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FIELD INVESTIGATION TEAM ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCES FACILITIES — ZONE I

NUS CORPORATION
SUPERFUND DIVISION

02-8910-15-SI
REV. NO. 0

10-27-89

FINAL DRAFT
SITE INSPECTION REPORT
MOTOROLA, INC.
ARCADE, WYOMING COUNTY, NEW YORK
PRESTOLITE PLANT SITE

PREPARED UNDER
TECHNICAL DIRECTIVE DOCUMENT NOS. 02-8803-12 AND 02-8910-15
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

OCTOBER 27, 1989

NUS CORPORATION
SUPERFUND DIVISION

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FIT OFFICE MANAGER

SITE NAME:	Motorola, Inc.	**EPA ID NO.:**	NYD001931120
ADDRESS	400 Main Street	**LATITUDE:**	42° 31' 53" N
	Arcade, New York 14009	**LONGITUDE:**	078° 25' 45" W

1.0 SITE SUMMARY

Motorola, Inc. is an active manufacturer of automobile and industrial electronic products. Prestolite Electric of New York, Inc. bought the facility from Motorola, Inc. in February 1988, but plant operations remain the same. The plant is located in a mixed commercial and residential area in the Village of Arcade, Wyoming County, New York. Its products include automobile charging systems, thick film voltage regulators, active and passive thick film networks, automotive and marine solid state ignition systems, automotive microprocessor engine management systems, proximity reluctance and ceramic sensor modules for automotive applications, electronic speedometers and odometers, feedback carburetor controls, ignition coils, and electronic engine governors. Metal finishing processes ancillary to these products include zinc and aluminum die casting and finishing; screw machining; metal stamping and machining operations; coil winding; compression molding of plastics; and metal washing, electroplating, and phosphatizing operations. The total area of the property is approximately 20 acres, but the alleged disposal area is only 3450 square feet.

From 1971 to 1976, effluent from the metal finishing operations was stored in an unlined surface impoundment adjacent to the raw chemical storage building. The effluent may have included varnishes, flux, flux thinners, isopropyl alcohol, hydrochloric acid, phosphoric acid, toluene, xylenes, trichloroethane, trichloroethylene, freon, epoxies, cutting oils, and metal grindings. Liquid and sludge were periodically removed from the impoundment, drummed, and hauled off site. Approximately 30 cubic yards of earth and sludge was excavated and removed from the disposal area on March 26, 1976. The site was subsequently filled in, graded, and seeded. Concurrent with this excavation was the installation of a process water treatment facility pursuant to the conditions of NPDES Permit No. NY0002267 originally dated May 1, 1974, about 10 yards east of the former disposal area. The water treatment facility has been in operation since 1976, when collection of effluent in the unlined surface impoundment was discontinued. The facility operates under RCRA ID No. NYD001931120.

The immediate vicinity of the Motorola, Inc. facility contains commercial establishments. The nearest residence is approximately 0.25 mile east of the former disposal area. The site is not fenced, so there is easy access. A small intermittent stream flows within 40 yards north of the site in a northwesterly direction toward Cattaraugus Creek 0.5 mile away. There is only slight potential for contaminant migration through surface water because the former disposal area is separated from the intermittent stream by a level access road, and there are no apparent drainage pathways over it. A fairly steep slope rises directly behind the site, so there is no surface runoff south from the disposal area. The location of the site within the boundaries of the Cattaraugus Creek basin may have a bearing on the potential for contamination of the drinking water in the area. The water table aquifer in the sand and gravel deposits underlying the basin is a very productive aquifer. More than 4,500 people within a 3-mile radius of the site obtain their potable supply from this aquifer. The Village of Arcade public supply well on Church St. is approximately 1800 feet away, and it appears to be downgradient of the site. The Village of Arcade mixed public supply system serves approximately 3,800 people. Another downgradient well is in the hamlet of Yorkshire more than 2 miles away. This well serves approximately 760 people.

The NUS Region 2 FIT conducted a Site Inspection (SI) at the Motorola, Inc. site on April 7, 1988. The SI included the collection of five soil samples from the alleged disposal area and one background soil sample. Readings above background on the Organic Vapor Analyzer (OVA) were observed in the auger hole at every location except that of the background sample. Groundwater tap samples were collected from the Arcade Village supply wells on Church Street (possibly downgradient) and Sullivan Street (upgradient). The water from these wells is mixed with water from a well in Sandusky, just over 3 miles southeast of the site, before it is distributed to the customers. A tap water sample was collected from a spigot on the Motorola water treatment building to compare the quality of the water in the mixed system to the water obtained from the individual wells. Since there appear to be no drainage paths from the disposal area to the intermittent stream, surface water samples were not collected.

Ref. Nos. 1-14

2.0 SITE INSPECTION NARRATIVE

2.1 EXISTING ANALYTICAL DATA

There had been no sampling at the Motorola, Inc. facility in Arcade, New York prior to the SI conducted by the NUS Corp. Region 2 FIT on April 7, 1988. Previous reports, such as a Preliminary Assessment completed by NUS Corp. in 1987, indicate that many drums of waste were removed from the site in the early 1970s and disposed of at other sites, some of which have been placed on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database. The suspected wastes in these drums are the same as those suspected to have been disposed of in the surface impoundment.

Ref. Nos. 1, 2, 10, 11

2.2 WASTE SOURCE DESCRIPTION

The potential waste source at the Motorola, Inc. facility is an inactive, unlined surface impoundment in which effluent from metal finishing operations was stored during the years 1971 to 1976. Wastes stored in this area may have included varnishes, flux, flux thinners, hydrochloric acid, isopropyl alcohol, phosphoric acid, toluene, xylenes, trichloroethane, trichlorethylene, freon, epoxies, cutting oils, and metal grindings. Sludge and liquid were periodically drummed and hauled away as the impoundment filled up. Concurrent with the installation of a process water treatment facility in 1976, approximately 30 cubic yards of earth and sludge was excavated and removed from the disposal area, which was subsequently filled, graded, and seeded. These activities were completed under conditions of NPDES Permit No. NY0002267, originally dated March 1, 1974. The Motorola facility operates under RCRA I.D. No. NYD001931120. The NUS Region 2 FIT collected five soil samples from the alleged former disposal area and one background soil sample during an SI on April 7, 1988 to determine the presence or absence of contamination. Analytical results are presented in Section 4.0, Table 1, and Reference 16.

Ref. Nos. 9, 10, 11, 16

2.3 GROUNDWATER ROUTE

Potential contamination through groundwater migration appears to be the route of most concern at the Motorola, Inc. Site. Water can easily infiltrate the few feet of moderately permeable Tioga silt loams which cover the former disposal area and reach the Pleistocene sand and gravel deposits below. The Cattaraugus Creek basin is a feature of the Appalachian Uplands in which thick glacial ice-contact sand and gravels were deposited. This unit forms the water table aquifer, and it is hydraulically connected with Cattaraugus Creek. The permeability of this unit is estimated to be greater than 10^{-3} cm/sec. It is one of the best water-bearing units in the area, and is used by the local population for potable water. Unconsolidated sand and gravel deposits may be several hundred feet thick in the Cattaraugus Creek basin. The Village of Arcade owns public supply wells which are drilled into this unit at depths of approximately 50 feet below ground surface. Its Church St. well is approximately 1800 feet north-northeast of the site and appears to be downgradient of the site. This is the well nearest the Motorola Site. The Sullivan Street well is upgradient. In 1962, water level in the Sullivan Street well was reported to be 17 feet below ground surface. Pumping tests showed well yields of 305 gallons per minute (gpm) and 500 gpm in the Church Street and Sullivan Street wells, respectively. The Arcade Village public supply currently serves approximately 3,800 people. Net precipitation for the area is 11.5 inches.

The groundwater flows north from the site toward the creek, which flows west. Another possible downgradient well is the Yorkshire public supply well, which is located 2 miles west of the site in the Cattaraugus Creek basin. Approximately 760 people obtain their potable supply from the Yorkshire well. There may be private wells within the Cattaraugus Creek basin northeast of the site, which is upgradient. Most domestic wells in the area are in the uplands and draw water from till or bedrock, which is hydraulically connected with the aquifer of concern. Groundwater is used for irrigation and industrial purposes via the village supply wells previously discussed.

The NUS Region 2 FIT collected groundwater tap samples from the Arcade Village supply wells on Church St. (possibly downgradient) and Sullivan St. (upgradient) during a site inspection on April 7, 1988. Since the public supply system receives some water from a well more than 3 miles from the site, a tap water sample was collected from a spigot on the Motorola water treatment building to compare the quality of water in the mixed system to that of water in the individual wells. Analytical results are presented in Section 4.0, Table 1, and Reference 16.

Ref. Nos. 1,3,5,6,7,8,13,14,15, 16

2.4 SURFACE WATER ROUTE

The potential for migration of contaminants through surface water is diminished greatly by the presence of the access road adjacent to the downslope side of the former disposal area. Although there is a slight grade between the site and the intermittent stream 40 yards north, no apparent drainage paths exist. Water seems to pond on the road, as well as on the disposal area, prior to seepage into the ground. The surficial Tioga silt loam is only moderately permeable, but it appears that much of the rainwater infiltrates the ground. The apparent percolation of rainwater into the ground instead of surface runoff indicates that the potential for surface water contamination is minimal. The 1-year 24-hour rainfall in this area is 2.1 inches.

The intermittent stream is a drainage path to Cattaraugus Creek and is not used in any way by the local population. Cattaraugus Creek, approximately 0.6 mile downstream of the site, is used for recreational purposes such as fishing and canoeing. There are no surface water intakes within 3 miles downstream of the site. There are no environmentally sensitive areas such as wetlands or critical habitats within a 3-mile radius of the site.

