United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R02-93/202
September 1993

EPA

Superfund Record of Decision:

Tronic Plating, NY

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R02-93/202	2.	3. Recipient's Accession No.
4. Title and Subtitle SUPERFUND RECORD OF DECISION Tronic Plating, NY First Remedial Action - Final			5. Report Date 09/27/93 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address			10 Project Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/800 14.

15. Supplementary Notes

PB94-963807

16. Abstract (Limit: 200 words)

The 2.7-acre Tronic Plating site is an electroplating and metal anodizing facility located in Babylon, Suffolk County, New York. Land use in the area is predominantly light industrial. The site is bounded by light industrial businesses to the north, west, and northeast, and the Pinelawn Cemetery to the south and southeast. Three aquifers beneath the site, the unconfined Upper Glacial aquifer, the semi-confined Magothy aquifer, and the confined Lloyd Sand aquifer, supply public and private needs to the entire population of Suffolk County. The Upper Glacial and the Magothy aquifers are of environmental concern because studies have shown that they may be hydrogeologically connected to the site. From 1968 to 1984, onsite wastewater disposal for the electroplating and metal anodizing facility was serviced by four industrial leaching pools, one sanitary leaching pool, and one drywell. Between 1972 and 1982, the County collected and analyzed industrial discharges, onsite leaching pools, and an onsite storm drain and found elevated levels of metals. In 1983, Tronic Plating arranged to pump out, clean, and backfill the industrial leaching pools, and the site was connected to the municipal sewer system. In 1993, EPA required the PRP to remove approximately 230 yd^3 of contaminated sediment and soil from each of the three onsite storm drains, the three adjoining overflow drains, and the sanitary leaching pool and

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Tronic Plating, NY
First Remedial Action - Final
Contaminated Medium: None
Key Contaminants: None

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 58
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

Abstract (Continued)

dry well, and to dispose of the waste offsite at a hazardous landfill. This ROD addresses a first and final remedy for the onsite soil, sediment, and ground water. Results of the RI and prior removals performed by EPA were adequate to protect human health and the environment; therefore, there are no contaminants of concern affecting this site.

The selected remedial action for this site is no further action. Prior EPA removals were sufficient to address the risks posed to human health and the environment. There are no present worth or O&M costs associated with this no action remedy.

PERFORMANCE STANDARDS OR GOALS:

Not applicable.

ROD FACT SHEET

SITE

Name:	Tronic Plating Site
Location/State:	Farmingdale, Nassau County, New York
EPA Region:	II
HRS Score (date):	10/15/84
NPL Date:	06/01/86

ROD

Date Signed: September 27, 1993

Selected Remedy

The selected remedy is no further action

Operable Unit Number:	01
Capital Cost (1993 dollars):	$ 0
Construction Completion (projected):	9/27/93
O & M (1993 dollars):	$ 0

LEAD

Enforcement, PRP Lead
Primary Contact (phone): Gloria M. Sosa (212-264-2110)
Secondary Contact (phone): Kevin Lynch (212-264-6194)

WASTE

Type:	Metals
Medium:	Sediments in storm drains and leaching pools, storm water in storm drains
Origin:	Site was an electroplating and metal anodizing facility from 1968 to 1984

RECORD OF DECISION

TRONIC PLATING
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

Tronic Plating Site
Town of Babylon, Farmingdale
Suffolk County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Tronic Plating Site (Site) located in the Town of Babylon, Suffolk County, New York which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document summarizes the factual and legal basis for selecting the remedy for the Site.

The New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy. A letter of concurrence from NYSDEC is attached to this document (Appendix IV).

The information supporting this remedial action decision is contained in the administrative record for the Site, an index of which is appended to this document (Appendix III).

DESCRIPTION OF THE SELECTED REMEDY: NO FURTHER ACTION

The United States Environmental Protection Agency (EPA), in consultation with the State of New York has determined that the Site does not pose a significant threat to human health and the environment and, therefore, remediation is not necessary nor appropriate. This determination is based on the results of the Phase I and Phase II remedial investigations conducted at the Site from 1989 to 1992, the risk assessment performed for the Site and the sediment and soil removal activities performed pursuant to an Administrative Order on Consent that were completed on August 13, 1993. The Phase I and Phase II studies showed that, with the exception of a localized plume of cadmium, the groundwater contamination beneath the Site cannot be attributed to the past disposal practices at the Site. Also, neither the groundwater nor the soils at the Site pose an unacceptable risk to human health and the environment and are within EPA's acceptable risk range. Finally, the removal activities have resulted in the removal of cadmium and other metals from the contaminated on-site storm drains, sanitary leaching pool and drywell, thereby addressing the localized plume of cadmium in ground water. Therefore, "No Further Action" is the selected remedy for the Site.

DECLARATION OF STATUTORY DETERMINATIONS

In accordance with the requirements of CERCLA, as amended, and the NCP, EPA, in consultation with the State of New York has determined that the Tronic Plating Site does not pose a significant threat to human health or the environment, therefore, no further remedial action is necessary. A five (5) year review is not required for the Tronic Plating Site because no hazardous substances remain at the Site above health-based levels. EPA has determined that its response at this site is complete. Therefore, the Site now qualifies for inclusion on the Construction Completion List.

William J. Muszynski, P.E.
Acting Regional Administrator

9/27/93
Date

RECORD OF DECISION
DECISION SUMMARY

TRONIC PLATING SITE
TOWN OF BABYLON
SUFFOLK COUNTY, NEW YORK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
NEW YORK, NEW YORK
SEPTEMBER 1993

TABLE OF CONTENTS

SITE NAME, LOCATION AND DESCRIPTION.....Page 1

SITE HISTORY AND ENFORCEMENT ACTIVITIES.....Page 3

HIGHLIGHTS OF COMMUNITY PARTICIPATION.....Page 4

SCOPE AND ROLE OF RESPONSE ACTION.....Page 4

SUMMARY OF SITE CHARACTERISTICS.....Page 6

SUMMARY OF SITE RISKS.....Page 10

DESCRIPTION OF THE "NO-FURTHER-ACTION" REMEDY.....Page 14

DOCUMENTATION OF SIGNIFICANT CHANGES.....Page 14

ATTACHMENTS

APPENDIX I FIGURES
APPENDIX II TABLES
APPENDIX III ADMINISTRATIVE RECORD INDEX
APPENDIX IV NYSDEC LETTER OF CONCURRENCE

SITE NAME, LOCATION AND DESCRIPTION

The Tronic Plating Company Site (Site) is located at 168 Central Avenue in Farmingdale, Town of Babylon, Suffolk County, Long Island, New York. The Site occupies the southeast portion of a building owned by Commerce Holding Company, Inc. situated on Commerce Drive and the surrounding property, an area of approximately 7,200 square feet within a 117,000 square-foot lot. (See Figure 1.) This Site is a rectangular, flat, commercially developed property. With the exception of a 50 by 75 foot landscaped front lawn, the area surrounding the building at the Site is paved for parking and shipping access. The southern boundary of the Site is the southern edge of the front lawn adjacent to Central Avenue.

The Site surroundings consist of light industrial businesses to the north, west, and northeast. The Pinelawn Cemetery is located to the south and southeast. A wooded area owned by the Pinelawn Cemetery and separated from the Site by Central Avenue and an industrial lot, is located approximately 500 feet to the south. The area north of the Site, lower Melville, has no municipal sewer service and virtually all industries discharge their wastewater to ground-water infiltration systems, thereby impacting the ground-water quality in the area.

The relatively level surface of the Site slopes gently to the south-southeast at a grade of approximately 3 percent. Except for the lawn, the Site surface is primarily impermeable given the presence of the building and paved areas. Surface water from precipitation drains from the building and the paved areas into a system of 12 storm drains located along the parking area (Commerce Drive).

There are 3 major aquifers underlying the Site. These are: the unconfined Upper Glacial aquifer; the semi-confined Magothy aquifer; and, the confined Lloyd Sand aquifer. The total thickness of these three aquifers beneath the Site is approximately 1,200 feet. The two aquifers of environmental concern for this Site are the Upper Glacial and the Magothy, since the Lloyd Sand is a deep aquifer (1000 feet) and not hydrogeologically connected to the above aquifers. Studies have indicated that the Upper Glacial and Magothy aquifers may be hydrogeologically connected under the Site. The Magothy aquifer is totally dependent upon downward percolating rainfall and recharge from the overlying Upper Glacial deposits for its surface replenishment.

The Raritan Formation of Late Cretaceous age is the deepest geologic formation of unconsolidated deposits beneath the Site. It rests directly on the crystalline bedrock and is overlain by the Magothy Formation. The Raritan Formation occurs beneath the entire area of Long Island but does not outcrop near the Site or within Suffolk County. Formation thickness ranges from 300 to 600 feet. The Raritan Formation is divided into a lower unit, the Lloyd Sand aquifer, and the upper unit, the Raritan Clay. The Raritan Clay functions as an aquiclude, separating the ground water within the Lloyd Sand from the ground water within the overlying Magothy Formation. Beneath the Site, the Lloyd Sand is approximately

200 to 300 feet thick and the relatively impermeable Raritan Clay is approximately 175 feet thick.

The Magothy Formation is a thick sequence of Late Cretaceous age sediments which were deposited upon the underlying Raritan Formation. At the Site the Magothy Formation is approximately 700 feet thick. The Magothy is overlain directly by the more recent Pleistocene deposits which comprise the Upper Glacial aquifer. Permeable outwash deposits comprise the bulk of the Upper Glacial deposits. These sediments rest unconformably upon the Magothy Formation at an elevation equivalent to mean sea level, or 100 feet below grade at the Site location. The Upper Glacial deposits are approximately 100 feet thick directly under the Site. The Upper Glacial sediments consist of horizontally stratified beds of fine to coarse sands and gravel. The Magothy and the Upper Glacial aquifers have historically been distinguished by differences in sediment color, texture and composition.

The direction and relatively rapid rate of shallow (near the water table) ground-water flow beneath the Site is southerly at approximately 2 feet per day. This information was developed from a series of water level measurements collected from piezometers installed on-site and agrees with literature describing the hydrologic conditions for the area. The water table at the Site was found to be between 28 to 35 feet below the surface.

Ground water supplies the public and private needs of the entire population of Suffolk County. The two most commonly tapped aquifers for water supply purposes are the Upper Glacial and the Magothy. The Magothy aquifer is the primary source of potable drinking water in the area of the Site. Two water companies purvey water pumped from municipal wells to the homes and businesses in the vicinity of the Site. The East Farmingdale Water District supplies the businesses at the Site as well as areas to the south. The Suffolk County Water Authority also supplies some areas to the south of the Site. Each municipal supply well generally supplies one million gallons or more per day when in full-scale operation. All of the local public supply wells are advanced to and completed within the Magothy aquifer. The nearest municipal well field is located partially downgraient at 0.9 miles southwest of the Site. The ground-water flow is to the south. Another municipal supply well is located 2.4 miles south (downgradient) of the Site and a third municipal well field is located partially downgradient at 2.8 miles south-southeast of the Site.

Private wells exist in the Site vicinity; these are completed within either the upper Magothy or the Upper Glacial aquifer. Some are used to supply drinking water to businesses, but most are used for irrigation or for process and cooling water. The nearest private well used for drinking water supply services an office at the St. Charles Cemetery and is located partially downgradient at 0.9 miles south-southwest of the Site. Wells located downgradient closer to the Site are solely used for irrigation.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Tronic Plating Company, Inc. operated an electroplating and metal anodizing facility at the Site from July 1968 to March 1984. The facility was serviced by 4 industrial leaching pools, 1 sanitary leaching pool and 1 drywell. The 4 industrial pools are located below the front lawn of the building, and the sanitary pool is located under the driveway adjacent to the front lawn. The dry well (a former sanitary leaching pool that was disconnected from the building) is located in the rear of the former Tronic facility. There are 3 on-site storm drains, with 2 overflow drains, located in the driveway adjacent to the building and the front lawn. (See Figure 2.)

The Suffolk County Department of Health Services (SCDHS) records indicate that in November 1983, the Tronic Plating Company arranged to pump out, clean, and backfill the industrial leaching pools. There was no indication that the Tronic Plating Company removed the contents of the storm drains, sanitary leaching pool, or drywell. Also, during 1983 the building on the Site was connected to the Suffolk County municipal sewer system. In March and April of 1984, the Tronic Plating Company ceased operating at the Site and moved its facility to Nassau County.

Approximately 1.25 million gallons of waste water were produced by the Tronic Plating Company each year. The sources of these wastes were rinse waters from the electroplating, anodizing and etching processes. Between 1972 and 1982, the SCDHS collected and performed chemical analyses of fluid samples collected from the Tronic Plating Company's industrial discharges, as well as from the on-site leaching pools and an on-site storm drain. The analyses indicated the presence of metals (cadmium, chromium, copper, cyanide, iron, lead, nickel, silver, zinc) with concentrations characteristic of waste streams generated by a typical electroplating facility.

Administrative Orders were issued to the Tronic Plating Company by both the SCDHS and the New York State Department of Environmental Conservation (NYSDEC) regarding its unpermitted releases of industrial waste. In 1984, NYSDEC conducted a Preliminary Inspection of the Tronic Plating Company facility. The Site was placed on EPA's National Priorities List for Superfund cleanup on June 10, 1986.

