

EXPLANATION OF SIGNIFICANT DIFFERENCES

MODIFYING THE DECISIONS FOR THE SEDIMENT AND FLOODPLAIN / WETLAND OPERABLE UNITS TO ADDRESS DNAPL-IMPACTED SOILS AND SEDIMENTS

FIELDS BROOK SUPERFUND SITE - ASHTABULA, OHIO

I. INTRODUCTION

The Fields Brook Site (Site) is located in northeast Ohio, in Ashtabula County, approximately 55 miles east of Cleveland, Ohio. The U.S. Environmental Protection Agency (U.S. EPA) is the lead agency for conducting the remedial action at the Site under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. Section 9601, *et seq.* This Explanation of Significant Differences (ESD) modifies the cleanup decisions made in two of the three Records of Decisions (RODs) previously issued for the Site and the 1997 Explanation of Significant Differences for the Sediment Operable Unit.

The Fields Brook Superfund Site includes the sediment in Fields Brook, soil and sediment in the brook floodplain, and areas which pose a threat of recontamination to the brook. To simplify investigation and cleanup actions, the site has been broken into multiple "operable units." The sediment in the brook is addressed in the Sediment Operable Unit. Floodplain soil and sediment are addressed in the Floodplain/Wetland Operable Unit. The six industrial areas that pose of threat of recontamination to the brook are part of the Source Control Operable Unit.

The U.S. EPA issued a Record of Decision on September 30, 1986, which outlined the remedy selection process and the selected clean-up action for the Sediment Operable Unit of the Site. As part of the overall remedy for the brook sediment, this ROD required the on-site incineration of sediments with greater than 50 parts per million (ppm) of total polychlorinated biphenyls (PCBs) or with a soil/water partition coefficient (koc) of less than 2400. Since that time, additional investigations were performed at the Site to identify the sources of contamination and determine to what extent the contamination in the brook sediment has moved into the floodplain/wetland soils adjacent to Fields Brook. In 1997, the U.S. EPA signed RODs for the Source Control Operable Unit and the Floodplain/Wetland Operable Unit and modified the requirements of the Sediment Operable Unit with an ESD. One of the main modifications identified in the 1997 ESD for the Sediment Operable Unit was to move the thermal treatment of sediments to an off-site commercial incinerator instead of requiring treatment on-site.

After issuance of the two 1997 RODs (for the Source Control Operable Unit and the Floodplain/Wetland Operable Unit) and the 1997 ESD for the Sediment Operable Unit, progress

on the Fields Brook project continued as the project moved into the Remedial Design phase. When the Remedial Design for the cleanup of the Fields Brook sediment and the Floodplain/Wetland soils was at the 90% complete stage, the U.S. EPA received information regarding the possible presence of elevated radionuclides in the brook. Subsequent investigations identified the presence of Naturally Occurring Radioactive Materials (NORM) at the Millennium $TiCl_4$ property and in brook sediment and floodplain soils. The 1999 Site-Wide ESD selected cleanup levels for radium-226 and radium-228 and modified the existing cleanup levels for uranium in order to ensure the protectiveness of the remedy.

In the summer of 2000, the Fields Brook landfill was constructed and cleanup of the Sediment and Floodplain Operable Units began. In the fall of 2000, during excavation of brook sediments, an underlying layer of Dense Non-Aqueous Phase Liquid (DNAPL) was found below brook sediments and floodplain soils. This DNAPL layer is composed of volatile and semi-volatile organic compounds previously identified and evaluated as part of the Sediment Operable Unit. See Table 1 for representative contaminant concentrations in DNAPL-impacted soil. Previously identified site contaminants were found in this layer, but at higher concentrations and in a greatly increased volume of material than had been anticipated. Instead of periodic pockets of sediments with high levels of chlorinated organic compounds, liquid DNAPL was observed at a depth of approximately 6 to 8 feet below ground surface, perched on top of the stiff clay layer that is natural to the area. Investigations into the extent of the problem found that this DNAPL layer is present in Exposure Unit 8 and Exposure Unit 6 (see Figure 3). In addition, it was found that the DNAPL contamination did not remain isolated in the deepest layers of sediments, but rather moved laterally into the subsurface floodplain soils on both sides of the brook.

The liquid DNAPL and the DNAPL-impacted soils and sediment cannot be placed in the site landfill without treatment. According to the original 1986 Sediment ROD, material that contains contaminants with a high potential for mobility (with a soil/water partition coefficient of below 2400), should be incinerated on-site. The 1997 Sediment Operable Unit ESD changed that decision and moved the thermal treatment to an off-site incinerator, citing both an insufficient volume for cost-effective treatment on site and public concern.

This ESD revises the treatment location that was made in the 1997 Sediment Operable Unit ESD. A sufficient volume of material has been identified to make on-site treatment of contaminated soils and sediment more cost-effective than off-site thermal treatment. By revising the treatment location modification made in the 1997 Explanation of Significant Differences, a significant cost savings can be realized without a decrease in the protectiveness of the remedy. This change will not apply to liquid DNAPL, which will be containerized and sent to an off-site incinerator. The on-site treatment units being considered are not appropriate for the treatment of liquids.

This ESD also identifies the extent of soil and sediment removal required in the area of DNAPL contamination. For the Floodplain/Wetland Area, all areas where liquid DNAPL is present

and/or where hexachlorobenzene (HCB) levels exceed 200 ppm shall be excavated. The excavation shall go to, and 6 inches into, the underlying clay. Liquid DNAPL will be collected, containerized and sent off-site for treatment. Contaminated soil shall be staged for on-site thermal treatment. Sub-surface soils above the clay layer that contain elevated VOCs and SVOCs need not be excavated if there is no liquid DNAPL present. Because the residual contamination is approximately 6 to 8 feet below ground surface, human contact is unlikely and can be addressed with institutional controls. Responsible parties own the floodplain property in question and deed restrictions can be implemented without difficulty. Sediment monitoring will be performed to verify that this residual contamination in the floodplain is not impacting the brook sediment after remediation. This approach is consistent with the use of the "depth of scour" benchmark for determining the need for deep sediment removal.

