

02-9105-18-SI

REV. NO. 0

FINAL DRAFT
SITE INSPECTION REPORT
DOEHLER-JARVIS CASTING DIVISION
BATAVIA, GENESEE COUNTY, NEW YORK
VOLUME 1 OF 2

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-9105-18
CONTRACT NO. 68-01-7346

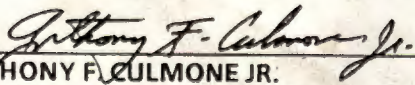
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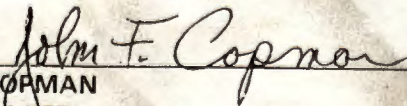
ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

SEPTEMBER 27, 1991

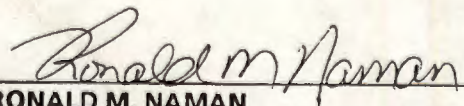
HALLIBURTON NUS ENVIRONMENTAL CORPORATION
SUPERFUND DIVISION

SUBMITTED BY:


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SITE SUMMARY AND RECOMMENDATIONS

The Doehler-Jarvis Castings Division Site is located in Batavia City, Genesee County, New York. Doehler-Jarvis originally occupied two tracts of land occupying 21.7 acres to the north and south of Mill Street along Evans Street. The smaller, 9-acre parcel to the north was used for offices. The southerly parcel, occupying 12.7 acres, was the site of the casting facility. Included in the complex are buildings which were built between 1906 and 1971. The site is located in the commercial-residential-industrial portion of the city, and is surrounded by Tonawanda Creek to the west, Mill Street to the north, and residential houses to the east and south. Figures 1 and 2 present a Site Location and Site Map, respectively. Doehler-Jarvis operated the castings facility until 1982, processing raw materials metals such as aluminum, chromium, copper, lead, magnesium, manganese, and zinc (Ref. No. 35, p. 1).

Doehler-Jarvis began operations around 1900 as the Doehler Die Casting Company. It was also reportedly known as the Doehler-Jarvis Die Casting Company (1924) and the Doehler-Jarvis Division of NL Industries Inc. (1952). Conflicting background information exists regarding exact dates of ownership change (Ref. Nos. 23, p. 16-18, 35, p. 4). In 1982 NL Industries, Inc. announced that the plant would be shut down. Later that year, all production had ceased, and the real estate, machinery, equipment, furniture and fixtures were sold to a new company, Mill Street of Batavia Industrial Park, Inc. Principal owners of the Mill Street Corporation included Wilbur-Ellis Corporation of San Francisco and Stetler Machinery Corporation of Los Angeles. The owners of the property sought assistance from the Genesee County Industrial Development Agency (GCIDA), and Joseph L. Mancuso and Sons (local industrial and commercial real estate firm) with marketing of the real estate. The GCIDA was created in 1971 and is funded by both the County legislature and the Batavia City Council. They pursued companies that might locate in the former Doehler facility and create local employment opportunities. As no buyers were located, the GCIDA negotiated the donation of the property to the City of Batavia. It was immediately given back to the GCIDA free of any property liens (Ref. No. 35, pp. 1, 2).

Two lagoons were constructed at the southerly portion of the property between 1967 and 1976. They were built to function as a waste oil separating unit. In 1973, Doehler-Jarvis Castings Division was issued State Pollutant Discharge Elimination System Permit (SPDES) No. NY0000230, which included parameters for a metals processing wastestream, cleaning solvents, and waste oil. Waste oil originating in the foundry was sent to the lagoons. The water was treated, then released to either the Batavia City sanitary sewer system or directly to Tonawanda Creek less than 20 feet away. During situations where cold weather created pipe freezing or cracking circumstances, or when flow exceeded capacity, the waste was discharged directly into a municipal storm sewer system, and then into the creek (Ref. Nos. 15-17). Due to allegations of spilled oil and potential releases to surface water (Tonawanda Creek), the New York State Department of Environmental Conservation (NYSDEC)

SITE SUMMARY AND RECOMMENDATIONS (CONT'D)

implemented a quarterly sampling and results notification program. Effluent parameters for total suspended solids and metals such as aluminum, chromium, and copper were estimated. Effluent levels recorded exiting the lagoons were considerably above allowable standards on a consistent basis from the late 1970s until 1980. Coordination between NYSDEC, U.S. Environmental Protection Agency (EPA), and the Genesee County Health Department (GCHD) resulted in constant year-around inspections by all three agencies. Violations and complaints were issued regarding unsafe effluent levels being discharged from the lagoons and entering the creek. (Ref. Nos. 7, 15-17, 21, 27-33).

Early in its ownership, the GCIDA conducted a through on-site investigation of the property with assistance from NYSDEC, environmental staff of the federal Economic Development Administration, the GCHD, former Doehler-Jarvis employees, private contractors and environmental consulting and toxic waste disposal firms the following areas of concern were identified:

- A small quantity of barreled oil, apparently from machines that had been sold by the former owners.
- Polychlorinated biphenyl (PCB) contaminated transformers and capacitors, some of which were leaking.
- A metallurgy laboratory containing various chemicals in small quantities.
- A system of pumps and compressors containing hydraulic fluid.

(Ref. No. 3, pp. 3, 4)

The GCIDA then selected SCA Chemical Services for the actual cleanup activities and all other sampling and testing which were to occur prior to the demolition of the middle portion of the facility. Included in the scope of this activity were to drain and dispose two transformers and PCB fluids, decontaminate/dispose PCB contaminated concrete underneath one leaking transformer, dismantle and dispose of approximately 110 capacitors, identify potential further PCB contamination, and dispose of approximately ten gallons of lab chemicals (Ref. No. 35, p. 3, 4). The GCIDA filed a Resource Conservation Recovery Act (RCRA) application with the EPA for the closure of the casting facility; they were subsequently assigned EPA ID No. NYD981132608 (Ref. No. 35, p. 4). During this time period there were two spills of liquids containing PCB contaminated oil. One occurred where the transformers were being remediated and the other to the north of Mill Street, the current location of the Batavia fire headquarters and public ice rink. When remediation was completed, that portion of the building was demolished, except for the concrete floor.

A site inspection was conducted July 2, 1991 by Halliburton NUS Environmental Corporation (formerly NUS Corporation) Region 2 FIT personnel. Two groundwater samples were collected from off-site locations as tap water samples. Five surface water and sediment samples were collected. Seven soil samples, two from off-site locations, and five from on-site locations, were collected (Ref. Nos. 1, 2).



(QUAD) BATAVIA SOUTH, N.Y.

SITE LOCATION MAP

DOEHLER-JARVIS CASTINGS DIV., BATAVIA, N.Y.