In July 1987, EPA began preparation of a Work Plan for the performance of a Remedial Investigation (RI) and Feasibility Study (FS) for the Tronic Plating Site. In May 1988, Commerce Holding Company, Inc., the owner of the Site property and therefore a potentially responsible party (PRP), entered into an Administrative Order on Consent (AOC) with EPA to conduct the RI/FS. The RI was performed in two phases, each designed to characterize the extent of ground-water and soil contamination associated with the waste releases at the Site.

The Phase I study was performed in the Spring of 1989 and the draft RI report completed in May 1990. Upon review of the Phase I report, EPA required that supplemental work,

or a Phase II study, be conducted. The Phase II investigation was completed in 1991, and the final RI report was prepared in March 1992. Using the information presented in the final RI report, EPA conducted a baseline risk assessment to determine whether contaminants identified at the Site pose a current or potential future risk to public health and the environment. The results of this assessment are presented in the final risk assessment report dated December 31, 1992.

On May 7, 1993, Commerce Holding Company, Inc. entered into another AOC with EPA to remove contaminated sediment and soil from each of the three on-site storm drains, SD-1 (Main), SD-2 (Main) and SD-3 (Main), and the three adjoining overflow drains SD-1 (Overflow), SD-2 (Overflow) and SD-3 (Overflow) to the depth of 5 feet below the bottom of each concrete underground structure. Soil samples were collected from the bottom of the excavation and analyzed to determine the levels of cadmium, lead and chromium present. According to the AOC, the removal will be considered effective, based on EPA and NYSDEC cleanup goals developed for the Site, if the levels of these contaminants meet the following cleanup goals: cadmium - 10 parts per million (ppm); lead - 200 ppm; chromium - 98 ppm. The AOC also included the provision that Commerce Holding Company, Inc. would clean out any contaminated sediments and soil to the depth of 5 feet in the sanitary leaching pool and drywell, where no direct soil borings were advanced in the RI. Finally, Commerce Holding Company, Inc. agreed to take samples of the remaining soils at each location where sediment/soil removal would take place and analyze this soil to confirm that contaminant concentrations and, therefore, the reservoir of the contaminants in the Site soils were significantly reduced. The field work required pursuant to the AOC has been completed.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

There was limited community involvement at the Site, possibly because it is in an industrial area and there are no residences nearby. No one attended the public meeting held during the public comment period except two local officials. No comments were submitted during the public comment period.

SCOPE AND ROLE OF RESPONSE ACTION

This is the first and only operable unit for the Site. The primary objective of this operable unit is to determine the nature and extent of contamination at the Site and to take measures, as appropriate, to ensure protection of human health and the environment. EPA has determined that no further action is necessary because there is no risk to public health and the environment.

However, previous actions, namely the removal action, have occurred. The removal work required by the Order was carried out by Commerce Holding Company, Inc. under the

supervision of EPA. Field work began on July 22, 1993 and was satisfactorily completed on August 13, 1993. (See Figure 3 for a typical leaching pool and storm drain design.) Storm water was removed from the on-site storm drains SD-1 (Main) to SD-3 (Main) with a vacuum truck. Samples of storm water and bottom sediments were taken in order to characterize these wastes for disposal subsequent to their removal. Once the storm water was emptied, a vacuum truck ("super-sucker") was used to remove contaminated sediments and soils. An X-ray fluorescence field-screening device was employed to determine the depth of the excavation. (See Table H for XRF results.) Confirmatory soil samples were taken at the bottom of each excavation and sent for laboratory analysis to ensure that the cleanup goals developed by EPA and NYSDEC were met.

Drywell DW-1 was sampled to determine if excavation was necessary, since DW-1 was not adequately characterized during the RI. Results of the analysis of the samples revealed the presence of cadmium at 19.1 ppm, chromium at 22.9 ppm and lead at 16.6 ppm. EPA directed Commerce Holding Company, Inc. to excavate Drywell DW-1.

The sanitary leaching pool SP-1 (Main) was the only excavation not to pass the field screening, which indicated that the cleanup goals had not been met. Concrete rings in SP-1 (Main) about 4.5 feet deep were caked with a green-blue sludge which field screening indicated contained 17,000 ppm of chromium. Therefore, further field work was necessary. SP-1 (Main) required excavation deeper than that which could be supported using the super-sucker because the hole would collapse. A larger hole was excavated using a back hoe and sediment and soil were removed to a depth of 30 feet, and a confirmatory sample was taken at the bottom of the excavation. The existing concrete rings were replaced and new ones were installed. In addition, an overflow was found for SP-1 (Main), located roughly between SD-1 (Main) and SD-1 (Overflow).

In total, 230 cubic yards of contaminated soil were removed from the Site and shipped to hazardous waste landfills. Approximately 10 cubic yards of cyanide-tainted wastes were disposed of at L.W.D., Inc. in Calvert City, Kentucky, and the remaining wastes were shipped to Michigan/Wayne Disposal, Inc. in Belleville, Michigan. The storm water was disposed of at the Suffolk County Department of Public Works plant at Bergen Point, New York.

Analytical results from confirmatory samples taken from the bottom of the removal excavations were within an acceptable range of the EPA and NYSDEC cleanup goals of cadmium - 10 ppm; lead - 200 ppm; and chromium - 98 ppm. The level of metals in the bottom of each excavation are reported in Table G.

This action achieved the removal of cadmium from the Site sediment. Cadmium in Site sediments may have acted as a source of contamination to the ground water. Cadmium was present in the ground water at one sampling location in concentrations exceeding State and Federal primary drinking water standards or maximum contaminant levels (MCLs). Therefore, since the potential source of cadmium to the ground water was removed,

concentrations of cadmium in the ground water at the Site should not increase. This action also achieved the removal of lead and chromium and any other potential ground-water contaminants found in the contaminated sediments of the storm drains and associated overflow drains, the sanitary leaching pool and the drywell.

SUMMARY OF SITE CHARACTERISTICS

Under the supervision of EPA, Commerce Holding Company Inc.'s consultant, C.A. Rich Consultants, performed the RI in two consecutive phases. The Phase I RI included: 1) a geophysical survey; 2) soil sampling associated with monitoring well installation; 3) ground-water sampling; 4) sampling of sediments and water from storm drains; 5) permeability testing; 6) a topographic survey; and, 7) numerical modeling of ground water. The Phase II RI included: 1) soil and sediment sampling from storm drains; 2) soil sampling adjacent to storm drains; 3) an installation of additional monitoring wells; 4) sampling of ground water; and, 5) an additional topographic survey. The samples collected during these studies were analyzed for organic and metal contaminants on EPA's Target Compound List.

The results of the two phases of the RI indicated that ground water, soils and storm-drain sediments at the Site were contaminated with volatile organic compounds (VOCs) and metals. The following summary presents the RI results for site soils and the ground water directly below and in the vicinity of the Site. However, these data represent conditions at the Site prior to the removal action that was recently conducted. Levels of contaminants in the storm drains and associated overflow drains, the sanitary leaching pool and the drywell are now much lower. Table G in Appendix II contains the post removal sampling results for soils in the above-mentioned areas.

Contamination of Site Soils

Organic Compounds

The soil samples collected beside and below the former leaching pools did not indicate significant presence of VOCs. Acetone was detected at random sampling locations, with concentrations ranging between 26 to 95 parts per billion (ppb). Although it was absent from the field blanks it was also detected in the background soils obtained from a boring for the upgradient monitoring well, MW-1D. There was also one occurrence of each pesticide, 4,4'-DDE and 4,4-DDT, in the leaching pool LP-2 at a depth of 14 to 16 feet below grade. Several phthalate compounds were detected in soil samples from the four leaching pools. Several phthalate compounds, however, were also detected in a number of field blanks collected for the soil samples.

Freon 113 and methylene chloride were detected in the soil samples collected near the drywell, DW-1. Methylene chloride and acetone were also detected near the former sanitary leaching pool.

Several VOCs were detected in the bottom sediments from the 3 on-site storm drains. The concentrations ranged from 13 ppb of methylene chloride to 140 ppb of acetone at storm drain SD-2 (Main), 2 ppb of tetrachloroethylene (PCE) to 50 ppb of acetone at storm drain SD-3 (Main) and 20 ppb of vinyl chloride to 180 ppb of trichloroethylene (TCE) at storm drain SD-5 (Main). Polynuclear aromatic hydrocarbons, such as pyrene, fluoranthene, fluorene and naphthalene, were detected in the sediments from the main storm drains SD-2, SD-3, SD-5, SD-6 and SD-7. The origin of these compounds may be the presence of asphalt pavement and/or exhaust and drippings from automobile engines. As with the leaching pools, phthalate compounds were detected in the storm-drain sediments.

The Toxicity Characteristic Leaching Procedure (TCLP) test was performed on storm drain sediment samples from SD-1 (Main), SD-2 (Main) and SD-3 (Main). This test determines the amount of specific contaminant which may leach out of the contaminated medium, in this case sediment, over an extended period of time. Tetrachloroethylene and 2-butanone were detected in the leachate from the three storm drains at concentrations two to five orders of magnitude below the regulatory levels, respectively.

In summary, the RI results indicated that the organic contamination of the Site soils did not appear to be high, widespread or predominant at any one disposal location. Also, with the exception of acetone, PCE and TCE found in the storm-drain sediments, the organic contaminants detected in the soils were not associated with ground-water contamination by these compounds.

Inorganic Compounds

During the RI, increased levels of cadmium, chromium, copper, cyanide, lead and nickel were found in soil samples collected between the bottom of the leaching pools and 20 feet below grade for the four former industrial leaching pools, LP-1 through LP-4. These increased levels were identified by comparisons of the sample concentrations with background soil levels measured in the boring for the upgradient ground-water monitoring well, MW-1D. The following were the background and the maximum concentrations, respectively, of metals in soils found in the RI leaching pool samples: chromium - 5.3 ppm and 15.3 ppm; copper - 5.9 ppm and 38 ppm; cadmium - not detected and 8.2 ppm; cyanide - not detected and 46.9 ppm, lead - 1.1 ppm and 6.7 ppm, and nickel - not detected and 13.8 ppm. Soil samples obtained at the 38 to 40 foot depth beneath the leaching pools, at the water table, indicated conditions generally similar to background.

The analyses of soils obtained from the soil boring adjacent to the sanitary leaching pool, SP-1 (Main), revealed the presence of both chromium and cadmium at levels above background. The levels of these metals were elevated in samples from both the 19 to 21 foot and the 37 to 39 foot depths. Chromium was detected in the 44.1 to 62.6 ppm range and cadmium was detected in the 2 to 3.9 ppm range. The analyses of subsurface soils from

a boring in the vicinity of the dry well, DW-1, indicated that metal levels were generally similar to levels reported for background samples.

Metals were detected in the bottom sediments of all 8 storm drains sampled for the RI. The 3 storm drains located on the Site, SD-1 (Main) through SD-3 (Main), contained significantly higher levels of cadmium, chromium and lead in comparison with the drains SD-4 (Main) through SD-8 (Main). For example in storm drains SD-1 (Main) through SD-3 (Main): cadmium ranged from 73 to 1,130 ppm; chromium ranged from 126 to 1,580 ppm; and, lead ranged from 780 (R) to 2,290 ppm. Storm drains SD-4 (Main) through SD-8 (Main) contained concentrations of cadmium in the range of 2 to 12.8 ppm, chromium in the range of 16.7 to 60.8 ppm, and lead in the range of 114 (R) to 874 (R) ppm. The (R) designation indicates an unreliable laboratory result. Soil samples obtained from borings below and beside the storm drains indicate that these soils are slightly above the background levels. The maximum concentrations obtained from these locations were: cadmium 6.4 ppm; chromium 22.7 ppm; and, lead 54 ppm.

TCLP was performed on storm-drain sediment samples from SD-1 (Main), SD-2 (Main) and SD-3 (Main). This test determines the amount of a contaminant which may leach out of a contaminated medium, in this case sediment, over an extended period of time. Arsenic, cadmium and lead were detected in the leachate from the three storm drains at concentrations above their respective MCLs. The maximum concentration of these contaminants and their MCLs are as follows: arsenic - 83.9 ppb, MCL = 50 ppb; cadmium - 3,340 ppb, MCL = 5 ppb; and, lead - 9,300 ppb, Federal action level = 15 ppb.

In summary, metals in the Site soils which were present in high levels prior to the removal action are chromium, cadmium and lead. These metals were present in particularly high concentrations in the storm-drain sediments, SD-1 (Main) through SD-3 (Main). This soil contamination, considered in conjunction with the ground-water data, indicated that these disposal locations, if not removed, could have continued to be the source of the local plume of cadmium in the ground water under the Site. In addition, the data indicated that the storm drain sediment contamination has not spread significantly either laterally or downward from its present location.