For the sediment within Fields Brook, all sediment and underlying silt soils in the areas of DNAPL contamination will be removed, down to and 6 inches into the underlying clay layer. This represents an increase in the volume of sediment that was previously to be removed in Exposure Units 8 and 6. The increased volume of sediment to be removed will basically clean out the upper channel in the area where the DNAPL is present. Previous limits of excavation based on "depth of scour" will be set aside and a complete excavation of sediments and the underlying soil (down to and 6 inches into the underlying clay) will be performed, even in locations where no liquid DNAPL is present. This will create a clean zone in the sediments and soils in Exposure Units 8 and 6 that can be monitored to ensure that residual soil contamination in the floodplain is not entering the brook.

As none of these significant differences are considered to be fundamental changes to the RODs, U.S. EPA has determined that no public comment period is required. However, U.S. EPA issued a Fact Sheet and held an informational meeting on May 10, 2001, to discuss the changes noted herein.

This document shall become part of the Administrative Record file, which is available for viewing at the Ashtabula County District Library, 335 West 44th Street, Ashtabula, Ohio, and at U.S. EPA's Records Center, 77 West Jackson Blvd., Chicago, Illinois, during normal business hours.

II. SITE HISTORY

A. General

Fields Brook drains a six square mile watershed including an industrial area where manufacturing activities ranging from metal fabrication to chemical production have occurred over the past 50 years (see Figure 1). Sediments of the brook are contaminated with PCBs, chlorinated benzene compounds, chlorinated solvents, hexachlorobutadiene, polyaromatic

hydrocarbons (PAHs), arsenic, chlorinated ethenes (solvents), chromium, arsenic, other organic and inorganic hazardous substances, and uranium and thorium-related radionuclides.

The industrial zone of Ashtabula is concentrated around Fields Brook and is comprised of several chemical industries and waste disposal sites. Manufacturing has occurred since the early 1940's in this area. Activities including metal fabrication, production of complex chemical products, and ore processing occurred on approximately 18 separate industrial properties, and the decades of industrial activity along Fields Brook and its tributaries resulted in the release of chemical contamination to the Fields Brook watershed.

The Site was placed on the National Priorities List (NPL) for hazardous waste sites on September 8, 1983. The site consists of Fields Brook, its tributaries, and any surrounding areas which contribute, potentially may contribute, or have contributed to the contamination of the brook and its tributaries. The Site is a multi-source site and involves multiple media, including soil, sediment, groundwater and surface water.

For purposes of site investigation, the U.S. EPA divided the Site into three "operable units." The Sediment Operable Unit involves the cleanup of contaminated sediment in Fields Brook and its tributaries. The Floodplain/Wetland Area Operable Unit involves the cleanup of contaminated soils and sediments in the floodplain which are located within the 100-year floodplain area surrounding Fields Brook and outside of the channel and sideslope areas of Fields Brook. The Source Control Operable Unit involves the location and cleanup of sources of contamination to Fields Brook to prevent recontamination of Fields Brook and the Floodplains/Wetland Area. The scope of the Fields Brook investigation and cleanup has been limited to allow the focus to be on the work required to complete the brook cleanup. Contamination at source control areas are addressed only to the extent necessary to prevent recontamination of the brook. Likewise, groundwater issues are addressed to the extent necessary to protect the brook.

B. Sediment Operable Unit

Between April 1983 and July 1986, the U.S. EPA performed a Remedial Investigation/Feasibility Study (RI/FS) for the Sediment Operable Unit. U.S. EPA completed the RI Report in March 1985 and the FS report in July 1986. The RI included a baseline human health risk assessment which demonstrated human health risks for the Brook sediment. The FS Report described several alternatives for remedial action of the Sediment Operable Unit. The U.S. EPA issued a ROD for the Sediment Operable Unit in September 1986 detailing a cleanup remedy that U.S. EPA determined to be necessary for the Fields Brook sediments. This 1986 ROD required on-site thermal treatment of a portion of the sediment to be removed from the brook. Based on predesign work conducted by the PRPs (with oversight by U.S. EPA and the U.S. Army Corps of Engineers), the U.S. EPA issued an Explanation of Significant Differences in August 1997 to refine the work to be performed as part of the Fields Brook sediment cleanup. This 1997 ESD

changed the location of thermal treatment from on-site to off-site, with thermal treatment required for all sediments that exceed 50 ppm total PCBs or with a high potential for mobility, based on a soil/water partition coefficient of below 2400. The 1999 Site-Wide ESD added radium-226 and radium-228 cleanup standards and modified the existing uranium cleanup standard for Fields Brook sediment. The Site-Wide ESD also clarified that sediments with elevated levels of radionuclides should not be sent off-site to a commercial incinerator, but rather solidified on-site and placed in the site landfill.

C. Floodplain/Wetland Operable Unit

The 1985 Remedial Investigation of the Sediment Operable Unit included a baseline human health risk assessment which demonstrated human health risks not only from exposure to the brook sediment, but also exposure to soils in the floodplain area adjacent to Fields Brook. In 1993, the PRPs initiated a voluntary assessment of the nature and extent of contamination in the Floodplain/Wetland Area of Fields Brook. The PRPs conducted three rounds of floodplain/wetland soil sampling, additional flora and biota sampling and field investigations, and a wetland survey which identified the size and location of wetlands that could be affected by the Fields Brook cleanup. The PRPs investigation of the Floodplain/Wetland Operable Unit was conducted under the oversight of U.S. EPA and the U.S. Army Corps of Engineers and was completed by the spring of 1995. After completion of the site investigation, the PRPs prepared a Feasibility Study to evaluate cleanup alternatives. The Feasibility Study report was finalized in October 1996. In July 1997, U.S. EPA issued the ROD for the Floodplain/Wetland Operable Unit. The ROD identified floodplain/wetland cleanup goals, but was primarily directed at surficial PCB and HCB contamination. The 1999 Site-Wide ESD added cleanup requirements for floodplain/wetland soils containing elevated levels of radium and clarified the uranium cleanup standard.

