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

SITE ID 251: NATIONAL PLATING, INC.

SITE SUMMARY REPORT
REVISION 1

Onondaga Lake Project
Task 5: 104(e) Review

Site No. 734030-002
Work Assignment Number D003060-9

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CONTENTS

1.0 SITE DESCRIPTION 1
- 1.1 Location 1
- 1.2 Geology 1
- 1.3 Hydrogeology 2
- 1.4 Surface Water Hydrology 2

2.0 SITE HISTORY 4
- 2.1 Owners/Operators 4
- 2.2 Site Operations 4
- 2.3 Generation and Disposal of Wastes 4

3.0 POTENTIAL PATHWAYS FOR RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM 7
- 3.1 Soil 7
- 3.2 Surface Water 8
- 3.3 Groundwater 8
- 3.4 Air 9
- 3.5 County Sewer System 9

4.0 LIKELIHOOD OF RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM 10
- 4.1 Documented Releases 10
- 4.2 Threat of Release to the Lake System 13

5.0 POTENTIAL FOR ADVERSE IMPACTS TO LAKE SYSTEM DUE TO A RELEASE OR THREAT OF A RELEASE 17
- 5.1 Hazardous Substance Characteristics 17
- 5.2 Quantity of Substance 19
- 5.3 Levels of Contaminants 20
- 5.4 Impacts on Special Areas 20

6.0 SUMMARY OF CONCERNS 22

REFERENCES 23

CONTENTS (continued)

TABLES

1 Composition of National Plating Metal Hydroxide Sludge
2 Composition of Pretreated Wastewater Discharged to Sanitary Sewer
3 Violations of OCDDS Effluent Limitations by National Plating
4 Test Results of Salina Town Landfill Soil Sample SS-2, 1993
5 National Plating's Soil Analytical Results (1987) and Salina Town Landfill Surface Soil Results (1993 - 1995)

FIGURES

1 Site Location: National Plating, Inc.
2 Sample Location Map, Salina Town Landfill

1.0 SITE DESCRIPTION

In general, the information referenced in this report was obtained from the 104(e) responses of National Plating, Inc. (Company ID 2018). Two mailings were received from National Plating dated May 4, 1995 and January 23, 1996, and were reviewed by TAMS (see Completeness Reviews A and B, October 10, 1995 and October 21, 1996, respectively). Also, additional information was obtained during a conference call between NYSDEC and National Plating on January 7, 1997, and from a letter to NYSDEC from National Plating dated June 25, 1997.

1.1 Location

The National Plating facility is located on the west side of Brewerton Road (U.S. Route 11), south of the New York State Thruway (Interstate Route 90). The facility is situated on the north side of Ley Creek, near the entrance to the Salina Town Landfill. The location of National Plating was determined from a map provided by NYSDEC (December 30, 1996). Figure 1 shows the site location in relation to Onondaga Lake.

1.2 Geology

The surficial geology of the Syracuse area was strongly influenced by the most recent glacial advance (Wisconsin age, 12,000 to 14,500 years ago). Syracuse occupies a region that was covered by Lake Iroquois, a large glacial lake situated in front of the ice margin. The broad flat-lying plains situated from Syracuse north to Lake Ontario were formed beneath Lake Iroquois and are characterized by lacustrine fine sand and silt deposits. Additional glacial features which are common to the region are moraines, drumlins, U-shaped valleys and meltwater channels. The last of these features is important in understanding the geology of

the area. Onondaga Lake and all its major tributaries lie within glacial meltwater channels. These features originally formed as a conduit to carry meltwater away from the glacier. They typically transmitted large volumes of water at high velocities. Sediment types characteristically found in meltwater channels are sands and gravels. In the Syracuse region, these relict features form important water bearing and transmitting units which lie in an irregularly branching, net-like pattern throughout the area.

The bedrock geology of the greater Syracuse area includes Lower to Middle Paleozoic age sedimentary rocks predominated by carbonate (dolostone and limestone) and shale and containing some sandstone, siltstone and evaporites. Bedrock directly beneath the site (as well as underneath Onondaga Lake) is the Silurian Vernon Shale (Rickard and Fischer, 1970) which has low permeability, but does possess secondary porosity due to fractures.

1.3 Hydrogeology

According to the Syracuse West USGS quadrangle, ground surface elevations at the National Plating site range from approximately 380 to 390 feet NGVD. A 1994 Ecology and Environment site investigation of the Salina Town Landfill for NYSDEC determined that groundwater near the National Plating site was at an elevation of approximately 368 feet NGVD, and generally flows in a south-southwesterly direction towards Ley Creek (Ecology and Environment, 1992, p. 4-5).

1.4 Surface Water Hydrology

Ley Creek flows in a southwesterly direction approximately 350 feet south of the National Plating facility. The facility is less than one mile east of Beartrap Creek, and approximately three miles northeast (upstream) of Onondaga Lake. Information regarding drainage of

surface water runoff from the site was not provided, and so it is assumed that stormwater drains either into Ley Creek or municipal street sewers.