SCALE : 1" = 2000'

FIGURE 1



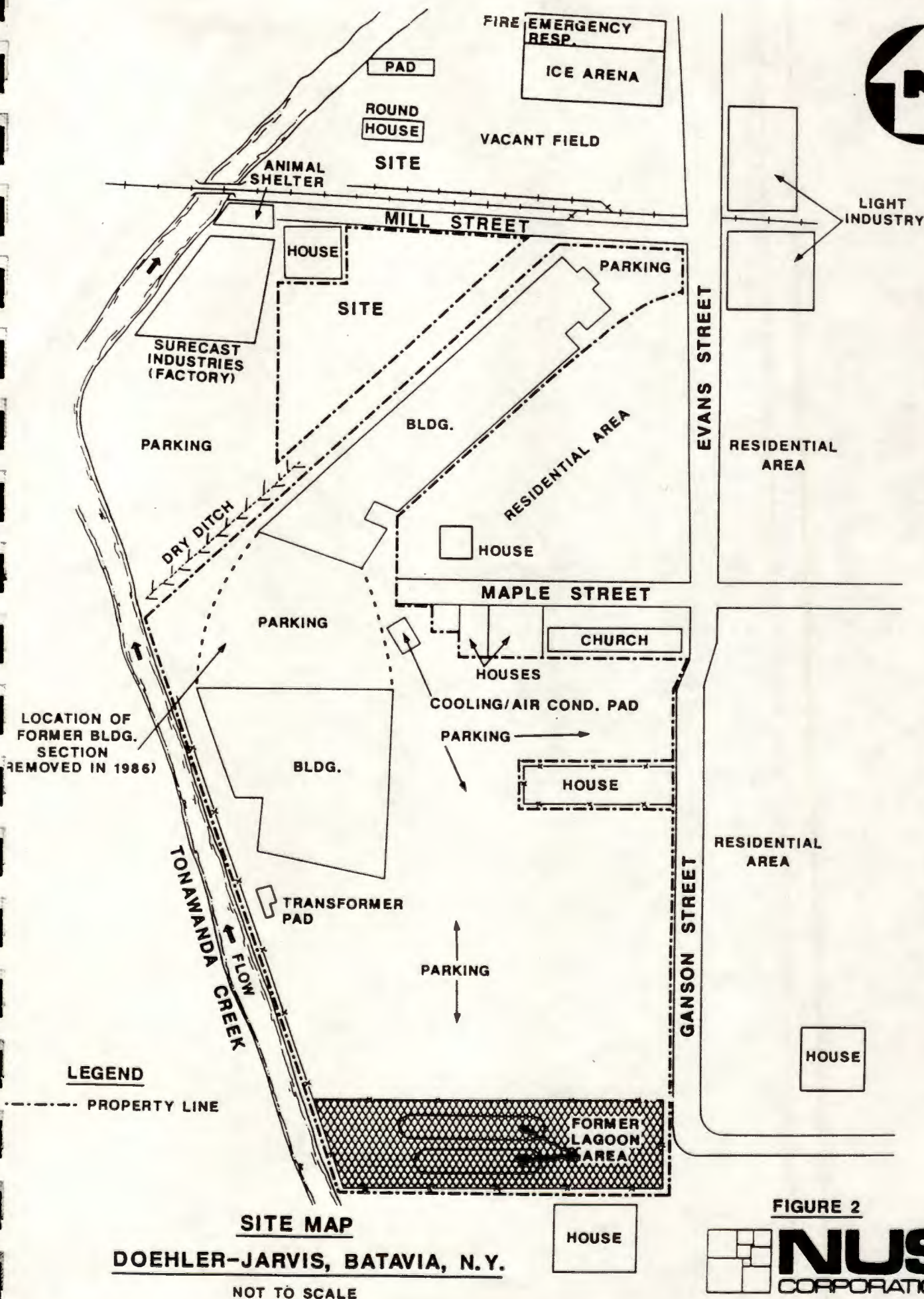


FIGURE 2



SITE SUMMARY AND RECOMMENDATIONS (CONT'D)

Sampling was conducted to determine the presence of contaminants, if any, the potential for contaminant migration, and to assess the potential impact on the nearby population and environment. Soil and sediment samples collected revealed the presence of inorganic contaminants, including heavy metals. Trichloroethene was detected in one groundwater sample.

A recommendation of HIGH PRIORITY FOR FURTHER ACTION is given for the Doehler-Jarvis Castings Division Site. The presence of contaminants, especially heavy metals, were detected in the sediment samples collected downstream from the Doehler-Jarvis outfall structure. Tonawanda Creek has been designated by NYSDEC as a freshwater fishery. Additionally, 30 miles of wetlands frontage lie downstream of the site. Soil samples collected from the former lagoon area indicated the presence of heavy metals. Residences lie within as 150 feet of the former lagoon area. The site is currently occupied with various companies employing up to 100 workers. Trichloroethene was found present in the groundwater sample. Fifty percent of the public potable water supply is drawn from groundwater sources within 1.5 miles of the site.

SITE ASSESSMENT REPORT: SITE INSPECTION

PART I: SITE INFORMATION

1. Site Name/Alias Doehler-Jarvis Castings Division, Former Doehler Jarvis Plant, Doehler Die Casting Company, NL Industries
- Street 61 Mill Street
- City Batavia State New York Zip 14020
2. County Genesee County Code 37 Cong. Dist. 30
3. EPA ID No. NYD074021171, NYD981132608* (*Assigned for RCRA cleanup 1985-1986).
4. Block No. 522 Lot No. 330
- Block No. 415 Lot No. 686
- Block No. 491 Lot No. 157
- Block No. 271 Lot No. 547
- Latitude 42° 59' 32" N Longitude 78° 11' 20" W
5. USGS Quad. Batavia South, New York
6. Owner Genesee County Industrial Development Agency (GCIDA) Tel. No. (716) 343-4866
- Street 61 Mill Street
- City Batavia State New York Zip 14020
7. Operator (current) Genesee County Industrial Development Agency (GCIDA) Tel. No. (716) 343-4866
- Street 61 Mill Street
- City Batavia State New York Zip 14020
8. Type of Ownership
- ☐ Private ☐ Federal ☐ State
- ☒ County ☐ Municipal ☐ Unknown ☐ Other _____
9. (Current) County & Private (Former) Private Owner/Operator Notification on File
- ☒ RCRA 3001 Date Unknown ☒ CERCLA 103c Date 6/7/81
- ☐ None ☐ Unknown
10. Permit Information
- | Permit | Permit No. | Date Issued | Expiration Date | Comments |
|--------------|------------------|-----------------------|-----------------|-----------------------------------|
| <u>SPDES</u> | <u>NY0000230</u> | <u>April 30, 1974</u> | <u>5/20/85</u> | <u>Discharge to Surface Water</u> |

11. Site Status

☐ Active ☒ Inactive

12. Years of Operation Approximately 1900 to 1982

13. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Sources

Waste Unit No.	Waste Source Type	Facility Name for Unit
1	<u>Surface Impoundment</u>	<u>Waste Oil Separating Lagoon</u>
2	<u>Containers</u>	<u>Transformers and Capacitors</u>

(b) Other Areas of Concern

Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their locations on site.

In addition to observed releases of chromium or chrome acid to surface water identified during NYSDEC sampling from 1977 to 1983, there were numerous instances of materials not being properly treated at the waste water treatment oil separation unit. This contributed to the reporting of oil sheens on the adjacent Tonawanda Creek by NYSDEC personnel during inspections conducted from 1974 through 1983. Since petroleum products are excluded under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), they will not be evaluated in this report.

A PCB spill was reported to have occurred on the Doehler property north of Mill Street in 1985. It was cleaned up, and the Batavia City fire headquarters and public ice rink occupy this location.

(Ref. Nos. 7, 8, 15-17, 21, 22, 27-33)

14. Information available from

Contact Amy Brochu Agency U.S. EPA Tel. No. (908) 906-6802
Preparer John F. Copman Agency Halliburton NUS Environmental Corp. Region 2 FIT
Date 09/27/91

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 1 - Waste Water Treatment/ Waste Oil Separating Lagoons

Source Type

☐ Landfill	☐ Contaminated Soil
☒ Surface Impoundment	☐ Pile (Specify type: chemical, junk, trash, tailing, etc.)
☐ Drums	☐ Land Treatment
☐ Tanks/Containers	☐ Other (Specify _____)

Description:

Two waste oil and wastewater separation lagoons were constructed at the Doepler-Jarvis Site between 1967 and 1976. They were located at the southwest portion of the site. Waste stream materials (metals used in the casting process and various solvents and degreasing agents) exited the building via pipes. The waste materials were separated into upper and lower zones with the use of physical boom, and then discharged through outfall pipes into Tonawanda Creek. During several exceptionally cold periods, pipes cracked and wastes spilled onto the ground. During NYSDEC inspections, it was noted that the waste oil separator did not function at peak efficiently. Although the lagoons were closed and filled, it is unknown whether the site approvals or permits for this closure process were ever received.