D. Source Control Operable Unit

Because it was recognized that the cleanup of the Fields Brook sediment should not be performed unless the source(s) of contamination are addressed prior to the cleanup, the U.S. EPA required the PRPs to investigate the industrial area of Ashtabula. From 1992 to 1995, the PRPs evaluated 94 properties in the Fields Brook watershed to determine whether the properties could cause future recontamination once the Brook cleanup is underway. Contamination could be caused by discharges from pipes, the movement of contaminated soil or sediment during rainstorms, and subsurface releases to the brook from flowing groundwater. As a result of the source control evaluation, the U.S. EPA identified six industrial areas as possible sources of recontamination to Fields Brook. Detailed information about the types and extent of contamination at the source areas can be found in the Source Control Remedial Investigation Report, which was approved by U.S. EPA in May of 1997.

In conjunction with the preparation of the Source Control Remedial Investigation report, the PRPs prepared a Source Control Feasibility Study to identify and evaluate cleanup alternatives. The Source Control Feasibility Study was finalized in June, 1997. The report describes the initial screening of alternatives, the identification of a range of remedial alternatives, and the detailed analysis of the assembled alternatives for each of the five properties and the sewer systems. The 1997 Source Control ROD selected cleanup plans for the six source control areas. The 1999 Site-Wide ESD added radium-226 and radium-228 cleanup standards to the Source Control ROD. That change impacted only one of the six source control areas, specifically the Millennium TiCl₄ property which was a potential source of PCB and radium contamination to the brook.

Because this ESD deals only with the layer of DNAPL and DNAPL-impacted soils and sediment present in the Sediment and Floodplain/Wetland areas, further discussion of the Source Control Operable Unit in this ESD will be limited. It is important to note that while a similar layer of DNAPL is present under the Detrex Corporation facility, this ESD does not apply to the Detrex Corporation source control cleanup. The removal of DNAPL from the Detrex source control area is being addressed by the remedy selected in the 1997 Source Control Operable Unit ROD. If the remedy selected in the 1997 Source Control ROD proves insufficient to address the DNAPL present below the Detrex property, the need for supplemental remedial actions will be evaluated.

E. Enforcement

After the 1997 issuance of the two RODs (for floodplain/wetlands and source control) and the ESD for the Sediment Operable Unit, the U.S. EPA issued 7 Unilateral Administrative Orders (UAO). One UAO was to the broad group of PRPs responsible for the Sediment and Floodplain/Wetland contamination. This UAO required the PRPs to prepare the design for the cleanup and conduct the cleanup consistent with the Sediment Operable Unit ROD, the Sediment Operable Unit ESD and the Floodplain/Wetland ROD. The sediment and floodplain/wetland designs were combined for practical reasons, because it makes sense to remove the contaminated soils next to the brook at the same time that the brook sediment is excavated. The other six UAOs were sent to PRPs responsible for the individual source control areas, including Detrex Corporation.

After the issuance of the sediment and floodplain/wetland UAO, the U.S. EPA and U.S. Department of Justice completed negotiations with PRPs. A Consent Decree for Remedial Design/Remedial Action (RD/RA) was signed. This Consent Decree was lodged on May 14, 1999 and entered on July 7, 1999. The Settling Defendants have been performing RD/RA work on the Sediment and Floodplain/Wetland Operable Units consistent with the requirements of the Consent Decree.

III. DESCRIPTION OF MODIFICATIONS TO EXISTING RODS AND ESDs

A. General

The recent discovery of the layer of liquid DNAPL and DNAPL-impacted sediment and soil below the Sediment and Floodplain/Wetland Operable Units has resulted in a increase in the volume of soil requiring treatment. This DNAPL layer is similar to contamination found previously in the Sediment Operable Unit, but at significantly higher concentrations. Previous discoveries of isolated pockets of sediments with VOC and SVOC concentrations found this material, but did not discuss that these pockets were part of a larger problem. The identification of the DNAPL layer has led to the identification of modifications required in the Source Control ESD and the Floodplain/Wetland ROD. No changes to the Source Control ROD are required at this time.

B. Source Control - Detrex Corporation Identified as Source of DNAPL in the Brook

Based on the constituents in the DNAPL and the location of the DNAPL layer, it appears that Detrex Corporation was the source of DNAPL in the brook. See Figure 2 for the location of the former Detrex Tributary, which it is believed served as a historical conduit for the discharge of wastewater to Fields Brook. Figure 3 shows the outfall point where the former Detrex Tributary entered the brook and shows the approximate extent of DNAPL in Exposure Unit 8 and Exposure Unit 6. The constituents of the DNAPL support the likelihood that the source was Detrex since the DNAPL in the brook is very similar to the DNAPL found below the Detrex facility, which is being addressed under the Source Control ROD.

When U.S. EPA determined that the source of the DNAPL contamination in the brook was Detrex, U.S. EPA was concerned that there could be a physical connection through underlying soils between the brook DNAPL and the DNAPL below the Detrex facility. This concern was investigated in the field by digging pits and trenches. No such connection was found between the two known areas of DNAPL contamination. U.S. EPA will continue to watch for a possible connection between the areas of DNAPL contamination to ensure that there is not a continuing source of VOC and SVOC contamination to the brook. At this point in time, no modifications to the Source Control ROD are required.

C. Sediment Operable Unit - Cleanup Goals

The Sediment Operable Unit ROD, as modified by the 1997 ESD, requires the excavation of sediment that exceeds "confidence removal goals" for PCBs, HCB and other contaminants found at unacceptable levels in the brook. The cleanup plan includes off-site thermal treatment (incineration) of sediment that contains greater than 50 ppm total PCBs or with a high potential for mobility (defined as a soil/water partition coefficient of below 2400). Excavated sediment

not requiring thermal treatment will be placed in the on-site TSCA-equivalent landfill. Because contaminants from the DNAPL have previously been encountered at the site, cleanup goals and confidence removal goals are already available for the DNAPL constituents. No modifications are required in the cleanup goals to address the presence of DNAPL in the Sediment Operable Unit:

D. Floodplain/Wetland Operable Unit - Cleanup Goals / Requirement for Treatment

For industrial areas of Fields Brook, the Floodplain/Wetland ROD requires the excavation of all soil in industrial areas with 50 ppm or greater total PCBs and/or over 200 ppm HCB. For residential areas of Fields Brook, the ROD requires the excavation and disposal of all soil with total PCB contamination above 30 ppm and HCB contamination above 80 ppm. For soil in residential areas of Fields Brook with between 6 and 30 ppm total PCBs, the ROD requires a 6-inch hydric-compatible soil cover to reduce the erosion of the material into Fields Brook. In order to avoid any problems associated with implementation and long-term upkeep and to avoid the necessity of deed restrictions, the PRP group agree to eliminate the 6-inch soil cover from the cleanup design and excavate to a level of 6 ppm in the residential areas of the brook.