No surface water or sediment samples were collected since there are no physical site features evidencing drainage paths from the disposal area to the intermittent stream.

Ref. Nos. 1,3,7,13,15

2.5 AIR ROUTE

No readings above background were detected in the ambient air on the OVA or HNu prior to disturbance of the waste source during the site inspection conducted at the Motorola, Inc. Site. However, readings above background on the OVA were observed within the auger hole at each soil sample location in the alleged disposal area. Readings of 1000 ppm above background or greater were observed within the auger hole at the southeast corner of the disposal area. There were also readings of 8 ppm above background directly above the hole, and 1.5 ppm directly above soil collected from the hole. There were no readings above background in the breathing zone at any time, and there were also no readings above background on the HNu at any time during the SI. The soil in the disposal area appeared to be mostly fine-grained brown to light-brown topsoil with some organic material. There is no information available on the material used to fill the excavated area.

Ref. No. 1

2.6 ACTUAL HAZARDOUS CONDITIONS

The Motorola, Inc. facility is not surrounded by any type of fence or barrier, and it appears that there is easy access to the property around the manufacturing plant as well as the former disposal area. All buildings on the property are kept locked. There have been no reported incidents or complaints relating to hazardous waste disposal at this site. It is possible, however, that the use of an unlined surface impoundment led to contamination of the soil in the area, and that migration led to contamination of the groundwater, which is used as a potable supply within a 3-mile radius.

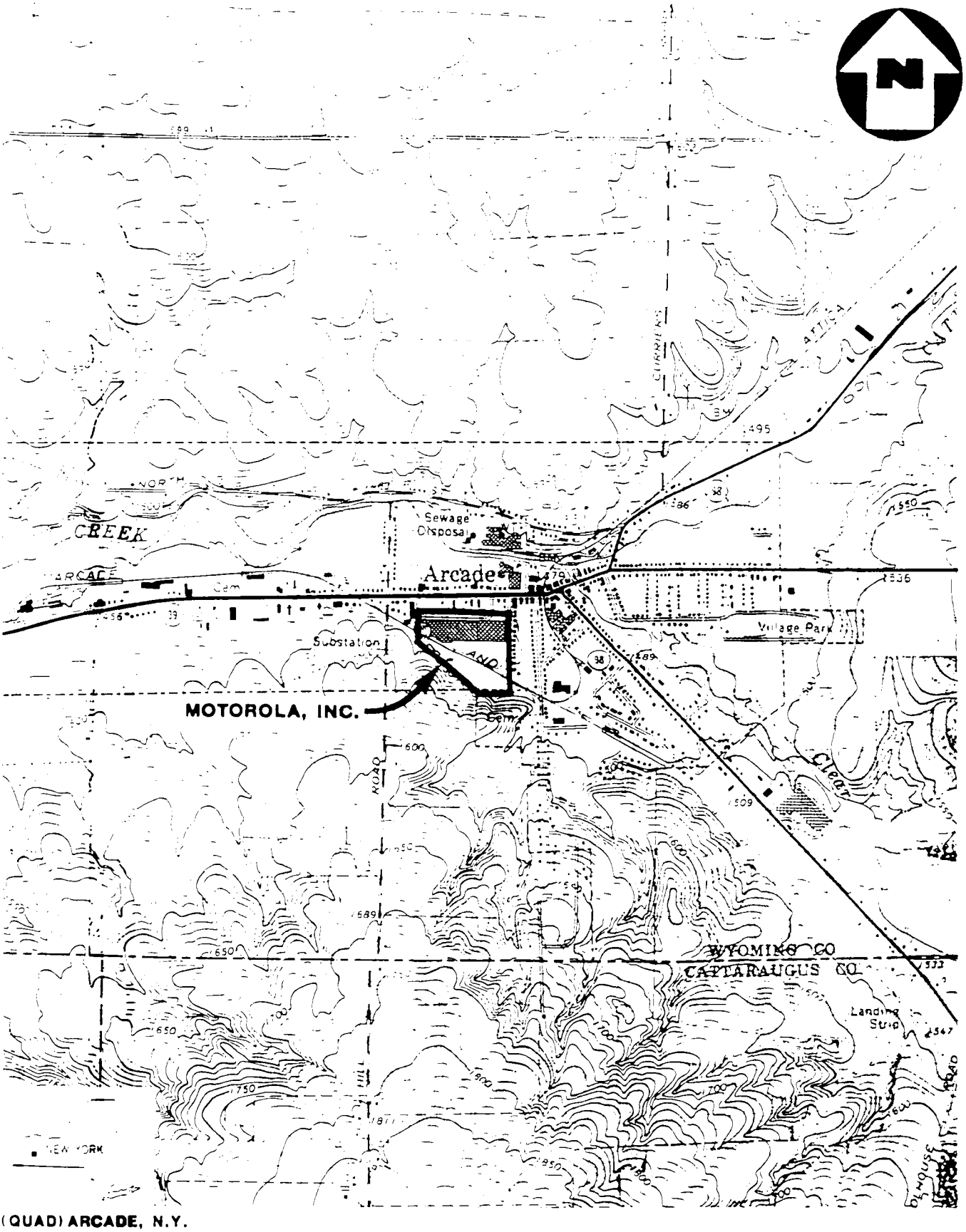
No other actual hazardous conditions pertaining to human or environmental contamination have been documented. Specifically:

- Contamination has not been documented either in organisms in a food chain leading to humans or in organisms directly consumed by humans.
- There have been no documented observed incidents of direct physical contact with hazardous substances at the facility involving a human being or a domestic animal.
- There have been no documented incidents of damage to flora or to fauna that can be attributed to hazardous material at the facility.
- There is no documentation of storm drains on site.
- There is no direct evidence of release of a substance of concern from the facility to the groundwater.
- There is no demonstrated fire threat based on field observation.

Ref. Nos. 1,2,9,14

3.0 MAPS AND PHOTOS

Figure 1:	Site Location Map
Figure 2:	Site Map
Figures 3 and 4:	Sample Location Maps
Exhibit A:	Photograph Log



(QUAD) ARCADE, N.Y.

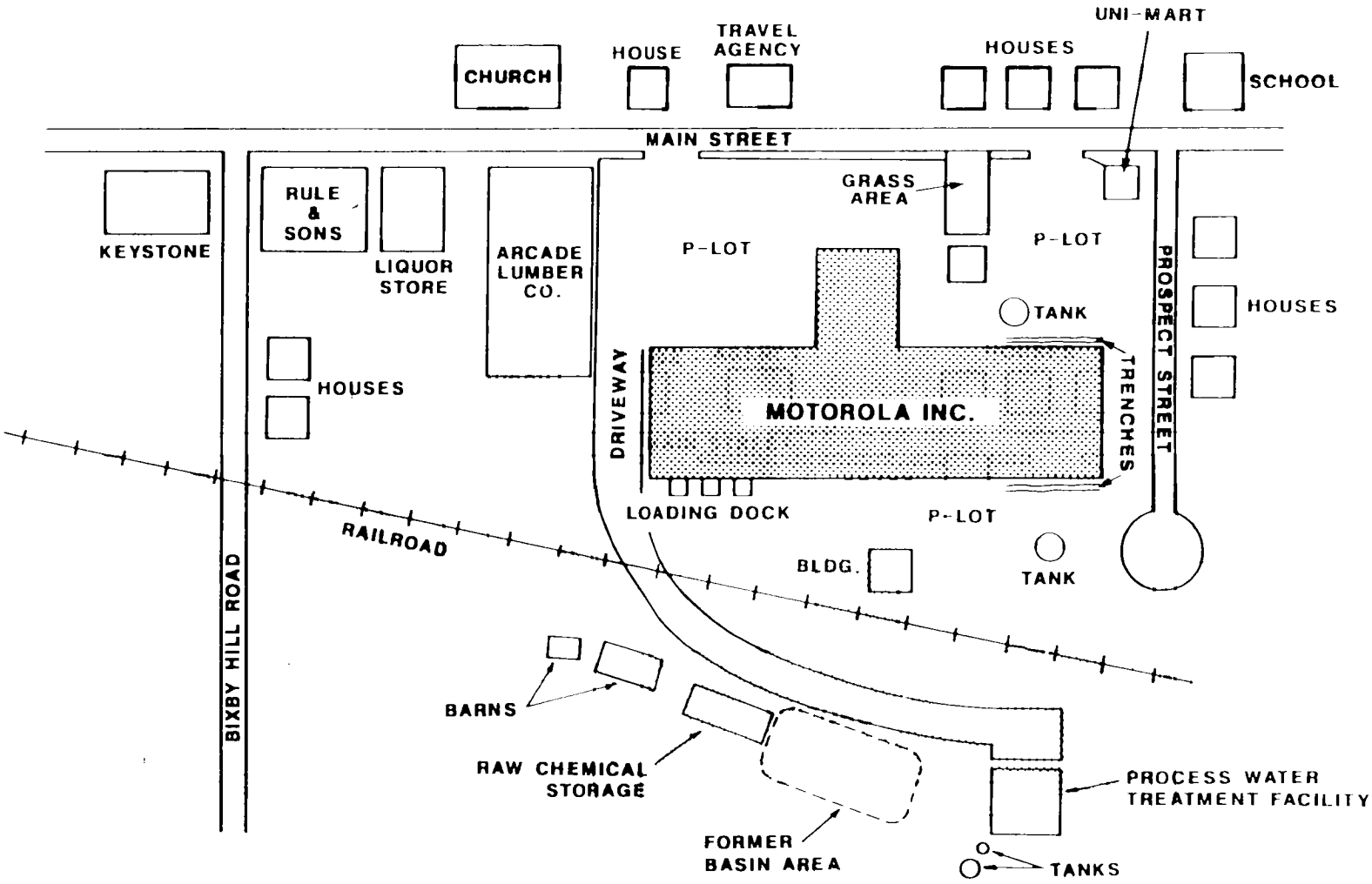
FIGURE 1

SITE LOCATION MAP

MOTOROLA, INC., ARCADE, N.Y.

