PROPOSED REMEDIAL ACTION PLAN (PRAP)
YORK OIL SUPERFUND SITE

SITE BACKGROUND

The 17-acre York Oil site is located in a rural area in northeastern New York State, in the Hamlet of Moira, Franklin County, New York (see Figure 1). It was used as a waste oil recycling facility from approximately 1964 to 1977. Crankcase and industrial oils, some containing PCBs, were collected from sources throughout New England and New York, then stored and/or processed at the site proper in eight above-ground storage tanks, a series of three earthern-dammed settling lagoons, and at least one below-ground storage tank. The recycled PCB-contaminated oil was either sold as No. 2 fuel oil or was used in dust control for the unpaved roads in the vicinity of the site.

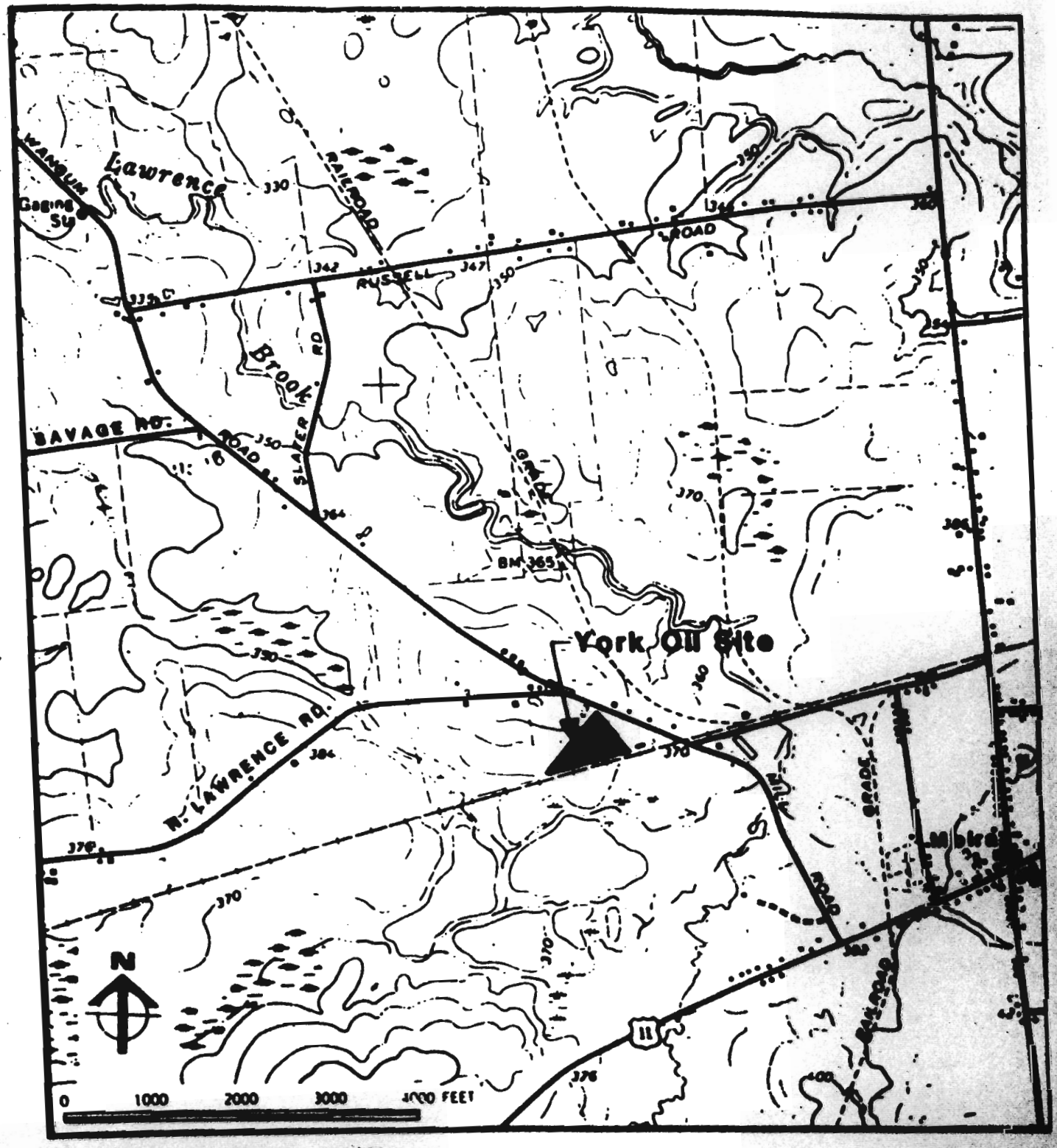
Because the PCB-contaminated oils were being washed from the site with the surface runoff, the Environmental Protection Agency undertook several emergency actions at the site since 1979: the lagoons were drained and the PCB-contaminated oil was transferred to the storage tanks (see Figure 2); the contaminated soils from the adjacent western strip of land were consolidated in lagoons 1 and 2 with kiln dust, sand and soils, and lagoon 3 was graded with soil and sand; oil seepage control operations were initiated utilizing drainage and interceptor trenches, weir/inverted pipe arrangements, sorbent pads and oil booms; and a six foot chain link fence was erected around the site to reduce the direct contact threat.