This ESD retains the 1997 Floodplain/Wetland ROD's focus on PCBs and HCB, as a means to achieve the broader floodplain/wetland cleanup goals. All floodplain areas with liquid DNAPL will be excavated, and areas with no liquid DNAPL will be excavated to the extent necessary to achieve the 200 ppm cleanup level for HCB, ensuring consistency with the 1997 ROD. The additional floodplain/wetland cleanup goals will not be applied to the residual soil contamination that will be left after this excavation, because the residual contamination is below a depth where human contact is likely. This is consistent with the "depth of scour" approach used as a limit for sediment excavation. Deed restrictions shall be put in place along the floodplain to document the location, depth and type of residual soil contamination and to restrict the future use of these areas, as required in the 1997 Floodplain/Wetland ROD. Should any excavation be required in these floodplain areas in the future, the Fields Brook Responsible Parties will be responsible for any accommodations required to access these areas.

Brook sediment will be monitored to ensure that residual VOC and SVOC contamination does not enter brook sediment. If monitoring shows that DNAPL-related contaminants are entering the brook sediment, additional excavation of floodplain soil may be required.

In addition to identifying the extent of DNAPL cleanup required and the need for monitoring and institutional controls, this ESD establishes the thermal treatment requirement for liquid DNAPL and DNAPL-impacted soils found in the floodplain. This approach is consistent with the Sediment Operable Unit requirement for thermal treatment of sediment with a high potential for mobility.

E. Sediment and Floodplain/Wetland Operable Units - Location of Thermal Treatment for Liquid DNAPL

The on-site treatment systems being evaluated for the DNAPL-impacted soil and sediment are not appropriate for the treatment of liquid DNAPL. Any liquid DNAPL collected during the cleanup of the Fields Brook Sediment and Floodplain/Wetland Operable Unit shall be collected, safely contained and transported off-site for thermal treatment. Thermal treatment is not required for contact water and decontamination water. Contact water and decontamination water may be treated at the water treatment plant located adjacent to the Fields Brook landfill.

F. Sediment and Floodplain/Wetland Operable Units - Location of Thermal Treatment for DNAPL-Impacted Soil and Sediment

As discussed previously, the 1986 ROD for brook sediment specified the use of on-site incineration. The 1997 ESD for the Sediment Operable Unit modified the location of treatment and required off-site thermal treatment. The 1997 Sediment Operable Unit ESD primarily cited an insufficient volume of material at the site to make on-site treatment cost-effective. The discovery, in the fall of 2000, of approximately 15,000 tons of DNAPL-impacted soil and sediment has changed the determination about the cost-effectiveness of on-site thermal treatment. In response, this ESD allows on-site thermal treatment of DNAPL-Impacted Soil and Sediment.

G. Sediment and Floodplain/Wetland Operable Units - Radionuclide Considerations for the On-site Treatment of DNAPL-Impacted Soil and Sediment

The possible presence of radionuclides in the DNAPL is an important issue for the Fields Brook cleanup. Two sources of radionuclide contamination have been identified in the area of Fields Brook. The Millennium $TiCl_4$ property was a past source of NORM contamination to the floodplain and sediment. The RMI Extrusion facility (located in Exposure Unit 6 adjacent to Fields Brook, west of State Road) is not one of the Source Control Operable Units, but is being decommissioned under the authority of the U.S. Department of Energy and the State of Ohio (which is an agreement State for the Nuclear Regulatory Commission).

DNAPL-impacted soil and sediment from Fields Brook have been screened in the field to determine whether elevated levels of radionuclides are present. There has been no evidence that radionuclide levels exceed normal background for the Ashtabula area.

The area of DNAPL contamination in the brook is adjacent to the Millennium $TiCl_4$ facility, and thus could potentially contain elevated levels of NORM. Although screening of the DNAPL layer has been performed which has not shown elevated levels of radionuclides, samples will be collected and analyzed in advance of full-scale operation to verify that radionuclides from the Millennium $TiCl_4$ facility are not a concern. Routine field screening will be utilized during the

excavation of DNAPL-impacted soil and sediment to monitor levels of radionuclides in the materials to be treated. Should NORM contamination from Millennium be identified in the DNAPL-impacted soil and sediment, the U.S. EPA will evaluate whether this can be fully addressed in the on-site thermal treatment system to prevent unacceptable air releases. If the treatment system cannot be safely operated with the presence of the elevated NORM radionuclides, the excavated DNAPL-impacted soil and sediment will be stabilized and/or solidified and placed in the on-site landfill.

The area of DNAPL contamination is very near, but upstream of the RMI Extrusion facility. Samples of DNAPL-impacted soil and sediment will be collected prior to full-scale operation to verify that there are no elevated radionuclides from the RMI Extrusion facility. As discussed previously, routine field screening will be utilized during the excavation of DNAPL-impacted soil and sediment to monitor radionuclide levels. Should elevated radionuclide levels be identified in DNAPL-impacted soil and sediment near the RMI Extrusion facility, additional laboratory analyses may be required to determine the source of the elevated radionuclides. If the elevated radionuclides are determined to be from the RMI Extrusion facility, the material will be subject to the Atomic Energy Act, and cannot be treated with on-site thermal treatment. The material would then be containerized until proper disposal can be coordinated with the U.S. Department of Energy and the Ohio Department of Health Bureau of Radiation Protection.

