EPA/ROD/R02-92/181
1992

EPA Superfund
Record of Decision:

PREFERRED PLATING CORP.
EPA ID: NYD980768774
OU 02
FARMINGDALE, NY
09/28/1992

ROD FACT SHEET

SITE

Name: Preferred Plating Corporation
Location/State: Farmingdale, Suffolk County, New York
EPA Region: II
HRS Score (date): 33.76 (Sept. 1984)

ROD

Date Signed: September 28, 1992

Selected Remedy: Excavation of Contaminated Subsurface Soils/OffSite Treatment and Disposal

Capital Cost: $ 1,423,700

O & M/Year: $ -0-

Present Worth: $ 1,423,700

LEAD

USEPA

Primary Contact: Janet Cappelli (212-264-8679)

Secondary Contact: Doug Garbarini (212-264-0109)

Main PRPs: George Paro and Joseph Gazza (property owners) and Del Laboratories Inc. (upgradient PRP)

WASTE

Waste Type: inorganic (e.g. cadmium, chromium, lead, nickel) and organic (1,1,1-trichloroethane, trichloroethylene, 1,2-dichloroethane, 1,1-dichloroethane; tetrachloroethylene)

Waste Origin: Contamination originated during the operation of the Preferred Plating Corporation. The processes used resulted in the generation, storage and disposal of waste water into four concrete waste storage pits. The pits were cracked and allowed discharges of to the underlying soils and aquifer.

Estimated Waste Quantity: 1000 cubic yards

Medium: Subsurface soils

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Preferred Plating Corporation
Farmingdale, Suffolk County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Preferred Plating Corporation site (Site), which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan. This decision document explains the factual and legal basis for selecting the remedy for this Site. The attached index (Appendix III) identifies the items that comprise the Administrative Record upon which the selection of the remedial action is based.

The State of New York concurs with the selected remedy per the attached letter (Appendix IV).

ASSESSMENT OF THE SITE

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

DESCRIPTION OF SELECTED REMEDY

This operable unit represents the second of three planned for the Site. The first operable unit addresses the treatment of groundwater, underlying the Site, which is contaminated primarily with heavy metals and volatile organic contaminants. This second operable unit addresses the treatment of contaminated subsurface soils on the Site. The third operable unit is investigating potential upgradient groundwater contamination.

The major components of the selected remedy include:

- Excavation of contaminated subsurface soils from the Site;
- Off-site treatment and disposal of excavated material at a RCRA Subtitle C facility; and,
- Backfilling excavated areas with clean soil.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The selected remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will not result in hazardous substances remaining on-site above health-based levels, the five-year review will not apply to this action.

DECISION SUMMARY
PREFERRED PLATING CORPORATION
FARMINGDALE, NEW YORK
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
NEW YORK

TABLE OF CONTENTS

SECTION

SITE NAME, LOCATION AND DESCRIPTION

The Preferred Plating Corporation site (Site) is located at 32 Allen Boulevard in Farmingdale, Town of Babylon, Suffolk County, New York. This 0.88-acre Site is in an area zoned for light industrial use, which is approximately 1 mile east of the Nassau-Suffolk County line. Route 110 passes just west of the Site (see Figure 1).

Commercial or light industrial properties occupy the land to the east and west of the Site. Immediately north of the Site is a large wooded area beyond which lie various industrial facilities. To the south are a residential community and a U.S. Army facility. The 1980 census recorded a population of greater than 10,000 within a 3-mile radius of the Site. The population density in the area is estimated to be 3,000 to 6,000 persons per square mile.

The Site is located in the south-central glacial outwash plain of Long Island, which constitutes the Upper Glacial Aquifer, estimated to be 90 feet in thickness under the Site. The naturally occurring surface soil is a sandy loam which promotes rapid infiltration to the groundwater. On the Site proper and throughout much of the region, soils have been classified as urban. This is primarily due to the development and pavement which promote greater run-off of precipitation. The Upper Glacial Aquifer overlies the Magothy Aquifer and the two may act as distinct aquifers, or as one, depending upon localized geographic features. In the Site area, it is believed that the two are not hydraulically connected.

All homes and businesses, in the area surrounding the Site, are supplied by two public water companies. Groundwater is the source of water for the entire population of both Nassau and Suffolk Counties. All public water supply wells in the Site area draw water from the deeper aquifer, the Magothy Aquifer. The nearest public water supply well fields are located approximately 1 mile east and 1 mile south of the Site.

