusion that the cost of this newly proposed off-site disposal option will not significantly affect the project's capital costs.

T.20. Pg. 9, ¶4 states: "Even with the additional costs of having to dispose of this material, the cost savings for employing thermal desorption over incineration are nonetheless expected to be substantial."

Comment. This ESD statement is unsubstantiated. it is premature to forecast a "substantial" cost savings when, in fact, there is considerable uncertainty regarding (1) the volume of materials at the site that are contaminated, (2) the amount of waste requiring off-site disposal, (3) the location of any off-site disposal facility, (4) the specifications or location of any on-site landfill, and (5) the restrictions on the types of waste that can be disposed in such a landfill.

T.21. Pg. 10, ¶1 states EPA has determined the revised remedy is "cost effective" and "uses permanent solutions and alternative treatment technologies to the maximum extent practicable for this site."

Comment. The ESD has not documented that LTSD is cost effective given the uncertainties highlighted in previous comments regarding waste quantities, disposal options, and the extent of remaining contamination in soils and groundwater. Moreover, alternative technology does not appear to be used to the maximum extent practicable. According to the Presumptive

Neil Handler
May 9, 1996
Page 24

Remedy Guidance, SVE, not LTDD, is the primary presumptive remedy for VOC-contaminated soils, such as those present at the site. The SVE technology is proven and can be combined with other appropriate technologies such as capping, selective source removal, and/or in-situ stabilization to achieve cleanup levels established in the ROD.

Very truly yours,

Denis V. Brennan

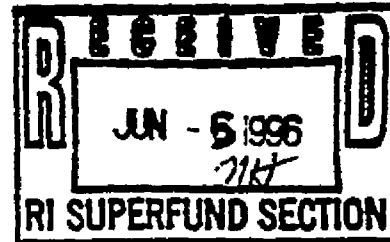


2000 One Logan Square
Philadelphia, PA 19103-6993
215-963-5000
Fax: 215-963-5299

Morgan, Lewis
& Bockius LLP
C O U N S E L O R S A T L A W

Denis V. Brennan
215-963-5407

May 31, 1996



LETTER POSTMARKED 5/31/96

Neil Handler
Remedial Project Manager
U.S. EPA - Office of Site Remediation and Restoration
JFK Federal Building (HBO)
Boston, MA 02203

Re: Supplemental Comments Upon EPA's Proposed Explanation
of Significant Differences for the Davis Liquid Superfund
Site in Smithfield, Rhode Island

Dear Mr. Handler:

As set forth in our original comments, on April 9, 1996, EPA published a notice in the Providence Journal Bulletin that it intended to issue an Explanation of Significant Differences ("ESD") recommending what it describes as a significant change for the remedy previously selected in the 1987 Record of Decision ("ROD") for the Davis Liquid Superfund Site in Smithfield, Rhode Island ("Davis Site"). The ROD was based upon data and analyses in the Remedial Investigation (RI) and Feasibility Study (FS) and their appendices. On May 9, 1996, we, on behalf of our client, a litigant, provided procedural, general, and technical comments on the proposed ESD. Pursuant to communications with Kathleen Woodward, Esq. of USEPA Region I, we received permission to submit these supplemental comments to be post-marked by May 30, 1996.

Supplemental Procedural Comments

Supplemental Comment T.3.

As we noted on May 9, 1996, EPA's comment period provides inadequate time to review, consider, and evaluate all of the documentation and data identified in the original ROD Administrative Record and the Proposed Administrative Record for the ESD. In order to comment upon the proposed changes, a party must understand the proposed remedy change in light of the original remedial decision. At the time of our initial comments, we intimated that the real rationale behind the ESD appeared to be an undisclosed settlement between the United States of America and one of the litigants in the case of the United States v. William Davis, et al. in particular, United

Neil Handler
May 31, 1996
Page 2

Technologies Corporation ("UTC"). Recent developments have made it clear that there exists a settlement in principle between UTC and the United States and that this settlement is integrally related to and inseparable from the proposed remedy change. Accordingly, EPA should immediately reveal the terms and conditions of that settlement including but not limited to all the terms and conditions which affect the remedy to be implemented at the Davis Site and should then provide an adequate time to review, consider, and evaluate the settlement terms in light of the remedy proposed in the ESD.

Supplemental Technical Comments

Supplemental Comment T.6.

As noted in our May 9, 1996 comments, the use of an after burner in the proposed LTTD process is included in the FS but is not mentioned in the ESD. Subsequent review of the Treatability Study Report by ENSAFE, 1995, demonstrates that there is no mention of the use of an afterburner in that document either. Recognizing that the afterburner may not in fact be necessary, it is important to note the apparent deletion of the afterburner from the LTTD process makes the LTTD process more similar to soil vapor extraction ("SVE") than to incineration and underscores the importance of reconsidering SVE as the presumptive and cost-effective remedy for soil remediation at the Davis Site. In addition, the last sentence of our May 9 comments stated that "release or omissions of VOCs in the atmosphere caused by excavation activities were not considered in the ESD or the FS." Subsequent review of the Treatability Study Report indicates that VOC loss was experienced during ENSAFE's Treatability Study at significant levels. Specifically, VOC concentrations fell by over 50% after soil homogenization. Presumably this loss is the result of fugitive emissions. A continuing VOC release to the atmosphere of comparable scale is to be expected if soil is excavated and handled in an ex situ process as is now contemplated by the ESD. Control mechanisms to handle such fugitive emissions can be more readily and cost effectively applied if SVE were the chosen technology as opposed to LTTD.