2.0 SITE HISTORY

2.1 Owners/Operators

National Plating has operated under the same name, at the same location, for over forty years. The company was operated by its original proprietors until 1987, when it was bought by a local company for which it had performed metal finishing services. In 1989, Barbara Hile, an officer of this local company, purchased all stock and became the sole owner, and has owned and operated the company as National Plating since that time.

2.2 Site Operations

National Plating engages in decorative and industrial metal finishing. Processes include electroplating, buffing, and polishing of aluminum, chromium, copper, gold, nickel, silver, stainless steel, tin, and zinc.

2.3 Generation and Disposal of Wastes

National Plating holds an Onondaga County Department of Drainage and Sanitation (OCDDS) Industrial Wastewater Discharge Permit for release of treated process (electroplating) wastewater to the municipal sanitary sewer, for ultimate treatment at the Syracuse METRO sewage treatment plant. OCDDS permits, dating back to 1976, were provided by National Plating. The original issue date for the permit was not provided. Self-monitoring reports provided by National Plating indicate that a four-day average of nearly 7,000 gallons per day (gpd) were typically discharged in 1995 (p. 000229). According to the permit, the daily maximum discharge limitation for flow is 10,000 gpd (p. 000051 and 000079).

On-site treatment includes filtration, clarification, and pH neutralization of effluent. The pH neutralization unit was installed following an inspection by OCDDS in response to an "alleged batch discharge" of electroplating wastewater (p. 000122). It was later determined by the General Manager of National Plating that such a discharge had not occurred, however National Plating proceeded with recommended improvements resulting from the inspection. A paper filtration unit was used until 1995, when National Plating replaced this system with a 175-gallon poly tank as an effluent polisher (p. 000261).

Treatment of process wastewater produces metal hydroxide sludge, as well as spent paper filter cartridges. National Plating provided manifests for disposal of such waste dating back to 1987. Wastewater treatment sludge contains cadmium, chromium, lead, silver, nickel, zinc, cyanide, and copper. Since 1993, transport of the waste has been handled by Allegheny Environmental Services, while incineration of the sludge was conducted by Marine Shale Processors, Louisiana. Cadmium and chromium were recovered from the sludge by Marine Shale. From 1989 to 1993, waste transport was conducted by Dart Trucking, for disposal at the CyanoKEM facility in Michigan. From 1986 to 1988, hazardous waste was disposed by SCA Chemical Services in Model City, New York. According to a recent phone conversation between the current owner of National Plating and NYSDEC (January 7, 1997), no records of hazardous waste transport/disposal prior to 1986 are known to exist.

According to a 1992 Waste Profile Report prepared by Allegheny Environmental Services (p. 000008), National Plating disposed approximately 3 drums of waste from their pretreatment unit per quarter, consisting of approximately 80% spent paper filter cartridges and 20% metal hydroxide sludge. The metals composition of this waste is summarized in Table 1.

Table 1: Composition of National Plating Metal Hydroxide Sludge

	Concentration (mg/kg)
Cadmium	13
Chromium	3,500
Lead	300
Silver	49
Nickel	11,000
Zinc	4,900
Copper	15,000
Cyanide	150

Source: Allegheny Environmental Services Waste Profile Report, October 30, 1992 (p. 000011).

3.0 POTENTIAL PATHWAYS FOR RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

3.1 Soil

During the investigation of the adjacent Salina Town Landfill, surface soil near National Plating (location SS-2, within the Salina Town Landfill property) was found to contain, among other contaminants, arsenic, barium, calcium, chromium, cobalt, iron, lead, magnesium, nickel, vanadium and zinc at elevated concentrations (Ecology & Environment, 1994, p. 3-22). Sample locations for the landfill investigations are shown in Figure 2. These contaminants were found at levels consistent with other sample locations within the Salina Town Landfill. National Plating, therefore, is not thought to be responsible for off-site contamination.

Limited soil testing was performed along the perimeter of the National Plating property in 1987 by O'Brien & Gere for the current owner of National Plating (National Plating letter to NYSDEC, June 25, 1997). Select metals (cadmium, chromium, nickel, and zinc) were detected in each of the four soil samples and cyanide was detected in three of the four samples. PCBs were analyzed in one of the four samples and were not detected. These data are tabulated in Section 4.2. There is potential for transport of contaminants in surface soil on and near the site to nearby surface water or the sewer system by erosion due to surface water runoff and dusting during dry, windy conditions. Subsurface soil contamination can be transported to the lake system via dissolution and subsequent groundwater migration to the lake or its tributaries (Ley Creek). The extent of soil contamination on and in the vicinity of the National Plating site is described in Section 4.