Contamination of Ground Water

Organic Compounds

Several VOCs were detected during the RI in the ground water sampled from the monitoring wells. (See Figure 4 for monitoring well locations.) The contaminants which were detected either above the New York State's ground-water protection criteria and sanitary code, or above EPA's MCLs were: acetone; 1,1-dichloroethylene (1,1-DCE); 1,1,1-trichloroethane (TCA); trichloroethylene (TCE); tetrachloroethylene (PCE); and, 1,2-dichloroethylene (1,2-DCE).

Acetone and 1,1-DCE were detected very infrequently, in 4 of 24 samples analyzed in the RI. 1,2-DCE and PCE were detected more frequently, in 11 and 21 samples, respectively, of 24 samples analyzed. The concentrations of these contaminants were not high, however, and ranged between 1 and 13 ppb for 1,2-DCE, and 1 and 41 ppb for PCE. Furthermore, the distribution of these contaminants in the ground water appeared random and did not identify a source.

1,1,1-TCA was detected in 18 of 24 samples analyzed and the concentrations ranged between 2 and 42 ppb. The highest of these concentrations was located immediately beneath and downgradient from the Site, indicating that the Site may have been the source of this contamination, although in the absence of Site soil contamination by 1,1,1-TCA, upgradient source(s) may be the cause.

TCE was detected in 23 of 24 samples analyzed and the concentrations ranged between 1 and 490 ppb. The highest levels were detected upgradient from the Site. Also, at each location the most contaminated samples were found in the deeper wells. This distribution of TCE in the ground water indicated an upgradient source(s).

Inorganic Compounds

Several metals were detected during the RI in the ground water sampled from the monitoring wells. The metals which were detected either above the New York State's ground-water protection criteria and sanitary code, or EPA's MCLs were: antimony; beryllium; cadmium; total chromium; lead; nickel; silver; thallium; and, hexavalent chromium.

Cadmium was detected at a concentration of 93 ppb directly downgradient from the on-site storm drains, SD-1 (Main) through SD-3 (Main). This level was confirmed by EPA's split sample at a concentration of 122 ppb and was significantly higher than the MCL of 5 ppb. These results indicated a localized contamination of ground water by cadmium. This contamination may be attributed to the Site, specifically the storm-drain sediments.

Several of the above metals were detected very infrequently (1 of 24 samples): antimony; beryllium; cadmium; silver; and, thallium. Silver was detected in one distant downgradient well, and both beryllium and thallium were detected only in the upgradient wells. Antimony was detected at 58.2 ppb in the ground water directly beneath the location of the inactive industrial leaching pools, but was not detected in any of the Site soils. (While the New York State ground-water protection criterion for this metal is 3 ppb, the detection limits for the ground-water analyses were 35 to 50 ppb. Therefore, the contamination by this metal is not adequately defined.)

The metals which were detected in the ground water more frequently, total chromium and hexavalent chromium, showed some association with the Site, however, these results are difficult to interpret since a New York State Superfund Site, Astro Electroplating, is located

adjacent to the Tronic Plating Superfund Site and appears to be contaminated with chromium. For the remaining two metals which were detected more frequently, the nickel data show some association of the metal with the Site, whereas lead data, which include concentrations ranging from 4 to 75.5 ppb, with many values above the 15 ppb federal action level, indicate source(s) located upgradient from the Site. For nickel only one sample at 114 ppb exceeded EPA's proposed MCL of 100 ppb.

Surface Soils

The industrial waste waters were discharged from the Tronic Plating facility to the subsurface environment through leaching pools and storm drains. This disposal history suggests that surface soils are not contaminated with Site contaminants, although these soils were not chemically characterized in the RI. In addition, most of the Site surface is paved, precluding erosion or other transport of surface soil layers. Also, contaminants in subsurface soils are unlikely to be transported to the surface.

Contaminant Releases to Air

The primary contaminated media at the Site were the storm-drain sediments and subsurface soils. The extensive cover of the Site by pavement and building and the remote subsurface location of the contaminants precludes fugitive particulate or vapor emissions from the Site. Low levels of VOCs in the subsurface soil samples also indicate that the volatilization to ambient air will be negligible. During the RI, ambient air in the work space was monitored using the HNU analyzer. During the drilling of the industrial leaching pool, storm drain, and monitoring well borings, VOCs were detected only once at 0.5 ppm level.

SUMMARY OF SITE RISKS

The baseline risk assessment was conducted to estimate the human health and ecological risks associated with current and future Site conditions if no remedial action was taken. The baseline risk assessment was based upon the results of the RI. (See Table F for the summary statistics developed from the RI.)

Human Health Risk Assessment

A four-step process was utilized for assessing Site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification*– identified the contaminants of concern (COCs) at the Site based on several factors such as toxicity, frequency of occurrence, and concentration; *Exposure Assessment*– estimated the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are or could be potentially exposed to the COCs; *Toxicity Assessment*– determined 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*--summarized and combined 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.

The baseline risk assessment began with selecting the COCs which would be representative of Site risks. (See Table A.) The summary statistics for these COCs are presented in Table F. These contaminants included: VOCs such as acetone and chlorinated alkanes and alkenes, semivolatile organic compounds such as phthalates and polynuclear aromatic hydrocarbons, and 19 metals and cyanide. In general the most toxic, mobile and persistent contaminants, and those found frequently and at high concentrations at the Site are selected as COCs. However, the method used in this baseline risk assessment was conservative, favoring the inclusion of most contaminants in the analysis rather that the selection of only a few chemicals.

The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of the following exposure scenarios: 1) ingestion of ground-water by a worker in the future; 2) incidental ingestion of and dermal contact with on-Site subsurface soils by an excavation worker in the future and a utility worker at present and in the future; 3) incidental ingestion of and dermal contact with storm-drain sediments by an excavation worker in the future and a utility worker at present and in the future; and, 4) dermal contact with storm drain water by a utility worker at present and in the future. (See Table B.) Given that public drinking water supply wells are more than 2 miles downstream, residential exposures were considered unlikely. However, given the presence of private wells on nearby commercial/industrial properties, ingestion of ground water by local workers was considered. The area surrounding the Site is commercial/industrial, therefore residential soil exposure scenarios were not considered.

EPA's acceptable cancer risk range is 10^{-4} to 10^{-6}. This should be interpreted to mean that an individual may have approximately one in ten thousand to one in a million increased chance of developing cancer as a result of Site related exposure to a carcinogenic compound over a 70 year lifetime.

The results of the baseline risk assessment for this Site indicated that the highest carcinogenic risks (See Table E.) were attributable to a ground-water ingestion exposure scenario. These risks were within EPA's guidelines for an acceptable exposure. Four contaminants showed risks that exceeded a $1x10^{-6}$ risk level: 1,1-DCE, PCE, TCE, and arsenic. The cumulative risk associated with this exposure was 6.0×10^{-5}, which means that 6 additional persons out of 100,000 people could be at risk of developing cancer if the Site contamination was not remediated. The cumulative carcinogenic risks associated with the exposures to Site subsurface soils and storm-drain sediments did not exceed $1x10^{-6}$. The highest risk due to exposure to subsurface soil was 2.0×10^{-7} and to sediments was 9.8×10^{-8}. These risks are within EPA's acceptable risk range.

The health hazards of non-carcinogens are assessed by comparing the chronic daily intake (CDI) of a contaminant to its reference dose (RfD); the RfD (See Table C) being a benchmark for safety by virtue of its being based on the contaminant's threshold for causing adverse health effects, to which multiple safety factors are added. The ratio of the chronic daily intake to the reference dose (CDI/RfD) is referred to as the Hazard Quotient (HQ). An HQ > 1 may be associated with adverse health effects. To assess the overall potential for noncarcinogenic effects posed by simultaneous exposure to multiple contaminants, EPA has developed the Hazard Index (HI), which is the sum of all HQs within a particular exposure pathway. In the event that the addition of multiple subthreshold HQs (*i.e.*, HQ < 1) exceeds an HI = 1, adverse health effects may result if the individual contaminants are believed to share a similar mechanism-of-action or toxic endpoint.

The results of the evaluation of the noncarcinogenic hazards for this Site indicated that only the chronic HI of 1.8 for the ground-water ingestion exposure scenario was above one. (See Table D.) The HIs for all other exposure scenarios were below 1.

The HI of 1.8 was a cumulative value largely derived from chemical specific HQs for antimony (.67), arsenic (.25) and TCE (.22). The other metals which contributed to the risk included aluminum, cadmium, and hexavalent chromium. The computation of this HI included the conservative assumption that the HQs were additive. The contaminants which contributed significantly to the HI, however, affect different target organ systems and the exposures to these contaminants would result in different toxicological effects, except for antimony and arsenic, which affect similar target organs. Adding chemical specific HQs overestimated the Site risks. Further reducing the significance of the Site related chronic noncarcinogenic hazards from the ground-water ingestion scenario was the fact that some contaminants which contributed to the HI were detected infrequently; antimony in 2/24 samples, arsenic in 2 of 24 samples and cadmium in 1 of 24 samples.

The estimates of risks/hazards associated with the actual or threatened releases of hazardous substances from this Site did not indicate an existing or potential threat to public health, welfare or the environment.

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
- fate and transport modelings
- 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.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the Risk Assessment Report.

Actual or threatened releases of hazardous substances from this site, if not addressed by the selected alternative or one of the other remedial measures considered, may present an imminent and substantial endangerment to the public health, welfare, and the environment through the continued leaching of contaminants from the landfill.

Ecological Risk Assessment

The Site and its vicinity have been heavily modified for industrial use. The only potential habitat is the wooded area 300 feet south of the Site. This area is owned by Pinelawn Cemetery and will most likely be cleared within fifteen years. In addition, known contamination at the Site is limited to the subsurface.

Based on these observations, the potential risk of exposure of wildlife to Site contaminants was assumed negligible.

STATE ACCEPTANCE

The State of New York concurs with EPA's selected no further action alternative. Their letter of concurrence is attached as Appendix IV.

COMMUNITY ACCEPTANCE

There were no comments received during the public comment period which began July 28 and ended August 27, 1993. The only two attendees at the public meeting held by EPA in the Babylon Town Hall on August 24, 1993 were the fire marshall and a representative of the Town of Babylon Bureau of Environmental Control. These two officials concurred with the remedy.

DESCRIPTION OF THE "NO FURTHER ACTION" REMEDY

Based upon the review of all available data and findings of the RI and the removal conducted at the Site, EPA has determined that a no further action remedy is protective of human health and the environment.

The baseline risk assessment indicated that the levels of contaminants present in the Site sediments, soils and ground water presented risks which fall within EPA's acceptable risk range. In addition, although ground-water sampling results indicated some occurrence of contaminants exceeding MCLs, the distributions of these contaminants indicated either off-site sources or localized contamination. With the exception of cadmium, the ground-water contaminants could not be associated with potential sources at the Site.

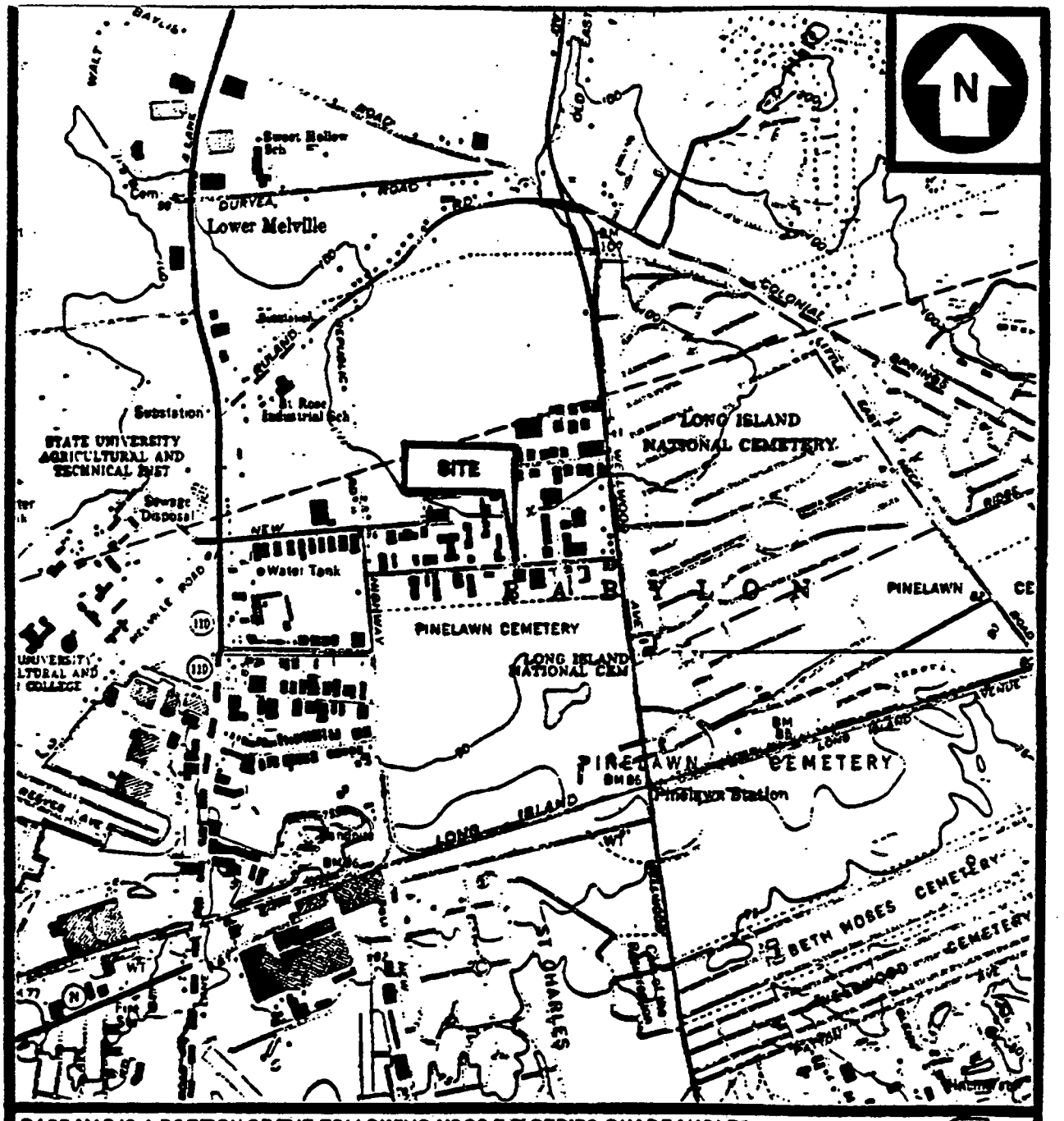
The removal action performed by the PRP achieved the removal of cadmium from the Site sediment which acted as a source of contamination to the ground water. Cadmium was present in the ground water at one sampling location in concentrations exceeding State and Federal primary drinking water standards or MCLs. Therefore, since the potential source of cadmium to the ground water was removed, concentrations of cadmium in the ground water at the Site should not increase. This action also achieved the removal of lead and chromium and any other potential ground-water contaminants found in the contaminated sediments of the storm drains and associated overflow drains, the sanitary leaching pool and the drywell. Confirmatory samples taken from the bottom of the excavations ensured that these goals were met. The removal was considered effective because it met the cleanup goals developed by EPA and NYSDEC.

