EPA/ROD/R02-93/205
1993

EPA Superfund
Record of Decision:

PREFERRED PLATING CORP.
EPA ID: NYD980768774
OU 03
FARMINGDALE, NY
09/24/1993

RECORD OF DECISION FACT SHEET EPA REGION II

Site:

Site name:	Preferred Plating Corporation (PPC)
Site location:	Farmingdale, Town of Babylon, Suffolk County, New York
EPA Region:	II
HRS score (date):	33.76 (September, 1984)

Record of Decision:

Date signed:	September 24, 1993
Selected remedy:	"No Action"
Operable Unit:	OU-3
Capital cost:	-0-
O & M cost:	-0-
Present-worth cost:	-0-

Lead:

Enforcement, EPA	
Primary Contact:	Lorenzo Thantu, RPM (212) 264-2719
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Main PRP:	Del Laboratories, Inc. Contact - Gregory Quillinan (516) 293-1515

Waste

Waste type:	cadmium, chromium, lead, and nickel
Waste origin:	PPC facility
Estimated waste quantity:	N/A
Contaminated medium:	groundwater

RECORD OF DECISION

Preferred Plating Corporation

Farmingdale, Town of Babylon, Suffolk County, New York

United States Environmental Protection Agency
Region II
New York, New York
September 1993

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Preferred Plating Corporation
Farmingdale, Town of Babylon, Suffolk County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the U.S. Environmental Protection Agency's (EPA's) selection of the remedial action for the third operable unit of the Preferred Plating Corporation Superfund Site (Site) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 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 New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy (see Appendix IV).

DESCRIPTION OF THE SELECTED REMEDY - NO ACTION

This is the third and final operable unit for the Site, which addresses potential groundwater contamination that has been detected in the upgradient portion of the Site at Del Laboratories, Inc. (Del). EPA in consultation with the NYSDEC has determined that this contamination does not pose a significant threat to human health or the environment and, therefore, remediation is not appropriate. This determination is based on previous cleanup activities at Del's facility, the cleanup activities that are planned under the two other operable units at the Site, and the remedial investigation and the human health risk assessment that were conducted for the third operable unit. Thus, a "No Action" remedy is the selected remedy for the third operable unit of the Site.

The remedy for the first operable unit, which addresses contaminated groundwater at the Site, one of the principal threats posed by the Site, was specified in a ROD issued on September 22, 1989. The remedy for the second operable unit, which addresses contaminated soils at the Site, the other principal threat posed by the Site, was specified in a ROD issued on September 28, 1992.

DECLARATION

In accordance with the requirements of CERCLA, as amended, and the NCP, it has been determined that no remedial action is necessary for the third operable unit to protect human health and the environment at the Site. Previous cleanup activities conducted at Del's facility, undertaken at the direction of the Suffolk County Department of Health Services, have remediated the significant contamination formerly present at this facility. Because this "No Action" 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, Town of Babylon, Suffolk County, New York

United States Environmental Protection Agency
Region II
New York, New York

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SITE NAME, LOCATION AND DESCRIPTION

The Preferred Plating Corporation (PPC) site (Site) includes the former PPC facility located at 32 Allen Boulevard in Farmingdale, Town of Babylon, Suffolk County, New York. This 0.88-acre facility is in an area zoned for light industrial use, and it is approximately 1 mile east of the Nassau Suffolk County line. Route 110 passes just west of the Site (see Figure 1). Immediately north of the former PPC facility is a wooded area, owned by Del Laboratories, Inc. (Del), beyond which lie various industrial facilities, including the Del facility. To the south are a residential community and a U.S. Army facility. Commercial or light industrial properties occupy the land to the east and west.

The Del facility is located at 565 Broad Hollow Road also in Farmingdale, Town of Babylon, Suffolk County, New York, and it consists of land Parcels A and B (see Figure 2). As shown on Figures 1 and 2, the Del property is situated north of Del Drive, south of Route 109, and east of Route 110. Del owns two wooded lots in the vicinity, one 13.5-acre lot located immediately east of Del's Parcel B property and one 6-acre lot (Parcel A) located just south of Parcel B (see Figure 2). Other smaller parcels of land acquired by Del are also shown on Figure 2, as are the dates of purchase.

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 a result of 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 the degree of hydraulic connection between the two. However, in the Site area, it is believed that the two are not hydraulically connected. Pursuant to Section 1424(e) of the Safe Drinking Water Act, EPA has designated the Nassau/Suffolk Aquifer System as a Sole Source Aquifer.