Hazardous Waste Quantity

The two lagoons were approximately 115 ft long, 13 ft wide each occupying approximately 2,990 ft². The depth of the lagoons is unknown. Waste material reportedly was discovered overflowing on several occasions.

Hazardous Substances/Physical State

The substances included in the waste stream included casting metals such as aluminum, chromium, copper, lead, magnesium, manganese, and zinc, also solvents. It is likely that the materials in the waste stream were liquid or suspended solids.

Ref. Nos. 7, 8, 15-17, 21, 22, 27-33, 34, 35

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 2 Containers: Transformers and Capacitors

Source Type

☐ Landfill	☐ Contaminated Soil
☐ Surface Impoundment	☐ Pile (Specify type: chemical, junk, trash, tailing, etc.)
☐ Drums	☐ Land Treatment
☒ Tanks/Containers	☐ Other (Specify <u> </u>)

Description:

Transformers and capacitors were used as part of the physical plant power generation at the casting facility. These were located in the central part of the casting facility. The facility underwent a RCRA closure and cleanup in 1985 and 1986, during which time the middle portion of the building was demolished and removed except for the concrete floor. There reportedly was a PCB spill during this time.

Hazardous Waste Quantity

Approximately 110 capacitors, (capacity unknown) were located at the site. They were removed as part of a RCRA closure conducted in 1985-1986 by SCA Chemical Services. Two transformers, each having a capacity of at least 50 gallons, were drained of their contents and removed.

Hazardous Substances/Physical State

The capacitors and transformers reportedly contained PCBs. Several of the capacitors and transformers were reported leaking, with the PCB contaminated oil spilling onto the concrete floor. The material in the transformers and capacitors is of a liquid state.

Ref. Nos. 23; 35, pp. 3, 4

PART III: SAMPLING RESULTS

EXISTING ANALYTICAL DATA

Doehler-Jarvis obtained a State Pollutant Discharge Elimination System (SPDES) permit in 1973. Due to numerous reports by NYSDEC personnel, sampling was conducted at the lagoons and the outfall into Tonawanda Creek. Based on sampling results included below, NYSDEC issued numerous Notices of Violations to Doehler-Jarvis (NL) for exceeding effluent limitations established in conditions of the original permit, specifically for chromium. Ref. Nos. 7, 8, 15, 17, 21, 22

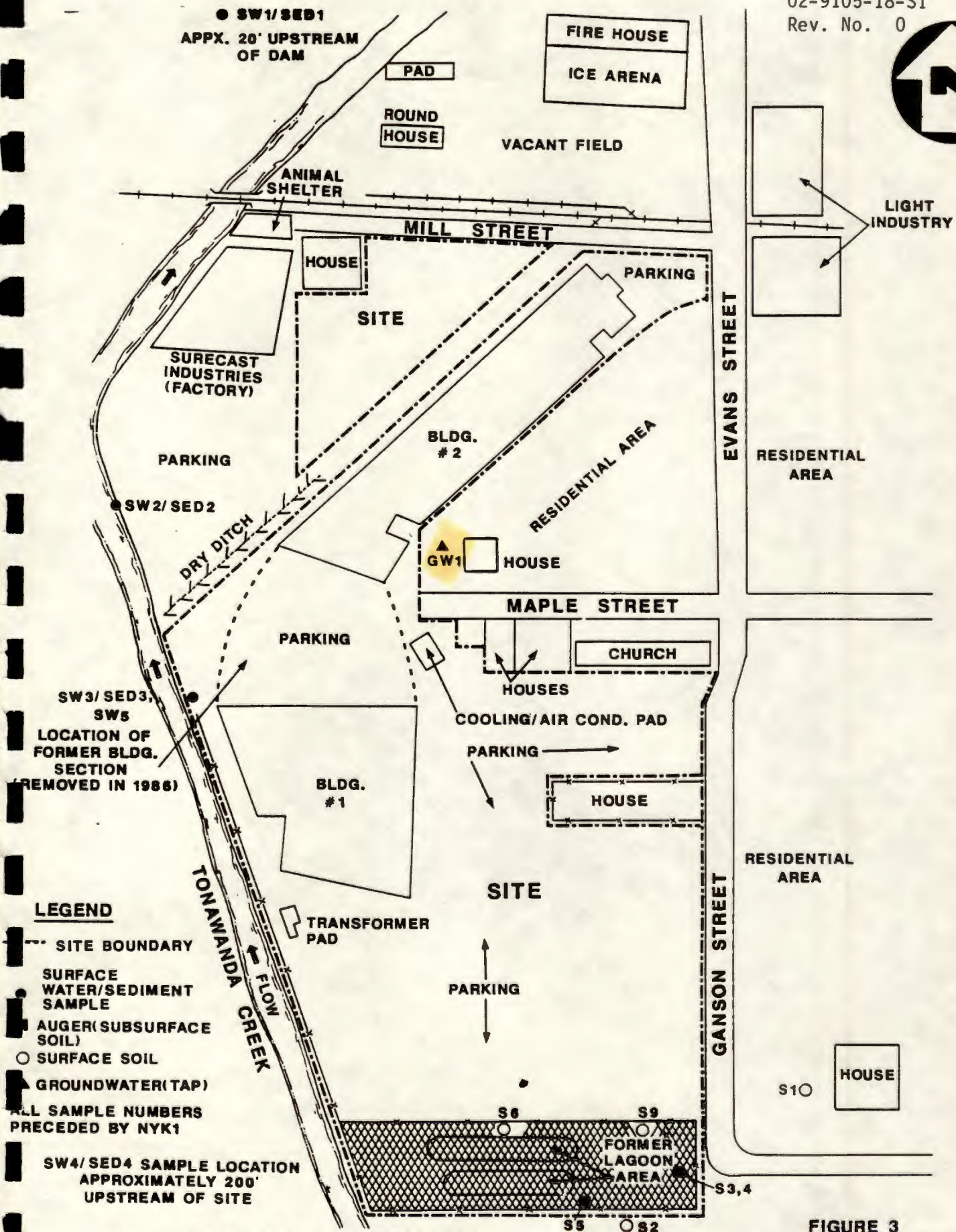
In 1988, NYSDEC Region 8 Fisheries personnel conducted electroshock fishery sampling of Tonawanda Creek. The sampling location just upstream of the site. Twenty-seven gamefish were collected; analysis of fish scales was conducted at NYSDEC labs in Albany, New York. Results have not yet been made available.

SITE INSPECTION RESULTS

Halliburton NUS Environmental Corp. Region 2 FIT conducted a site inspection of the Doehler-Jarvis Castings Division property on July 2, 1991. Two off-site groundwater samples were collected as tap water samples. Five surface water and sediment samples were collected. Seven soil samples, two from off-site and five from on-site locations, were collected. Collection of these samples was used to determine the presence, if any, of contaminants and the contaminant migration. All samples collected were subsequently sent to Contract Laboratory Program (CLP) laboratories for Target Compound List (TCL) analyses. Figures 3 and 4 provide Sample Location Maps. Table 1 presents a summary of the analytical data. A complete presentation of the analytical results can be found in Reference No. 2.