Supplemental Comment T.8.

As we pointed out in comment G.2. on May 9, 1996, the ESD, as proposed, is too narrow in focus and fails to consider appropriate remedial technologies, especially in light of the technological advances in the past ten years. The evaluation and discussion of alternative technologies presented in the ROD

Neil Handler
May 31, 1996
Page 3

is severely outdated and needs to be revisited and modified to include assessment of technologies currently available, including but not limited to biodegradation, surface sealing, groundwater barriers, horizontal air sparging, and the like. It seems incontestable that current technologies would help reduce costs and accelerate the remedial project. These comments are especially applicable to the groundwater remedy at the site. There are several alternatives to using a conventional pump-and-treat system that may be more cost effective. These include innovative technologies that treat contaminated groundwater in place, such as air sparging or technologies that enhance pump-and-treat system performance, such as chemical and/or thermal enhancements. Technologies that treat contaminated soil and groundwater simultaneously, such as dual phase extraction, were not even evaluated in the ROD or the ESD. By failing to consider the use of these current innovative technologies, EPA is improperly precluding their use at the site simply because they were not available at the time the FS was drafted more than ten (10) years ago. All current technologies, including technology enhancements, need to be evaluated and compared to conventional pump-and-treat systems at this time.

Supplemental Comments to T.11.

Since the May 9, 1996 comments, analyses of the soil, groundwater, and residential well data presented in the Final Pre-Design Engineering Report prepared for the U.S. Department of the Army Corps. of Engineers by Woodward Clyde in 1993 has been subject to further review. The results of this report indicate a 10 fold to 100 fold reduction in total volatile organic concentrations in the overburden aquifer that occurred between 1985 and 1991. These results confirm that through natural attenuation the levels of toxic constituents in the overburden have been considerably decreased. Moreover, there has undoubtedly been further significant decrease since the last sampling events five years ago in 1991. Moreover, these natural processes will continue to alter the nature and extent of groundwater contamination. Accordingly, the effects of natural attenuation should be reconsidered and the role of volatilization and biodegradation should be reviewed prior to embarking on groundwater remediation.

These comments are intended solely and exclusively to supplement the comments previously made on May 9, 1996. They are not intended and should not be read to withdraw, diminish, or revoke any comments made on May 9, 1996.

Neil Handler
May 31, 1996
Page 4

Very truly yours,

A handwritten signature in black ink, appearing to read "Denis V. Brennan", with a long horizontal flourish extending to the right.

Denis V. Brennan

DVB/mec
Encl.

cc: Kathleen Woodward, Esq.

SIDLEY & AUSTIN
A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

CHICAGO
LOS ANGELES
NEW YORK

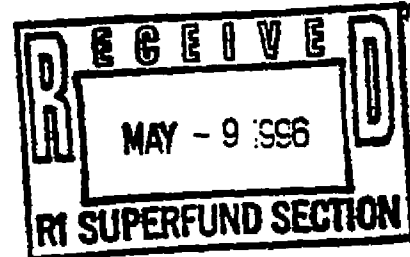
1722 EYE STREET, N.W.
WASHINGTON, D.C. 20006
TELEPHONE 202: 736-8000
TELEX 89-463
FACSIMILE 202: 736-8711

LONDON
SINGAPORE
TOKYO

FOUNDED 1866

WRITER'S DIRECT NUMBER
(202) 736-8547

May 8, 1996



**via Facsimile
and Federal Express**

Mr. Neil Handler
Environmental Engineer
Waste Management Division
U.S. Environmental Protection Agency
JFK Federal Building
One Congress Street
Boston, MA 02203

Re: Explanation of Significant Differences - Davis Liquid Waste
Superfund Site

Dear Mr. Handler:

I submit this comment letter on the Explanation of Significant Differences ("ESD") for the Davis Liquid Waste Site ("Site") on behalf of Browning-Ferris Industries of Rhode Island, Inc. ("BFI-RI").

BFI-RI agrees that the soil component of the remedial action for the Site should be changed from on-site incineration. The ESD specifies, however, that the soil contamination consists primarily of volatile organic compounds ("VOCs"). ESD at 4. Yet, consistent with EPA guidance, soil vapor extraction ("SVE") would be the preferred, cost-effective, and efficient remedy for removing VOCs from soils at this Site, consistent with the national contingency plan. See Presumptive Remedies: Site Characterization and Technology Selection For CERCLA Sites With Volatile Organic

Mr. Neil Handler
May 8, 1996
Page 2

Compounds in Soils (Sept. 1993). SVE is in place at numerous sites around the country, including several in Region 1.

In short, EPA should revise the soil component of the remedial action for the Davis Liquid Waste Site. However, it should be changed to SVE, not low temperature thermal desorption.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Samuel B. Boxerman". The signature is fluid and cursive, with the first name "Samuel" and last name "Boxerman" clearly distinguishable.

Samuel B. Boxerman

/gra

cc: Michael Miller
Donna Kolar