Current response actions involve periodic collection of surface oil in the drainage trench at the site proper and the changing of oil sorbent pads.

The surrounding area is predominantly wetlands and farmlands, however, several residents utilizing private wells are located adjacent to the site. Site runoff drains towards the wetlands west and south of the site, and to Lawrence Brook, which is stocked with trout.

SITE CONDITIONS

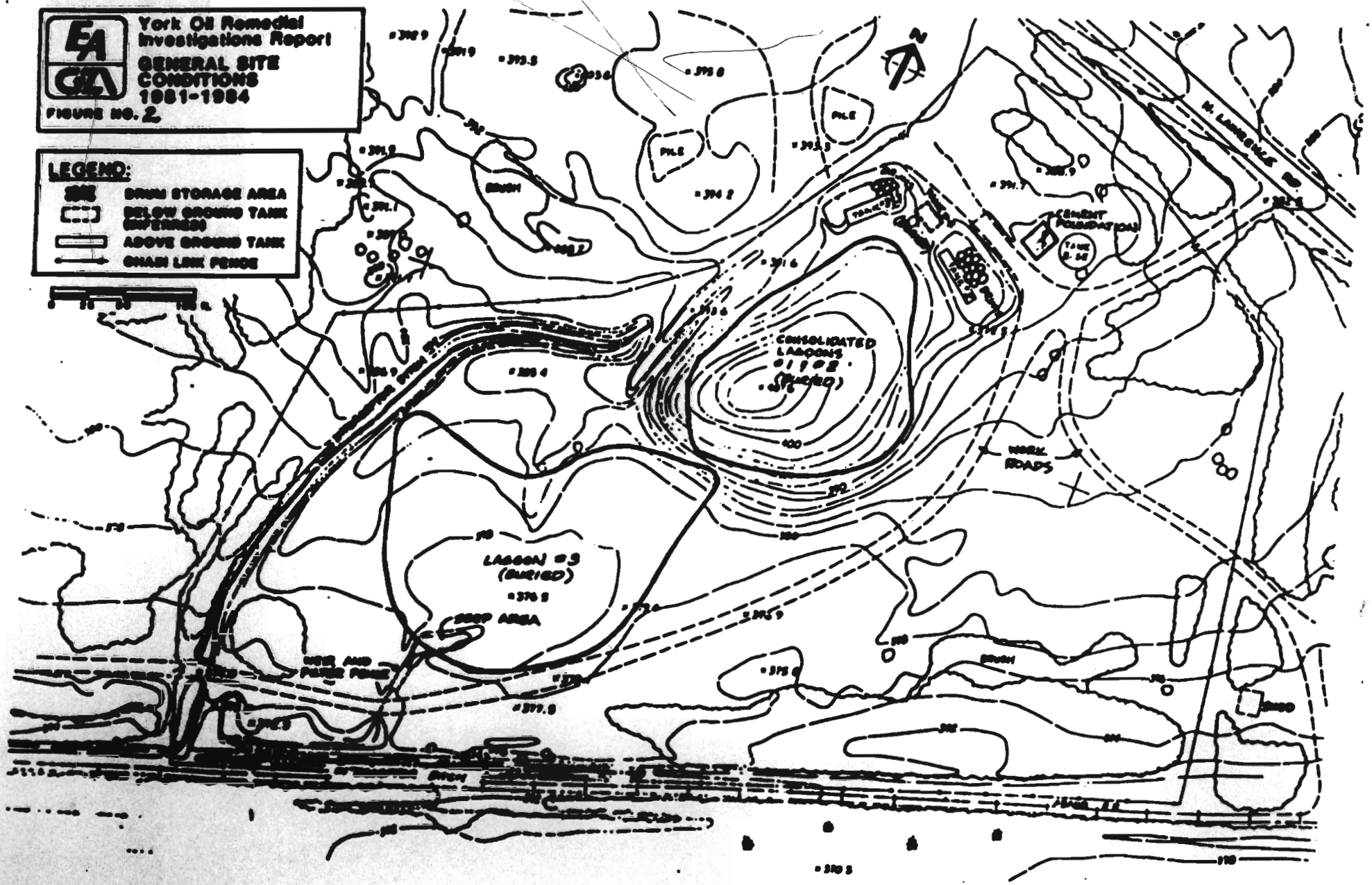
The site presently consists of two above-ground storage tanks containing approximately 25,000 gallons of PCB-contaminated oil, one graded unlined lagoon, and two consolidated unlined lagoons forming a mound approximately twenty-five feet high, containing PCB-contaminated soils and sludges, capped with kiln dust and sand. Approximately 30,000 cubic yards of contaminated soil are present at the site.