Inorganics including the metals chromium (34.3 mg/kg), copper (17,100 mg/kg), lead (115 mg/kg), magnesium (22,800 mg/kg), and zinc (1,810 mg/kg) were found in higher concentrations in sediment sample NYK1-SED1, located downstream of the site. These materials were known to be part of the waste stream. Additionally, estimated concentrations of the pesticides 4, 4' DDE (28 ug/kg) and 4,4' DDD (47 ug/kg) were detected at this location. The occurrence of pesticides may be due to past mosquito control practices. An estimated concentration of trichloroethene (260 ug/L) was found to be present in groundwater sample NYK1-GW1. Metals including chromium (520 mg/kg), barium (410 mg/kg), copper (244 mg/kg), magnesium (31,400 mg/kg), and zinc (332 mg/kg) were detected in the highest concentration in soil sample NYK1-S9. The highest concentration manganese (777 mg/kg) and nickel (28 mg/kg), were detected in soil sample NYK1-S5, while lead (88.2 mg/kg) and mercury (0.25 mg/kg) were highest at soil sample NYK1-S2. These soil samples were collected at locations immediately surrounding the former lagoon area.

Ref. Nos. 1, 2



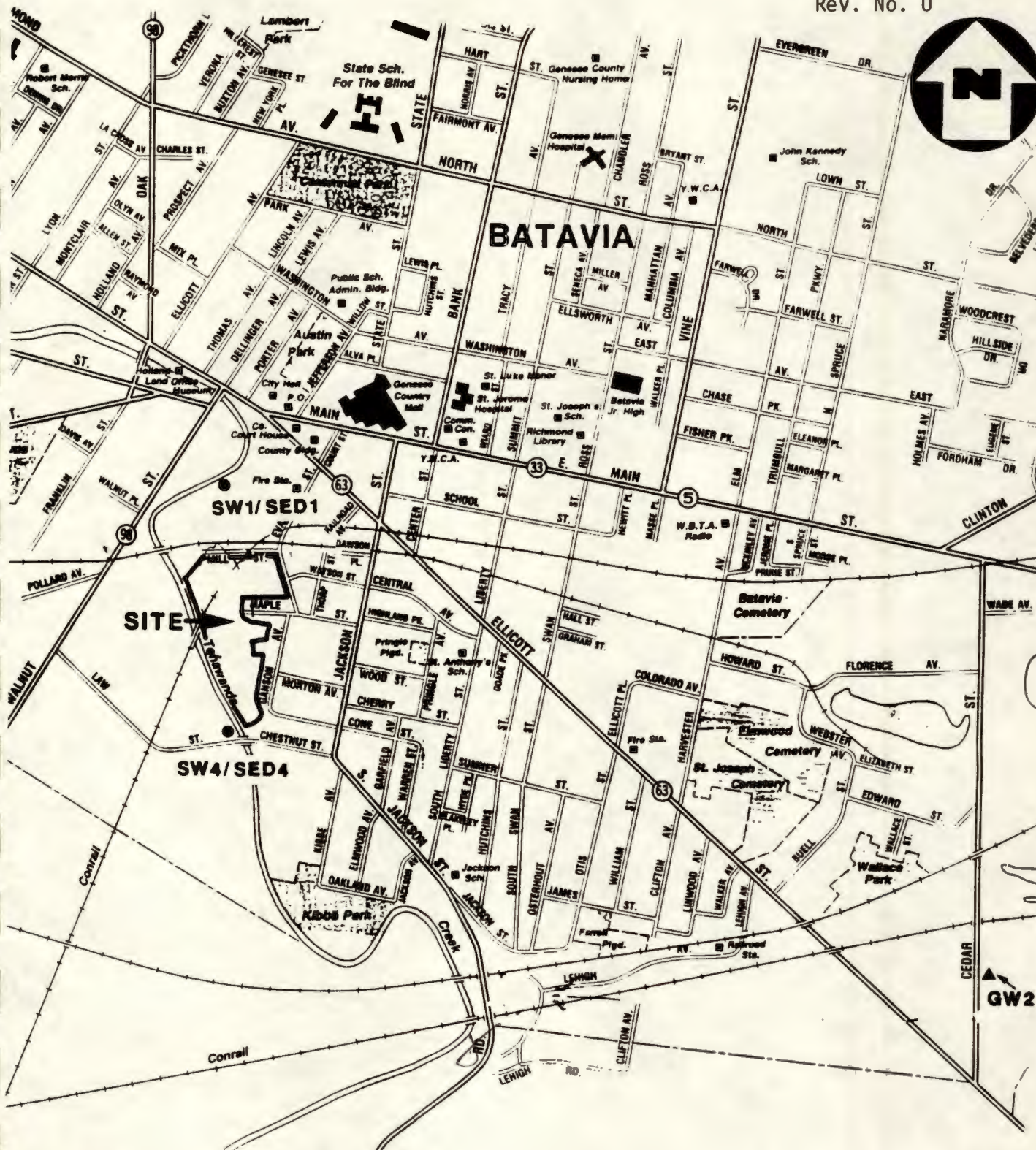
SAMPLE LOCATION MAP

DOEHLE-JARVIS, BATAVIA, N.Y.

NOT TO SCALE

FIGURE 3





LEGEND

- ▲ GROUNDWATER SAMPLE
- SURFACE WATER/SEDIMENT SAMPLE
- ALL SAMPLE NUMBERS PRECEDED BY NYK1

**OFFSITE SAMPLE LOCATION MAP
DOEHLE-JARVIS, BATAVIA, N.Y.**

NOT TO SCALE

FIGURE 4



SITE NAME: [REDACTED] EHLER-CASTING
 TDD#: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764 LAB: CEIMIC CORP.

VOLATILES

Sample ID No.	NYK1-GW1	NYK1-GW2	NYK1-SW1	NYK1-SW2	NYK1-SW3	NYK1-SW4(MS/MSD)	NYK1-SW5(DUP)	NYK1-SED1	NYK1-SED2	NYK1-SED3	NYK1-SED4
Traffic Report No.	BKD18	BKD19	BKD20	BKD21	BKD22	BKD23	BKD24	BKD25	BKD26	BKD27	BKD28
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor	2.5	1	1	1	1	1	1	1	1	1	1
Percent Moisture	--	--	--	--	--	--	--	48	44	35	35
Chloromethane	R	R	R	R	R	R	R				
Bromomethane	R	R	R	R	R	R	R				
Vinyl Chloride	R	R	R	R	R	R	R				
Chloroethane	R	R	R	R	R	R	R				
Methylene Chloride	R	R	R	R	R	R	R				
Acetone	R	R	R	R	R	R	R				
Carbon Disulfide	R	R	R	R	R	R	R				
1,1-Dichloroethene	R	R	R	R	R	J	R				
1,1-Dichloroethane	R	R	R	R	R	R	R				
1,2-Dichloroethene(total)	R	R	R	R	R	R	R				
Chloroform	R	R	R	J	R	R	R				
1,2-Dichloroethane	R	R	R	R	R	R	R				
2-Butanone	R	R	R	R	R	R	R	35 E	R	R	
1,1,1-Trichloroethane	R	J	R	R	R	R	R				
Carbon Tetrachloride	R	R	R	R	R	R	R				
Bromodichloromethane	R	R	R	R	R	R	R				
1,2-Dichloropropane	R	R	R	R	R	R	R				
cis-1,3-Dichloropropene	R	R	R	R	R	R	R				
Trichloroethene	260 E	J	R	J	R	J	R				
Dibromochloromethane	R	R	R	R	R	R	R				
1,1,2-Trichloroethane	R	R	R	R	R	R	R				
Benzene	R	R	R	J	R	J	R				
trans-1,3-Dichloropropene	R	R	R	R	R	R	R				
Bromoform	R	R	R	R	R	R	R				
4-Methyl-2-Pentanone	R	R	R	R	R	R	R				
2-Hexanone	R	R	R	R	R	R	R				
Tetrachloroethene	R	R	R	R	R	R	R				
Toluene	R	R	R	J	R	J	R	J			
1,1,2,2-Tetrachloroethane	R	R	R	R	R	R	R				
Chlorobenzene	R	R	R	J	R	J	R				
Ethylbenzene	R	R	R	R	R	R	R				
Styrene	R	R	R	R	R	R	R				
Xylenes (Total)	R	R	R	R	R	R	R				

