PROPOSED PLAN
LASKIN POPLAR OIL SITE
JEFFERSON, OHIO

Statement of Purpose

The United States Environmental Protection Agency (U.S. EPA) has completed the overall Feasibility Study (FS) for the Laskin Poplar Oil site in Ashtabula County, Jefferson, Ohio. The purpose of the proposed plan is to summarize the remedial alternatives evaluated in the FS, present the agency's preferred remedial alternative, and solicit public review and comment on all alternatives in the FS.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 117 (a) requires U.S. EPA to invite public comment on all the alternatives presented in the Feasibility Study and the proposed plan, and provide an opportunity for public participation prior to the final selection of the remedial alternative. The Remedial Investigation report dated December 1988, and the Feasibility Study dated April 1989, are available for public review at either of the repositories listed below. These documents are the primary sources of information about the site and should be referred to for detailed information on site conditions (RI) and the remedial alternatives analyzed (FS).

County Disasters Services Offices
Ashtabula County Courthouse
25 W. Jefferson Street
Jefferson, Ohio 44047

Ashtabula County District Library
335 W. 44th Street
Ashtabula County, Ohio 44004

The Proposed Plan represents U.S. EPA's preferred alternative based on available information, but is not a final decision. Changes to the preferred alternative, or a change from the preferred alternative to another alternative may be made if public comment or additional data indicate that a modified or different alternative would provide a better balance of the evaluation criteria.

Site History and Description

The Laskin Poplar site occupies 9 acres and is located in Ashtabula County, Ohio. The site is currently owned and occupied by Mr. Alvin Laskin. The site contains several boilers, greenhouses, 34 tanks, 4 oil pits, 4 ponds and miscellaneous sheds and buildings. See site map Figure 1. The Laskin Poplar Oil site operated a greenhouse about 80 years ago. Boilers were installed to heat the greenhouse 30 years ago. During the 1960's, tanks were installed to hold waste oil to fire the boilers. The waste oil contained PCBs and other hazardous constituents. When the greenhouse business declined, the owner began the re-sale of waste oil. Several storage pits and tanks were installed to collect waste oil. In 1977, the U.S. EPA and Ohio EPA identified PCBs in the waste oil. In 1981 a court order stopped activities at the Laskin Poplar Oil Company. In