3.2 Surface Water

National Plating is located approximately 350 feet north of Ley Creek, which flows in a southwest direction towards Onondaga Lake. Beartrap Creek is approximately 4,000 feet west of National Plating. The confluence of Beartrap Creek and Ley Creek is downstream of the site. No details of stormwater runoff were provided by National Plating. It is possible that stormwater runoff from the National Plating site drains into Ley Creek.

3.3 Groundwater

As part of the Preliminary Site Assessment (1995) of the Salina Town Landfill, Ecology and Environment sampled groundwater in previously installed monitoring well MW-0, which is located approximately 300 feet northwest of the National Plating property (see Figure 2). This was the groundwater sampling location closest to National Plating. Contaminants found in groundwater were similar to those found in the surface soil sample discussed above. As was the case for soil contamination, pollutant concentrations in groundwater were consistent with those found at other locations in the Salina Town Landfill area. The sample location (MW-0) is at a significant distance northwest of the National Plating property, while groundwater from this area flows in a south, southwesterly direction (Ecology & Environment, 1992, p. 4-5). Therefore, contamination at this location is not thought to be the result of National Plating operations. No groundwater sampling data is available on the National Plating property.

3.4 Air

National Plating did not state whether they hold any New York State air emission permits, nor did they provide any in their 104(e) response. Contaminants produced at the site are generally not volatile in nature; therefore air pollution is not considered a pathway for contamination from the National Plating facility to reach the lake system.

3.5 County Sewer System

National Plating included OCDDS Industrial Wastewater Discharge Permits dating back to 1976 in their 104(e) response. The original issue date of the OCDDS Permit was not reported. Pretreated wastewater enters sanitary sewers that currently discharge to the Syracuse METRO sewage treatment facility. National Plating has operated at the same site adjacent to Ley Creek since the 1950s. No information was provided regarding disposal practices for industrial wastewater prior to 1976. It is possible that process wastewater was discharged to the Ley Creek sewage treatment facility during this period, before flow to the Ley Creek plant was diverted to METRO in the early 1970s. It is also possible that National Plating historically discharged process wastewater directly to storm sewers discharging to Ley Creek prior to 1976.

Documentation of stormwater discharge practices was not provided by National Plating. It is possible that some stormwater runoff drains into municipal storm sewers located on Brewerton Road.

4.0 LIKELIHOOD OF RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

4.1 Documented Releases

According to National Plating, hazardous substances were never released or discharged into the environment (soil, groundwater, surface water) at their facility (p. 000002).

National Plating discharges treated process wastewater to the METRO sewage treatment plant via sanitary sewers under an Onondaga County Department of Drainage and Sanitation (OCDDS) permit. In September 1993, a discharge hose was left in a pit discharging to the sanitary sewer. It appeared as if spent acid had been discharged directly to the sewer bypassing pretreatment. An OCDDS inspection following this "alleged batch discharge" determined that no discharge had taken place, and therefore National Plating's OCDDS permit had not been violated. The inspection did, however, result in some alterations to National Plating's discharge practices as required by OCDDS to avoid future incidents. A pH neutralization unit was installed downstream of the paper filter discharge, and a log of all spent acid and metal wastes batch treated and discharged to the pretreatment system was instituted. National Plating was required to develop a slug discharge control plan in accordance with 40 CFR 403.8. Additionally, National Plating voluntarily capped the inlet to the sanitary sewer where the discharge hose had been left (pp. 000122 - 000126).

As part of the self monitoring required by National Plating's OCDDS permit, wastewater has been sampled annually for cadmium, chromium, copper, cyanide, lead, mercury, nickel, oil and grease, volatile organic compounds, silver and zinc. The 1984 OCDDS Discharge Permit outlines sampling requirements, and so it is inferred that National Plating has sampled wastewater dating back to at least 1984. Self-monitoring reports from 1988 and 1995 were

included in National Plating's 104(e) response, as well as sampling data collected in 1987 which was provided to OCDDS to correct deficiencies found in their 1987 self-monitoring report. Contaminant levels from these reports are summarized in Table 2.