The nearest body of surface water is an unnamed intermittent tributary of Massapequa Creek which is approximately 6,000 feet west of the Site. There is no designated New York State Significant Habitat, agricultural land, historic or landmark site directly or potentially affected. There are no endangered species or critical habitats within close proximity of the Site. The Site is located more than 2 miles from a 5-acre coastal wetland and more than 1 mile from a 5-acre fresh-water wetland.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Preferred Plating Corporation (PPC) conducted operations beginning in September 1951 through June 1976. The primary activities at the Site were to treat metal parts chemically to increase their corrosion resistance and provide a cohesive base for painting. The plating processes included degreasing, cleaning, and surface finishing of the metal parts. These processes involved the use of various chemicals which resulted in the generation, storage, and disposal of hazardous waste. Untreated wastewater was discharged to four concrete waste storage pits directly north of the original building. Groundwater contaminated with heavy metals was detected in the Site area by the Suffolk County Department of Health Services (SCDHS) as early as June 1953. SCDHS indicated that the waste storage pits on the Site were severely cracked and leaking. Samples taken from the sludge in the pits showed that they were mainly contaminated with heavy metals. From 1953 to 1976, SCDHS instituted numerous legal actions against PPC in an effort to stop discharges of wastes into the pits and to install or upgrade the on-site treatment facility. SCHDS also wanted to ensure that no improper discharges to the steam condensate leaching pool or the sanitary leaching pool used by PPC were taking place. PPC prepared an engineering report in May 1974 in order to apply for a State Pollutant Discharge Elimination System (SPDES) permit, which was issued in June 1975. PPC chemically treated the wastewater in the pits and, allegedly, then had the treated wastewater removed. Whether the treated wastewater residuals were ever removed has not been confirmed. The facility was never in full compliance with the terms and conditions outlined in the SPDES permit.

In 1976, PPC declared bankruptcy. Since then, several firms have occupied the Site, none conducting similar operations to PPC. In 1982, the original building was extended by 200 feet, which covered the concrete waste storage pits. Nearly the entire Site is covered either by the one existing building or paved driveways and parking areas.

In September 1984, Woodward-Clyde Consultants, Inc. performed a Phase I-Preliminary Investigation of the Preferred Plating Site for the New York State Department of Environmental Conservation (NYSDEC) to compute a Hazard Ranking System (HRS) score needed to evaluate whether to place the Site on the National Priorities List (NPL). In the Phase I report, an HRS score of 33.76 was documented, thereby enabling the Site to be included on the NPL. The Site received a proposed and final listing status on the NPL on October15, 1984 and June 10, 1986, respectively.

From June 1987 to June 1989, EPA's contractor, Ebasco Services, Inc., conducted the initial remedial investigation and feasibility study (RI/FS) of the Site. The study detected heavy metals and chlorinated organics in the groundwater underlying the Site. A Record of Decision (ROD) for the treatment of the contaminated groundwater was signed on September 22, 1989. The major components of the selected remedy include extraction of the contaminated groundwater, groundwater treatment for heavy metals and chlorinated organics, and reinjection of the treated groundwater. The design for this treatment system was completed in March 1992 and construction of the system is expected to begin in late 1992.

The initial RI/FS did not adequately characterize the soils underlying the former storage pits. Therefore, EPA undertook a second RI/FS to investigate the subsurface soils within and directly beneath the former storage pits and leaching pools on-site. EPA's contractor, Malcolm Pirnie, Inc., performed the on-site soils RI/FS from April 1990 to July 1992. The alternatives in the Proposed Plan, released to the public on July 18, 1992, are based on this RI/FS. The initial RI/FS also detected the presence of upgradient groundwater contamination. EPA decided to undertake a third study to investigate the potential of an upgradient contributing source of contamination. An adjoining property owner is performing the third RI/FS on the upgradient groundwater.