York Oil Remedial Investigations Report

LOCUS PLAN

FIGURE NO. 1


York Oil Remedial Investigations Report
GENERAL SITE CONDITIONS 1981-1984
FIGURE NO. 2
LEGEND:
DRUM STORAGE AREA
BELOW GROUND TANK (UNKNOWN)
ABOVE GROUND TANK
CHAIN LINK FENCE
CONSOLIDATED LAGOONS 1 / 2 (BURIED)
LAGOON #3 (BURIED)
SEEP AREA
CEMENT FOUNDATION
WORK ROADS
PILE
BRUSH
N. LANSDALE AVE.

The remedial investigation/feasibility study (RI/FS) prepared by the New York State Department of Environmental Conservation's (NYSDEC's) consultant, Erdman, Anthony, Associates (November 1987), indicates that the primary contaminants at the site are PCBs (maximum concentration of 230 ppm), heavy metals, including copper, lead (maximum concentration of 16,000 ppm) and zinc, volatile organics and total phenolics. These contaminants have been detected in oils in tanks, soils/sediments, surface waters and groundwater.

Soluble and insoluble contaminants at the site are migrating through the groundwater. Insoluble or floating contaminants (PCB-laden oil and volatile organics) were detected in the shallow water table monitoring wells and well points. The contaminant plume is concentrated around former lagoon #3 and is moving and spreading southwards towards the drainage trench along the abandoned railroad grade and the southern wetlands. The water soluble contaminants (total phenolics) are migrating southward. As they migrate, they tend to sink into the deeper groundwater sources.

The contaminant pathways from the site are primarily through surface water as overland flow to drainage paths and low lying areas, and through the groundwater, either as dissolved or floating contaminants, depending on their chemical nature.

There are thirteen residential wells located within one-half mile of the site, with the nearest being located approximately 300 feet from the northeast boundary of the site. None of these residential wells have been impacted by the site.

Based on the risk assessment that was conducted in the FS, the estimated health effects for the site under present conditions was evaluated. The assessment indicates that PCBs and lead pose the greatest hazard associated with soils and surface water ingestion and dermal absorption. The major hazard associated with ingesting groundwater is due to PCBs, cadmium, lead, arsenic and benzene.

PURPOSE OF THE PRAP

This document describes the preferred remedial action alternative to protect human health and the environment from exposure to contamination from the site. The preferred alternative has been developed by the U.S. Environmental Protection Agency (EPA). The PRAP also outlines all of the remedial alternatives evaluated in detail for the site, and offers the rationale used in making a preliminary selection. The preferred alternative is based on an FS report, which, based on existing data, develops and evaluates the various remedial alternatives.

The PRAP is being distributed to solicit public comments pertaining to the preferred alternative. Detailed information on any of the material included in the PRAP may be found in the RI/FS report. Additional documentation is available in the administrative record, which is located at the Moira Town Hall, as well as NYSDEC and EPA offices. Addresses for these repositories are listed below:

- Moira Town Hall
  North Lawrence Road
  Moira, New York

- New York State Department of
  Environmental Conservation
  Route 86
  Ray Brook, New York 12977

- U.S. Environmental Protection Agency
  Emergency and Remedial Response Division
  26 Federal Plaza, Room 747
  New York, New York 10278

COMMUNITY ROLE IN SELECTION PROCESS

EPA and NYSDEC rely on public input to ensure that the remedy selected for each Superfund site meets the needs of the local community with an effective solution to the problem.