Table 2: Composition of Pretreated Wastewater Discharged to Sanitary Sewer

	OCDDS Permit Daily Allowable Standards (1993-1996)	Sampling Dates November 7 - 9, 1988		Sampling Dates May 8 - 11, 1995	
		Range	3-day Avg.	Range	4-day Avg.
Cyanide (mg/L)	3.0	<0.01 - 0.21	0.08	0.01 - 0.1	0.04
Cadmium (mg/L)	1.2	0.01 - 0.02	0.016	0.005 - 0.13	0.009
Chromium (mg/L)	8.0	0.07 - 0.62	0.31	0.07 - 0.19	0.15
Copper (mg/L)	5.0	0.49 - 1.5	0.95	0.06 - 0.07	0.07
Lead (mg/L)	0.6	<0.1 - 0.1	0.1	<0.1 - 0.1	0.1
Nickel (mg/L)	5.0	0.33 - 2.9	2.0	0.04 - 0.22	0.13
Silver (mg/L)	1.0	0.05 - 0.12	0.08	0.05	--
Zinc (mg/L)	5.0	0.041 - 1.4	0.54	0.46	--
Methylene Chloride (µg/L)	(a)	23 - 57	43.7	<5	--
Chloroform (µg/L)	(a)	<5 - 18	9.3	16	--
Trichloroethylene (µg/L)	(a)	<1 - 4	2	<1	--
Tetrachloroethylene (µg/L)	(a)	<1 - 5	3.3	<1	--
Benzene (µg/L)	(a)	<1 - <1	<1	<1	--
Toluene (µg/L)	(a)	<1 - 54	33.7	<1	--
Ethylbenzene (µg/L)	(a)	1 - 90	54.7	<1	--
Xylenes (µg/L)	(a)	8 - 400	262.7	<1	--
Flow (gpd)	10,000	1,600 - 2,400	1,833	6,385 - 7,271	6,935
pH (S.U.)	5.5 - 9.5	--	--	8.5 - 8.6	8.55

Note: a. Discharge limitation for total toxic organics is 4.57 mg/L (p. 000051).
Source: Data: OCDDS Self Monitoring Reports, 1988 and 1995 (pp. 000222 - 000224, 000229 & 000239); Standards: OCDDS Industrial Wastewater Discharge Permit, 1993-1996 (pp. 000051 & 000052).

National Plating received a Notice of Violation of their OCDDS permit in 1992 citing deficiencies in their self-monitoring report, which was rescinded by OCDDS in 1993. A December 1990 Notice of Violation reported exceedances of copper, total cyanide, and amenable cyanide from November 1990. Concentrations of these pollutants were well above OCDDS effluent limitations at that time, as shown in Table 3. National Plating responded to these violations in a letter to OCDDS dated January 17, 1991 (p. 000136). The following excerpt is National Plating's explanation of these violations: "We were in the process of purging our cyn copper tank and cleaning our external filtering system, which is to be discontinued from service. The filtering system is to be replaced by an intank model. The filter chamber held 15 gallons of plating bath. This was fed to waste treatment at too fast a rate for it to be treated proficiently in pretreatment."

National Plating went on to explain that a metering pump was installed to control the flow rate of concentrated effluent to the pretreatment unit, as well as intank filters to help prevent future leaks and spills.

Further violations were cited in April 1990, with exceedances of OCDDS standards, as summarized in Table 3. National Plating responded that low pH values were caused by a blade that had fallen off of their pH adjustment agitation unit (p. 000143). Several violations also occurred in 1989, exceedances for which are shown in Table 3.

Table 3: Violations of OCDDS Effluent Limitations by National Plating

	OCDDS Effluent Limit	Nov. 1990	April 1990	Jan. - July 1989	May 1989	June 1989
Total Cyanide (mg/L)	3.0	44.7	--	--	--	--
Amenable Cyanide (mg/L)	5.0	15.5	--	--	14.34	5.8
Copper (mg/L)	5.0	37.2	6.9	--	--	--
Nickel (mg/L)	5.0	--	7.2	--	7.21	6.43
Zinc (mg/L)	5.0	--	7.3	--	--	--
pH (S.U.)	5.5 - 9.5	--	2.8	10.0 - 11.3	--	--

Source: pp. 000131, 000139, & 000151.

National Plating also received citations from OCDDS for deficiencies in their self-monitoring reports on more than one occasion. These deficient reports were subsequently corrected by National Plating by providing the required information to OCDDS.

4.2 Threat of Release to the Lake System

4.2.1 Extent of Site Contamination

As part of a site investigation of the Salina Town Landfill performed by Ecology and Environment for NYSDEC, surface soil near the National Plating site was sampled in 1993. Several surface samples were collected, one of which, referred to as SS-2, is in close proximity to the National Plating property (approximately 100 feet west). Contaminants detected at this location are shown in Table 4.

Table 4: Test Results of Salina Town Landfill Soil Sample SS-2, 1993

Pollutant	Concentration (mg/kg)	Pollutant	Concentration (mg/kg)
Aluminum	4,160	Magnesium	21,400
Arsenic	6.1	Manganese	319
Barium	68.8	Nickel	12.6
Beryllium	0.36	Potassium	615
Calcium	81,500	Sodium	255
Chromium	14.2	Thallium	0.25
Cobalt	7.1	Vanadium	20.4
Copper	18.7	Zinc	40.5
Iron	9,600	Cyanide	0.70
Lead	27.2	Total PAHs	4.8

Source: Ecology & Environment, 1994, p. 3-20 & 3-22.

Levels of contaminants found at location SS-2 were consistent with those detected at other sample locations throughout the Salina Town Landfill study area. Pollutants present in soil near the National Plating site are therefore likely due to the landfill, and not National Plating operations.