The property owners have been notified of their liability for the Site and will be offered an opportunity to conduct future response actions.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

A Community Relations Plan for the Preferred Plating Site was finalized in March 1988 for the initiation of the first operable unit. This document lists contacts and interested parties in government and the localcommunity. It also establishes communication. pathways to ensure timely dissemination of pertinent information. Throughout implementation of the second operable unit, the mailing list of interested parties was updated. The RI/FS and the Proposed Plan were released to the public in July 1992. These documents were made available in both the administrative record and two information repositories maintained at the Babylon Town Hall and the West Babylon Library. A public comment period was held from July 18, 1992 to August 17, 1992. In addition, a public meeting was held on August 5, 1992, at the W.E. Howitt Junior High School in Farmingdale, to present the results of the second operable unit onsite soils RI/FS and the preferred alternative as presented in the Proposed Plan. All comments, pertaining to the remedy selection, which were received by EPA prior to the end of the public comment period, including those expressed verbally at the public meeting, are addressed in the Responsiveness Summary, which is attached as Appendix V to this ROD.

SCOPE AND ROLE OF OPERABLE UNIT

This is the second of three operable units for the Site. The first operable unit provides for treatment of the contaminated groundwater underlying the Site.

The objective of the second operable unit is to address the subsurface soil contamination contributing to the groundwater problem attributable to the Site. The remaining operable unit is addressing potential upgradient groundwater contamination and is expected to be completed in mid-1993.

SUMMARY OF SITE CHARACTERISTICS

Under the direction of EPA, Malcolm Pirnie, Inc. conducted an RI to characterize the unsaturated subsurface soils at the Site. The intent of the study was to characterize soil quality at specific locations at the Site, namely, inside and below the former storage pits, downgradient and adjacent to the former steam condensate leaching pool, adjacent to the former steam condensate pipeline, and downgradient of the former sanitary leaching pool. Additionally, soils from other suspected areas of contamination were sampled to characterize soil quality and to delineate the horizontal and vertical extent of soil contamination.

Between January and March 1991, a total of 22 soil borings were drilled and 61 subsurface soil samples were collected for chemical and physical analyses. Figure 2 depicts the sampling locations and Table 1 contains a summary of the analytical results detected at these locations.

The former concrete storage pit area, now buried under the existing on-site building, is 11 feet deep, 44.5 feet long, and about 15 feet wide. Concrete baffles within the perimeter of the overall pit divide the area into 4 separate units, as detailed on the lower left corner of Figure 2 and on Figure 3. The total volume of the pits is 7,200 cubic feet. In order to characterize the contents of the pits as well as the dispersion of any contaminants beneath the pits, twenty-nine subsurface soil samples were collected from twelve borings. These samples were collected at two or three different depths (010.5 feet, 10.5-11 feet, and 11-13 feet) within each boring and analyzed for inorganic and organic contaminants. Widespread heavy metal contamination was detected throughout the pits at all depths. Chromium was detected at the highest concentration at 1,890 parts per million (ppm), from a depth of 010.5 feet below surface. Cadmium was detected at a concentration of 468 ppm, from a depth of 11-13 feet below surface. Figure 3 depicts the contaminant concentrations detected in the borings through the former waste storage pits. As a point of reference, typical chromium and cadmium background concentrations in the area range from 1.5-40 ppm and 0.1-1.0 ppm, respectively. Only one boring drilled in the pits indicated the presence of volatile organic compounds, namely, tetrachloro-ethane, 1,1,1-trichloroethane, trichloroethylene, trans-1,2-dichloroethane, and 1,1-dichloroethane. The organic contaminant present at the highest concentration was 1,1,1-trichloroethane at 270 ppm. All chlorinated organics were detected close to the bottom of the pits or directly underneath the pits.

A total of nine subsurface samples were collected from three soil borings located adjacent to the leaching pools associated with the former steam condensate and sanitary lines used by PPC. These samples were taken from three depths, at four-foot intervals down to the water table, which is approximately 12.5 feet below the surface. Again, heavy metals were detected in all samples. The highest concentrations of chromium and cadmium, 252 ppm and 45.6 ppm, respectively, were detected adjacent to the former sanitary leaching pool. The same leaching pool also contained 82.6 ppm of lead. Elevated levels of metals were detected at all depths down to the water table. No volatile organic compounds were detected in any samples.

Seven borings were drilled through suspected areas of contamination. Twenty-three samples were taken from three depths, at four-foot intervals down to the water table. The highest concentration of chromium (86 ppm) was detected upgradient of the former storage pits at a depth of 8-12 feet. The highest concentration for any metal detected was that of magnesium at 4,280 ppm from a suspected area of contamination downgradient of the former storage pits. No volatile organics were detected in any samples.