H. Sediment and Floodplain/Wetland Operable Units - Requirements for the On-Site Thermal Treatment Unit

The Work Settling Defendants for the Sediment and Floodplain/Wetland Operable Units have proposed a Low Temperature Thermal Desorption unit for treatment of DNAPL-impacted soil and sediment. See Figure 4 for a description of the treatment process. U.S. EPA has determined that this unit must meet the requirements of 40 CFR Part 264, subpart O because it utilizes a thermal oxidizer to destroy contaminants in the gas stream.

Prior to full-scale operation, the thermal treatment system must demonstrate its ability to treat site contaminants and to meet air regulations consistent with an approved Performance Demonstration Plan. For treatment of soil and sediment that contain less than 50 ppm total PCBs, the thermal treatment system is required to meet a Destruction Removal Efficiency (DRE) of at least 99.99%. For treatment of soil and sediment that are known to contain or are likely to contain PCBs at a concentration at or above 50 ppm, the DRE must be at least 99.9999%. If the volume of DNAPL-impacted soil and sediment that contains PCBs at or above 50 ppm is determined to be too small to warrant treatment on-site at a DRE of 99.9999%, the Settling Defendants may elect to send this portion of the DNAPL-impacted soil and sediment off-site for incineration. Any DNAPL-impacted soil and sediment that contains PCBs at a concentration at or above 500 ppm must be treated off-site.

The Performance Demonstration Plan shall verify that the stack gas meets emission limits for particulates, VOCs, SVOC, PCDD/PCDF, and metals. Once the system is in operation, continuous emissions monitoring shall be performed for CO, CO₂, and THC. SO₂ and No_x will be monitored on a periodic basis.

Should the U.S. EPA determine that the on-site treatment system is unable to meet performance and emissions requirements, on-site treatment of DNAPL-impacted soil and sediment will not be authorized and the excavated material shall be properly transported for off-site incineration.

I. Land Disposal Restrictions

The DNAPL from the Detrex Corporation is considered to be K030 listed waste. RCRA waste K030 is generated from the production of trichloroethylene and perchloroethylene. Treated soils must meet Land Disposal Restrictions for K030 wastes. Land Disposal Restrictions for soils are ten times the universal treatment standard, or a 90% reduction in the contaminant levels. Treatment standards for K030 apply to o-dichlorobenzene, p-dichlorobenzene, hexachlorobutadiene, hexachloroethane, hexachloroethane, hexachloropropylene, pentachlorobenzene, pentachloroethane, 1,2,4,5-tetrachlorobenzene, tetrachloroethylene and 1,2,4-trichlorobenzene.

J. Sediment and Floodplain/Wetland Operable Units - Requirements for Reuse of Treatment Soil and Sediment

VOC and SVOC contamination in DNAPL-impacted soils and sediment will be addressed by Low Temperature Thermal Desorption. Soils and sediment that have been thermally treated at the site may be used as backfill within the area of contamination at the Site if levels of contamination are below the cleanup goals established in the 1997 Sediment Operable Unit ESD. Treated soil and sediment will require reconditioning prior to placement at the Site to allow for site restoration. Treated soil and sediment that do not meet the cleanup goals established in the 1997 Sediment Operable Unit ESD shall be placed in the Site landfill.

K. Community Relations - Public Concern Regarding On-Site Thermal Treatment

In early May of 2001, U.S. EPA mailed over 600 copies of a Site Update Fact Sheet to the Ashtabula residents and other interested parties. The Fact Sheet provided an update on the status of the site cleanup and explained that U.S. EPA was considering allowing on-site thermal treatment of the DNAPL-impacted soil and sediment. The Fact Sheet described the thermal treatment system under consideration and explained that such a system was subject to the U.S. EPA incineration regulations. The Fact Sheet also identified the date, time and place of U.S. EPA's informational meeting. In addition to issuing the Fact Sheet, U.S. EPA placed an advertisement in the local newspaper and issued a press release announcing the meeting.

On May 10, 2001, U.S. EPA held an informational meeting at the Ashtabula Area Chamber of Commerce. Approximately 30 individuals attended the meeting. Several residents expressed concern over the thermal treatment of the DNAPL-impacted soil and sediment. The concerns were discussed and U.S. EPA stressed that the system would be subject to monitoring by U.S. EPA and the U.S. Army Corps of Engineers. U.S. EPA also noted that all data to be collected would be made public. Region 5 Office of Public Affairs will be consulted to determine the most effective means to make this information available to the community.

IV. CONCLUSION

U.S. EPA has reviewed the new information that has been developed and has considered the changes that have been made to the selected remedies. Based upon this review, U.S. EPA has determined that the selected remedies, with the changes described above, will remain protective of human health and the environment, will comply with federal and State requirements that are applicable or relevant and appropriate to this remedial action, and will be cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site. Upon review of the suggested changes and the information submitted to support such changes, U.S. EPA, therefore, has changed the remedy set out in the Fields Brook RODs and ESDs in the manner described above.