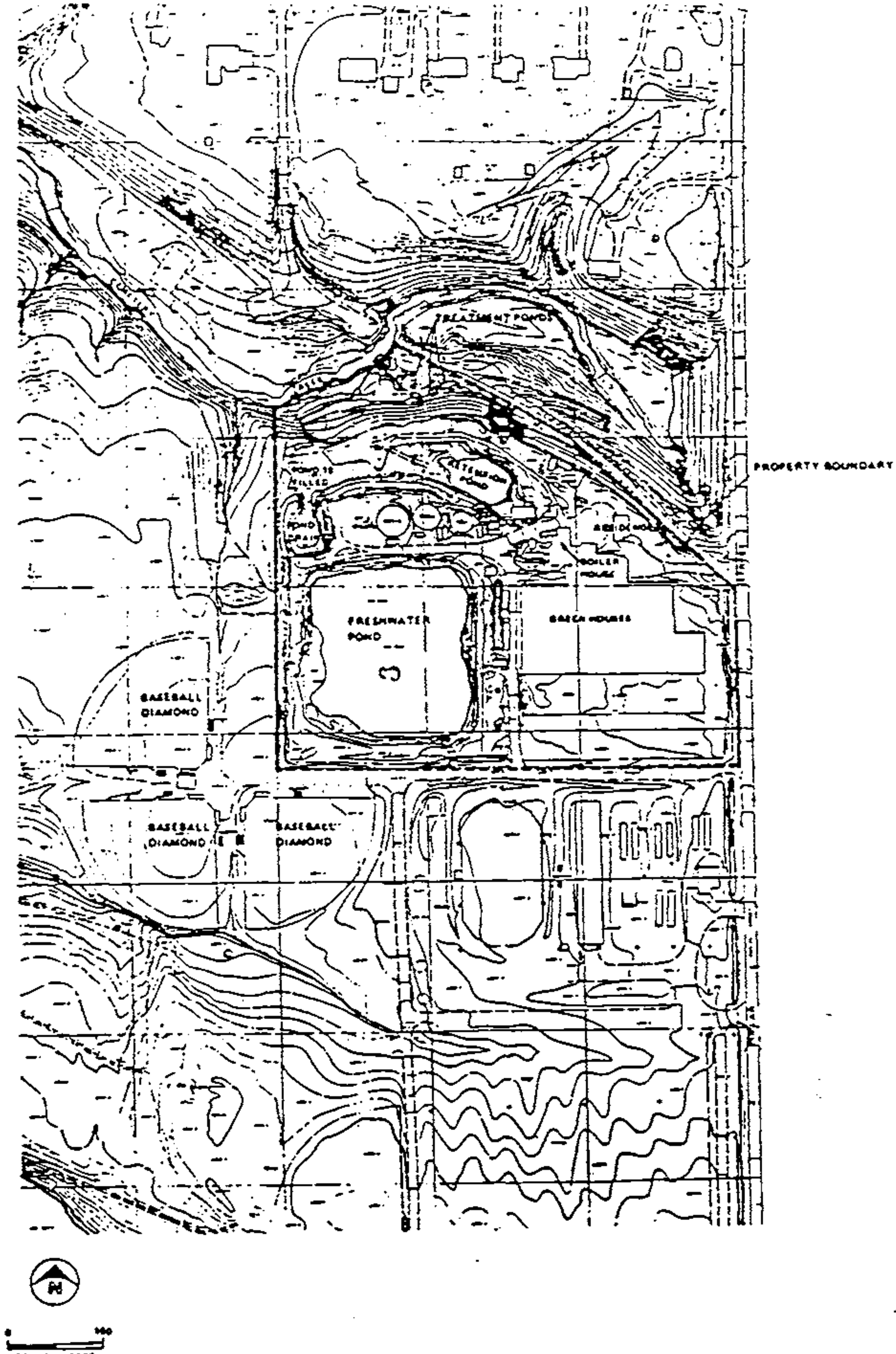

FIGURE 1
SITE MAP

1983, the site was placed on U.S. EPA's Superfund National Priorities List (NPL) of uncontrolled hazardous waste sites. U.S. EPA is the lead agency responsible for managing the investigation and remediation of the Laskin Poplar Oil site. Ohio EPA is the support agency for the LPO Superfund activities.

Scope and Role of Final Response Action

This proposed plan addresses the final remedy at the site and will be the second of two remedial actions planned at the site. The first remedial action is currently in the design phase and is being performed by the potentially responsible parties (PRPs) in compliance with the Administrative Unilateral Order issued in 1986. The first response action addresses removal of tanks, pits, and incineration of waste oil, sludge, and saturated contaminated soils. The final remedial action will address the residual soil contamination and groundwater at the site. A summary of the response actions and results of the remedial investigation are discussed below in the following sections.

Summary of Response Actions

In early 1981, U.S. EPA conducted a site investigation at the site and detected PCBs in groundwater and soils. In 1981 and 1982, U.S. EPA performed several emergency actions at the site. The emergency actions included the following: two ponds, 18 and 19, were drained and regraded; surface runoff was diverted to a retention pond to prevent flooding; 302,000 gallons of waste was removed and taken to an off-site incinerator; 430,000 gallons of contaminated surface water was treated and discharged off-site; and 205,000 gallons of sludge was solidified.

Remedial investigation activities were conducted during December 1983 through November 1984. Activities included sampling of soils, sediments, surface water, boiler and smokestack, installation of monitoring wells, and sampling of groundwater. The activities were part of the Phase 1 Remedial Investigation at the site. During the winter of 1985-1986, the potentially responsible parties (PRPs) removed approximately 250,000 gallons of waste oil and waste water, in response to an Administrative Order issued in August 1984.

A second administrative order was issued to the PRPs in late 1986, to develop a work plan to address the storage pits, tanks and their contents, and soils surrounding the pits and tanks. A third administrative order issued in February 1988 ordered the PRPs to incinerate the materials in the pits, tanks, and a portion of the most heavily contaminated soil. The PRPs are currently developing a design for U.S. EPA's review and approval of this work.

A Phase II remedial investigation was conducted in fall and winter of 1987-1988. Work included geophysical studies; bathymetric surveys; installation of monitoring wells, sampling of groundwater, surface water, soils and sediments. The results of the remedial investigation are discussed in the following section.

Results of U.S. EPA's Remedial Investigation

The key findings of the Remedial Investigation are summarized below.

Groundwater

The nature and extent of groundwater contamination was defined at the site. The study identified two aquifers beneath the site that flow north towards the Cemetery Creek. The shallow aquifer is composed of combined fill/till and broken shale. The deeper aquifer is characterized by unbroken shale. The two aquifers appear to be poorly connected meaning there is little flow from the shallow aquifer into the deeper aquifer.

Groundwater contamination was detected in the shallow aquifer beneath pond 19. Halogenated alkanes, ketones, and polynuclear aromatic hydrocarbons (PAHs) were detected in the shallow aquifer. The buried sludge in pond 19 is probably the greatest source of groundwater contamination. Groundwater in the deeper aquifer does not appear to be contaminated. Analytical results indicate that neither the residential wells nor the Cemetery Creek have been affected by site groundwater contamination.

Surface Water and Sediment Contamination

Surface water analytical results from the on-site retention pond and fresh water pond did not observe contaminant concentrations above any water quality standards. Sediment samples from the ponds are contaminated with PAHs, polychlorinated byphenyls (PCBs), benzene, toluene, and xylenes.

Surface water samples from Cemetery Creek did not detect any hazardous substance listed (HSL) contaminants. However, sediments in the creek were contaminated with PAHs both upstream and downstream, which suggests that the contaminants do not come from the Laskin Poplar Oil site.