An environmental audit of the National Plating site was performed in 1987 by O'Brien & Gere for the current owner of National Plating. Soil testing results from this study were provided by National Plating, and are shown in Table 5. Parameters analyzed include select inorganics (cadmium, chromium, cyanide, nickel, and zinc) and PCBs. A sample location map was not provided, nor were distances of soil sample locations from the National Plating building or property line. Table 5 also includes the range of concentrations for the same parameters from the Preliminary Site Assessment (PSA) for the Salina Town Landfill (1993 and 1995). The data are from surface soil locations throughout the landfill, including location

SS-2. As shown in Table 5, cadmium, cyanide, nickel, and zinc were detected on National Plating property at concentrations greater than those detected in surface soil on the landfill, during the PSA. Thus, it is possible that historic National Plating operations or spills of hazardous substances on site have contaminated the National Plating site. However, no spills to the environment were documented by National Plating. It should also be noted that waste disposal at the Salina Town Landfill commenced in 1956 (TAMS, October 1996) and National Plating commenced operations at their site in the mid-1950s.

Table 5: National Plating's Soil Analytical Results (1987) and Salina Town Landfill Surface Soil Results (1993 - 1995)

Pollutant	National Plating Data (1987) (mg/kg)				Salina Town Landfill Data (1993 - 95) Six Locations (mg/kg)
	West Edge of Pavement	West Boundary	South Boundary	North Boundary	
Cadmium	1,400	96	54	160	6.9
Chromium	710	110	73	110	7 - 1,920
Cyanide	440	36	<0.5	11	0.7 - 3.4
Nickel	4,800	360	270	600	8.6 - 484
Zinc	3,800	360	880	1,600	36.2 - 481
PCBs	--	<0.5	--	--	<1 - 30

Source: National Plating Data from Letter to NYSDEC dated June 25, 1997;
Salina Landfill Data Summary from TAMS, October 1996 (Table 4).

Groundwater samples were also collected as part of the site investigation of the landfill. The closest monitoring well to National Plating sampled in this investigation (location MW-0, see Figure 2) is approximately 300 feet northwest of the National Plating site. Contaminants found in groundwater at this location in 1995 included aluminum, arsenic, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, silver, sodium, and zinc. Groundwater has been found to flow in a south-southwesterly direction from the Salina Town Landfill towards Ley Creek (Ecology and Environment, 1992, p. 4-5). This location is therefore not in the path of groundwater flow to or from National Plating. As was the case

for the soil sample, levels of pollutants detected at this location were consistent with those found in groundwater monitoring wells throughout the Salina Town Landfill study area. National Plating is therefore not likely to be responsible for such contamination. No groundwater data is known to exist from the National Plating property.

4.2.2 Migration Potential of Contaminants

Migration of contaminants present in soil and groundwater near the National Plating site is not discussed herein, since this contamination likely resulted from historic operations at the Salina Town Landfill. Contaminants detected in soil at the perimeter of the National Plating site could have originated from landfill operations and/or operations or spills at the National Plating facility.

Discharge of industrial wastewater to the Onondaga County sewer system is the most likely pathway for contaminants from National Plating operations to reach the Onondaga Lake system. As discussed in Section 4.1, National Plating exceeded OCDDS effluent limits for cyanide, copper, and nickel on numerous occasions. Contaminants present in National Plating's discharge consist primarily of metals, which most likely settle from wastewater during treatment at the METRO plant. It is possible that a portion of the mass of these contaminants is not removed from the waste stream and reaches Onondaga Lake. In addition, National Plating has received Notices of Violation for pH discharged to the sewer system at levels both above and below the OCDDS standard. As stated earlier, it is also possible that historic (pre-1970s) industrial wastewater discharges were released to the Ley Creek primary sewage treatment plant.

5.0 POTENTIAL FOR ADVERSE IMPACTS TO LAKE SYSTEM DUE TO A RELEASE OR THREAT OF A RELEASE

5.1 Hazardous Substance Characteristics

The pollutants of concern for the National Plating facility have been determined to be cyanide, copper, nickel, and pH, as it was these parameters that were detected in the discharge to the sewer system at concentrations greater than the OCDDS standards on numerous occasions. The potential for adverse impacts to the Onondaga Lake system exists as a result of historical transport of copper, nickel, and cyanide through the Onondaga County sewer system. Although levels of these contaminants may have exceeded discharge standards at the point of entry to the sewer system, concentrations that ultimately entered Onondaga Lake were likely much less due to dilution in the sewer system and treatment operations at the METRO plant. Exceedances of pH were also reported on numerous occasions. However, once process wastewater from the facility reaches METRO, it is likely that pH is within the acceptable range due to dilution with other plant influent. Hazardous waste characteristics are therefore discussed for copper, nickel, and cyanide.