William E. Muno
Director, Superfund Division

8/17/01

Date

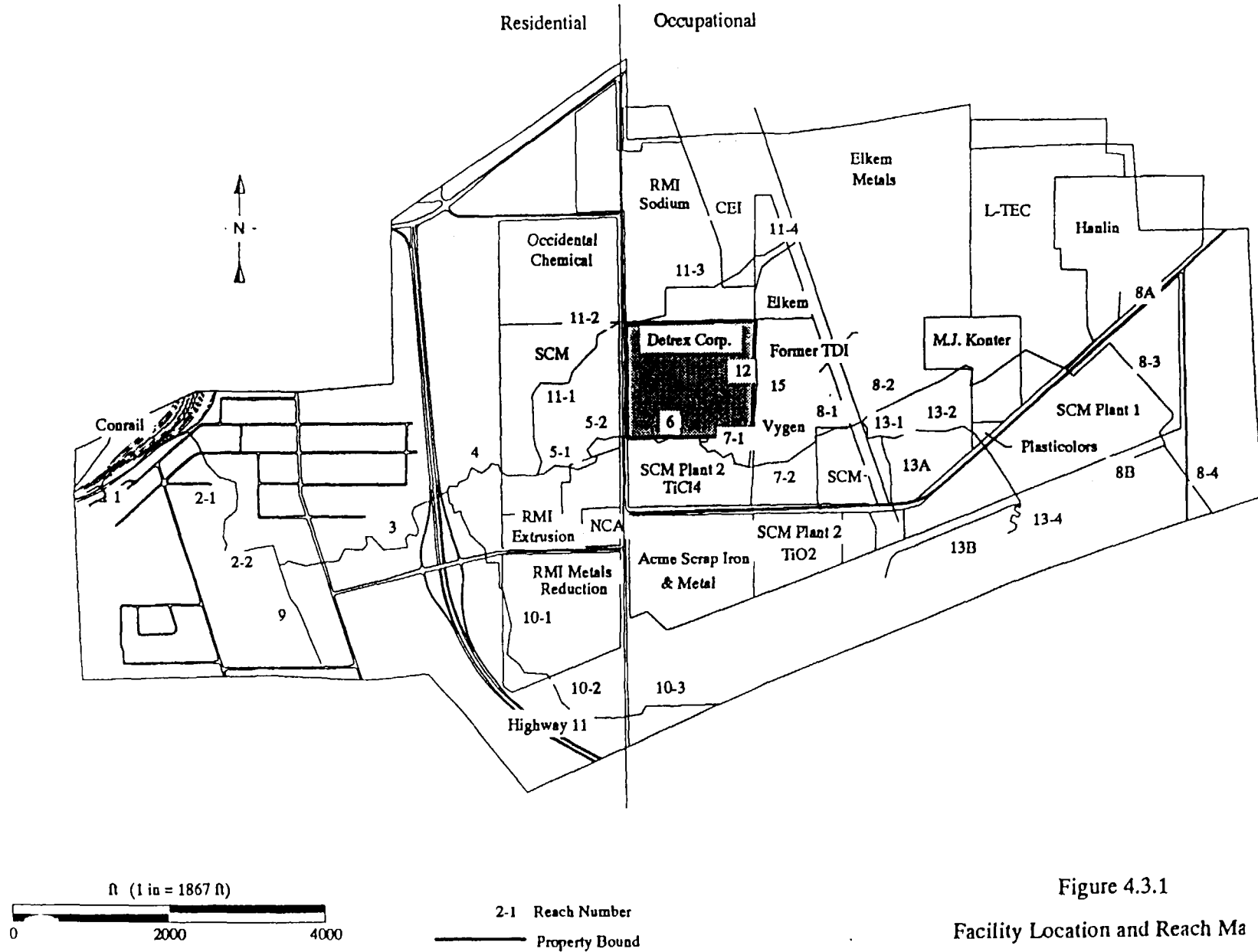
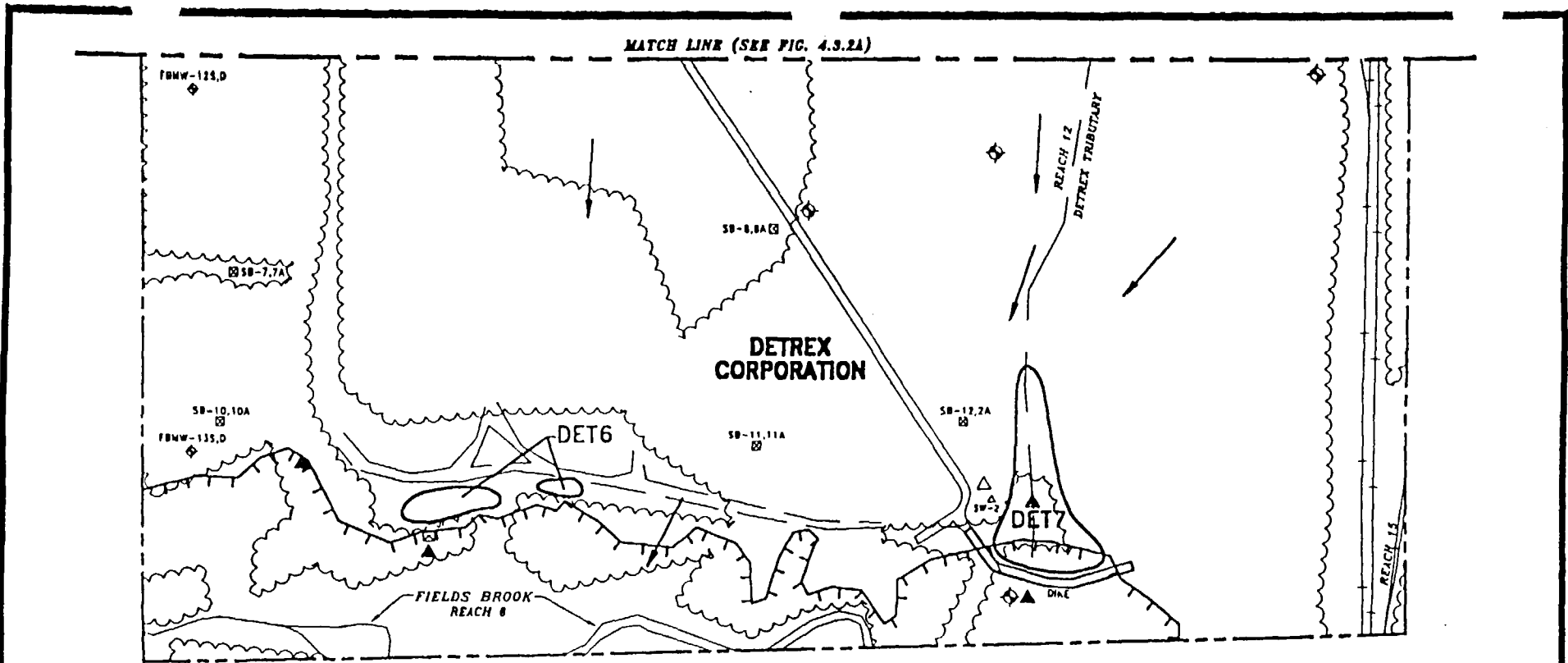