One of the borings through a suspected area of contamination, downgradient of the former storage pits, was used to construct a monitoring well to determine groundwater elevations and study the vertical fluctuations of the water table. Throughout the sampling activities, the water table was 12.5 feet below grade.

SUMMARY OF SITE RISKS

Based upon the results of the RI, a baseline risk assessment was conducted to estimate the risks associated with current and future Site conditions. The baseline risk assessment estimates the human health and ecological risk which could result from the contamination at the Site, if no remedial action were taken.

As part of any baseline risk assessment, the following four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: Hazard Identification--identifies the contaminants of concern at a site based on several factors such as toxicity, frequency of occurrence, and concentration. Exposure Assessment--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingesting contaminated wellwater) by which humans are potentially exposed. Toxicity Assessment– determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). Risk Characterization--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-amillion excess cancer risk) assessment of site-related risks.

The baseline risk assessment began with selecting contaminants of concern which would be representative of Site risks. These contaminants included chromium, cadmium, cyanide, lead, copper, nickel, silver, zinc, arsenic, magnesium, 1,1-dichloroethane, trans-1,2-dichloroethane, tetrachloroethane, 1,1,1-trichloroethane, and trichloroethylene (See Tables 2 and 3, respectively, for listings of inorganic and organic data).

The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of dermal contact and ingestion of subsurface soils. The human health evaluation focused on a future scenario, i.e., exposure of a construction worker to subsurface soils during excavation (see Table 4 for a summary of the exposure pathways). Under current conditions, there is no opportunity for a direct exposure to contaminants in subsurface soils, since these soils are located beneath the existing building.

EPA's acceptable cancer risk range is 10[-4] to 10[-6] which can be interpreted to mean that an individual may have a one in ten thousand to a one in a million increased chance of developing cancer as a result of a site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at a site. Table 5 lists a summary of the cancer risk estimates. The results of the baseline risk assessment indicate that the subsurface soils at the site pose no unacceptable risk to human health. The overall carcinogenic risk for construction workers, through ingestion of these contaminated soils, was estimated to be 6.08 x 10[-6], which is within EPA's acceptable cancer risk range. The primary contributor to this risk was 1,1,1trichloroethane. As noted above, 1,1,1-trichloroethane was only found in one boring out of the 12 which were drilled in the former leaching pits.

To assess the overall potential for noncarcinogenic effects posed by the contaminants at the Site, EPA has developed the hazard index (HI). An HI value of greater than 1 is considered to pose a significant noncarcinogenic risk. Table 6 lists a summary of the chronic noncarcinogenic hazard index estimates. Both the calculated HI values for the ingestion and dermal contact pathways are less than 1, which EPA has determined to be acceptable. The ingestion pathway contributed to an HI value of 0.12 and the dermal contact pathway contributed to an HI value of 0.06. As the total exposure HI for construction workers was estimated to be 0.18, there are no unacceptable noncarcinogenic risks associated with the construction worker scenario.

However, since significant contamination was detected in the soils underlying the Site down to the water table, these contaminants can migrate into the groundwater via fluctuations of the water table. Groundwater sampling for the remedial design, conducted at the same time as the soil sampling events, detected the same heavy metals as those found in the subsurface soils. Concentrations of metals in the groundwater are in excess of the allowable drinking water standards and do currently pose an unacceptable risk. Table 7 lists the contaminants detected in on-site monitoring wells. Cross-media impacts resulting from leaching of contaminants from the soil to the groundwater will continue to contribute to exceeding health-based drinking water standards.

The ecological risk assessment considered potential exposure routes of Site contamination to terrestrial wildlife. Since the majority of the Site is paved or covered by physical structures, there is little, if any, potential for wildlife to be exposed to contaminated subsurface soils on-site. The only potential route of exposure to wildlife in the Site vicinity is if contaminants were transported through groundwater and discharged via groundwater into surface waters, particularly Great South Bay. The potential effects of contaminated groundwater on aquatic life were discussed in the ecological risk assessment performed for the first operable unit. It was determined that no significant effect on aquatic organisms in the Great South Bay or creeks in the vicinity of the Site would occur if contaminants were transported from the Site through groundwater and discharged into surface waters.

