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January 1998

EPA Superfund Record of Decision:

Fields Brook Site, OU 2
Ashtabula, OH
9/29/1997

RECORD OF DECISION

FOR THE
SOURCE CONTROL OPERABLE UNIT
OF THE
FIELDS BROOK SUPERFUND SITE

Ashtabula, Ohio

September, 1997

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Fields Brook Site, Operable Unit II, Source Control Areas, Ashtabula, Ohio

STATEMENT OF BASIS AND PURPOSE

This decision document represents the selected Final Remedial Actions for the Fields Brook Site, Operable Unit II (Source Control Areas), in Ashtabula, Ohio. These actions were chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, with the National Oil and Hazardous Substances Contingency Plan (NCP). The decisions contained herein are based on information contained in the administrative record for this site.

This Record of Decision (ROD) is the third for the Fields Brook Superfund Site. The State of Ohio did not concur with the Floodplain/Wetland Operable Unit ROD, dated June 30, 1997. In addition, the State of Ohio elected not to concur with the Sediment Operable Unit cleanup plan, as revised in the August 15, 1997, Explanation of Significant Differences. The remedial activities selected in this ROD for the Source Control Operable Unit support the cleanup of the Floodplain/Wetland and Sediment Operable Units by preventing the recontamination of Fields Brook sediment. The scope of the Source Control Operable Unit has been limited to those areas that have the potential to recontaminate Brook sediment above cleanup goals. The State of Ohio disagrees with the limited scope of the Source Control action and has elected not to concur with this ROD. A letter of nonconcurrence from the Ohio Environmental Protection Agency (OEPA) is attached to this Declaration.

ASSESSMENT OF THE REMEDIES

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response actions selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDIES

These remedies are intended to be the final actions for Operable Unit II (Source Control Areas, "SC") of this site. These final actions address contamination at six (6) locations that have been identified as sources of contamination to Fields Brook. For the evaluation of disposal options, the Sediment and Floodplain/Wetland Consolidation area (to be built on one of the industrial properties within the watershed) is considered to be an on-site landfill. The six source areas and the major components of the selected remedies are, as follows:

Acme Scrap Iron & Metal

- The selected alternative (Alternative VI) requires excavation of surface soil with PCB concentrations greater than or equal to 50 parts per million (ppm).

- Excavation to a depth of approximately 1 foot will remove all soil regulated by the Toxic Substances Control Act (TSCA) and will result in an estimated volume of 1,800 cubic yards.

- The excavated soils will be disposed at either an on-site or off-site TSCA-approved landfill.

- Following completion of excavation activities, the excavated areas will be backfilled with clean soil and graded to allow for adequate drainage.

- The remaining surface soils included in the remedial response area will be contained on-site with a 12-inch soil cover and an erosion control blanket and will be vegetated to reduce erosion. For traffic and work areas, a geotextile and 6 inches of gravel will be used.

Millennium (formerly SCM)

- The selected alternative (Alternative VI) requires excavation of soil with PCB concentrations greater than or equal to 50 ppm.

- The excavated soils will be disposed at either an on-site or off-site TSCA landfill.

- Following completion of excavation activities, the excavated areas will be backfilled with clean soil and graded to allow for adequate drainage.

- The remaining surface soils included in the remedial response area will be contained on-site with a 12-inch soil cover and an erosion control blanket and will be vegetated to reduce erosion. For traffic and work areas, a geotextile and 6 inches of gravel will be used.

North and South Sewers

- The selected alternative (Alternative III) involves the removal of sediment and debris from inside the sewer lines and the associated catch basins.

- Portions of sewers that are blocked and difficult to clean will be closed off, and the sediment within the sewers contained. The sediments in these sewer segments will be contained by filling the sewer pipe with a cement grout to restrict flow in the sewer and

prevent migration of sediments into Fields Brook.

- Replacement sewers will be constructed to divert water from the sections that have been closed and to connect the remaining sections of the sewers that have been cleaned. These sewers will continue to be used after remedial activities are completed.

Detrex Corporation

- The selected alternative (Alternative IV) includes the construction of a partial slurry wall to contain the Dense Non-Aqueous Phase Liquid (DNAPL) and contaminated groundwater.

- Vacuum-enhanced extraction wells will be installed to lower the groundwater table and collect DNAPL. Extracted groundwater will be treated by Detrex's existing stormwater treatment system that uses carbon filtration to remove contaminants from collected surface water. Extracted DNAPL will be treated or recycled off-site.

- Low-lying areas within the existing collection system area and areas with surface soil cleanup goal exceedances will be filled and regraded. These areas would then be covered with a 12-inch thick soil layer, an erosion control blanket, and a vegetative or crushed stone layer surface. The regraded areas will be vegetated to protect against erosion.

RMI Metals

- The selected alternative (Alternative IV) requires excavation of soils with PCB concentrations greater than 10 ppm.

- The depth of the excavation will be approximately 1 foot and will result in an estimated volume of 150 cubic yards.

- The excavated soils will be disposed at either an on-site or off-site Toxic Substances Control Act (TSCA)-approved landfill.

Conrail

- The selected alternative (Alternative IV) requires the consolidation and containment of arsenic-contaminated soils.

- Excavation to a depth of approximately 6-inches will remove approximately 90 cubic yards.

- Excavated soils will be moved a short distance to a consolidation area (on Conrail

property) for final disposal. Upon placement of excavated soils, this area will be graded and covered with 6 inches of gravel to prevent soil erosion.

All Source Areas

For all source areas where contamination will remain on-site within a containment area, the remedies will include the following:

- Long-term operation and maintenance (O&M) and post-closure care of the remedial actions to help ensure effectiveness.
- Long-term monitoring to verify the effectiveness of the remedial actions.
- Placement of institutional controls on deeds and title for properties where hazardous substances, pollutants or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. These controls will limit the future use of areas so as to ensure that contamination does not migrate to the Brook.
- Implementation of access restrictions, including the construction of new fencing where necessary to prevent access and maintain the integrity of cover systems.

STATUTORY DETERMINATIONS

These final Remedial Actions are protective of human health and the environment, comply with Federal and State applicable or relevant and appropriate requirements and are cost-effective. The selected remedial actions utilize permanent solutions and considered use of alternative treatment technologies to the maximum extent practicable. However, due to the significant volume and heterogeneous distribution of waste at the Site, treatment as a principle element is not considered practicable at the Site. Thus, these remedies do not address the statutory preference for treatment that reduces toxicity, mobility, or volume as a principal element. However, treatment is a secondary element in that DNAPL from the Detrex facility will be collected and treated resulting in destruction of hazardous substances.

A review of the remedies will be conducted five years after commencement of the remedial actions to ensure that the remedies continue to provide adequate protection of human health and the environment by preventing the flow of contamination to Fields Brook.

Wm. E. Muno — 9/29/97

William E. Muno, Director — Date
Superfund Division

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

RECEIVED
SEP 18 1997
U. S. EPA REGION 5
OFFICE OF REGIONAL ADMINISTRATOR

September 8, 1997

Mr. David A. Ullrich
Acting Regional Administrator
USEPA Region V
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Ullrich:

Thank you for the opportunity to review and comment on the draft Record of Decision (ROD) for the Source Control Operable Unit (SCOU) of the Fields Brook Superfund Site (Fields Brook).

As you know, Ohio EPA made a decision over a year ago to relinquish our role in providing joint oversight with USEPA for Fields Brook in order to focus our attention on the Ashtabula River project. Prior to this decision we had expressed concerns about USEPA's overall approach to risk management for the SCOU. We felt that source control remedies should be based on managing risk at each individual source area by following the usual process of evaluating risk by all appropriate pathways and developing cleanup goals based on site risk. USEPA took the approach that source control remedies would be designed to address the risk of recontaminating Fields Brook Sediment at concentrations in excess of the Brook Sediment Operable Unit (SOU) cleanup goals (CUGs). SOU CUGs were based solely on human health effects from incidental sediment ingestion. SCOU remedies were limited to areas which could potentially cause the SOU CUGs to be exceeded in the future. All potential source areas were screened by comparing contaminant concentration to the SOU CUGs and evaluating pathways of contaminant migration from the source area to the Brook Sediments. Any potential source area which was lower in concentration than the SOU CUGs or for which there was no pathway by which that source could recontaminate Brook sediments (to concentrations in excess of the SOU CUGs) was eliminated from further consideration. Originally about 200 potential source areas were considered. After the screening process only 6 areas were carried forward. These potential source areas were eliminated without regard to risk to human health or the environment. Recharge of the Brook by contaminated groundwater and surface water were eliminated because these processes could not result in sediment concentrations higher than the SOU CUGs. USEPA contended that any areas which present risk to receptors other than Fields Brook sediment or which may violate any regulatory standards should be addressed separately under other regulatory programs such as RCRA Corrective Action or the Clean Water Act. It was even suggested that a source area or areas could be individually scored as separate NPL sites in the future.

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Ohio EPA continues to disagree with this approach. When we informed USEPA of our decision to allow you to manage the Fields Brook site without active Ohio EPA participation we expressed the hope that you would consider these concerns when making final remedy decisions. This SCOU ROD does not reflect any change in USEPA's approach to the SCOU cleanup, therefore, for the reasons stated above Ohio EPA does not concur with the ROD for the SCOU.

Please feel free to contact Ohio EPA should you have any concerns or questions regarding this letter.

Sincerely,

Donald R. Schregardus
Director
Ohio Environmental Protection Agency

SW/DS.wmk

cc: Jenny Tiell, Deputy Director, CO
Jan Carlson, DERR, CO
Mike Czeczele, DERR, CO
Ray Beaumier, DERR, CO
Bill Skowronski, District Chief, NEDO
Bob Wysenski, Assistant District Chief, NEDO
Rod Beals, DERR, NEDO
Steve Love, DERR, NEDO
Sig Williams, DERR, NEDO
Heidi Sorin, DERR, CO
Jeff Hurdley, Legal, CO
Peter Whitehouse, DERR, CO
Vanessa Steigerwald, DERR, CO
Tim Kern, Ohio AGO

George V. Voinovich, Governor
Nancy P. Hollister, Lt. Governor
Donald R. Schregardus, Director

RECORD OF DECISION SUMMARY
SOURCE CONTROL AREAS
FIELDS BROOK SITE, ASHTABULA OHIO

I. SITE NAME, LOCATION, AND DESCRIPTION

The Fields Brook Site is located in the city, township, and county of Ashtabula, in northeastern Ohio, approximately 55 miles east of Cleveland, Ohio (Figure 1). The main channel of Fields Brook is 3.9 miles in length and begins at Cook Road, just south of the Penn Central Railroad tracks. From this point, Fields Brook flows northwest to Middle Road, then west to its confluence with the Ashtabula River. From Cook Road downstream to State Highway 11, Fields Brook flows through an industrialized area. Downstream of State Highway 11 to near its confluence with the Ashtabula River, Fields Brook flows through a residential area within the city of Ashtabula. Fields Brook empties into the Ashtabula River, approximately 8,000 feet (ft) upstream from Lake Erie.

The city of Ashtabula, with a population of approximately 23,000, is the only urban area in the Fields Brook watershed. The industrial zone of Ashtabula is concentrated around Fields Brook and contains several chemical industries and waste disposal sites. This Record of Decision addresses contamination at six source areas located in the industrial zone of the Fields Brook watershed.

Sediments of the brook and the Ashtabula River are contaminated with polychlorinated biphenyls (PCBs), chlorinated benzene compounds, chlorinated solvents, hexachlorobutadiene, polyaromatic hydrocarbons (PAHs), arsenic, and other hazardous substances. Soils at the source areas addressed by this Record of Decision are also contaminated with a wide variety of contaminants, although PCBs predominate. Specific contaminants found at each source area are discussed in Section IV of this Record of Decision.

The Fields Brook Site (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.

The U.S. Environmental Protection Agency (U.S. EPA) divided the site into four areas of

concern, three of which have been designated as "operable units" (OUs) associated with the Fields Brook Superfund site (See Figure 2). The Sediment OU (OU#1) involves the cleanup of contaminated sediment in Fields Brook and its tributaries. The Source Control OU (OU#2) involves the location and cleanup of sources of contamination to Fields Brook to prevent recontamination of the brook, and is the subject of this Record of Decision document. Figure 3 shows the location of the source areas in the watershed. The third area, the Ashtabula River Area of Concern, evaluates the type and amount of contamination in the Ashtabula River, the effect of contamination on the river sediments, and any risks to human health and the environment. The Floodplain/Wetland (FWA) OU (OU#4) involves the cleanup of contaminated soils and sediments in the FWA which are located within the 100-year floodplain area surrounding Fields Brook and outside of the channel and sideslope areas of Fields Brook.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

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 ranging from metal-fabrication to production of complex chemical products 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, particularly the sediments of Fields Brook, the FWA soils and sediments, and the soils surrounding the industries. These media are contaminated with PCBs, chlorinated benzene compounds, chlorinated ethenes (solvents), hexachlorobutadiene, arsenic, and other organic and inorganic contaminants.

Between April 1983 and July 1986, a Remedial Investigation/Feasibility Study (RI/FS) was conducted on the Fields Brook Sediment OU by the U.S. EPA. The 1986 RI/FS included a baseline human health risk assessment which demonstrated human health risks not only for exposure to the brook sediment, but also exposure in the FWA. The U.S. EPA issued a Record of Decision (ROD) in September 1986 detailing a cleanup remedy that U.S. EPA with the concurrence of Ohio Environmental Protection Agency (OEPA), determined to be necessary for the Fields Brook sediments. The 1986 ROD required the excavation, treatment and disposal of sediment from Fields Brook. It also recommended that investigations be conducted to identify current sources of contamination to the Brook.

In late 1986, the U.S. EPA began negotiating with a number of Potentially Responsible Parties (PRPs) to conduct the source control OU#2 RI/FS activities and sediment operable unit design activities. The PRPs are comprised of the companies who are considered the owners and operators of the chemical industries and waste disposal sites surrounding Fields Brook. The PRPs also include the companies who, by contract, agreement, or other means, either accepted, or arranged for transport, disposal or treatment of, hazardous substances within the Fields Brook site.

In 1989, the PRPs were issued a Unilateral Order to design a remedy for the Fields Brook sediments, complete a Remedial Investigation to identify the sources of contamination, and develop and evaluate cleanup alternatives for the sources of contamination. From 1992 to 1995, the PRPs evaluated 94 areas of potential contamination within the Fields Brook watershed to determine whether they were a source of past contamination or 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 this evaluation, the PRPs identified five industrial properties as sources of contamination to Fields Brook. The industrial properties include Detrex, Millennium Plant II TiCl4 (formerly SCM), ACME, RMI Metals, and Conrail. In addition, several sewer systems located to the north and south of Fields Brook were also found to be potential sources of contamination. Detailed information about the types and extent of contamination at the source areas can be found in the Source Control Remedial Investigation (RI) reports. The final Phase 1 Source Control RI was approved 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 Source Control Remedial Investigation and Feasibility Study reports form the basis for U.S. EPA's cleanup strategy. These reports have been included in the information repositories and the Administrative Record.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

Various public meetings and availability sessions have been held by U.S. EPA in Ashtabula between 1984 and the present to discuss the general progress of the ongoing Fields Brook site investigations.

U.S. EPA has provided regular updates of Fields Brook site activities to the Ashtabula River Remedial Action Plan (RAP) Advisory Council at the monthly RAP meetings in Ashtabula.

On May 26-27, 1993, U.S. EPA conducted several availability sessions and a public meeting in Ashtabula to update the public regarding activities at the site, including the Source Control Operable Unit. After the meeting, U.S. EPA provided the RAP Council and interested citizens with a written response to comments and questions raised at the various meetings.

On September 26, 1996, U.S. EPA conducted another public availability session in Ashtabula, and provided the public with a detailed update regarding the various FWA studies, risk issues and cleanup alternatives being considered to be conducted. In November 1996, U.S. EPA provided the public with a written 'question and answer' response to comments and questions raised at the September meeting.

U.S. EPA issued a Proposed Plan for the Source Control Operable Unit (SCOU) in July 1997. U.S. EPA provided a public comment period on the SCOU Proposed Plan from July 24, 1997 through August 22, 1997, and conducted an evening public meeting on the Source Control Proposed Plan on July 31, 1997 in Ashtabula. Upon request, the comment period was extended to September 15, 1997. After a follow-up request for more time to submit comments regarding the Acme property, the comment period was again extended. The comment period closed on September 22, 1997. All comments were carefully reviewed and considered by the U.S. EPA prior to issuance of this ROD. U.S. EPA's response to the public comments received are summarized in the attached Responsiveness Summary, which is Attachment 1 of this Record of Decision. This ROD will become part of the Administrative Record pursuant to the NCP Section 300.825 (a)(2). The Administrative Record can be found at the site repository in the local library and at the U.S. EPA Region V office. The addresses are, as follows:

1) Ashtabula County District Library
335 West 44th Street
Ashtabula, OH

2) U.S. Environmental Protection Agency
Waste Management Division Records Center, 7th Floor
77 West Jackson Blvd.
Chicago, IL

IV. SUMMARY OF SITE CHARACTERISTICS

The Fields Brook watershed encompasses 6.0 sq. mi. All of the industrial facilities addressed in this ROD are located to the north of the Penn Central Railroad line that runs east-west through the middle of the watershed. The area is located in the Lake Plain physiographic province of Ashtabula County. The elevation of the Lake Plain ranges from 620 ft mean sea level (MSL) to 660 ft msl.

In general, the subsurface geology of the Fields Brook watershed consists of three geologic formations. In descending order, these formations are: glacial-lacustrine, glacial till, and shale bedrock. Additionally, several feet of miscellaneous soil fill materials were encountered on several properties investigated during the Phase 1 of the source control RI. These fill materials are distributed sporadically and the result of several years of industrial activities.

More detailed information concerning site characteristics can be found in the SCRI report.

According to information from the Ohio Department of Natural Resources, the groundwater production potential of the area within the watershed is considered very limited and not capable of yielding water at rates greater than 3 gallons per minute. No drinking water wells are located within the industrialized portion of the watershed. The water supply for the Industries and residences in the area is from Lake Erie.

A) Acme Scrap Iron & Metal Company

The Acme property is located in the southwest portion of the industrialized area near Fields Brook. Structures at the site include former manufacturing plant buildings, loading and unloading areas, drum storage areas, and an oil retention lagoon. See Figure 4.

The site is currently operating as a scrap recycling facility. The site was owned by the U.S. Government in the late 1940's and was later sold to National Carbide Corporation. Specific industrial activities by the U.S. Government and National Carbide are not known. However, the Acme site was operated as a calcium carbide manufacturing plant from 1943 until 1952. The facility was then vacant until 1974, when Acme purchased the property.

In the past, Acme dismantled and recycled transformers to recover copper, aluminum, and steel for resale as scrap metal. On several occasions, the cutting operation used to dismantle the transformers would set the residual oil on fire. Oil containing PCBs may have been released into the environment from the transformers during this process. A preliminary assessment of the Acme facility in 1985 identified the chemicals of interest to include PCBs and several metals, including aluminum, arsenic, copper, iron, lead, mercury and zinc.

The Recontamination Assessment performed as part of the Fields Brook Source Control Remedial Investigation (SCRI) identified several source areas at Acme as having the potential to recontaminate Fields Brook. This evaluation is presented in Chapter 6 of the SCRI Report. Twenty surface soil samples were collected at the facility. The analytical results showed contamination at the following locations on the Acme property.

1. Drum Storage Area

The drum storage area covers approximately 1.4 acres. It is located southeast of the main structure and includes a small storage building and the property surrounding the building. The building is used by Acme to store empty drums and drums of grease used for equipment maintenance. Surface soil samples collected from inside and around the building were found to have concentrations of PCBs ranging from 2.19 parts per million (ppm) to 16.9 ppm. The unit of measurement "parts per million" (or "ppm") is equivalent to the unit of measurement "mg/kg."

2. Oil Soaked Soil

The Oil Soaked Soil location consists of several areas on the Acme property which display surface soil staining. In total, the oil soaked soil covers a combined area of approximately 12 acres. The stained soils generally are found near the scrap processing areas. A number of surface soil samples were collected in these areas and concentrations of PCBs range from below the detection limit to 79.5 ppm. For the development and analysis of remedial alternatives, the oil soaked soil areas were combined with the transformer processing area.

3. Transformer Processing Area

The transformer processing area covers a combined area of approximately 12 acres where transformers were processed in the area north of the main facility building. The transformers were processed to recover copper wire. A surface soil sample collected in this area was found to have 3.2 ppm PCBs. As noted above, the transformer processing area was combined with the oil soaked soil areas for the development and analysis of remedial alternatives.

4. Other Surface Soil Areas

PCBs were detected in surface soil samples collected during the Phase I SCRI in the northwestern portion of the property. PCB concentrations range from below the detection limit to 4.1 ppm. No specific sources are associated with these areas but they are being considered in the remedial alternatives. These areas cover approximately 4.7 acres.

5. On-Site Storm Sewers

U.S. EPA required the PRPs to conduct and present detailed analysis of alternatives for the Acme property on-site storm sewers. The storm sewers are believed to have sections that have breaks and are blocked in certain parts by debris. No information is available about the volume of sediment in the on-site storm sewers.

B) Millennium Plant II, $TiCl_4$ Facility

Millennium Plant II, the $TiCl_4$ (titanium tetrachloride) facility is located in the south-central portion of the industrialized area near Fields Brook. The structures currently at the site include several process buildings, a tank farm with numerous aboveground storage tanks contained entirely within a diked area, and three settling ponds. The western half of the property contains most of the process-related structures, whereas the eastern half remains largely undeveloped and is covered by a large pile of mining wastes and filter residue. See Figure 5.

The $TiCl_4$ plant was designed, constructed and initially operated by the Stauffer Chemical Company. Construction was completed in 1958. The facility was sold to National Distillers and Chemicals in 1959 and was operated for the next five years by National Distillers (and its affiliates Mallory-Sharon Metals and RMI Titanium). Cabot Titania acquired the plant in 1963 and operated it until 1972, when it was leased to Gulf and Western Industries, Inc. Gulf and Western purchased the plant in 1975. SCM purchased the $TiCl_4$ facility in 1983.

At the commencement of operations, the plant utilized a heat transfer system that used Aroclor-based fluids. This system remained in use until Gulf and Western had pure Aroclor removed from the heat transfer system in 1974 and replaced it with Monsanto PCB-Free Therminol.

There have been multiple investigations of contamination at the $TiCl_4$ facility. A Toxic Substances Control Act (TSCA) action in 1983 led to the excavation and disposal of PCB-contaminated sediment from rainwater trenches (660 ppm) and overflow channels (330 ppm). In 1990, SCM identified PCB contamination (to 41,000 ppm). This was reported to the Region V TSCA office. TSCA required the preparation of a work plan and an investigation to determine the extent of soil contamination and identify buried drums. This work was postponed in 1991, to allow coordination with the Fields Brook Source Control Remedial Investigation.

As part of the SCRI, the Recontamination Assessment of Millennium identified the Mining Residuals Pile, the Non-Traffic Area and the North Traffic Area as areas that possess the potential to recontaminate Fields Brook. At the consensus of U.S. EPA and Millennium, remedial action is also being planned for other plant areas that have PCB concentrations greater than the Fields Brook cleanup goal. These additional areas include: the Laydown Area; the Plant Process Area; and the Existing Soil Piles. It should be noted that these three plant areas were analyzed by the Recontamination Assessment and were determined not to be potential sources of recontamination of Fields Brook. Descriptions of the six plant areas and analytical results are summarized in the following sections.

1. Non-Traffic Area

Site investigations have identified PCBs in surface soils (approximately the upper 6 ft) in the west-central portion of the facility, extending north beyond the existing security fence-line. The area extending north beyond the fence-line to the 100-year floodplain is the Non-Traffic Area. PCB concentrations in surface soils in the Non-Traffic Area range from 3.1 ppm to 50 ppm. However, a few sampling locations near the old outfall were found to have concentrations of PCBs greater than 50 ppm, and some borings had soils containing greater than 500 ppm. At the consensus of U.S. EPA and Millennium, Millennium evaluated the past sampling in comparison with a 50-foot sampling grid, with samples collected at 2-foot depth increments. The results of this

additional delineation sampling are undergoing U.S. EPA review.

2. North Traffic Area

Site investigations identified PCBs in surface soils (approximately the upper 6 ft) in the west-central portion of the facility, extending north beyond the existing security fence-line. The area south of the fence-line and north of the Plant Process Area is defined as the North Traffic Area. The surface area in the North Traffic Area is covered with pavement, structures, or gravel. The gravel was placed to prevent further contact with on-site surface soils in this area and to reduce the potential for erosion of the surface soils.

PCB concentrations in surface soils in the North Traffic Area have generally been identified in the range of 3.1 ppm to 50 ppm. However, a few sampling locations near an old outfall had concentrations of PCBs greater than 50 ppm and a small area with PCBs greater than 500 ppm. At the consensus of U.S. EPA and Millennium, Millennium evaluated the past sampling in comparison with a 50-foot sampling grid, with samples collected at 2-foot depth increments. The results of this additional delineation sampling are undergoing U.S. EPA review.

3. Laydown Area

The Laydown Area is located immediately south of the concrete pad. The Laydown Area consists of bare soils and vegetated soils. The average PCB concentration in the Laydown Area is 3.5 ppm, and the maximum concentration is 37.9 ppm (at 1.5 to 3.0 ft depth). The Recontamination Assessment found neither groundwater nor overland erosion to be complete pathways for recontamination of Fields Brook. The Laydown Area is being addressed in this document at the consensus of U.S. EPA and Millennium, not because it has the potential to recontaminate Fields Brook.

4. Plant Process Area

The Plant Process Area is the active, operating portion of the $TiCl_4$ facility. The Plant Process Area is almost completely covered with either pavement or structures. PCB concentrations in surface soils in the Plant Process Area have generally been identified in the range of 3.1 ppm to 50 ppm. However, a few scattered sampling locations have identified PCB concentrations greater than 50 ppm and a small area with PCB concentrations greater than 500 ppm. The primary area with elevated PCB concentrations is associated with the old Therminol system. At the direction of U.S. EPA, Millennium evaluated the past sampling in comparison with a 50-foot sampling grid, with samples collected at 2-foot depth increments. The results of this additional delineation sampling are undergoing U.S. EPA review.

5. Existing Soil Piles

The Existing Soil Piles are located on the concrete storage pad in the east central portion of the $TiCl_4$ facility. Standard plant maintenance and upgrades occasionally require the excavation of small amounts of soil. These soils are stockpiled on the concrete pad. Historic sampling results from the excavation locations indicate that some of these soils may contain concentrations greater than 50 ppm PCBs. The soil piles are being addressed in this document at the consensus of U.S. EPA and Millennium; however, the soil piles were not designated as having the potential to recontaminate Fields Brook.

6. Mining Residuals Pile

The inactive Mining Residuals Pile is located in the eastern portion of the facility between Middle Road and Fields Brook. The pile received "Bevill" exempt mining residuals (e.g., iron hydroxide) from previous plant operations prior to Millennium's operations. As stated in the Bevill exemption, the mining residuals are neither hazardous wastes nor hazardous substances.

Information gathered during the Mining Residuals Pile investigation indicates that the material is primarily iron hydroxide, with a low moisture content (measured at about 25 to 30 percent, as compared to an approximate field capacity of 50 to 60 percent), and a (disturbed) density ranging between 1.0 and 1.25 tons per cu yd. Although the mining residuals are not hazardous wastes, sample results revealed that PCBs are present in the Mining Residuals Pile at concentrations ranging from non-detect to 760 ppm.

C) Conrail

Conrail's Bridge Yard is located north of Fields Brook, east of the Ashtabula River and west of a residential area within the City of Ashtabula, Ohio. Conrail uses this area for marshaling or staging rail cars containing coal before and after loading and unloading rail cars. Features in the Bridge Yard area include numerous sets of tracks, a small lift bridge control (or yardmaster) building, and a small building that formerly housed a compressor. Main access to the area for vehicles is from the north; however, a light duty bridge east of the yardmaster building makes the property accessible from East 15th Street to the south. The light duty bridge is currently closed with a metal barricade at each end. Trains enter and leave the Bridge Yard from the south end of the Yard near the confluence of Fields Brook and the Ashtabula River.

Only a small portion of the Bridge Yard lies within the Fields Brook watershed. The area of interest includes a long (approximately 1600 ft), narrow strip of land along Fields Brook from 15th Street to the Ashtabula River. This area extends from the centerline of the southernmost set of railroad tracks south to Fields Brook (see Figure 6). Within this area, potential source

areas originally identified in the Phase I SCRI included the aboveground storage tanks located near the east side of the yardmaster building, the former compressor building, and soil staining in the area near the light duty bridge. Surface soil samples collected at the Conrail property during completion of the SCRI contained arsenic concentrations ranging from 10.4 ppm to 62 ppm. U.S. EPA determined that based on the close proximity of the Conrail facility to the Brook, the facility posed a threat to the recontamination of the Brook. Arsenic contaminated soil located immediately next to the Brook on the Conrail facility may be running off the property more than soil in the upper watershed and may not become sufficiently diluted with the cleaner runoff to prevent an exceedance of the arsenic CUG in Fields Brook sediment.

D) Detrex Corporation

The Detrex Corporation is located in the northwestern portion of the Fields Brook watershed adjacent to the north bank of the main channel of Fields Brook. The facility encompasses 58 acres. Structures on the property include a process building, office building, and numerous aboveground storage tanks that are either within diked areas, paved areas, or on ground surfaces. The northern one-third of the property is used as an active manufacturing area and the southern two-thirds is largely undeveloped. See Figure 7.

The Detrex facility currently produces pyrrole, n-methyl pyrrole, and hydrochloric acid. The product of the n-methyl pyrrole and pyrrole reactions are distilled to give n-methyl and pyrrole as product and non-hazardous still bottoms. Past operations at this plant included the chlorination of acetylene to produce trichloroethene and tetrachloroethene. The chemicals of interest at Detrex from current operations include furan, monomethyl amine, n-methyl pyrrole (NMP), pyrrole and ammonia, while the chemicals from past operations included tricholoroethene, 1,1,2,2-tetrachloroethane, hexachlorobutadiene (HCBD), and tetrachloroethene.

Results from sampling conducted during the SCRI indicate that surface soil exceedances for CUG compounds were identified in several areas of the Detrex facility. These areas include: the stormwater collection ditch on the northern property line, several abandoned retention ponds, construction debris piles, sediment in the stormwater settling collection basin, and a catalyst pile. In addition, the results of the Recontamination Assessment and identification of Dense Non-Aqueous Phase Liquid (DNAPL) indicated that the following areas should be addressed to reduce possible sources of future contamination to Fields Brook:

1. Seven Closed Lagoons

The closed lagoons are located in the northeastern portion of the Detrex facility. Subsurface soil samples collected from the area surrounding the lagoons were found to contain several volatile and semi-volatile organic compounds at concentrations exceeding occupational CUGs. DNAPL was identified in the shallow groundwater bearing formation both in the closed lagoon area and at off-site locations north of

DET1 on RMI Sodium property. A sample of DNAPL was collected from one of the on-site monitoring wells in order to characterize this material. Four volatile organic compounds were identified (1,1,2,2-tetrachloroethane, 1,2-dichloroethene, tetrachloroethene, and trichloroethene). Three semi-volatile organic compounds were identified (hexachlorobenzene, hexachlorobutadiene, and hexachloroethane). Based on existing Phase I data and the delineation borings, the DNAPL plume extends in a radial pattern from the closed lagoon area and encompasses an estimated subsurface area of approximately 500,000 sq. ft. (11.5 acres). Based on data collected to-date, the DNAPL plume is migrating toward the northwest, consistent with groundwater flow and the structure of the top of the underlying till layer. The extent of the DNAPL plume will be delineated as part of a design investigation program to be completed prior to completing the final design.

2. Sources Within the Surface Water Treatment System

The surface drainage system in the northern industrialized portion of the Detrex facility has been modified to collect and treat surface water. Of the area within the bounds of the surface water treatment system, approximately 60,000 sq.ft of surface area has soil CUG exceedances. The ponded area in the lagoon area covers approximately 4,000 sq.ft. In addition, approximately 1,500 sq.ft. along the drainage ditch has surface soil CUG exceedances. The area that is located within the bounds of the surface drainage system is underlain by the subsurface DNAPL plume

3. Sources Outside the Surface Water Collection System

In the Phase I SCRI Report, the catalyst piles were not considered a potential source of sediment recontamination. A surface soil sample located downslope of the floodplain detected a concentration of 40.4 ppm PCBs. Subsequent sampling of the catalyst material has indicated the presence of PCBs greater than occupational CUGs for the Fields Brook sediment. Additional sampling of the three catalyst piles indicated PCB concentrations ranged from 2 to 5 ppm. Since the catalyst piles are in close proximity to Fields Brook, U.S. EPA requested that the catalyst piles be considered in the FS.