NOTES:

Blank space - compound analyzed for but not detected
 B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
 E - estimated value
 J - estimated value, compound present below CRQL but above IDL
 R - analysis did not pass EPA QA/QC
 M - Presumptive evidence of the presence of the material
 NR - analysis not required
 Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

TABLE 1
(cont'd)

VOLATILES

Sample ID No.	NYK1-S1	NYK1-S2	NYK1-S3	NYK1-S4(DUP)	NYK1-S5	NYK1-S6	NYK1-S9(MS/MSD)	NYK1-RIN1	NYK1-RIN2	NYK1-RIN3	NYK1-TBLK1
Traffic Report No.	BKD29	BKD30	BKD31	BKD32	BKD33	BKD34	BKD37	BKD38	BKD39	BKD40	BKD41
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L
Dilution Factor	1	1	1	1	1	1	1	1	1	1	1
Percent Moisture	3	15	6	8	9	2	3	--	--	--	--
Chloromethane								J	J	J	13 E
Bromomethane											R
Vinyl Chloride											R
Chloroethane											R
Methylene Chloride											R
Acetone								8			R
Carbon Disulfide											R
1,1-Dichloroethene											R
1,1-Dichloroethane											R
1,2-Dichloroethene(total)											R
Chloroform											R
1,2-Dichloroethane								J			R
2-Butanone				R			R				R
1,1,1-Trichloroethane											R
Carbon Tetrachloride											R
Bromodichloromethane											R
1,2-Dichloropropane											R
cis-1,3-Dichloropropene											R
Trichloroethene											R
Dibromochloromethane											R
1,1,2-Trichloroethane											R
Benzene											R
trans-1,3-Dichloropropene											R
Bromoform											R
4-Methyl-2-Pentanone											R
2-Hexanone											R
Tetrachloroethene											R
Toluene	J			6	7	17					R
1,1,2,2-Tetrachloroethane											R
Chlorobenzene											R
Ethylbenzene											R
Styrene											R
Xylenes (Total)											R

NOTES:

Blank space - compound analyzed for but not detected

B - compound found in lab blank as well as sample, indicates possible/probable blank contamination

E - estimated value

J - estimated value, compound present below CRQL but above IDL

R - analysis did not pass EPA QA/QC

N - Presumptive evidence of the presence of the material

NR - analysis not required

Detection limits elevated if Dilution

Factor >1 and/or percent moisture >0%

SITE NAME: DOEHLER-JARVIS CASTINGS
TDD#: 02-9105-18
SAMPLING DATE: 07/02/91
EPA CASE NO.: 16764 LAB: CEIMIC CORP.

TABLE 1
(cont'd)

SEMI-VOLATILES

Sample ID No.	NYK1-GW1	NYK1-GW2	NYK1-SW1	NYK1-SW2	NYK1-SW3	NYK1-SW4(MS/MSD)	NYK1-SW5(DUP)	NYK1-SED1	NYK1-SED2	NYK1-SED3	NYK1-SED4
Traffic Report No.	8KD18	8KD19	8KD20	8KD21	8KD22	8KD23	8KD24	8KD25	8KD26	8KD27	8KD28
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor/GPC Cleanup (Y)	1	1	1	1	1	1	1	4	1	10	1
Percent Moisture	--	--	--	--	--	--	--	21	13	38	37

Anthracene											
Carbazole											
Di-n-butylphthalate											
Fluoranthene								J	J		
Pyrene								J	J		
Butylbenzylphthalate											
3,3'-Dichlorobenzidine											
Benzo(a)anthracene								J			
Chrysene								J			
bis(2-Ethylhexyl)phthalate									J		J
Di-n-octylphthalate											
Benzo(b)fluoranthene											
Benzo(k)fluoranthene											
Benzo(a)pyrene								J			
Indeno(1,2,3-cd)pyrene											
Dibenz(a,h)anthracene											
Benzo(g,h,i)perylene											

NOTES:

Blank space - compound analyzed for but
not detected

B - compound found in lab blank as well as
sample. indicates possible/probable
blank contamination

E - estimated value

J - estimated value, compound present
below CRQL but above IDL

R - analysis did not pass EPA QA/QC

N - Presumptive evidence of the presence
of the material

NR - analysis not required

Detection limits elevated if Dilution
Factor >1 and/or percent moisture >0%

Site Name: DOUGLAS JARVIS CASINO
 TDD: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764 LAB: CEIMIC CORP.

TABLE 1
 (cont'd)

SEMI-VOLATILES

Sample ID No.	NYK1-GW1	NYK1-GW2	NYK1-SW1	NYK1-SW2	NYK1-SW3	NYK1-SW4(MS/MSD)	NYK1-SW5(DUP)	NYK1-SED1	NYK1-SED2	NYK1-SED3	NYK1-SED4
Traffic Report No.	BKD18	BKD19	BKD20	BKD21	BKD22	BKD23	BKD24	BKD25	BKD26	BKD27	BKD28
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor/GPC Cleanup (Y)	1	1	1	1	1	1	1	4	1	10	1
Percent Moisture	--	--	--	--	--	--	--	21	13	38	37

Phenol
 bis(2-Chloroethyl)ether
 2-Chlorophenol
 1,3-Dichlorobenzene
 1,4-Dichlorobenzene
 1,2-Dichlorobenzene
 2-Methylphenol
 2,2-Oxybis(1-Chloropropane)
 4-Methylphenol
 N-Nitroso-di-n-dipropylamine
 Hexachloroethane
 Nitrobenzene
 Isophorone
 2-Nitrophenol
 2,4-Dimethylphenol
 bis(2-Chloroethoxy)methane
 2,4-Dichlorophenol
 1,2,4-Trichlorobenzene
 Naphthalene
 4-Chloroaniline
 Hexachlorobutadiene
 4-Chloro-3-Methylphenol
 2-Methylnaphthalene
 Hexachlorocyclopentadiene
 2,4,6-Trichlorophenol
 2,4,5-Trichlorophenol
 2-Chloronaphthalene
 2-Nitroaniline
 Dimethylphthalate
 Acenaphthylene
 2,6-Dinitrotoluene
 3-Nitroaniline
 Acenaphthene
 2,4-Dinitrophenol
 4-Nitrophenol
 Dibenzofuran
 2,4-Dinitrotoluene
 Diethylphthalate
 4-Chlorophenyl-phenyl ether
 Fluorene
 4-Nitroaniline
 4,6-Dinitro-2-methylphenol
 N-nitrosodiphenylamine
 4-Bromophenyl-phenyl ether
 Hexachlorobenzene
 Pentachlorophenol
 Phenanthrene

J

SI: 02-9105-18
 TDD: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764 LAB: CEIMIC CORP.