Most of the homes and businesses in the area surrounding the Site are supplied by two public water companies, East Farmingdale Water District and Suffolk County Water Authority (SCWA). The East Farmingdale Water District supplies water to Del as well as to areas north and immediately south of Del. The SCWA supplies water to areas further south of Del. Recently, on April 29, 1993, the New York State Department of Environmental Conservation (NYSDEC) received information from the Suffolk County Department of Health Services (SCDHS) indicating that two locations hydraulically downgradient of the PPC facility, as well as the possibility of at least seven other locations, are served by private wells. The SCDHS is currently conducting a well survey in the vicinity of the Site to evaluate the extent of the use of private wells.

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.

SCOPE AND ROLE OF OPERABLE UNIT

This operable unit is the third and last operable unit for the Site. The remedy for the first operable unit, which addresses contaminated groundwater beneath the PPC facility, was specified in a Record of Decision (ROD) issued on September 22, 1989. The remedy for the second operable unit, which addresses contaminated soils at the PPC facility, was specified in a ROD issued on September 28, 1992. The third and final operable unit, which is the subject of this ROD, addresses potential groundwater contamination that has been detected in the upgradient portion of the Site. The primary objective of this third operable unit is to determine if operations at Del have impacted the groundwater quality beneath the Site.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Discussion of remedial and enforcement activities at the PPC facility and the Del facility is provided below. The first part of this discussion addresses the PPC facility, including the history of PPC's operations and the subsequent groundwater and soils investigations that were conducted by EPA. The second part of the discussion addresses the Del facility, which is an industrial facility located upgradient of the PPC facility. The Del facility and the groundwater associated with it are the subject of EPA's investigation for this ROD. Since the history of Del's operations and associated enforcement activities are pertinent to the third operable unit, the Del discussion includes the findings of a separate groundwater and soil investigation conducted at the Del facility and the source remediation that resulted from that investigation.

PPC Facility

PPC conducted operations from September 1951 through June 1976. The primary activities at the PPC facility 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 substances. Untreated wastewater was discharged to four concrete waste storage pits directly north of the original building (see Figure 3).

Groundwater contaminated with heavy metals was detected at the Site by the 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. SCDHS also sought to ensure that no improper discharges were being made to the steam condensate leaching pool or the sanitary leaching pool used by PPC. 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 indicated that it then had the treated wastewater removed. The removal of the treated wastewater residuals 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 PPC facility, 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 PPC facility is covered either by the 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 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 requiring that the Site be proposed for inclusion on the NPL. The Site was proposed and listed on the NPL on October 15, 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 PPC property. A ROD for the treatment of the contaminated groundwater, designated as the first operable unit, 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 1994 after completion of the source remediation.

In order to further characterize the soils underlying the former storage pits, EPA undertook a second RI/FS to investigate the subsurface soils within and directly beneath the former storage pits and leaching pools at the PPC facility. EPA's contractor, Malcolm Pirnie, Inc., performed the second operable unit RI/FS from April 1990 to July 1992. A ROD for the treatment of the contaminated subsurface soils was signed on September 28, 1992. The remedy includes excavation of the subsurface soils, off-site treatment of the heavy metals and

organics, and off-site disposal. The remediation of the contaminated subsurface soils is expected to begin and be completed in 1994.

Additionally, the initial RI/FS also detected the presence of groundwater contamination upgradient of the PPC facility. Analytical results of groundwater samples collected during the first operable unit RI indicated the presence of heavy metals, predominantly cadmium, chromium, lead, and nickel, at concentration levels greater than Federal maximum contaminant levels (MCLs) in both upgradient and downgradient wells at the Site. Specifically, cadmium, chromium, lead, and nickel were detected at concentrations of 71 micrograms per liter (ug/l), 291 ug/l, 144 ug/l, and 274 ug/l, respectively, in groundwater samples collected from monitoring well MW1SP (see Figure 4), which is located upgradient of former leaching pools at the PPC facility. Therefore, EPA determined that it was necessary to undertake a third study to investigate the potential of an upgradient contributing source of contamination, which was designated as the third operable unit. Because Del is located north of the PPC facility (see Figure 1), and the groundwater flow is generally in a southerly direction, EPA subsequently entered into an Administrative Order on Consent (AOC) with Del on September 27, 1990 to conduct an RI. Geraghty and Miller, Inc., Del's consultant, performed the third operable unit RI from September 1990 to July 1993. The preferred remedy in the Proposed Plan, released to the public on July 21, 1993, was based on this RI.