E) Sewers North and South of Fields Brook

1. Sewers North of Fields Brook

Results from the Phase I SCRI indicate that the sediment in several storm sewers and outfall process facility sewers is a potential source for recontamination of Fields Brook sediment. These sewers consist of: the 48-in. diameter combined sewer west of State Road; the 5-in. diameter storm sewer west of State Road that discharges into the 48-in. diameter combined sewer; and the Detrex facility outfall sewer. See Figure 8A.

a. **Combined Sewer (48-in. Diameter) - State Road**

Sediment samples from the 48-in. diameter combined sewer had concentrations of benzo(a)pyrene and hexachlorobenzene that ranged from 1.9 ppm to 11 ppm and 13 ppm to 5,800 ppm, respectively. This sewer is a 48-in. diameter reinforced concrete combined storm and facility outfall sewer. The sewer is approximately 2,400 ft in length and runs along the west side of State Road, north of Fields Brook. The sewer accepts surface and facility outfall water, which at several locations includes both plant surface water, process water, and sanitary effluent. On-site treatment of sanitary waste is handled by all facilities that discharge to the sewer. No untreated effluent water enters the combined sewer system. The combined sewer collects outfall water from three facilities (Occidental, RMI Sodium, and Detrex) through three outfalls located along State Road along with street runoff from a catch basin located at East 6th Street and State Road. This sewer is estimated to have 4 to 6 in. of hardened calcium carbonate precipitate in it. No information is available about the volume of sediment in this sewer. Also, the exact condition of this sewer is not known. The sewer is partially blocked in certain parts by debris which includes bricks, wood, sediment, and pieces of concrete. Approximately 650,000 gallons of water per day are believed to be discharged into Fields Brook by this sewer.

b. **Storm Sewer (5-in. Diameter) - State Road, North of Fields Brook**

A sediment sample from this storm sewer had a 5.4 ppm concentration of benzo(a)pyrene (BAP). The storm sewer is a 5-in. vitrified clay storm water sewer that is approximately 250 ft in length. It runs, from the southwest corner of the intersection of State Road and East 6th Street, south to join the north end of the 48-in. diameter combined sewer on the west side of State Road, north of Fields Brook. No information is available about the condition of this sewer or the amount of sediment it contains.

c. **Detrex Facility Outfall Sewer**

A sediment sample was collected from within a manhole on the east side of State Road in the northwest corner of the Detrex property. This manhole is between the Detrex facility sewer and the 48-in. diameter combined sewer that eventually discharges to Fields Brook on the west side of State Road. The sewer transfers water from the Detrex water treatment system to the 48-in diameter combined sewer. The sewer is constructed of PVC and is relatively free of sediment. This PVC sewer discharges to the manhole which contains an older section of sewer line that crosses under State Road and connects to the 48-in. diameter combined sewer. The sediment sample was collected from the

bottom of the manhole where the sediment accumulates. Approximately 500,000 gallons per day of fluids are believed to be discharged through this sewer into the 48-in. diameter combined sewer, which eventually discharges into Fields Brook. The sediment sample had concentrations of 1,1,2,2-tetrachloroethane, 1,1-dichloroethene, tetrachloroethene, benzo(a)pyrene (BAP), hexachlorobenzene, HCBD, hexachloroethane, heptachlor, and gamma-BHC (Lindane).

2. **Sewers South of Fields Brook**

Results from the Phase I SCRI indicate that the sediment in several storm sewers and outfall process facility sewers located on the south side of Fields Brook is a potential source for recontamination of Fields Brook sediment. This sewer system consists of the 36-to 48-inch diameter sewer east of State Road which runs between the Acme facility and Fields Brook, as well as the 30-inch outfall sewer that connects the oil retention lagoon on the Acme property to the catch basin at the corner of the intersection of State Road and Middle Road. See Figure 8B.

a. **Acme Sewer**

Sediment samples collected from the catch basin at the corner of the intersection of State Road and Middle Road had 2.0 ppm of total PCBs. The length of sewer includes the 30-in. diameter reinforced concrete sewer (total length of approximately 300 ft) that connects the oil retention lagoon on the Acme property to the catch basin at the corner of the intersection of State Road and Middle Road. The sewer also includes the larger (36-in. or 48-in. diameter) reinforced concrete sewer (total length of approximately 1,200 ft) that connects the catch basin at the intersection of Middle and State Roads to Fields Brook. The on-site Acme facility outfall sewers are believed to have sections that have breaks and are blocked in certain parts by debris. No information is available about the volume of sediment in the sewers located on the east side of State Road.

F) RMI Metals Reduction

The RMI Metals Reduction facility is located at the southwest corner of the intersection of State Road and East 21st Street. The RMI Metals property is bordered on the north by East 21st Street, North Coast Auto, and RMI Extrusion facilities, on the east by State Road and the Acme facility, on the south by undeveloped property, and to the west by Reach 10-1 of Fields Brook and State Route 10. The facility was used until 1992 to produce pure titanium metal (Ti) called Ti sponge. The facility was closed in 1992.

The results of the Recontamination Assessment presented in the Phase I SCRI Report indicated

that it was not necessary to consider remedial alternatives for any potential source areas located at the RMI Metals facility in the feasibility study. However, based on discussions with U.S. EPA after submittal of the Phase I SCRI Report, it was decided that additional surface soil sampling should be conducted in the vicinity of the potential source area where one elevated concentration (6.9 ppm) of PCBs was detected in the Phase I SCRI sampling program. This potential source area was identified in the Phase 0 SCRI as a demolition debris landfill. As the result of two additional sampling and analysis efforts conducted in August and October 1995, it was mutually decided between the RMI and the U.S. EPA that additional sampling would be conducted to refine and more completely delineate the remedial response areas for each remedial alternative. In addition to the identification of several PCB residential CUG exceedances in this vicinity, the area is also in close proximity to Reach 10-1 of Fields Brook. In follow-up sampling efforts conducted in August and October 1995, several additional surface soil samples collected in this area were found to have concentrations of total PCBs ranging from 0.9 ppm to 91.0 ppm. See Figure 9A.

Data presented in the Phase I SCRI Report and subsequent sampling performed in 1995 for PCBs has established the current limits of the expected remedial response area. This area is approximately 3,900 sq. ft. (0.1 acre) in size. The remedial response area was estimated using the a cleanup goal of 10.0 ppm for total PCBs. RMI is currently conducting additional delineation sampling. These results may alter the limits of the remedial response area. During the remedial design phase for the selected remedy, the data obtained from the RMI sampling effort, and, if necessary, additional data will be reviewed to fully delineate the remedial response area.

V. HUMAN HEALTH RISK ASSESSMENT

Because of the limited scope of the Source Control Operable Unit, a separate risk assessment was not prepared for the areas to be addressed as part of this ROD. Fields Brook and its associated floodplain and wetland areas are to be remediated in the Sediment and Floodplains/Wetlands Area (FWA) OUs. The goal of the SCOU is to remediate source areas that have the potential to cause sediment contamination to Fields Brook and its tributaries, thereby preventing the recontamination of areas that will be addressed by the Sediment and FWA OUs. The Source Control action supports the Sediment and FWA remediations by helping to ensure that human-health based cleanup goals are maintained.

The Chemicals of Concern (COCs) for the Source Control OU include the COCs for both the Sediment and FWA OUs. Chapter 3 of the SCFS Report discusses the development of the site cleanup goals (CUGs). A complete list of COCs and CUGs for the SCOU is provided in Table 1. These COCs include arsenic, benzo(a)-pyrene, beryllium, 1,1,2,2,-tetrachloroethane, tetrachloroethene, trichloroethene, hexachloroethane, vinyl chloride, hexachlorobenzene, hexachlorobutadiene, and PCBs. As part of the Recontamination Assessment (Chapter 6 of the SCRI), source areas were evaluated to determine the extent that contaminant movement could

cause a CUG exceedance in Brook sediment. Soil loss equations were used to determine the extent of excavation and/or cover necessary to prevent recontamination of Fields Brook. Unless otherwise agreed to by a facility, the remediation of source control areas will be limited to the actions needed to prevent the recontamination of Fields Brook. The cleanups at the source areas are not intended to fully remediate the facilities involved.

VI. ECOLOGICAL RISK ASSESSMENT

Because of the limited scope of the Source Control Operable Unit, a separate ecological risk assessment was not prepared for the areas to be addressed as part of this ROD. Fields Brook and its associated floodplain and wetland areas are to be remediated in the Sediment and Floodplains/Wetlands Area (FWA) OUs. The goal of the SCOU is to remediate source areas that have the potential to cause sediment contamination to Fields Brook and its tributaries, thereby preventing the recontamination of areas that will be addressed by the Sediment OU and the FWA OU.

The areas to be addressed under this ROD are industrial properties. Within the Fields Brook Superfund Site, the areas of most ecological interest and concern are the Brook and its surrounding Floodplain/Wetland areas. By preventing the recontamination of the Sediment and FWA OUs, the remediation of the source control areas will help to ensure that the CUGs are maintained. Areas disturbed by the implementation of source control remedies will be restored.

VII. SCOPE OF THE SELECTED REMEDIES

The purpose of this Record of Decision (ROD) is to select the final remedial actions for the Fields Brook Site Source Control Operable Unit. In general, these final remedies contain or remove the contaminated soils from the source areas through a combination of excavating with backfilling and landfilling, or covering the contaminated soils. Excavated material containing ≥ 50 ppm PCBs will be sent either to a TSCA-approved landfill off-site or will be placed in a TSCA-approved landfill to be built on one of the industrial facilities within the Fields Brook watershed. The on-site landfill discussed in the alternative description section (Section VIII, is to be built pursuant to the ROD for the FWA OU (6/30/97) and the Explanation of Significant Differences (ESD) for the Sediment Operable Unit (8/15/97). It will be used to house excavated material from the Sediment, FWA and Source Control Operable Units. Remediation to be conducted as part of the Source Control Operable Unit will be limited to areas that pose a threat of recontamination to the Brook.

The selected remedies do not include treatment of principle threat wastes in order to reduce toxicity, mobility, or volume of the contamination. As discussed later in this ROD, treatment of soils is not warranted in part because areas of high-level PCB contamination are widely

dispersed within areas of overall low average PCB concentrations. The treatment of soils containing high concentrations of PCBs, such as at the Millennium source area, is not practical because of the selective excavation and separation of soil that would be required. Treatment is not necessary to comply with TSCA and does not provide additional risk reduction relative to the additional expense. Treatment or recycling of the extracted DNAPL from the Detrex facility will reduce the toxicity, mobility and volume of contaminants currently found in groundwater at the source area. Additionally, treatment is a secondary element in that leachate liquids from the disposal of source area soils in the on-site landfill will be collected and treated resulting in destruction of hazardous substances.

VIII. DESCRIPTION OF ALTERNATIVES

The Source Control FS identified and evaluated alternatives to address the potential for contaminant movement to Fields Brook. For each source area, the FS evaluated a "No Action" alternative to serve as a baseline from which to evaluate action alternatives. For some source areas, the "No Action" alternative includes monitoring; for others, the "No Action" alternative does not include monitoring. This is due to the assumptions made by the various contractors involved in the preparation of the FS. Both approaches are acceptable and satisfy the NCP's requirement that a "No Action" alternative be considered.

This Record of Decision is complex because the SCOU addresses six source areas. Full descriptions of all alternatives would be excessively lengthy and further complicate this document. Therefore, the alternatives presented in this section of the ROD are summarized. Full descriptions of the alternatives considered can be found in the Source Control FS. The selected remedies are fully described in Section X.

A) Acme Scrap Iron & Metal

U.S. EPA evaluated the following alternatives to address contamination at the Acme facility:

1. ALTERNATIVE I: NO ACTION

Time To Complete:	Monitoring could be initiated in 2 to 4 months.
Capital Cost:	$ 19,000
First Year O&M:	$ 12,000
30-Year Present Worth Cost	$ 203,500

Alternative I would involve only monitoring, and the source areas at the Acme property would remain in their present condition. The monitoring would include sampling of the outfall discharge to evaluate the amount of contamination moving off of the property and into Fields Brook. This alternative serves as a baseline against which the effectiveness of the other alternatives can be compared. The total, 30-year present

worth cost of this alternative is estimated at $203,500.

2. ALTERNATIVE II: CONTAINMENT A

Time To Complete:	6 to 8 months
Capital Cost:	$ 641,500
First Year O&M:	$ 27,100
30-Year Present Worth Cost	$ 1,058,100

Alternative II includes the construction of a containment berm and surface drainage controls. The contaminated soil would not be moved. Clay/soil containment berms would be constructed where needed to control drainage. Berms would be constructed of clay with a topsoil cover. The topsoil would be vegetated to provide protection from erosion. The berm would be approximately 3 ft in height with a 1.5:1 slope. This results in a berm approximately 9 ft wide at its base. The top of the berm would be flat so that the berm could be mowed.

Institutional controls would be implemented, as appropriate, to protect containment berms and surface drainage controls. The controls may include deed restrictions, security fencing, and signs. The total, 30-year present worth cost of Alternative II is estimated at $1,058,100. This cost includes monitoring of the outfall discharge and routine inspection and maintenance of the berms.

3. ALTERNATIVE III: CONTAINMENT B

Time To Complete:	6 to 8 months
Capital Cost:	$ 1,578,000
First Year O&M:	$ 19,500
30-Year Present Worth Cost	$ 1,877,800

Containment of surface soil would be provided through the installation of a 12-inch erosion control cover over the area of contamination. The contaminated soil would not be moved. The erosion control cover would be vegetated to reduce the potential for erosion. Areas of regular vehicular traffic would be covered with 6 inches of gravel. The area to be covered by the erosion control cover is estimated to be approximately 480,000 sq. ft. or 11.0 acres. Of this area, approximately 120,000 sq. ft. (2.8 acres) would be covered with gravel and 360,000 sq. ft. (8.2 acres) would be covered with soil.

Institutional controls would be implemented, as appropriate, to protect cover systems and drainage controls, and may include deed restrictions, security fencing, and signs. The total, 30-year present worth cost of Alternative III is estimated at $1,877,800. This cost includes monitoring of the outfall discharge and routine inspection and

maintenance of the erosion control cover.

4. ALTERNATIVE IV: CONSOLIDATION/CONTAINMENT

Time To Complete:	6 to 8 months
Capital Cost:	$ 1,560,200
First Year O&M:	$ 19,500
30-Year Present Worth Cost	$ 1,860,000

Alternative IV is similar to Alternative III except that the soil from the source areas at the Acme property would be consolidated prior to placement of the erosion control cover. Consolidation of material would reduce the surface area to be covered. Since the consolidation area would be at the Acme property, no soil would be removed from the facility. The area to be excavated is approximately 1.2 acres, or 52,170 sq. ft. This area would be excavated to a depth of 6 inches. The excavated areas would be filled to grade with clean soil or gravel. After consolidation, the area to be covered consists of approximately 7.6 acres or 332,000 sq. ft. Of the area to be covered, 88,400 sq. ft. (1.9 acres) would be covered with gravel, while 245,600 sq. ft. (5.6 acres) would be covered by a 12-inch soil erosion control cover. The design and implementation of the cover would be the same as described for Alternative III.

Institutional controls would be implemented, as appropriate, to protect cover systems and drainage controls, and may include deed restrictions, security fencing, and signs. The total, 30-year present worth cost of Alternative IV is estimated at $1,860,000. This cost includes monitoring of the outfall discharge and routine inspection and maintenance of the erosion control cover.

5. ALTERNATIVE V: EXCAVATION/TREATMENT/DISPOSAL

Time To Complete:	10 to 12 months
Capital Cost:	$ 3,075,476
First Year O&M:	$ 19,500
30-Year Present Worth Cost	$ 3,375,276

Alternative V has been developed to include excavation of surface soil in the source areas, thermal treatment, and disposal. Soils with PCB concentrations greater than 500 ppm would be excavated. The excavated soils would be thermally treated (incinerated) at an off-site facility. Existing data for surface soils at the Acme facility indicate that no PCB concentrations greater than 500 ppm were identified. However, Alternative V includes an allowance for excavation, treatment, and disposal of 1,000 cubic yards of soil. The allowance assumes that concentrations greater than 500 ppm will be identified during sampling activities for the remedial design phase. However, the excavation, treatment, and disposal would only be performed if future analytical

results indicate PCB concentrations greater than 500 ppm.

The remaining areas of surface soil contamination would be contained in place on the Acme property. The cover system, would be the same as those described in Alternative III. Institutional controls would be implemented, as appropriate, to protect cover systems and drainage controls. These controls may include deed restrictions, security fencing, and signs. The total, 30-year present worth cost of Alternative V is estimated at $3,375,276. This cost includes monitoring of the outfall discharge and routine inspection and maintenance of the erosion control cover.

6. ALTERNATIVE VI: EXCAVATION/CONTAINMENT (U.S. EPA's Selected Remedy)

Time To Complete:	10 to 12 months
Capital Cost:	$ 2,865,076
First Year O&M:	$ 19,500
30-Year Present Worth Cost	$ 3,164,876

Alternative VI has been developed to include excavation of surface soil with PCB concentrations greater than or equal to 50 ppm. Excavation would be conducted to a depth of approximately 1 foot. The excavation to a 1-foot depth would result in an estimated volume of 1,800 cubic yards. The excavated soils would be disposed at either an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site TSCA-approved landfill. Following completion of excavation activities, the excavated areas would be backfilled with clean soil and graded to allow for adequate drainage.

The remaining surface soils included in the remedial response area would be contained in place with a cover. Alternative VI would include the same cover, surface drainage controls, institutional controls, chemical monitoring and maintenance activities as those described for Alternatives III and V. The erosion control cover materials would generally consist of a 12-inch thick layer of clean soil, an erosion control blanket and would be vegetated to reduce the potential for erosion. For anticipated future traffic areas, a 6-inch gravel layer underlain by geotextile would be used instead of the soil.

Institutional controls would be implemented to protect cover systems and drainage controls. These controls would include, as appropriate, deed restrictions, security fencing, and signs. The total 30-year present worth cost of Alternative VI is estimated at $3,164,876. This cost includes monitoring of the outfall discharge and routine inspection and maintenance of the cover system.

B) Millennium Plant II, $TiCl_4$ Facility

U.S. EPA evaluated the following alternatives to address contamination at the Millennium facility:

1. **ALTERNATIVE I: NO ACTION**

Time To Complete:		————
Capital Cost:	$	0
First Year O&M:	$	0
30-Year Present Worth Cost	$	0

Alternative I is a no action alternative, which would allow site conditions to remain as they currently exist. This alternative serves as a baseline for comparison with other alternatives as required by the NCP. No reduction in the potential of recontamination of Fields Brook sediments or reduction in contaminants transport to Fields Brook is associated with this alternative. There is no cost associated with the no action alternative.

2. **ALTERNATIVE II: DISPOSAL OF HIGHLY-CONTAMINATED SOIL / EROSION CONTROL CAP COVER OF REMAINING TSCA SOILS**

Time To Complete:	6 to 8 months
Capital Cost:	$ 4,018,200
First Year O&M:	$ 81,000
30-Year Present Worth Cost	$ 5,263,400

Alternative II would require the excavation and disposal of highly contaminated soils and the consolidation of the remaining TSCA-regulated material. Soils with concentrations greater than 500 ppm PCBs would be disposed at an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site landfill which complies with TSCA. Soils with between 50 and 500 ppm PCBs would be excavated and consolidated at the Mining Residuals Pile located on the Millennium property. A 12-inch soil erosion control cover would then be placed on the consolidated pile. Other plant areas would receive either soil, gravel, or paved covers. This alternative would require the temporary relocation of Fields Brook.

Deed restrictions would be established to limit the future use of the site and protect the cover system and drainage controls. The existing site fence would be maintained. Chemical monitoring of discharges from outfalls would be conducted to evaluate the amount of contamination moving from the site to the Fields Brook. The 30-year present worth cost to implement this alternative is estimated at $5,263,400. This cost includes monitoring and routine inspection and maintenance of the cover system.

3. ALTERNATIVE IIIA: DISPOSAL OF HIGHLY-CONTAMINATED SOIL / ALTERNATIVE (VERSION A) RCRA COVER OF REMAINING TSCA SOILS

Time To Complete:	12 to 16 months
Capital Cost:	$ 4,786,500
First Year O&M:	$ 81,000
30-Year Present Worth Cost	$ 6,031,600

Alternative IIIA is similar to Alternative II, but includes a modified cover for the consolidated material. This alternative includes the excavation of highly contaminated soils (>500 ppm PCBs) with required disposal in a TSCA-approved facility. This disposal could be at an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site landfill which complies with TSCA. Soil containing between 50 ppm and 500 ppm would be consolidated at the Mining Residual Pile which is located on the Millennium property . The consolidated area would then be covered with an alternate RCRA cover. The Version A cover would consists of (from bottom to top):

- 12 to 24 inches of consolidation soil;
- 20 mil flexible membrane liner (FML) over a geotextile;
- Fabri-Net and infiltration collection;
- 12 inches of clean soil; and
- erosion blanket and vegetation.

Other plant areas would receive either soil, gravel, or paved covers. This alternative would require the temporary relocation of Fields Brook. Deed restrictions would be established to limit the future use of the site and protect the cover system and drainage controls. The existing site fence would be maintained. Chemical monitoring of discharges from outfalls would be conducted to evaluate the amount of contamination moving from the site to the Fields Brook. The 30-year present worth cost to implement this alternative is estimated at $6,03 ,00. This cost includes monitoring and routine inspection and maintenance of the cover system.

4. ALTERNATIVE IIIB: DISPOSAL OF HIGHLY-CONTAMINATED SOIL / ALTERNATIVE (VERSION B) RCRA COVER OF REMAINING TSCA SOILS

Time To Complete:	12 to 16 months
Capital Cost:	$ 6,348,900
First Year O&M:	$ 116,000
30-Year Present Worth Cost	$ 8,132,000

Alternative IIIB is similar to Alternatives II and IIIA. Soils with concentrations greater

than 500 ppm PCBs would be disposed at an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site landfill which complies with TSCA. Soils containing between 50 ppm and 500 ppm would be consolidated at the Mining Residual Pile located on the Millennium property. The consolidated area would then be covered with Version B of an alternate RCRA cover system. The cover would include (from bottom to top):

- consolidation soil;
- 6 inches of clean soil;
- 40 mil flexible membrane liner (FML) over a geotextile;
- Fabri-Net and infiltration collection;
- 24 inches of clean fill soil;
- 6 inches of clean topsoil; and
- erosion blanket and vegetation.

Other plant areas would receive either soil, gravel, or paved covers. This alternative would require the temporary relocation of Fields Brook. Deed restrictions would be established to limit the future use of the site and protect the cover system and drainage controls. The existing site fence would be maintained. Chemical monitoring of discharges from outfalls would be conducted to evaluate the amount of contamination moving from the site to the Fields Brook. The 30-year present worth cost to implement this alternative is estimated at $8,132,000. This cost includes monitoring and routine inspection and maintenance of the cover system.

5. ALTERNATIVE IV: DISPOSAL OF HIGHLY-CONTAMINATED SOIL / RCRA SUBTITLE C COVER OF REMAINING TSCA SOILS

Time To Complete:	18 to 24 months
Capital Cost:	$ 8,684,600
First Year O&M:	$ 116,940
30-Year Present Worth Cost	$ 10,483,000

Alternative IV is similar to Alternatives II, IIIA, and IIIB. Alternative IV would require that PCB contaminated soils with concentrations greater than 500 ppm would be disposed at an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site landfill which complies with TSCA. Soils containing between 50 ppm and 500 ppm would be consolidated at the Mining Residual Pile located on the Millennium property. The consolidated area would then be covered with a RCRA Subtitle C cover system. The Subtitle C cover system would include (from bottom to top):

- 12 to 24 inches of consolidation soil;
- geocomposite clay liner, or equivalent;
- 40 mil FML;
- Geonet or Fabri-Net with infiltration collection;
- 48 inches of clean soil;
- 6 inches of topsoil;
- an erosion blanket; and
- vegetation.

Other plant areas would receive either soil, gravel, or paved covers. Because of the additional area required to accommodate the Subtitle C cover, it would be necessary to permanently relocate Fields Brook to the northernmost portion of the Millennium property. In addition, a fully-encompassing slurry wall would be constructed around the capped area. Groundwater would be influenced using withdrawal wells to promote flow around the slurry wall, and leachate from within the slurry wall would be collected and treated. Deed restrictions would be established to limit the future use of the site and protect the cover system and drainage controls. The existing site fence would be maintained. Chemical monitoring of discharges from outfalls would be conducted to evaluate the amount of contamination moving from the site to the Fields Brook. The 30-year present worth cost to implement this alternative is estimated at $10,483,000. This cost includes monitoring and routine inspection and maintenance of the slurry wall and cover system.

6. ALTERNATIVE V: EXCAVATION AND TREATMENT OF > 500 PPM PCB SOILS

Time To Complete:	24 to 36 months
Capital Cost:	$ 8,966,100
First Year O&M:	$ 81,000
30-Year Present Worth Cost	$ 10,211,200

Alternative V is the same as Alternative II (temporary relocation of Fields Brook, containment, placement of an erosion control cover, deed restrictions, monitoring and routine maintenance), except that soils with greater than (>) 500 ppm of PCBs would be excavated and thermally treated (incinerated) off-site. The costs to implement this alternative are estimated at $10,211,200. This cost includes monitoring and routine inspection and maintenance of the erosion control cover system.

7. **ALTERNATIVE VI: EXCAVATION AND LANDFILL OF ≥ 50 PPM PCB SOILS**

(U.S. EPA's Selected Remedy)

Time To Complete:	12 to 18 months
Capital Cost:	$ 6,846,500
First Year O&M:	$ 43,000
30-Year Present Worth Cost	$ 7,505,500

Under Alternative VI, soils with greater than or equal to (≥) 50 ppm of PCBs would be excavated and disposed at an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site landfill which complies with TSCA. The remaining materials in the Mining Residuals Pile would be covered in-place with an erosion control cover (12 inches of clean soil, an erosion blanket, and vegetation), similar to Alternative II. Other plant areas would receive either soil, gravel, or paved covers. This alternative would not require the temporary relocation of Fields Brook.

Deed restrictions would be established to limit the future use of the site and protect the cover system and drainage controls. The existing site fence would be maintained. Chemical monitoring of discharges from outfalls would be conducted to evaluate the amount of contamination moving from the site to the Fields Brook. The 30-year present worth cost to implement this alternative is estimated at $7,505,500. This cost includes monitoring and routine inspection and maintenance of the cover system.

C) Conrail

U.S. EPA evaluated the following alternatives to address contamination at the Conrail facility:

1. **ALTERNATIVE I: NO ACTION**

Time To Complete:	----------
Capital Cost:	$ 0
First Year O&M:	$ 0
30-Year Present Worth Cost	$ 0

The no action alternative would allow site conditions to remain as they currently exist. The existing berm on the property would remain in place, as would site vegetation. Evaluation of the no action alternative is required by the NCP and provides a baseline for comparison with other alternatives. No capital or O&M costs are associated with this alternative.

2. ALTERNATIVE II: CONTAINMENT/FILTRATION BERM

Time To Complete:	6 to 8 months
Capital Cost:	$ 13,500
First Year O&M:	$ 4,400
30-Year Present Worth Cost	$ 81,100

Alternative II consists of construction of surface drainage controls and berms to prevent surface soils from entering Fields Brook. Arsenic-contaminated soil would remain in-place. A gravel filtration berm would be built along the top of the north bank of Fields Brook to allow for the surface water that might be draining from the property to slowly pass through the berm to Fields Brook while filtering sediments that may be carried by the surface flow. By slowing runoff from the site, this alternative also promotes infiltration of surface water, thereby reducing runoff and sediment transport to Fields Brook. The berm would be constructed along the north bank of Fields Brook from the Ashtabula River to just beyond the former compressor building, approximately 1,100 ft in total length. This alternative does not include any action to be taken on the slope of the north bank of Fields Brook, which is relatively steep and currently vegetated with trees and plants.

Access to the site would be restricted by the construction of a fence across the entrance of the limited access bridge. Institutional controls would limit the future use of the site to protect the berms and drainage controls. The estimated 30-year, net present worth cost for this alternative is $81,100. This cost includes the monitoring of surface soil arsenic levels and routine inspection and maintenance of berms and other drainage control measures.

3. ALTERNATIVE III: CONTAINMENT/GRAVEL EROSION CONTROL COVER

Time To Complete:	6 to 8 months
Capital Cost:	$ 12,000
First Year O&M:	$ 5,500
30-Year Present Worth Cost	$ 96,500

Alternative III consists of covering a portion of the area of the site that is in the watershed, and controlling drainage to prevent surface soils from entering Fields Brook. Contaminated soil would remain in-place and would be covered with 6 inches of gravel and sloped at a 2 percent grade towards Fields Brook in order to reduce the potential for erosion and sediment transport. The gravel covered area, approximately 60 feet east of the former compressor building and extending to the eastern limits of the property adjacent to Fields Brook, would not be covered. Also, the north bank of Fields Brook would not be covered since covering the bank in this manner would not

be possible without extensive excavation or installing an engineered slope protection.

A fence would be placed across the entrance of the limited access bridge across Fields Brook in such a manner as to prevent unauthorized entry. Institutional controls would limit the future use of the site to protect the cover system and drainage controls. The estimated 30-yr, net, present worth, total cost for this alternative is $96,500. This cost includes the monitoring of surface soil arsenic levels and routine inspection and maintenance of the gravel cover and other drainage control measures.

4. **ALTERNATIVE IV: SOIL EXCAVATION / CONSOLIDATION / CONTAINMENT**
(U.S. EPA's Selected Remedy)

Time To Complete:	6 to 8 months
Capital Cost:	$ 19,500
First Year O&M:	$ 5,500
30-Year Present Worth Cost	$ 104,000

Alternative IV includes the excavation, consolidation, and containment of surface soils in a disposal cell located on the Conrail property. All existing vegetation in the "flat area" and along bank slopes to Fields Brook in the areas of interest would be removed. The soils would then be excavated to a depth of approximately 6 inches. Excavated soils (approximately 90 cu yds) would be moved to a consolidation area at a higher elevation along the bank for final disposal on the Conrail property. Upon placement of excavated soils, this area would be graded and covered with 6 inches of gravel to prevent soil erosion. Erosion control measures would be placed on the bank, where necessary, to minimize erosion.

A fence would be placed across the entrance of the limited access bridge across Fields Brook in such a manner as to prevent unauthorized entry. Institutional controls would limit the future use of the site to protect the cover system and drainage controls. The estimated 30-year, net present worth, total cost for this alternative is $104,000. This cost includes the monitoring of surface soil arsenic levels and routine inspection and maintenance of the gravel cover and other drainage control measures.

5. **ALTERNATIVE V: SOIL EXCAVATION/DISPOSAL**

Time To Complete:	6 to 8 months
Capital Cost:	$ 173,100
First Year O&M:	$ 0
30-Year Present Worth Cost	$ 173,100

Alternative V involves the excavation, transport and landfill disposal of excavated soils.

This alternative consists of removing all existing vegetation from the area to be remediated and excavating approximately 6 inches of soil from the area. Excavated soils would be transported to the landfill that is to be built at one of the industrial facilities within the Fields Brook watershed.

The estimated volume of soil to be removed in this alternative is approximately 310 cu yds. The estimated 30-yr, net present worth, total cost for this alternative is $173,100. Because the arsenic contamination would be removed from the area, this alternative would not require deed restrictions, routine maintenance or chemical monitoring.

D) Detrex Corporation

U.S. EPA evaluated the following alternatives to address soil and groundwater contamination at the Detrex facility:

1. ALTERNATIVE I: NO ACTION

Time To Complete:	Monitoring could be initiated in 2 to 4 months.
Capital Cost:	$ 0
First Year O&M:	$ 21,200
30-Year Present Worth Cost	$ 325,900

Alternative I involves performing only long-term monitoring at the Detrex property. The groundwater would be monitored to track the DNAPL and contaminant concentrations. The stormwater outfall would be sampled to evaluate the amount of contamination moving off the property and into Fields Brook. This alternative is required by the NCP for consideration and serves as a baseline against which the effectiveness of the other alternatives can be compared. The 30-year present worth total cost of this alternative is estimated at $325,900.

2. ALTERNATIVE IIA: CONTAINMENT/ SHALLOW COLLECTION TRENCH / TREATMENT

Time To Complete:	Less than 1 year
Capital Cost:	$ 2,065,602
First Year O&M:	$ 41,300
30-Year Present Worth Cost	$ 2,700,502

This alternative would contain the entire DNAPL plume and prevent recontamination of the DS Tributary and Fields Brook sediment from either DNAPL or dissolved phase DNAPL constituents. A slurry wall would be constructed to cut off DNAPL migration towards Fields Brook and the DS Tributary. The slurry wall would completely encircle the DNAPL plume and extend beyond the limits of DNAPL to contain dissolved phase

constituents. Shallow dewatering trenches would be installed within the on-site area encompassed by the slurry wall to maintain a consistent shallow water table elevation below ground surface and to keep an inward gradient across the slurry wall. Extracted groundwater would be treated by Detrex's existing stormwater treatment system that uses carbon filtration to remove contaminants from collected surface water.

Low-lying areas within the existing collection system area and areas with surface soil cleanup goal exceedances would be filled and regraded. These areas would then be covered in-place with a 12-inch thick soil layer, an erosion control blanket, and a vegetative or crushed stone layer surface.