DOCUMENTATION OF SIGNIFICANT CHANGES

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

APPENDIX I

FIGURES



BASE MAP IS A PORTION OF THE FOLLOWING USGS 7.5' SERIES QUADRANGLES:
AMITYVILLE, NY, 1969; PHOTOREVISED 1979;
HUNTINGTON, NY, 1967, PHOTOREVISED 1979

0 1000 2000 3000
SCALE = feet

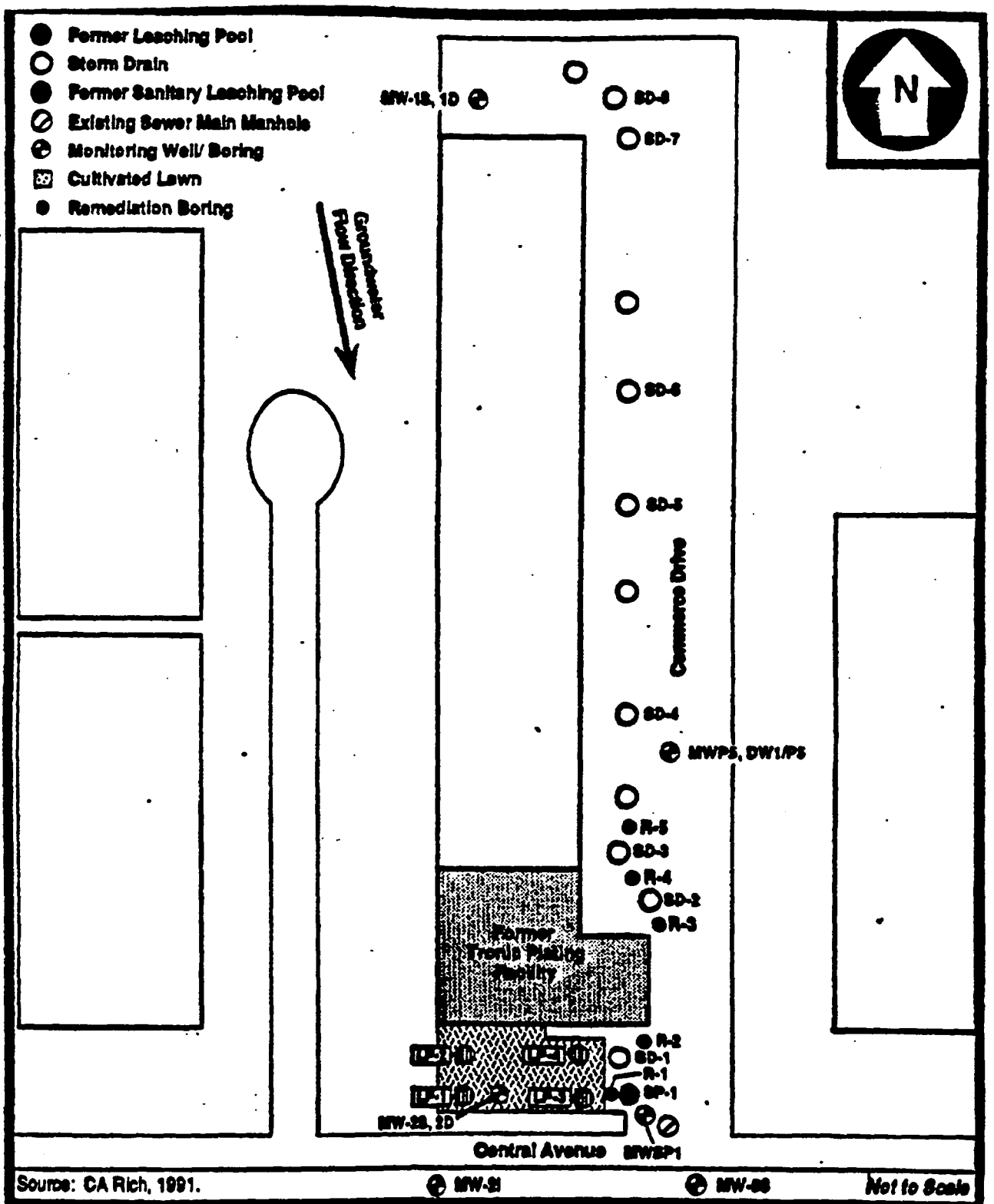
NEW YORK
QUADRANGLE LOCATION

LOCATION MAP

TRONIC PLATING COMPANY
FARMINGDALE, NEW YORK

Figure 1.

POOR QUALITY ORIGINAL

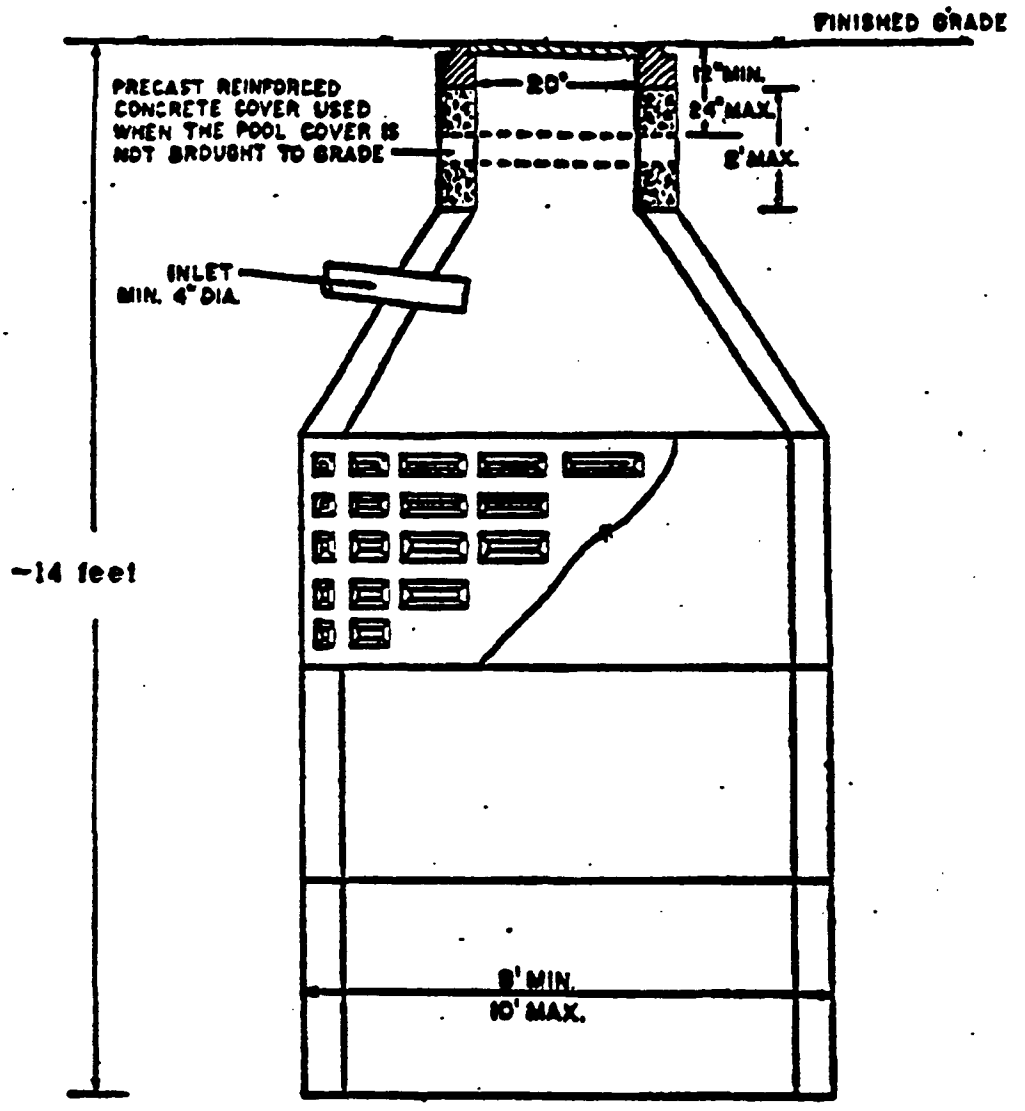


ONSITE SAMPLING LOCATIONS

TRONIC PLATING SITE
FARMINGDALE, NEW YORK

Figure 2.

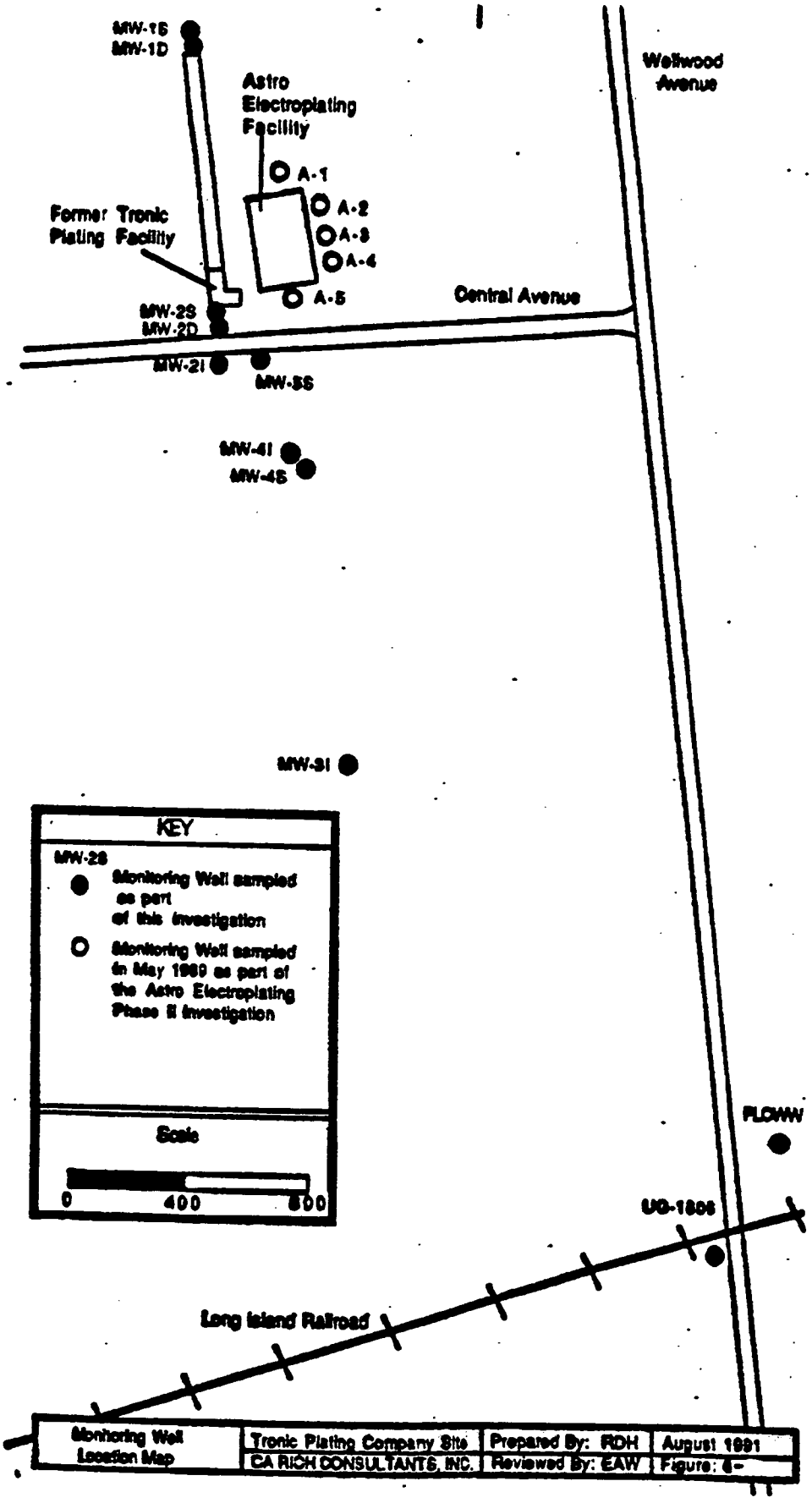
POOR QUALITY
ORIGINAL



Note: Cesspools and dry wells are also designed as shown.