Soil Contamination

Soil contamination is present throughout the site, with PAHs and PCBs being the most prevalent contaminants. The areas of highest soil contamination are near the pits, ponds 18 and 19, and the retention pond. The highest concentration occur at the pit bottoms, 15 to 25 feet, and continues to a depth of approximately 40 feet. Lead was also detected in soils near the pit area of the site.

Numerous off-site samples were also taken to establish background levels and contaminant migration. Results did not indicate that off-site soils have been affected by site activity.

Structures

Soil and ash samples from the boiler house floors, boilers, and smoke stack are contaminated with PAHs, PCBs, dioxin, and inorganic compounds, primarily lead and zinc. It is assumed that the boiler house itself is also contaminated with similar compounds, including dioxin resulting from operations of the boiler house.

Analytical results from the greenhouse soils are contaminated primarily with PAHs and pesticides. The pesticides may be attributed to previous greenhouse operations rather than site activity.

Summary of the Risk Assessment

U.S. EPA conducted a risk assessment to determine if the site poses potential effects on public health and the environment. The study concluded that the site could pose a significant risk to human health through direct contact with incidental ingestion or inhalation of on-site contaminated soils and media inside the boiler house, and ingestion of contaminated groundwater. The adverse potential risks associated with the site are summarized below:

- Trespassers in the boiler house could be exposed to PCDD/PCDF that yield an excess cancer risk of $2x10^{-4}$. Boiler house soils have levels of lead 400 times greater than the reference dose.

- Trespassers in the greenhouse could be exposed to an excess lifetime cancer risk of $4x10^{-7}$ to $3x10^{-7}$ due to PAHs and dieldrin.

- Trespassers on-site could be exposed to surface soils with PAHs, PCBS, and PCDD/PCDF that could yield an excess lifetime cancer risk of $7x10^{-6}$.

- Future site residents could be exposed to PAH and PCB contamination that yields an excess lifetime cancer risk of $2x10^{-3}$ to $7x10^{-5}$ based on contaminants in soils found at 0 to 2 feet and $2x10^{-3}$ to $1x10^{-4}$ based on contaminants in soils present at 0 to 14 feet.

- Although there are mechanisms for the release of contaminants to Cemetery Creek, the potential exposures do not appear to pose an unacceptable risk. Based on concentrations projected at the creek, trespassers are at an excess cancer risk level less than $4x10^{-8}$, and releases of groundwater into Cemetery Creek do not exceed any Federal or State water quality criteria standards.

- Contact with sediments from the retention pond has an excess cancer risk level of $3x10^{-5}$ due to PAH and PCB contamination.

- There are no current exposures associated with groundwater, but if residential wells were installed on-site, residents would be exposed to a excess lifetime cancer risk ranging from $2x10^{-2}$ to $1x10^{-6}$.

Summary of Remedial Action Goals

Site specific goals to mitigate potentially adverse effects resulting from unacceptable exposure conditions at the site are listed below:

Groundwater

- Prevent human consumption of contaminated groundwater that exceeds an excess lifetime cancer risk of $1x10^{-4}$ to $1x10^{-7}$ and non-carcinogenic total hazard index greater than 1.
- Prevent contaminated groundwater from endangering aquatic life in Cemetery Creek and exceeding water quality criteria.

Soil

- Prevent direct contact with incidental ingestion or inhalation of contaminated soil or sediment that exceed an excess lifetime cancer risk of $1x10^{-4}$ to $1x10^{-7}$ and non-carcinogenic total hazard index greater than 1.

- Prevent off-site migration of contaminated soils or sediments and prevent degradation of the aquifer by leachate of contaminated soil or sediments.

Boiler House Soil/Ash and Smokestack Ash

- Prevent direct contact with incidental ingestion or inhalation of carcinogens in the Boiler house ash and soil that exceed an excess lifetime cancer risk of $1x10^{-4}$ to $1x10^{-7}$, non-carcinogenic total hazard index, and /or PCDD and PCDF contamination in excess of 1 ppb of 2,3,7,8 TCDD equivalents.

- Prevent off-site migration of contaminated soils or sediments and prevent degradation of the aquifer by leachate of contaminated soil or sediments.

Dioxin Contaminated Structures

- Prevent direct contact with ingestion/inhalation of carcinogens adhered to surfaces of structures and equipment in the boiler house or stack exceeding an excess lifetime cancer risk of $1x10^{-4}$ to $1x10^{-7}$, PCDD and PCDF contamination in excess of 1 ppb of 2,3,7,8 TCDD equivalents, and/or non-carcinogenic total hazard index of 1.

Alternatives Analyzed in the Feasibility Study

U.S. EPA developed an array of alternatives for addressing contamination at the Laskin Poplar Oil site. The remedial alternatives were evaluated based on their effectiveness in protecting human health and the environment;

compliance with Federal and State environmental regulations, short and long-term effectiveness, reduction of toxicity, mobility, and volume; technical feasibility and implementability; and cost. The remedial alternatives considered by U.S. EPA are briefly described below.