Routine groundwater monitoring would evaluate the level of DNAPL, VOC and SVOC contamination. In addition, water level data would be collected to evaluate groundwater flows within the remedial response area. The stormwater outfall would be sampled to evaluate the movement of contamination from the site. The existing site fence would be maintained. Deed restrictions would be implemented to restrict the future use of the site to protect the cover system, slurry wall, dewatering trenches, drainage controls, and monitoring wells. The total 30-year present worth cost of this alternative is estimated at $ 2,700,502. This cost includes the monitoring and routine inspection and maintenance of the slurry wall, dewatering trenches, cover systems and Detrex's carbon treatment facility.

3. ALTERNATIVE IIB: CONTAINMENT / DNAPL COLLECTION TRENCH / TREATMENT

Time To Complete:	Less than 1 year
Capital Cost:	$ 5,489,412
First Year O&M:	$ 80,200
30-Year Present Worth Cost	$ 6,722,312

Alternative IIB varies from Alternative IIA in that the trenches would be deeper to promote DNAPL collection. Groundwater and DNAPL collection trenches would be installed within the slurry wall area. The trenches would be located near or at the leading edge of the DNAPL plume. The trenches would be installed to maintain a consistent shallow water table elevation below ground surface, to collect and remove DNAPL, and to keep an inward groundwater gradient in the area of DNAPL. The trenches would be approximately 25-feet deep and would have a length of approximately 2,300 ft. The collection trenches would be equipped with submersible pumps that would transfer DNAPL and groundwater to a separation unit. Extracted DNAPL would be treated or recycled at an off-site facility.

Low-lying areas within the existing collection system area and areas with surface soil cleanup goal exceedances would be filled and regraded. These areas would then be

covered in-place with a 12-inch thick soil layer, an erosion control blanket, and a vegetative or crushed stone layer surface.

Routine groundwater monitoring would evaluate the level of DNAPL, VOC and SVOC contamination. In addition, water level data would be collected to evaluate groundwater flows within the remedial response area. The stormwater outfall would be sampled to evaluate the movement of contamination from the site. The existing site fence would be maintained. Deed restrictions would be implemented to restrict the future use of the site to protect the cover system, slurry wall, dewatering trenches, drainage controls, and monitoring wells. The total 30-year present worth cost of this alternative is estimated at $ 6,722,312. This cost includes the monitoring and routine inspection and maintenance of the slurry wall, dewatering trenches, cover systems and Detrex's carbon treatment facility.

4. ALTERNATIVE III: HYDRAULIC CONTAINMENT / DNAPL COLLECTION WELLS / TREATMENT

Time To Complete:	Less than 1 year
Capital Cost:	$ 1,615,440
First Year O&M:	$ 245,600
30-Year Present Worth Cost	$ 5,390,940

This alternative would hydraulically contain the DNAPL plume and prevent recontamination of the DS Tributary and Fields Brook sediment by reversing the direction of groundwater flow and recovering mobile DNAPL. Vacuum-enhanced extraction wells would be used to remove DNAPL constituents. Based on a pilot study conducted in January 1997, it is estimated that approximately 60 wells would be installed to collect groundwater and DNAPL. Extracted groundwater would be treated by Detrex's existing stormwater treatment system that uses carbon filtration to remove contaminants from collected surface water. Extracted DNAPL would be treated or recycled at an off-site facility.

Low-lying areas within the existing collection system area and areas with surface soil cleanup goal exceedances would be filled and regraded. These areas would then be covered in-place with a 12-inch thick soil layer, an erosion control blanket, and a vegetative or crushed stone layer surface.

Routine groundwater monitoring would evaluate the level of DNAPL, VOC and SVOC contamination. In addition, water level data would be collected to evaluate groundwater flows within the remedial response area. The stormwater outfall would be sampled to evaluate the movement of contamination from the site. The existing site fence would be maintained. Deed restrictions would be implemented to restrict the future use of the site to protect the cover system, drainage controls, and extraction and

monitoring wells. Total 30-year present worth cost of this alternative is estimated at $5,390,940. This cost includes the monitoring and routine inspection and maintenance of extraction wells, dewatering trenches, cover systems and Detrex's carbon treatment facility.

5. ALTERNATIVE IV: DOWNGRADIENT CONTAINMENT / DNAPL COLLECTION WELLS / TREATMENT (U.S. EPA's Selected Remedy)

Time To Complete:	Approx. 1 year
Capital Cost:	$ 1,890,776
First Year O&M:	$ 211,600
30-Year Present Worth Cost	$ 5,143,576

This alternative is a combination of Alternatives II and III with the exclusion of the on-site shallow dewatering trenches included under Alternative II. The shallow dewatering trenches would not be required in this alternative because vacuum-enhanced extraction wells installed inside the slurry wall would lower the water table inside the slurry wall and reverse the flow of groundwater away from the slurry wall. The slurry wall component would extend beyond the edge of the downgradient portion of the DNAPL plume to ensure that the DNAPL and contaminated groundwater flowing towards Fields Brook or the DS Tributary would be contained or captured. The wall is expected to be approximately 1,500 feet; however, this length may increase depending on the results of design investigations. Vacuum-enhanced extraction wells would be installed near the leading edge of the DNAPL plume near the slurry wall and within the plume to lower the groundwater table and collect DNAPL. Based on pilot test results, approximately 40 extraction wells are anticipated. Extracted groundwater would be treated by Detrex's existing stormwater treatment system that uses carbon filtration to remove contaminants from collected surface water. Extracted DNAPL would be treated or recycled at an off-site facility.

Low-lying areas within the existing collection system area and areas with surface soil cleanup goal exceedances would be filled and regraded. These areas would then be covered in-place with a 12-inch thick soil layer, an erosion control blanket, and a vegetative or crushed stone layer surface.

Routine groundwater monitoring would evaluate the level of DNAPL, VOC and SVOC contamination. In addition, water level data would be collected to evaluate groundwater flows within the remedial response area. The stormwater outfall would be sampled to evaluate the movement of contamination from the site. The existing site fence would be maintained. Deed restrictions would be implemented to restrict the future use of the site to protect the cover system, drainage controls, slurry wall, and extraction and monitoring wells. Total 30-year present worth cost of this alternative is

estimated at $5,143,576. This cost includes the monitoring and routine inspection and maintenance of the slurry wall, extraction wells, cover systems and Detrex's carbon treatment facility.

E) Sewers North and South of Fields Brook

The U.S. EPA evaluated the following alternatives to address contamination in the north and south sewers:

1. ALTERNATIVE I: NO ACTION

Time To Complete:	———
Capital Cost:	$ 0
First Year O&M:	$ 0
30-Year Present Worth Cost	$ 0

Alternative I is a no action alternative, which would allow sewer conditions to remain as they currently exist. This alternative serves as a baseline for comparison with other alternatives as required by the NCP. No reduction in the potential of recontamination of Fields Brook sediments or reduction in contaminants transported to Fields Brook is associated with this alternative. There is no cost associated with the no action alternative.

2. ALTERNATIVE II: SEDIMENT REMOVAL

Time To Complete:	Less than 4 months	
Capital Cost:	$ 399,900 for sewers north	$ 228,500 for sewers south
First Year O&M:	$ 0 for sewers north	$ 0 for sewers south
30-Year Present Worth Cost	$ 399,900 for sewers north	$ 228,500 for sewers south

This alternative involves the removal of sediment and debris from inside the sewer lines and the associated catch basins to reduce the potential of recontamination of the Fields Brook sediments. The sewers would continue to be used after remedial activities are completed. Sediment removal could be accomplished by cleaning the inside of the sewers using manual and mechanical techniques to remove sediment, followed by rinsing. Major blockages may exist that prevent the cleaning equipment from traversing the entire line. In this case, the blockages would need to be manually removed or, if necessary, the sewers repaired in order to successfully clean the entire line.

All sediments and debris removed by the sewer cleaning would be staged in stockpile areas located near access at one end of the sewer. Solids collected during the dewatering process should be characterized and disposed properly in either an off-site landfill or in the on-site landfill to be built in the Fields Brook watershed. The type of

off-site landfill (whether solid waste, RCRA, or TSCA) would depend on the chemical characteristics of the material. The 30-yr, present worth, total cost of Alternative II is estimated at $399,900 for the sewers north of Fields Brook and $228,500 for the sewers south of Fields Brook.

3. ALTERNATIVE III: SEDIMENT CONTAINMENT/REMOVAL (U.S. EPA's Selected Remedy)

Time To Complete:	Less than a year	
Capital Cost:	$ 285,700 for sewers north	$ 324,000 for sewers south
First Year O&M:	$ 0 for sewers north	$ 0 for sewers south
30-Year Present Worth Cost	$ 285,700 for sewers north	$ 324,000 for sewers south

This alternative is similar to Alternative II, except that portions of sewers that are blocked and difficult to clean would be closed off, and the sediment within the sewers contained. These containment areas would include a section of the 48-in. diameter combined sewer north of Fields Brook and a section of the 30-inch sewer on the Acme site. The sediments in these sewer segments would be contained by filling the sewer pipe with a cement grout to restrict flow in the sewer and prevent migration of sediments into Fields Brook.

Replacement sewers would be constructed to divert water from the sections that have been closed and to connect the remaining sections of the sewers that have been cleaned. These sewers would continue to be used after remedial activities are completed. The total cost of Alternative III is estimated at $285,700 for the sewers north of Fields Brook and $324,000 for the sewers south of Fields Brook.

F) RMI Metals Reduction

The U.S. EPA evaluated the following alternatives to address contamination at RMI Metals:

1. ALTERNATIVE I: NO ACTION

Time To Complete:	Monitoring could be implemented in 2 to 4 months
Capital Cost:	$ 1,900
First Year O&M:	$ 2,000
30-Year Present Worth Cost	$ 32,600

Alternative I would involve only monitoring, and the source area at the RMI Metals property would remain in its present condition. As part of this alternative, a section of Fields Brook immediately downgradient of the remedial response area would be monitored to assess the extent of contaminant migration from the area. This alternative serves as a baseline against which the effectiveness of the other alternatives can be compared. Because this alternative includes only chemical monitoring, the total, 30-year

present worth cost of this alternative is estimated at $32,600.

2. ALTERNATIVE II: CONTAINMENT

Time To Complete:	6 to 8 months
Capital Cost:	$ 19,200
First Year O&M:	$ 6,500
30-Year Present Worth Cost	$ 119,100

Alternative II includes the construction of an erosion control cover and the use of surface drainage controls to prevent recontamination of Fields Brook sediment. Contaminated soils would remain in place. The erosion control cover would consist of a 12-inch thick layer of clean soil, an erosion control blanket and would be vegetated to reduce erosion and other effects of weather. The existing facility fencing would be maintained to prevent unauthorized entry to the response area. Deed restrictions would be established to restrict future uses of the site and protect the cover system and drainage controls. The total, 30-year present worth cost of Alternative II is estimated at $119,100. This cost includes surface soil monitoring and the routine inspection and maintenance of the cover system.

3. ALTERNATIVE III: EXCAVATION/DISPOSAL/CONTAINMENT

Time To Complete:	10 to 12 months
Capital Cost:	$ 58,680
First Year O&M:	$ 6,500
30-Year Present Worth Cost	$ 158,580

Alternative III has been developed to include partial excavation of surface soil in the source area and disposal, and containment. The excavation would be limited to surface soils with PCB concentrations greater than or equal to 50 ppm. The excavated soils would be disposed at either an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site landfill which complies with TSCA, whichever is more cost effective. The remaining surface soils included in the remedial response area (soils with PCB concentrations greater than 10 ppm) would be contained in place with a cover consisting of a 12-inch thick layer of clean soil, and an erosion control blanket. The cover would be vegetated to reduce erosion and other effects of weather. The existing facility fencing would be maintained to prevent unauthorized entry to the response area. Deed restrictions would be established to restrict future uses of the site and protect the cover system and drainage controls. The total, 30-year present worth cost of Alternative III is estimated at $158,580. This cost includes surface soil monitoring and the routine inspection and maintenance of the cover system.

4. ALTERNATIVE IV: EXCAVATION AND DISPOSAL (U.S. EPA's Selected Remedy)

Time To Complete:	10 to 12 months
Capital Cost:	$ 101,530
First Year O&M:	$ 0
30-Year Present Worth Cost	$ 101,530

Alternative IV has been developed to include the excavation and disposal of contaminated surface soil. The excavated materials would be limited to surface soils with PCB concentrations greater than 10 ppm. The excavation would be backfilled and graded to meet existing, surrounding surface contours. The excavated soils would be disposed at either an on-site landfill (to be constructed at an industrial facility within the Fields Brook watershed) or at an off-site landfill which complies with TSCA, whichever is more cost effective. Alternative IV would not require any erosion control cover, surface drainage controls, deed restrictions or maintenance activities. The total, 30-year present worth cost of Alternative IV is estimated at $101,530.

IX. SUMMARY OF COMPARATIVE EVALUATION OF ALTERNATIVES

The National Contingency Plan (NCP) requires that the alternatives be evaluated on the basis of the following nine evaluation criteria: (1) Overall protection of human health and the environment; (2) Compliance with applicable or relevant and appropriate requirements (ARARs); (3) Long-term effectiveness and permanence; (4) Reduction of toxicity, mobility, or volume through treatment; (5) Short-term effectiveness; (6) Implementability; (7) Cost; (8) State acceptance; and (9) Community acceptance. This section compares the alternatives for each of the six source areas with regard to these nine evaluation criteria.

A) Acme Scrap Iron and Metal

1. THRESHOLD CRITERIA: OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS):

Overall protectiveness for the alternatives associated with the Fields Brook Source Control Operable Unit is measured by the protectiveness at preventing recontamination of Fields Brook sediment. Alternative I, the No Action Alternative, would result in unacceptable risks to human health and the environment under current conditions. This alternative would allow the potential flow of PCBs to Fields Brook. However, the monitoring to be performed as part of Alternative I would provide data regarding the protectiveness of this alternative.

Alternatives II, III, IV, V, VI have been developed to protect human health and the environment by preventing recontamination of Fields Brook sediment. Soil cover technologies of up to 12-inch thickness would be most suitable for areas with relatively low levels of contamination, and would provide a potentially less protective remedy for areas with elevated levels of contamination, in part because of the uncertainty associated with the possible surfacing of chemicals of concern over time.

Alternatives II, III, and IV would leave contaminated soil in place and construct a cover over the area to reduce runoff and erosion of contaminated material. Alternative IV would consolidate material before placing the cover to reduce the area requiring long-term maintenance. These alternatives would not provide sufficient containment for soils with elevated levels of PCB contamination (≥ 50 ppm total PCBs) and, thus, would not comply with TSCA.

Alternative V would excavate all material > 500 ppm for off-site treatment and disposal. The remaining soils would be covered in place. This alternative would not properly contain soils with PCB concentrations ≥ 50 ppm and would therefore not comply with TSCA.

Alternative VI, the selected alternative, requires excavation and disposal of soils with ≥ 50 ppm PCBs. Remaining contaminated soils would be contained in place. This alternative meets the requirements of TSCA by properly disposing of TSCA-regulated contaminated soils. The cover for the remaining contaminated soils would protect human health and the environment by reducing the movement of contamination to Fields Brook.

The ARARs for the remedial actions considered for the Acme source area are indicated in Table 2.

2. PRIMARY BALANCING CRITERIA: LONG-TERM EFFECTIVENESS AND PERMANENCE; REDUCTION OF TOXICITY, MOBILITY AND VOLUME THROUGH TREATMENT; SHORT-TERM EFFECTIVENESS; IMPLEMENTABILITY; AND COST.

All action alternatives would exhibit long-term effectiveness and permanence characteristics, as long as they were maintained. Soil cover technologies of up to 12-inch thickness would be most suitable for areas with relatively low levels of contamination, and would provide a potentially less protective, long-term effective and permanent remedy for areas with elevated levels of contamination, in part because of the uncertainty associated with the possible surfacing of chemicals of concern over time. All alternatives require O&M.

Implementation of Alternative V would result in the reduction of toxicity, mobility, and

volume of contaminants in soil with PCB concentrations greater than 500 ppm. Treatment is a secondary element in Alternative VI in that landfill leachate liquids would be collected and treated resulting in destruction of hazardous substances. Thus, if contaminated liquids leach from the landfilled materials, these liquids would be collected and treated. Alternative IV includes consolidation of source areas which would result in the reduction of the areal extent of source areas requiring long-term management. The excavated areas in Alternative V and VI would also reduce long-term management requirements. None of the alternatives except Alternative V include treatment of principle threat wastes in order to reduce toxicity, mobility, or volume of the contamination. Principle threat wastes generally include wastes with concentrations greater than a 10^{-4} cancer risk at a site, and there are no principle threat concentrations of contaminants indicated in any location on the Acme property with greater than a 10^{-4} cancer risk. The soils to be contained in place have a low average concentration of between 10-40 ppm total PCBs, and the soils to be excavated under alternatives V and VI have a low average concentration of between 50-70 ppm total PCBs. Thus, for these reasons treatment would not be required.

No significant short-term problems are expected during construction or soon after construction of Alternatives II through VI. Alternatives II, and III, are effective in the short-term because they involve minimal disturbance to the source areas. The excavation and consolidation portions of Alternative IV and the excavation and disposal portions of Alternative V and VI present risk of particulate emission, thereby creating exposure pathways to workers and community residents. Standard dust control methods would be required during remedial action to reduce this risk. Alternatives II through VI also impact the property operations in the short-term. All alternatives, except for Alternative I, will require worker protection during remediation. Implementation of Alternative I is expected to take 2 to 4 months. Alternatives II through IV are expected to take 6 to 8 months to implement. Implementation of Alternatives V and VI are estimated to take about 10 to 12 months. The alternatives may require coordination with the schedule for the construction of the on-site landfill.

No significant implementability problems which would prevent construction of the remedy are expected during construction or soon after construction of Alternatives II through VI. Alternative I would be the easiest to implement since only monitoring would be included. Alternatives II through VI include construction of a containment berm or soil/clay cover. Construction of the berm or cover would have material handling requirements. The materials, services, equipment, and specialists required for the construction are readily available. The equipment and specialists required for the excavation portion of Alternatives IV, V, and VI also are readily available. The berm and cover could be expanded or enlarged easily, if needed. Periodic inspection and maintenance of the berm or cover would provide reliability in the future.

Implementation of Alternatives II through VI would interfere with the normal

operations at the Acme facility. Alternatives IV, V, and VI would cause the most interference with facility operations due to soil excavation.

The estimated cost for each alternative is divided into capital costs and annual O&M costs. The total cost for each alternative is then computed using an annual interest rate of 5% for a period of 30 years. The costs presented in this document are expected to range within +50% and -30% in accordance with the U.S. EPA guidance. Alternative V is the most expensive remedial alternatives, followed in order by Alternative VI, III, IV, Alternative II, and Alternative I.

3. MODIFYING CRITERIA: STATE AGENCY ACCEPTANCE; COMMUNITY ACCEPTANCE.

The State of Ohio did not concur with the remedies selected for the Floodplain/Wetland and Sediment Operable Units of the Fields Brook site. Because the Source Control Operable Unit supports the remedies selected for the Floodplain/Wetland and Sediment Operable Units, the OEPA has provided notice of its nonconcurrence with the remedies selected in this Record of Decision.

U.S. EPA provided a public comment period on the Source Control Proposed Plan and conducted a public meeting on the Source Control Proposed Plan on July 31, 1997 in Ashtabula. The public comment period was originally scheduled from July 24 to August 22, 1997. The public comment period was extended to September 15, 1997 in response to a request from the public. After a follow-up request for more time to submit comments regarding the Acme property, the comment period was again extended. The comment period closed on September 22, 1997.

U.S. EPA received one oral comment at the public meeting in support of U.S. EPA's proposed cleanups. Eleven written sets of comment were received during the comment period, including comments from natural resource trustees, PRPs and their agents, and concerned citizens. All comments were carefully reviewed and considered by U.S. EPA prior to finalization of this Record of Decision. U.S. EPA's response to the public comments received are summarized in the attached Responsiveness Summary, which is Attachment 1 of this Record of Decision.

B) Millennium Plant II, $TiCl_4$ Facility

1) THRESHOLD CRITERIA: OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS):

Overall protectiveness for the alternatives associated with the Fields Brook Source

Control Operable Unit is measured by the protectiveness at preventing recontamination of Fields Brook sediment. All alternatives, except for the no action alternative, would be protective of human health and the environment by preventing the recontamination of Fields Brook sediment, and also by preventing direct exposures to elevated levels of soil contamination. O&M will be an integral part of any selected alternative in order to ensure long-term protection of human health and the environment. Alternatives II, IIIA, and V may not be protective because they include either a cover alternative involving 12 inches of soil cover, or a 12-inch soil cover with a liner over the total PCB contaminated materials between 50-500 ppm. These alternatives may result in unacceptable risks to humans in the event that the higher concentration contaminants potentially reach the cover surfaces over time and release to Fields Brook. Alternatives IIIB and IV would be more protective than Alternatives II and IIIA, because these alternatives offer thicker covers (i.e., Alternative IIIB involves use of a 30-inch soil cover with a geomembrane liner, and Alternative IV involves the use of a 48-inch soil cover with a geomembrane liner).

Alternatives II, IIIA and V are expected to comply with all ARARs and TBC recommendations, except that Alternatives II, IIIA and V would not provide an equivalent level of protection as a disposal which complies with TSCA 761.60 and 761.75. Although U.S. EPA has the option to waive TSCA requirements if there is "no unreasonable risk" to human health and the environment, the U.S. EPA does not believe that a 12-inch soil cover would provide sufficient protection over the long term for the levels of PCB contamination in the Millennium soils. Alternative IIIB is also expected to comply with all ARARs and TBC recommendations, except that Alternative IIIB would require a waiver under TSCA for the implementation of the specified cover system. Alternative IV is expected to comply with all ARARs and TBC recommendations, including TSCA. The Region V TSCA office has determined that, in general, the combination of a Subtitle C cover system and a fully encompassing slurry wall could meet the disposal requirements of TSCA. Alternative VI would offer an equivalent lev[illegible] of protection as disposal that complies with TSCA 761.60 and 761.75. Consolidation does not trigger any additional ARARs.

The ARARs for the remedial actions considered for the Millennium source area are indicated in Table 2.

2) PRIMARY BALANCING CRITERIA: LONG-TERM EFFECTIVENESS AND PERMANENCE; REDUCTION OF TOXICITY, MOBILITY AND VOLUME THROUGH TREATMENT; SHORT-TERM EFFECTIVENESS; IMPLEMENTABILITY; AND COST.

All alternatives, except for the no action alternative, would be effective in the long-term and would be permanent, as long as they are maintained. However, Alternatives II, IIIA, and V involve the use of a 12-inch thick soil cover which would provide a potentially less

long-term effective and permanent remedy than alternatives IIIB, IV, and VI, because of the uncertainty associated with the possible surfacing of chemicals of concern over time from the areas with elevated levels of PCB contamination.

Alternatives II, IIIA, IIIB, and IV all should have long-term effectiveness and permanence, but each leaves in place a large volume of contaminated material. Alternative V requires off-site thermal treatment of soils with greater than 500 ppm, but is otherwise comparable to Alternative II in long-term effectiveness and permanence. Alternative VI provides the best long term effectiveness and permanence in terms of preventing recontamination of Fields Brook, because higher concentration PCB materials are removed from the site.

Alternatives II, IIIA, IIIB, and IV do not reduce toxicity, mobility, or volume through treatment. Alternative V reduces the toxicity, mobility, and volume of hazardous substances in a small quantity of soil (2,165 cu yds) through treatment. Since the majority of soil does not present a principal threat, the incremental amount of soil treated under Alternative V is relatively small. Treatment of soils with PCB concentrations greater than 500 ppm would significantly increase remediation costs while providing little additional risk reduction at the site. "Pockets" of high-level PCB contamination are widely dispersed at the Millennium property and the overall concentration of PCB contamination is moderate. While U.S. EPA encourages use of treatment for PCB-contaminated soil with concentrations greater than 500 ppm, the selective excavation and treatment of this material is not required by TSCA and is not considered practical for the conditions at this source area. Alternative VI substantially reduces the volume of hazardous substances on-site (16,138 cu yds are removed), but does not reduce the toxicity or mobility through treatment.

Alternatives II, IIIA, IIIB, IV, and VI do not reduce the mobility of the PCBs through treatment. However, Alternatives II, IIIA, IIIB, IV, V, and VI all involve a form of cover system, which serves to reduce the mobility of the PCB-contaminated soils on a macro scale.

Alternative II has the greatest short-term effectiveness, since little if any grading of the Mining Residuals Pile is required. Alternative II can also be implemented in a short time frame. The short-term effectiveness of Alternatives IIIA and IIIB is manageable since only minor grading of the Mining Residuals Pile is required; however, it will take much longer to implement Alternatives IIIA and IIIB due to more complicated cover system components. Alternative IV has potentially poor short-term effectiveness because greater engineering controls will be necessary to prevent problems associated with instability. Numerous interacting components of Alternative IV will increase the instability of the pile and require substantially more engineering controls for slope and pile stability. It is possible that additional characterization of the pile will determine that solidifying agents are necessary to implement Alternative IV. Alternatives V and VI have lower short-term effectiveness than Alternative II, but greater than Alternatives IIIA, IIIB, and IV, due to

the time necessary for implementation.

Alternative I would be the easiest to implement because no action is required. Alternative II is relatively easy to implement and can be installed in a short time frame. Alternatives IIIA, IIIB, and IV will be more difficult to implement due to the complexity of the cover system components. Also, Alternative IV may be difficult to implement because the Mining Residuals Pile is not conducive to excessive grading, compaction, or the added weight of a 7-foot thick cap, and may be thus subject to liquefaction. Alternative V would be more difficult to implement due to scheduling and the time and personnel commitment for excavation, transportation, and treatment. Alternative VI may be more difficult to implement than Alternative II, because, although it involves the installation of a relatively simple cover system, it also requires a time and personnel commitment for excavation, transportation, and landfilling. All alternatives other than no action may encounter difficulties during implementation due to the close proximity of contaminated soils to the floodplain and Fields Brook, the relatively steep northern slope between the Mining Residuals Pile and Fields Brook, and due to the ongoing business operations at the facility. In addition, construction activities for Alternatives II through VI may cause dust to be released to the atmosphere, thereby creating exposure pathways to workers and community residents. Standard dust control methods would be required during remedial action to reduce this risk. Alternatives II through V also impact the property operations in the short-term. All alternatives, except for Alternative I, will require worker protection during remediation.

The costs to implement the alternatives are:

ALTERNATIVE	30-YEAR PRESENT WORTH COST
I	$0
II	$5,263,400
IIIA	$6,031,600
IIIB	$8,132,000
IV	$10,483,000
V	$10,211,200
VI	$7,505,500

Alternatives II through VI will all prevent recontamination of Fields Brook by preventing erosion of soils containing PCBs above the CUG. Alternatives IIIA, IIIB, and IV are more expensive due to engineered barriers to prevent infiltration. Alternative V is more expensive than Alternative II (to which it is substantively similar), because highly-

contaminated soils (> 500 ppm PCBs) would be thermally treated instead of being placed in a landfill. Alternative VI is more expensive than Alternatives II and IIIA, yet less expensive than Alternatives IIIB, IV, and V. Alternative VI provides the greatest benefit for the cost, as materials greater than 50 ppm would be excavated from the site and disposed at an on-site or off-site landfill which complies with TSCA.

3) MODIFYING CRITERIA: STATE AGENCY ACCEPTANCE; COMMUNITY ACCEPTANCE.

The State of Ohio did not concur with the remedies selected for the Floodplain/Wetland and Sediment Operable Units of the Fields Brook site. Because the Source Control Operable Unit supports the remedies selected for the Floodplain/Wetland and Sediment Operable Units, the OEPA has provided notice of its nonconcurrence with the remedies selected in this Record of Decision.

U.S. EPA provided a public comment period on the Source Control Proposed Plan and conducted a public meeting on the Source Control Proposed Plan on July 31, 1997 in Ashtabula. The public comment period was originally scheduled from July 24 to August 22, 1997. The public comment period was extended to September 15, 1997 in response to a request from the public. After a follow-up request for more time to submit comments regarding the Acme property, the comment period was again extended. The comment period closed on September 22, 1997.

U.S. EPA received one oral comment at the public meeting in support of U.S. EPA's proposed cleanups. Eleven written sets of comments were received during the comment period, including comments from natural resource trustees, PRPs and their agents, and concerned citizens. All comments were carefully reviewed and considered by U.S. EPA prior to finalization of this Record of Decision. U.S. EPA's response to the public comments received are summarized in the attached Responsiveness Summary, which is Attachment 1 of this Record of Decision.

C) Conrail

1) THRESHOLD CRITERIA: OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS):

Overall protectiveness for the alternatives associated with the Fields Brook Source Control Operable Unit is measured by the protectiveness at preventing recontamination of Fields Brook sediment. Alternatives I, II, and III may not be protective of human health and the environment because they do not include removal or containment of arsenic contaminated soils along the north bank of Fields Brook. Such removal would prevent

releases of elevated concentrations of arsenic within surface soils above the CUGs to the Brook. Alternatives IV and V would be protective because they would prevent releases of elevated concentrations of arsenic within surface soils above the CUGs to the Brook.

Alternatives II, III, IV and V are expected to comply with site ARARs and TBC recommendations. ARARs are not relevant for Alternative I, the no action alternative. The ARARs for the remedial actions considered for the Conrail source area are indicated in Table 2.

2) **PRIMARY BALANCING CRITERIA: LONG-TERM EFFECTIVENESS AND PERMANENCE; REDUCTION OF TOXICITY, MOBILITY AND VOLUME THROUGH TREATMENT; SHORT-TERM EFFECTIVENESS; IMPLEMENTABILITY; AND COST.**

Alternatives I, II, and III may not be permanent or long term effective because they do not include removal or containment of arsenic contaminated soils along the north bank of Fields Brook which would prevent releases of elevated concentrations of arsenic within surface soils above the CUGs to the Brook. Alternatives IV and V would be permanent and long term effective because they would prevent releases of elevated concentrations of arsenic within surface soils above the CUGs to the Brook.

Alternatives I, II, and III may reduce short term effectiveness because they do not include removal or containment of arsenic contaminated soils along the north bank of Fields Brook which would prevent releases of elevated concentrations of arsenic within surface soils above the CUGs to the Brook. Alternatives IV and V may enhance short term effectiveness because they would prevent releases of elevated concentrations of arsenic within surface soils above the CUGs to the Brook. Construction activities for Alternatives II through V may cause dust to be released to the atmosphere, thereby creating exposure pathways to workers and community residents. Standard dust control methods would be required during remedial action to reduce this risk. Alternatives II through V also impact the property operations in the short-term. All alternatives, except for Alternative I, will require worker protection during remediation. In addition, Alternative V also will be less effective in the short-term since it is dependent upon the construction of the Sediment/FWA Landfill and therefore has a longer implementation time.

Alternative I requires no implementation because no action is required (i.e., maintain existing conditions). The implementation of Alternatives II and III involves the construction and maintenance of surface drainage controls, gravel covers, and erosion control, measures that are simple and well-known. Alternatives IV and V are the most difficult to implement due to the destruction of vegetation and wildlife habitat, soil excavation and handling activities, the proximity of work areas to moving trains and the need for sedimentation control during construction.

Alternative I, the no action alternative, would not involve any costs. Alternatives II and III have estimated 30-yr, net present worth, total costs of $81,100 and $96,500, respectively. Both of these alternatives include the implementation of surface soil, erosion and storm water drainage control measures to prevent soil transport to Fields Brook. Annual O&M cost for Alternative III is approximately one-half the estimated remedial costs.

3) MODIFYING CRITERIA: STATE AGENCY ACCEPTANCE; COMMUNITY ACCEPTANCE.

The State of Ohio did not concur with the remedies selected for the Floodplain/Wetland and Sediment Operable Units of the Fields Brook site. Because the Source Control Operable Unit supports the remedies selected for the Floodplain/Wetland and Sediment Operable Units, the OEPA has provided notice of its nonconcurrence with the remedies selected in this Record of Decision.

U.S. EPA provided a public comment period on the Source Control Proposed Plan and conducted a public meeting on the Source Control Proposed Plan on July 31, 1997 in Ashtabula. The public comment period was originally scheduled from July 24 to August 22, 1997. The public comment period was extended to September 15, 1997 in response to a request from the public. After a follow-up request for more time to submit comments regarding the Acme property, the comment period was again extended. The comment period closed on September 22, 1997.

U.S. EPA received one oral comment at the public meeting in support of U.S. EPA's proposed cleanups. Eleven written sets of comments were received during the comment period, including comments from natural resource trustees, PRPs and their agents, and concerned citizens. All comments were carefully reviewed and considered by U.S. EPA prior to finalization of this Record of Decision. U.S. EPA's response to the public comments received are summarized in the attached Responsiveness Summary, which is Attachment 1 of this Record of Decision.

D) Detrex Corporation

1) THRESHOLD CRITERIA: OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS):

Overall protectiveness for the alternatives associated with the Fields Brook Source Control Operable Unit is measured by the protectiveness at preventing recontamination of Fields Brook sediment. The no action alternative (Alternative I) will not reduce the

existing potential for migration of DNAPL compounds to Fields Brook. Alternatives IIA, IIB, III, and IV provide good overall protection of Fields Brook through physical, hydraulic, or combined physical and hydraulic containment and removal. Alternatives IIB and IV provide the highest expected degree of protectiveness because the DNAPL plume would be both contained and collected/treated.