Uncertainties

The procedures used to assess potential human health risks in this evaluation are subject to wide uncertainties. In general, the main sources of uncertainty in this assessment include:

! environmental chemistry sampling and analysis;

- ! environmental parameter measurement;
- ! fate and transport modeling;
- ! exposure parameter estimation; and
- ! toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled. Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come into contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemical of concern at the point of exposure. Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making very conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site.

Actual or threatened releases of hazardous substances from this Site, if not addressed by the preferred alternative or one of the other active measures considered, may present a current or potential threat to the environment through the groundwater pathway.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

The following remedial action objectives were established for this operable unit:

- ! prevent leaching of contaminants in the subsurface soils to the groundwater; and
- ! minimize length of operation of the groundwater treatment system by removing a source of contamination.

DESCRIPTION OF REMEDIAL ALTERNATIVES

Following a screening of remedial technologies in accordance with the NCP, three remedial alternatives were developed for contaminated subsurface soils. The alternatives were further screened based on technical considerations such as effectiveness, implementability, and cost. The "time to implement" considers only the actual construction time and does not include the time required to negotiate with potentially responsible parties, procure design and construction contracts, and design the remedy. The remedial alternatives are:

Alternative 1 - No Action

Alternative 2 - Excavation with Off-Site Treatment and Disposal

Alternative 3 - Excavation with Off-Site Soil Washing and Off-Site Treatment and Disposal

Alternative 1 - No Action

Construction Cost: $ 17,640
Annual O&M Costs: $ 15,000
Present Worth Cost: $ 150,587

Time to Implement: 6 months

The Superfund program requires that the "no action" alternative be considered as a baseline for comparison of other alternatives. Under this alternative, the contaminated soil would be left in place without treatment. A long-term monitoring program would be implemented to track the migration of contaminants from the soil into the groundwater utilizing existing monitoring well clusters. This alternative also includes the implementation of institutional controls such as the recommendation for deed restrictions on the usage of groundwater from the Upper Glacial Aquifer for nonpotable uses only and on subsurface soil excavations.

Alternative 2 - Excavation and Off-Site Treatment and Disposal

Construction Cost: $ 1,423,700
Annual O&M Costs: $ 0
Present Worth Cost: $ 1,423,700
Time to Implement: 12 months

This alternative consists of the physical removal of the subsurface soils located within the former storage pits and the steam condensate and sanitary leaching pools. Demolition of the existing on-site building would not be required, however, protection of the existing building foundation during excavation would be necessary. Prior to excavation, structural support, probably through jet grouting, would be used to brace the foundation. Support activities including relocation of existing utilities by offsetting, rerouting, or temporary removal and replacement would occur, in order to facilitate construction.

Approximately 700 cubic yards of soil would be excavated from within, beneath, and around the former storage pits. In addition, 350 cubic yards of soil would be excavated from the former steam condensate and sanitary leaching pools. The soils from both areas would be excavated to the water table (approximately 12.5 feet below grade). The excavated soil would be transported to an off-site permitted Resource Conservation and Recovery Act (RCRA) Subtitle C (hazardous waste) facility for treatment and disposal. Prior to disposal, the soils would first be treated to reduce the levels of volatile organics, where necessary, and then treated through stabilization/solidification, or other appropriate techniques, to reduce the mobility of heavy metals, to meet land disposal restriction (LDR) levels. Off-site transport would comply with all federal and state transportation requirements. The excavated areas on the Site would be backfilled with clean soil and the Site would be restored to its original condition. Since this alternative would result in no contamination remaining on-site above health-based levels, five-year reviews and long-term monitoring would not be required.

Alternative 3 - Excavation and Off-Site Soil Washing with Off-Site Treatment and Disposal

Construction Cost: $ 2,761,150
Annual O&M Costs: $ 0
Present Worth Cost: $ 2,761,150
Time to Implement: 12 months

This alternative would include the same excavation and structural support activities as those described in the discussion of Alternative 2. After excavation, the soils would be transported to an off-site RCRA permitted treatment facility to undergo an innovative ex-situ soil washing process, in which a physical-chemical water-based process involving the mechanical scrubbing of the soils would be employed to remove the contaminants. The residue containing the extracted contaminants would be solidified/stabilized or treated by other appropriate means, as necessary, and disposed of in a RCRA Subtitle C (hazardous waste) facility. The remaining soils would not contain any contaminants above health-based levels, and would be disposed of in a RCRA Subtitle D (sanitary waste) facility. The excavated areas on the Site would be backfilled with clean soil and the Site would be restored to its original condition. Since this alternative would result in no contamination remaining on-site above health-based levels, five-year reviews and long-term monitoring would not be required.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

All remedial alternatives were evaluated in detail utilizing nine criteria as set forth in the OSWER Directive 9355.3-01. These criteria were developed to address the requirements of Section 121 of CERCLA to ensure all important considerations are factored into remedy selection decisions.