Alternative 1 - No Action

U.S. EPA is required to evaluate a "No Action" alternative. Under this alternative, there would be no further site remediation performed beyond the waste materials addressed in the Source Removal Operable Unit. No additional costs would be incurred beyond the source removal action.

Alternative 2 - Soil Cover

This alternative constitutes a containment option. The components are as follows:

- o Drain retention and freshwater ponds. Back fill fresh water pond with clean soil material. Retention pond will be re-graded and shielded by the soil cover.
- o Discharge surface water from ponds to Cemetery Creek.
- o Regrade site with clean fill and allow proper re-vegetation and drainage.
- o Demolish and contain dioxin contaminated structures, soil, ash, and debris in a concrete vault on-site and place beneath the soil cover.
- o Install a 2 foot clean soil cover to contain all soils in exceedance of 10^{-6} excess lifetime cancer risk levels and total hazard index of 1. The soil cover would prevent direct contact with contaminated soils.
- o Conduct groundwater monitoring to assess quality of groundwater migrating towards Cemetery Creek.
- o Conduct surface water monitoring to assess quality groundwater of discharging into Cemetery Creek.
- o Recommend temporary relocation for on-site resident.
- o Impose access and deed restrictions.
- o Estimated Total Cost: $ 4,700,000
- o Estimated time to complete: 1 year

Alternative 3A - Cap, Groundwater Control, and Thermal Treatment of Dioxin Contaminated Material

This alternative has the same components as alternative 2 with the exception of the following:

- o Multi-layer cap instead of a soil cover over soils in exceedance of 10^{-6} excess lifetime cancer risk levels and total hazard index of 1. The cap would minimize rainfall infiltration through contaminated soils and leachate into groundwater.
- o Groundwater diversion trench located up-gradient from contaminated soil and groundwater.
- o De-watering and natural discharge of on-site groundwater to Cemetery Creek.
- o Incinerate dioxin contaminated soil, ash, and debris. Place residue ash beneath cap if ash is delistable. If ash is not delistable, ash would be disposed off-site to a RCRA hazardous waste landfill. Off-site disposal would cost an additional $ 120,000. The total cost for this alternative assumes the ash will be delistable.
- o Decontaminate dioxin contaminated structures and dispose in an off-site sanitary landfill. Those materials which cannot be decontaminated or thermally treated would be placed in an on-site concrete vault.
- o Estimated Total Cost: $ 11,000,00 (Assumes ash is delistable.)
- o Estimated time to complete: 2 years

Alternative 3B - Cover, Groundwater Collection and Treatment, and Thermal Treatment of Dioxin Contaminated Material

This alternative has the same components as alternative 3A with the exception of the following:

- o Soil cover instead of multi-layer cap, allowing surface water infiltration through the subsurface soils.
- o Groundwater collection trench located down-gradient of site rather than a diversion trench up-gradient from the site.

- o On-site treatment of collected groundwater and discharge to Cemetery creek.
- o Estimated Total Cost: $ 11,000,000 (Assumes ash is delistable.)
- o Estimated time to complete: 2 years

Alternative 4A - Cap, Groundwater Control, and Thermal Treatment of 10^{-3} Soils and Dioxin Contaminated Material

This alternative has the same components as alternative 3A with the addition of the following:

- o Incinerate soils that exceed the 10^{-3} excess cancer risk levels, approximately equivalent to 3,000 cubic yards (c.y.).
- o Dispose of ash beneath cap assuming ash passes U.S. EPA's hazardous waste delisting criteria and rendered non-hazardous.
- o If ash does not pass U.S. EPA's delisting criteria due to the lead content in soils, then dispose of ash in an off-site RCRA hazardous waste facility. Off-site disposal costs would increase the total cost of this alternative by approximately $1,200,000.
- o As in alternative 3, ash resulting from the incineration of dioxin contaminated soil, ash, and debris may require disposal to an off-site RCRA hazardous waste facility. Off-site disposal would cost an additional $ 120,000.
- o Estimated Total Cost: $ 13,000,000 (Assumes ash is delistable.)
- o Estimated time to complete 2 years

Alternative 4B - Cover, Groundwater Collection and Treatment, and Thermal Treatment of 10-4 Soils and Dioxin Contaminated Material

This alternative is the same as alternative 4A except for the following:

- o Soil cover instead of a multi-layer cap.
- o Groundwater collection trench instead of a groundwater diversion trench.

- o On-site treatment of groundwater and discharge to Cemetery Creek.
- o Estimated Total Cost: $ 13,000,000
  (Assumes ash is delistable.)
- o Estimated time to complete: 2 years

Alternative 5A - Cap, Groundwater Control, and Thermal Treatment of 10^{-4} Soils and Dioxin Contaminated Material

This alternative is the same as alternative 4A except that a greater volume of soil, approximately 37,000 c.y. equivalent to the 10^{-4} excess cancer risk level will be treated.