To this end, the RI/FS report has been distributed to the public for a comment period which concludes on December 18, 1987. The PRAP is being provided as a supplement to this report. Written and verbal comments will be documented in the Responsiveness Summary section of the subsequent Record of Decision (ROD), the document which formalizes the selection of the remedy.

All written comments should be addressed to:

Daniel L. Steenberge, P.E.
New York State Department of
Environmental Conservation
Route 86
Ray Brook, New York 12977

It is important to note that the option described here is only the preferred alternative for the site. The final selection will be documented in the ROD only after consideration of all comments on any of the remedial alternatives addressed in the PRAP and the FS. A public meeting will be held at the Moira Town Hall, located on North Lawrence Road, on December 16, 1987 at 7:00 p.m., to present the conclusions of the FS and the proposed remedial alternative.

SCOPE OF THE OPERABLE UNIT

As is the case with many Superfund sites, the contaminants present at and around the York Oil site span a wide range of substances (PCBs, heavy metals and volatile organic compounds) and occur in the soils, sediments, oils, groundwater and surface water. The complexity of such a situation necessitates dealing with the contamination in discrete phases, referred to as operable units. Generally, the best understood areas are addressed in the first operable unit of a permanent remedy.

The preferred alternative focuses on controlling the source of contamination. A contamination pathways RI/FS is in progress to further define the extent of contamination migration from the site into the wetlands and other adjacent areas. NYSDEC and EPA anticipate releasing a proposed cleanup alternative for this operable unit of the site in the summer of 1988.

SUMMARIES OF REMEDIAL ALTERNATIVES

The Superfund law requires that each selected site remedy be protective of human health and the environment, cost-effective, and comply with statutory requirements. Permanent solutions to toxic waste contamination are to be achieved wherever possible, while treating wastes on-site and applying alternate innovative technologies.

The FS evaluated, in detail, seven options for addressing the contaminated soils, oils and groundwater at the York Oil site. These were:

1) No action
2) Slurry wall construction, installation of an interior perimeter drain and an impermeable cap
3) Construction of a french drain with hydraulic barrier, installation of groundwater extraction wells and an impermeable cap
4) Installation of an extraction well system and an impermeable cap
5A) Site excavation, on-site thermal treatment of contaminated soils, installation of groundwater extraction wells and surface grading
5B) Site excavation, on-site biological treatment of contaminated soils, installation of groundwater extraction wells and surface grading
5C) Site excavation, on-site solidification of contaminated soils, installation of groundwater extraction wells and surface grading

All of the above options, except for no-action, also include treatment of the collected groundwater and thermal treatment of the oils, followed by the cleaning and demolition of the tanks. (See Table 1 for a summary of the seven remedial alternatives).