Del Property

Since its beginning in 1964, Del has been using essentially the same process to manufacture cosmetics and over-the-counter topical pharmaceuticals for wholesale and retail markets. Del's manufacturing operations are located on Parcel B, and Parcel A is a 6-acre wooded lot just south of Parcel B (see Figure 2). Of the four metals of concern (i.e., cadmium, chromium, lead, and nickel) found in the groundwater upgradient of the PPC facility, only trivalent chromium is used in the manufacture of Del's products.

Both industrial wastes and sanitary waste are generated at the Del property. Industrial wastes include process wastewater and noncontact cooling water. Process wastewater is generated at Del's quality control laboratory and from washing, mixing, and packaging equipment which contacts product. Noncontact cooling water is generated from cooling mixing vessels used in manufacturing products.

From the start of manufacturing in 1964 until 1973, process wastewater and noncontact cooling water were discharged to leaching pools located on the western portion of the Del property. Noncontact cooling water was also discharged to pools located on the northern portion of the property (see Figure 5). Beginning in November 1972 and continuing into early 1973, all industrial leaching pools were sealed and converted into wastewater holding pools (see Figure 5). When full, the pools were pumped and the wastewater was removed by a New York-licensed hauler as nonhazardous waste. This method of disposal continued until November of 1987 when Del started discharging both process wastewater and noncontact cooling water to its sewer system in accordance with the Suffolk County Department of Public Works certification.

Sanitary wastes were formerly discharged to sanitary leaching pools (see Figure 5); the operation of these leaching pools ceased in September 1987. Since September 1987, sanitary effluent has been discharged to Del's sewer system (see Figure 6).

In December 1987, the SCDHS requested that Del investigate the impact of the western leaching pools on soils and groundwater. The contaminants of concern were identified as various organic compounds and four metals (copper, silver, lead, and cadmium). In March 1988, Donnelly Engineering was retained by Del to conduct a study. As part of a Phase I effort, Donnelly Engineering installed three monitoring wells (wells W-1, W-2, and W-3) at the Del property, the locations of which are shown on Figure 4. Analysis of groundwater samples collected from these wells indicated an elevated level of lead of 20 ug/l in well W-3. The Phase I study also included the collection of subsurface soil samples, in which various organic and inorganic contaminants were detected.

In May 1989, Phase II of the study was initiated to determine whether groundwater had been impacted by soil contaminants detected at and in the vicinity of the western leaching pools and, if so, the extent to which the affected groundwater had migrated. This phase of the study included the installation of six additional monitoring wells, namely wells W-4 through W-9 (see Figure 4), and the collection of additional soil samples

in the vicinity of the western leaching pools.

As requested by the SCDHS, groundwater samples collected from these wells were analyzed for cadmium, chromium, lead, and nickel. Analytical results indicated that concentrations of these contaminants were below detectionlimits and/or below NYSDEC and EPA standards. Therefore, it was concluded that the groundwater had not been impacted by soil contaminants detected at the western leaching pools. However, soil data indicated the presence of contaminated soils in the immediate vicinity of the western leaching pools. After review of the Phase II results, the SCDHS requested the installation of two additional monitoring wells, W-10 and W-11 (see Figure 4), on Del's Parcel B property to confirm the direction of groundwater flow. The SCDHS also requested that groundwater samples be collected from monitoring wells W-1 through W-11 and analyzed for chromium, only. The analytical results of these samples indicated that chromium concentrations were below detection limits.

Although it was concluded, based on the results of the Donnelly Engineering's study, that soil contaminants detected at the western leaching pools had not impacted groundwater, the SCDHS required the excavation of soils containing organic compounds around these pools. The excavation was conducted from November 11 through November 20, 1992, under the direction of the SCDHS and the supervision of Donnelly Engineering and Del. It included the removal of five concrete holding pools and excavation and off-site disposal of 1,708 tons of contaminated soil. Grab samples of excavated soil were analyzed using the Toxicity Characteristic Leaching Procedure (TCLP). Sample analytical results were below detection limits, with the exception of barium, which was detected at 0.30 milligrams per liter (mg/l). Since the TCLP analytical results did not exceed EPA Toxicity Characteristic (TC) limits, the excavated soil was disposed as a nonhazardous waste at an off-site disposal facility. Liquid waste, which was generated during the washing of the excavated concrete holding pools, was disposed as nonhazardous waste at the Bergen Point treatment plant. The excavation was backfilled with clean fill, compacted, and covered with 9 inches (256 tons) of crushed stone blend.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI and the Proposed Plan for the third operable unit were released to the public on July 21, 1993. These documents were made available in both the administrative record file at the EPA Docket Room in Region II, New York and two information repositories maintained at the Babylon Town Hall and the West Babylon Library. The notice of the public meeting and availability of the above-referenced documents appeared in This Week publication and Newsday newspaper on July 31, 1993 and August 3, 1993, respectively. A 30day public comment period was held from July 22, 1993 to August 20, 1993.