- o This alternative assumes that all the ash in delistable and can be disposed on-site beneath the cap.
- o Approximately 6,000 c.y. of residue ash has the potential of not passing U.S. EPA's delisting criteria due to the lead content in soils. In such case, the residue ash would have to be disposed in an off-site RCRA hazardous waste facility. Off-site disposal could increase the total cost of the alternative by $2,400,000
- o Estimated Total Cost: $ 33,000,000
  (Assumes the ash is delistable.)
- o Estimated time to complete 3 years

Alternative 5B - Cover, Groundwater Collection & Treatment, and Thermal Treatment of 10-4 Soils and Dioxin Contaminated Material

This alternative is the same as alternative 4B except that a greater volume of soil about 37,000 c.y. will be treated.

- o As in alternative 5A, 6000 c.y. of ash may require off-site disposal at an additional cost of $2,4000,000.
- o Estimated Total Cost: $ 33,000,000
  (Assumes the ash is delistable.)
- o Estimated time to complete: 3 years

<u>Alternative 6 - Thermal Treatment of 10-6 Soils and Dioxin Contaminated Material</u>

This alternative would incinerate all soils exceeding the 10^{-6} excess cancer risk level, equivalent to approximately 57,000 c.y. The components of this alternative are as follows:

- o No soil cover or multi-layer cap.
- o Drain retention and fresh water ponds and back fill with clean soil material.
- o Discharge surface water from ponds to Cemetery creek.
- o Remove and incinerate all soils exceeding the 10^{-6} excess cancer risk level, approximately 57,000 c.y.
- o Back fill ash on-site assuming ash is delistable and rendered non-hazardous.
- o If ash is not delistable, then ash would be disposed in an off-site RCRA hazardous waste facility. As in alternative 4 approximately 6,000 c.y. of residue ash has the potential of failing U.S. EPA's delisting criteria for Extraction Procedure Toxicity Test due to the lead content in soils. However, an additional 9000 c.y. of residue ash has the potential of exceeding the standard for direct contact and incidental ingestion for lead. Thus 9,000 c.y. of ash may require containment or off-site disposal. This alternative does not provide a cover, therefore off-site disposal would be required for the ash. The off-site disposal of about 15,000 c.y. of residue ash would increase the total costs of this alternative by approximately $6,000,000.
- o Incinerate dioxin contaminated soil, ash, and debris, and dispose on-site, assuming ash is delistable. If ash is not delistable, dispose in an off-site RCRA hazardous waste facility at an additional cost of $120,000.
- o Decontaminate dioxin contaminated structures and dispose in off-site sanitary landfill. Those materials which can not be decontaminated would be disposed in an on-site concrete vault and capped in accordance to RCRA storage requirements of hazardous waste.
- o Regrade site with clean material and allow proper site re-vegetation and drainage.

- o No groundwater diversion or collection trench. Groundwater encountered or collected during excavation of soils would be treated and discharged to Cemetery Creek.

- o Unrestricted groundwater discharge towards Cemetery Creek.

- o Groundwater and surface water monitoring to assess quality of groundwater discharging into Cemetery Creek.

- o Deed restrictions until dioxin contaminated material in vault is removed for treatment.

- o Estimated Total Cost: $ 42,000,000
  (Assumes the ash is delistable.)

- o Estimated time to complete: 4 years

The estimated total present worth of the alternatives above do not take into account the planned activities from the Source Removal activity currently under design by the PRPS. Significant cost savings can be made if the planned incineration of the waste oils, sludge, and saturated soils take place at the same time the final remedial alternative is implemented. The total costs for alternatives 3 through 6 which involve thermal treatment of soils and dioxin contaminated material, can be reduced by approximately $ 3 to $ 4 million. The reduction in cost is based on site preparation, mobilization, and demobilization of the incinerator.

EPA's Nine Evaluation Criteria

The following nine evaluation criteria are used to the extent possible, to evaluate alternatives in the Feasibility Study and select U.S. EPA's preferred alternative for the Laskin Poplar Oil site.

- o **Overall Protectiveness:** A measure of how well an alternative protects human health and the environment by eliminating, reducing, or controlling exposures from unacceptable risks posed by hazardous substances.

- o **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs):** This criteria assesses whether an alternative attains Federal and State environmental and public health regulations. This criteria also considers advisories or other guidelines that may pertain to site specific cases.

- o Long-term Effectiveness and Performance: A measure of the performance, reliability, and management of an alternative long after the alternative is constructed and in place.
- o Reduction of Toxicity, Mobility, or Volume: The degree to which an alternative uses treatment technologies which reduce the toxicity, mobility, or volume of the hazardous substances which pose the principal threats of the site.
- o Short-term Effectiveness: Assesses the impacts to the local community, environment, and workers during the construction and implementation of the alternative.
- o Implementability: Addresses the technical and administrative feasibility of an alternative. This criteria considers the availability, operation, and the degree of difficulty of the technology and use of equipment.
- o Cost: Assesses the capital, operation and maintenance costs associated with an alternative.
- o State Acceptance: Relates the State's position and key concerns regarding the preferred alternative, and the application or waivers of State ARARs.
- o Community Acceptance: Assesses the community's preference, concerns, or support of the proposed alternative. This assessment can not be completed until after the community has commented on this proposed plan.