TABLE 1
 (cont'd)

SEMI VOLATILES											
Sample ID No.	NYK1-S1	NYK1-S2	NYK1-S3	NYK1-S4(DUP)	NYK1-S5	NYK1-S6	NYK1-S9(MS/MSD)	NYK1-RIN1	NYK1-RIN2	NYK1-RIN3	NYK1-TBLK1
Traffic Report No.	BKD29	BKD30	BKD31	BKD32	BKD33	BKD34	BKD37	BKD38	BKD39	BKD40	BKD41
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	5	2	1	1	1	10	10	1	1	1	N/A
Percent Moisture	5	14	9	7	14	4	4	--	--	--	N/A
Phenol											NR
bis(2-Chloroethyl)ether											NR
2-Chlorophenol											NR
1,3-Dichlorobenzene											NR
1,4-Dichlorobenzene											NR
1,2-Dichlorobenzene											NR
2-Methylphenol											NR
2,2-Oxybis(1-Chloropropane)											NR
4-Methylphenol											NR
N-Nitroso-di-n-dipropylamine											NR
Hexachloroethane											NR
Nitrobenzene											NR
Isophorone											NR
2-Nitrophenol											NR
2,4-Dimethylphenol											NR
bis(2-Chloroethoxy)methane											NR
2,4-Dichlorophenol											NR
1,2,4-Trichlorobenzene											NR
Naphthalene											NR
4-Chloroaniline											NR
Hexachlorobutadiene											NR
4-Chloro-3-Methylphenol											NR
2-Methylnaphthalene											NR
Hexachlorocyclopentadiene											NR
2,4,6-Trichlorophenol											NR
2,4,5-Trichlorophenol											NR
2-Chloronaphthalene											NR
2-Nitroaniline											NR
Dimethylphthalate											NR
Acenaphthylene											NR
2,6-Dinitrotoluene											NR
3-Nitroaniline											NR
Acenaphthene											NR
2,4-Dinitrophenol											NR
4-Nitrophenol											NR
Dibenzofuran											NR
2,4-Dinitrotoluene											NR
Diethylphthalate											NR
4-Chlorophenyl-phenyl ether											NR
Fluorene											NR
4-Nitroaniline											NR
4,6-Dinitro-2-methylphenol											NR
N-nitrosodiphenylamine											NR
4-Bromophenyl-phenyl ether											NR
Hexachlorobenzene											NR
Pentachlorophenol											NR
Phenanthrene	J	J					R J				NR

SITE NAME: DOEHLER-JARVIS CASTINGS
 TDD#: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764 LAB: CEIMIC CORP.

TABLE 1
 (cont'd)

SEMI-VOLATILES

Sample ID No.	NYK1-S1	NYK1-S2	NYK1-S3	NYK1-S4(DUP)	NYK1-S5	NYK1-S6	NYK1-S9(MS/MSD)	NYK1-RIN1	NYK1-RIN2	NYK1-RIN3	NYK1-TBLK1
Traffic Report No.	BKD29	BKD30	BKD31	BKD32	BKD33	BKD34	BKD37	BKD38	BKD39	BKD40	BKD41
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	5	2	1	1	1	10	10	1	1	1	N/A
Percent Moisture	5	14	9	7	14	4	4	--	--	--	N/A
Anthracene											NR
Carbazole											NR
Di-n-butylphthalate		J									NR
Fluoranthene	J	J					J				NR
Pyrene	J	J					J				NR
Butylbenzylphthalate											NR
3,3'-Dichlorobenzidine											NR
Benzo(a)anthracene	J	J									NR
Chrysene	J	J					J				NR
bis(2-Ethylhexyl)phthalate				J						8	NR
Di-n-octylphthalate											NR
Benzo(b)fluoranthene											NR
Benzo(k)fluoranthene											NR
Benzo(a)pyrene	J	J									NR
Indeno(1,2,3-cd)pyrene											NR
Dibenz(a,h)anthracene											NR
Benzo(g,h,i)perylene	J										NR

NOTES:

Blank space - compound analyzed for but not detected
 B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
 E - estimated value
 J - estimated value, compound present below CRQL but above IDL
 R - analysis did not pass EPA QA/QC
 N - Presumptive evidence of the presence of the material
 NR - analysis not required
 Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SAMPLE: DO ARVIS
 TCD: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764 LAB: CEIMIC CORP.

TABLE 1
 (cont'd)

PESTICIDES

Sample ID No.	NYK1-S1	NYK1-S2	NYK1-S3	NYK1-S4(DUP)	NYK1-S5	NYK1-S6	NYK1-S9(MS/MSD)	NYK1-R1N1	NYK1-R1N2	NYK1-R1N3	NYK1-TBLK1
Traffic Report No.	BKD29	BKD30	BKD31	BKD32	BKD33	BKD34	BKD37	BKD38	BKD39	BKD40	BKD41
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1	5	1	1	1	1	2	1	1	1	N/A
Percent Moisture	5	14	9	7	14	4	4	--	--	--	N/A
alpha-BHC											NR
beta-BHC											NR
delta-BHC											NR
gamma-BHC (Lindane)											NR
Heptachlor											NR
Aldrin											NR
Heptachlor epoxide											NR
Endosulfan I											NR
Dieldrin											NR
4,4'-DDE											NR
Endrin											NR
Endosulfan II											NR
4,4'-DDD											NR
Endosulfan sulfate											NR
4,4'-DDT											NR
Methoxychlor											NR
Endrin ketone											NR
Endrin aldehyde											NR
alpha-Chlordane											NR
gamma-Chlordane											NR
Toxaphene											NR
Aroclor-1016											NR
Aroclor-1221											NR
Aroclor-1232											NR
Aroclor-1242											NR
Aroclor-1248											NR
Aroclor-1254											NR
Aroclor-1260											NR

NOTES:

Blank space - compound analyzed for but not detected
 B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
 E - estimated value
 J - estimated value, compound present below CRQL but above IDL
 R - analysis did not pass EPA QA/QC
 N - Presumptive evidence of the presence of the material
 NR - analysis not required
 Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

TABLE 1
(cont'd)

SITE NAME: DOEHLER-JARVIS CASTINGS
 TDD#: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764 LAB: LEIMIC CORP.

PESTICIDES

Sample ID No.	NYK1-GW1	NYK1-GW2	NYK1-SW1	NYK1-SW2	NYK1-SW3	NYK1-SW4(MS/MSD)	NYK1-SW5(DUP)	NYK1-SED1	NYK1-SED2	NYK1-SED3	NYK1-SED4
Traffic Report No.	BKD18	BKD19	BKD20	BKD21	BKD22	BKD23	BKD24	BKD25	BKD26	BKD27	BKD28
Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor/GPC Cleanup (Y)	1	1	1	1	1	1	4	1	1	1	1
Percent Moisture	--	--	--	--	--	--	--	21	13	38	37

alpha-BHC
 beta-BHC
 delta-BHC
 gamma-BHC (Lindane)
 Heptachlor
 Aldrin
 Heptachlor epoxide
 Endosulfan I
 Dieldrin
 4,4'-DDE
 Endrin
 Endosulfan II
 4,4'-DDD
 Endosulfan sulfate
 4,4'-DDT
 Methoxychlor
 Endrin ketone
 Endrin aldehyde
 alpha-Chlordane
 gamma-Chlordane
 Toxaphene
 Aroclor-1016
 Aroclor-1221
 Aroclor-1232
 Aroclor-1242
 Aroclor-1248
 Aroclor-1254
 Aroclor-1260

28 E

47 E

NOTES:

Blank space - compound analyzed for but not detected
 B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
 E - estimated value
 J - estimated value, compound present below CRQL but above IDL
 R - analysis did not pass EPA QA/QC
 N - Presumptive evidence of the presence of the material
 NR - analysis not required
 Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SAMPLE: DO ARVIS
 TDD#: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764
 LAB NAME: BETZ LABORATORIES

ABL
 (cont'd)