Compliance with location and action-specific ARARs would be met for each of the four alternatives. No action-specific ARARs were identified for the no action alternative (Alternative I). USEPA's TBC guidance indicates that long-term remediation objectives of DNAPL remedies should be to remove free-phase, residual and vapor phase DNAPL "to the extent practicable". Since Alternatives I and II do not involve DNAPL removal, they do not meet this TBC. The ARARs for the remedial actions considered for the Detrex source area are indicated in Table 2.

2) **PRIMARY BALANCING CRITERIA: LONG-TERM EFFECTIVENESS AND PERMANENCE; REDUCTION OF TOXICITY, MOBILITY AND VOLUME THROUGH TREATMENT; SHORT-TERM EFFECTIVENESS; IMPLEMENTABILITY; AND COST.**

Residual risks to Fields Brook sediment would remain for each alternative. The no action alternative (Alternative I) would not change the existing risk to Fields Brook sediment. The slurry wall included in Alternatives IIA and IIB would effectively contain DNAPL sources on the Detrex property and at off-site locations. However, the DNAPL zone would remain in the subsurface as a residual risk. Alternatives IIB, III, and IV would reduce the amount of DNAPL in the subsurface, but this partial reduction may not produce a significant reduction in risk especially if all DNAPL is not removed from the low permeability clay soils. The combination of physical (slurry wall) and hydraulic containment/DNAPL collection and treatment (trenches or extraction wells) in Alternatives IIB and IV provides the highest expected reduction of off-site migration.

No controls to prevent recontamination of Fields Brook sediment would be provided under Alternative I. The slurry wall, shallow and deep extraction trenches, and regrading of low-lying areas (Alternatives IIA and IIB) are adequate and reliable controls in the long term and require low maintenance. Vacuum-enhanced extraction wells (Alternatives III and IV) are effective and reliable, and they would require long-term O&M. Maintenance requirements for the groundwater/DNAPL extraction systems would be moderate. Uncertainties associated with the effectiveness of extraction wells in low-permeability glacial clays would be evaluated through the long-term monitoring program. Complete removal of DNAPL in low permeability clay soils is not possible with currently available technology and treatment to asymptotic levels is expected.

The long-term groundwater monitoring program would be implemented with each of the alternatives (including no action) to monitor the effectiveness of each alternative. A performance review would be required for each alternative to evaluate the effectiveness of the alternative in meeting the goal of preventing recontamination of Fields Brook sediment and to evaluate the need for continued remediation (i.e. extraction and treatment under Alternatives IIB, III and IV).

All alternatives, except for the no action alternative, either reduce the mobility of DNAPL compounds or reduce the toxicity and volume of contaminants. Alternative I, the no action alternative, does not include treatment; therefore, the toxicity, mobility, and volume of DNAPL in the subsurface are not reduced. DNAPL would be treated and destroyed under Alternatives IIB, III and IV. However, more DNAPL removal is anticipated with the more aggressive vacuum-enhanced groundwater/DNAPL removal systems (Alternative III and IV). All DNAPL that would be separated from groundwater would be destroyed by treatment or recycling. Dissolved-phase and vapor-phase DNAPL constituents would be adsorbed onto activated carbon and would be destroyed during carbon regeneration. The amount of DNAPL compounds that could be removed over time under Alternatives IIA, IIB, III, and IV is uncertain.

The activated carbon processes proposed for treatment of extracted groundwater and DNAPL compounds for Alternatives IIA, IIB III, and IV are irreversible. Treatment or recycling of liquid DNAPL and DNAPL compounds from extracted soil vapor under Alternatives IIB, III and IV is also irreversible.

Residuals remaining after on-site treatment of groundwater and DNAPL under Alternatives IIA, IIB, III, and IV would include spent activated carbon for Alternatives IIA, IIB, III, and IV and separated DNAPL for Alternatives IIB, III and IV. Smaller quantities of these residuals would be expected for Alternative IIA than for Alternatives IIB, III and IV. The extraction systems under Alternatives IIB, III and IV would extract DNAPL compounds from the entire DNAPL zone. Residual DNAPL would be destroyed off site by treatment or recycling, while DNAPL compounds adsorbed onto the spent carbon would be destroyed during off-site regeneration. DNAPL compounds from the soil vapor would be destroyed by treatment or recycling under Alternatives III and IV.

Alternatives IIB, III and IV satisfy the preference for treatment of principle threat contaminants (i.e., the DNAPL) that could potentially recontaminate Fields Brook sediment. Alternative II (slurry wall) does not satisfy the preference for treatment of principle threat contaminants; however, treatment is provided for as a secondary element in that contaminated groundwater collected in the trench would result in destruction of hazardous substances.

Alternative I poses no additional short-term risks to the community. Alternatives IIA,

IIB, III and IV pose slightly increased risks to the community by off-site disposal of sediment, catalyst pile area excavations and DNAPL treatment. Alternative III would require disposal of the smallest volume of soil compared to Alternatives IIA, IIB, III, and IV. For Alternative I, worker protection would be required only by workers performing groundwater sampling activities. Appropriate protective equipment would be required by construction workers to minimize exposure to DNAPL constituents during construction of the remedial process options under Alternatives IIA, IIB, III, and IV. Appropriate worker protection would also be required during O&M activities of the dual-phase wells and treatment system under Alternatives IIA, IIB, III and IV.

Short-term environmental impacts would be the same as existing environmental impacts for the no action alternative. Short-term environmental impacts associated with disposal of excavated soil and possible air emissions from the excavations would be possible under Alternatives IIA, IIB, III, and IV. Standard dust control methods would be required during remedial action to reduce the risk from particulates. VOC monitoring would be required during remedial action to ensure worker safety.

The design and construction period for the remedial process options included under Alternatives IIA, IIB, III, and IV would be about 1 to 2 years. Protection from recontamination would be achieved when the systems are installed.

The technologies included under Alternatives IIA, IIB, III, and IV are demonstrated technologies that have been constructed at similar sites. There will be difficulties associated with constructing the slurry wall in Alternatives IIA, IIB, and IV beneath the Conrail railroad tracks north of the facility without interrupting rail service. There are no expected difficulties or uncertainties associated with construction of the vacuum-enhanced extraction well system in Alternatives III and IV. Recent pilot-scale tests completed at the site have evaluated the feasibility and effectiveness of the technology in extracting DNAPL and groundwater. Based on these preliminary tests, the technology is feasible, although yields will be relatively low.

A groundwater monitoring program would be implemented under each alternative (including the no action alternative) to monitor the effectiveness of the remedial action. Additional extraction wells or trenches can be added to any of the alternatives if the monitoring program suggests that additional remedial measures are required to protect Fields Brook sediment.

No regulatory agency approvals would be required for Alternative I. The requirements of the existing NPDES permit would have to be met to account for increased flow rates from the extraction trenches and wells for Alternatives IIA, IIB, III, and IV. Air discharge permit requirements for soil vapor emissions from the extraction wells would be met for Alternatives III and IV.

Services and capabilities to implement each of the Detrex alternatives are readily available. Alternatives II and IIB would not require special equipment, material, or specialists. Alternatives III and IV would require groundwater and soil vapor extraction system operators. The technologies proposed for Alternatives IIA, IIB, III, and IV are available from more than one bidder for competitive bidding.

The estimated cost for each Detrex alternative is divided into capital costs and annual O&M costs. The total present worth cost for each alternative is then computed using an annual interest rate of 5% for a period of 30 years. The feasibility study costs are expected to be accurate to within +50% and -30% in accordance with the U.S. EPA guidance. The present worth of Alternative IIB is the most expensive remedial alternative, followed in order by Alternative III, Alternative IV, Alternative IIA, and Alternative I (no action).

3) MODIFYING CRITERIA: STATE AGENCY ACCEPTANCE; COMMUNITY ACCEPTANCE.

The State of Ohio did not concur with the remedies selected for the Floodplain/Wetland and Sediment Operable Units of the Fields Brook site. Because the Source Control Operable Unit supports the remedies selected for the Floodplain/Wetland and Sediment Operable Units, the OEPA has provided notice of its nonconcurrence with the remedies selected in this Record of Decision.

U.S. EPA provided a public comment period on the Source Control Proposed Plan and conducted a public meeting on the Source Control Proposed Plan on July 31, 1997 in Ashtabula. The public comment period was originally scheduled from July 24 to August 22, 1997. The public comment period was extended to September 15, 1997 in response to a request from the public. After a follow-up request for more time to submit comments regarding the Acme property, the comment period was again extended. The comment period closed on September 22, 1997.

U.S. EPA received one oral comment at the public meeting in support of U.S. EPA's proposed cleanups. Eleven written sets of comments were received during the comment period, including comments from natural resource trustees, PRPs and their agents, and concerned citizens. All comments were carefully reviewed and considered by U.S. EPA prior to finalization of this Record of Decision. U.S. EPA's response to the public comments received are summarized in the attached Responsiveness Summary, which is Attachment 1 of this Record of Decision.

E) Sewers to the North and South of Fields Brook

1) THRESHOLD CRITERIA: OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLIANCE WITH

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS):

Overall protectiveness for the alternatives associated with the Fields Brook Source Control Operable Unit is measured by the protectiveness at preventing recontamination of Fields Brook sediment. Alternatives II and III would be protective of the environment. Both alternatives would prevent recontamination of Fields Brook sediments. Sediment removal is the primary activity under Alternative II, while Alternative III includes sediment containment in addition to removal.

Compliance with ARARs would be met for Alternatives II and III. Action-specific ARARs are not relevant to the no action alternative (Alternative I) because there would be no remedial action. Alternatives II and III would be protective of the environment. Both alternatives would prevent recontamination of Fields Brook sediments. Sediment removal is the primary activity under Alternative II, while Alternative III includes sediment containment in addition to removal.

Compliance with ARARs would be met for Alternatives II and III. Action-specific ARARs are not relevant to the no action alternative (Alternative I) because there would be no remedial action. The ARARs for the remedial actions considered for the sewer source areas are indicated in Table 2.

2) PRIMARY BALANCING CRITERIA: LONG-TERM EFFECTIVENESS AND PERMANENCE; REDUCTION OF TOXICITY, MOBILITY AND VOLUME THROUGH TREATMENT; SHORT-TERM EFFECTIVENESS; IMPLEMENTABILITY; AND COST.

Alternative II provides the highest degree of long-term effectiveness and permanence because this alternative includes sediment removal and would eliminate the potential of COC migration to impact on Fields Brook sediments. The existing contaminated sediment is the result of historical accumulation. Remediation of the potential source areas discussed in this FS for the Detrex Site is expected to eliminate significant future accumulation of contaminated sediment. Alternative III would have lower long-term effectiveness and permanence because it would leave some of the sediments contained in the sewer, however this alternative would eliminate the potential for discharge water to come in contact with previously contaminated portion of the sewer that contained sediment. Alternative III requires very little maintenance.

Alternative I would not result in any reduction of toxicity, mobility, or volume of COCs. Implementation of Alternatives II and III would result in the reduction of toxicity, mobility, and volume through treatment of contaminants that are present in any wastewater generated during sewer cleaning.

Alternative I does not add additional risk to the existing risk to the community. Alternatives II and III present slight additional risk to workers from the construction activities necessary to clean, close and/or replace sewers. Emission controls on the wastewater treatment unit for Alternatives II and III would reduce risk associated with vapor emission. Risks to the community would be marginally increased by off-site disposal of contaminated sediments and control of dust generated by construction activities. Standard dust control methods would be required during remedial action to reducethe risks from particulates.

Implementation of Alternative II is expected to take less than 4 months, while implementation of Alternative III is expected to be completed in less than 1 year. It is anticipated that Alternative III will require the additional time for the installation of replacement sewer sections.

Alternative I would be the easiest to implement since no action would be taken. Alternative II includes sewer sediment removal and sewer cleaning which may be difficult to implement. There could be added difficulties associated with sediment removal due to possible blockage of the sewer. Alternative III includes grouting a portion of the sewer in addition to sediment removal. Grouting is a demonstrated technology that has been applied at other sites and can be readily implemented. Disposing contaminated sediments and treating of wastewater can also be readily implemented.

The estimated costs for Alternatives II and III were computed based on the assumption that all sewers are one-quarter full of sediments at the present time. Calculation of the estimated total quantity of sediments in the north sewers indicated that approximately 320 cu yd of sediments may be present in the combined sewer. Calculation of the assumed total quantity of sediments in the south sewers indicated that approximately 180 cu yd of sediments may be present. The costs were divided into capital costs and annual O&M costs. The total for each alternative is then computed using a discount rate of 5% for a period of 30 years. For the Sewers north of Fields Brook, the cost of Alternative II is higher than the cost for Alternative III. For the Sewers south of Fields Brook, the cost of Alternative III is higher than the cost for Alternative II.

3) MODIFYING CRITERIA: STATE AGENCY ACCEPTANCE; COMMUNITY ACCEPTANCE.

The State of Ohio did not concur with the remedies selected for the Floodplain/Wetland and Sediment Operable Units of the Fields Brook site. Because the Source Control Operable Unit supports the remedies selected for the Floodplain/Wetland and Sediment Operable Units, the OEPA has provided notice of its nonconcurrence with the remedies selected in this Record of Decision.

U.S. EPA provided a public comment period on the Source Control Proposed Plan and conducted a public meeting on the Source Control Proposed Plan on July 31, 1997 in Ashtabula. The public comment period was originally scheduled from July 24 to August 22, 1997. The public comment period was extended to September 15, 1997 in response to a request from the public. After a follow-up request for more time to submit comments regarding the Acme property, the comment period was again extended. The comment period closed on September 22, 1997.

U.S. EPA received one oral comment at the public meeting in support of U.S. EPA's proposed cleanups. Eleven written sets of comments were received during the comment period, including comments from natural resource trustees, PRPs and their agents, and concerned citizens. All comments were carefully reviewed and considered by U.S. EPA prior to finalization of this Record of Decision. U.S. EPA's response to the public comments received are summarized in the attached Responsiveness Summary, which is Attachment 1 of this Record of Decision.

F) RMI Metals Reduction

1) THRESHOLD CRITERIA: OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS):

Overall protectiveness for the alternatives associated with the Fields Brook Source Control Operable Unit is measured by the protectiveness at preventing recontamination of Fields Brook sediment. Alternatives I and II may be potentially less protective than Alternatives III and IV, because areas with elevated levels of PCB contamination would be uncovered or covered with up to 12 inch of soil. Such a cover is most suitable for areas with relatively low levels of contamination, and would provide a potentially less protective remedy for areas with elevated levels of contamination, in part because of the uncertainty associated with the possible surfacing of chemicals of concern over time.

There are no known location-specific ARARs that apply to the remedial alternatives that have been developed for the RMI Metals facility. Alternatives III and IV have been designed to meet all potential action-specific ARARs. Alternative II would not meet the substantive requirements of TSCA, and thus this alternative would not comply with ARARs. Although U.S. EPA has the option to waive TSCA requirements if there is "no unreasonable risk" to human health and the environment, the U.S. EPA does not believe that a 12-inch soil cover would provide sufficient protection over the long term for the levels of PCB contamination in the RMI soils. The ARARs for the remedial actions considered for the RMI Metals source area are indicated in Table 2.

2) **PRIMARY BALANCING CRITERIA: LONG-TERM EFFECTIVENESS AND PERMANENCE; REDUCTION OF TOXICITY, MOBILITY AND VOLUME THROUGH TREATMENT; SHORT-TERM EFFECTIVENESS; IMPLEMENTABILITY; AND COST.**

Alternatives I and II may be potentially less permanent and long-term effective than Alternatives III and IV, because areas with elevated levels of PCB contamination would be uncovered or covered with up to 12 inch of soil. Such a cover is most suitable for areas with relatively low levels of contamination, and would provide a potentially less permanent and long-term effective remedy for areas with elevated levels of contamination, in part because of the uncertainty associated with the possible surfacing of chemicals of concern over time.

Alternatives I, II, III and IV would not result in any reduction of toxicity, mobility, or volume of COCs through treatment. However, implementation of Alternatives II, III and IV would result in the reduction of transportability of contaminants in soil with Alternative III resulting in a further reduction in soil with PCB concentrations greater than 50 ppm, and Alternative IV resulting in the complete reduction of PCB greater than 10 ppm in soil.

Alternative II is effective in the short-term because it involves minimal disturbance to the source areas. The excavation and disposal portions of Alternatives III and IV present risk of particulate emission, thereby creating exposure pathways to workers and community residents. Standard dust control methods would be required during remedial action to reduce this risk. All alternatives, except for Alternative I, will require worker protection during remediation.

Implementation of Alternative I is expected to take 2 to 4 months. Alternative II is expected to take 6 to 8 months to implement. Implementation of Alternatives III and IV is estimated to take about 10 to 12 months but excavation activities would need to be scheduled to coincide with the construction of t on-site consolidation area, if this consolidation area is selected for disposal.

Alternative I would be the easiest to implement since only monitoring would be included. Alternatives II and III include construction of a soil/clay cover. Construction of the cover would have material handling requirements. The materials, services, equipment, and specialists required for the construction are readily available. The equipment and specialists required for the excavation portion of Alternatives III and IV are also readily available. The cover could be expanded or enlarged easily, if needed. Periodic inspection and maintenance of the cover would provide reliability in the future.

Implementation of Alternatives II, III and IV would interfere with the normal

operations at the RMI facility, however this disruption is minimized if the facility remains closed. Alternatives III and IV would cause the most interference with facility operations due to soil excavation.

The estimated cost for each alternative is divided into capital costs and annual O&M costs. The total cost for each alternative is then computed using an annual interest rate of 5% for a period of 30 years. The costs presented in this document are expected to range within +50% and -30% in accordance with the U.S. EPA guidance. Alternative III is the most expensive remedial alternative, followed in order by Alternative IV, Alternative II, and Alternative I.

3) MODIFYING CRITERIA: STATE AGENCY ACCEPTANCE; COMMUNITY ACCEPTANCE.

The State of Ohio did not concur with the remedies selected for the Floodplain/Wetland and Sediment Operable Units of the Fields Brook site. Because the Source Control Operable Unit supports the remedies selected for the Floodplain/Wetland and Sediment Operable Units, the OEPA has provided notice of its nonconcurrence with the remedies selected in this Record of Decision.

U.S. EPA provided a public comment period on the Source Control Proposed Plan and conducted a public meeting on the Source Control Proposed Plan on July 31, 1997 in Ashtabula. The public comment period was originally scheduled from July 24 to August 22, 1997. The public comment period was extended to September 15, 1997 in response to a request from the public. After a follow-up request for more time to submit comments regarding the Acme property, the comment period was again extended. The comment period closed on September 22, 1997.

U.S. EPA received one oral comment at the public meeting in support of U.S. EPA's proposed cleanups. Eleven written sets of comments were received during the comment period, including comments from natural resource trustees, PRPs and their agents, and concerned citizens. All comments were carefully reviewed and considered by U.S. EPA prior to finalization of this Record of Decision. U.S. EPA's response to the public comments received are summarized in the attached Responsiveness Summary, which is Attachment 1 of this Record of Decision.

X. THE SELECTED REMEDIES

A) Detailed Requirements of the Selected Remedies

1) Acme Scrap Iron and Metal

The selected remedy is Alternative VI, which involves the excavation of soil with PCB concentrations greater than or equal to 50 ppm. Excavated soil will be disposed of at either an on-site landfill (to be built on one of the source areas) or at an off-site landfill, whichever is more cost-effective. Remaining contamination will be contained on site. This remedy will reduce the volume of contaminants at the site and comply with TSCA by properly handling of TSCA-regulated soils.

More specifically, Alternative VI includes the following components:

a) Clear Scrap, Debris and Vegetation / Remove Physical Hazards

In order to implement the Remedial Action, scrap, debris and vegetation must be cleared in response and work areas. Physical hazards (i.e., unstable building sections) that could threaten workers must also be addressed prior to Remedial Action.

b) Excavation of Soils with Total PCB Concentrations ≥ 50 ppm

This ROD requires excavation of soils with total PCB concentrations greater than or equal to 50 ppm. Based on existing data, it appears that limiting excavations to a depth of approximately 1 foot should remove all TSCA-regulated soil. However, this remedy requires removal of all TSCA-regulated soils (≥ 50 ppm PCBs), regardless of depth. Therefore, if areas of additional contamination are identified, the excavation depth will be adjusted accordingly. During the remedial design phase, additional samples will be collected to further delineate the design remedial response area and ensure that the PCB contamination is not present on other areas of the Acme property.

The estimated remedial response area for Alternative VI is shown in Figure 4. The excavation area was developed based on linear interpolation between existing data points and covers approximately 47,000 square feet. Excavation in this area would be conducted to a depth of approximately 1 foot. The excavation to a depth of 1 foot would result in an estimated volume of 1,800 cubic yards.

The excavation of surface soils in Alternative VI would be accomplished using conventional earth-moving equipment. Upon excavation, the soil would be

placed in lined roll-off containers or dump trucks for transportation to either the SOU/FWA on-site landfill or to an off-site landfill. Verification sampling may be required to ensure removal of TSCA-regulated soils. Following completion of excavation activities, the excavated areas would be backfilled with clean soil and graded to allow for adequate drainage. Any disturbed areas not receiving an erosion control cover will be graded and seeded, as necessary.

Areas of excavation and locations of the filled/ covered areas are preliminary and will be revised in the event that the Acme property is selected as the location for the on-site landfill (SOU/FWA Consolidation Area).

c) **Refinement of Area to Be Covered**

As part of the Remedial Design, soil loss calculations will be reviewed to finalize the area to be covered. The cover areas have been developed based on current operations and include the proposed excavation area since it is located within the cover interior. The areas may be altered during Remedial Design if assumptions on future operations are revised and/or the Remedial Design includes consolidation.

d) **Optional Consolidation**

Based on public comment from representatives from Acme Scrap Iron and Metal, the U.S. EPA has determined that it will allow consolidation as an optional component of Alternative VI. Consolidation will minimize the area to be covered and maximize the productivity of the property. Depending on the degree of consolidation, this could either result in a cost savings or an increase in remediation costs.

e) **Construction of Cover, Surface Drainage Controls**

For the cover areas, the erosion control cover materials will consist of a 12-inch thick layer of clean soil, an erosion control blanket and will be vegetated to reduce the potential for erosion. For anticipated future traffic areas, a 6-in. gravel layer underlain by geotextile will be used instead of the soil.

As estimated during the Feasibility Study, the erosion control cover for Alternative VI consists of approximately 120,000 sq. ft. (2.8 acres) that will be covered with gravel and 360,000 sq. ft. (8.2 acres) that will be covered with soil.

The location of the erosion control cover (as described in the SCFS) would preclude use of the existing on-site sewer. Therefore, if the cleanup at the

Acme facility is implemented as described in the SCFS, the existing sewer system would be plugged prior to the installation of the erosion control cover and other drainage controls would be implemented. However, if the design of the Acme remedy utilizes consolidation, it may be possible that the existing sewer system could be cleaned and kept in service. This will be addressed during Remedial Design.

f) Institutional Controls, Chemical monitoring and O&M

Institutional controls will be implemented for any area where hazardous substances, pollutants or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. More specifically, institutional controls will be implemented to protect the cover system and drainage controls and will include deed restrictions, security fencing, and signs. The Operations and Maintenance Plan portion of the Remedial Design will specify maintenance and monitoring requirements. The performance of the selected alternative will be reviewed and evaluated every five years after initiation of the remedial action to assure that human health and the environment are being protected.

g) Points of Compliance

In conjunction with completion of the Remedial Action and performance of required O&M, erosion and runoff from the Acme facility must meet the occupational Cleanup Goals (CUGs) established for the FWA and Sediment Operable Units. The occupational CUG for total PCBs is 3.1 ppm. At a minimum, the points of compliance are the property boundary and any discharge locations. Additional performance monitoring locations may be identified during remedial design.

2) Millennium

The selected remedy is Alternative VI, which involves the excavation of soil with PCB concentrations greater than or equal to 50 ppm. Excavated soil will be disposed of at either an on-site landfill (to be built on one of the source areas) or at an off-site landfill, whichever is more cost-effective. Remaining contamination will be contained on site. This remedy will reduce the volume of contaminants at the site and comply with TSCA by properly handling TSCA-regulated soils.

More specifically, Alternative VI requires:

a) Clear Debris and Vegetation / Remove Physical Hazards

In order to implement the Remedial Action, debris and vegetation must be

cleared in response and work areas. Any physical hazards that could threaten workers must also be addressed prior to Remedial Action.

b) Excavation of Soils with Total PCB Concentrations ≥ 50 ppm

This ROD requires excavation of soils with total PCB concentrations greater than or equal to 50 ppm. The estimated remedial response area for Alternative VI is shown in Figure 5. Based on data presented in the FS, volume estimates for excavation are, as follows:

- Non-Traffic Area - approximately 545 cubic yards of soil with ≥ 50 ppm PCBs.

- North Traffic Area - approximately 3,427 cubic yards of soil with ≥ 50 ppm PCBs.

- Laydown Area - no anticipated soils with ≥ 50 ppm PCBs.

- Plant Process Area - approximately 1,003 cubic yards of soil with ≥ 50 ppm PCBs.

- Existing Soil Piles - Soil piles will be removed regardless of PCB concentration. Contaminant concentrations will determine ultimate disposal location.

- Mining Residuals Piles - approximately 11,163 cubic yards of soil with ≥ 50 ppm PCBs.

Following completion of excavation activities, excavated areas will be backfilled with clean soil and graded to allow for adequate drainage. In the Mining Residuals Pile, however, excavated areas will not be backfilled. These areas will instead be graded to lessen the overall height of the pile. Any disturbed areas not receiving an erosion control cover will be graded and seeded, as necessary.

Upon excavation, the soil would be placed in lined roll-off containers or dump trucks for transportation to the SOU/FWA on-site landfill or an off-site TSCA-compliant landfill. Millennium has provided U.S. EPA with the specifications of a landfill currently being constructed under a Ohio EPA permit for disposal of Millennium process wastes. The specifications are being reviewed by the U.S. EPA Region V TSCA Section. If the landfill is given an approval by the TSCA section, disposal of source control soils in this facility would be an acceptable option for solid wastes or TSCA-regulated wastes.

c) **Refinement of Excavation and Cover Areas**

Millennium has conducted additional delineation sampling to better define excavation areas. U.S. EPA is currently reviewing a draft report submitted by Millennium and dated August 4, 1997. This draft report presents the results of the delineation sampling effort and is included in the Administrative Record. As part of the Remedial Design, excavation and cover areas will be finalized and stability analyses will be conducted. The remedial action areas presented in the FS and this ROD may be altered during Remedial Design based on new sampling data, changes in the assumptions concerning future operations, or the addition of consolidation as a component of the remedy. After excavation, all areas with surface soil contaminant concentrations exceeding the occupational CUG for PCBs (3.1 ppm) will be contained within the erosion control cover system.

d) **Optional Consolidation**

Based on public comment from representatives from Acme Scrap Iron and Metal, the U.S. EPA has determined that it will allow consolidation as an optional component of the Acme cleanup. Upon consideration of the Millennium alternatives, U.S. EPA has determined that consolidation could also be included as an optional component of the selected Millennium alternative, Alternative VI. Consolidation will minimize the area to be covered and maximize the productivity of the property. Depending on the degree of consolidation, this could either result in a cost savings or an increase in remediation costs.

e) **Construction of Cover, Surface Drainage Controls**

For the cover areas, the erosion control cover materials will consist of a 12-inch thick layer of clean soil, an erosion control blanket and will be vegetated to reduce the potential for erosion. For anticipated future traffic areas, a 6-in. gravel layer underlain by geotextile will be used instead of the soil. The selected alternative, as presented in the FS, assumes the following cover requirements after excavation:

- North Traffic Area - Areas not already covered with gravel, structures, or non-erodible areas, will be covered with a geotextile and then 6 inches of gravel.

- Laydown Area - The Laydown Area will be covered with a geotextile and then 6 inches of gravel.

- Plant Process Area - The Plant Process Area will be covered with structural-grade asphalt or concrete, as necessary. Areas currently covered with asphalt, concrete, or structures and will be left in place.

- Existing Soil Piles - No cover anticipated. Soil piles will be removed.

- Mining Residuals Pile - After excavation of soils for disposal and regrading of area, a 12-inch soil erosion control cover will be placed over the Mining Residuals Pile. An erosion control blanket and a vegetative layer will then be placed on top of the 12 inches of soil. Instead of a vegetative layer, crushed stone may be used in some areas to reduce maintenance.

f) Surface Drainage Controls

A silt curtain will be placed between the Mining Residuals Pile and Fields Brook to minimize erosion. Topography will be graded as necessary to control run-on to the Mining Residual Pile. However, because the plant areas will all be covered with clean materials, it will be unnecessary to treat surface water in the wastewater treatments system or by any other method. Sheet flow runoff from these areas will be adequate. All surface water controls will be maintained.

g) Miscellaneous Requirements

A concrete curb or wall would be placed between the concrete pad and the Mining Residuals Pile to prevent accidental damage to the erosion control cover from facility vehicles.

h) Institutional Controls, Chemical Monitoring and O&M

Institutional controls will be implemented for any area where hazardous substances, pollutants or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. More specifically, institutional controls will be implemented to protect the cover system and drainage controls. Such institutional controls will include deed restrictions, security fencing, and signs. The Operations and Maintenance Plan portion of the Remedial Design will specify maintenance and monitoring requirements.

O&M activities would include the maintenance of the soil erosion control cover, the stormwater drainage ways, and the vegetated areas (if any). Chemical monitoring requirements would include the annual collection of total PCB surface soil and groundwater samples.

The performance of the selected alternative will be reviewed and evaluated every five years after initiation of the remedial action to assure that human health and the environment are being protected.

i) Points of Compliance

In conjunction with completion of the Remedial Action and performance of required O&M, erosion and runoff from the Millennium facility must meet the Cleanup Goals (CUGs) established for the FWA and Sediment Operable Units. The extent and integrity of the cover must be maintained to contain soil that exceeds occupational CUGs. At a minimum, the points of compliance are the property boundary, discharge locations, and the edge of the floodplain. Additional performance monitoring locations may be identified during remedial design.

3) Conrail

The primary selected remedy for the Conrail property is Alternative IV, which requires consolidation, containment of surface soils in an on-site disposal cell, institutional controls, deed restrictions, isolation of the site from unauthorized entry, and O&M to prevent surface soils from entering Fields Brook. U.S. EPA believes that Alternative IV will effectively prevent the movement of arsenic-contaminated material into Fields Brook.

The selected remedy for the Conrail property (Alternative IV) requires the following activities:

a) Clear Debris and Vegetation / Remove Physical Hazards

In order to implement the Remedial Action, debris and vegetation must be cleared in response and work areas, including but not limited to the "flat area" and along bank slopes to Fields Brook . Any physical hazards that could threaten workers must also be addressed prior to Remedial Action.

b) Excavation and Consolidation of Arsenic-contaminated Soils

The soils on the arsenic-contaminated portion of the north slope of Fields Brook will be excavated to a depth of approximately 6-inches. The excavation area includes the eastern edge of the yardmaster building to approximately 375 ft east of the yardmaster building and from approximately 50 ft west of the former compressor building to approximately 60 ft east of the former compressor building, approximately 485 ft in total length. The excavated soils (estimated volume of approximately 90 cu yds) will be transported to the consolidation area shown on Figure 6 for final disposal. The consolidation area is located at the

Conrail property.

c) **Cover and Erosion Control Requirements**

Upon placement of excavated soils, the consolidation area will be graded and covered with gravel to prevent soil erosion. Within the consolidation area, 6 inches of gravel will be placed to cover the area and prevent soil erosion. Erosion control measures (e.g., concrete revetment mats or riprap) will be placed on the bank, where necessary, to minimize erosion. The cover will then be sloped to a minimum 2 percent grade from the southernmost tracks towards Fields Brook to meet the riprap or other erosion control measures to be placed on sloped bank areas along Fields Brook. The area covered by gravel and bank protection will not be revegetated.

As part of the Remedial Design, the extent of excavation and cover areas will be finalized. The remedial action areas presented in the FS and this ROD may be altered during Remedial Design based on new sampling data, changes in the assumptions concerning future operations at the Conrail property, or changes in the extent of consolidation. After excavation and consolidation, all areas with surface soil contaminant concentrations exceeding residential CUGs will be included in the containment area.

d) **Institutional Controls, Chemical Monitoring and O&M**

Institutional controls will be implemented for any area where hazardous substances, pollutants or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. More specifically, institutional controls will be implemented to protect the cover system and drainage controls. Such institutional controls will include, as appropriate, deed restrictions, security fencing, and signs. The Operations and Maintenance Plan portion of the Remedial Design will specify maintenance and monitoring requirements. A fence would be placed across the entrance of the limited access bridge across Fields Brook in such a manner as to prevent unauthorized entry.

Chemical monitoring requirements will include the annual collection of surface soil arsenic samples. The performance of the selected alternative will be reviewed and evaluated every five years after initiation of the remedial action to assure that human health and the environment are being protected.

Maintenance would involve visual inspection of the gravel and riprap cover. Occasional repairs to restore the cover thickness or riprap will likely involve the addition of gravel or riprap in areas of subsidence or erosion.

e) **Points of Compliance**

In conjunction with completion of the Remedial Action and performance of required O&M, erosion and runoff from the Conrail facility must meet residential Cleanup Goals (CUGs) established for the FWA and Sediment Operable Units. The extent and integrity of the cover must be maintained to contain soil that exceeds CUGs. At a minimum, the point of compliance is the property boundary. Additional performance monitoring locations may be identified during remedial design.