Identification of U.S. EPA's Preferred Alternative

Based on the findings of the Remedial Investigation and Feasibility Study and the evaluation of the nine criteria for the Laskin Poplar Oil site, U.S. EPA recommends Alternative 3A Cap, Groundwater Control, Thermal Treatment of Dioxin Contaminated Material, as the preferred alternative.

Alternative 3A represents the best balance among the evaluation criteria and satisfies the statutory requirements of protectiveness, compliance with ARARs, cost-effectiveness, and utilization of permanent solutions and treatment to the maximum extent practicable.

Alternative 3A provides treatment of dioxin contaminated material. While this treatment may not be considered a primary component of alternative 3A, the principal threat of the Laskin Poplar Oil site is being addressed with the thermal treatment of waste oils, sludge, and saturated soils in the source control operable unit.

Description of U.S. EPA's Preferred Alternative

Alternative 3A addresses all public health and environmental threats posed by contaminated media at the site. The retention and freshwater ponds would be drained and surface water would be discharged to Cemetery Creek. Contaminated soils from the greenhouse, approximately 500 c.y. would be

consolidated with approximately 57,000 c.y. of contaminated soils that exceed 10^{-6} excess cancer risk and total hazard index of 1.0. The contaminated soils would be contained beneath a soil geomembrane multi-layer cap approximately 3.5 acres in size.

Groundwater flowing towards the site would be diverted to Cemetery Creek. A diversion trench would be constructed up-gradient of the capped area, providing for eventually dewatering of the aquifer underneath the site. The trench would consist of a biodegradable slurry lined with a geotextile filter. The trench would be approximately 1,170 feet long, and excavated to a depth ranging between 26 and 40 feet. The trench would be back filled with gravel to a depth of about 5 feet within the existing ground surface. The groundwater diversion trench in conjunction with the multi-layer cap would minimize future generation of contaminated groundwater.

Alternative 3A proposes to incinerate approximately 300 c.y. of dioxin contaminated material. The dioxin contaminated material would be in addition to the existing volume of contaminated material to be incinerated in the source removal operable unit. The ash would be placed beneath the cap. The placement of ash beneath the cap assumes that the ash would pass U.S. EPA's delisting criteria which documents rendering the waste non-hazardous. If the ash does not pass such criteria, the ash would be disposed off-site in a RCRA hazardous waste facility.

Dioxin contaminated debris that can not be decontaminated or treated, would be dismantled and placed in a concrete vault. The concrete vault would have to contain approximately 600 c.y. of material and would be placed beneath the cap. Containment of these materials would be temporary until treatment or disposal technologies become available for dioxin materials.

Stringent health and safety measures will be taken due to the heavy equipment and intense clean-up operations during construction of the remedial alternative. Therefore, U.S. EPA recommends that on-site residents relocate to an area away from site operations during construction and operations of the remedial alternative.

Restrictions on groundwater use for drinking water purposes would be placed on the LPO site. Currently there are no residential wells located on the strip of land between the LPO site and Cemetery Creek. Although groundwater beneath the area between the LPO site and Cemetery Creek is not contaminated, groundwater should not be used for drinking water. After the site is de-watered, there will be essentially no groundwater available for any purpose.

Regrading would be necessary prior to capping the site. Deed restrictions would be placed on future use of the site to maintain the integrity and performance of the remedial alternative. Groundwater monitoring would be conducted to assess the quality of groundwater reaching Cemetery Creek. Surface water monitoring will be performed to compare results with groundwater monitoring data to assess the discharge into Cemetery Creek during the de-watering phase. Once the site is de-watered, groundwater monitoring needs could be minimized.

The total estimated present worth of alternative 3A is $ 11,000,000 which includes an annual operation and maintenance present worth of approximately $1,000,000. These costs are based on a present worth value of 30 years and discount rate of 5%. Based on the assumption that an incinerator would be operating on-site prior to the implementation of this alternative, the estimated actual present worth of alternative 3A is less than $ 11,000,000. The costs associated with site preparation, mobilization, and demobilization for the incinerator range between $ 3,000,000 and $ 4,000,000. The burning of the dioxin material would be about $ 400,000. In conclusion, if the incinerator is already operating and could be used in the final remedial action, the total estimated present worth for alternative 3A could be $ 7,000,000 to $ 8,000,000. The estimated time to complete alternative 3A is 2 years. Figure 2 displays the components of Alternative 3A.

Evaluation of U.S. EPA's Preferred Alternative

All alternatives presented in the Feasibility Study were evaluated based on the nine criteria evaluation. An analysis of the preferred alternative compared to other alternatives and the evaluation criteria is provided below.

Overall Protectiveness

Alternative 1 No Action does not provide adequate protection to human health and the environment. Alternative 2 is protective by preventing exposure to contaminated media but allows further groundwater contaminant generation and migration. These alternatives can be ruled out from further consideration since they do not provide adequate protection of human health and the environment. All the remaining alternatives are protective of human health and the environment, although through different combinations of treatment, containment, and institutional controls.