TYPICAL LEACHING POOL AND STORM DRAIN DESIGN

FIGURE 3



Monitoring Well Location Map	Tronic Plating Company Site	Prepared By: RDH	August 1991
	CA RICH CONSULTANTS, INC.	Reviewed By: EAW	Figure: 6-

APPENDIX II

TABLES

TABLE A — TRONIC SITE: CONTAMINANTS OF CONCERN

	Ground Water	Subsurface Soils			Storm Drain Water	Storm Drain Sediments
		Group A	Group B	Group C		
Volatiles						
Acetone	X	X	X	X		X
Chloromethane				X		X
1,1-Dichloroethane	X					
1,1-Dichloroethylene	X					
1,2-Dichloroethylene (total)	X			X		X
Ethylbenzene				X		X
Freon-113	X	X	X	X		
Methylene Chloride		X	X	X		X
1,1,2,2-Tetrachloroethane				X		X
Tetrachloroethylene	X			X		X
Toluene	X					X
1,1,1-Trichloroethane	X					
Trichloroethylene	X			X		X
Vinyl Chloride				X		X
Xylenes (total)				X		X
(BNAs) Semivolatiles						
Acenaphthene				X		X
Bis(2-ethylhexyl)phthalate		X	X	X		X
Chrysene				X		X
Dibenzofuran				X		X
Dimethylphthalate				X		X
di-n-Butylphthalate		X	X	X		
Fluoranthene				X		X
Fluorene				X		X
2-Methylnaphthalene				X		X
Naphthalene				X		X
Phenanthrene				X		X
Pyrene				X		X

TABLE A (CONTINUED)

	Ground Water	Subsurface Soils			Storm Drain Water	Storm Drain Sediments
		Group A	Group B	Group C		
Inorganics						
Aluminum	X	X	X	X	X	X
Antimony	X	X	X	X	X	
Arsenic	X	X	X	X	X	X
Barium	X	X	X	X	X	
Beryllium				X	X	X
Cadmium	X	X	X	X	X	X
Chromium, hexavalent	X	X	X	X	X	X
Chromium, total	X	X	X	X		X
Cobalt	X	X	X	X	X	X
Copper	X	X	X	X		X
Cyanide		X	X	X	X	X
Iron	X	X	X	X		X
Lead	X	X	X	X	X	X
Manganese	X	X	X	X	X	X
Mercury				X	X	X
Nickel	X	X	X	X	X	X
Selenium	X			X	X	X
Silver	X	X	X	X	X	
Vanadium	X	X	X	X	X	X
Zinc	X	X	X	X		X

TABLE B . TRONIC SITE: SUMMARY OF EXPOSURE PATHWAYS

Pathway	Receptor	Time-Frame Evaluated: Present	Time-Frame Evaluated: Future	Degree of Assessment: Quant.	Degree of Assessment: Qual.	Rationale for Selection or Exclusion	Data Grouping
Ground Water							
Ingestion of Ground Water	Worker	No	Yes	X		No residents are located or anticipated in vicinity of site but private wells are located on commercial/industrial property. Development of private wells on commercial/industrial property is possible in the future.	All ground water samples except MW-UG1806, which was deemed unacceptable based on turbidity and well construction.
Dermal Contact with Ground Water	Worker	No	No			Considered insignificant compared to ingestion exposures.	
Surface Soils							
Incidental Ingestion of Onsite Surface Soils	Trespasser	No	No			Present exposure precluded by pavement. Future exposures following removal of pavement are expected to be minimal given past disposal history.	
	Resident	No	No				
Dermal Contact with Onsite Surface Soils	Trespasser	No	No			Present exposure precluded by pavement. Future exposures following removal of pavement are expected to be minimal given past disposal history.	
	Resident	No	No				
Subsurface Soils							
Incidental Ingestion of Onsite Subsurface Soils	Excavation Worker	No	Yes	X		Exposure to subsurface soils (≤16') may occur during excavations for utility maintenance/future development.	Group A: All subsurface soils less than or equal to 16'. Group B: Group A plus storm drain sediments between 1 and 16'. Group C: Group B plus storm drain sediments less than or equal to 1'.
	Utility Worker	Yes	Yes	X			
Dermal Contact with Onsite Subsurface Soils	Excavation Worker	No	Yes	X		Exposure to subsurface soils (≤16') may occur during excavations for utility maintenance/future development.	Group A: All subsurface soils less than or equal to 16'. Group B: Group A plus storm drain sediments between 1 and 16'. Group C: Group B plus storm drain sediments less than or equal to 1'.
	Utility Worker	Yes	Yes	X			

TABLE 8 (CONTINUED)

Pathway	Receptor	Time-Frame Evaluated: Present	Time-Frame Evaluated: Future	Degree of Assessment: Quant.	Degree of Assessment: Qual.	Rationale for Selection or Exclusion	Data Grouping
Storm Drain Sediment							
Incidental Ingestion of Storm Drain Sediments	Utility Worker	Yes	Yes	X		Exposures may occur during periodic maintenance.	Samples from upper sediment surface (0-12").
Dermal Contact with Storm Drain Sediments	Utility Worker	Yes	Yes	X		Exposures may occur during periodic maintenance.	Samples from upper sediment surface (0-12").
Incidental Ingestion of Dry Well, Sanitary Pit, and Leach Pit Sediments	Excavation/Utility Worker	No	No			No dry well or sanitary pit sediments collected. Leach pits were pumped out and backfilled; exposures evaluated under subsurface soil scenarios.	
Dermal Contact with Dry Well, Sanitary Pit, and Leach Pit Sediments	Excavation/Utility Worker	No	No			No dry well or sanitary pit sediments collected. Leach pits were pumped out and backfilled; exposures evaluated under subsurface soil scenarios.	
Storm Drain Water							
Incidental Ingestion of Storm Drain Water	Utility Worker	No	No			Anticipated method of maintenance involves negligible exposure via oral route.	
Dermal Contact with Storm Drain Water	Utility Worker	Yes	Yes	X		Exposures may occur during periodic maintenance.	Storm drain water samples.
Air							
Inhalation of Fugitive Emissions	Worker	No	No			Disposal history and surface cover suggest negligible releases.	

TABLE C . TOXICITY VALUES FOR THE TRONIC SITE CONTAMINANTS OF CONCERN.

Chemical	CARCINOGENIC Oral Slope Factor (mg/kg/day)-1	CHRONIC Chronic Oral RfD (mg/kg/day)	SUBCHRONIC Subchronic Oral RfD (mg/kg/day)	ACUTE Acute Oral "RfD" [1-Day HA/10] (mg/kg/day)
Volatiles				
Acetone		1.00E-01 a	1.00E+00 b	
Chloromethane (methyl chloride)	1.30E-02 b			9.00E-01 c
1,1-Dichloroethane		1.00E-01 b	1.00E+00 b	
1,1-Dichloroethylene	6.00E-01 a	9.00E-03 a	9.00E-03 b	2.00E-01 c
1,2-Dichloroethylene (total)		1.00E-02 k	1.00E-01 k	4.00E-01 k
Ethylbenzene		1.00E-01 a	1.00E+00 b	3.20E+00 a
Methylene chloride	7.50E-03 a	6.00E-02 a	6.00E-02 b	1.33E+00 a
1,1,2,2-Tetrachloroethane	2.00E-01 a			
Tetrachloroethylene	5.10E-02 b	1.00E-02 a	1.00E-01 b	2.00E-01 a
Toluene		2.00E-01 b	2.00E+00 b	2.00E+00 c
1,1,1-Trichloroethane		9.00E-02 b	9.00E-01 b	1.00E+01 a
Trichloroethylene	1.10E-02 b	6.00E-03 d	6.00E-03 j	
Trichlorotrifluoroethane (Freon-113)		3.00E+01 b	3.00E+00 b	
Vinyl chloride (chloroethylene)	1.90E+00 b			3.00E-01 c
Xylenes		2.00E+00 a	4.00E+00 b	4.00E+00 c
Semivolatiles				
Acenaphthene		6.00E-02 a	6.00E-01 b	
Bis(2-ethylhexyl)phthalate	1.40E-02 a	2.00E-02 a	2.00E-02 b	
Chrysene	5.79E+00 e			
Dibenzofuran		4.00E-03 d	4.00E-03 j	
Di-n-butyl phthalate		1.00E-01 a	1.00E+00 b	
Dimethylphthalate		1.00E+00 b	1.00E+00 b	
Fluoranthene		4.00E-02 a	4.00E-01 b	
Fluorene		4.00E-02 a	4.00E-01 b	
2-Methylnaphthalene				
Naphthalene		4.00E-03 b	4.00E-02 b	5.00E-02 c
Phenanthrene				
Pyrene		3.00E-02 a	3.00E-01 b	
Inorganics				
Aluminum		1.00E+00 d	1.00E+00 j	
Antimony		4.00E-04 a	4.00E-04 b	1.50E-03 c
Arsenic	1.75E+00 f	3.00E-04 a	1.00E-03 b	
Barium		5.00E-02 b	5.00E-02 b	
Beryllium	4.30E+00 a	5.00E-03 a	5.00E-03 b	3.00E+00 c
Cadmium (I)		5.00E-04 a,g	5.00E-04 j	4.00E-03 c
Chromium, total		8.76E-01 i	8.75E+00 j	1.40E-01 a
• Chromium, III		1.00E+00 a	1.00E+01 b	
Chromium, VI		5.00E-03 a	2.00E-02 b	
Cobalt		d		
Copper		4.00E-02 d	4.00E-02 j	
Cyanide		2.00E-02 a	2.00E-02 b	2.00E-02 a

TABLE C TOXICITY VALUES FOR THE TRONIC SITE CONTAMINANTS OF CONCERN. (CONTINUED)

Chemical	CARCINOGENIC Oral Slope Factor (mg/kg/day)-1	CHRONIC Chronic Oral RfD (mg/kg/day)	SUBCHRONIC Subchronic Oral RfD (mg/kg/day)	ACUTE Acute Oral "RfD" [1-Day HA/10] (mg/kg/day)
Iron		5.00E-01 d	5.00E-01 j	
Lead				
Manganese		1.00E-01 a	1.00E-01 b	
Mercury		3.00E-04 b	3.00E-04 b	
Nickel		2.00E-02 a,h	2.00E-02 b	1.00E-01 c
Selenium		5.00E-03 a	5.00E-03 j	
Silver		5.00E-03 a	3.00E-03 b	2.00E-02 c
Vanadium		7.00E-03 b	7.00E-03 b	8.00E-03 c
Zinc		2.00E-01 b	2.00E-01 b	4.00E-01 c

- Not analyzed for, used in derivation of Total Chromium toxicity values.

a. From Integrated Risk Information System (IRIS) 4/01/92.
b. From Health Effects Assessment Summary Tables (HEAST) FY 1991.
c. From Drinking Water Regulations and Health Advisories, November 1991.
d. Interim value from ECAO. See text for specific reference.
e. Oral slope factor for B(a)P used for PAHs classified as B2 carcinogens.
f. Arsenic oral slope factor derived from unit risk in IRIS.
g. Cadmium RfD is for water; 1.0E-03 mg/kg/day is RfD for food.
h. Value is for nickel, soluble salts.
i. Per EPA Guidance, value is weighted-average value of the hexavalent chromium and trivalent chromium RfDs, assuming 7 parts tri to 1 part hex.
j. Chronic RfD used as Subchronic RfD if no Subchronic value is available per RAGS.
k. Toxicity values are for the cis isomer.
l. Dermal toxicity values for cadmium have been derived from oral toxicity values applying an absorption factor of 0.10 (10%) per EPA guidance (see text for specific reference). The dermal values are:

Chronic Dermal RfD: 5.00E-05 mg/kg/day
Subchronic Dermal RfD: 5.00E-05 mg/kg/day

SUMMARY OF NONCARCINOGENIC HAZARD INDICES (HI) FOR THE TRONIC SITE

Scenario	Receptor	Present/Future	Acute HI	Chronic HI
Ground Water				
Ingestion	General Worker	F	3.3×10^{-1}	1.8×10^{0}*
Subsurface Soil				
Group A				
Ingestion	Excavation Worker	F	4.2×10^{-2}	1.8×10^{-1}a
Dermal Contact**	Excavation Worker	F	–	2.5×10^{-3}a
Ingestion	Utility Worker	P/F	8.8×10^{-3}	1.6×10^{-3}
Dermal Contact**	Utility Worker	P/F	–	9.5×10^{-5}
Group B				
Ingestion	Excavation Worker	F	4.1×10^{-2}	1.7×10^{-1}a
Dermal Contact**	Excavation Worker	F	–	4.0×10^{-3}a
Ingestion	Utility Worker	P/F	8.6×10^{-3}	1.5×10^{-3}
Dermal Contact**	Utility Worker	P/F	–	1.5×10^{-4}
Group C				
Ingestion	Excavation Worker	F	1.8×10^{-1}	6.8×10^{-1}a
Dermal Contact**	Excavation Worker	F	–	1.2×10^{-1}a
Ingestion	Utility Worker	P/F	3.8×10^{-2}	5.7×10^{-3}
Dermal Contact**	Utility Worker	P/F	–	4.5×10^{-3}
Storm Drain Sediments				
Ingestion	Utility Worker	P/F	4.4×10^{-1}	1.1×10^{-2}
Dermal Contact**	Utility Worker	P/F	–	1.7×10^{-2}
Storm Drain Water				
Dermal Contact**	Utility Worker	P/F	–	1.4×10^{-1}

*Hazard Index exceeds one (1).
**Pathway evaluated for cadmium only, per EPA guidance.
a - Subchronic HIs were calculated for this scenario.