The following "threshold" criteria are the most important and must be satisfied by any alternative in order to be eligible for selection:

1. Overall Protection of Human Health and the Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on the reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with ARARs addresses whether or not a remedy would meet all applicable or relevant and appropriate requirements of federal and state environmental statutes and requirements or provide grounds for invoking a waiver.

The following "primary balancing" criteria are used to make comparisons and to identify the major trade-offs between alternatives:

3. Long-term Effectiveness and Permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. Reduction of Toxicity, Mobility, or Volume Through Treatment relates to the anticipated performance of a remedial technology, with respect to these parameters, that a remedy may employ.

5. Short-term Effectiveness involves the period of time each alternative needs to achieve protection and any adverse impacts on human health and the environment that may be posed during construction and implementation of the alternative.

6. Implementability involves the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

7. Cost includes both capital and operation and maintenance (O&M) costs. Cost comparisons are made on the basis of present worth values. Present worth values are equivalent to the amount of money which must be invested to complete a certain alternative at the start of construction to provide for both construction costs and O&M costs over time.

The following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. State Acceptance indicates whether, based on its review of the RI and FS and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the preferred alternative.

9. Community Acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports. Factors of community acceptance to be discussed include support, reservation, and opposition by the community.

A comparative analysis of the remedial alternatives based upon the evaluation criteria noted above follows.

Overall Protection of Human Health and the Environment

Alternative 1 does not meet the remedial objectives, thus it would not be protective of human health and the environment due to the potential for continued migration of volatile organics and inorganics into the groundwater. Alternatives 2 and 3 would both meet the remedial objective of preventing cross-media impacts to the groundwater from the source of contamination, ultimately resulting in a reduced time frame required to meet groundwater treatment objectives specified in the September 1989 ROD.

Compliance with ARARs

All technologies proposed for use in Alternatives 2 and 3 would be designed and implemented to meet all ARARs. Federal and state regulations dealing with the handling and transportation of hazardous wastes to an off-site treatment facility would be followed. Wastes would be treated using specific technologies or treated to specific treatment levels, as appropriate, to comply with LDRs. Alternative 1 would not meet any ARARs, and potential excursions of groundwater drinking water standards would continue to occur for a longer period of time under this alternative, due to cross-media impacts resulting from contaminants in the soil.

Long-term Effectiveness and Permanence

Alternative 1 would only monitor the migration of the contaminants and would not provide active treatment or containment. Therefore, it would not provide effective or permanent long-term protection of the groundwater underlying the Site. Alternatives 2 and 3 would mitigate the potential for the leaching of contaminants to the underlying groundwater by total removal of the contaminants. Alternative 3 would, however, provide the higher degree of effectiveness since the contaminated soils would be permanently treated, while the small volume of remaining residual materials would be solidified/stabilized.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative 1 would provide no reduction in contaminant mobility, toxicity, or volume. Alternatives 2 and 3 would provide a reduction in mobility of subsurface soil contaminants through removal and off-site stabilization/solidification or soil washing. The contaminated soil would no longer act as a source of groundwater contamination. These alternatives also would reduce the toxicity of the contaminants. Alternative 3 would result in a smaller volume of material requiring disposal in a Subtitle C facility than Alternative 2.

Short-term Effectiveness

The implementation of Alternative 1 would result in no additional risk to the community or workers during implementation, since subsurface soil would not be disturbed. Alternatives 2 and 3 would include activities such as contaminated soil excavation and off-site transport that could result in potential exposure of residents and workers to some volatilized contaminants and contaminated dust. Engineering controls such as air monitoring and dust suppression and other measures (e.g., restricting the Site to authorized personnel only) would effectively minimize and control any adverse impact these activities would have on workers.

Implementability

Components of all alternatives would utilize relatively common construction equipment and materials. Although implementable, some construction difficulty would be encountered with Alternatives 2 and 3 due to the limited space within the on-site building and the shoring required to ensure that the building foundation is secure. Alternative 1 would be the easiest to implement.