On August 10, 1993, EPA conducted a public meeting at the W.E. Howitt Junior High School in Farmingdale, New York, to inform local officials and interested citizens about the Superfund process, present the results of the third operable unit RI and EPA's preferred "No Action" remedy, and respond to any questions from area residents and other attendees.

EPA did not receive any comments on the RI and the Proposed Plan at the public meeting, nor were any written comments concerning the remedy selection received during the public comment period. As a result, no Responsiveness Summary was prepared. The NYSDEC, however, expressed a concern about potential groundwater contamination at private wells downgradient of the Site, which is outside of the scope of this third operable unit. Consequently, EPA is investigating this potential contamination as a separate matter.

SITE CHARACTERISTICS

Under the terms of the AOC, Geraghty & Miller, Inc. conducted an RI to characterize potential groundwater contamination in the upgradient portion of the Site. The intent of the study was to characterize groundwater quality upgradient from the PPC facility, specifically underlying Parcel A (see Figure 2), and determine whether operations at Del have impacted the groundwater quality at the Site.

The scope of the RI included the following: (1) installing three two-well clusters, each containing one shallow and one deep well, on Parcel A; (2) sampling the six newly installed wells and eight existing wells at the Del property; and (3) collecting water-level measurements from the six new wells on Parcel A and from selected monitoring wells on Parcel B to determine the direction of the groundwater flow in the vicinity of

the Del property.

The three shallow monitoring wells (MW-12, MW-13, and MW-14) were drilled to a depth of 25 feet and the three deep monitoring wells (MW-12D, MW13D, and MW-14D) were installed to a depth of 50 feet. Two rounds of groundwater samples were collected and analyzed for filtered (dissolved) and unfiltered (total) cadmium, chromium, lead, and nickel. The first round of groundwater sampling was conducted at the six newly installed wells on Parcel A and eight existing wells (W-4, W-5, W-6, W-7, W-8, W-9, W-10, and W-11) on Parcel B in March/April 1992. The well locations are shown on Figure 4. The second round of groundwater sampling was conducted at only the six wells on Parcel A in October 1992. Prior to each round of sampling, groundwater level measurements were obtained, and as a result EPA has confirmed that the direction of the groundwater flow in the vicinity of the Site is southerly.

Analytical results for groundwater samples collected during the March/April 1992 sampling event are presented on Figure 7. The analytical results for the October 1992 groundwater sampling event are presented on Figure 8.

Groundwater sampling results were compared with the following Federal and State drinking water standards: EPA's MCLs of 5 ug/l for cadmium, 100 ug/l for chromium, and 100 ug/l for nickel, and recommended drinking water action level of 15 ug/l for lead; and the NYSDEC's groundwater quality standards of 10 ug/l for cadmium, 50 ug/l for chromium, and 25 ug/l for lead. No NYSDEC drinking water standard is available for nickel.

The first round of groundwater sampling revealed higher levels of specific contaminants in Parcel B wells than in Parcel A wells. The maximum total concentration (unfiltered) of cadmium was 3.1 ug/l which was detected at a well on Parcel B and is below EPA's and the NYSDEC's drinking water standards (5 ug/l and 10 ug/l, respectively). The maximum total concentration of nickel was 91 ug/l which was detected at a well on Parcel B and is below EPA's drinking water standard of 100 ug/l. The maximum total concentration of chromium was 129 ug/l which was detected at a well on Parcel B and is above EPA's and the NYSDEC's drinking water standards (100 ug/l and 50 ug/l, respectively). The maximum total concentration of lead was 117 ug/l which was detected at a well on Parcel B and is above EPA's recommended action level and the NYSDEC's drinking water standard (15 ug/l and 25 ug/l, respectively).