Mobility

The mobility of copper in freshwater is strongly dependent on pH, Eh, and the occurrence of potential surfaces such as organic matter and other clay mineral species. Copper has a strong affinity for the hydrous iron and manganese oxides, clays, carbonate minerals and organic matter. Sorption to these materials results in the relative enrichment of the bed sediments and the reduction of copper in the dissolved phase. The sorption of copper to other materials effectively results in the removal of copper from the water column and greatly inhibits copper's mobility in the environment. In polluted waters, studies have indicated that the

controlling factor is sorption to organic minerals. Cyanides are sorbed by clays, biological solids, activated carbon, and sediments, and are considered fairly mobile in the soil environment, depending on pH, clay content, and concentrations of free iron oxides. Cyanide ion reacts with a variety of metals forming insoluble metal cyanides. In general, in natural waters, most of the free cyanide in solution is present as hydrogen cyanide. Nickel is one of the most mobile heavy metals in the aquatic environment. Mobility of nickel is affected by sorption to organic materials, and hydrous iron and manganese oxides (USEPA, 1979).

Toxicity

Copper is a common component of many algicides, insecticides, molluscides, and plant fungicides. It is toxic to aquatic life at high concentrations, especially the divalent copper ion and its hydroxy complexes. Cyanide is highly toxic in all forms, although hydrogen cyanide is the most toxic of cyanide compounds. The central nervous system is the target for cyanide toxicity in humans and animals following ingestion, inhalation, or dermal contact. Acute exposure to high levels of cyanide leads quickly to death, following convulsions and central nervous system depression. Nickel can be lethal following prolonged exposure by inhalation or ingestion, targeting respiratory tissue. Soluble forms of nickel are generally more toxic than non-soluble compounds (Syracuse Research Corporation, 1991). Soluble halide, hydroxide, carbonate, and sulfate compounds form complexes with nickel and can persist at toxic levels in the aquatic environment (USEPA, 1979).

Persistence

Copper is very persistent in both water and sediment. Since copper and nickel are elements, they cannot be broken down at all, and their concentration in environmental media is governed solely by dilution mechanisms. In the environment, copper can be transformed from inorganic to organic forms, affecting relative toxicity, but ultimately only dilution or removal affects the presence of this element. Cyanide compounds are subject to biodegradation and volatization, and therefore, they are generally not persistent (USEPA, 1979).

Bioaccumulation

As an essential nutrient, copper is strongly bioaccumulated by all plants and animals. However, data indicate an apparent lack of biomagnification, since bioconcentration factors for fish are lower than levels for algae and the lowest trophic levels. Bioaccumulation of metal cyanide complexes in fish has been documented. Hydrogen cyanides generally do not bioaccumulate, as they are either metabolized quickly by the organism, or result in death of the organism due to high toxic levels. Nickel is bioaccumulated by some aquatic organisms, however not in significant amounts compared to other metals (USEPA, 1979).

5.2 Quantity of Substance

The quantities of copper, nickel, and cyanide originating from National Plating's discharge and ultimately entering the waters of Onondaga Lake cannot be estimated as the discharge was not direct. It can be assumed that a considerable portion of the contaminants that entered the sewage treatment plant was precipitated out of the wastewater and disposed as sludge. Only a fraction of these contaminants could be expected to pass through the system and actually enter the waters of Onondaga Lake.

Estimates of contaminant loadings to the sewer system from National Plating's discharge can be made. In April 1990, National Plating received a Notice of Violation citing concentrations of 6.9 and 7.2 mg/L for copper and nickel, respectively (see Table 3). National Plating later informed OCDDS that flow to the sewer during this period was approximately 1,050 gpd (p. 000143). Thus, loadings to the sewer during this period of violation would be about 0.1 lb/day for each pollutant.

Quantities of contaminants in soil and groundwater are not discussed here as they are thought to be due to the Salina Town Landfill, rather than National Plating processes. However, limited soil data from the edges of the National Plating site indicate that historic National Plating operations or possible spills could have impacted on-site soils.

5.3 Levels of Contaminants

Levels of contaminants discharged to Onondaga Lake are not estimated here since discharges from National Plating were treated by METRO prior to entering the lake system. National Plating's discharge permit was based on maximum concentrations and three and four-day averages, rather than daily mass loadings. Concentrations of various contaminants in the process wastewater discharge to the sewer system are included in Section 4.1.

Concentrations of contaminants detected in on-site and off-site soils as well as off-site groundwater are included in Section 4.2.

5.4 Impacts on Special Areas

The National Plating facility is situated near a former wetland area adjacent to Ley Creek, which is the site of the Salina Town Landfill. The segment of Ley Creek adjacent to the

landfill and the site is a Class B stream, and is thus a "protected stream" in New York State. Downstream of the site, Ley Creek is a Class C stream from the location of the former Ley Creek sewage treatment plant outfall near the mouth of Beartrap Creek to Onondaga Lake. A regulated New York State wetland area is located approximately 3,500 feet northwest of the site along Beartrap Creek and another regulated state wetland is located approximately one mile southwest of the site near the mouth of Ley Creek. According to the Syracuse West National Wetlands Inventory map (USDOI, 1978), two federal wetlands exist approximately one-quarter mile from National Plating. One federal wetland is approximately 1,000 feet northwest of National Plating on the north side of the New York State Thruway, and is designated as PSS1E/PEM5E (Palustrine, Scrub/Shrub; Palustrine, Emergent). The other federal wetland is about 1,000 feet southwest of National Plating, on the south side of Ley Creek, and is designated as PSS1E (Palustrine, Scrub/Shrub). These areas are not likely to have been impacted by contaminants generated by National Plating. There are no documented New York State "Natural Heritage Sensitive Elements" near the site.