TABLE E. SUMMARY OF CARCINOGENIC RISK ESTIMATES FOR THE TRONIC SITE

Scenario	Receptor	Present/Future	Incremental Risk
Ground Water			
Ingestion	General Worker	F	6.0×10^{-5}*
Subsurface Soil			
Group A			
Ingestion	Excavation Worker	F	2.9×10^{-8}
Ingestion	Utility Worker	P/F	2.3×10^{-8}
Group B			
Ingestion	Excavation Worker	F	2.8×10^{-8}
Ingestion	Utility Worker	P/F	2.2×10^{-8}
Group C			
Ingestion	Excavation Worker	F	2.0×10^{-7}
Ingestion	Utility Worker	P/F	1.6×10^{-7}
Storm Drain Sediments			
Ingestion	Utility Worker	P/F	9.8×10^{-8}

*Exceeds 10^{-6} risk

TABLE F

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Background Soils

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Acetone	1	3	74.00	74.0	MW1D(10-12)	13.47	22237626495.25	11.00	12.00
	Chloroform	2	3	8.00	9.0	MW1D(10-12)	6.00	204.61	6.00	6.00
BNAs	Diethylphthalate	1	3	150.00	150.0	MW1D(37-40)	164.64	150.00	340.00	350.00
	Di-n-butylphthalate	3	3	5200.00	6000.0	MW1D(25-27)	5454.05	6000.00	.	.
	Benzylbutylphthalate	3	3	47.00	820.0	MW1D(37-40)	206.96	989248894467.73	.	.
Inor.	Aluminum	3	3	651000.00	1140000.0	MW1D(10-12)	861983.35	1948614.75	.	.
	Calcium	3	3	493000.00	538000.0	MW1D(37-40)	514338.29	538000.00	.	.
	Chromium, total	3	3	3700.00	6900.0	MW1D(25-27)	5133.84	13765.15	.	.
	Cobalt	2	3	2600.00	3300.0	MW1D(37-40)	2047.21	98596.19	2000.00	2000.00
	Copper	3	3	4000.00	7200.0	MW1D(10-12)	5691.03	15105.02	.	.
	Iron	3	3	1740000.00	3790000.0	MW1D(25-27)	2531480.12	11149003.44	.	.
	Lead	1	3	1100.00	1100.0	MW1D(25-27)	650.30	4845.14	1000.00	1000.00
	Magnesium	3	3	247000.00	322000.0	MW1D(10-12)	291365.24	398015.20	.	.
	Manganese	3	3	52600.00	74500.0	MW1D(37-40)	62599.68	93405.92	.	.
	Sodium	3	3	65800.00	85600.0	MW1D(10-12)	75133.14	99202.29	.	.
	Vanadium	3	3	2500.00	4500.0	MW1D(25-27)	3586.29	9785.45	.	.
	Zinc	3	3	8300.00	12500.0	MW1D(10-12)	9737.77	16944.06	.	.
	Chromium, VI	3	3	120.00	450.0	MW1D(25-27)	213.41	18316.73	.	.

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Deep Soils

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analysed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Methylene Chloride	2	23	8.00	20.00	DM1PS(19-21)	3.51	5.20	5.00	20.00
	Acetone	8	22	26.00	150.00	MW2I(22.5-25)	15.01	58.21	10.00	110.00
	Freon-113	5	8	15.00	51.00	SP1(19-21)	12.65	212.90	5.50	6.20
BNAs	Di-n-butylphthalate	12	20	130.00	5100.00	LP1(38-40)	638.06	3979.93	340.00	2300.00
	bis(2-Ethylhexyl)phthalate	8	20	130.00	2600.00	MW2D(37-40)	358.39	1390.41	70.00	4800.00
	Di-n-octylphthalate	1	20	77.00	77.00	SP1(19-21)	172.53	190.58	340.00	410.00
Inor.	Aluminum	22	22	137000.00	2010000.00	LP3(18-20)	497561.58	763110.40	.	.
	Arsenic	7	31	320.00	2100.00	MW3I(75-77.5)	421.04	634.02	290.00	1200.00
	Barium	10	31	1400.00	4700.00	R5(19-21)	4265.89	5159.68	3500.00	11500.00
	Cadmium	7	32	1400.00	8200.00	LP2(18-20)	775.94	1380.16	1000.00	1240.00
	Calcium	21	22	4300.00	685000.00	MW2D(20-22)	262157.27	2340398.95	9800.00	9800.00
	Chromium,Total	28	32	2200.00	62600.00	SP1(37-39)	4889.34	14469.08	1100.00	2470.00
	Copper	29	32	1500.00	38000.00	LP1(14-19)	4387.93	9832.04	1230.00	6300.00
	Iron	22	22	41900.00	4680000.00	MW3I(75-77.5)	1424100.67	4331533.53	.	.
	Lead	20	32	300.00	69200.00	MW3I(32-35)	1056.22	3098.93	1000.00	1200.00
	Magnesium	22	22	18300.00	444000.00	LP3(18-20)	156898.75	292421.64	.	.
	Manganese	22	22	2900.00	60500.00	LP3(18-20)	17550.99	34458.34	.	.
	Nickel	4	32	2900.00	13800.00	LP1(14-19)	2071.05	2728.64	2660.00	4600.00
	Silver	1	14	1100.00	1100.00	R3(29-31)	612.58	751.25	1020.00	2100.00
	Sodium	19	22	51500.00	109000.00	LP4(38-40)	65228.21	97144.47	17200.00	167000.00
	Thallium	1	21	270.00	270.00	MW5S(39-41)	481.02	594.26	240.00	1200.00
	Vanadium	10	22	2600.00	6100.00	MW2I(22.5-25)	1818.34	3114.59	1790.00	2380.00
	Zinc	19	28	4600.00	15600.00	LP1(14-19)	5587.86	8797.93	2600.00	8300.00
	Cyanide	12	32	320.00	15000.00	LP1(14-19)	445.77	1912.69	200.00	1240.00
	Chromium,VI	17	19	100.00	23440.00	LP1(14-19)	1634.28	44268.20	7300.00	10000.00

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Storm Drain Sediments
(continued)

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
	Cyanide	4	8	1100.00	92000.0	SD2(BOTTOM)-R1	1981.23	304970.09	1190.00	1450.00
	Chromium, VI	2	2	2200.00	3100.0	SD2(BOTTOM)-R1	2611.51	3100.00	.	.

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Storm Drain Water

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Inor.	Aluminum	2	2	3140.00	162000.0	SD2-R1	22553.94	162000.00	.	.
	Antimony	1	2	73.50	73.5	SD2-R1	42.87	73.50	50.00	50.00
	Arsenic	1	2	20.40	20.4	SD2-R1	8.43	20.40	5.00	5.00
	Barium	1	2	2350.00	2350.0	SD2-R1	242.38	2350.00	50.00	50.00
	Beryllium	1	2	27.50	27.5	SD2-R1	8.29	27.50	5.00	5.00
	Cadmium	2	2	24.70	8270.0	SD2-R1	451.96	8270.00	.	.
	Calcium	2	2	20400.00	296000.0	SD2-R1	77707.14	296000.00	.	.
	Cobalt	1	2	163.00	163.0	SD2-R1	28.55	163.00	10.00	10.00
	Lead	2	2	138.00	14100.0	SD2-R1	1394.92	14100.00	.	.
	Magnesium	2	2	4780.00	132000.0	SD2-R1	25118.92	132000.00	.	.
	Manganese	2	2	86.30	2520.0	SD2-R1	466.34	2520.00	.	.
	Mercury	1	2	1.10	1.1	SD2-R1	0.33	1.10	0.20	0.20
	Nickel	2	2	32.00	11900.0	SD2-R1	617.09	11900.00	.	.
	Potassium	2	2	1140.00	10900.0	SD2-R1	3525.05	10900.00	.	.
	Selenium	1	2	9.00	9.0	SD2-R1	4.74	9.00	5.00	5.00
	Silver	1	2	759.00	759.0	SD2-R1	61.60	759.00	10.00	10.00
	Sodium	2	2	1700.00	5310.0	SD2-R1	3004.50	5310.00	.	.
	Vanadium	2	2	15.80	797.0	SD2-R1	112.22	797.00	.	.
	Cyanide	1	2	1.30	1.3	SD2-R1	2.55	1.30	10.00	10.00
	Chromium, VI	2	2	13.00	22.0	SD1-R1	16.91	22.00	.	.

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Subsurface Soils/Sediments (0-16')
(continued)

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
	Vanadium	16	20	2300.00	46000.00	SD6(BOTTOM)	5765.75	28342.07	2000.00	6000.00
	Zinc	22	24	4400.00	3200000.00	SD3(BOTTOM)	26078.41	777162.66	4000.00	4700.00
	Cyanide	9	28	430.00	46900.00	LP2(14-16)	638.82	8161.15	200.00	1450.00
	Chromium,VI	14	14	60.00	22600.00	LP2(8-10)	2001.92	354006.29	.	.

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Storm Drain Sediments

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Chloromethane	1	8	8.00	8.0	SD3(BOTTOM)	9.82	25.99	11.90	91.00
	Vinyl Chloride	1	8	20.00	20.0	SD5(BOTTOM)	10.62	29.31	11.90	91.00
	Methylene Chloride	3	8	5.00	13.0	SD2(BOTTOM)-R1	5.47	10.72	5.95	16.95
	Acetone	5	8	21.00	140.0	SD2(BOTTOM)-R1	20.88	170.24	11.90	14.60
	2-Butanone (MEK)	1	6	3.00	3.0	SD6(BOTTOM)	6.71	15.60	11.90	33.90
	Trichloroethylene	1	8	180.00	180.0	SD5(BOTTOM)	7.61	262.96	5.95	45.00
	Tetrachloroethylene	1	8	2.00	2.0	SD3(BOTTOM)	4.50	13.90	5.95	45.00
	1,1,2,2-Tetrachloroethane	1	8	4.00	4.0	SD3(BOTTOM)	4.90	12.88	5.95	45.00
	Toluene	3	8	4.00	36.0	SD5(BOTTOM)	6.41	32.95	5.95	45.00
	Ethylbenzene	3	8	4.00	30.0	SD2(BOTTOM)-R1	5.69	27.30	5.95	7.80
	Total Xylenes	4	8	1.00	140.0	SD2(BOTTOM)-R1	8.22	1146.23	5.95	7.80
	1,2-Dichloroethylene (total)	1	8	38.00	38.0	SD5(BOTTOM)	6.26	36.45	5.95	45.00
SVOCs	Naphthalene	2	8	910.00	5600.0	SD2(BOTTOM)	1374.76	2839.28	1943.70	2781.90
	2-Methylnaphthalene	4	8	1500.00	20000.0	SD2(BOTTOM)	2261.51	15894.99	1943.70	2781.90
	Dimethylphthalate	1	8	2500.00	2500.0	SD2(BOTTOM)	1276.83	1675.00	1943.70	2781.90
	Acenaphthene	1	8	1700.00	1700.0	SD2(BOTTOM)	1216.74	1404.68	1943.70	2781.90
	Dibenzofuran	1	8	1200.00	1200.0	SD2(BOTTOM)	1164.90	1270.63	1943.70	2781.90
	Fluorene	2	8	1900.00	2950.0	SD2(BOTTOM)	1404.48	2001.38	1943.70	2781.90
	Phenanthrene	4	8	1600.00	6900.0	SD2(BOTTOM)	1946.49	5005.87	1943.70	2781.90
	Fluoranthene	4	8	1400.00	2300.0	SD2(BOTTOM)	1428.21	1785.83	1943.70	2781.90
	Pyrene	4	6	930.00	4200.0	SD2(BOTTOM)	1469.34	3442.91	1943.70	2399.10
	Chrysene	2	6	720.00	1000.0	SD7(BOTTOM)	1067.36	1412.42	1943.70	3121.80
	bis(2-Ethylhexyl)phthalate	7	7	2400.00	43000.0	SD6(BOTTOM)	11208.41	115215.71	.	.
Inor.	Aluminum	8	8	951000.00	21600000.0	SD2(BOTTOM)-R1	3753752.68	16026472.39	.	.
	Arsenic	2	2	1500.00	9800.0	SD2(BOTTOM)-R1	3834.06	9800.00	.	.
	Beryllium	2	8	1300.00	3500.0	SD2(BOTTOM)-R1	455.67	2670.91	480.00	620.00
	Cadmium	8	8	2000.00	1130000.0	SD2(BOTTOM)-R1	20921.28	30428840.49	.	.
	Calcium	8	8	4210000.00	57700000.0	SD2(BOTTOM)-R1	17107469.30	77169793.25	.	.
	Chromium, total	8	8	16700.00	1580000.0	SD2(BOTTOM)-R1	73402.58	2593755.85	.	.
	Cobalt	8	8	3200.00	23400.0	SD2(BOTTOM)-R1	5440.04	12199.63	.	.
	Copper	6	6	87900.00	6560000.0	SD3(BOTTOM)	464096.57	19776822.05	.	.
	Iron	6	6	3570000.00	7750000.0	SD6(BOTTOM)	5522562.97	7814504.91	.	.
	Lead	2	2	1190000.00	2290000.0	SD2(BOTTOM)-R1	1650787.69	2290000.00	.	.
	Magnesium	8	8	2850000.00	29200000.0	SD4(BOTTOM)	9723012.79	32634607.05	.	.
	Manganese	6	6	25500.00	68200.0	SD4(BOTTOM)	47523.91	71109.58	.	.
	Mercury	1	2	310.00	310.0	SD2(BOTTOM)-R1	215.64	310.00	300.00	300.00
	Nickel	6	6	11300.00	138000.0	SD3(BOTTOM)	30012.82	234904.37	.	.
	Potassium	2	5	320000.00	1440000.0	SD2(BOTTOM)-R1	195046.25	20229292.12	133000.00	196000.00
	Selenium	1	2	2400.00	2400.0	SD2(BOTTOM)-R1	1249.00	2400.00	1300.00	1300.00
	Sodium	2	8	403000.00	735000.0	SD2(BOTTOM)-R1	120871.25	622995.37	111000.00	166000.00
	Vanadium	6	6	13300.00	46000.0	SD6(BOTTOM)	27546.92	47003.47	.	.
	Zinc		6	181000.00	3200000.0	SD3(BOTTOM)	489909.81	5065848.46	.	.