Dissolved (filtered) concentrations of cadmium, chromium, and nickel were reported below the analytical detection limits of 2 ug/l, 3 ug/l, and 7 ug/l, respectively, for these contaminants. The maximum dissolved concentration of lead was 4.8 ug/l which was detected at a well on Parcel B and is well below EPA's action level of 15 ug/l and the NYSDEC's drinking water standard of 25 ug/l. As the dissolved concentrations were relatively low for all metals, it is possible that the elevated levels of the contaminants in unfiltered samples correlated to elevated total suspended soils in the samples and were not representative of the quality of the groundwater.

The second round of groundwater sampling showed that both unfiltered and filtered concentrations of cadmium, chromium, lead, and nickel for most of the samples were found at levels below the detection limits of 2 ug/l, 3 ug/l, 2 ug/l, and 8 ug/l, respectively. Only chromium, lead, and nickel were detected at levels above the detection limits. The maximum concentrations of chromium, lead, and nickel were detected in an unfiltered sample and were 12.2 ug/l, 15.1 ug/l, and 8.9 ug/l, respectively. These concentrations, with the exception of lead, are below EPA's and the NYSDEC's drinking water standards. The lead concentration of 15.1 ug/l is virtually equal to EPA's recommended drinking water action level of 15 ug/l.

The body of data suggest that the excavation of the five concrete holding pools and associated contaminated soils at Del facility, which was undertaken at the direction of the SCDHS, remediated the significant source of contamination at the facility. Further, based on the groundwater sampling data, no discernible "plume" of contamination was evident in the vicinity of the Del property. The few data which exceeded EPA's and the NYSDEC's drinking water standards in Parcel B were spotty in occurrence, and were found in unfiltered samples only. These data may be attributable to leaching of artifact turbidity in the samples. All filtered samples were below applicable standards. Therefore, EPA has concluded that operations at Del are not adversely impacting the groundwater upgradient of the PPC facility.

SUMMARY OF SITE RISKS

Based on the results of the RI, a baseline risk assessment was conducted to estimate the risks associated with 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. This information is used to make a determination as to whether remediation of a site may be required.

As part of the baseline human health 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 the site based on several factors suchas 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 well-water) 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); and, Risk Characterization--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk) assessment of site-related risks.

Under current EPA guidelines, the likelihood of carcinogenic (cancer-causing) and noncarcinogenic effects as a result of exposure to site chemicals are considered separately. An assumption is made that carcinogenic toxic effects of the site-related chemicals would be additive. The same assumption is made for the noncarcinogens at a site.

The baseline risk assessment began with selecting contaminants of concern which are representative of conditions in the third operable unit study area. These contaminants of concern included cadmium, chromium, lead, and nickel (see Table 1). All of the contaminants, with the exception of lead, are noncarcinogenic by the ingestion route of exposure. Lead is considered by EPA to be a Group B2 carcinogen (i.e., there is sufficient evidence in animals and inadequate or no evidence in humans that lead can cause cancer). As EPA has not currently established quantitative indices of toxicity for exposure to lead, risks associated with lead in groundwater were assessed qualitatively in the baseline risk assessment. The reference doses (RfDs) and EPA's and the NYSDEC's drinking water standards for the contaminants of concern in the third operable unit study area groundwater are presented in Table 2. The reference doses for ingestion of cadmium, chromium, and nickel were obtained from the EPA's Integrated Risk Information System (IRIS) database.

The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of ingestion of groundwater upgradient of the PPC facility. The previous risk assessment for the second operable unit conducted by EPA for the Site addressed health risks related to groundwater use by future residents and future workers at the Site. The most conservative of these scenarios is the future adult residential scenario. Therefore, the future adult residential scenario was evaluated for ingestion of contaminants of concern in the groundwater samples collected and analyzed from the wells upgradient from the PPC facility.

An exposure assessment was conducted to estimate the magnitude, frequency, and duration of actual and/or potential exposures to the chemicals of concern present in groundwater upgradient of the PPC facility. Reasonable maximum exposure is defined as the highest exposure that is reasonably expected to occur at the Site for individual and combined pathways. As stated previously, metals are the only groundwater contaminants of concern identified in the groundwater samples obtained from the wells upgradient of the PPC facility. As dermal exposure to metals in groundwater is expected to be minimal and there is no pathway for inhalation of metals in groundwater, only ingestion of contaminants in upgradient groundwater was considered in this baseline risk assessment.