INORGANICS

Sample ID No.
 Traffic Report No.
 Matrix
 Units
 Dilution Factor

NYK1-S1 MBHH15 SOIL mg/kg	NYK1-S2 MBHH16 SOIL mg/kg	NYK1-S3 MBHH17 SOIL mg/kg	NYK1-S4(DUP) MBHH18 SOIL mg/kg	NYK1-S5 MBHH19 SOIL mg/kg	NYK1-S6 MBHH20 SOIL mg/kg	NYK1-S9(MS/NYK1-RIN1) MBHH23 SOIL mg/kg	NYK1-RIN2 MBHH24 WATER ug/L	NYK1-RIN3 MBHH25 WATER ug/L	NYK1-RIN3 MBHH26 WATER ug/L	NYK1-TBLK1 N/A N/A ug/L
Aluminum	5970	10300	9820	10300	13400	7050	10000			NR
Antimony										NR
Arsenic	3.7	4.5		J	5.9	3.6	3.9			NR
Barium	J	72.3	J	J	J	70.4	410	J	J	NR
Beryllium	J	J	J	J	J	J	J			NR
Cadmium	J	J				J	J			NR
Calcium	44100	8820	1650	1770	29100	82300	83100	J	J	NR
Chromium	16	12.2	11.6	11.6	17	70.4	520			NR
Cobalt	J	J	J	J	J	J	J			NR
Copper	64.4	24.7	12.7	13.5	39.3	52.5	244	J	J	NR
Iron	10900	13300	14600	14800	25600	13400	32400	J	J	NR
Lead	45.3	88.2	26.6	24	15.4	81.8	83.2	J		NR
Magnesium	11900	3000	2270	2480	17000	26000	31400			NR
Manganese	261	207	530	343	777	365	485			NR
Mercury	0.16	0.25	0.11	0.12	0.13	0.19	0.19			NR
Nickel	14.1	13.8	15.7	15.1	28	12.7	17.2			NR
Potassium	1050	J	J	J	2390	1470	1650			NR
Selenium		J								NR
Silver										NR
Sodium	J	J	J	J	J	J	J	J	J	NR
Thallium	J					J	J			NR
Vanadium	13	18	18.2	18.7	25.2	14.5	13.6			NR
Zinc	139	196	43.2	41.6	97.8	161	332	J	J	NR

NOTES:

Blank space - compound analyzed for but not detected
 E - estimated value
 J - estimated value, compound present below CRDL but above IDL
 R - analysis did not pass EPA QA/QC
 NR - analysis not required

SITE NAME: DOCHLER-JARVIS CASTINGS
 TDD#: 02-9105-18
 SAMPLING DATE: 07/02/91
 EPA CASE NO.: 16764
 LAB NAME: BETZ LABORATORIES

TABLE 1
 (cont'd)

INORGANICS	NYK1-GW1	NYK1-GW2	NYK1-SW1	NYK1-SW2	NYK1-SW3	NYK1-SW4(HS/MSD)	NYK1-SW5(DUP)	NYK1-SED1	NYK1-SED2	NYK1-SED3	NYK1-SED4
Sample ID No.	MBHH04	MBHH05	MBHH06	MBHH07	MBHH08	MBHH09	MBHH10	MBHH11	MBHH12	MBHH13	MBHH14
Traffic Report No.	WATER	WATER	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Matrix	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg
Units											
Dilution Factor											
Aluminum			J	J	J	714	J	7680	2670	10100	9700
Antimony											
Arsenic				J		J	J	5.4	2.6	J	J
Barium	J	J	J	J	J	J	J	J	J	J	J
Beryllium										J	J
Cadmium		J									
Calcium	99500	89500	65000	67200	68000	74800	69200	97500	147000	20500	18500
Chromium								34.3	5.7	14.2	13.3
Cobalt								J	J	J	J
Copper	J	J	J	J	J	J	J	17100	8.4	21.1	17.2
Iron	693	J	247	392	420	1750	505	14400	7190	19100	15900
Lead	8.8	J	J	3.4		5		115	19.4	14.3	14.2
Magnesium	20000	23900	15400	15600	15700	16600	16100	22800	24700	8190	7070
Manganese	J		77.2	110	127	301	131	326	221	425	346
Mercury											
Nickel	J							19.5	J	21.6	17.5
Potassium	J	J	J	J	J	J	J	J	J	1860	1980
Selenium	6.1										
Silver	14.4										
Sodium	161000	33400	14500	14300	14300	14500	14700	J	J	J	J
Thallium								J	J	19.2	18.8
Vanadium											
Zinc	378	J	J	J	J	J	J	1810	31.2	67.4	56.1

NOTES:
 Blank space - compound analyzed for but not detected
 E - estimated value
 J - estimated value, compound present below CRDL but above IDL
 R - analysis did not pass EPA QA/QC
 NR - analysis not required

PART IV: HAZARD ASSESSMENT

GROUNDWATER ROUTE

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

There is a suspected release of contaminants to groundwater. Sampling conducted by Region 2 FIT on July 2, 1991 indicated the presence of trichloroethene (260 ug/L E) in sample NYK1-GW1. This sample was collected from the well nearest to the site (less than 200 feet from location of demolished casting facility).

Ref. Nos. 1, 2

2. Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.

The aquifer of concern is known as the Batavia Aquifer. The Batavia area is underlain by Pleistocene glacial sediments which form a cover over Denovian bedrock. The glacial deposits include lacustrine sediments, sand and gravel outwash, and till in the form of ground moraines (clay, silt, sand and gravel). Well logs from groundwater wells completed in the Batavia area typically show less than 100 feet of glacial strata overlying hard black shale of reported Denovian age. The depth to bedrock in the vicinity of the site is estimated to be less than 100 feet.

Locally the aquifer of concern is a southwest to northeast (SW-NE) trending body of sand and gravel outwash sediments. Aquifer maps show the Doehler-Jarvis Castings Division Site is approximately one mile west of the municipal public supply well field. The Doehler-Jarvis Site lies on top of glacial till (10^{-5} to 10^{-7} cm/sec estimated permeability) that is hydraulically connected with the aquifer of concern. Depth to the seasonal high water table is approximately 5 feet below the ground surface. Previous groundwater studies have indicated a northeast groundwater flow.

Ref. Nos. 3, 39

3. Is a designated well head protection area within 4 miles of the site?

The Batavia Aquifer is a designated well head protection area. The site is located in an area indicated as being an unconfined aquifer, with potential draw of more than 100 gallons per minute.

Ref. Nos. 39, 40

4. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

The depth from the lowest point of waste disposal (the bottom of the lagoons are estimated at less than 10 feet below ground surface) to the highest seasonal water table (5 feet below surface) is approximately 5 feet.

Ref. No. 3

5. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the aquifer of concern?

The permeability of the glacial till (clay, silt, sand, and gravel) is estimated to be 10^{-5} to 10^{-7} cm/sec.

Ref. No. 26

6. What is the distance to and depth of the nearest well that is currently used for drinking purposes?

The distance to the nearest well currently used for drinking purposes is 900 feet north of the lagoons. It is located outside of a private residence on Maple Street. The depth and age of the well is unknown.

Ref. Nos. 1, 2

7. If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be located within the contamination boundary of the release.

There is a suspected release of contaminants to groundwater. Sampling conducted by Region 2 FIT on July 2, 1991 detected the presence of trichloroethene in sample NYK1-GW1 collected from a domestic well located approximately 900 feet from the lagoons. Census Bureau information indicates that approximately 2.7 persons per house reside in Batavia. Therefore, three people are suspected to be located within the contamination boundary of the release.

Ref. Nos. 1, 2, 38

8. Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.

<u>Distance</u>	<u>Population</u>
0 - $\frac{1}{4}$ mi	3
$>\frac{1}{4}$ - $\frac{1}{2}$ mi	0
$>\frac{1}{2}$ - 1 mi	0
>1 - 2 mi	10,000
>2 - 3 mi	640
>3 - 4 mi	640

State whether groundwater is blended with surface water or with groundwater from other wells. Also provide an explanation on how each ring population was determined.

Groundwater is blended with surface water from Tonawanda Creek for potable use in the City and Town of Batavia. Two public supply wells are blended with each other, and depending upon availability, with water from the Tonawanda Creek. If the creek turbidity is low (less than 10 ppm suspended solids), it is mixed in equal proportion with the groundwater. It is then treated before being pumped into the water distribution system. The remaining population of the Town of Batavia is served by private drinking wells.