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Subsurface Soils/Sediments (1-16')

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Methylene Chloride	3	14	11.00	22.00	MW2D(10-12)	3.73	8.42	5.00	5.70
	Acetone	2	14	23.00	41.00	LP3(14-16)	7.60	17.65	6.00	61.00
	Freon-113	2	4	7.90	46.00	SP1(7-9)	7.29	13791.63	5.45	5.70
SVAs	Di-n-butylphthalate	4	12	94.00	4100.00	LP1(6-10)	266.16	1739.35	340.00	360.00
	bis(2-Ethylhexyl)phthalate	5	12	160.00	2800.00	LP2(8-10)	380.60	1483.92	340.00	1800.00
P/PCBs	4,4-DDE	1	12	72.00	72.00	LP2(14-16)	9.95	18.65	16.00	17.00
	4,4-DDT	1	12	37.00	37.00	LP2(14-16)	9.42	13.52	16.00	17.00
Inor.	Aluminum	14	14	595000.00	3780000.00	LP3(5-9)	1055251.48	1814767.44	.	.
	Antimony	1	13	10900.00	10900.00	MW2D(10-12)	5351.66	6193.50	7950.00	10600.00
	Arsenic	5	19	780.00	1700.00	LP3(5-9)	471.82	899.34	290.00	1000.00
	Barium	10	20	2900.00	15600.00	R4(1-3)	5586.41	7409.18	10200.00	10500.00
	Cadmium	6	20	1300.00	6400.00	SD2(14-16)	870.83	2071.24	1000.00	1120.00
	Calcium	14	14	5170.00	6700000.00	SD1(14-16)	419008.28	5778942.38	.	.
	Chromium,Total	17	20	1600.00	12000.00	LP2(14-16)	3162.58	5889.70	2060.00	2100.00
	Cobalt	3	14	2400.00	3900.00	LP3(5-9)	1311.50	1907.38	2000.00	2270.00
	Copper	18	20	1300.00	30900.00	LP2(14-16)	4876.25	16068.30	1250.00	1260.00
	Iron	14	14	1120000.00	6040000.00	LP3(5-9)	2756141.53	4611941.46	.	.
	Lead	16	20	520.00	56000.00	SD1(14-16)	1976.11	14883.11	1000.00	1000.00
	Magnesium	14	14	177000.00	2710000.00	SD1(14-16)	338782.36	639484.72	.	.
	Manganese	14	14	12200.00	102000.00	DW1P5(5-7)	41698.59	72168.96	.	.
	Nickel	5	20	5800.00	10600.00	SD1(14-16)	2445.84	4109.47	2660.00	4200.00
	Potassium	1	7	110000.00	110000.00	SD1(14-16)	49996.59	75930.81	80800.00	122000.00
	Silver	5	9	1100.00	3600.00	LP2(14-16)	978.47	2331.61	1020.00	1090.00
	Sodium	13	14	51800.00	99000.00	MW2I(10-12.5)	68430.00	88791.96	46100.00	46100.00
	Vanadium	10	14	2300.00	9800.00	LP3(5-9)	2949.59	6362.46	2000.00	6000.00
	Zinc	16	18	4400.00	59900.00	SD1(14-16)	9810.01	20970.01	4000.00	4700.00
	Cyanide	5	20	430.00	46900.00	LP2(14-16)	622.46	5068.94	200.00	1140.00
	Chromium,VI	12	12	60.00	22600.00	LP2(8-10)	1915.16	1396902.04	.	.

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Subsurface Soils/Sediments (0-16')

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analysed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Chloromethane	1	22	8.00	8.00	SD3(BOTTOM)	6.62	9.40	10.00	91.00
	Vinyl Chloride	1	22	20.00	20.00	SD5(BOTTOM)	6.82	10.01	10.00	91.00
	Methylene Chloride	6	22	5.00	22.00	MW2D(10-12)	4.29	7.75	5.00	16.95
	Acetone	7	22	21.00	140.00	SD2(BOTTOM)-R1	10.98	32.26	6.00	61.00
	2-Butanone	1	8	3.00	3.00	SD6(BOTTOM)	6.41	10.90	10.90	33.90
	Trichloroethylene	1	22	180.00	180.00	SD5(BOTTOM)	3.78	10.74	5.00	45.00
	Tetrachloroethylene	1	22	2.00	2.00	SD3(BOTTOM)	3.13	4.52	5.00	45.00
	1,1,2,2-Tetrachloroethane	1	22	4.00	4.00	SD3(BOTTOM)	3.23	4.62	5.00	45.00
	Toluene	3	22	4.00	36.00	SD5(BOTTOM)	3.56	6.46	5.00	45.00
	Ethylbenzene	3	22	4.00	30.00	SD2(BOTTOM)-R1	3.41	5.81	5.00	7.80
	Xylene (total)	4	17	1.00	140.00	SD2(BOTTOM)-R1	4.43	27.55	5.00	7.80
	1,2-Dichloroethylene (total)	1	22	38.00	38.00	SD5(BOTTOM)	3.53	6.50	5.00	45.00
	Freon-113	2	10	7.90	46.00	SP1(7-9)	5.43	17.64	5.45	16.95
SVOCs	Naphthalene	2	20	910.00	5600.00	SD2(BOTTOM)	396.50	1447.18	340.00	2781.90
	2-Methylnaphthalene	4	20	1500.00	20000.00	SD2(BOTTOM)	483.86	3989.92	340.00	2781.90
	Dimethylphthalate	1	20	2500.00	2500.00	SD2(BOTTOM)	384.96	1194.73	340.00	2781.90
	Acenaphthene	1	20	1700.00	1700.00	SD2(BOTTOM)	377.60	1097.63	340.00	2781.90
	Dibenzofuran	1	20	1200.00	1200.00	SD2(BOTTOM)	371.08	1029.15	340.00	2781.90
	Fluorene	2	20	1900.00	2950.00	SD2(BOTTOM)	399.91	1383.69	340.00	2781.90
	Phenanthrene	4	20	1600.00	6900.00	SD2(BOTTOM)	455.68	2532.58	340.00	2781.90
	Di-n-butylphthalate	4	20	94.00	4100.00	LP1(6-10)	486.76	2128.74	340.00	3121.80
	Fluoranthene	4	20	1400.00	2300.00	SD2(BOTTOM)	402.60	1384.97	340.00	2781.90
	Pyrene	4	18	930.00	4200.00	SD2(BOTTOM)	353.09	1305.09	340.00	2399.10
	Chrysene	2	18	720.00	1000.00	SD7(BOTTOM)	317.40	811.03	340.00	3121.80
	bis(2-Ethylhexyl)phthalate	12	19	160.00	43000.00	SD6(BOTTOM)	1341.12	58310.51	340.00	1800.00
P/PCBs	4,4-DDE	1	12	72.00	72.00	LP2(14-16)	9.95	18.65	16.00	17.00
	4,4-DDT	1	12	37.00	37.00	LP2(14-16)	9.42	13.52	16.00	17.00
Inor.	Aluminum	22	22	595000.00	21600000.00	SD2(BOTTOM)-R1	1674015.56	4276105.72	.	.
	Antimony	1	15	10900.00	10900.00	MW2D(10-12)	5536.63	6358.64	7950.00	14900.00
	Arsenic	7	21	780.00	9800.00	SD2(BOTTOM)-R1	576.01	1617.00	290.00	1000.00
	Barium	10	20	2900.00	15600.00	R4(1-3)	5586.41	7409.18	10200.00	10500.00
	Beryllium	2	22	1300.00	3500.00	SD2(BOTTOM)-R1	451.05	724.65	440.00	1100.00
	Cadmium	14	20	1300.00	1130000.00	SD2(BOTTOM)-R1	2159.76	61094.49	1000.00	1120.00
	Calcium	22	22	5170.00	57700000.00	SD2(BOTTOM)-R1	1614460.39	173586954.45	.	.
	Chromium,Total	25	20	1600.00	1580000.00	SD2(BOTTOM)-R1	7766.63	110547.99	2060.00	2100.00
	Cobalt	11	22	2400.00	23400.00	SD2(BOTTOM)-R1	2200.06	5040.93	2000.00	2270.00
	Copper	24	26	1300.00	4560000.00	SD3(BOTTOM)	13953.01	1176142.41	1250.00	1260.00
	Iron	20	20	1120000.00	7750000.00	SD6(BOTTOM)	3393380.66	5417242.95	.	.
	Lead	18	22	520.00	2290000.00	SD2(BOTTOM)-R1	3642.81	762975.29	1000.00	1000.00
	Magnesium	22	22	177000.00	29200000.00	SD4(BOTTOM)	1148309.60	24840254.88	.	.
	Manganese	20	20	12200.00	102000.00	DW1P5(5-7)	43366.92	63853.88	.	.
	Mercury	1	22	310.00	310.00	SD2(BOTTOM)-R1	17.18	41.16	20.00	300.00
	Nickel	11	26	5800.00	138000.00	SD3(BOTTOM)	4362.22	20672.04	2660.00	4200.00
	Potassium	3	12	110000.00	1440000.00	SD2(BOTTOM)-R1	88160.19	420599.45	80800.00	196000.00
	Selenium	1	22	2400.00	2400.00	SD2(BOTTOM)-R1	311.31	739.03	200.00	1300.00
	Silver	5	9	1100.00	3600.00	LP2(14-16)	978.47	2331.81	1020.00	1090.00
	Sodium	15	22	51000.00	735000.00	SD2(BOTTOM)-R1	84157.45	145795.92	46100.00	166000.00