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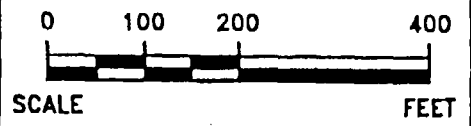
Facility Location and Reach Ma

Figure 1



LEGEND

- DET1 POTENTIAL SOURCE AREA
- FBMW-11 PIEZOMETER
- SB-13 SUBSURFACE SOIL SAMPLE
- SW-1 SURFACE WATER SAMPLE
- PHASE I SOIL BORING
- PHASE I GROUNDWATER MONITORING WELL
- PHASE I SURFACE SOIL SAMPLE
- PHASE I INDUSTRIAL OUTFALL SAMPLE
- GENERAL DIRECTION OF SURFACE WATER AND SOIL EROSION PATHWAYS
- CREST OF STEEPEST SLOPE

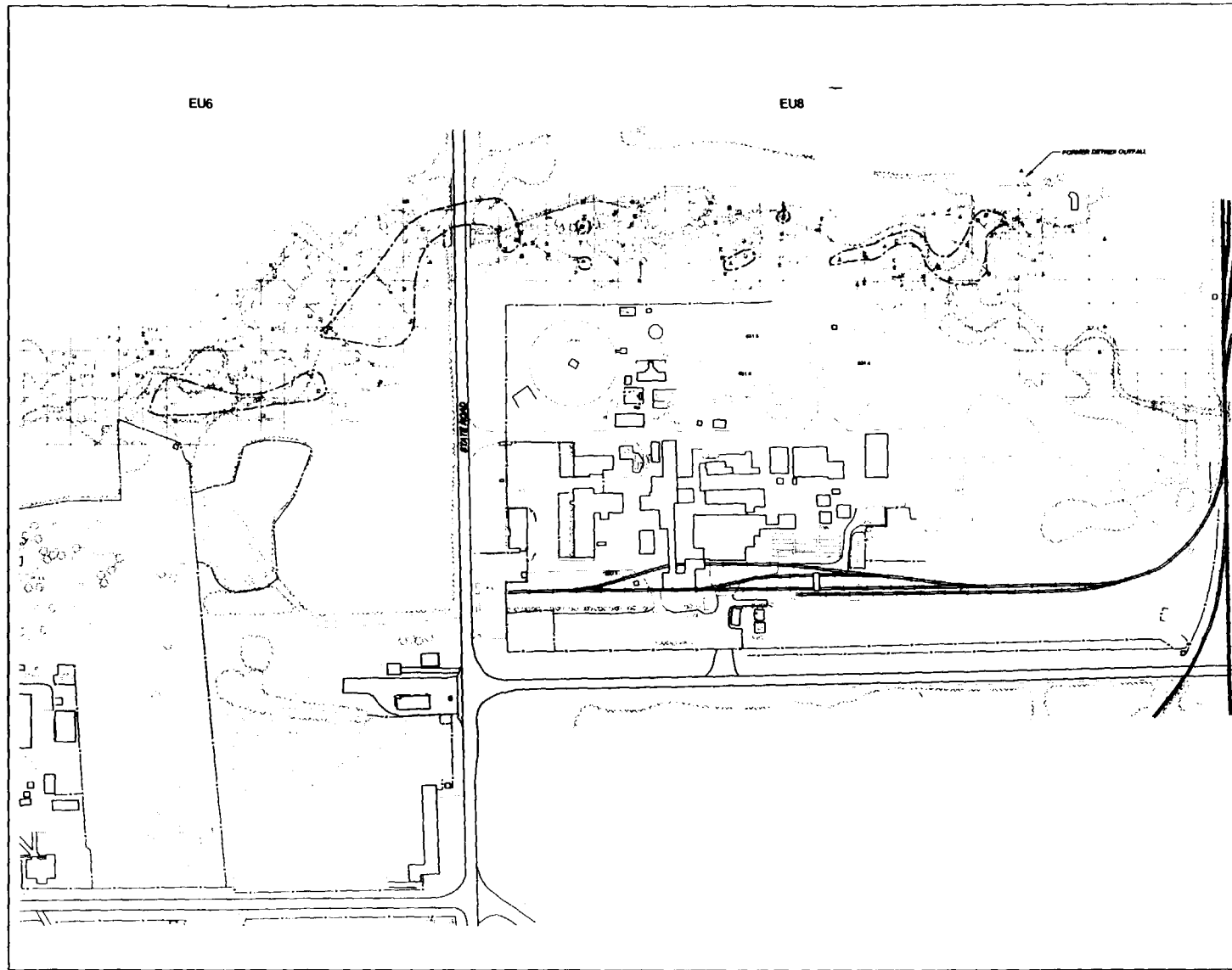


SITE FEATURES - AUGUST 1992			
FIELDS BROOK - SOURCE CONTROL - REMEDIAL INVESTIGATION - PHASE 1 - REVISION 1 - ASHTA			
DRAWN BY: B.Mc	CHECKED BY: TAK	PROJECT NUMBER: 86C3609K	DATE: 7-28-94
			FIGURE

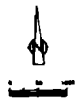

PHATREVI\DETREX-8

Woodward-I
Consultants

2 figure



Rev.	Description	Date	By

LEGEND

FIELDS BROOK

- ▲ APPROXIMATE LOCATION OF PHASE I, II, AND III SAMPLING POINTS
- APPROXIMATE LOCATION OF PHASE II SAMPLING POINTS
- APPROXIMATE LOCATION OF PHASE III SAMPLING POINTS
- APPROXIMATE LOCATION OF PHASE IV SAMPLING POINTS
- APPROXIMATE LOCATION OF PHASE V SAMPLING POINTS