SCALE: 1" = 2000'

NUS CORPORATION



SITE MAP

MOTOROLA, INC., ARCADE, N.Y.

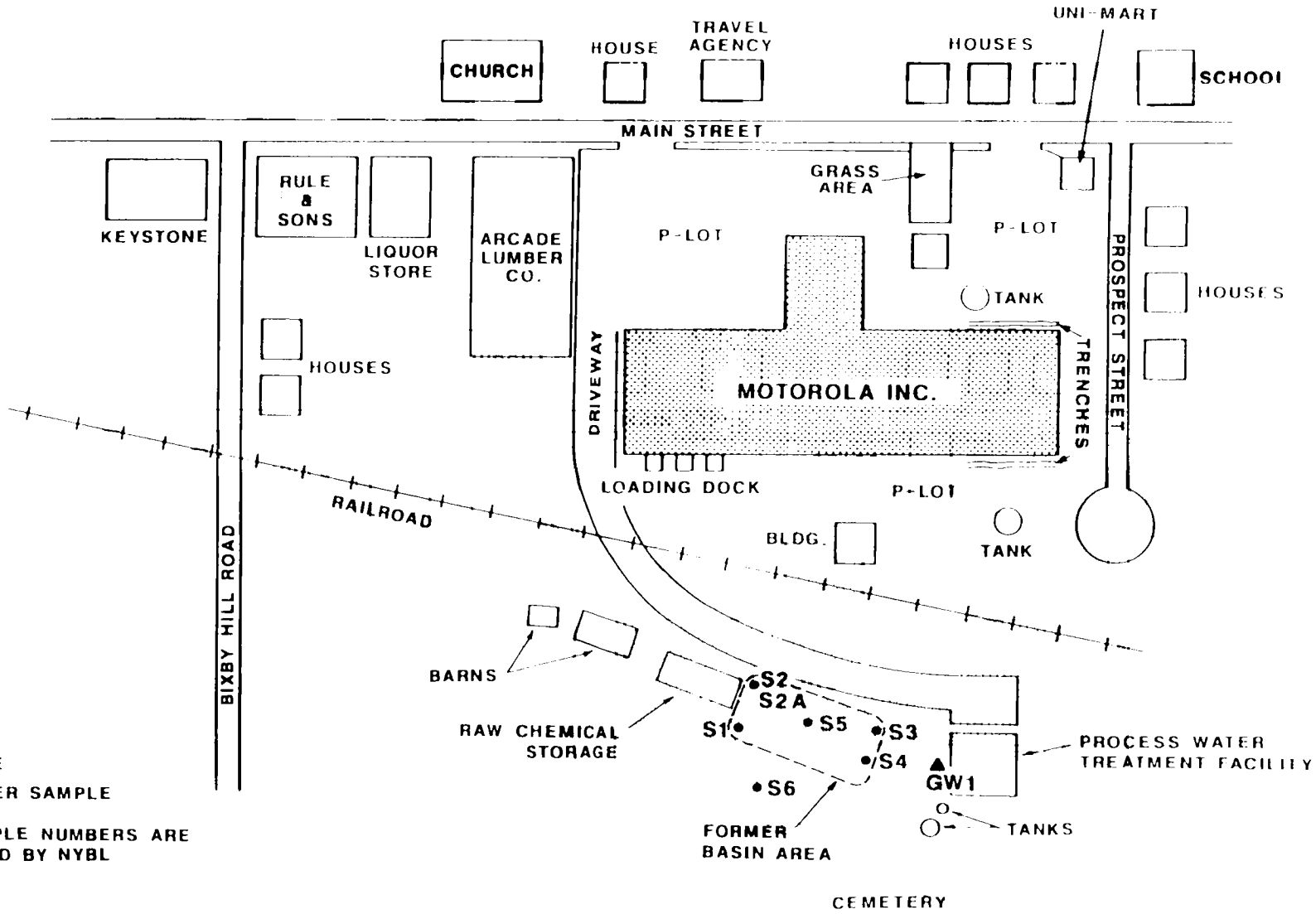
(NOT TO SCALE)

FIGURE 2

NUS CORPORATION

02-8910-15-SI

Rev. 0



LEGEND

- ● SOIL SAMPLE
- ▲ GROUNDWATER SAMPLE

NOTE: ALL SAMPLE NUMBERS ARE PRECEDED BY NYBL

SAMPLE LOCATION MAP

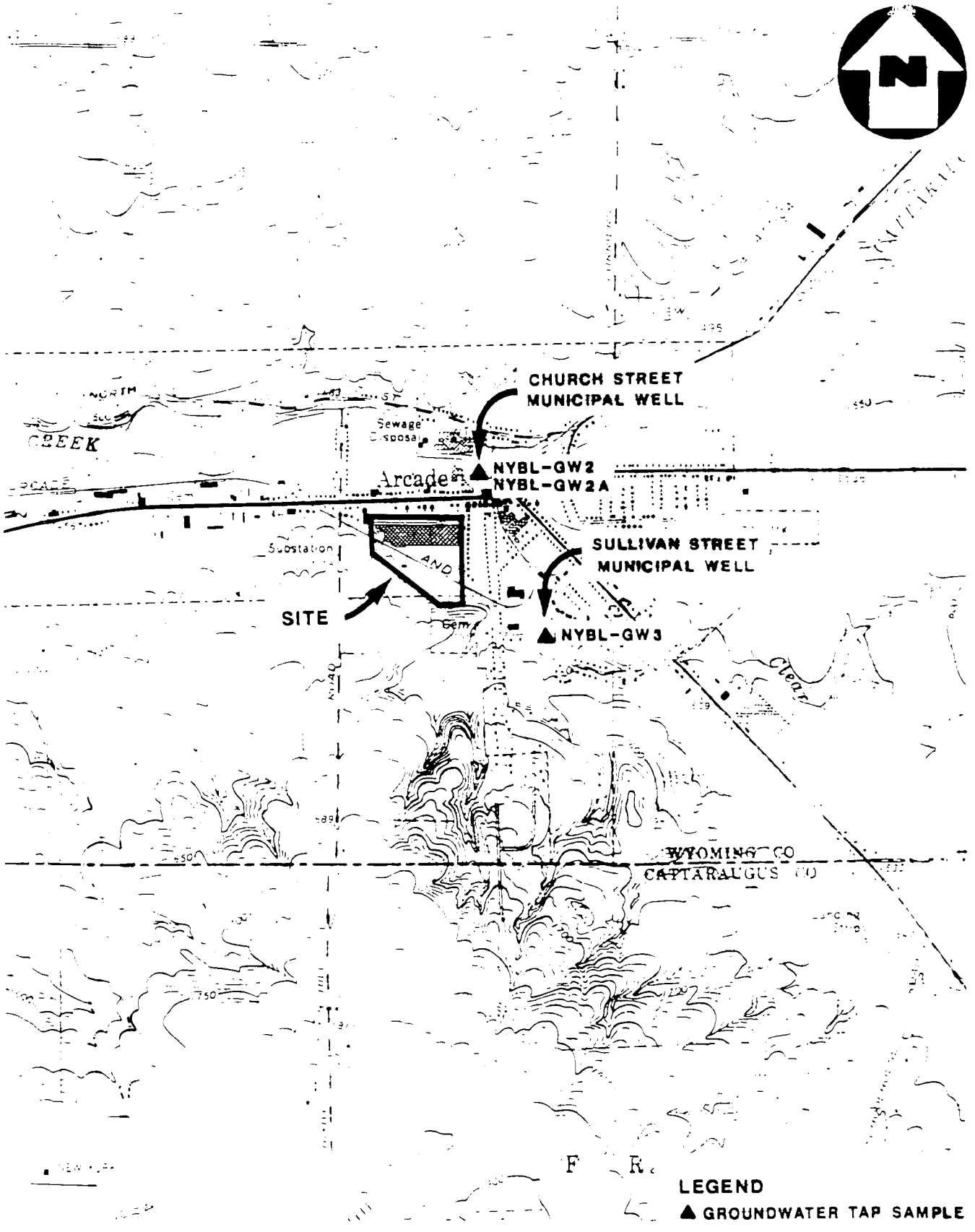
MOTOROLA, INC., ARCADE, N.Y.

(NOT TO SCALE)

FIGURE 3

NUS CORPORATION

02-8910-15-SI
Rev. No. 0



(QUAD) ARCADE, N.Y.

FIGURE 4

SAMPLE LOCATION MAP
MOTOROLA INC., ARCADE, N.Y.