A degree of uncertainty exists with the off-site soil-washing process described in Alternative 3, since this technology has only been performed on a limited basis in this country. A treatability study would be necessary to determine the exact nature of the extraction fluid to be used for contaminant removal. Most of the operating treatment facilities for soil washing are located in Europe.

Cost

Present worth cost estimates are as follows:

Alternative 1: $ 150,587
Alternative 2: $ 1,423,700
Alternative 3: $ 2,761,150

According to the present worth cost estimates for all alternatives evaluated, Alternative 3 ($ 2,761,150) would be the most costly alternative to implement, followed by Alternative 2 ($ 1,423,700). Alternative 1, no action, would be the least costly to implement ($ 150,587). Present worth considers a 5% discount rate, and a 12-year monitoring period (the estimated time frame for achieving groundwater remedial action objectives) for Alternative 1. Since Alternatives 2 and 3 do not require any O & M costs, their present worth costs are equivalent to their capital cost.

The capital cost for Alternative 3 is based on the assumption that the treatment facility necessary for performing this process would be available overseas and not in this country by the time the remedy would be implemented. Therefore the transportation costs associated with this remedy are high. Alternative 2, therefore, would be protective of the groundwater at the least cost.

State Acceptance

The State of New York, through the NYSDEC, has concurred with EPA's selected remedy. The NYSDEC letter of concurrence is attached as Appendix IV.

Community Acceptance

No objections from the community were raised regarding the selected remedy. Community comments can be reviewed in the public meeting transcript, which has been included in the Administrative Record. A responsiveness summary which addresses all comments, pertaining to the soil remedy selection, received during the public comment period is attached as Appendix V.

SELECTED REMEDY

Based upon the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the detailed analysis of the alternatives, and public comments, both EPA and NYSDEC have determined that Alternative 2 (Excavation and Off-site Treatment and Disposal) is the appropriate remedy for the Site.

The major components of the selected remedy are as follows:

- Jet grouting to stabilize the building's foundation during excavation;
- Excavation of approximately 700 cubic yards of contaminated soils from within, around, and beneath the former waste storage pit area (55' x 25' x 14') down to the water table or 14 feet below grade, whichever is deeper;
- Excavation of approximately 350 cubic yards of contaminated soils from within, around, and beneath the former sanitary leaching pool and the former steam condensate leaching pool and line (approximate total dimensions 15' x 15' x 14') down to the water table or 14 feet below grade, whichever is deeper;
- Backfill excavated areas with clean soil;
- Off-site treatment of contaminants at a permitted facility; and,
- Disposal of treated soils in a permitted landfill.

Alternative 2 is designed to be protective by eliminating crossmedia impacts posed by highly contaminated subsurface soil under the Site to the underlying groundwater. Since the Site is located in a sole source aquifer area, restoration of the aquifer quality is crucial. By removing the contaminated soils underneath and surrounding the on-site building, Alternative 2 ensures that no leaching of contaminants to the underlying aquifer will occur. The elimination of cross-media impacts will have a positive impact on the effectiveness of the groundwater restoration program.

The selected remedy achieves the remedial action objectives more quickly, or as quickly, and at less cost than the other options. Therefore, the selected remedy will provide the best balance of trade-offs among alternatives with respect to the evaluating criteria. EPA and NYSDEC believe that the selected remedy will be protective of human health and the environment, will comply with ARARs, will be cost-effective, and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The remedy also will meet the statutory preference for the use of treatment as a principal element.

STATUTORY DETERMINATIONS

EPA believes that the selected remedy will satisfy the statutory requirements of providing protection of human health and the environment, being cost-effective, utilizing permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, and satisfying the preference for treatment as a principal element.

Protection of Human Health and the Environment

Alternative 2 is considered to be fully responsive to this criterion and to the identified remedial action objectives. Treatment, excavation, and disposal of the contaminated Site soils will prevent cross-media impacts by removal of a continuous source of contaminants to the underlying groundwater.

Compliance with ARARs

The selected remedy (Alternative 2 - excavation of contaminated soils/off-site treatment and disposal/backfill with clean off-site soil) will comply with all related ARARs. The off-site facility will be fully RCRA permitted and will be in compliance with the terms of the permit. Contaminated soil and debris from the Site will be treated using specific technologies to meet specific treatment levels, as appropriate, to comply with LDRs. This alternative will comply with LDRs for the contaminated soil and debris. Based on concentrations determined by the Toxicity Characteristic Leaching Procedure (TCLP) test, the appropriate concentration range or percent reduction will be determined during design.