6.0 SUMMARY OF CONCERNS

Based on the data and information provided by National Plating, it appears that the most potential source of contamination from the site/facility to the Onondaga Lake system has been the discharge of industrial process wastewater. On several occasions, National Plating has received Notices of Violation from OCDDS for either exceedances of acceptable effluent standards, or incomplete self-monitoring reports. Contaminants of concern in the effluent include metals (copper and nickel) and cyanide.

It has been inferred from available data collected as part of the Salina Town Landfill Site Assessment that contamination of soil and groundwater in the vicinity of National Plating is likely associated with the Salina Town Landfill and not National Plating processes or spills. However, limited soil data collected from the edges of the National Plating property indicate that historic National Plating operations or possible spills of hazardous substances could have impacted on-site soils.

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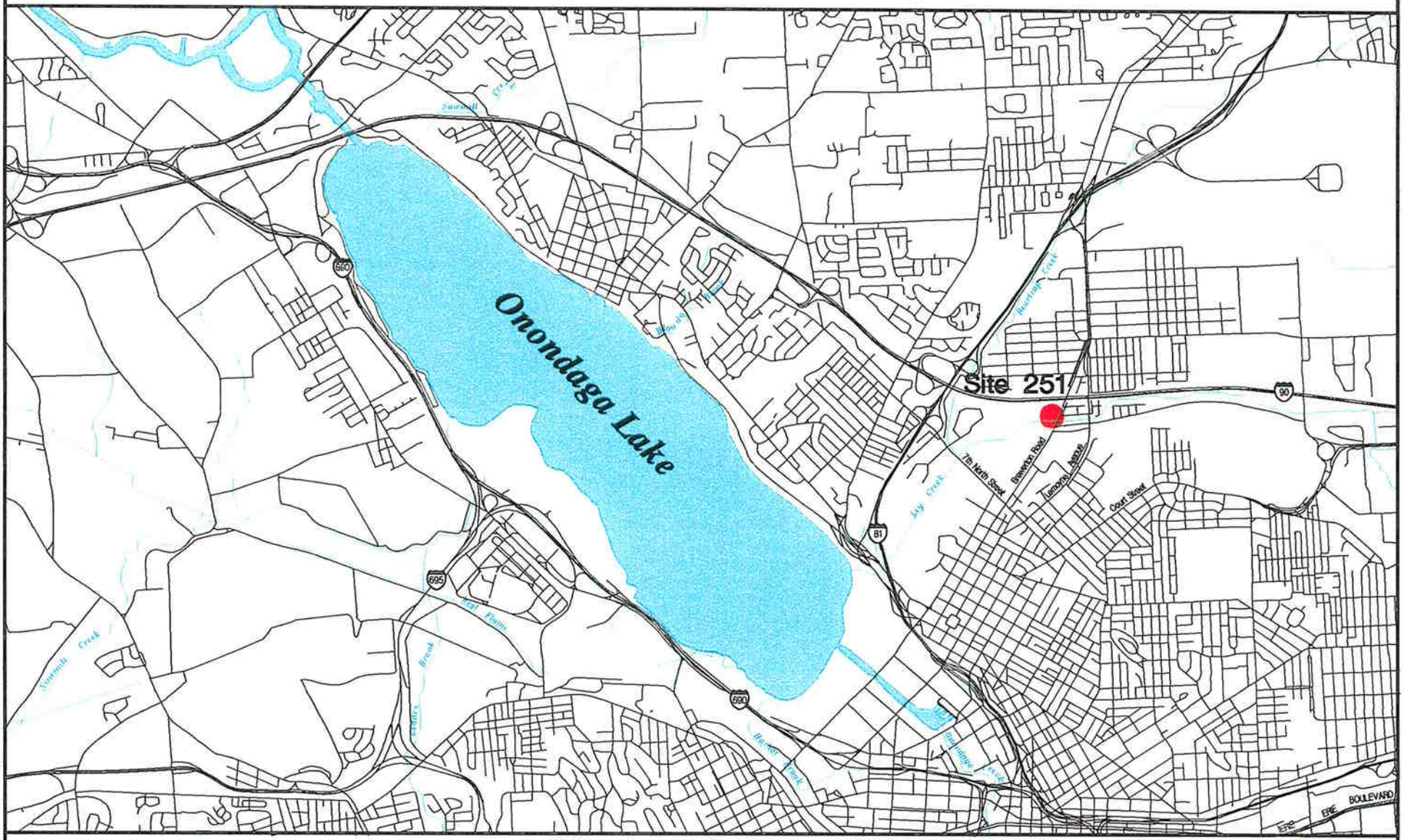