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Ground Water

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Acetone	3	17	6.00	15.00	MW2D-R2	7.81	27.69	10.00	640.00
	1,1-Dichloroethylene	4	17	2.00	7.00	MW2S-R1	2.77	3.31	5.00	5.00
	1,1-Dichloroethane	2	17	2.00	2.00	MW3I-B	2.44	2.00	5.00	5.00
	Chloroform	1	17	3.00	3.00	PLCWW1	2.30	3.01	1.00	5.00
	1,1,1-Trichloroethane	15	17	2.00	42.00	MW3I-B	7.86	22.01	5.00	5.00
	1,2-Dichloropropane	1	17	1.00	1.00	MW3I-R2	2.37	2.60	5.00	5.00
	Trichloroethylene	17	17	2.00	190.00	MWP5-R2	32.20	131.91	.	.
	Benzene	1	17	4.00	4.00	MW2S-R1	2.34	3.12	1.00	5.00
	Tetrachloroethylene	15	17	1.00	41.00	MW3I-R2	3.76	10.89	5.00	5.00
	Toluene	1	17	4.00	4.00	MW2S-R1	2.34	3.12	1.00	5.00
	1,2-Dichloroethylene (total)	7	17	1.00	13.00	MWP5-R2	2.92	4.61	5.00	5.00
	Freon-113	3	9	1.00	61.00	MW3I-R2	4.10	58.95	5.00	5.00
Inor.	Aluminum	13	17	40.70	16800.00	MW2S-R1	313.22	57239.50	36.00	100.00
	Antimony	1	17	58.20	58.20	MW2S-R1	21.83	26.80	26.00	50.00
	Arsenic	4	17	3.05	20.00	MW2S-R1	1.99	7.55	1.40	5.00
	Barium	13	17	25.75	182.00	MW2S-R1	53.90	112.20	50.00	50.00
	Cadmium	1	17	107.65	107.65	MW5S-B	3.12	9.45	5.00	5.00
	Calcium	16	16	9190.00	35550.00	MW3I-R2	16407.96	20896.66	.	.
	Chromium,Total	7	13	8.20	84.10	PLCWW1	10.32	41.21	5.00	10.00
	Cobalt	3	17	5.95	30.30	MW2S-R1	6.07	9.12	10.00	10.00
	Copper	6	13	23.20	89.60	MW2S-R2	10.19	82.26	6.00	10.40
	Iron	5	5	22.00	2383.00	MW5S-B	142.61	15008283.96	.	.
	Lead	11	12	4.00	32.10	MW2S-R1	10.29	24.70	5.00	5.00
	Magnesium	16	16	2120.00	6645.00	MW2S-R1	3576.21	4496.65	.	.
	Manganese	17	17	7.30	1340.00	MW2S-R1	85.48	706.82	.	.
	Nickel	6	17	31.20	132.25	MW5S-B	34.47	43.08	13.00	20.00
	Potassium	17	17	862.00	60500.00	MW3I-R1	5045.39	19369.93	.	.
	Selenium	2	17	1.40	5.00	MW2I-R1	1.37	3.13	1.00	5.00
	Silver	1	17	64.00	64.00	MW3I-R2	4.19	9.05	5.00	10.00
	Sodium	17	17	8710.00	30500.00	MW3I-R1	13946.04	16721.33	.	.
	Vanadium	6	17	4.85	35.80	MW2S-R2	6.88	14.17	8.00	10.00
	Zinc	4	4	39.80	90.70	MW2D-B	51.00	110.40	.	.
	Chromium,VI	9	17	7.00	68.50	MW3I-R2	13.28	64.58	5.00	10.00

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Subsurface Soils

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Methylene Chloride	3	12	11.00	22.00	MW2D(10-12)	3.91	10.52	5.00	5.00
	Acetone	2	12	23.00	41.00	LP3(14-16)	0.00	22.25	6.00	61.00
	Freon-113	2	2	7.90	46.00	SP1(7-9)	19.06	46.00	.	.
BNAs	Di-n-butylphthalate	4	12	94.00	4100.00	LP1(6-10)	266.16	1739.35	360.00	360.00
	bis(2-Ethylhexyl)phthalate	5	12	160.00	2800.00	LP2(0-10)	388.68	1483.92	360.00	1800.00
P/PCBs	4,4-DDE	1	12	72.00	72.00	LP2(14-16)	9.95	18.65	16.00	17.00
	4,4-DDT	1	12	37.00	37.00	LP2(14-16)	9.42	13.52	16.00	17.00
Inor.	Aluminum	12	12	682000.00	3780000.00	LP3(5-9)	1159220.80	2074577.13	.	.
	Antimony	1	12	10900.00	10900.00	MW2D(10-12)	5485.94	6340.38	10100.00	10600.00
	Arsenic	4	17	970.00	1700.00	LP3(5-9)	457.33	945.42	290.00	1000.00
	Barium	8	18	2900.00	15600.00	R4(1-3)	5527.84	7577.83	10200.00	10500.00
	Cadmium	4	18	1300.00	3650.00	MW2D(10-12)	719.29	1299.67	1000.00	1120.00
	Calcium	12	12	5170.00	749000.00	LP3(5-9)	361320.42	3805348.43	.	.
	Chromium,Total	15	18	1600.00	12000.00	LP2(14-16)	1943.56	5660.38	2060.00	2100.00
	Cobalt	3	12	2400.00	3900.00	LP3(5-9)	1347.50	2113.73	2000.00	2100.00
	Copper	16	18	1300.00	30900.00	LP2(14-16)	4439.99	15608.78	1250.00	1260.00
	Iron	12	12	1120000.00	6040000.00	LP3(5-9)	3065463.20	5130261.76	.	.
	Lead	14	18	520.00	47100.00	MW3I(10-12)	1525.81	7009.08	1000.00	1000.00
	Magnesium	12	12	177000.00	466000.00	LP2(14-16)	297304.95	363638.78	.	.
	Manganese	12	12	12200.00	102000.00	DW1P5(5-7)	43100.19	83638.54	.	.
	Nickel	3	18	6050.00	6300.00	LP2(14-16)	2148.88	3179.78	2660.00	4200.00
	Silver	4	7	1100.00	3600.00	LP2(14-16)	967.57	2891.81	1020.00	1050.00
	Sodium	12	12	51800.00	99000.00	MW2I(10-12.5)	74313.81	84451.03	.	.
	Vanadium	9	12	2300.00	9800.00	LP3(5-9)	2996.48	7737.69	2000.00	2000.00
	Zinc	14	16	4400.00	21200.00	LP3(5-9)	8482.46	15099.08	4000.00	4700.00
	Cyanide	4	18	430.00	46900.00	LP2(14-16)	393.98	7790.27	200.00	1120.00
	Chromium,VI	12	12	60.00	22600.00	LP2(0-10)	1915.16	1396902.04	.	.

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=Deep Sediments

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Acetone	1	9	8.00	8.0	SD2(21-23)	5.72	6.27	10.60	11.40
	Carbon Disulfide	1	9	22.00	22.0	SD2(21-23)	3.46	8.34	5.30	5.70
Inor.	Aluminum	9	9	211000.00	1130000.0	SD2(31-33)	458268.24	811373.51	.	.
	Arsenic	6	9	360.00	990.0	SD2(31-33)	444.71	1054.22	300.00	970.00
	Barium	7	9	2800.00	9300.0	SD2(31-33)	4431.16	9301.13	3300.00	3700.00
	Cadmium	5	9	1300.00	8150.0	SD2(21-23)	1564.68	12226.81	1060.00	1110.00
	Calcium	9	9	30400.00	6700000.0	SD1(14-16)	140247.94	6501961.36	.	.
	Chromium, total	7	9	2200.00	12300.0	SD2(21-23)	3296.56	10464.77	2160.00	2175.00
	Copper	8	9	1900.00	17600.0	SD1(14-16)	3612.49	15677.35	1300.00	1300.00
	Iron	9	9	414000.00	2670000.0	SD3(17-19)	1006928.29	2347199.02	.	.
	Lead	8	9	320.00	54000.0	SD1(14-16)	2136.62	733534.93	220.00	220.00
	Magnesium	9	9	57400.00	2710000.0	SD1(14-16)	184017.00	1071602.96	.	.
	Manganese	9	9	7400.00	38500.0	SD2(21-23)	21409.44	45482.77	.	.
	Mercury	1	9	50.00	50.0	SD2(21-23)	22.70	29.56	40.00	50.00
	Nickel	4	9	2900.00	10600.0	SD1(14-16)	2690.14	8723.71	2750.00	2920.00
	Potassium	4	9	62700.00	339000.0	SD2(31-33)	70265.46	170281.66	77700.00	122000.00
	Silver	1	9	1900.00	1900.0	SD1(14-16)	627.33	939.01	1060.00	1120.00
	Sodium	3	9	45600.00	75500.0	SD1(14-16)	33758.56	53408.99	30500.00	64850.00
	Vanadium	5	9	2200.00	4600.0	SD2(31-33)	1994.30	4132.99	1730.00	6000.00
	Zinc	9	9	4300.00	69900.0	SD1(14-16)	14964.24	63641.23	.	.
	Cyanide	3	9	1100.00	1450.0	SD2(21-23)	714.05	1048.43	1060.00	1140.00

SUMMARY STATISTICS FOR THE TRONIC SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA
all in units of ppb

TYPE=USGS Well

Chem. Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	1,1,1-Trichloroethane	2	2	21.00	28.0	MWUG-1806-R1	24.25	28.00	.	.
	Trichloroethylene	2	2	14.00	61.0	MWUG-1806-R1	29.22	61.00	.	.
	Freon-113	1	1	120.00	120.0	MWUG-1806-R1	120.00	120.00	.	.
Inor.	Aluminum	2	2	8800.00	80900.0	MWUG-1806-R1	26681.83	80900.00	.	.
	Arsenic	1	2	9.00	9.0	MWUG-1806-R1	4.74	9.00	5.00	5.00
	Barium	2	2	80.40	392.0	MWUG-1806-R1	177.53	392.00	.	.
	Beryllium	1	2	7.20	7.2	MWUG-1806-R1	4.24	7.20	5.00	5.00
	Cadmium	2	2	23.90	151.0	MWUG-1806-R1	60.07	151.00	.	.
	Calcium	2	2	15400.00	20300.0	MWUG-1806-R1	17681.06	20300.00	.	.
	Chromium, total	1	1	36.50	36.5	MWUG-1806-R2	36.50	36.50	.	.
	Cobalt	1	2	32.30	32.3	MWUG-1806-R1	12.71	32.30	10.00	10.00
	Copper	1	1	65.10	65.1	MWUG-1806-R2	65.10	65.10	.	.
	Lead	2	2	312.00	2550.0	MWUG-1806-R1	891.96	2550.00	.	.
	Magnesium	2	2	4110.00	11000.0	MWUG-1806-R1	6723.84	11000.00	.	.
	Manganese	2	2	246.00	3230.0	MWUG-1806-R1	891.39	3230.00	.	.
	Mercury	1	2	1.10	1.1	MWUG-1806-R1	0.33	1.10	0.20	0.20
	Nickel	2	2	22.10	74.0	MWUG-1806-R1	40.44	74.00	.	.
	Potassium	2	2	3560.00	6190.0	MWUG-1806-R1	4694.29	6190.00	.	.
	Sodium	2	2	9060.00	9120.0	MWUG-1806-R1	9089.95	9120.00	.	.
	Vanadium	2	2	16.80	150.0	MWUG-1806-R1	50.20	150.00	.	.
	Chromium, VI	2	2	30.00	80.0	MWUG-1806-R2	55.14	80.00	.	.

TABLE G

METAL CONCENTRATIONS REMAINING AT TRONIC PLATING SITE
(POST REMOVAL)

SITE LOCATION	CADMIUM*	CHROMIUM*	LEAD*
SD-1 Main	0.54 U	1.9 U	4.5 U
SD-1 Overflow	0.53 U	1.9 U	0.88 U
SD-2 Main	1.5 J	2.0 U	1.4 U
SD-2 Overflow	0.54 U	2.0 U	1.0 U
SD-3 Main	0.93 J	2.3	2.6 U
SD-3 Overflow	16.8	9.5	23.1
SP-1 Main	8.3	80.8	26.1
SP-1 Overflow	11.4	44.0	7.7
DW-1	4.3	17.0	2.5 U

* units are mg/kg or parts per million

U - This analyte should be considered "non detected" since it was detected in a blank at a similar level.

J - Quantitation is approximate due to limitations identified during the quality assurance review (data validation).

TABLE H

REMOVAL EXCAVATION DEPTH AND XRF RESULTS

SITE LOCATION	DEPTH OF EXCAVATION	CADMIUM XRF RESULT	CHROMIUM XRF RESULT	LEAD XRF RESULT
SD-1 Main	14.0 ft.	<10 ppm	<10 ppm	20 ppm
SD-1 Overflow	17.0 ft.	<10 ppm	<10 ppm	<10 ppm
SD-2 Main	15.5 ft.	<10 ppm	11 ppm	<10 ppm
SD-2 Overflow	10.5 ft.	<10 ppm	<10 ppm	40 ppm
SD-3 Main	19.5 ft.	<10 ppm	66 ppm	<10 ppm
SD-3 Overflow	15.5 ft.	<10 ppm	<10 ppm	<10 ppm
SP-1 Main	16.5 ft.	25 ppm	430 ppm	35 ppm
SP-1 Overflow	17.5 ft.	11 ppm	66 ppm	<10 ppm
DW-1	20.5 ft.	<10 ppm	28 ppm	<10 ppm

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

SEP 27 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: Tronic Plating Site ID No. 152028

Dear Mr. Pavlou:

The New York State Department of Environmental Conservation and the New York State Department of Health have reviewed the Record of Decision for the Tronic Plating site and find the No Further Action alternative to be acceptable. We base this concurrence upon our review of the data presented to us which confirms the adequacy of the removal action taken during August of 1993.

If you have any further questions, please contact Jonathan Greco at (518) 457-3976.

Sincerely,

Ann Hill DeBarbieri
Deputy Commissioner

cc: G. Sosa, USEPA-Region II
K. Lynch, USEPA-Region II