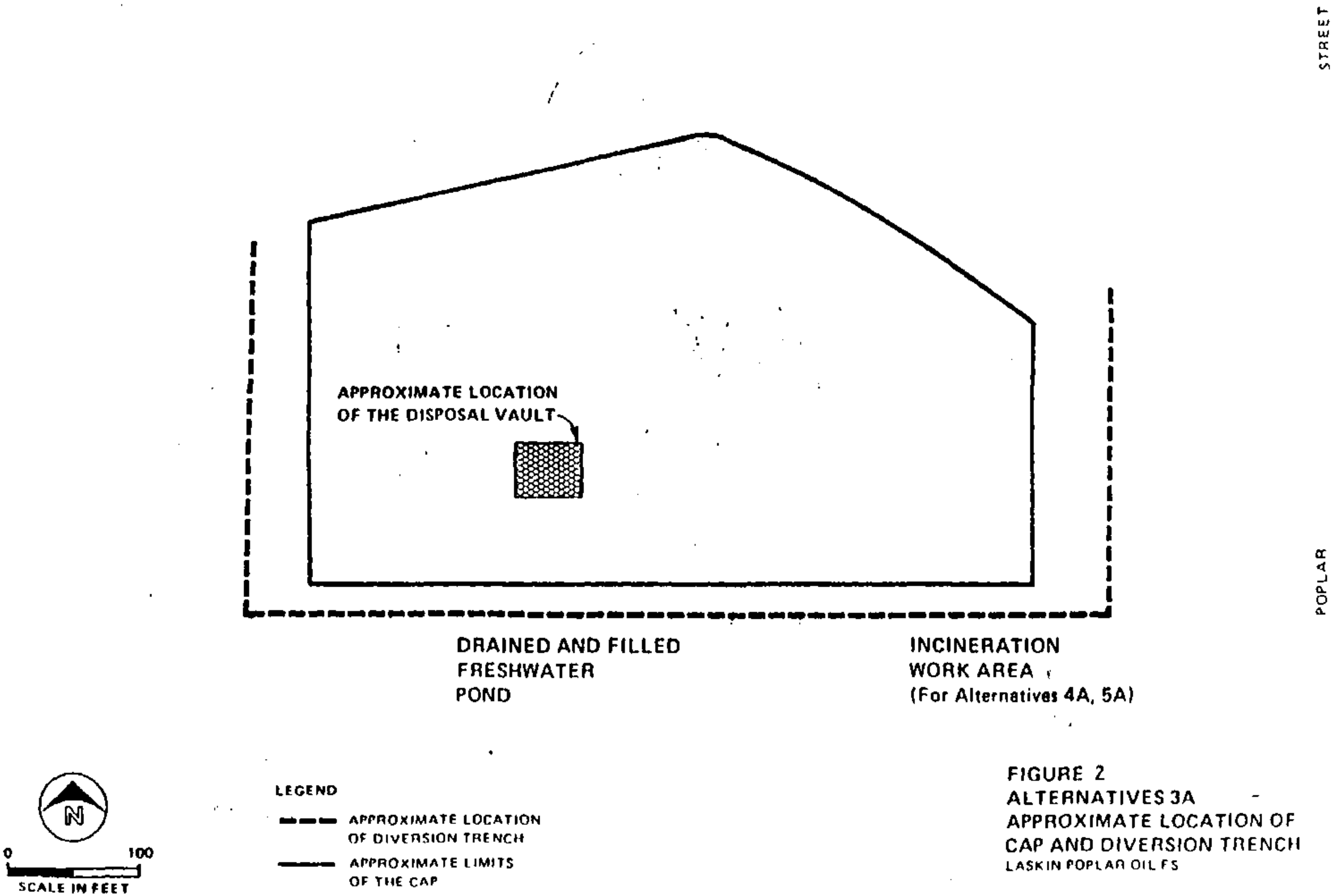

FIGURE 2
ALTERNATIVES 3A
APPROXIMATE LOCATION OF
CAP AND DIVERSION TRENCH
LASKIN POPLAR OIL FS

Long-term Effectiveness and Permanence

Alternative 6 provides the greatest degree of long-term effectiveness and permanence, since it virtually destroys all organic contamination present at the site. Minimal residual risk management is necessary in Alternative 6. Residual risks would include the residual groundwater contamination and the dioxin contaminated material left in the concrete vault. Alternative 4 and 5 offer a high degree of long-term effectiveness and permanence by treating different volumes of soil. Alternative 3 is equally effective but less long-term or permanent than alternatives 4, 5, or 6.

Compliance with ARARs

Alternatives 3B, 4B, and 5B leave hazardous substances on-site without properly closing the site in accordance with RCRA hazardous waste closure regulations. These alternatives therefore do not comply with ARARs.

The remaining alternatives 3A, 4A, 5A, and 6 meet all ARARs. In these alternatives, the site is properly closed with respect to RCRA closure regulations. The natural discharge of currently contaminated groundwater beneath the site will discharge to Cemetery Creek in approximately 2 years. After that discharge is complete, the aquifer will be de-watered between the site and Cemetery Creek. Groundwater and surface water quality standards will be met at that point in time.