SCALE: 1" = 2000'

NUS CORPORATION

EXHIBIT A

PHOTOGRAPH LOG

MOTOROLA, INC.
ARCADE, NEW YORK

SITE INSPECTION: APRIL 7, 1988

MOTOROLA INC.
ARCADE, NEW YORK
APRIL 7, 1988

PHOTOGRAPH INDEX

Photo Number	Description	Time
1P-2	J. Murtaugh collecting groundwater tap sample NYBL-GW-1 from outside spigot against west face of process water treatment facility.	1050
1P-14	G. Gilliland collecting groundwater tap sample NYBL-GW-2 from the Arcade municipal supply well located on Church Street behind the village offices.	1507
1P-15	G. Gilliland collecting groundwater tap sample NYBL-GW-3 from the Arcade municipal supply well located in the playground on Sullivan Street.	1521
1P-3	D. Warner collecting soil sample NYBL-S-1, 15.6 feet east of the southeast corner of the chemical storage building.	1111
1P-4	J. Murtaugh collecting soil sample NYBL-S-2 , 10.2 feet east of the northeast corner of the chemical storage building.	1140
1P-5	D. Warner collecting soil sample NYBL-S-3, 54.4 feet east of the northeast corner of the chemical storage building.	1207
1P-6	J. Murtaugh collecting soil sample NYBL-S-4, 55.8 feet east of the southeast corner of the chemical storage building.	1255
1P-7	D. Warner collecting soil sample NYBL-S-5, 30.3 feet east and 5.9 feet north of the southeast corner of the chemical storage building.	1313
1P-8	J. Murtaugh collecting soil sample NYBL-S-6, 78.1 feet west of the southwest corner of the process water treatment facility.	1330
1P-9	Photo of the disposal area from Motorola's dirt access road facing southeast.	1409
1P-10	Photo of the disposal area from the dirt access road, facing southwest. The chemical storage building can be seen in the background	1411
1P-11	Photo of the process water treatment facility from the access road, facing southeast.	1414
1P-12	Photo of the creek and the pedestrian bridge.	1422
1P-13	Photo of the creek bed, the bridge, and a portion of the manufacturing plant.	1423

All photographs taken by Susan Kennedy.

MOTOROLA, INC., ARCADE, NEW YORK

1P-2 April 7, 1988 1050
J. Muntaugh collecting groundwater tap sample NYBL-GW-1 from outside spigot against west face of process water treatment facility.

G. Gilliland collecting groundwater tap sample NYBL-GW-2 from the Arcade municipal supply well located on Church Street behind the village offices.

1P-15 April 7, 1988 1521
G. Gilliland collecting groundwater tap sample NYBL-GW-3 from the Arcade municipal supply well located in the playground on Sullivan Street.

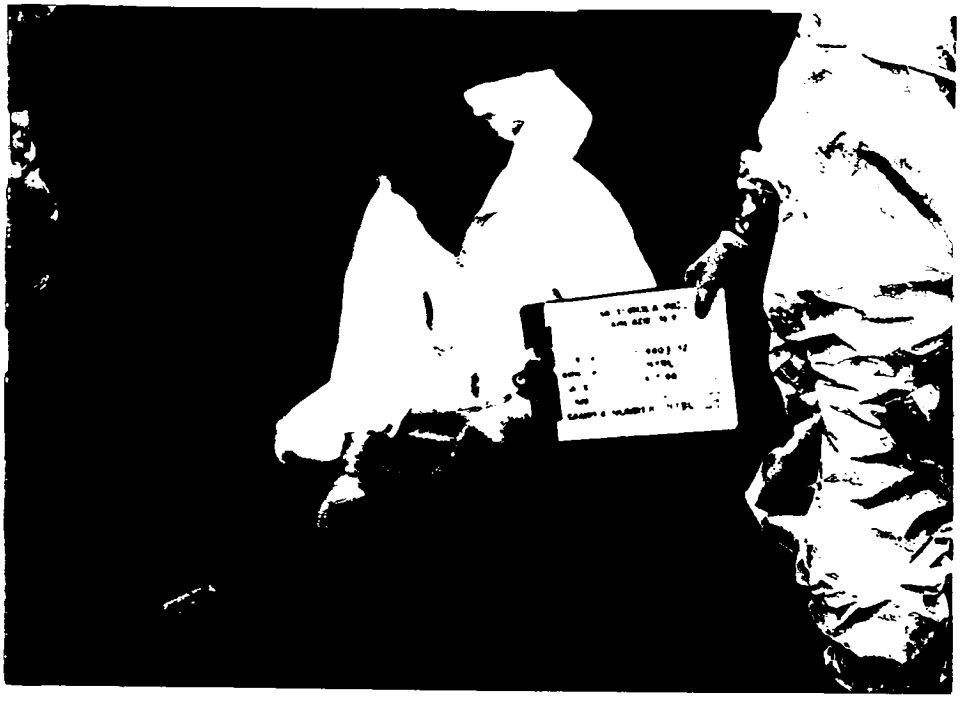
2P-3 April 7, 1988 1111
D. Warner collecting soil sample NYBL-S-1, 15.6 feet east of the southeast corner of the chemical storage building.

MOTOROLA, INC., ARCADE, NEW YORK

1P-4 April 7, 1988 1140
J. Murtaugh collecting soil sample NYBL-S-2, 10.2 feet east of the northeast corner of the chemical storage building.

1P-5 April 7, 1988 1207
D. Warner collecting soil sample NYBL-S-3, 54.4 feet east of the northeast corner of the chemical storage building.

MOTOROLA, INC., ARCADE, NEW YORK



IP-6 April 7, 1988 1255
J. Murtaugh collecting soil sample NYBL-S-4, 55.8 feet east of the southeast corner of the chemical storage building.

IP-7 April 7, 1988 1313
D. Warner collecting soil sample NYBL-S-5, 30.3 feet east and 5.9 feet north of the southeast corner of the chemical storage building.

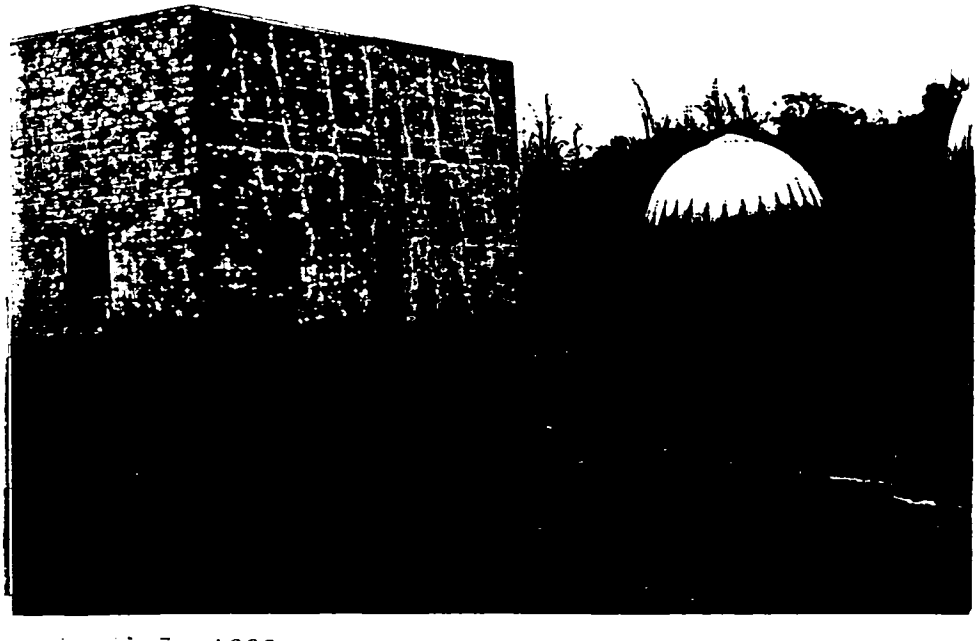
MOTOROLA, INC., ARCADE, NEW YORK

IP-8 April 7, 1988 1330
J. Murtaugh collecting soil sample NYBL-S-6, 78.1 feet west of the southwest corner of the process water treatment facility.

IP-9 April 7, 1988 1409
Photo of the disposal area from Motorola's dirt access road facing southeast.

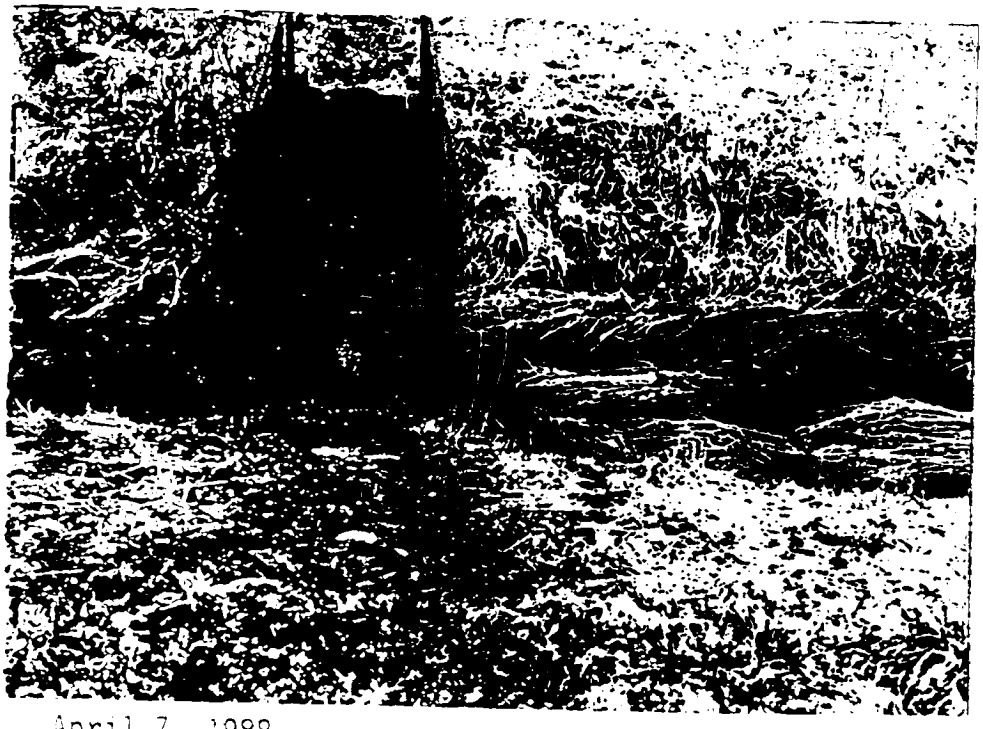
MOTOROLA, INC., ARCADE, NEW YORK

IP-10 April 7, 1988 1411
Photo of the disposal area from the dirt access road, facing southwest. The chemical storage building can be seen in the background.