Optional Implementation of Alternative V In Lieu of Alternative IV

U.S. EPA believes that Alternative IV will be effective in reducing the movement of contamination to Fields Brook and has selected Alternative IV as its primary remedy for the Conrail property. However, U.S. EPA notes that Alternative V is an acceptable enhancement of the selected remedy. The complete excavation of contaminated soils and elimination of O&M has benefits that cannot be readily itemized in a cost estimate, such as a reduction in long-term liability concerns, a shortened remedial design phase, and the elimination of U.S. EPA staff time required to track O&M compliance and review monitoring results.

4) **Detrex**

The selected remedy for the Detrex source area is Alternative IV, which requires the containment and treatment of groundwater contamination by the construction of a partial slurry wall and vacuum-enhanced extraction wells. Alternative IV would also reduce the potential for migration of contaminated surface soil due to reach the DS Tributary and Fields Brook by containment of surface soil contamination, ditch cleaning, catalyst pile removal and retention pond sediment removal.

More specifically, Alternative IV consists of the following:

a) **Clear Debris and Vegetation, Remove Physical Hazards**

In order to implement the Remedial Action, debris and vegetation must be cleared in response and work areas. Physical hazards that could threaten workers must also be addressed prior to Remedial Action.

b) **Construction of Partial Slurry Wall**

This ROD requires the construction of a partial slurry wall to restrict the flow of the Detrex groundwater contamination. The slurry wall component will extend

beyond the downgradient portion of the on-site and off-site DNAPL and dissolved phase COCs plume, and be located outside of the DNAPL and extended to ensure that the DNAPL and contaminated groundwater flowing towards Fields Brook or the DS Tributary particularly along the northern and western directions from the Detrex facility would be contained or captured. The wall will extend along the western side of the RMI Landfill. The estimated location of the slurry wall is shown on Figure 7. Design investigations will be conducted to properly locate the wall in order to ensure that the DNAPL and contaminated groundwater flowing towards Fields Brook or the DS Tributary, particularly along the northern and western directions from the Detrex facility, will be contained or captured. The wall is expected to be approximately 1,500 feet long; however, the final specifications of the slurry wall will be determined during Remedial Design.

The slurry wall would be constructed of a soil-bentonite slurry or other clay mineral slurry. The permeability of the slurry wall will be designed to be approximately 1×10^{-6} cm/sec. Due to the high percentage of naturally occurring clay soil material in the proposed slurry wall area, it is possible that a portion of the excavation spoils could be reused and incorporated into the slurry wall. The remaining excavation spoils will be temporarily stockpiled on-site and characterized to evaluate on-site and off-site disposal options consistent with ARARs.

Compatibility testing to evaluate potential integrity issues related to DNAPL and other COCs in contact with the slurry material will be performed during design phases. As part of this evaluation, a laboratory study will be conducted using soils from the Detrex site mixed with a clay mineral slurry. A sample of DNAPL will be collected and placed in contact with the slurry. Laboratory compatibility tests will be performed to evaluate potential permeability changes in the slurry material. Selection of the clay mineral additive (e.g. bentonite, attapulgite) will be performed in this remedial design phase.

c) **Vacuum-Enhanced Extraction Wells**

Vacuum-enhanced extraction wells will be installed near the leading edge of the DNAPL plume near the slurry wall and within the plume to lower groundwater and collect DNAPL in source areas. Based on pilot test results, approximately 40 extraction wells are anticipated.

Spoils from the installation of extraction wells will be temporarily stockpiled on-site and characterized to evaluate off-site disposal options consistent with ARARs.

Fluids collected from the vacuum-enhanced extraction wells will be routed to a knockout tank to separate the vapor phase from the liquid phase. The vapor phase will be treated with granular activated carbon to remove organic contaminant vapors before being released into the atmosphere.

The liquid phase from the knockout tank will be conveyed to a DNAPL/water separator where DNAPL will be separated from water. The separated DNAPL will be collected and transported to an off-site facility for treatment or recycling. The separated water will be conveyed to the existing activated carbon treatment system at the Detrex facility.

d) Surface Water and Erosion Control / Soil Cover

Low-lying areas within the existing surface water collection system area on the Detrex facility and areas with surface soil occupational CUG exceedances will be filled and regraded as part of this alternative, and these areas will be covered with a 12-inch thick soil cover, an erosion control blanket, and a vegetative or crushed stone layer surface. Clean clay soil would be used for backfill. Regrading and vegetative cover would prevent ponding of surface water in former source areas and reduce infiltration of surface water into the ground. Sediments lying within retention basin DET7 and in the drainage ditch on the northern boundary that collects surface water will be excavated and analyzed to evaluate disposal options consistent with ARARs. Following cleaning, the ditch would be filled with gravel or cement.

e) Catalyst Pile Excavation and Disposal

The catalyst pile material will be excavated, evaluated, characterized and disposed of in a manner consistent with ARARs. Approximately 100 cu. yds of catalyst material contained in the three small piles and underlying soil will be removed from the catalyst pile area. The excavation will extend to a depth of approximately six inches. Since the material is a solid, inert catalyst, leaching through the soil is unlikely to have occurred. Upon completion of removal of visible catalyst and excavation to the six inch depth, confirmation samples will be collected from the base of the excavation, prior to backfilling. Clean soil will be replaced in the excavation and the area will be regraded and revegetated.

f) Off-site Surface Water Control In The DS Tributary

In order to reduce the potential for subsurface water seepage to enter the DS Tributary in the northeast portion of the site, a 30-inch diameter culvert will be installed in the DS Tributary to contain surface water flow and keep groundwater from entering the stream flow. This culvert will connect to the

existing culvert beneath State Road and will extend along the northern side of the railroad spur, approximately 600 feet upstream. This configuration will entirely contain the surface water in the DS Tributary north of the Detrex facility, seal off potential groundwater seepage and prevent soil erosion. All joints will be sealed to eliminate seepage. Sediment beneath the culvert will be excavated to a depth of approximately 2.0 feet. The sediment excavated beneath the culvert would be analyzed to evaluate disposal options consistent with ARARs.

g) **Institutional Controls, Chemical monitoring and O&M**

O&M activities for the vacuum-enhanced extraction well system will include routine inspections of blowers, electrical equipment, belts, fuses, and pertinent operating parameters. O&M requirements for the slurry wall and regraded areas will consist of inspections, with regrading and revegetating, as necessary. Routine sampling of selected extraction wells will be required to monitor the effectiveness of the system. At a minimum, annual groundwater monitoring will be conducted at points of compliance, with samples to be analyzed for DNAPL, VOC and SVOC parameters. In addition, water level data will be gathered on a semi-annual basis from all monitoring wells and piezometers installed inside and outside of the slurry wall to evaluate groundwater gradients within the remedial response area. More frequent analyses may be required in the first few years of operation to establish a post-remediation baseline.

Storm water treatment system O&M activities, such as carbon replacement, will remain the same as are currently used at the facility; however, the frequency of carbon replacement will increase depending on the concentration of contaminants in the water pumped out of the extraction wells. O&M activities will also include separator maintenance, handling and disposal of DNAPL, and inspection and periodic sediment removal from the settling pond at DET7.

The outfall from the existing stormwater treatment system will be monitored for existing NPDES monitoring requirements and DNAPL constituents not included as part of the current monitoring program. Samples will be collected at the same time as the NPDES monitoring.

Institutional controls will be implemented for any area where hazardous substances, pollutants or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. More specifically, institutional controls will be implemented to protect the cover system, drainage controls, slurry walls, extraction and monitoring wells. Such institutional controls will include deed restrictions, security fencing, signs and restrictions on the placement of wells.

The performance of the selected alternative will be reviewed and evaluated every five years after initiation of the remedial action to assure that human health and the environment are being protected

h) Points of Compliance

In conjunction with completion of the Remedial Action and performance of required O&M, sheet flow erosion and runoff from the Detrex facility must meet the occupational Cleanup Goals (CUGs) established for the FWA and Sediment Operable Units. The points of compliance for surface runoff will be the property boundary and the DS Tributary. Groundwater contamination must also meet the occupational CUGs to prevent recontamination of the Brook. At a minimum, the points of compliance for the contaminants present in groundwater will be the edge of the slurry wall or, for areas without the slurry wall, the property boundary and the DS tributary. Contaminant levels at the Detrex outfall must meet residential CUGs to ensure that the 48" combined sewer can meet residential CUGs when it discharges to Fields Brook. Additional points of compliance monitoring may be identified during Remedial Design.

5) Sewers North and South of Fields Brook

The primary selected remedy for the sewer source area is Alternative III, which requires the cleaning of the source area sewers specified in Section IV(E) of this ROD. For the portions of the sewers that cannot be cost-effectively cleaned, the sections will be filled with grout to contain the sediment and debris within the pipe.

The selected remedy for the sewer source area requires the following activities:

a) Cleaning of Sewer Lines and Catch Basins

This alternative includes the removal of sediment and debris from inside the sewer lines and the associated catch basins to reduce the potential of recontamination of the Fields Brook sediments in excess of CUGs. The sewer lines will continue to be used after remedial activities are completed. Sediment removal could be accomplished by cleaning the inside of the sewer using manual and mechanical techniques to remove sediment, followed by rinsing. Selection of the equipment to be used will be based on the size and conditions of the sewer lines at the time of work activities. The equipment selected will be capable of removing sediments, dirt, grease, rocks, and other foreign materials. Mechanically powered cleaning equipment consists of belt-operated buckets and a power rodding machine that is powerful enough to remove sediments and large debris from the sewer lines. Rinsing equipment will include a high velocity gun for washing and scouring sewer walls and floors.

Sewer cleaning will begin at one access location, such as a manhole or a catch basin, and continue to the next access location. All manholes along the sewer lines will be located prior to sewer cleaning. Additional manholes or access points may need to be constructed between existing manholes, if the distance between the two existing access points is longer than the reach of the sewer cleaning equipment.

All sediments and debris removed by the sewer cleaning will be staged in stockpile areas located near access at one end of the sewer. The stockpile areas will be equipped with filter fabric or other equivalent measures to assure that sediments are not released to Fields Brook during remediation of the sewers. The sediments and debris will be dewatered to reduce the water content and volume of the solids. Solids collected during the dewatering process will be characterized and disposed of consistent with ARARs. Collected sediments and solids will be transported to either the onsite-landfill (to be constructed on one of the industrial properties within the watershed) or an off-site landfill for disposal. The selection of off-site disposal facility (whether solid waste, RCRA, or TSCA) will depend on the chemical characteristics of the sediment material.

The sediment dewatering liquid will be combined with the rinse water generated during the final sewer cleaning. Rinse water collected during the sewer cleaning process will be characterized for proper discharge. Rinse water may be treated on site with a portable water treatment unit to meet surface water discharge criteria before discharging to Fields Brook. Rinse water may also be recycled after removing the suspended sediments to reduce the amount of wastewater generated and the associated cost of treatment.

Sediment and debris removal from the sewer pipe after cleaning will be verified by internal pipe inspection. Internal pipe inspection could be accomplished with remote pipe inspection using either electric or manually operated winches to pull inspection cameras specifically designed for use in sewer line inspection work. The camera may be pulled through the sewer line in either direction.

b) Sediment Containment - Sewers North

Sewer sections that cannot be cost-effectively cleaned will be filled with grout to contain contaminated sediment and debris. This containment approach will be used for a portion of the 48-inch diameter combined sewer that runs from the Detrex outfall to the sewer discharge point at Fields Brook (Figure 8A). The existing sewer line will be abandoned and replaced with a new sewer diversion line. The length of sewer considered for grouting is approximately 1,300 linear feet. The sediments in this sewer segment would be contained by filling the

sewer pipe with a cement grout to restrict flow in the sewer and prevent migration of sediments into Fields Brook. The sewer segment would be plugged at both ends before grouting proceeds. Lean cement grout or fly ash grout would be used to grout the inner space of the sewer. Grouting would be accomplished from both ends and at several locations along the sewer pipe. Grout holes could be drilled at the crest of the sewer pipe through the overburden. Grout pipes would be inserted through the grout holes to pump the grout. Vents would be installed to allow air and water in the sewer to escape as it is replaced with the grout material.

A replacement (diversion) sewer would be constructed to drain the water in the remaining sections of the combined sewer. The new sewer section would be constructed to divert the combined sewer water discharge from a point south of the Detrex outfall to the DS tributary. The new sewer segment would be approximately 100 ft long and have a diameter consistent with the existing outfall. Sediments in the combined sewer south of this diversion point would be contained by grouting. Sediments in the combined sewer north of this diversion point and the other sewers would be removed. The estimated volume of sediments in this portion is 120 cu yds. These sewers would continue to be used after remedial activities are completed.

c) **Sediment Containment - Sewers South**

In the FS discussion of Alternative III for the sewers to the south of Fields Brook, it was assumed that a portion of the sediments in the 30-inch sewer on the Acme site would be contained (Figure 8B). Based on this assumption, the FS cost estimate for Alternative III exceeds Alternative II, which requires complete cleaning of the sewer lines without opportunity for containment. Although Alternative III is selected in this ROD, inherent in this selected remedy is the option to fully clean the sewer lines. Alternative III provides greater flexibility than Alternative II for the design of a cost-effective and protective solution.

Assuming a portion of the Acme sewer line would require containment, the sediments in the impacted segment would be contained by filling the sewer pipe with a cement grout to restrict flow in the sewer and prevent migration of sediments into Fields Brook. The sewer segment would be plugged at both ends before grouting proceeds. Lean cement grout or fly ash grout would be used to grout the inner space of the sewer. Grouting would be accomplished from both ends and at several locations along the sewer pipe. Grout holes could be drilled at the crest of the sewer pipe through the overburden. Grout pipes would be inserted through the grout holes to pump the grout. Vents would be installed to allow air and water in the sewer to escape as it is replaced with the grout

material.

A replacement (diversion) sewer would be constructed to drain surface water runoff from the Acme site. The new sewer segment would be approximately 300 ft long and would replace the grouted portion. The estimated volume of sediments in the section of the sewer to be cleaned is 140 cubic yards.

d) **Institutional Controls**

Institutional controls will be implemented for any section of sewer where hazardous substances, pollutants or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. More specifically, institutional controls will be implemented to control excavation into sewers that have been sealed to contain contaminants and to define handling and disposal requirements for such sewers. Such institutional controls will include, as appropriate, deed restrictions and signs. The performance of the selected alternative will be reviewed and evaluated every five years after initiation of the remedial action to assure that human health and the environment are being protected. The sewers to the north of Fields Brook discharge west of State Road and are therefore subject to residential CUGs. The sewers to the south of Fields Brook discharge east of State Road and are subject to occupational CUGs.

6) **RMI Metals**

For the RMI Metals source area, U.S. EPA selects Alternative IV. However, selection of this alternative is based on the estimated volumes and costs presented in the FS. Should additional sampling find the extent of soil contamination to be greater than currently known, cost estimates for Alternatives III and IV will be revised. If the revised cost estimates demonstrate that Alternative III would provide significant cost savings over Alternative IV, U.S. EPA may elect to allow implementation of Alternative III instead of Alternative IV. Therefore, the implementation of Alternative IV will be contingent upon its relative cost as compared to Alternative III. Because there is a preference for permanent remedies that do not rely on O&M to maintain their effectiveness, any cost difference between the two remedies will need to be significant for U.S. EPA to approve implementation of Alternative III.

Alternative III requires the excavation of soil with PCB concentrations greater than or equal to 50 ppm and on-site containment of soil with greater than 10 ppm. Excavated soil would be disposed of at either an on-site landfill (to be built on one of the source areas) or at an off-site landfill, whichever is more cost-effective. Remaining contamination would be contained on site. Alternative IV requires the excavation and disposal of PCB-contaminated soil with concentrations greater than 10 ppm. Since

remaining surface soil contamination would be at or below 10 ppm total PCBs for both alternatives, the result is essentially the same, assuming proper O&M for the containment remedy. Both the selected alternative (Alternative IV) and the contingent alternative (Alternative III) would reduce the volume of contaminants at the site and comply with TSCA.

More specifically, the selected alternative and the contingent alternative include the following components:

a) **Clear Debris and Vegetation / Remove Physical Hazards**

In order to implement the Remedial Action, debris and vegetation must be cleared in response and work areas. Physical hazards that could threaten workers must also be addressed prior to Remedial Action.

b) **Excavation of Soils**

Alternative IV requires excavation of soils with total PCB concentrations greater than 10 ppm to meet the 1.3 ppm total PCBs residential CUG at the Brook and its tributaries. During the remedial design phase, additional samples may be required to further delineate the remedial response area.

Alternative III requires excavation of soils with total PCB concentrations greater than or equal to 50 ppm. Based on existing data, it appears that limiting excavations to a depth of approximately 1 foot should remove all TSCA-regulated soil. However, this remedy requires removal of all TSCA-regulated soils (≥ 50 ppm PCBs), regardless of depth. Therefore, if areas of additional contamination are identified, the excavation depth will be adjusted accordingly. During the remedial design phase, additional samples may be required to further delineate the remedial response area.

For both alternatives, the excavation of soils would be accomplished using conventional earth-moving equipment. Upon excavation, the soil would be placed in lined roll-off containers or dump trucks for transportation to the landfill. Following completion of excavation activities, the excavated areas would be backfilled with clean soil or gravel and graded to allow for adequate drainage. Gravel fill would be used in areas subject to vehicle traffic. Verification sampling may be required to ensure removal of TSCA-regulated soils and demonstrate compliance with excavation requirements.

For Alternative IV, it is estimated that an area of approximately 30 ft x 130 ft in size would be excavated to a depth of 1-foot (Figure 9A). As shown in Figure 9B, the FS estimated that to implement Alternative III, an area of

approximately 20 ft x 80 ft in size would be excavated to a depth of 1-foot. The excavated soils would disposed at either the on-site landfill (the SOU/FWA consolidation area) or at an TSCA-compliant landfill.

c) **Refinement of Area to Be Covered**

If Alternative III is ultimately implemented, soil loss calculations will be reviewed during the Remedial Design to finalize the area to be covered. It is currently estimated that soils with PCB concentrations greater than 10 ppm will be contained by the cover system. The cover areas have been developed based on current operations and include the proposed excavation area since it is located within the cover interior. The extent of the cover areas may be altered during Remedial Design if assumptions on future operations are revised.

d) **Construction of Cover, Surface Drainage Controls**

If Alternative III is ultimately implemented, the erosion control cover materials will consist of a 12-inch thick layer of clean soil, an erosion control blanket and will be vegetated to reduce the potential for erosion. For anticipated future traffic areas, a 6-in. gravel layer underlain by geotextile will be used instead of the soil.

e) **Surface Drainage Controls**

If Alternative III is ultimately implemented, on-site surface drainage will be controlled. The erosion control cover design will include a sloped surface to control drainage and prevent surface water from pooling on the surface.

f) **Institutional Controls, Chemical Monitoring and O&M**

No monitoring, institutional controls or 5-year review will be required for Alternative IV.

If Alternative III is ultimately implemented, institutional controls will be implemented for any area where hazardous substances, pollutants or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. More specifically, institutional controls will be implemented to protect the cover system and drainage controls. Such institutional controls will include deed restrictions, security fencing, and signs.

O&M for Alternative III will include regular inspections of the erosion control cover to check for cracking and wear and the implementation of appropriate repairs. Chemical monitoring requirements include the annual collection of

total PCB surface soil samples.

Reviews of Alternative III will be required to be conducted every five years after initiation of the remedial action to assure that human health and the environment are being protected by the remedial action. This is required because hazardous substances, pollutants or contaminants will remain on the facility and on-site above levels that allow for unlimited use and unrestricted exposure.

g) Points of Compliance

Alternative IV must meet residential CUGs at the Brook. Based on calculations performed during the RI/FS process, Alternative IV will prevent CUG exceedances in the Brook. The alternative requires no O&M, long-term monitoring, or institutional controls.

If Alternative III is ultimately implemented, O&M, long-term monitoring and institutional controls will be required. In conjunction with completion of the Remedial Action for Alternative III and performance of required O&M, erosion and runoff from the RMI Metals facility must meet residential Cleanup Goals (CUGs) established for the FWA and Sediment Operable Units. At a minimum, the points of compliance are the property boundary and the edge of the floodplain. Additional performance monitoring locations may be identified during remedial design.

B) ARARs To Be Met

Section 121(d) of CERCLA requires that Superfund remedial actions meet ARARs. In addition to ARARs, the ARARs analysis which was conducted considered guidelines, criteria, and standards useful in evaluating remedial alternatives. These guidelines, criteria, and standards are known as TBC ("to be considered"). In contrast to ARARs, which are promulgated cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations, TBCs are guidelines and other criteria that have not been promulgated or are not directly applicable. The selected remedy will comply with the ARARs and the TBCs listed in Table 2 which is attached to this ROD.

Two of the important action-specific ARARs for remediation of the source areas are the Ambient Water Quality Criteria and the Ohio Water Quality Standards, which contain specific standards that would be applicable if remediation water or treatment plant wastewater is discharged directly to Fields Brook or the Ashtabula River. In addition to the water quality criteria, substantive requirements of National Pollutant Discharge Elimination System (NPDES), as implemented under Ohio regulations, would also be applicable to wastewaters planned to be discharged to Fields Brook which will require treatment. These wastewaters

include liquids generated during construction activities such as dewatering liquids, excavation area liquids, and liquids generated during construction of the on-site consolidation area. Discharges to Publicly Owned Treatment Works (POTWs) may be pursued as an alternative discharge location. However, such discharges must also comply with limitations to ensure acceptable discharge from the POTW after treatment. The specific discharge levels will be determined during the design stage in coordination with OEPA.

A large portion of the soils and sediments to be excavated from the source areas for disposal into the on-site consolidation area landfill will contain PCBs exceeding 50 ppm. Excavation of these wastes and soils and containment in an on-site landfill will be considered disposal of PCBs pursuant to 40 CFR 761.1(b). In this case, 40 CFR 761.60(a)(2) requires any non-liquid PCBs at concentrations of 50 ppm or greater in the form of contaminated soil, rags, or other debris to be disposed of in an incinerator which complies with 761.70 or in a chemical waste landfill which complies with 761.75.

Regulations related to the dewatering of the soils and sediments prior to consolidation must be met, including 40 CFR 264.228(a)(2), which requires elimination of free liquids by removal or solidification. Thus, it is required that dewatering of the excavated soils and sediments to be landfilled will occur in part to ensure that no free liquids will remain in the soils and sediments prior to disposal into the landfill unit.

Treatment and air emission requirements relevant to hazardous waste in 40 CFR 260-268 could be potential ARARs for facilities where listed or characteristically hazardous wastes are known to have been disposed of in the source control areas.

Actions must be taken to minimize the destruction, loss, or degradation of wetlands due to construction activities and the final remedy.

XI. EXPLANATION OF SIGNIFICANT CHANGES

There is one significant change from the recommended alternatives described in the Proposed Plan. The U.S. EPA is selecting Alternative IV at the RMI Metals source area, with the contingent implementation of Alternative III if future volume and cost estimates prove Alternative III to be significantly more cost effective than Alternative IV.

In addition, there are some important clarifications in this ROD that were not presented in the Proposed Plan.

- For the Acme source area, Alternative VI was recommended in the Proposed Plan. This ROD selects Alternative VI, but notes that consolidation may be an acceptable component of the remedy.

- Based on public comment and a subsequent review of site data, the U.S. EPA has determined that the Acme facility is subject to occupational CUGs, rather than residential CUGs. This may result in a substantial decrease in the cost of remediation for the Acme property.

- For the Millennium source area, Alternative VI was recommended in the Proposed Plan. This ROD selects Alternative VI, but notes that consolidation may be an acceptable component of the remedy.

- For the sewers source area, Alternative III was recommended in the Proposed Plan. This ROD selects Alternative III and notes that, under this alternative, the containment and replacement of sewers are not required if cleaning of sewers proves to be more cost-effective.

- As discussed above, Alternative III was recommended in the Proposed Plan for the RMI Metals Reduction source area. Based on comments from the U.S. Fish and Wildlife Service and discussions with the State of Ohio, this ROD selects Alternative IV, but allows for the contingent implementation of Alternative III should revised volume and cost estimates demonstrate that a significant cost savings could be realized by the implementation of Alternative III instead of Alternative IV.

XII. STATUTORY DETERMINATIONS

U.S. EPA's selected alternatives provide the best balance of trade-offs among alternatives with respect to the criteria used to evaluate remedies. Based on the information available at this time, U.S. EPA believes that these final Remedial Actions are protective of human health and the environment, comply with Federal and State applicable or relevant and appropriate requirements and are cost-effective. The selected remedial actions utilize permanent solutions and considered use of alternative treatment technologies to the maximum extent practicable. However, due to the significant volume and heterogeneous distribution of waste at the Site, treatment as a principle element is not considered practicable at the Site. Thus, these remedies do not address the statutory preference for treatment that reduces toxicity, mobility, or volume as a principal element. However, treatment is a secondary element in that DNAPL from the Detrex facility will be collected and treated resulting in destruction of hazardous substances.

A review of the remedies will be conducted five years after commencement of the remedial actions to ensure that the remedies continue to provide adequate protection of human health and the environment by preventing the flow of contamination to Fields Brook.

TABLES

Table 1
Fields Brook Cleanup Goals (CUGs)

PARAMETER	Residential CUG	Occupational CUG	Type of Exceedance in Source Control Areas
Volatile Organic Compounds			
1,1,1-Trichloroethane	393,451	766,500	
1,1,2,2-Tetrachloroethane	51	119	occupational
1,1,2-Trichloroethane	179	418	
1,1-Dichloroethene	17	40	occupational
1,2-Dichloroethene (trans)	87,433	170,333	
Benzene	352	822	residential
Chlorobenzene	87,433	170,333	
Chloroform	1,672	3,909	
Ethylbenzene	437,167	851,667	
Tetrachloroethene	196	459	occupational
Toluene	874,335	1,703,333	
Trichloroethene	927	2,168	occupational
Vinyl Chloride	5.4	13	
Semi-Volatile Organic Compounds			
1,2,4-Trichlorobenzene	43,717	85,167	
1,2-Dichlorobenzene	393,451	766,500	
1,4-Dichlorobenzene	425	994	
2-Chlorophenol	21,858	42,583	
Acenaphthene	262,300	511,000	
Anthracene	1,311,502	2,555,000	
Benzidene	.04	.1	
Benzo(a)anthracene	13.97	33	
Benzo(a)pyrene	1.4	3.3	residential / occupational
Benzo(b)fluoranthene	13.97	33	residential
Benzo(k)fluoranthene	13.97	33	
Bis(2-ethylhexyl)phthalate	729	1,703	
Chrysene	139.73	327	
Di-n-butyl phthalate	437,167	851,667	
Di-n-octyl phthalate	87,433	170,333	
Dibenzo(ah)anthracene	1.4	3.3	residential
Diethyl phthalate	3,497,338	6,813,333	
Dimethyl phthalate	437,167	851,667	

Table 1- continued
Fields Brook Cleanup Goals (CUGs)

PARAMETER	Residential CUG	Occupational CUG	Type of Exceedance in Source Control Areas
Flouranthene	174,867	340,667	
Fluorene	174,867	340,667	
Hexachlorobenzene	6.38	15	residenial / occupational
Hexachlorobutadiene	131	306	occupational
Hexachloroethane	729	1,703	occupational
Ideno(1,2,3-od)pyrene	14	33	
Isophorone	10,737	25,102	
N-nitrosodiphenylamine	2,081.75	4,867	
Naphthalene	174,867	340,667	
Nitrobenzene	2,186	4,258	
Phenol	2,623,004	5,110,000	
Pyrene	1,311,502	2,555,000	
Pesticides / PCBs			
BHC (alpha)	1.6	3.8	
BHC (gamma) Lindane	7.8	18	occupational
Heptachlor	2.3	5.3	occupational
Total PCBs	1.3	3.1	residential / occupational
Inorganics			
Antimony	1,749	3,407	
Arsenic	27.6	28	residential / occupational
Beryllium	2.4	5.5	residential
Cadmium	2,186	4,258	
Chromium	21,858	42,583	
Copper	161,752	315,117	
Lead	500	500	residential / occupational
Mercury	1,312	2,555	
Nickel	87,433	170,333	
Selenium	21,858	42,583	
Thallium	262	511	
Zinc	847,335	1,703,333	
Cyanide	87,433	170,333	

TABLE 2

[redacted]

POTENTIAL LOCATION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
Location-Specific Laws/Requirements			
FEDERAL REGULATIONS			
E.O. 11988 Protection of Floodplains			
1. Limits activities in floodplains. Floodplain is defined as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of off-shore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year." Federal agencies must evaluate the potential effects of actions taken in a floodplain and avoid adverse impacts from remedial activities [40 CFR 6.302 and Appendix A]	Yes	---	The FWA is located within a 100-year floodplain. If remedial activities are conducted within the floodplain, or adversely affect natural floodplain values, this regulation will be applicable.
E.O. 11990 Protection of Wetlands			
2. Minimizes adverse impacts on areas designated as wetlands. [40 CFR 6.302(a) and Appendix A]	Yes	---	Wetlands are present along portions of Fields Brook. Regulations are applicable only if remedial activities impact the wetlands areas.
Clean Water Act Section 404			
3. Requires Federal agencies to avoid, to the extent possible, adverse impacts associated with destruction or loss of wetlands. [40 CFR 230-231; 33 CFR 320-330]	Yes	---	Wetlands occur along Fields Brook; regulations would be applicable only if the remedial activities impact the wetlands areas and/or other waters of the United States.

Table 2 - Location Specific ARAR

TABLE 2

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[redacted]

POTENTIAL LOCATION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
4. Prohibits discharge of dredged or filled material into waters of the U.S. without a permit. [40 CFR 230, 33 CFR 320-330]	Yes	--	Regulations would be applicable if the remedial action involves dredge and/or fill activities in Fields Brook
<u>Rivers and Harbors Act of 1899: Section 10</u>			
5. Section 10 permit required for structures or work in or affecting navigable waters. [33 USC 403, 33 CFR 320-330]	Yes	---	If the remedial activity affects navigable waters, these regulations are applicable.
<u>Endangered Species Act</u>			
6. Protects endangered species and threatened species and preserves their habitat. Requires coordination with federal agencies for mitigation of impacts. [16 USC 1531 <u>et seq</u>; 50 CFR 200, 50 CFR 402]	Yes	---	If there are threatened/endangered (T/E) species or critical habitats within the areas impacted by the remedial activities, this regulation would be applicable. No such endangered species are known within the area.
<u>Fish and Wildlife Coordination Act</u>			
7. Requires coordination with federal and state agencies on activities affecting/modifying streams or rivers if the activity has a negative impact on fish or wildlife. [16 USC 661 <u>et seq</u>.; 40 CFR 6.302(g)]	Yes	---	If Fields Brook will be impacted by remedial activities, this regulation would be applicable.

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POTENTIAL LOCATION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

	Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
12.	Any activity modifying a stream or river, which will have a diversion, channeling, or other action and which affects fish or wildlife must be implemented with action to protect fish or wildlife [16 U.S.C 661 et seq.]	Yes	--	This Act would only be applicable if: (1) pollutants or dredge and fill are discharged into a body of water or wetlands, and/or (2) dams, levees, impoundments, stream relocation, rip-rap or channeling activity, and/or water diversion structures are constructed, and/or any other construction activity within or in the vicinity of the stream which affects fish or wildlife.
	<u>Resource Conservation and Recovery Act (RCRA)</u>			
13.	A treatment/storage/disposal (TSD) facility within a 100-year floodplain must be designed, constructed, operated, and maintained to avoid washout.	Yes	--	This requirement would only apply to permanent hazardous waste landfill located within the site and located within a 100-year floodplain. Interim storage does not need to attain ARARs, if the appropriate interim storage requirements are met.
14.	Landfills may not be located within vulnerable hydrogeology areas. [RCRA 3004 (o)(7)].	Yes	--	This requirement would only apply, if a landfill is proposed to be placed within a vulnerable hydrogeology area.

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[redacted]

POTENTIAL LOCATION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
Toxic Substances Control Act (TSCA)			
15. Requires that TSCA landfills meet specified siting, design, handling, and monitoring requirements [40 CFR 761.60 and 761.75 (B)].	Yes	--	These regulations would apply if a remedy includes construction of a TSCA landfill or if a remedy includes disposal of material that contains PCB concentrations at or greater than 50 mg/kg. Interim storage does not need to attain ARARs if appropriate interim storage requirements are met.
STATE STATUTES AND REGULATIONS			
Ohio Hazardous Waste Siting Criteria			
1. A hazardous waste facility installation and operation permit shall not be approved unless it proves that the facility represents the minimum risk of all of the following: (i) Contamination of Ground and Surface Water (ii) Fires or Explosions from Treatment, Storage or Disposal Methods (iii) Accident during Transportation (iv) Impact on Public Health and Safety (v) Air Pollution (vi) Soil Contamination [ORC 3734-06 (D) (6) (d)]	Yes	Yes	Would be an ARAR if the remedy involved treatment, storage or disposal of hazardous waste.