Table 1 Remedial Alternatives Summary

Alternative Number	Components	Total Costs ($ x 10^6) Capital	O & M	Present Worth	Time to Implement from ROD	Time Until Full Protect. Is Achieved	Comments
1	No Action with Site Monitoring	0.3	1.1	1.3	6 mo.	Undetermined	Will not protect human health and environment.
CONTAINMENT OPTIONS							
2	Perimeter Slurry Wall, Interior Perimeter Drain, Lateral Drains Extending into Fill, Treatment of Collected Groundwater, Off-Site Thermal Treatment of Tank Oils, Cleaning and Demolition of Tanks, and an Impermeable Cap in Accordance with RCRA	5.1	1.7	6.8	3 yrs.	15 yrs.	Physically contains the site but does not capture deep plume (Doesn't meet ARARs). Boulders limit excav.
3	French Drain with Hydraulic Barrier Around the Site Except for Northwest Portion, Lateral Drains Extending into Fill, Deep Drawdown Wells, Treatment of Collected Groundwater, Off-Site Thermal Treatment of Tank Oils, Cleaning and Demolition of Tanks, and an Impermeable Cap in Accordance with RCRA	4.2	1.9	6.1	3 yrs.	15 yrs.	Hydraulically contains the site, however, drain provides limited oil recovery. High long-term O&M requirements.
4	Shallow and Deep Drawdown Well System, Treatment of Collected Groundwater, Off-Site Thermal Treatment of Tank Oils, Cleaning and Demolition of Tanks and an Impermeable Cap in Accordance with RCRA	2.3	1.8	4.1	3 yrs.	15 yrs.	Hydraulically contains shallow & deep plumes. Pumps collect excess amounts of clean water. O&M intensive.
TREATMENT OPTIONS							
5A	Site Excavation, On-Site Thermal Treatment of Soils and Tank Oils, Deep Drawdown Wells, Treatment of Collected Groundwater, Cleaning and Demolition of Tanks, On-Site Disposal of Residual Ash, and Surface Grading	15.0	0.5	15.5	3 yrs.	5 yrs.	Reduces toxicity and mobility. Destroys PCB and organics. Metals may inhibit process. Further treatment of ash may be required.
5B	Site Excavation, On-Site Biological Degradation of Soils and Tank Oils, Deep Drawdown Wells, Treatment of Collected Groundwater, Cleaning and Demolition of Tanks, On-Site Disposal of Treated Soil, and Surface Grading	13.0	0.5	13.5	3 yrs.	5 yrs.	Degrades most PCBs and organics but ineffective in degrading high chlorinated biphenyls.
5C*	Site Excavation, On-Site Solidification of Soils, Thermal Treatment of Oils, Deep Drawdown Wells, Treatment of Contaminated Groundwater, Cleaning and Demolition of Tanks, On-Site Disposal of Solidified Soil and Surface Grading	6.5	0.5	7.0	3 yrs.	5 yrs.	Reduces toxicity and mobility. Permanently immobilizes the waste. Protects human health & environment. Low O&M.

* Preferred Remedial Alternative.

PREFERRED ALTERNATIVE

Based on an evaluation of the no-action alternative, three site containment options (2, 3 and 4) and three treatment options (5A, 5B and 5C), EPA recommends Alternative 5C as the preliminary choice for the site remedy. This alternative will entail excavating approximately 30,000 cubic yards of contaminated soil and solidifying it in a mobile on-site treatment unit, and thermal treatment of the oils. The total present worth cost for the preferred alternative is approximately $7 million.

EPA's preference for excavation, on-site solidification of the soils and thermal treatment of the contaminated oils is based on a preliminary finding that this method protects human health and the environment, permanently reduces the toxicity and mobility of the waste, is cost effective and is consistent with other environmental laws.

RATIONALE FOR SELECTION

The criteria used to evaluate the final remedial alternatives are as follows:

- Protection of human health and the environment
- Compliance with legally applicable or relevant and appropriate requirements (ARARs)
- Reduction of toxicity, mobility or volume
- Short-term effectiveness
- Long-term effectiveness and permanence
- Implementability
- Cost

Each criterion will be briefly addressed, in order, with respect to the preferred alternative.

Protection of Human Health and the Environment

Except for the no-action alternative, all the alternatives evaluated are protective of human health and the environment to some degree. However, options 2, 3 and 4 only physically or hydraulically contain the contaminants at the site, thereby allowing some continued migration of PCBs and other contaminants into the groundwater and surface water. Thermal treatment of the soils (Alternative 5A) does not address the health risks associated with leaving heavy metal contamination in the ash.

Of the treatment options, solidification (Alternative 5C) permanently immobilizes the soils and eliminates any future leaching of both organic and inorganic contaminants. All threats associated with soils ingestion and dermal contact, and surface water runoff, would be eliminated.

Compliance with ARARs

The no-action alternative would result in the continued exceedance of both federal and state ARARs for groundwater beneath the site. The slurry wall option (Alternative 2) does not meet the State groundwater ARAR for phenols, since the deep extraction wells are absent from this option. Alternatives 3 and 4 satisfy both the State groundwater ARAR for phenols, as well as the Resource Conservation and Recovery Act (RCRA) Part 264.310 requirements for closure of hazardous waste landfills.

The site excavation options will comply with all federal and state requirements concerning potential air emissions (particulates and volatiles) during the excavation of contaminated soils and sludges. Thermal treatment of the oils at the site would comply with all the applicable requirements of Part 264 Subpart O of RCRA (Subpart O specifies design requirements for operation of hazardous waste incinerators) and Part 761.70 of the Toxic Substances Control Act which specifies requirements for incineration of PCBs.