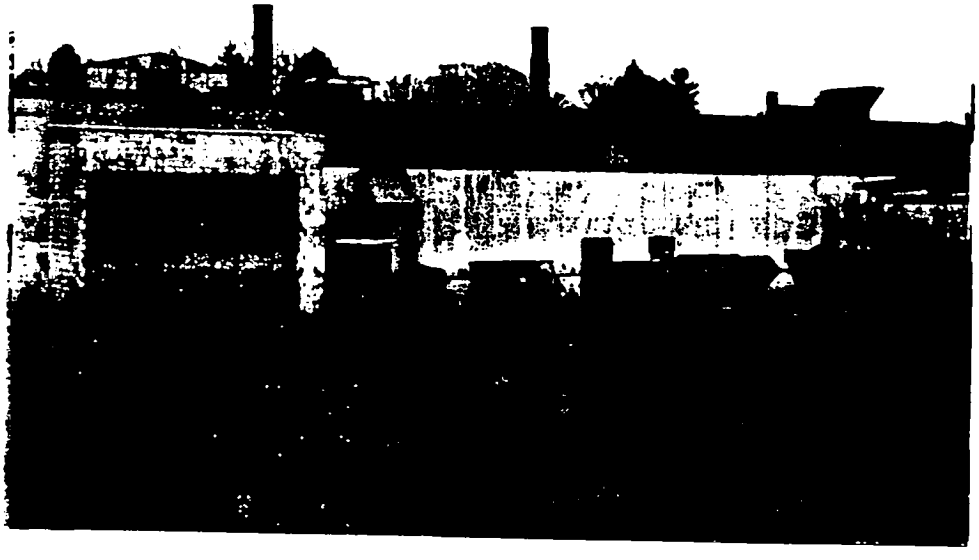


IP-11 April 7, 1988 1414
Photo of the process water treatment facility from the access road, facing southeast.

MOTOROLA, INC., ARCADE, NEW YORK



IP-12 April 7, 1988 1422
Photo of the creek and the pedestrian bridge.



IP-13 April 7, 1988 1423
Photo of the creek bed, the bridge, and a portion of the manufacturing plant.

4.0 SITE INSPECTION SAMPLING RESULTS

On April 7, 1988 the NUS Region 2 FIT conducted a Site Inspection (SI) at the Motorola, Inc. site. The SI included the collection of five soil samples from the alleged disposal area and one background sample. Figure 2 in section 3.0 provides a sample location map. Samples NYBL S-1 through S-5 were collected from within the former waste disposal area. Sample NYBL S-6 was collected as a background sample south of the disposal area.

Groundwater tap samples were collected from the Arcade Village supply wells on Church Street (possibly downgradient, NYBL-GW2 and GW2A) and Sullivan Street (upgradient, NYBL-GW3). The water from these wells mix with the water from a well in Sandusky. A tap water sample was collected from a spigot on the Motorola water treatment building (NYBL-GW1) to compare the quality of the water from individual wells to the mixed system water that is distributed to customers.

Analyses indicated that no contamination was detected in any groundwater samples. Analyses for 2-butanone, benzoic acid, and zinc did not pass EPA QA/QC standards.

Analyses of soil samples indicate the presence of toluene, Aroclor-1254, cadmium, lead, and cyanide in the on-site soils. The highest concentration of toluene was 21 ug/kg found in sample NYBL S-5, and the lowest concentration, found in sample NYBL-S1, was 7 ug/kg. The highest concentration of Aroclor-1254 was 1164 ug/kg found in sample NYBL-S3. The lowest, 91 ug/kg, was found in sample NYBL-S2. The highest concentration of cadmium was 1960 mg/kg in sample NYBL-S3 and the lowest concentration was 10 mg/kg in the background sample NYBL-S6. The highest concentration of lead was estimated to be 178 mg/kg in sample NYBL-S4 and the lowest concentration was 22 mg/kg in sample NYBL-S6. The highest concentration of cyanide was 3.66 mg/kg in sample NYBL S-1 and the lowest concentration, 0.78 mg/kg, was found in sample NYBL-S5. The results are summarized in Table 1.

Analysis of the background soil sample, NYBLS6, indicated that barium was present as an estimated value below Contract Required Quantitation Limits (CRQL) but above Instrument Detection Limits (IDL). Soil samples NYBL-S1-NYBL-S5 contained chromium and arsenic at concentrations similar to those in the background soil sample NYBL-S6. Soil and water analyses for 2-butanone and benzoic acid did not pass EPA QA/QC standards. Aroclor-1254 was present in soil samples NYBL-S2, NYBL-S5, but not in the background sample NYBL-S6.

5.0 CONCLUSIONS AND RECOMMENDATIONS

A listing site inspection is recommended for the Motorola Inc. site. This recommendation is based on analytical results from samples collected by NUS Corporation, Region 2 FIT on April 7, 1988, and on the following information that was acquired during the site inspection and subsequent report preparation:

- At least 4,500 people received potable water from municipal wells that are located within 3 miles of the site. The nearest potable well is located 1,800 feet north-northeast of the site and appears to be downgradient.

- The nearest residence is only 0.25 mile east of the former disposal area, an unlined surface impoundment. The site is not fenced in, so there is easy access, and, therefore, there is a potential for direct contact with hazardous waste by individuals who live in the area.

- Soil contamination with toluene, Aroclor-1254, cadmium, lead, and cyanide has been documented and may be attributable to the site.

- Contaminants that are present in soil particles found close to the surface may become airbone during dry and dusty conditions. There is no vegetation in the area of the contaminated soil.

Ref. Nos. 1-16

TABLE 1 SOIL SAMPLING RESULTS

Compounds Present Above CRQLs	Samples with Highest Concentration	Highest Concentration
Toluene	NYBL-S5	21 ug/kg
Aroclor-1254	NYBL-S3	1164 ug/kg
Cadmium	NYBL-S3	1960 mg/kg
Lead	NYBL-S4	178 E mg/kg
Cyanide	NYBL-S1	3.66 mg/kg

CRQL-Contract Required Quantitation Limit
E - Indicates an estimated value

Ref. No. 16

6.0 REFERENCES

1. Field Notebook No. 0210, Motorola, Inc., TDD No. 02-8803-12, Site Inspection, NUS Corp. Region 2 FIT, Edison, New Jersey, April 7, 1988.

2. Preliminary Assessment Report, NUS Corp. Region 2 FIT, December 4, 1987, TDD No. 02-8710-78.

3. U.S. Department of the Interior, Geological Survey Topographic Maps, 7.5 minute series, "Arcade Quadrangle, N.Y.", 1966 photorevised 1971.

4. Telecon Note: Conversation between Nelson Schnabel, New York State Department of Environmental Conservation (NYSDEC), Region 9, and Gerald V. Gilliland, NUS Corp., December 2, 1987.

5. Telecon Note: Conversation between Larry Killburn, Superintendent of Public Works, Village of Arcade, and Donna Restivo, NUS Corp., December 2, 1987.

6. Telecon Note: Conversation between Larry Groves, Water Commissions of Yorkshire Township, NY, and Gerald V. Gilliland, NUS Corp., December 3, 1987.

7. U.S. Department of Agriculture Soil Conservation Service. Soil Survey of Wyoming County, New York, April, 1974.

8. Survey of selected organic compounds in aquifers of New York State, excluding Long Island. U.S. Geological Survey Water Resources Investigations 81-47.

9. U.S. Environmental Protection Agency Notification of Hazardous Waste Site, EPA Form 8900-1, Motorola, Inc., June 9, 1981.

10. NYSDEC memorandum from Mr. Christoffel to Mr. Buechi (both of NYSDEC), Subject: Motorola Sites in the Southern Tier, September 2, 1982.

11. Cattaraugus County Health Department memorandum form Mr.Halgas to Mr. McMahon (NYSDEC), Subject: Motorola Industrial Waste Disposal, October 3, 1978.

12. U. S. Environmental Protection Agency General Information Form 3510-1, Consolidated Permits Program, Motorola, Inc., November 14, 1980.

13. Telecon Note: Conversation between Larry Killburn, Superintendent of Public Works, Village of Arcade, NY, and Gerald V. Gilliland, NUS Corp., June 29, 1988.

14. The New York State Water Resources Commission, Erie-Niagara Regional Water Resources Planning Board, Basin Planning Report ENB-3: Ground water resources of the Erie-Niagara basin, New York. A.M. La Sala, Jr., 1968.

15. Uncontrolled hazardous waste site ranking system, A user's manual, 40 CFR, Part 300, Appendix A, 1986.

16. U.S. EPA Contract Laboratory Program, Meta Trace, Inc. (Organic Analysis), Versar, Inc. (Inorganic Analysis), Case No. 9296, Laboratory Analysis from NUS Region 2 FIT Site Inspection conducted on April 7, 1988.

REFERENCE NO. 1

NUS CORPORATION

II

0210

MOTOROLA INC.
02-8803-12
SITE MANAGER - GERALD GILLIAND
LOGBOOK # 0210
MARCH 31, 1988

02-5503-12
METUCLA, INC.

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Gerald V. Gillam
4-29-88

Rick Page
4/21/88

D & 55503-12
MOTOROLA INC
4/7/88

0657. G. GILLILAND HOLDS HEALTH & SAFETY MEETING AT BREAKFAST, DESCRIBES HAZARDS THAT MAY BE PRESENT ON SITE & ROUTE TO HOSPITAL. THOSE PRESENT FOR THE HEALTH AND SAFETY MEETING WERE AS FOLLOWS:

S. REUNERT
G. GILLILAND
B. TOMPEY
J. MUKTAUUH
D. WARNER

Susan M. Kennedy 4/7/88

SITE INSPECTION

02-SSC3-12
MOTOROLA INC.