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[redacted]

POTENTIAL LOCATION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
2. Prohibits the following locations for treatment, storage, and disposal of acute hazardous waste: (1) within 2,000 feet of any residence, school, hospital, jail, or prison; (2) any naturally occurring wetland; (3) any flood hazard area; (4) within any state park or national park or recreation area. [ORC 3734.05 (D)(6)(g)(h)]	Yes	Yes	Would be an ARAR if the remedy involved treatment, storage, or disposal of acute hazardous waste.
<u>Ohio Solid Waste Regulations</u>			
1. Specifies locations in which solid waste landfills are not to be sited. [OAC 3745-27-07 (A) (B)]	Yes	Yes	Applicable if remedy involves the establishment of solid waste landfill. Also may prohibit leaving waste in place in certain unfavorable locations.
<u>Ohio Groundwater Well Regulations</u>			
1. Mandates that groundwater wells be: (1) located and maintained so as to prevent contaminants from entering a well and (2) located to be accessible for cleaning and maintenance [OAC 3745-9-04 (A) and (B)]	Yes	--	Applies if remedy chosen includes the installation of groundwater monitoring wells.

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
FEDERAL REGULATIONS			
Toxic Substances Control Act (TSCA)			
1. Establishes regulations to govern the storage and disposal of PCBs including PCB-contaminated soil. [40 CFR 761]	Yes	--	TSCA regulations for storage and disposal could be applicable to disposal of PCB contaminated soils.
2. Prescribes design, construction, and operation standards for TSCA landfills. [40 CFR 761.75]	Yes	--	Only applicable for alternatives that include disposal of TSCA materials.
3. Specifies requirements for disposal of materials containing PCBs. [40 CFR 761.60]	Yes	--	These regulations would apply if materials containing PCBs are disposed.
4. Establishes standards for PCB incinerators, including combustion criteria, combustion efficiency, other operating standards, and monitoring requirements. [40 CFR 761.70]	Yes	--	Applicable if chosen alternatives include incineration of PCBs.

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
Clean Air Act			
National Ambient Air Quality Standards (NAAQS)			
5. Establishes ambient air quality standards to protect public health and welfare. Includes National Primary and Secondary Ambient Air Quality Standards for Particulate Matter. [40 CFR 50]	Yes	Unknown	Only applicable if criteria pollutants are discharged to the atmosphere during waste handling or a treatment process. NAAQS would be used to compare ambient air quality during the remedial action.
Ambient Air Monitoring			
6. Specifies methods for conducting ambient air monitoring. [40 CFR 53]	Yes	—	Would only be applicable to actions resulting in emissions of pollutants.
Safe Drinking Water Act			
Underground Injection Control (UIC)			
7. Establishes standards for injection wells to provide protection of underground sources of drinking water. [40 CFR Parts 144-148]	Unknown	—	If the remedial action alternative involves underground injection, these regulations could be applicable.

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Table 2

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
Clean Water Act			
National Pollutant Discharge Elimination System (NPDES)			
8. Requires dischargers of pollutants from any point source into surface waters of the United States to meet certain requirements and obtain a NPDES permit. [40 CFR 122, 123 and 125 are involved]	Yes	---	No permit would be required for an on-site CERCLA remedial action that involves a discharge, but the substantive requirements of the NPDES program would apply if the remedial action involves surface water discharge. This ARAR would be applicable or a substantive modification to an existing PDES permit may be needed for the following remedial alternatives: a) the Detrex facility DNAPL alternatives where the DNAPL would be collected and treated on-site; b) the sewer flushing alternatives where releases to Fields Brook may occur; c) on-site treatment of contaminated water generated during construction (e.g., leachate/drainage water, decon fluids, etc.). Other alternatives may also be required to meet this ARAR if a point source occurs during remediation.
Ambient Water Quality Criteria			
9. Requires EPA to publish water quality criteria for specific pollutants for the protection of human health and the protection of aquatic life. [40 CFR 131]	No	Yes	Relevant and appropriate if contaminants are released to surface waters or if treated groundwater is collected and discharged to surface waters.
National Pretreatment Standards			

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
10. Establishes general and specific standards for pollutants that are discharged to a POTW. [40 CFR 403]	Yes	---	If the remedial action involves discharging to a POTW, these standards would be an ARAR.
<u>Storm Water Discharge Regulations</u>			
11. Establishes permitting, sampling and analysis requirements for industries in certain categories which discharge storm water to waters of the United States. Includes storm water discharge from construction activities. [40 CFR 122]	Yes	--	No storm water permit would be required for an on-site CERCLA remedial action that involves a discharge. Substantive requirements (e.g., Storm Water Pollution Prevention Plans) could be applicable.
<u>Discharges of Dredged or Fill Materials</u>			
12. Prohibits discharges of dredged or fill materials into waters of the U.S. without a permit. [33 CFR 320 to 330, Section 401 and 404 of Clean Water Act]	Yes	--	Regulations would be applicable if the remedial action involves dredge and/or fill activities in Fields Brook.

Table 3

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
Resource Conservation and Recovery Act (RCRA)			
RCRA Corrective Action Management Unit Rule			
13. Provides for designation of a Corrective Action Management Unit and eases regulatory requirements for remedial actions conducted within unit boundaries. [40 CFR 260 et al]	No	Yes	Would be potentially relevant and appropriate requirement for management of hazardous waste within the plant sites.

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
RCRA Hazardous Waste Treatment Storage and Disposal (TSD) Regulations			
14. Provides regulations for the notification of hazardous waste activities, identification and listing of hazardous wastes and management of hazardous wastes by generators, transporters and operators of treatment storage and disposal facilities. [40 CFR 260 et al]. Specific RCRA TSD regulations that may need to be evaluated as potential ARARs on a case-by-case basis include: a) 40 CFR 268 (movement of excavated materials) b) 40 CFR 6, Appendix A c) RCRA 3003 d) 40 CFR 262 and 263 e) 40 CFR 170-179 f) EPA Hazardous Waste Permit Program (promulgated in part as 40 CFR 300.440 (9/22/93)). g) RCRA Section 3005 h) 40 CFR 270 and 124 i) 50 FR 45933 (11/5/85).	Yes	--	Substantive requirements would be potentially applicable to any hazardous waste landfill built at the site. However, contaminated soils in the SCOU are not known to be hazardous wastes pursuant to RCRA or the Ohio solid waste disposal statute. Even if contaminated soil were considered solid or hazardous waste, designation of a corrective action management unit would allow movement of soil without triggering the Land Disposal Restriction regulations.
15. Specifies performance standards and other operating requirements for incineration of hazardous waste. [40 CFR 261.340 to 261.351]	Yes	--	These requirements would apply if chosen alternatives include incineration.
16. Specifies requirements for closure of hazardous waste management units. [40 CFR 264.117(c), 228(a) and (b), and 310(a) and (b)]	Yes	--	Some of these requirements would apply if containment or other on-site disposal of RCRA regulated hazardous waste is a selected alternative.

Table 2

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
17. These regulations establish standards for design installation, and maintenance of dikes around a unit, to ensure the unit does not fail or overtop, and to remedy problems and any contamination. [40 CFR 264, 221(g) and (h), and 261.277]	Yes	--	These regulations would apply if remedies selected include installation of a dike around a hazardous waste management unit.
<u>RCRA Land Disposal Restrictions</u>			
18. Establishes a timetable for restriction of land disposal of hazardous wastes and treatment criteria of hazardous waste prior to land disposal. [40 CFR 268]	Yes	--	Substantive requirements would be potentially applicable if hazardous wastes are generated during remedial activities and disposal is off site. However, only applicable if no equally or more stringent State regulation exists (see below).
<u>RCRA Solid Waste Treatment Storage and Disposal (TSD) Regulations</u>			
19. Establishes requirements for owners and operators of solid waste disposal facilities [40 CFR 258]	Yes	--	Substantive requirements would be potentially applicable if solid wastes are generated during remedial activities. However, only applicable if no equally or more stringent state regulation exists (see below).

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
STATE REGULATIONS			
Ohio National Pollutant Discharge Elimination System			
1. Requires permits for the discharge of pollutants from any point source into waters of the United States. Must meet technology-based effluent limitations and standards (either "best conventional pollutant control technology" or "best available technology economically achievable"), determined on a case-by-case basis. [OAC, Title 3745, Chapter 33]	Yes	Yes	Applicable if the remedial action involves discharge to surface water located off-site or relevant and appropriate for discharges to on-site surface water. Substantive requirements must be met, but no permit will be required for on-site discharges.
Ohio Pre-Treatment Requirements			
2. Regulates the discharge of pollutants to POTWs. [OAC, Title 3745, Chapter 3]	Yes	---	Applicable if groundwater or waste/treatment water from the site is discharged to the POTW.
Ohio Non-Point Source Regulations			
3. Regulations call for the use of conservation practices to control sediment pollution of water resources. [OAC, Title 1501, Chapters 1, 3, 5]	Yes	---	These regulations could be applicable for any major earth-disturbing activities.
Ohio Water Quality Standards			
4. Establishes minimum water quality requirements for all surface waters of the state. Establishes stream use designations and water quality criteria protective of such uses. See Table 4-3. [OAC, Title 3745, Chapter 1]	Yes	---	Applicable if contaminated water is discharged into surface waters.

Table 2

Woodward-Clyde

[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
<u>Ohio Hazardous Waste Management Regulations</u>			
5. Provides regulations for the notification of hazardous waste activities, identification and listing of hazardous wastes and management of hazardous wastes by generators, transporters and operators of treatment storage and disposal facilities. [OAC, Title 3745, Chapters 50-69]	Yes	---	Substantive requirements are applicable if remedial actions involve management of hazardous wastes and construction of on-site hazardous waste facility(ies), and the requirements are more stringent than the federal.
<u>Hazardous Waste Management Systems, General</u>			
6. Establishes procedures and criteria for modification or revocation of any provision in OAC, Title 3745, Chapters 50-69.	---	Unknown	May be applicable if a contaminant is to be excluded from list of items defined as hazardous waste.
<u>Identification and Listing of Hazardous Wastes</u>			
7. Defines those solid wastes which are subject to regulation as hazardous wastes [OAC, Title 3745, Chapter 51].	---	Unknown	Applicable if remedial action involves generation of hazardous wastes.
<u>Standards Applicable to Generators of Hazardous Waste</u>			
8. Establishes standards for generators of hazardous waste [OAC, Title 3745, Chapter 52].	---	Unknown	Applicable if remedial action involves treatment, temporary storage, or off-site disposal of hazardous waste.

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
Standards Applicable to Transporters of Hazardous Waste			
9. Establishes standards which apply to persons transporting hazardous waste within the U.S. if the transportation requires a manifest [OAC, Title 3745, Chapter 52 and 53].	Yes	---	Applicable if remedial action involves off-site transportation of hazardous waste.
Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities			
10. Establishes minimum standards which define the acceptable management of hazardous waste for owners and operators of permitted facilities which treat, store, or dispose hazardous waste [OAC, Title 3745, Chapter 54].	No	Yes	Relevant and appropriate if remedial action involves stockpiling, treatment, or disposal of hazardous waste. RCRA standard covers are not ARARs for the mining residuals pile at the SCM - Plant II $TiCl_4$ facility. A detailed analysis of this conclusion will be provided in a separate submission to USEPA.
Interim Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities			
11. Establishes minimum standards that define the acceptable management of hazardous waste for unpermitted treatment, storage, and disposal facilities during the period of interim status and until certification of final closure or, if the facility is subject to post-closure requirements, until post-closure responsibilities are fulfilled [OAC, Title 3745, Chapter 65].	No	Yes	May be relevant and appropriate if units at the site are operating under interim status regulations. RCRA standard covers are not ARARs for the mining residuals pile at the SCM - Plant II $TiCl_4$ facility. A detailed analysis of this conclusion will be provided in a separate submission to USEPA.

Woodward-Clyde

[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
<u>Land Disposal Restrictions</u>			
12. Establishes a timetable for restriction of land disposal of hazardous wastes [OAC, Title 3745, Chapter 59].	Yes	---	Applicable if the remedial action involves off-site land disposal of hazardous waste.
<u>Ohio Solid Waste Disposal Regulations</u>			
13. Establishes requirements for licensing, locating, constructing, operating, and closing of solid waste facilities [OAC, Title 3745, Chapter 27]	Yes	Yes	Applicable if the remedial action involves the land disposal of industrial or municipal nonhazardous solid waste.
<u>Ohio Ambient Air Quality Standards and Guidelines</u>			
14. Establishes ambient air quality standards for criteria pollutants applicable in Ohio. Requires attainment with the standards through application of pollution control techniques. [OAC, Title 3745, Chapter 21]	Yes	--	May be applicable if the remedial action chosen involves air emissions of any criteria pollutants.

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARS
FIELDS BROOK SITE - SOURCE OPERABLE UNIT
ASHTABULA, OHIO

Requirement	Potentially Applicable	Potentially Relevant and Appropriate	Comments
<u>Other Ohio Air Regulations</u>			
15. Ambient Air Standards (OAC 3745-17-02(A), (B), and (C)	Yes	--	
16. Restrictions of Fugitive Dusts (OAC 3745-17-08)	Yes	--	
17. Control of Emission of VOCs (OAC 3745-21-09)	Yes	--	
18. Ambient Air Standards of Lead and Inorganics. (OAC 3745-71-02 and -82-12(A), (B), and (C))	Yes	--	
19. State Permit Requirements for Emissions in Attainment Areas (OAC 3745-31, and 35)	Yes	--	
20. State Permit Requirements for Emissions in Prevention of Significant Deterioration (PSD) Areas. (OAC 3704 and 3745-17, 18, 21, and 71)	Yes	--	

[redacted]

POTENTIAL ACTION-SPECIFIC ARARs
SURFACE WATER QUALITY STANDARDS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

		FEDERAL CRITERIA				STATE STANDARDS			
		CWA AWQC for Protection of Aquatic Life[1]				Attainable or Designated Uses			
						Aquatic Life		Human Health	
Parameter	Type	Acute Value	Chronic Value	Water & Fish Ingestion	Fish Consumption Only	Acute Value	Chronic Value	Fish & Water	Fish
Potassium	Metal								
Aluminum	Metal	750	87						
Arsenic	Metal			0.0022	0.0175	360*	190*	50	
Arsenic III	Metal	360	190						
Arsenic V	Metal	850	48						
Barium	Metal			1,000				1,000	
Beryllium**	Metal	130	5.3	0.068	1.17	900(12,000)	40(530)	0.068	1.17
Cadmium*	Metal	5.7(35)	1.5(5.2)	10		8.1(47)	1.8(6.4)	10	
Calcium	Metal								
Chromium (Total)*	Metal	2,300(8,500)	270(1,000)	170,000	3,433,000	2,400(8,900)	270(1,020)	50	3,433,000
Chromium III	Metal								
Chromium VI	Metal	16	11	50		15	11		
Cobalt	Metal								
Iron (total)	Metal		1,000	300			1,000		
Iron (dissolved)	Metal							300	
Lead*	Metal	125(970)	4.9(38)	50		200(1,600)	11(83)	50	
Magnesium	Metal								
Manganese	Metal			50	100			50,000	

[redacted]

POTENTIAL ACTION-SPECIFIC ARARs
SURFACE WATER QUALITY STANDARDS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Parameter	Type	FEDERAL CRITERIA				STATE STANDARDS			
		CWA AWQC for Protection of Aquatic Life[1]				Attainable or Designated Uses			
						Aquatic Life		Human Health	
		Acute Value	Chronic Value	Water & Fish Ingestion	Fish Consumption Only	Acute Value	Chronic Value	Fish & Water	Fish
Mercury	Metal	2.4	0.012	0.144	0.146	1.1	0.20	0.012	0.012
Nickel*	Metal	1,900(7,400)	210(820)	13.4	100	2,100(8,500)	232(940)	610	4,600
Sodium	Metal								
Vanadium	Metal								
Zinc*	Metal	160(610)	141(551)			160(600)	140(550)	5,000	
Chloroform	Volatile								
1,1,2,2-Tetrachloroethane*	Volatile		2,400	1.7	107	1,000	360	1.7	107
1,1,2-Trichloroethane	Volatile								
1,2-Dichloroethane*	Volatile	118,000	20,000	0.94	243	12,000	3,500	3.8	990
1,1-Dichloroethene*	Volatile	11,600		0.33	18.5	1,500	78	0.57	32
Vinyl Chloride*	Volatile			20	5,250			2.0	5,250
Tetrachloroethene*	Volatile	5,280	840	0.8	8.85	540	73	320	3,500
Trichloroethene (TCE)	Volatile	45,000	21,900	27	807	1,700	75	5.0	807
1,2-Dichlorobenzene	Semi-Volatile					160	11		
1,2,4-Trichlorobenzene	Semi-Volatile					150	77		
Hexachlorobenzene*	Semi-Volatile			.0072	0.0074			0.96	0.99
Hexachlorobutadiene*	Semi-Volatile	90	9.3	4.5	500			4.5	500
Hexachloroethane*	Semi-Volatile	980	540	1.9	8.74			19	87.4

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[redacted]

POTENTIAL ACTION-SPECIFIC ARARs
SURFACE WATER QUALITY STANDARDS
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Parameter	Type	FEDERAL CRITERIA				STATE STANDARDS			
		CWA AWQC for Protection of Aquatic Life[1]				Attainable or Designated Uses			
						Aquatic Life		Human Health	
		Acute Value	Chronic Value	Water & Fish Ingestion	Fish Consumption Only	Acute Value	Chronic Value	Fish & Water	Fish
4-Chloro-3-methylphenol	Semi-Volatile								
bis(2-Ethyl-hexyl)phthalate	Semi-Volatile			15,000	50,000	1,100	8.4	18	59
PCBs[2]	PCB	2.0	0.014	0.00079	0.00079		0.001	0	0.00079

NOTES:
CWA - The federal Clean Water Act, Section 303.
AWQC - Ambient Water Quality Criteria, established pursuant to the Clean Water Act.
Quantities are expressed in µg/l unless otherwise noted.
[1] EPA, Water Quality Criteria for Protection of Aquatic Life, 1986.
[2] Carcinogens; human health standards for these parameters are based on a risk factor of 10^{-5}.
[3] Hardness dependent. Values are for the Ashtabula River and are based on an average hardness of 140 mg/l. The values given in parentheses are for Fields Brook and are based on a hardness of 700 mg/l.

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[redacted]

OTHER MATERIAL TO BE CONSIDERED (TBCs)
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Guideline, Standard, etc. TBC	Why this is a TBC and not an ARAR	Comments
PCB Spill Policy, at 40 CFR 761.120 to 761.139	• Not promulgated • The TSCA PCB Spill Cleanup Policy is not a potentially applicable or relevant and appropriate requirement for Superfund response actions (see 59 FR 62793-94) • Applies only to spills that occurred after May 4, 1987	To be considered if alternative includes cleanup of PCB - contaminated soil
Guidance on Remedial Actions for Superfund Sites with PCB Contamination, USEPA, August 1990	• Not promulgated • Guidance only	To be considered in reference to PCB remediation activities
RCRA Design Guidelines for capping	• Not promulgated • Guidance only	To be considered for alternatives that involve containment
RCRA Permit Writer's Guidance for TSD facilities	• Not promulgated • Guidance only	To be considered for alternatives that involve treatment, storage, and/or disposal
NPDES Best Management Practice Guidance (EPA 83/2-R-92-005 and 006; September 1992)	• Not promulgated • Guidance only	To be considered for alternatives that include discharge of waste water and/or storm water
CERCLA Site Discharges to POTWs (EPA 540/G-90/005; August 1990)	• Not promulgated • Guidance only	To be considered for alternatives that include discharge of waste water and/or storm water to POTWs
Requirements for Hazardous Waste Landfill Design, Construction and Closure (EPA 625/4-89/022)	• Not promulgated • Guidance only	To be considered for alternatives that include containment

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[redacted]

OTHER MATERIAL TO BE CONSIDERED (TBCs)
FIELDS BROOK SITE - SOURCE CONTROL OPERABLE UNIT
ASHTABULA, OHIO

Guideline, Standard, etc. TBC	Why this is a TBC and not an ARAR	Comments
Technical Guidance Document: Final Covers an Hazardous Waste Landfills and Surface Impoundments (EPA 530-SW-89-047; July 1989)	• Not promulgated • Guidance only	To be considered for alternatives that include containment
TSCA's "Guidance Document for a 40 CFR 761.75 Landfill Application"	• Not promulgated • Guidance only	To be considered for alternatives that include landfilling of PCBs
Interim Guidance on non Non-Liquid PCB Disposal Methods to be used as Alternatives to a 40 CFR 761 Chemical Waste Landfill (July 3, 1990)	• Not promulgated • Guidance only	To be considered for alternatives that include disposal of PCBs
RCRA Corrective Action Strategy, 61 FR.19,43" (1996)	• Not promulgated • Guidance only	
HWIR Contaminated Media Rule, 61 FR 18,780 (1996	• Not promulgated • Guidance only	
TSCA Spill Cleanup Policy [40 CFR 761, Subpart G]	• The TSCA PCB Spill Cleanup Policy is not a potentially applicable or relevant and appropriate requirement for Superfund response actions (see 59 FR 62793-94).	

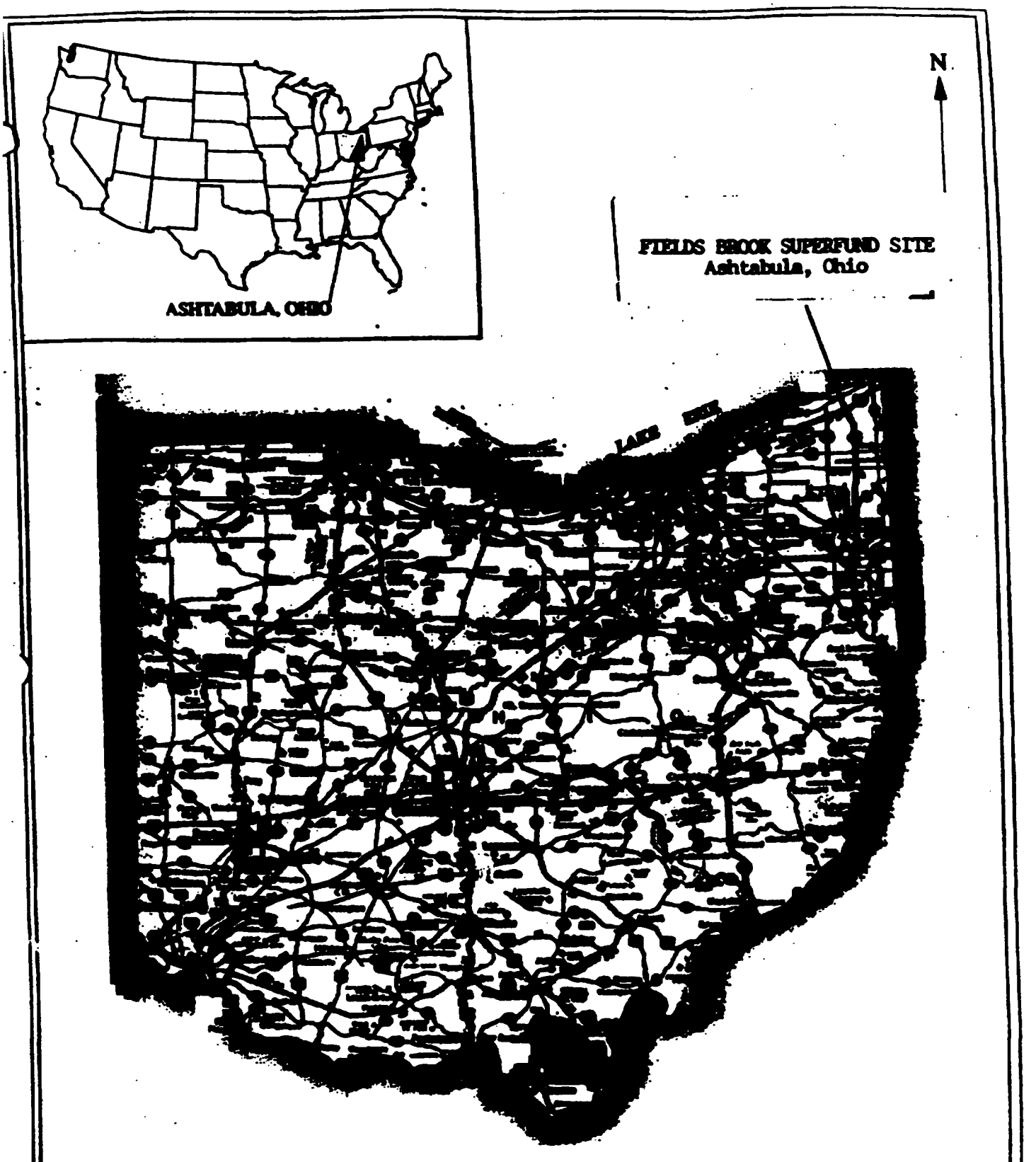


FIGURE 1
LOCATION MAP

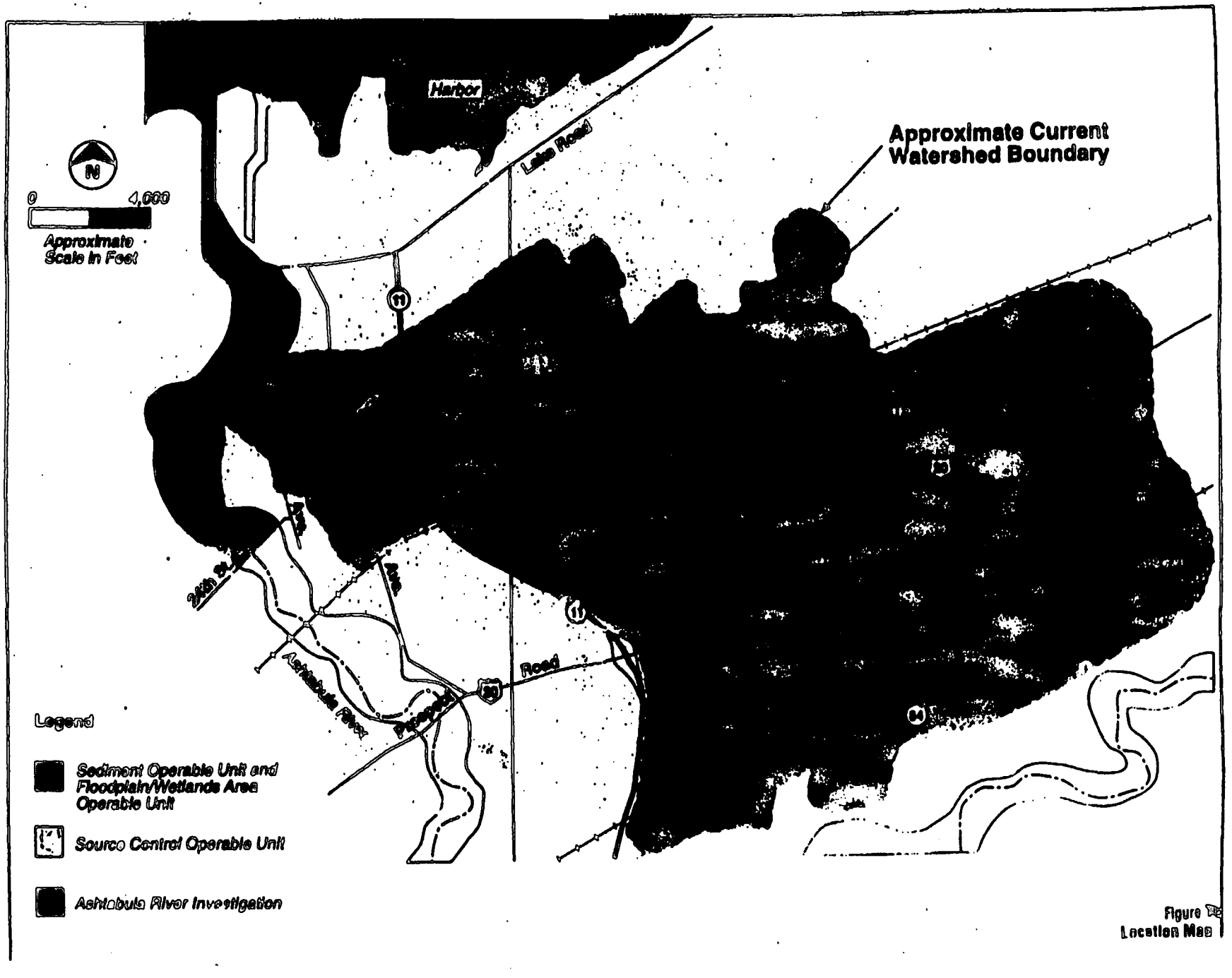
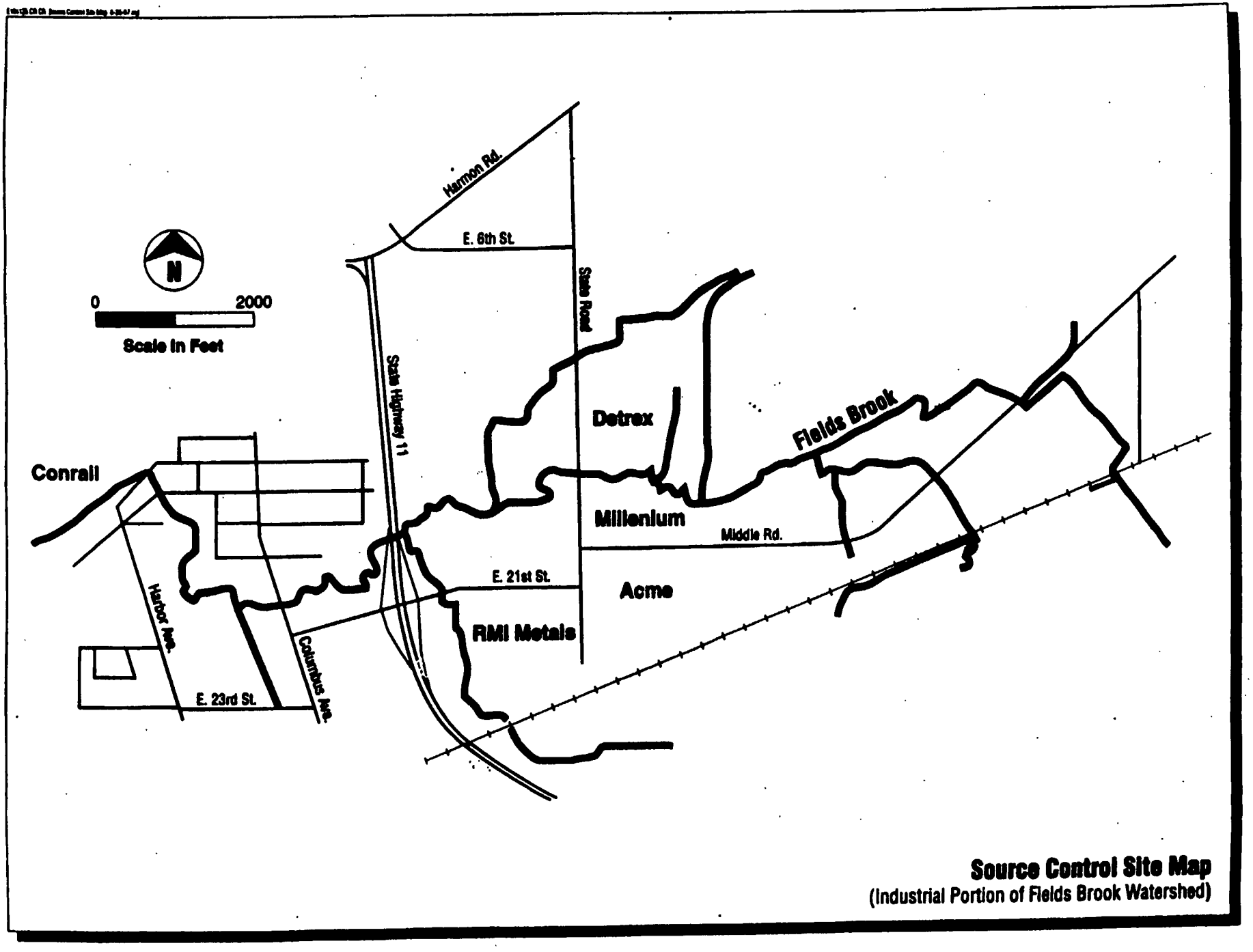
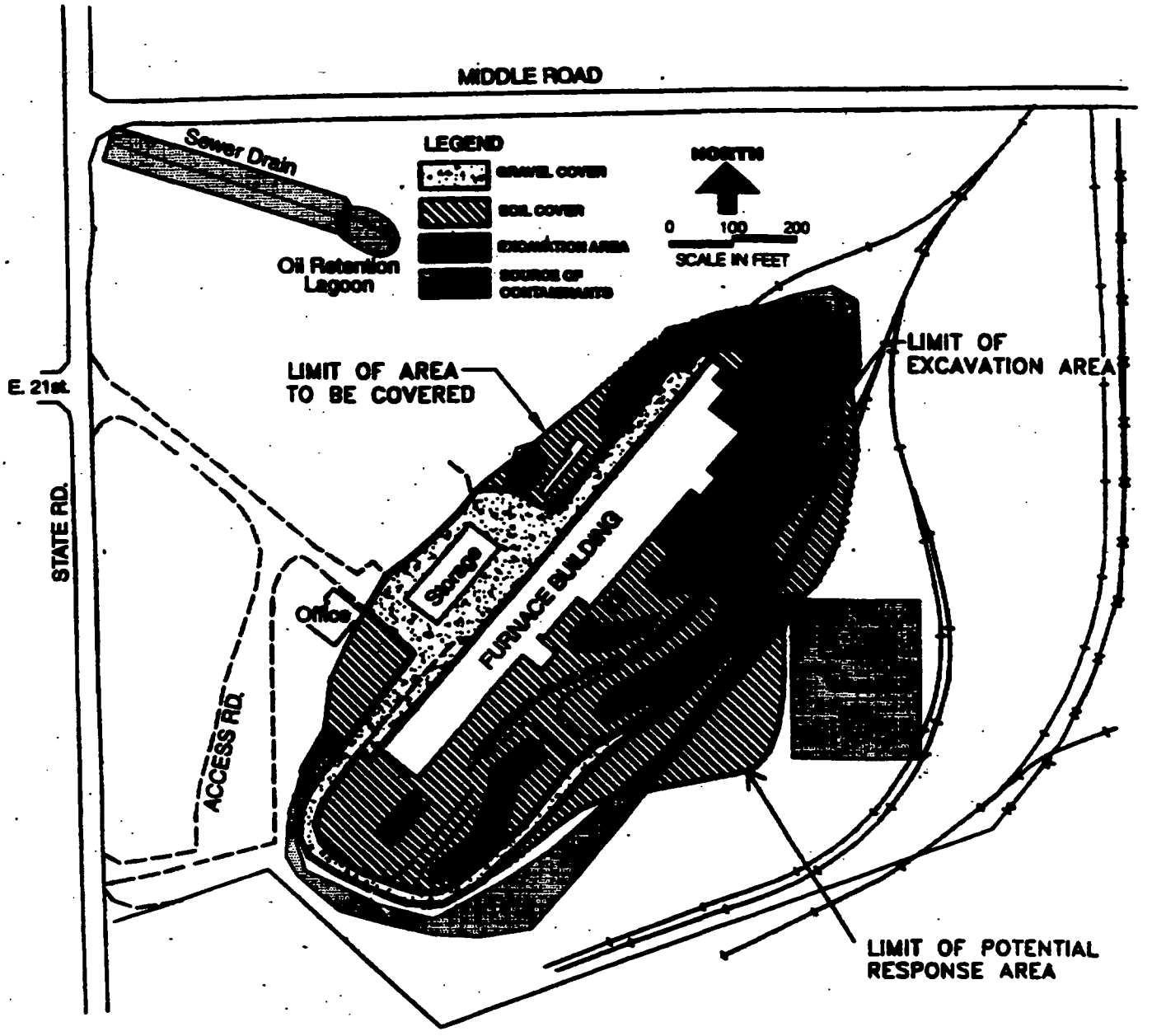