Site Location

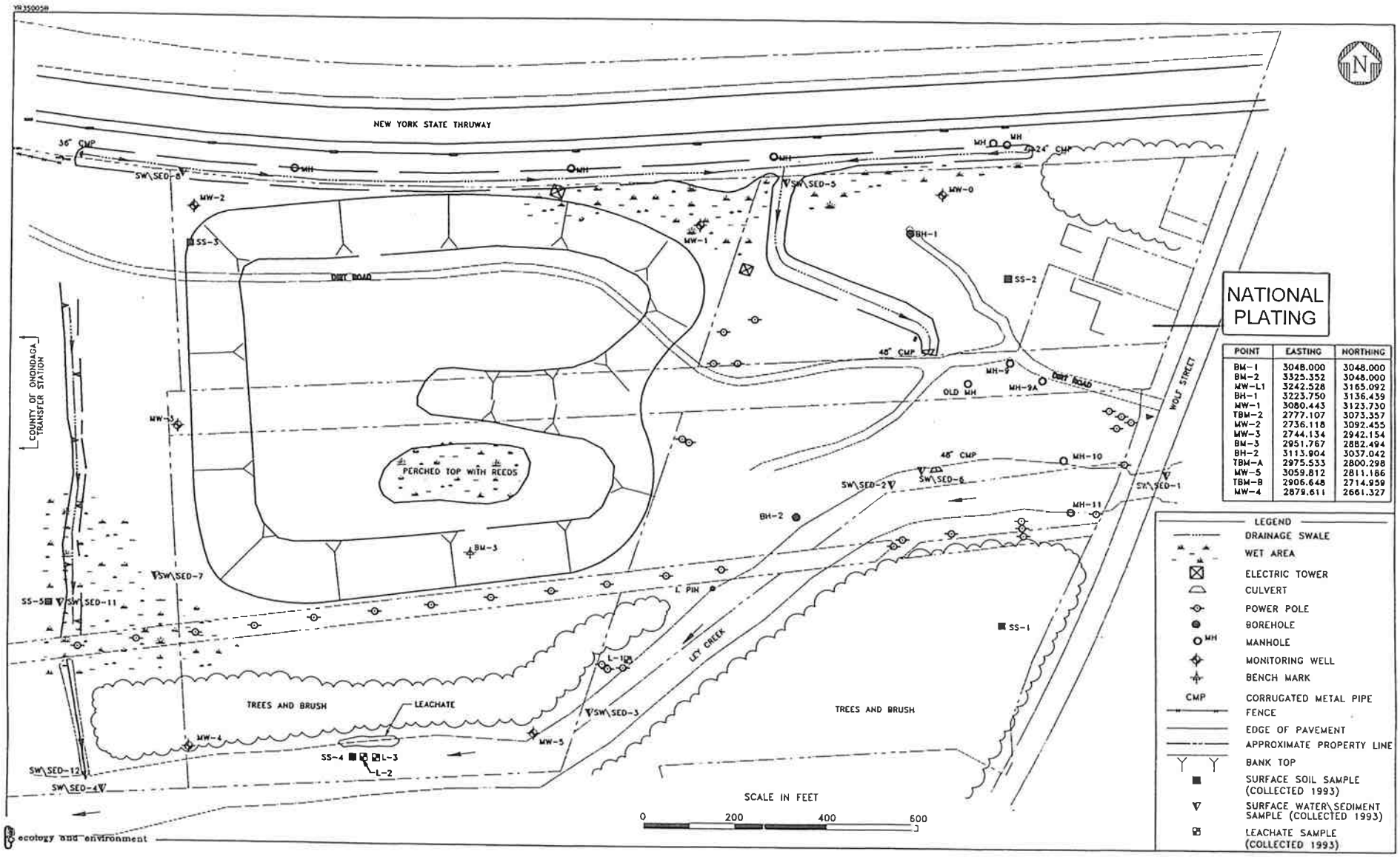
5000 0 5000
Scale In Feet

1500 0 1500
Scale in Meters

N

TAMS

Figure 1



POINT	EASTING	NORTHING
BM-1	3048.000	3048.000
BM-2	3325.352	3048.000
MW-L1	3242.528	3165.092
BH-1	3223.750	3136.439
MW-1	3080.443	3123.730
TBM-2	2777.107	3073.357
MW-2	2736.118	3092.455
MW-3	2744.134	2942.154
BM-3	2951.767	2882.494
BH-2	3113.904	3037.042
TBM-A	2975.533	2800.298
MW-5	3059.812	2811.186
TBM-B	2906.648	2714.959
MW-4	2879.611	2661.327

Figure 2: Sample Location Map, Salina Town Landfill

Source: Ecology and Environment, 1994