SCALE VERIFICATION

THIS DRAWING IS A GENERAL SCALE APPROXIMATION

DRAWING STATUS

Rev.	Description	Date	By

**FIELDS BROOK SITE
ASHTABULA, OHIO**

**DELINEATION OF DNAPL IMPACTED AREAS
EXTENT OF LIQUID DNAPL
BASED ON PHASE I, II, AND III SAMPLING**

GRA CONESTOGA-ROVERS & ASSOCIATES

REGISTERED PROFESSIONAL ENGINEER - CIVIL

Project No.	Sheet No.	Date	Scale
11676-10	11676-10	PRES009	Figure 1

Figure 3



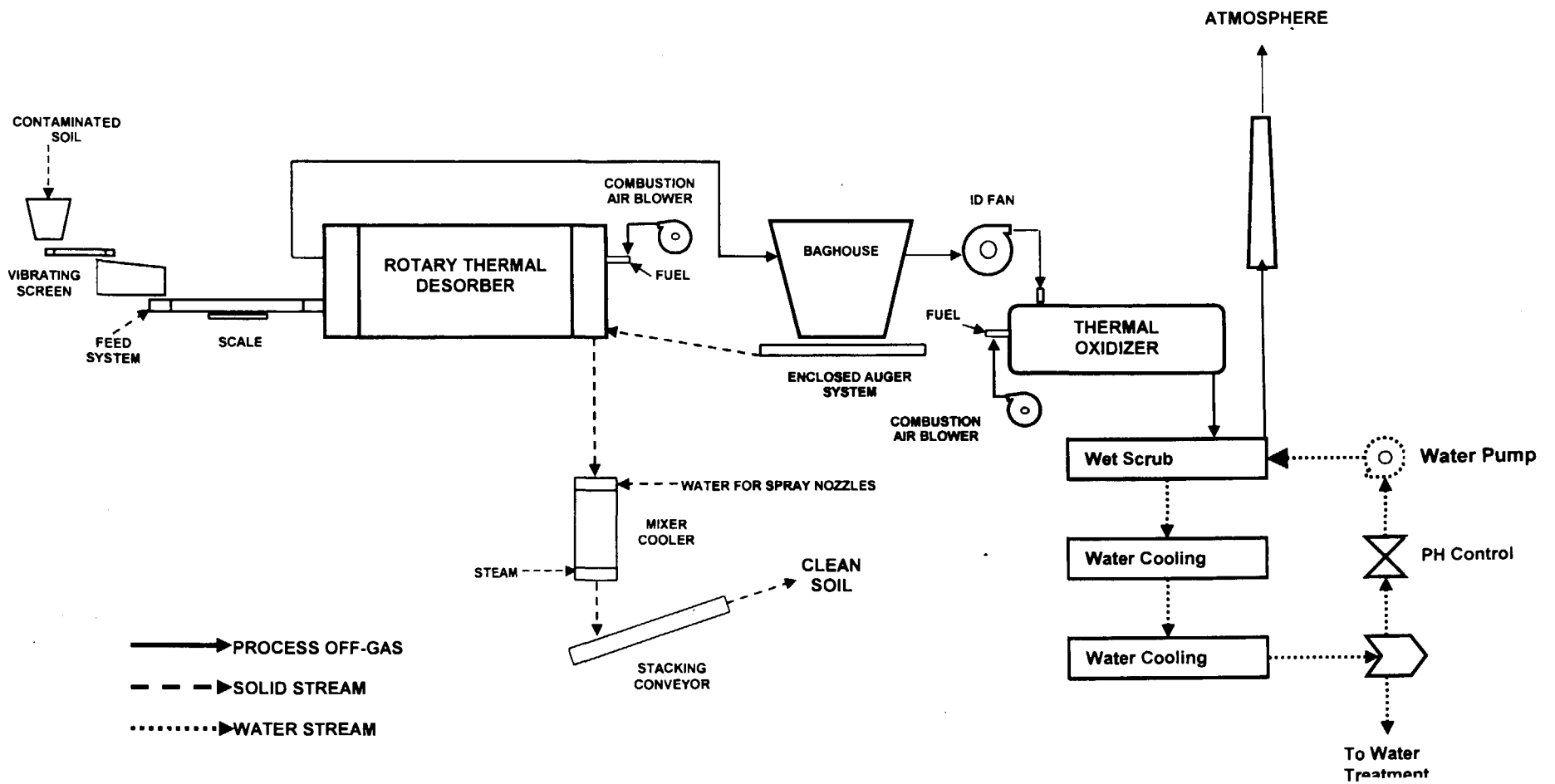


Figure 4 - 1 Low Temperature Thermal Desorption System Block Flow Diagram

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Figure 4

TABLE 1
CONCENTRATION OF DETECTED COMPOUNDS
FIELDS BROOK SUPERFUND SITE AND DETREX CORP.
ASHTABULA, OHIO

<i>Unit of Concentration</i>	<i>Detrex DNAPL Characterization Data</i>		<i>Fields Brook DNAPL Characterization Data</i>	
	<i>mg/kg</i>	<i>%</i>	<i>mg/kg</i>	<i>%</i>
bis(2-ethylhexyl) phthalate	0.002	0.0000002	ND (990)	--
chlorobenzene	--	--	ND (1,300)	--
chloroform	680	0.068	ND (1,300)	--
1,2-dichlorobenzene	430	0.043	ND (1,300)	--
1,1-dichloroethene	480	0.048	ND (1,300)	--
hexachlorobenzene	4,600	0.46	6000*	0.6*
hexachlorobutadiene	8,500	0.85	15000*	1.5*
hexachloroethane	2,000	0.2	50,000	5
methylene chloride	440	0.044	ND (1,300)	--
Pentachlorobenzene	--	--	2600*	0.26*
Pentachloroethane	--	--	3800*	0.38*
1,1,2,2-tetrachloroethane	260,000	26	14,000	1.4
tetrachloroethene	45,000	4.5	27,000	2.7
1,2-transdichloroethene	13,000	1.3	ND (13,000)	--
1,2,4-trichlorobenzene	0.022	0.0000022	ND (1,300)	--
1,1,2 trichloroethane	150	0.015	ND (13,000)	--
trichloroethene	290,000	29	45,000	4.5
vinyl chloride	1.2	0.00012	ND (25,000)	--
Total PCB's	--	--	--	--

Notes:

* Estimated value between the Method Detection Limit and Reporting Limit

1
Table