Figure 2
Location Map



Source Control Site Map
(Industrial Portion of Fields Brook Watershed)

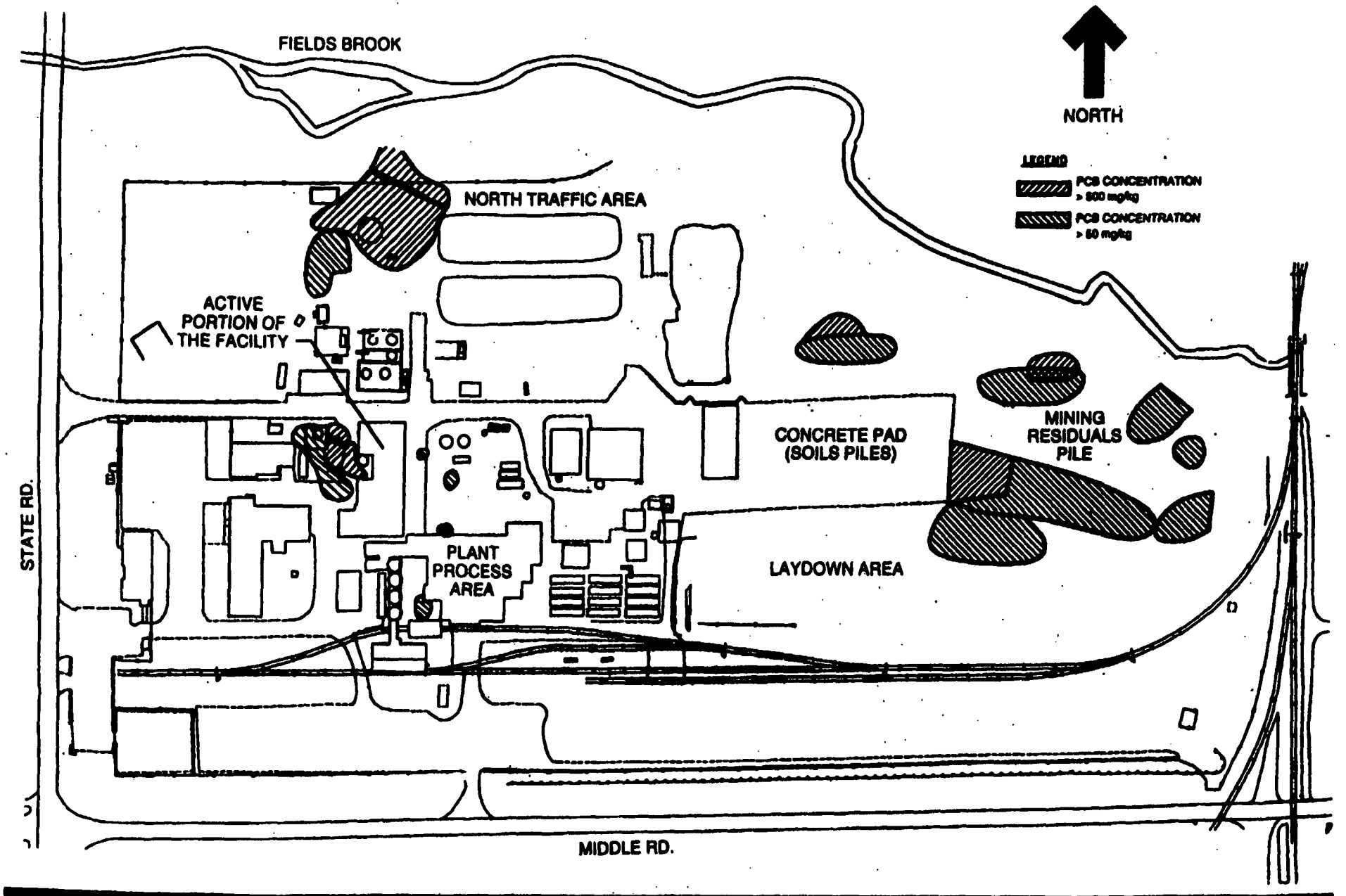
Figure 3



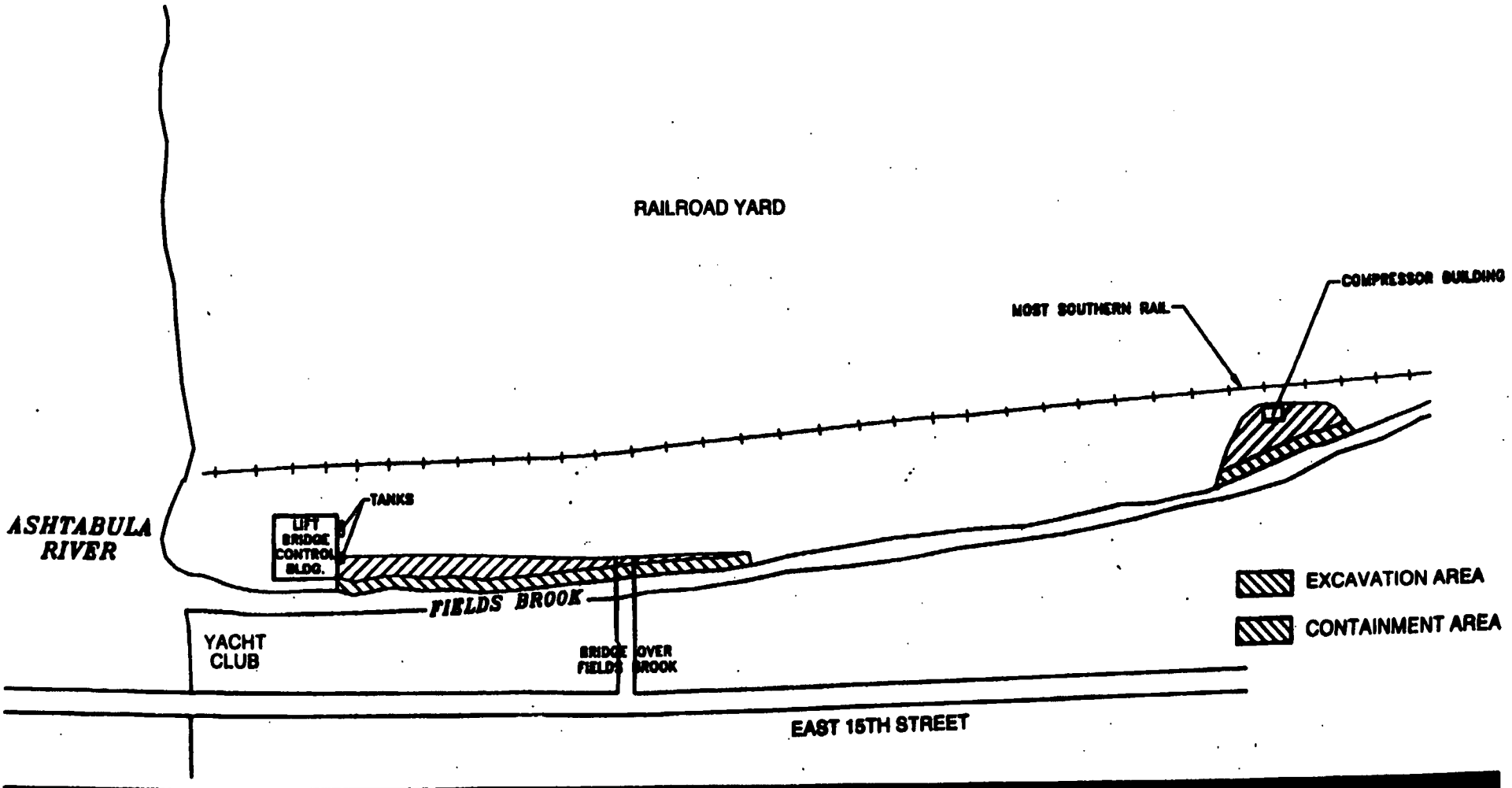
Acme Scrap Iron & Metal Company Site Map

Figure 4

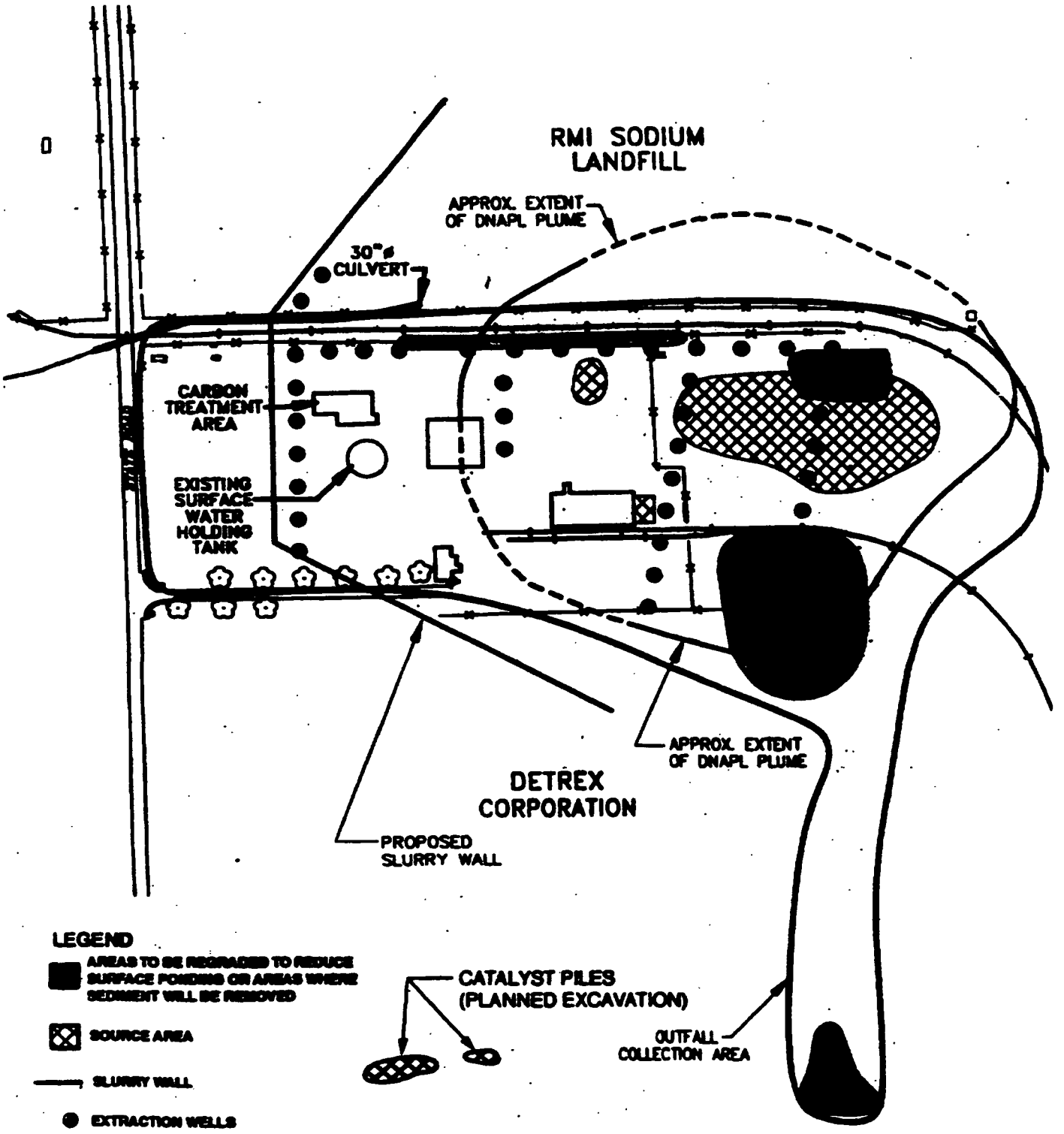
Figure 5



Milennium TiCl$_4$ Site Map

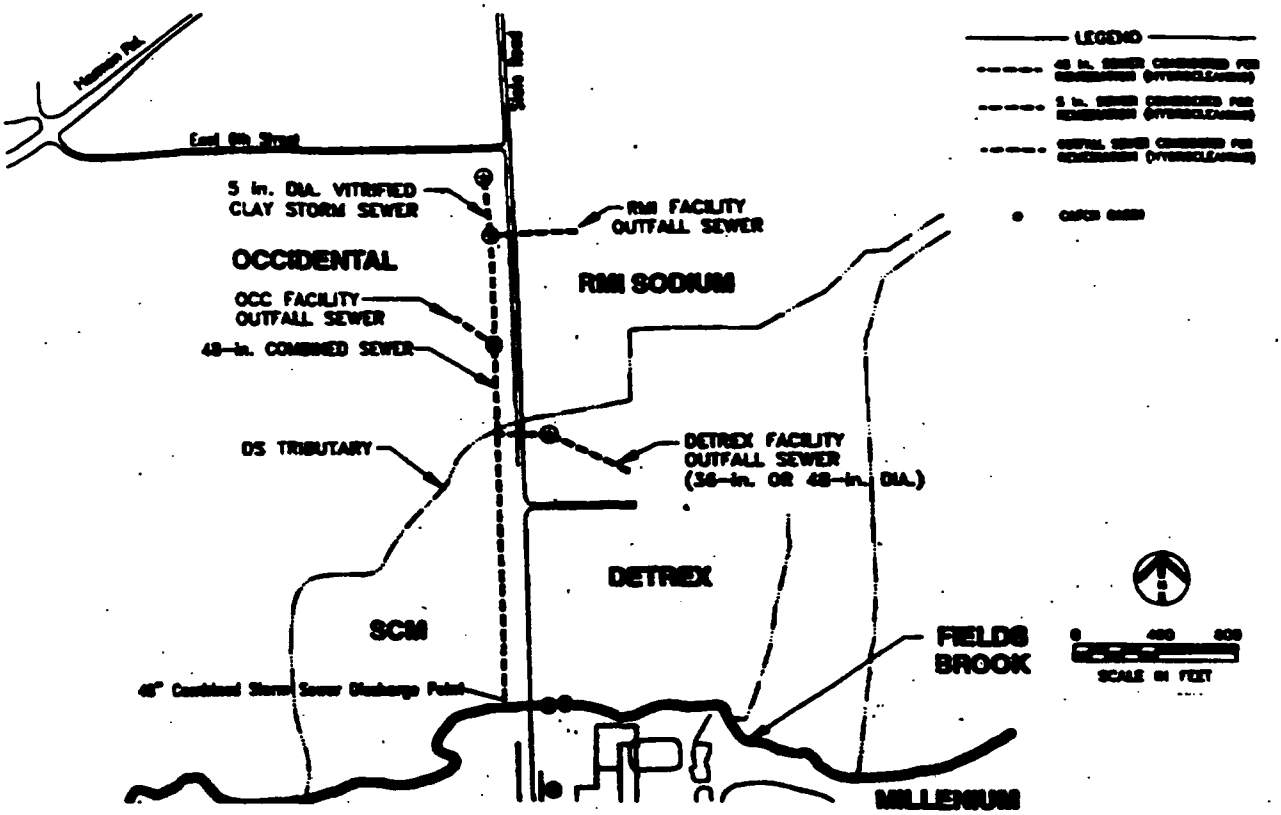


Conrail Site Map



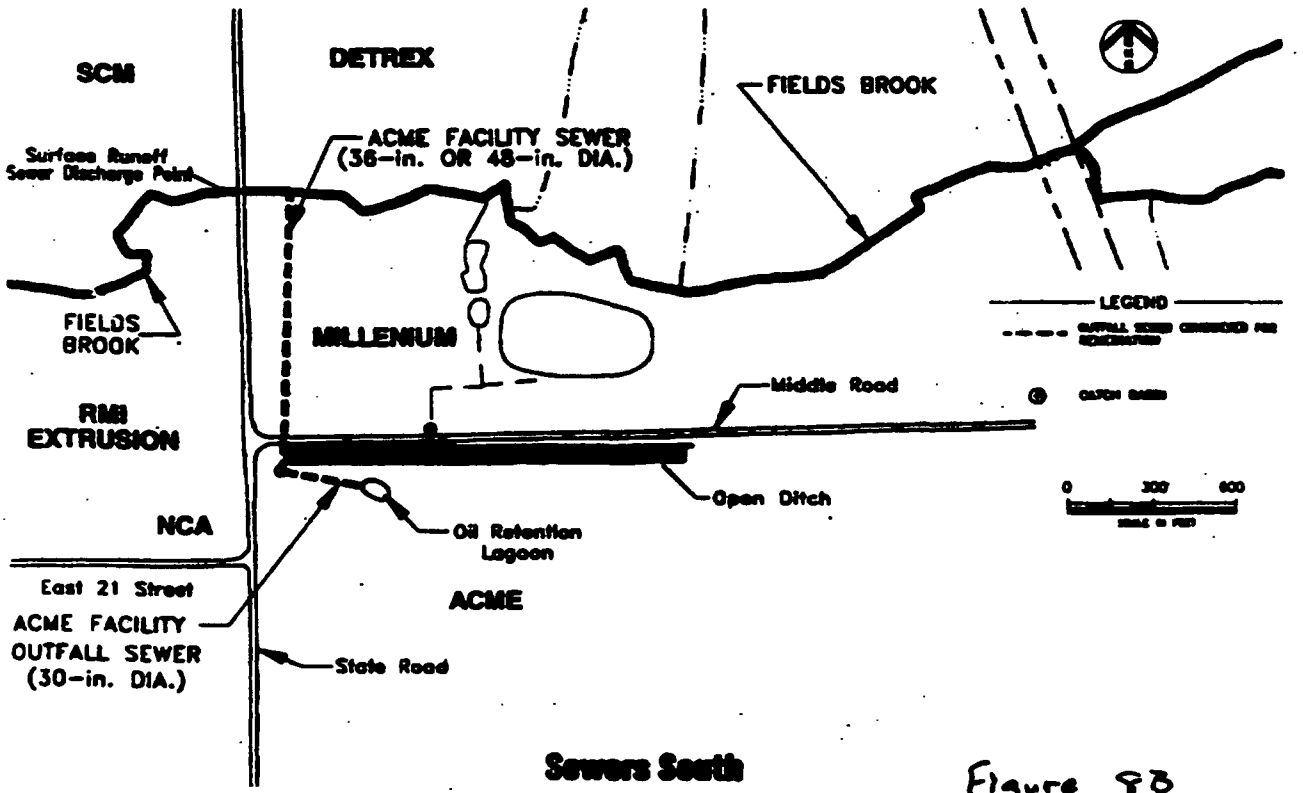
DETREX Site Map

Figure 7



Sewers North

Figure 8A



Sewers South

Figure 8B

Sewers North and South Site Maps

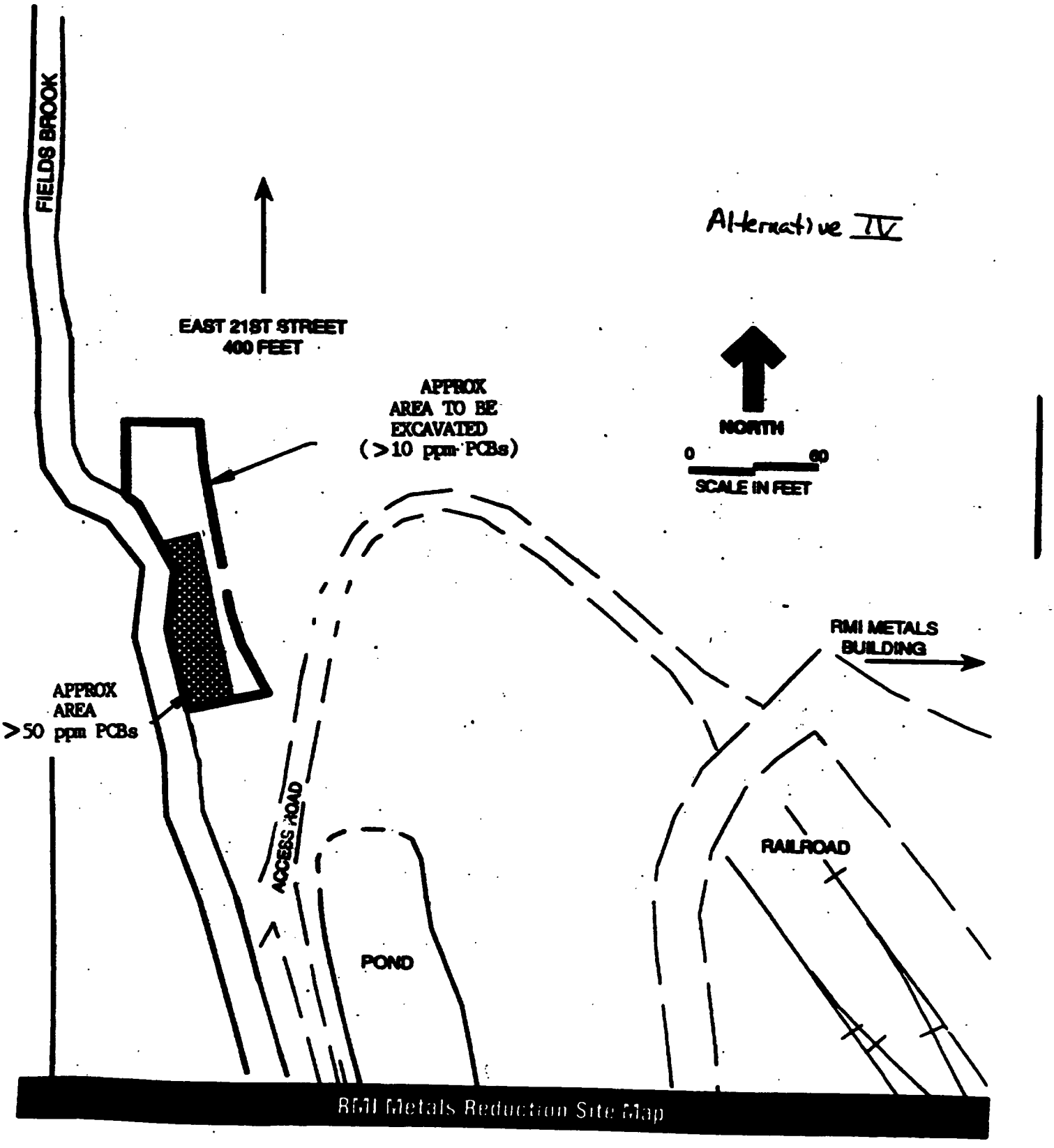
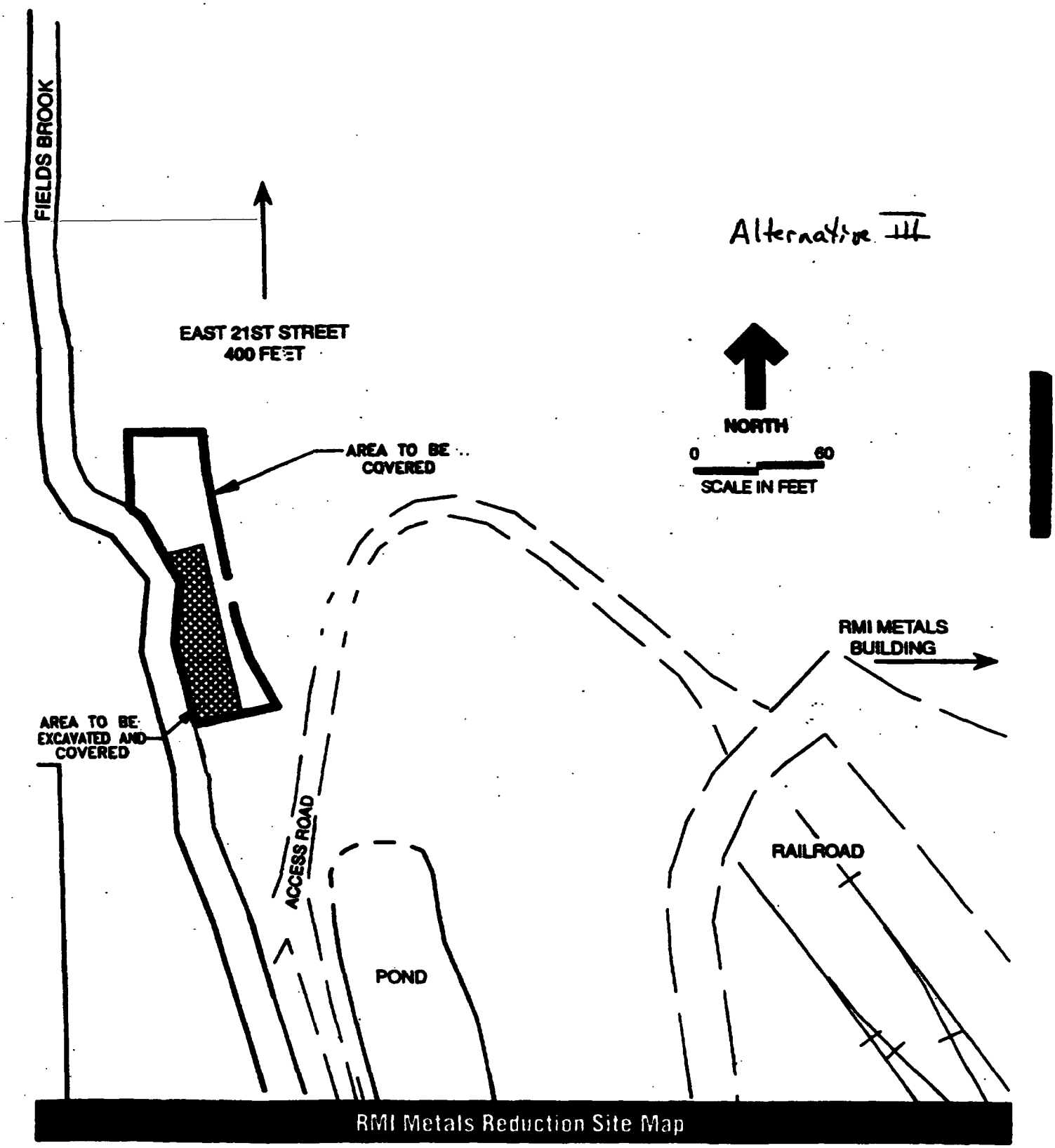

FIELDS BROOK
EAST 21ST STREET
400 FEET
Alternative IV
NORTH
0
60
SCALE IN FEET
APPROX
AREA TO BE
EXCAVATED
(>10 ppm PCBs)
RMI METALS
BUILDING
APPROX
AREA
>50 ppm PCBs
ACCESS ROAD
RAILROAD
POND
RMI Metals Reduction Site Map

Figure 9A



RMI Metals Reduction Site Map

Figure 9B

Attachment -
Responsiveness Summary

ATTACHMENT 1 TO THE RECORD OF DECISION SUMMARY

RESPONSIVENESS SUMMARY
SOURCE CONTROL OPERABLE UNIT
RECORD OF DECISION
FIELDS BROOK SITE, ASHTABULA OHIO

PURPOSE

This responsiveness summary has been prepared to meet the requirements of Sections 113(k)(2)(B)(iv) and 117(b) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1986 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), which requires the United States Environmental Protection Agency (U.S. EPA) to respond to the comments submitted, either written or oral presentations, on the proposed plan for remedial action. All comments received by U.S. EPA during the public comment period were considered in the selection of the final remedial alternative for the Source Control Operable Unit.

This document summarizes written and oral comments received during the public comment period of July 24, 1997 to September 22, 1997. The comments have been paraphrased to efficiently summarize them in this document. The public meeting was held at 7:00 p.m. on July 31, 1996 in the Auditorium of the Ashtabula Campus of Kent State University in Ashtabula Ohio. A full transcript of the public meeting, as well as all written comments received during the public comment period and all site related documents, are available for review at the Information Repositories, at the following locations: 1) Ashtabula County District Library, 335 West 44th Street, Ashtabula, OH; and 2) U.S. Environmental Protection Agency, Waste Management Division, Records Center, 7th Floor, 77 West Jackson Blvd., Chicago, IL.

Comment #1
ECKENFELDER, INC. on behalf of RMI Titanium Company

ECKENFELDER, INC. comments that the proposed alternative for the Detrex facility should be enhanced to provide better protection for the adjacent RMI Sodium Plant. ECKENFELDER noted that DNAPL has been detected in at least one groundwater monitoring well on the southern side of the RMI Sodium landfill. RMI and ECKENFELDER recommend the installation of one or more DNAPL recovery wells in the vicinity of the southern edge of the landfill (in the general vicinity of monitoring well RMI 2-S. Vacuum-enhanced extraction in horizontal wells should be considered.

Response: ECKENFELDER and RMI are correct that DNAPL has been detected in the groundwater on the RMI property. ECKENFELDER and RMI's

recommendations fall within the scope of the selected Detrex remedy. The number, placement and type of extraction wells will be determined during the Remedial Design process.

Comment #2
ECKENFELDER, INC. on behalf of RMI Titanium Company

ECKENFELDER, INC. notes that, based on pilot testing of the vacuum-enhanced extraction system, the design radius of influence for the test well as approximately 20 to 30 feet. Based on this data, Woodward-Clyde calculated a spacing of 40 to 60 feet between wells. ECKENFELDER commented that, "if the spacing design is based on the radius of influence, then the basis for the design is flawed. The radius of influence does not directly equate to the zone of capture. In a situation in which there is a sloping water table, which is the case at the Detrex site, the groundwater capture zone would be significantly less than the observed zone of influence. Additionally, due to higher viscosity and capillary forces associated with the surface tension of the DNAPL-water interface, the effective capture zone of the DNAPL would be significantly less than that of the groundwater capture zone. The Source Control Feasibility Study (SCFS) states that Alternative IV would reduce the size if the DNAPL plume through extraction and treatment and which would reduce the potential for migration of the DNAPL compounds to Fields Brook or the DS Tributary. Based on the information presented in the Proposed Plan and SCFS, ECKENFELDER, Inc. questions the effectiveness of Alternative IV to meet this remedial objective."

Response: Comment noted. During the design of the Detrex remedy, U.S. EPA will reevaluate the spacing and placement of extraction wells to ensure capture of DNAPL. However, complete removal of DNAPL is not expected.

Comment #3
ECKENFELDER, INC. on behalf of RMI Titanium Company

ECKENFELDER, INC. notes that the slurry wall does not extend to the north of the Detrex property and, as such would not prevent the migration of contaminants to the DS Tributary and the RMI Sodium property. ECKENFELDER notes that the extent of DNAPL beneath the landfill remains undefined. ECKENFELDER and RMI recommend additional investigation around the perimeter of the landfill to assess the potential for DNAPL migration to RMI's property. ECKENFELDER further recommends extending the slurry wall along the northern perimeter of Detrex's property and, if DNAPL is identified along the northern perimeter of the landfill, consideration should be given to the installation of DNAPL recovery wells in that area.