Concentrations discharging into Cemetery creek during the short de-watering period were predicted based on maximum concentrations found on-site in groundwater during the remedial investigation. These predicted concentrations were then compared to Federal Ambient Water Quality Criteria (FAWQC) and the Ohio Warm Water Habitat Criteria (OWWHC). Under these conservative assumptions, the comparison identified two compounds exceeding the FAWQC standards for Chromium (hexavalent) and DDT. DDT was detected in one sample out of 17 and its presence is therefore questionable and not thought to be representative of groundwater quality beneath the site. During the remedial investigation, groundwater samples were analyzed for total chromium rather than the hexavalent chromium. The FAWQC standard for hexavalent Chromium was compared with total chromium from the RI data, revealing a potential FAWQC standard exceedance. The RI data for total Chromium most likely overestimates the future discharge of hexavalent chromium. Based on the conservative assumptions and considering the exceedances were minimal, it is most probable that these exceedances will not occur. The site will be de-watered at the conclusion of the construction of the remedial alternative.

Reduction of Toxicity, Mobility, and Volume (TMV)

Alternatives 3, 4, 5, and 6 employ treatment which provides reduction in TMV of hazardous substances in the treated soil. Alternative 6 provides the most reduction of TMV and alternative 3 provides the least reduction.

However, in alternative 3A, 4A, and 5A the combination of the cap and diversion trench would eliminate infiltration of water through the contaminated soil mass, thus reducing any further generation of contaminated groundwater.

Short-term Effectiveness

Alternative 3 is most effective in the short-term in that it meets its response objectives in less than 2 years with minimal adverse impacts resulting from implementation. Alternatives 4, 5, and 6, present greater short-term risks since they involve significant varying amounts of excavation, material handling, and incineration. Air emissions and residue ash would be monitored to assure compliance with air standards and delisting criteria. Additional precaution measures would be taken to protect workers from handling soils to be treated and dust control.

Implementability

All alternatives are implementable. Alternatives 3, 4, 5, and 6 involving thermal treatment require the availability of qualified thermal treatment units and operators. Alternatives with greater amounts of thermal treatment have associated greater implementability concerns and materials handling issues. If ash requires disposal in an off-site RCRA landfill, available RCRA land disposal capacity would be required.

Cost

Alternative 6 is the most costly alternative at $42 MM followed by alternative 5 at $33 MM, alternative 4A at $13 MM, Alternative 4B at $13 MM, alternative 3 at $11 MM, alternative 2 at $ 4.7 MM, and alternative 1 at no cost. Alternatives 4, 5, and 6, employ thermal treatment of different volumes of contaminated soils which represent a significant cost increase, but not necessarily a significant increase in protectiveness. The proper containment of these contaminated soils and treatment of the source material (oils, sludge, and saturated soils), provide an adequate means of protectiveness and long-term effectiveness. Therefore, alternative 3A, is considered to be the most cost-effective alternative.

State Acceptance

The State of Ohio has indicated a preference for Alternative 6, Thermal Treatment of Soils Exceeding 10^{-6} Risk, approximately 57,000 c.y. This alternative eliminates the need for future operations and maintenance, and institutional controls. This alternative offers the greatest degree of protectiveness and long-term effectiveness. The State of Ohio does not support U.S. EPA's preferred alternative 3A.

Community Acceptance

U.S. EPA is providing the public with an opportunity to comment on U.S. EPA's preferred alternative and the other alternatives presented in the Feasibility Study. U.S. EPA will hold a 30 day public comment period from April 12 to May 12, 1989. During this time period, interested individuals are encouraged to review the Feasibility Study and send written comments to U.S. EPA. Individuals are also encouraged to review the Administrative Record for the site located at any of the two repositories or U.S. EPA's offices. The Administrative Record contains information pertinent to the selection of the remedial alternative for the site. Written comments should be sent to:

U.S. Environmental Protection Agency
Office of Public Affairs
Community Relations Coordinator
Attention: Ms. Gina Weber
230 S. Dearborn
Chicago, Illinois 60604

U.S. EPA will hold a public meeting in Jefferson, Ohio. The purpose of this meeting is to present U.S. EPA's preferred alternative to the public and respond to the community's concerns. Interested individuals are invited to attend the meeting.

Date: April 26, 1989
Time: 7:00 - 10:00 P.M.
Location: Ashtabula Court House
Justice Center Conference Room
Jefferson, Ohio

All comments received from the public will be fully evaluated and considered in the final selection of the remedial alternative for the Laskin Poplar Oil site. Responses to all public comments will be documented in a Responsiveness Summary which will accompany U.S. EPA's Record of Decision (ROD). Both these documents will be available to the public for review.

Additional information can also be received from:

U.S. Environmental Protection Agency
Attention: Mrs. Grace Pinzon
Remedial Project Manager
230 S. Dearborn
Chicago, Illinois 60604

Ohio Environmental Protection Agency
Northeast District Office
Attention: Mr. Rodney Beals
2110 East Aurora Road
Twinsburg, Ohio 44087