Ref. Nos. 4, 5, 14, 39

9. Identify uses of groundwater within 4 miles of the site (i.e. private drinking source, municipal source, commercial, irrigation, unuseable).

Groundwater is used for public and private potable supply, commercial, industrial, irrigation, and milk processing purposes.

Ref. Nos. 1, 4, 5, 14

SURFACE WATER ROUTE

10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

A release to surface water has been observed. The NYSDEC conducted sampling at the point of discharge from the lagoons to Tonawanda Creek. This sampling occurred in October 1974, February 1977, July 1980, and August, 1981 in conjunction with the SPDES permit. It was revealed that Doehler-Jarvis had exceeded the permit parameters for chromium.

Region 2 FIT sampling indicated the presence of metals whose concentrations were significantly higher in the downstream samples than the background sample collected upstream of the site. The metals chromium, copper, lead, manganese, and zinc were found to be higher in sediment sample NYK1-SED1 than sediment sample NYK1-SED4.

Ref. Nos. 1, 2, 7, 8, 15, 17, 21

11. Identify the nearest downslope surface water. If possible, include a description of possible surface drainage patterns from the site.

The nearest downslope water is Tonawanda Creek which is adjacent to the Doehler-Jarvis Castings Division facility. Water was discharged from the lagoons through an outfall pipe, directly into the creek. Drainage from the site flows overland directly into the Creek.

Ref. Nos. 1, 7, 8, 12, 15, 17, 21, 34

12. What is the distance to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The distance to the nearest downslope surface water is 0 feet, as the Tonawanda Creek is adjacent to the site. Water was discharged from the lagoons through an outfall pipe directly into the creek.

Ref. Nos. 1, 7, 8, 12, 15, 17, 21, 34

13. Determine the type of floodplain that the site is located within.

The Doehler-Jarvis Castings Division Site is located within the 100 year floodplain.

Ref. No. 18

14. Identify drinking water intakes in surface waters within 15 miles downstream of the site. For each intake identify: the distance from the point of surface water entry, population served, and stream flow at the intake location.

<u>Intake</u>	<u>Distance</u>	<u>Population Served</u>	<u>Flow (cfs)</u>
---------------	-----------------	--------------------------	-------------------

No drinking water intakes are known be within 15 miles downstream of the site.

Ref. No. 14

15. Identify fisheries that exist within 15 miles downstream of the point of surface water entry. For each fishery specify the following information:

<u>Fishery Name</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Saline/Fresh/Brackish</u>
---------------------	------------------------	-------------------	------------------------------

Tonawanda Creek	Moderate to Large Stream	209	Fresh
-----------------	--------------------------	-----	-------

Tonawanda Creek supports a moderate fishery of game species such as northern pike, small mouth, large mouth, and rock bass. Additionally, it contains nongame warm water fish species.

16. Identify sensitive environments that exist within 15 miles of the point of surface water entry. For each sensitive environment specify the following:

<u>Sensitive Environment</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Wetland Frontage (miles)</u>
------------------------------	------------------------	-------------------	---------------------------------

Freshwater Wetlands	Moderate to large stream	209	30
---------------------	--------------------------	-----	----

Ref. Nos. 1, 11, 12, 13

17. If a release to surface water is observed or suspected, identify any intakes, fisheries, and sensitive environments from question Nos. 16-18 that are or may be located within the contamination boundary of the release.

Intake: There is no surface water intake within 15 miles downstream of the site.

Fishery: Tonawanda Creek supports a moderate fishery of game species such as northern pike, smallmouth, largemouth and rock bass. Additionally, it contains nongame warm water fish species.

Sensitive Environment: A sensitive environment consisting of riverine freshwater wetlands, extends 15 miles downstream of the site and supports 30 miles of wetland frontage.

In 1988, NYSDEC conducted fishery tissue sampling for Tonawanda Creek gamefish species, for contaminants such as mercury and PCBs at a location less than 400 feet upstream of the site. The results of this study have not yet been made available.

Ref. No. 1, 2, 10

SOIL EXPOSURE PATHWAY

18. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of the site property.

A June 1991 reconnaissance, a July 1991 site inspection by Region 2 FIT personnel, and aerial photographs indicate four houses within 200 feet of the lagoon area at the Doehler-Jarvis Castings Division Site. Using an estimate of 2.7 people per house from Census Bureau information, there are approximately 10 residents within the 200 feet of the lagoon area. There is no school or day care facility on or within 200 feet of the site property.

Ref. Nos. 1, 12, 34, 38, 39

19. Determine the number of people that work on or within 200 feet of the site property.

Approximately 100 hundred people work on or within 200 feet of the site property.

Ref. No. 19

20. Identify terrestrial sensitive environments on or within 200 feet of the site property.

There is no terrestrial sensitive environment on or within 200 feet of the site property.

Ref. No. 20

AIR ROUTE

21. Describe the likelihood of release of contaminants to air as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release define the supporting analytical evidence.

There is little likelihood of a release of contaminants to air. Sampling results indicated that contaminants, if any, were located in the sediment or soil. The former lagoon area and much of the streambank areas are well vegetated, further reducing the potential for contaminants to become airborne during dry and dusty conditions. Additionally, air monitoring using an HNu photoionization detector and organic vapor analyzer flame ionization detector during Region 2 FIT reconnaissance and sampling of June and July 1991 did not indicate the presence of volatile contaminants in the air.

Ref. Nos. 1, 2

22. Determine populations that reside within 4 miles of the site.

<u>Distance</u>	<u>Population</u>
0 - $\frac{1}{4}$ mi	1,475
$>\frac{1}{4}$ - $\frac{1}{2}$ mi	0*
$>\frac{1}{2}$ - 1 mi	5,880
>1 - 2 mi	9,240
>2 - 3 mi	2,885
>3 - 4 mi	1,800

* This figure may be inaccurate. The Graphical Exposure Modeling System (GEMS) model has interpreted the area north and northeast of the site as being commercial-industrial and having zero residential population.

Ref. No. 6

23. Identify sensitive environments and wetlands acreage within $\frac{1}{2}$ mile of the site.

<u>0 - $\frac{1}{4}$ mile</u>	<u>$\frac{1}{4}$ - $\frac{1}{2}$ mile</u>
<u>Sensitive Environments/Wetland Acreage</u>	<u>Sensitive Environments/Wetland Acreage</u>
Wetlands/8 Acres	Wetlands/4 Acres

Ref. No. 13

24. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.

There is little likelihood of a release of contaminants to air. Sampling results indicated that contaminants, if any, were found in the soil and sediments. The former lagoon area and much of the stream bank are well vegetated, further reducing the potential for contaminants to become air borne during dry and dusty conditions. Although people reside within 0.5 mile of

the site, they are not considered to be within an area of air contamination from a release. Air monitoring conducted during the Region 2 FIT reconnaissance and site inspection in June and July 1991 did not indicate the presence of contaminants in the air.

Ref. Nos. 1, 2, 6

25. If a release to air is observed or suspected, identify any sensitive environments, listed in question No. 23, that are or may be located within the area of air contamination from the release.

There is little likelihood of a release of contaminants to the air. Sampling results indicated that contaminants, if any, were found in the soil or sediment. The former lagoon area and much of the stream bank are well vegetated, further reducing the potential for contaminants to become airborne during dry and dusty conditions. Additionally, air monitoring conducted during the Region 2 FIT reconnaissance and site inspections of June and July 1991 did not indicate the presence of contaminants in the air. Although wetlands are located within 0.5 mile of the site, they are not considered to be within an area of contamination from a release.

Ref. Nos. 1, 2, 6