Response: U.S. EPA will require additional sampling during the remedial design phase to better define the extent of DNAPL contamination that has moved into the RMI property. As stated on page 8-30 of the SCFS,

"Additional design investigations would be needed to establish design criteria for the selected alternative. These investigations may include slurry wall compatibility tests and additional geotechnical borings to locate the depth and position of the containment structures. Waste characterization to evaluate soil disposal options would be needed to locate off-site disposal facilities. Also, a pilot study to better evaluate DNAPL recovery may be required during design. In addition, the extent of the DNAPL plume particularly towards the northward direction onto the RMI-Sodium property in the vicinity of the landfill on RMI-Sodium would be further defined during design, and the position of the extraction wells and the slurry wall, if selected as components within the final remedy would be adjusted or extended to ensure that the DNAPL and contaminated groundwater flowing towards Fields Brook or the DS Tributary particularly along the northern or western directions in these areas would be contained or captured. Design investigation drilling or installation of extraction wells will not be conducted in the area encompassed by the RMI Sodium Landfill."

The number and placement of DNAPL recovery wells will be determined during remedial design. Depending on the placement of wells and the resulting capture zone, U.S. EPA may require the slurry wall to extend along the north boundary of the Detrex property.

Comment #4
AquAeTer on behalf of Millennium Inorganic Chemicals

The goal of the source control cleanup is to remediate areas that could potentially recontaminate Fields Brook. AquAeTer notes that Millennium is committed to a cleanup which meets or exceeds this goal. A large portion of the Millennium facility drains to its Facility Stormwater Collection Area (FSCA), which treats runoff prior to discharge under a National Pollutant Discharge Elimination System (NPDES) permit. Outside of the FSCA, materials that erode have the potential to recontaminate Fields brook. AquAeTer states that approximately 42% (by volume) of the soils to be excavated do not have the potential to recontaminate Fields Brook and notes that Millennium is demonstrating "good industrial citizenship" by its willingness to conduct a cleanup which is more thorough and provides increased protection of human health and the environment.

Response: Comment noted.

Comment #5
AquAeTer on behalf of Millennium Inorganic Chemicals

AquAeTer notes that the Proposed Plan Summary for the Millennium recommended alternative states, "Annual O&M Cost: $2,011,000." AquAeTer commented that the annual O&M cost is $43,000. The amount mentioned in the Proposed Plan ($2,011,000) is the sum of the indirect capital costs for the alternative.

Response: AquAeTer is correct. The O&M amount stated in the Proposed Plan summary is incorrect. The ROD discussion of alternatives for the Millennium source area lists the correct costs.

Comment #6
AquAeTer on behalf of Millennium Inorganic Chemicals

AquAeTer references a statement in the Proposed Plan Summary, "Soils with PCB contamination greater than or equal to 50 mg/kg are regulated by the Toxic Substances Control Act (TSCA)." AquAeTer comments that PCB contamination at the Millennium Plant II facility is considered a historical spill under TSCA. AquAeTer states that because U.S. EPA designated the entire watershed (including the millennium site) as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site, the TSCA Office has no jurisdiction over the current Millennium site.

Response: Although the PCBs at the Millennium property may have been dumped at the site prior to May 4, 1997, TSCA is still an applicable ARAR for the CERCLA cleanup of the Fields Brook site. A strict interpretation of TSCA as interpreted by the Standard Scrap decision would lead to the conclusion that remediation of the PCB-contaminated soils would require them to be removed from the improper disposal location and incinerated or landfilled at a different site.

Comment #7
AquAeTer on behalf of Millennium Inorganic Chemicals

AquAeTer notes that Millennium has proposed that its industrial waste landfill (currently under construction) be used for disposal of soils to be excavated from the Millennium $TiCl_4$ facility. AquAeTer comments that the Millennium landfill has equivalent protection as would be provided by a TSCA chemical waste landfill.

Response: The Region V TSCA Office has reviewed the landfill information submitted by AquAeTer (May 22, 1997 letter from Holliday and Corn to Van Donsel). TSCA has requested that additional information be provided in

order to complete its review of the Millennium landfill. Based on telephone discussions between Van Donsel and Corn, Millennium expects to submit this information in early October, 1997.

Comment #8
AquAeTer on behalf of Millennium Inorganic Chemicals

The Proposed Plan states that, "chemical monitoring of outfalls would be conducted to evaluate the amount of contamination moving from the site to Fields Brook." AquAeTer comments that chemical monitoring of discharges from outfalls is neither required nor necessary. Millennium has no effluent discharges to Fields Brook, therefore discharge monitoring should not be required. Millennium's extensive monitoring of the facility effluent within the last ten years (under the NPDES permit program) has not detected PCBs. AquAeTer further states that, "the NPDES permit program has determined that it is not necessary for Millennium to test for PCBs in their discharge, and neither should the Proposed Plan."

Response: Comment noted. The Recontamination Assessment determined that the only complete pathway for the movement of contamination is from the overland erosion of contaminated soil from areas outside of the Facility Stormwater Collection Area (FSCA). This assumes the continued operation of the treatment system, with sufficient capacity to handle storm events. Surface water from within the FSCA is currently treated in the facility wastewater treatment system and discharged to Lake Erie under a NPDES permit. After the completion of the remedial action, sheet flow runoff will be monitored for CUG exceedances. The complete monitoring program will be developed for the Operations and Maintenance Plan.

Comment #9
U.S. Department of Interior - Trustee

The U.S. Department of Interior (U.S. DOI) is one of three natural resource trustees for the Fields Brook site. The U.S. DOI is working with the Fields Brook Action Group in an effort to address the issue of natural resource damages. The U.S. DOI defers to the State of Ohio and the U.S. Fish and Wildlife Service to comment on the proposed alternatives for the Source Control Operable Unit. However, the U.S. DOI does request that U.S. EPA consult with the U.S. Fish and Wildlife Service and the appropriate State agency during remedial design to select a seeding mix and mowing regimen that will promote wildlife values consistent with erosion prevention and maintenance of remedial action.

Response: U.S. EPA will consult with U.S. Fish and Wildlife Service and the State of Ohio on the recommended cover vegetation for source control areas to be

remediated. However, it is important to note that the Source Control Operable Unit is within an industrial area and, in some cases, the response areas are immediately adjacent to areas with frequent industrial activity. Selection of cover vegetation will be most critical for the Floodplain/Wetland Operable Unit.

Comment #10
U.S. Department of Interior - Fish and Wildlife Service - Trustee

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The U.S. Fish and Wildlife Services comments that the Proposed Plan fails to provide a justification for the recommended alternatives not meeting the "Statutory Preference for Treatment."

Response: Section IX (Summary of Comparative Evaluation of Alternatives) of the ROD discusses the "Statutory Preference For Treatment" as part of the Balancing Criteria evaluation. Three source areas had contaminant levels that warranted consideration of treatment. The discussions of the "Statutory Preference for Treatment" can be found on the following pages:

Acme Scrap Iron & Metal	Page 36
Millennium	Page 39
Detrex	Page 45

Comment #11
U.S. Department of Interior - Fish and Wildlife Service - Trustee

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The U.S. Fish and Wildlife Service questions U.S. EPA's Proposed Plan recommendation for the RMI Metals Reduction Site. U.S. EPA recommended Alternative III, which would excavate soils with greater than or equal to 50 ppm total PCBs and contain contaminated soil with PCB concentrations between 10 and 50 ppm. Because of the location of the source area adjacent to a Fields Brook tributary, the U.S. Fish and Wildlife comments that the U.S. EPA should select Alternative IV, which requires excavation of all contaminated soil greater than 10 ppm PCBs.

Response: U.S. EPA agrees. After a review of the volume and cost estimates for the RMI alternatives, U.S. EPA has selected Alternative IV in the ROD. Based on current volumes, Alternative IV is less expensive than Alternative III. In addition, with the costs of Alternatives III and IV being relatively comparable, it is preferable to select a remedy that does not rely on O&M for its long-term effectiveness. However, because it is unclear whether further delineation will dramatically increase the volume of soil that would require excavation under Alternative IV, the ROD allows the PRPs to provide a justification, for U.S. EPA's consideration, that Alternative III will provide significant cost savings over Alternative IV. U.S. EPA

believes that Alternative III would be a protective remedy if properly implemented with the required O&M. Based on a cost justification from the PRPs, the U.S. EPA may elect to change its selected remedy.

Comment #12
Citizen - Ms. Gloria McCarthy

Ms. McCarthy did not submit a comment on the proposed alternatives for the Source Control Operable Unit at the Fields Brook Site. Ms. McCarthy provided information concerning two other facilities in the Ashtabula area with possible environmental violations.

Response: The information provided by Ms. McCarthy will be forwarded to the Ohio EPA, which will investigate Ms. McCarthy's concerns regarding the two facilities. U.S. EPA will request that the Ohio EPA inform Ms. McCarthy of the results of its investigation.

Comment #13
Citizen -Anonymous

The anonymous letter did not include a comment on the proposed alternatives for the Source Control Operable Unit. The anonymous comment letter provided information about possible soil contamination from the sand blasting of chemical storage barrels.

Response: A 104(e) information request letter is being prepared to gather data from Detrex on past contracting for barrel cleaning services. In addition, a 104(e) information request letter is being prepared for the company who allegedly performed the barrel cleaning for Detrex. U.S. EPA will determine the appropriate follow-up based on the responses received.

Comment #14
Cleveland Electric Illuminating Company and Ohio Power Company

Cleveland Electric Illuminating and Ohio Power comment that U.S. EPA should utilize a PCB occupational cleanup goal of 3.1 at the Acme Scrap Site. They state that, "U.S. EPA recommends that Alternative VI be implemented for this facility, which would require excavation and off-site disposal of surface soil with PCB concentrations greater than or equal to 50 mg/kg. Alternative VI would also require that soils contaminated with PCBs below 50 mg/kg be covered in place to achieve the PCB residential cleanup goal of 1.3 ppm at Fields Brook. The Millenium [sic] TiCL' Plant, which is located directly north of the Acme Scrap Site and is contiguous to the stormwater discharge to Fields Brook from the Acme Scrap Site, is subject to the PCB-occupational-based goal of 3.1 ppm."

Response: U.S. EPA has reevaluated the cleanup goals required for the Acme

property and determined that the facility should be subject to occupational CUGs.

Comment #15
Cleveland Electric Illuminating Company and Ohio Power Company

Cleveland Electric Illuminating and Ohio Power comment that technical information developed to date as part of the SOU Design Investigation suggests that there may have been no historical release of PCBs from the Acme Scrap facility to Fields Brook or the Fields Brook floodplain. "The most common PCB at the Acme Scrap site is PCB aroclor 1260, with lesser amounts of aroclor 1248 and 1254. However, aroclor 1260 has not been detected in Fields Brook or the Fields Brook floodplain samples downstream of the discharge point from the Acme Scrap site."

Response: U.S. EPA does not agree with the claim that the Acme property is not a source of past contamination. The analytical method used during the investigation (Method 8080) makes it difficult to differentiate between PCB aroclors and therefore extensive re-evaluation of site contaminant data would be required to support such an argument. In addition, natural weathering processes further complicate aroclor identification by changing the aroclor distribution. Acme has been confirmed as a source of PCB-contaminated oil in Fields Brook through Rhodamine B dye tests in storm sewers and through comparative analyses of oil samples taken from the site and Fields Brook.

U.S. EPA has documentation to support its claim that Acme burned transformers, released oil into its sewer and contaminated its property. Sampling conducted by the Ohio Department of Public Health in the early 1980's found PCB levels as high as 291 ppm total PCBs in water and oil samples discharging from the storm sewer. U.S. EPA analyses in 1982 found soil contamination with up to 114 ppm PCBs, and discharge samples with up to 189 ppm PCBs. Additional documentation of site contamination can be found in the Source Control Remedial Investigation (SCRI) report.

Further, regardless of whether Acme is or is not a source of past contamination, the Recontamination Assessment has shown that the property is a potential source of future contamination and must be addressed to prevent recontamination of the Brook.

Comment #16
Cleveland Electric Illuminating Company and Ohio Power Company

The commentors state that Alternatives II, III and IV will fully comply with ARARs and should

be reconsidered and recommended by U.S. EPA. Since the route for releases of PCBs is via stormwater discharges which might carry PCB-contaminated sediment off-site, the use of stormwater controls and/or covers would be sufficient to prevent the movement of PCBs into the Brook.

Response: U.S. EPA agrees that the pathway for movement of PCB contamination is via erosion and run-off from the site. However, U.S. EPA disagrees with the commentors' statement that alternatives II, III and IV fully comply with ARARs. TSCA is an ARAR for the cleanup at the Acme property and the berms and/or covers specified in Alternatives II, III and IV do not satisfy the requirements of TSCA for the management and containment of soils with PCB concentrations greater than or equal to 50 ppm. To accept these alternatives, the U.S. EPA would have to waive TSCA and show that these alternatives would be protective and would not present unreasonable risks to health and the environment. U.S. EPA does not believe that the stormwater controls and covers specified in Alternatives II, III, and IV meet this standard for soils containing greater than or equal to 50 ppm total PCBs.

Comment #17
Cleveland Electric Illuminating Company and Ohio Power Company

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Cleveland Electric Illuminating Company and Ohio Power Company comment that U.S. EPA should allow modifications to the remedial response area in the final engineering design. The commentors state that the remedial design process should be flexible and allow the optimization of the remedial response area and consolidation. The commentors also note that no outfall monitoring has been proposed for Alternatives III, IV, V, VI and that outfall monitoring would be conducted by the site owner/operator pursuant to any monitoring obligations imposed under any Ohio NPDES permit for the site.

Response: The Source Control ROD does not select designs for the remedial response areas. The ROD selects the technologies (i.e., excavation, erosion control covers) required to meet the goal of the cleanup, which is to prevent the recontamination of the Brook. The remedial response area at the Acme site will be re-sized and reconfigured during remedial design based on the results of soil loss equations, the degree of consolidation, and, to the extent possible, practical considerations to accomodate the continued operation of the facility. The selected remedy provides this flexibility.

The commentors noted that outfall monitoring was not proposed for Alternatives III, IV, V, and VI and that outfall monitoring would be performed by the owner/operator pursuant to NPDES requirements. U.S. EPA agrees that the SCFS did not require outfall monitoring.

The monitoring programs for the source control areas are to be developed during Remedial Design, as part of each facility's O&M Plan. Sufficient monitoring must be included to demonstrate that contaminant movement from each source area is not resulting in CUG exceedances in Brook sediment. The location and frequency of monitoring at Acme is dependent on the configuration of the final design.

Comment #18
Cleveland Electric Illuminating Company and Ohio Power Company

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The commentors note that the site must be secured before remedial measures can be implemented and maintained. If Acme is to remain in operation at the site, both physical (remedial) and legal (institutional controls, including deed restrictions) must be implemented to ensure that the site is properly maintained. The ROD should include a statement that the site owner/operator will be solely responsible for recontamination of the site in the future.

Response: U.S. EPA agrees that physical and legal controls must be utilized to ensure that the remediation is not "un-done" by future actions at the site, thus causing the recontamination of the Brook. However, the ROD is not the proper mechanism for assignments of liability.

Comment #19
Cleveland Electric Illuminating Company and Ohio Power Company

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The commentors note that the Final Remedial Action should be modified, as needed, to take account of site drainage requirements. "There has been limited investigation or study of the drainage system for the Acme Scrap Site, and little indication of how stormwater runoff is to be handled. It will be necessary to address these matters in the site grading and drainage plans. It may be cost-effective, and equally protective of human health and the environment, to modify the remedy which is ultimately selected in the final design phases before the remedial action is implemented. USEPA should allow modifications to the alternative which is ultimately selected by USEPA if considerations of site drainage and stormwater runoff suggest that a more cost-effective approach can be implemented to contain or control stormwater discharges from the site."

Response: U.S. EPA agrees with the commentor that a plan for site drainage has not yet been developed. That is an element of the Remedial Design process.

The commentor also requests that the alternative be modified if a more cost-effective approach can be found to control stormwater discharges from the site. U.S. EPA disagrees with the commentors request that the alternative may be changed during the remedial design/remedial action phase. The ROD requires excavation of soils with equal to or greater than

50 ppm total PCBs. The remaining contaminated soil will be covered with an erosion control cover, as described in the ROD, to the extent necessary to ensure that soil losses from the site do not exceed occupational CUGs. The site will be graded to allow for proper drainage. The remedial design may include consolidation of soils prior to placement of the cover.

It is not anticipated that the basic elements of the ROD will change during the remedial design/remedial action process. The U.S. EPA has determined that the use of an erosion control cover is preferable to erosion control measures that do not make use of a cover (i.e., Alternative II's use of berms). Any change that would not include the erosion control cover would require a ROD Amendment or Explanation of Significant Difference to document the deviation from the remedy selected in this ROD.

Comment #20
Cleveland Electric Illuminating Company and Ohio Power Company

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The commentors state that flexibility should be allowed in performing remedial work on the South Sewer System. "USEPA has recommended Alternative III for remedial action on the sewer system which extends south of Fields Brook ("the South Sewer"). Alternative III involves grouting the existing 30 inch sewer on the Acme Scrap site, which extends from the on-site lagoon northwest to the intersection of State and Middle Road, and constructing a new 30 inch on-site sewer. Alternative III would also require that the storm sewer (estimated to be a 36 inch or 48 inch sewer), which travels parallel to State Road from the Acme Scrap site to Fields Brook, would be cleaned of sediments and repaired, if necessary." The commentors note that very little is known about these sewers and replacement may not be necessary. The commentor suggest the following language, "Replacement sewers, if determined to be necessary, would be constructed..."

Response: U.S. EPA agrees. Based on current information, it is premature to require replacement of the sewers. Additional evaluation of the condition of the sewers should be performed during remedial design to determine whether cleaning or replacement would be most cost-effective. The Agency's selection of Alternative III provides the necessary flexibility. Replacement sewers will be constructed only if necessary.

Comment #21
Cleveland Electric Illuminating Company and Ohio Power Company

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The commentors note that the condition of the Defense Plant Building may necessitate a modification of the selected remedial action. "Portions of the silos located on one side of the plant have partially collapsed, and the condition of the building may pose a safety risk to the performance of remedial work, especially the implementation of Alternative VI." Because the building "is in poor repair and may be structurally unsound," the U.S. EPA should allow the work

to be modified to accomodate the possible partial or complete demolition of the Defense Plant building and associated structures.

Response: U.S. EPA agrees that the remedial design should accomodate any actions to be taken to address stability issues at the former defense plant building. In fact, the ROD requires that the site be secured before work can proceed.

Comment #22
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding page 4, last paragraph, of the Proposed Plan, Woodward-Clyde notes that the FBAG did not identify five properties in the FS. "The FS identified surface soil as a potential source for remedial alternatives at the Acme, Millennium and Detrex facilities. USEPA required that the FBAG include alternatives for the RMI Meals and Conrail facility."

Response: The commentor is correct.

Comment #23
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding page 5, third paragraph, of the Proposed Plan, Woodward-Clyde notes that cleanup goals were not "calculated to reduce the movement of contamination from erosion and runoff." The commentor suggests more appropriate language, "Cleanup goals were calculated in order to provide assurance that movement of potentially contaminated soil and sediment on the source properties would not be sufficient to recontaminate Fields Brook sediment following the remediation of Fields Brook."

Response: The commentor's recommended language is clear than that used in the Proposed Plan.

Comment #24
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding pages "Acme-2" and "Acme-3" of the Proposed Plan, the commentors state that no outfall monitoring was to be included in Alternatives III, IV, V and VI. "No outfall monitoring was to be included in this alternative. The only chemical monitoring that was described in the FS includes the annual collection of surface soil samples for PCB analysis. Sampling was to continue for a 5-year evaluation period."

Response: The commentor is correct that the FS did not describe surface water monitoring. Monitoring will include the sampling and analysis of soil and sediment to demonstrate that erosion from the Acme property is not causing exceedances of occupational CUGs. Specifics of the monitoring

program will be developed as part of the Operations and Maintenance Plan.

Comment #25
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding page "Acme-3" of the Proposed Plan, the commentors note that incineration is not mentioned in the FS and is only one form of thermal treatment.

Response: Comment noted.

Comment #26
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding page "Conrail-1" of the Proposed Plan, the commentors note "that the portion of the property that lies in the Fields Brook watershed is not shown as the shaded area on the map in the PRAP as stated. The map provide [sic] in the PRAP illustrates the potential remedial response area designated in the Feasibility Study, and not the entire portion of the Conrail property which lies in the Fields Brook watershed. It should be noted that Conrail performed a Recontamination Assessment that indicated runoff would not recontaminate Fields Brook sediments."

Response: The commentor is correct that the shaded area on the figure is the potential remedial response area. U.S. EPA is aware that the Recontamination Assessment indicated that Conrail runoff would not recontaminate Fields Brook sediments. However, because of concerns about the proximity of the Conrail facility to the Brook, U.S. EPA utilized best professional judgement in its decision to evaluate alternatives and ultimately require remedial action at the property.

Comment #27
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding page "Conrail-2" of the Proposed Plan, the commentors note that the correct capital cost for Alternative IV is $19,500 not $19,800.

Response: Comment noted.

Comment #28
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding page "Conrail-2" of the Proposed Plan, the commentors note that the correct 30-year present worth cost for Alternative V is $173,100 not $173,000.

Response: Comment noted.

Comment #29
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding page "Detrex-1" of the Proposed Plan's discussion of Alternative 1 (No Action), the commentors state, "The PRAP references stormwater outfall sampling to evaluate the amount of contamination moving off the property and into Fields Brook. The FS did not describe surface water monitoring."

Response: The commentor is correct that the FS did not describe surface water monitoring. Specifics of the monitoring program will be developed as part of the Operations and Maintenance Plan, and will likely include soil, sediment, and groundwater sampling and analysis. Sufficient monitoring will be required to demonstrate that contaminant movement from the Detrex property is not resulting in CUG exceedances in the Brook.

Comment #30
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

Regarding pages "Detrex-2" and "Detrex-3" of the Proposed Plan, the commentors note that Alternatives IIA, IIB, III and IV also include "the characterization and disposal of approximately 100 cu. yards of catalyst material located in a pile in source area DET6. In addition, sediment from the retention pond and ditches on the northern property would be removed. Post remediation monitoring will extend for at least a 5 year period and then be re-evaluated to determine appropriateness for extending monitoring."

Response: U.S. EPA agrees. The necessary detail is included for the remedy selected in the ROD.

Comment #31
Woodward-Clyde on behalf of the Fields Brook Action Group (FBAG)

The commentors note that the Proposed Plan's discussion of RMI Alternatives II, III, and IV did not indicate that post remediation monitoring will extend for at least a 5-year period and then be re-evaluated to determine appropriateness for extending monitoring.

Response: U.S. EPA agrees. The necessary detail is included for the remedy selected in the ROD.

Comment #32
Mark W. Andrews representing Acme Scrap Iron & Metal Company

The commentor states, "Acme continues to believe that the scope of the remediation contemplated by Alternative VI is an ultra conservative approach to the problems that had

occurred in the past at the Acme site. Acme has been told by the U.S. EPA that it has the least contaminated property in the Fields Brook Superfund Site, and yet it is the only property which is being subjected to the residential standard for PCB's. This is particularly concerning in view of the fact that (1) most of the detectable amounts of PCB's at the Acme site are located in the top six inches of soil, and the minimal amounts of PCB's are not likely to migrate; (2) Fields Brook does not traverse through the Acme operation, or any part of the property owned by Delta Associates, Ltd., as it does through the other properties in the Superfund site; (3) the only source for future contamination of Fields Brook by Acme would have to involve surface water "run-off" which could possibly flow through the interrupted storm sewer system, which is regularly monitored for PCB's, and consistently shows no detectable levels of PCB's; and (4) Acme has not handled regulated substances for more than a decade, and has absolutely no intentions of doing so in the future."

Response: U.S. EPA does not believe that Acme is the "least contaminated property in the Fields Brook Superfund Site." This statement is not supported by site data.

Although U.S. EPA has reevaluated the cleanup goal requirements for Acme and determined that occupational CUGs must be met at the Acme property, Mr. Andrews is incorrect in his statement that Acme "is the only property which is being subjected to the residential standard for PCB's." The U.S. EPA is requiring that residential CUGs be met at the following locations: Conrail, RMI Metals, and the Detrex outfall.

Regarding the presence of PCBs in surface soil, U.S. EPA believes that Mr. Andrews is confusing two different mechanisms of contaminant transport. Mr. Andrews states that PCB contamination is primarily in the upper 6 inches of soil and is not likely to migrate. When migration is discussed, it is usually referring to the movement of contaminants independent of soil or sediment particles. For example, solvent contamination in soils will generally migrate, meaning it will travel with groundwater and move through soil. Although PCB contamination generally does not migrate because the contaminants bind to the soil particles, the addition of other contaminants into the system (such as solvents) can mobilize PCBs and result in the migration of PCB contamination.

Mr. Andrews states that the storm sewer system is monitored for PCBs and consistently shows no detectable levels of PCB's. The Acme facility has had an NPDES permit since 1986, and the discharge of PCBs is prohibited. According to the SCRI report, Mr. Tackett has stated that Acme is in compliance with its NPDES permit limits. U.S. EPA is pleased that the monitoring has apparently shown that Acme is complying with NPDES requirements. However, according to the evaluation of the Acme property,

there is still a risk that contamination from the Acme property could recontaminate Fields Brook in excess of CUGs. The implementation of the remedial action will ensure the reduction of contaminant movement off-site.

The concern at the Acme property is the erosion of contaminated soil and its movement into Fields Brook. Although the Acme facility is not adjacent to the Brook, contamination from the Acme facility can enter the Brook from the Acme sewer. The presence of the contamination in the surface soil causes this material to be subject to erosion. The implementation of the remedial action will ensure that erosion from the site will not result in the recontamination of the Brook.

Comment #33
Mark W. Andrews representing Acme Scrap Iron & Metal Company

Mr. Andrews states that Acme agrees that there are "small areas of contaminated soil on its property." He further states that, "This contaminated soil must be removed and properly disposed of. Acme does not believe it is necessary to contain the remaining areas where the presence of PCBs have been detected in minimal amounts that would normally be acceptable under industrial standards, especially where the containment and fencing would render an otherwise productive parcel of industrial property useless for all intents and purposes."

Response: U.S. EPA disagrees with Mr. Andrews that the contaminated areas could be characterized as "small." Mr. Andrews states that it should not be necessary to contain low-level PCB contamination in site soils since the levels would normally be acceptable under industrial standards. U.S. EPA does not agree with Mr. Andrews assertion that containment should not be necessary after excavation. Most industrial standards are designed to protect workers and do not address ecological concerns or the movement of contamination into an area with other types of exposures. The cleanup at the Acme property is being performed to prevent recontamination of the Brook. The extent of the area to be covered will be primarily determined by soil loss calculations.

Comment #34
Mark W. Andrews representing Acme Scrap Iron & Metal Company

Mr. Andrews states that Acme has always cooperated with U.S. EPA in its endeavor to remediate the Fields Brook site. He also notes that, "Acme is now fighting for its business life to enable it to continue to employ its workers and serve its customers."

Response: Comment noted. Based on current information, U.S. EPA does not believe

that the performance of the cleanup will require Acme to permanently cease its operations at its current location. There is sufficiently flexibility in the ROD for the development of a design that can accomodate Acme's continued operation.

Comment #35
Alternative Proposal for Site Remediation, submitted by Mark W. Andrews representing Acme Scrap Iron & Metal Company

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On behalf of Acme, Mr. Andrews presented an alternative proposal for remediation of the Acme facility. The alternative included the following components:

- Excavation and off-site disposal of soil with PCB concentrations exceeding 50 ppm. Excavation would be to a depth of 6 inches to 1 foot. Backfill with clean material.

- Excavate remaining contaminated material on the north of the property and stock pile into an earthen berm north of Acme's area of general operations. Excavate to a depth of 6 inches and backfill excavated areas. For aesthetic reasons, cover mound with topsoil and seed. Berm will be parabolic in shape and approximately 200 feet long, 45 feet in width, and 10 feet in height. Note that the figure provided with the proposal identifies significantly different dimensions.

- Excavate remaining contaminated material on the south of the property and stock pile into an earthen berm south of Acme's area of general operations. Excavate to a depth of 6 inches and backfill excavated areas. For aesthetic reasons, cover mound with topsoil and seed. Berm will be parabolic in shape and approximately 800 feet long, 40 feet in width, and 10 feet in height. Note that the figure provided with the proposal identifies significantly different dimensions.

- The berms will act as a natural surface water barrier and will contain PCB contaminated soil.

Response: U.S. EPA has evaluated the proposal and hopes that the Agency can work with Acme during the design process to meet the goal of the source control cleanup and, to the extent practical, accomodate Acme's operations. U.S. EPA is pleased that Acme is willing to excavate soil containing greater than 50 ppm total PCBs. However, U.S. EPA would like to note that TSCA regulates soils with contaminant levels equal to or greater than 50 ppm.

U.S. EPA supports the concept of consolidation. However, the movement of all areas of contamination is quite dramatic. The extent of consolidation (if any) and ultimate location of containment areas will be developed during remedial design, after the remedial response area is reconfigured to address

the change in the CUG requirement (from residential to occupational).

The dimensions and cover specified for the earthen berms proposed by Acme do not appear to be workable. The cleanup is meant to prevent the erosion of contaminated soils. The slopes of the earthen berms would be too steep to effectively control erosion, especially with a limited soil cover. The remedial design for the Acme site must include the erosion control cover specified in the ROD. A larger area of the Acme property will likely need to be allotted for containment of contaminated soil.

The proposal estimates that only 6 inches of soil will need to be excavated in areas of low-level contamination. The ROD assumes 1 foot of excavation. A re-evaluation of the data during remedial design and possible confirmatory sampling during remedial action will likely be needed to ensure contaminated soils have been addressed.

The evaluation of the source control properties and the preparation of SCRI and SCFS documents occurred over a period of years. U.S. EPA believes that had Acme been more actively involved in the Superfund process, its concerns could have been more readily addressed in the conceptual design of alternatives presented in the SCFS. Acme's involvement in the Remedial Design process is critical to the implementation of a Remedial Action that can accommodate Acme's continued operation at the site.

Comment #36
Mr. Bradley Schneider of ENCORE Environmental in Rochester, Michigan

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Mr. Schneider commented on the remedy selected for the Floodplains/Wetlands Site (Operable Unit #4) and recommends the addition of a bioremediation program. He asks that U.S. EPA contact his telemarketing specialist if there is interest in the services that ENCORE could provide.

Response: The remedy for the Floodplains/Wetland Operable Unit has already been selected. The inclusion of a bioremediation program to reduce PCB concentrations in soils and sediments does not seem warranted at this time for either the Floodplains/Wetlands or Source Control Operable Units.

Comment #37
Mr. Steven Kellat, Edgewood Senior High School

During the public meeting, Mr. Steven Kellat, a student at Edgewood Senior High School, provided an oral comment on the Proposed Plan for the Source Control Operable Unit. Mr. Kellat stated that he supports U.S. EPA recommendations. However, Mr. Kellat stressed that his

position was presented as an individual and does not represent the position of his school's Student Council unless ratified by said Student Council. Mr. Kellat also recommended that fences be properly constructed and routinely inspected and that U.S. EPA consider the use of guards during Remedial Action.

Response: U.S. EPA is pleased that Mr. Kellat supports U.S. EPA's recommendations for the site. Fencing will be required to restrict access to containment areas, and the inspection and upkeep of the fences will be required as part of site Operation and Maintenance (O&M). U.S. EPA will consider the use of guards during Remedial Action. However, it may not be necessary to add additional security since many of the companies involved already employ security guards for their facilities.

Comment #38
Mr. Donald R. Schregardus, Director of the Ohio Environmental Protection Agency

The Ohio Environmental Protection Agency (OEPA) does not agree with the overall risk management approach used at the Fields Brook site. In his comment letter, Mr. Schregardus states that, "source control remedies should be based on managing risk at each individual source area by following the usual process of evaluating risk by all appropriate pathways and developing cleanup goals based on site risk." The OEPA also does not support the way that potential source areas were screened relative to pathways of contamination to the Brook and how the source control cleanup was limited to those areas which could result in CUG exceedances in Brook sediment.

Response: The U.S. EPA has elected to limit the scope of the source control cleanup to those areas that could potentially recontaminate Fields Brook sediment. This was a practical decision. The Fields Brook Superfund Site is very large and complex. Expanding the Source Control OU cleanup beyond its current scope would be unwieldy and result in extensive delays in the Sediment and Floodplains/Wetlands cleanups.

The Remedial Investigation evaluated approximately 200 source areas and six areas were ultimately carried forward in the Source Control FS and this ROD for remediation to prevent recontamination of Brook sediment. Contamination is unfortunately all too common in industrial areas, and it is not reasonable to expect the Fields Brook Superfund action to prepare individualized risk assessments for each of the 200 source areas evaluated and to enforce and/or fund cleanups at all of these sites. The U.S. EPA believes that the scope of the Source Control OU cleanup is appropriate. Source control areas that would not result in Brook CUG exceedances should be handled independent of the Fields Brook Superfund action.