Potential carcinogenic risks are typically evaluated using the cancer slope factors (CSFs) developed by EPA for the contaminants of concern. CSFs have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. EPA considers excess upper bound individual lifetime cancer risk in the range of 10[-4] to 10[-6] to be acceptable. However, as explained previously, because cadmium, chromium, and nickel are considered noncarcinogens by ingestion, and EPA has not currently established quantitative indices of toxicity for

exposure to lead, which is a Group B2 carcinogen, no quantifiable carcinogenic risk estimates have been made in the baseline risk assessment. Instead, potential health risks associated with lead in groundwater were assessed qualitatively in the baseline risk assessment.

The baseline risk assessment suggests that lead may present a hazard to potential future residents using unfiltered groundwater for potable purposes. While a highly conservative assessment of groundwater use by potential future residents suggests that exposure to lead in groundwater may be of concern, the detected concentrations of lead in the unfiltered samples may be a result of turbidity, and the series of events required to realize the risks are extremely unlikely. There are currently no residences between the Del and PPC facilities. Even if the few data which exceeded EPA's recommended action level and the NYSDEC's drinking water standard for lead are not attributable to artifact turbidity, any low-level contamination would be expected to migrate to the groundwater extraction system to be constructed for the first operable unit.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake for a contaminant to the reference dose for that chemical; the reference dose is a measure of the chemical's "threshold" for adverse effects with many built-in safety factors. The HQs are summed for all contaminants within an exposure pathway (e.g., groundwater ingestion) to give the HI. When the HI exceeds one, there may be concern for potential noncarcinogenic health effects, if the contaminants in question are believed to cause a similar toxic effect.

The HQs for exposures to individual contaminants of concern in groundwater and the HIs for the combined exposure are presented in Table 3. The HIs for the combined exposures to groundwater contaminants of concern upgradient of the PPC Site are 0.18 for unfiltered samples and 0.14 for filtered samples. These HIs are well below one, suggesting that even under the most conservative exposure scenario, upgradient groundwater contaminated with cadmium, chromium, and nickel is highly unlikely to be associated with any adverse health effects.

The ecological risk assessment considered potential exposure routes of Site contamination to terrestrial wildlife. Since the majority of the PPC facility is paved or covered by 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 by contaminant transport through groundwater and discharge 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 as part of the initial RI completed in 1989, in which it was determined that no significant effect on aquatic organisms in the Great South Bay or creeks in the vicinity of the Site could be attributed to groundwater discharge from the Site.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- exposure parameter estimation
- 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 in 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 chemicals 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 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.

DESCRIPTION OF THE "NO ACTION" REMEDY

The risk assessment indicates that the levels of cadmium, chromium, and nickel contaminants present in the groundwater in the upgradient portion of the Site present risks which fall within or below EPA's allowable risk range. In addition, groundwater sampling results indicate that, with the exception of a few excursions for lead in the groundwater above EPA's recommended drinking water action level and the NYSDEC's groundwater quality standard, lead data do not exceed these standards in the groundwater. Further, previous cleanup activities, which included excavation of the five concrete holding pools and associated contaminated soils, conducted at the Del facility have remediated the significant source of contamination previously present at that facility.

Based upon the findings of the third operable unit RI, EPA, in consultation with NYSDEC, has determined that the groundwater in the upgradient portion of the Site does not pose a significant threat to human health or the environment. EPA, therefore, has selected a "No Action" remedy for the third operable unit of the Site. Because this "No Action" remedy will not result in hazardous substances remaining on-site above health-based levels, the fiveyear review will not apply to this action.

DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes from the preferred alternative, as presented in the Proposed Plan.

APPENDIX I

FIGURES

APPENDIX II

TABLES

APPENDIX IV

STATE LETTER OF CONCURRENCE

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

Thomas C. Jorling
Commissioner

SEP 22 1993

Mr. George Pavlou
Acting Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: Preferred Plating Corporation OU 3 ID No. 152030

Dear Mr. Paylou:

The New York State Department of Environmental Conservation and New York State Department of Health have reviewed the draft revised Record of Decision for Operable Unit 3 of the Preferred Plating Corporation site and concur with the No Action Plan.

If you have any questions, please contact Kamal Gupta, of my staff, at (518) 457-3976.

Sincerely,

Ann DeBarbieri
Deputy Commissioner

cc: A. Carlson, NYSDOH