At the completion of the response action for contaminated soil, the selected remedy will have complied with the following ARARs:

Action-specific ARARs:

The selected remedy calls for the transport of contaminated soil and treatment residuals to a RCRA facility for treatment and disposal and will comply with the following ARARs:

- 40 Code of Federal Regulations (CFR) Part 50.12 National Ambient Air Quality Standards
- 40 CFR Part 254.25 - Excavation and Fugitive Dust Emissions
- 40 CFR Part 262.1 - Standards for Generators of Hazardous Waste
- 40 CFR Part 263 - Standards Applicable to Transport of Hazardous Waste
- 40 CFR Part 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- 6 New York Code of Rules and Regulations (NYCRR) Part 200.6 - Ambient Air Quality Standards
- 6 NYCRR Part 372 - Hazardous Waste Manifest System & Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Subpart 373 - Final State Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
- OSHA - 20 CFR Part 1910 - General Industry Standards

- OSHA - 20 CFR Part 1926 - Safety and Health Standards

- OSHA - 20 CFR Part 1904 - Record Keeping, Reporting, and Related Regulations

- DOT - 49 CFR Parts 107, 171.1 - 172.5-58 - Rules for Transportation of Hazardous Materials

- 12 NYCRR Subpart 753 - New York Industrial Code Rule # 53 for Notification Requirements on Buried Pipeline

Chemical-specific ARARs:

- None applicable.

Location-specific ARARs:

- None applicable.

Cost-Effectiveness

The selected remedy provides overall effectiveness proportional to its cost. The total capital and present worth costs for Alternative 2 is estimated to be $1,423,700. Alternative 2 is the least expensive treatment alternative.

A detailed cost estimate of the selected soil alternative is presented on Table 8.

Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The selected remedy utilizes permanent solutions and treatment technologies to the maximum extent practicable. The selected remedy represents the best balance of trade-offs among the alternatives with respect to the evaluation criteria. The State and community also support the selected remedy.

The selected remedy employs treatment of the inorganic and organic contaminated soil on the Site through excavation and off-site treatment and disposal. The potential for future releases of contaminants to the underlying groundwater will be eliminated. Extraction and treatment of the contaminated soil will reduce the toxicity, mobility, and volume of contaminants in the groundwater underlying the Site and prevent further degradation of area groundwater.

No short-term adverse impacts and threats to human health and the environment are foreseen as the result of implementing the selected remedy. However, to minimize and/or prevent worker exposure to contaminants, personal protection equipment will be utilized.

Preference for Treatment as a Principal Element

The selected remedy fully satisfies this criterion for the treatment of the subsurface soil contamination which is considered to be a source for the contaminated groundwater underlying the Site.

DOCUMENTATION OF SIGNIFICANT DIFFERENCES

The Proposed Plan for the on-site soils second operable unit for the Site, identifying the selected remedy as Alternative 2, was released to the public on July 18, 1992. There are no significant changes from the preferred alternative as presented in the Proposed Plan.

APPENDIX I

FIGURES

APPENDIX II

TABLES

APPENDIX IV

NYSDEC LETTER OF CONCURRENCE

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233 -7010

Thomas C. Jorling
Commissioner

Ms. Kathleen Callahan
Director
Emergency & Remedial Response Division
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: Preferred Plating Corp. ID No. 152030
Record of Decision - Operable Unit 2

Dear Ms. Callahan:

The New York State Department of Environmental Conservation (NYSDEC) has reviewed the Draft Record of Decision and its revised pages 14, 15, 16 and 17, which were telefaxed to us on August 19, 1992, for the on-site soil contamination and find the selected remedy acceptable.

The selected remedy, Alternative 2, includes excavation of approximately 1050 cubic yards of contaminated soil, off-site treatment and disposal of excavated material at a RCRA subtitle C facility, backfilling of excavated areas with clean soil and restoration of the site to its original condition.

If you have any questions regarding this matter, please contact Michael J. O'Toole, Jr., at (518) 457-5861.

Sincerely,

Ann Hill DeBarbieri
Deputy Commissioner
Office of Environmental Remediation