SK 4/7/88
SUPERINTENDANT OF PUBLIC WORKS

0523 - ARRIVE AT ARCADE VILLAGE OFFICES. MEET WITH LARRY KILLBURN, WHO IS GOING TO SEND SOMEONE WITH US TO OPEN THE PUMP HOUSES FOR THE COMMUNITY SUPPLY WELLS. THE PERSON WHO HAS THE KEYS CANNOT BE LOCATED. SK TELEPHONES MR. MACKASKILL OF MOTOROLA PRETTY SITE AND TELLS HIM WE ARE RUNNING LATE.
0845 - AFTER TRYING TO LOCATE THE WELL KEYS IT IS DECIDED TO PROCEED TO THE MOTOROLA FACILITY AND RETURN FOR THE COMMUNITY WELL SAMPLES AT 3:00.

0846 - LEAVE ARCADE VILLAGE OFFICES.
0857 - ARRIVE AT MOTOROLA FACILITY, S. KENNEDY & G. GILLILAND GO IN OFFICE TO MEET MR MCCASKILL. HE TAKES US BACK TO AREA WHERE WE CAN SET UP CLOSER TO SITE.
0916 - BILL BRUYERE - MOTOROLA MAN. ENGINEER.

BOB STEINER - CONSULTANT RECHA - FOR MOTOROLA

BOTH ON SITE TO OVERSEE OUR SAMPLING TECHNIQUES AND PROCEDURES. MR BRUYERE AND B. STEINER ARE REPRESENTING MOTOROLA INC.

WEATHER - CLOUDY, DRIZZLE, COOL, APPROXIMATELY 50°C.

0930: SAMPLERS DUDLEY WARNER (DW) & JOE MULTANOVICH (JM) SUIT UP FOR LEVEL B RECONNAISSANCE. G. GILLILAND (GG.) SUITS

Susan M. Kennedy 4/7/88

Q-GSLB-12
MOTOROLA, INC.

UP AS BACK UP. QUA & HNU HAVE BEEN TURNED ON AND ARE WARMING UP. AT TO HOSPITAL MAP, VERBAL DIRECTIONS, AND KEYS ARE IN FRONT OF VEHICLE IN CASE OF EMERGENCY.

0950: JM, GG & DW DECON AUGER, TROWELS, AND BOWLS NEEDED FOR SAMPLING. B TOMPEY (B.T.) BEGINS WORK ON SAMPLE MANAGEMENT PAPERWORK

THE PORTION OF THE FACILITY PROPERTY THAT WE ARE SETTING UP IN IS IN ACTIVE. MR MCMASKILL WAS UNSURE EXACTLY WHERE THE LAGOON WAS LOCATED, AS THERE IS NO ONE LEFT AT THE FACILITY THAT WAS HERE WHEN IT WAS OPERABLE. HE POINTED OUT WHERE HE AND OTHER EMPLOYEES HAD DETERMINED, TO THE BEST OF THEIR KNOWLEDGE, THAT IT HAD BEEN. IT WAS LOCATED DIRECTLY ADJACENT TO THE CHEMICAL STORAGE BARN, AND JUST WEST OF THEIR WASTEWATER TREATMENT PLANT.

SPOKE WITH MR BRUNERE ABOUT THE CURRENT SITUATION. FLEX BOUGHT ALT. EMULSION BUS. & PLANT, 1500 PEOPLE, AND MOTOROLA HAS TWO YEARS TO FIND A NEW FACILITY. TOMORROW TUESDAY APPROX.

Susan R. Kennedy 4/21/88

02-8803-12
MOTOROLA INC.

1025 - DW + JM GO ON AIR TO BEGIN LEVEL B RECONNAISSANCE. THEY GO TO OUTSIDE SHOOT FIRST AND TURN WATER ON TO ALLOW IT TO RUN FOR A FIFTEEN MINUTES OR MORE TO BE ABLE TO COLLECT GWI. JM + DW ARE ZIG-ZAGGING ACROSS THE PROPERTY, TO SEE IF ANY READINGS ARE DETECTED.

1029 - LEVEL B RECON COMPLETE - NO READINGS DETECTED ABOVE BACKGROUND ON EITHER INST. SAMPLES WILL BE COLLECTED WITHOUT RESPIRATORY ~~PRO~~ PROTECTION AS 1030 JM + DW THE GROUND IS WET. GO OFF AIR

1031 - MR MCKNIGHT + SK + GG GO ON THE SITE PROPERTY SO HE CAN BETTER POINT OUT THE AREA. HE IS ABLE TO POINT OUT THE AREA THAT WAS EXCAVATED, BUT IS NOT SURE HOW ~~MANY~~ MUCH OF THIS PROPERTY WAS THE ACTUAL LAGOON SITE. GG + SK DECIDE TO TAKE SIX SAMPLES ALL TOGETHER - 4 FROM THE CORNERS OF THE EXCAVATED AREA, ONE FROM THE CENTER, AND ONE FROM THE SLOPE BEHIND THIS AREA FOR BACKGROUND. THE GWI TAP SAMPLE WILL BE COLLECTED FIRST.

Susan McKenzie 4/7/88 Paul Page 4/8/88

02-5503-12
MOTOROLA INC.

1044 - JM + DW BEGIN COLLECTING OF GW1.
GW SCREENS AREA WITH AIR MONITORING INSTRUMENTS
NO READINGS ABOVE BACKGROUND DETECTED

1050: P2, S1 PHOTO OF JM COLLECTING GW1.

1101: BEGIN COLLECTION OF S1 - FIRST AUGERFULL OF SOIL IS NOT USED. (1st augerful removes approximately 0.3 foot of soil off the top) GMG 4/11/88
ALL AUGERS AFTER THAT PLACED DIRECTLY INTO BOWL. SOIL TYPE VERY WET BROWN CLAY. SLIGHT CHANGE IN COLOR AS (S) WITH DEPTH - FROM DK. BROWN TO LT. BROWN. NO READINGS ABOVE BACKGROUND DETECTED ON HNU OR OVA. (INITIAL REMARK APPROX. 2 OVA 2 HNU - LEVELED OFF - BREATHING ZONE FIVE - NO READINGS. AT APPROX. 2 FEET, WATER WAS HIT. COLLECT SOIL HERE (S) AT THIS DEPTH. VOAS ARE COLLECTED FIRST, PRIOR TO HOMOGENIZING.

End Page 1/2/17
Susan M. Forsberg 4/7/88

02-5803-12
MOTOROLA INC.

P3, S2

1111: PHOTO OF DRILLING S1.

1112: GG INDICATES THAT A READING OF APPROXIMATELY 8-10 PPM DETECTED FROM WITHIN THE AUGER HOLE. NO READINGS DETECTED IN BREATHING ZONE.

1115: STRONG ODOR OF SOLVENT DETECTED IN THE AIR - ML MCCASKILL SAYS IT'S FROM HEAT TREAT FURNACE - MIXTURE OF NITROGEN & NATURAL GAS USED AS ENVIRONMENT INSIDE FURNACE.

1118: COLLECTION OF S1 COMPLETE
SAMPLE COLLECTED 15.6 FEET SOUTHWEST AT DIRECT 45° ANGLE OF CHEMICAL STORAGE BUILDING OF SE CORNER OF BLDG.

1125: LOCATION OF S2 IS DETERMINED AT TO BE OFF THE NORTH EAST CORNER OF THE BUILDING.

Susan M. Kennedy 4/7/88 Rudy Pap 4/21/88

02-SS03-12

PICTORIAL INC.

1107 JM BEGINS AUGERING FOR S2. THE FIRST AUGERFULL OF SOIL IS NOT USED, THE AUGERED SOIL ~~IS~~ (S2) FROM NOW ON IS PLACED DIRECTLY INTO THE BOWL. NO READINGS DETECTED IN THE AUGER HOLE OR THE BREATHING ZONE.

1131: SLIGHT READINGS ON THE OVA FROM WITHIN THE AUGER HOLE. FLUCTUATION BETWEEN 1 AND 2 PPM.

1135: SOIL COLLECTED FOR S2 AT A DEPTH OF ENVIRON 1.8' FEET

1140 PH S3 - PHOTO OF JM COLLECTING S2.

SOIL TYPE IN THIS LOCATION ~~WAS~~ IS CLAY, DARK BROWN, BUT DRIER THAN THAT OF S2.

1148: STRONG ODOR OF SOLVENT IS STILL EVIDENT, ALTHOUGH NO READINGS ARE DETECTED ON THE INSTRUMENTS.

1150: COMPLETED COLLECTING S2.

Susan M. Kenney 4/7/88 Richfan 4/21/88

02-88UO-12
MOTOROLA, INC

SOIL SAMPLE 2 WAS COLLECTED 10.2 FEET ~~COLLECT~~ SE
OF THE EAST OF THE NORTH EAST CORNER OF THE
~~THE~~ BUILDING AT A PERPENDICULAR ANGLE TO THE NORTH EAST
CORNER, FROM THE EAST FACE OF CHEMICAL
STORAGE BUILDING.

1155 LOCATION SB ~~LOCA~~ (2) 54.4 FEET FROM THE
NE CORNER OF THE CHEMICAL STORAGE BUILDING
AT A PERPENDICULAR ANGLE FROM THE EAST
~~OF~~ (2) FACE OF THE CHEM. STORAGE BUILDING.

1156 DW BEGINS AUGERING FOR SB. FIRST
AUGER FULL OF SOIL IS NOT USED, THE REST
OF THE AUGERS OF SOIL WILL BE PLACED
DIRECTLY INTO THE BOWL.
WATER IS LYING ON GROUND SURFACE IN THIS AREA.
THIS SOIL TYPE IS SILTY LT BROWN CLAY.
NO READINGS FROM WITHIN THE AUGER HOLE,
BREATHING ZONE, OR BOWL OF SOIL.