Discharge of the treated groundwater into the wetlands will comply with the State Pollutant Discharge Elimination System requirements.

Reduction of Toxicity, Mobility or Volume

Solidification will permanently immobilize the soil/waste matrix, thereby eliminating any associated toxicity due to the contaminants. Any future leaching of contaminants will also be eliminated by this option. The oils from the site will be destroyed via thermal treatment. Thermal and biological treatment of the soils will destroy the PCBs and organics, however, the toxicity associated with the heavy metals will remain unchanged.

The no-action alternative will not result in a reduction of either the toxicity, mobility or volume of the waste. The containment options will result in some toxicity and mobility reduction, however, the volume of waste material will not be reduced. The volume of waste material will not be affected by either thermal or biological treatment. With solidification, however, the volume of waste material would likely increase, but not substantially.

Short-Term Effectiveness

The no-action alternative provides a high degree of protection over the short-term, since the only short-term construction activities with this alternative is the installation of additional groundwater monitoring wells for long-term site monitoring. The estimated time to implement the no-action alternative is six months from the signing of the ROD.

Alternatives 2 and 3 require limited excavation of the soils and the installation of a slurry wall and french drain, respectively. Excavation could result in short-term air emissions and installation difficulties due to large boulders at the site. Both alternatives provide limited recovery of contaminated oils due to the low porosity of the soils.

Alternative 4 provides a greater degree of protection over the short-term than Alternative 2 and 3, since only deep and shallow drawdown wells would be installed, thereby not requiring soil excavation. However, excessive amounts of clean groundwater would be collected and oil recovery via the pumping system would be limited. Installation of an impermeable cap (Alternative 2, 3 and 4) would increase the short-term air emissions due to the grading of the mound at the site.

The three treatment options (Alternative 5A, 5B and 5C) require excavation, thereby increasing the short-term risk from air emissions. Thermal treatment may result in air emissions, however, as noted above, strict measures would be implemented to ensure that such emissions would not be harmful to human health and the environment.

The time to implement each remedial option, except for the no-action, is approximately three years from the signing of the ROD.

Long-Term Effectiveness

Over the long-term, the on-site treatment options provide essentially equivalent protection to the local community, since the residuals are not expected to pose a hazard from a health perspective. However, the long-term effectiveness of thermal treatment to destroy the organics and to fuse the high concentration of lead into the residual ash as a non-leachable form is questionable at this time. Further treatment of the ash may, therefore, be required.

The residuals would be analyzed according to the extraction procedure toxicity test and/or the toxicity characteristics leaching procedure to determine the effectiveness each treatment procedure has in rendering the material into a non-leachable form.

Each alternative, except the no-action and slurry wall options, is designed to clean-up the deep phenolics groundwater contamination within three years of pumping.

The treatment options achieve full protection of human health and the environment, with minimal O&M, within five years from the signing of the ROD, while the containment options require a high degree of O&M and take approximately fifteen years to achieve full protection. Alternatives 2, 3 and 4 only contain the wastes while Alternatives 5A, 5B and 5C treat the wastes, resulting in a permanent remedy for the site.

The containment options, once implemented, need to be evaluated every five years to ensure their continued effectiveness. The no-action alternative provides minimal long-term effectiveness.

Implementability

Each alternative evaluated is technically feasible, however, each treatment option would require a treatability study to determine the optimal conditions to render the residuals in a non-leachable form. The effectiveness of thermal treatment to fuse the metals in the ash without further treatment of this material has not been demonstrated at this time. Frequent monitoring of residuals during operations is needed to ensure the system effectiveness and reliability.

The severe winter weather conditions would limit the construction season for each alternative and would result in hampered maintenance operations, especially with the containment options. Due to the decreased winter temperatures, both solidification and biological treatment may require additional precautions to maintain optimal reaction rates.

Cost

While comparing treatment alternatives 5A, 5B and 5C which result in the same degree of remediation, solidification of the soils has been identified as the most cost-effective alternative. The total present worth cost for these options, range from approximately $7 million for solidification to $15 million for thermal treatment. The $15 million cost estimate for thermal treatment of the soils does not include the additional costs that would be required if further treatment of the ash is needed.

The containment options (Alternatives 2, 3 and 4) vary from approximately $4 million to $7 million, but do not provide a high degree of protection to human health and the environment.

A more detailed analysis of these points may be found within the RI/FS which is available for review at the previously named repositories.