B. STEINER OF KLEIN WILL SPLIT THIS SAMPLE
WITH US. HE HAS 1 16 OZ. JAR (GLASS) TO
FILL. COLLECTED AT DEPTH OF 1.1 FOOT.

Susan M. Kennedy 4/9/88 [illegible] 4/[illegible]/88

02-8803-12
MOTOROLA INC.

1205: NO READINGS ABOVE BACKGROUND DETECTED ON THE FM OR OVA IN THE BREATHING ZONE, OR FROM WITHIN THE AUGER HOLE OR BOWL OF SOIL.

1207 - P5, 54 PHOTO OF D.W. COLLECTING S3

1211 - COLLECTION OF S3 COMPLETE.

1215 - JM & DW DECON SAMPLE BOTTLES AND ALSO DECON AUGERS AND BOWLS.

1218 R. MACASKILL & B. BRUYERE LEAVE SITE TO GO TO LUNCH. B. STEINER REMAINS BEHIND TO CONTINUE OVERSEEING THE SAMPLE COLLECTION

1237: JM BEGINS COLLECTING S4 - SOIL IN THIS AREA IS ~~SILTY~~ SANDY AT A DEPTH OF APPROX. 6 INCHES. COLLECTED 55.8 FEET FROM THE SE CORNER OF THE CHEMICAL STORAGE BUILDING AT A PERPENDICULAR ANGLE FROM THE BUILDINGS EAST FACE. SAMPLE COLLECTED ~~AT~~ TO A DEPTH OF 1.0 FEET. GVG 4/7/88

Susan M. Kennedy 4/7/88 Robert Fay and 4/7/88

02-8803-12
MOTOROLA, INC

1240: READINGS OF UP TO 25 PPM WERE DETECTED FROM WITHIN THE HOLE, READINGS FLUCTUATED BETWEEN 10 & 25 PPM.

1242: NO READINGS DETECTED OFF OF SOIL IN BOWL.

1244. JM INDICATES THAT WITH THE THIRD AUGER FULL OF SOIL, THE SAND HAS DISAPPEARED. SOIL TYPE AT THIS DEPTH IS CLAY

GG DETECTS READINGS OF APPROXIMATELY 7-8 PPM DIRECTLY ABOVE THE AUGER HOLE. NO READINGS ABOVE BACKGROUND DETECTED IN THE BREATHING ZONE, OR FROM THE SOIL IN THE BOWL. NO READINGS AT ALL ON THE HNU.

AFTER THE LAST AUGER WAS COLLECTED, GG STATED THAT THE READINGS PEGGED THE X10 SCALE ON THE OVA FROM WITHIN THE HOLE ITSELF.

NO ~~READ~~ (SE) READINGS IN THE BREATHING ZONE OR FROM THE SOIL IN THE BOWL. NO READINGS ON THE HNU

1251: ~~THE~~ GG INDICATES THAT THE OVA READINGS IN THE HOLE NOW EXCEED THE X 100 SCALE. AGAIN, NO READINGS ELSEWHERE, ON OR ON THE HNU. THIS SAMPLE WILL BE SPLIT WITH B. STRINIRK.

Susan M. Kessel 4/7/88 Paul Payne 4/11/88

02-5803-12
MOTOROLA INC.

1253: A READING OF APPROXIMATELY 1.5 PPM WAS DETECTED ON THE OVA FROM DIRECTLY ABOVE THE SOIL IN THE BOWL. JM BACKED OFF AND ALLOWED SAMPLE SOIL TO SIT FOR A MINUTE. READINGS DROPPED WHEN SCREENED AGAIN. NO READINGS ELSEWHERE OR ON THE HNU AT ALL.

1255: PHOTO OF JM COLLECTING SY. P6, SS

1256: COLLECTION OF SY COMPLETE

1306 · SAMPLE LOCATION FOR SS LOCATED 30.3 FEET EAST OF THE CHEM. STORAGE BLDG. AND 5.9 FEET NORTH OF THE SW CORNER OF THE SAME BLDG.

1308 DW BEGINS AUGERING FOR SAMPLE.

1309 · READINGS BETWEEN 1 & 5 PPM DETECTED ON THE OVA - NONE ELSEWHERE OR ON HNU.

SOIL IN THIS AREA DRY, SANDY, SK LT BROWN SOIL WITH DARKER BITS OF HUMUS MIXED IN. SAMPLE COLLECTED TO A DEPTH OF 1.5 FEET.

1310 DW BEGINS COLLECTING SS,
1313 PHOTO OF DW COLLECTING SS (P7, S6) GR 4-11-88
1316 COLLECTION OF SS COMPLETE.

Susan M. Kenney 4/7/88

Fred H. Kayser 4/11/88

J2-8805-12
MOTOROLA, INC.

S6 IS BEING COLLECTED AS A BACKGROUND SAMPLE, AWAY FROM THE SUSPECTED DISPOSAL AREA. IT IS COLLECTED UP SLOPE OF THE EXCAVATED AREA AND 78.1 FEET FROM THE SW CORNER OF THE WWTP AT A PERP. ANGLE TO THE WEST FACE OF THE TREATMENT PLANT.

1318: SOIL HERE IS DRY, LIGHTER IN COLOR THAN THE OTHER LOCATIONS, CLAYEY. SOIL GETS LIGHTER AND SANDIER WITH DEPTH (APPROX 1 FOOT) NO READINGS ABOVE BACKGROUND ON HNU OR OVA THIS SAMPLE WILL BE SPLIT WITH B. STEINER.

1327 JM BEGINS COLLECTING S6.
NO READINGS WERE DETECTED ON THE HNU OR THE OVA.

1330: ~~P7 S6~~; P8, S7 GVG 4-21-88

PHOTO OF JM COLLECTING S6.

COLLECTION OF S6 COMPLETE.

1340: FROM MCCASKILL LANDFILL SITE
DW + JM BEGIN DECONTAMINATION EQUIPMENT.

Susan M. Kennedy 4/7/88. 4/21/88

1350: GG & SK LEAVE SITE TO RETURN TO ARLIAC OFFICERS AND INQUIRE ABOUT TAKING THE COMMUNITY WELLS

1352: ARRIVE AT VILLAGE OFFICES TO SEE IF LARRY KILBURN IS IN - THE RECEPTION ~~IST~~ ~~IBED~~ SAID HE WILL BE BACK WITHIN AN HOUR.

1403: ~~SK~~ & GG RETURN TO MOTOROLA FACILITY, WHERE DW & JM ARE CLEANING UP DECONAREA AND B.T. IS FINISHING SAMPLE MANAGEMENT WORK.

1409. ~~P~~ 9 8 S ~~V~~ - PHOTO OF ~~DISPOSAL~~ DISPOSAL AREA FROM ~~DIRT~~ COMPANY'S DIRT ACCESS ROAD FACING SOUTH-EAST

GV6 4-21-88

1411: ~~P~~ 10 9 S ~~S~~ - PHOTO OF ~~DISPOSAL~~ DISPOSAL AREA FROM COMPANY'S DIRT ~~DISPOSAL ROAD~~ ROAD FACING SOUTH ~~WEST~~. CHEMICAL STORAGE BUILDING CAN BE SEEN IN THE BACKGROUND.

GV6 4-21-88

1414 ~~P~~ 11 10 S ~~S~~ - PHOTO OF WASTE WATER TREATMENT PLANT FROM DIRT ROAD, FACING SOUTH EAST

GV6 4-21-88

Susan M. Kennedy 4/7/88 Robert Ryan 4/8/88

02-5803-12
MOTOROLA, INC.

THERE IS A SMALL CREEK APPROXIMATELY 250 FEET NORTH OF THE DISPOSAL AREA THAT IS FLOWING IN A WESTERLY DIRECTION. THERE ARE NO APPARENT DRAINAGE PATHS FROM THE ~~AREA~~ DISPOSAL AREA TO THE CREEK. THE DIRT DRIVEWAY AND A SMALL LAWN AREA SEPERATE THE DISPOSAL AREA FROM THE CREEK. THIS LAND IS RELATIVELY FLAT. THERE IS A SMALL PEDESTRIAN BRIDGE OVER THE CREEK, BEYOND WHICH STANDS THE MAIN MANUFACTURING PLANT, AND RR TRACKS.

1422: PHOTO OF CREEK AND PEDESTRIAN BRIDGE. (P12, S11)
1423: PHOTO OF CREEK BED, BRIDGE, AND PORTION OF THE MANUFACTURING PLANT. GVL 4-24-88 (P13, S12)

SOUTH OF THE DISPOSAL SITE LIE FIELDS THAT SLOPE UPWARD FOR SEVERAL HUNDRED FEET BEYOND THAT LIES FIELDS, APPROXIMATELY 15-20 ACRES, THAT IS OWNED BY THE FACILITY.

THE PERIMETER OF THE SITE IS NOT SECURED WITH A FENCE. THE PROPERTY IS EASILY ACCESSIBLE FROM ALL DIRECTIONS.

Susan M. Kennedy 4/7/88 Rick Fyn 4/21/88

02-88603-12
MOTOROLA

THERE ARE RESIDENCES APPROXIMATELY 1/4 MILE NORTHWEST OF THE FACILITY.

1433: LEAVE MOTOROLA FOR DAY.

1436: ARRIVE AT ARCADE VILLAGE OFFICES. GG ~~ASK~~ GO IN BUILDING TO SEE IF LARRY SULLIVAN HAS RETURNED, RECEPTIONIST SAID HE IS NOT BACK YET. WHILE RETURNING TO THE VEHICLE, RAY KILLIAN WATER OPERATOR PULLS UP, WHO HAS THE KEYS TO THE ~~WELLS~~ (SK) HE STARTS THE PUMP FOR THE CHURCH STREET WELL, ~~WHICH IS DRY~~ (SK) THE PUMP HOUSE IS ATTACHED TO THE BACK OF THE COUNTY BUILDING. HE ALSO ACTIVATED THE SULLIVAN STREET WELL SO IT WOULD BE READY TO SAMPLE WHEN WE ARRIVED.

~~BOB BF,~~ (SK)

1505 - GG. BEGINS COLLECTING GW2

1507 - PHOTO OF GG. COLLECTING GW2
P14, S13

1510 - COLLECTION OF GW2 COMPLETE.

Susan M. Kennedy 4/7/88 Gail Kerr 4/21/88

1512 - LEAVE ~~ROBERTS~~ (52) ARCADE VILLAGE OFFICES, FOLLOW RAY KILLIAN TO SULLIVAN STREET WELL.

1516 - ARTHUR AT SULLIVAN STREET WELL

1518 - GG BEGINS COLLECTION OF GW-3

1521 - PHOTO OF GG. COLLECTING GW-3 P15, S14
1523 - COLLECTION OF GW-3 COMPLETE.
1524 - ALL PERSONNEL LEAVE THE SULLIVAN ST WELL AND GO BACK TO MOTEL TO WAIT FOR FEDERAL EXPRESS TO PICK UP SAMPLES.

1621 - ARTHUR AT MOTEL.

1707 - FED EX ARRIVES AND PICKS UP SAMPLES.

Susan M. Kennedy 4/7/88 Staff ap 4/7/88

Sample Management Information
Case # 9296 4-7-88

02-5903-12
Motorola, Inc.

Organics Lab
MetaTRACE, Inc.
13715 Rider Trail North
Earth City, MO, 63045
Attn: Walter Dotson
(314) 298-8566
Airbill # 7195200493

Inorganics Lab
Versar, Inc.
6850 Versar Center P.O. Box 1549
Springfield, VA 22151
Attn: Janet Beckman
(703) 642-6816
Airbill # 7195200504

Soil Sample Depth	NUS Sample #	Organic TR #	Inorganic TR #	Time
	NYBL-GW-1*	BR 351	MBN 903	1044
	-GW-2	BR 352	MBN 904	1505
	-GW-3A†	BR 353	MBN 905	1507
	-GW-3	BR 354	MBN 906	1518
2'	-S-1*	BR 435	MBN 907	1111
1.8'	-S-2	BR 436	MBN 908	1140
	-S-2A††	BR 437	MBN 909	1142
1.1'	-S-3	BR 438	MBN 910	1207
1.0'	-S-4	BR 439	MBN 911	1255
1.5'	-S-5	BR 444	MBN 914	1313
1.0'	-S-6	BR 445	MBN 915	1330
	-Rin-1	BR 440	MBN 912	1055
	-Rin-2	BR 441	MBN 913	1105
	-Tblk-1	BR 442	N/A	N/A

RP

* Indicates sample was designated for matrix spike (MS) and matrix spike duplicate (MSD) analysis
† Duplicate of sample no. NYBL-GW-2.
†† Duplicate of sample no. NYBL-S-2.
Note: Sample locations are described in the text of this logbook.

[signature] 04/21/88 [signature]

PHOTOLOG
4-7-88

02-8803-12
Motorola, Inc.

Photo #	Time	Description
1P-2 1$-1	1050	JM collecting GW-1 from outside spigot against west face of process water treatment facility.
1P-3 1$-2	1111	DW collecting $-1, 15.6' east of the southeast corner of the chemical storage building.
1P-4 1$-3	1140	JM collecting $-2, 10.2' east of the northeast corner of the chemical storage building.
1P-5 1$-4	1207	DW collecting $-3, 54.4' east of the northeast corner of the chemical storage building.
1P-6 1$-5	1255	JM collecting $-4, 55.8' east of the southeast corner of the chemical storage building.
1P-7 1$-6	1313	DW collecting $-5, 30.3' east and 5.9' north of the southeast corner of the chemical storage building.
1P-8 1$-7	1330	JM collecting $-6, 78.1' west of the southwest corner of the process water treatment facility.
1P-9 1$-8	1409	Photo of the disposal area from Motorola's dirt access road, facing southeast.
1P-10 1$-9	1411	Photo of the disposal area from the dirt access road, facing southwest. The chemical storage building can be seen in the background.

Gerald V. Gilbert
4-21-88

Photo #	Time	Description
1P-11 1$-10	1414	Photo of the process water treatment facility from the dirt access road, facing southeast.
1P-12 1$-11	1422	Photo of the creek and the pedestrian bridge.
1P-13 1$-12	1423	Photo of the creek bed, the bridge, and a portion of the manufacturing plant.
1P-14 1$-13	1507	GG collecting GW-2 from the Arcade municipal supply well on Church St., behind the village offices.
1P-15 1$-14	1521	GG collecting GW-3 from the Arcade municipal supply well located in the playground on Sullivan St.

All photographs were taken by S. Kennedy on April 7, 1988.
JM - Joe Murtaugh
DW - Dudley Warner
GG - Gerry Gilliland

Gerald V. Gilliland
4-21-88

4/21/88

REFERENCE NO. 2

02-8710-78-PA
REV. No. 0

PRELIMINARY ASSESSMENT
MOTOROLA, INC.

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8710-78
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

DECEMBER 4, 1987

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY:

DONNA J. RESTIVO
PROJECT MANAGER

REVIEWED/APPROVED BY:

RONALD M. NAMAN
FIT OFFICE MANAGER

NUS CORPORATION

POTENTIAL HAZARDOUS WASTE SITE

PRELIMINARY ASSESSMENT

02-8710-78-PA
Rev. No. 0

Motorola, Inc.
Site Name

NYD001931120
EPA Site ID Number

400 Main Street,
Arcade, Wyoming Co., NY 14009
Address

02-8710-78
TDD Number

Date of Site Visit: Off-Site Reconnaissance November 10, 1987

SITE DESCRIPTION

The Motorola, Inc. Site is an active facility located in a commercial and residential section of Arcade, Wyoming County, New York. Behind the manufacturing plant is the Process Water Treatment Facility, a Filter Cake Storage Area, a Hazardous Waste Storage Area, and two barns. The plant produces automobile and industrial electronic products, and conducts metal fabricating processes ancillary to these products. A RCRA 3001 permit was granted to Motorola in November 1981. Prior to 1981 disposal methods on site were not regulated. From 1971 to 1976 wastes were handled on site in a 3450ft^2 impoundment facility. Sludge was periodically collected from a settling basin through which the general effluent from Motorola's metal finishing operations flowed; no liner is known to be present. Prior to the installation of a Process Water Treatment Facility in 1976, approximately 30yd^3 of earth and sludge were excavated from the area and disposed of. The area where the material had been deposited has been filled in, graded, and seeded with grass. Motorola has designed an EPA-approved, long-term closure plan for the Filter Cake and Hazardous Waste Storage Areas. (Continued)

PRIORITY FOR FURTHER ACTION: High __ Medium X No Further Action__

RECOMMENDATIONS

A medium priority for further action is recommended for this site to determine if any releases to the environment had occurred during past operations. Groundwater is used for drinking purposes, and there are two community wells within 1 mile of the site.

Prepared by: Donna J. Restivo
of NUS Corporation

Date: December 4, 1987

SITE DESCRIPTION

Groundwater is used for drinking purposes in the area, and there are two community wells within 1 mile of the site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	0193120

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Motorola, Inc	300 Main Street

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Arcade	NY	14009	Wyoming	121	31

09 COORDINATES LATITUDE	LONGITUDE
42° 31' 58" N	078° 25' 43" W

10 DIRECTIONS TO SITE (Starting from nearest public road)

Follow Rte. 39 into Arcade. In Arcade, Rte. 39 is the same as Main Street. Motorola is at 400 Main St.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Motorola, Inc	400 Main Street

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Arcade	NY	14009	(716) 492-1234

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)

09 CITY	04 STATE	11 ZIP CODE	12 TELEPHONE NUMBER

13. TYPE OF OWNERSHIP (Check one)

X A. PRIVATE _ B. FEDERAL: _____ (Agency name) _ C. STATE _ D. COUNTY _ E. MUNICIPAL

_ F. OTHER: _____ (Specify) _ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

X A. RCRA 3001 DATE RECEIVED: 11/19/80 (MONTH DAY YEAR) _ B. UNCONTROLLED WASTE SITE (CERCLA 103c) DATE RECEIVED: _____ (MONTH DAY YEAR) _ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

X YES DATE: _____ (MONTH DAY YEAR)

_ NO

BY (Check all that apply)

_ A. EPA _ B. EPA CONTRACTOR _ C. STATE _ D. OTHER CONTRACTOR

_ E. LOCAL HEALTH OFFICIAL _ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)	03 YEARS OF OPERATION
X A. ACTIVE _ B. INACTIVE _ C. UNKNOWN	Unknown (BEGINNING YEAR) Still Active (ENDING YEAR) _ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Wastes noted from Motorola include varnishes, fluxes, flux thinners, isopropyl alcohol, hydrochloric acid, phosphoric acid, toluene, xylene, trichloroethane. (See Attachment)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

There is a potential for hazard to the environment and or population due to any hazardous material that may have been dumped, stored, or treated on site. (See Attachment)

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

_ A. HIGH (Inspection required promptly) X B. MEDIUM (Inspection required) _ C. LOW (Inspect on time available basis) _ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	08 TELEPHONE NUMBER
Diana Messina	U.S. EPA Region 2, Edison, NJ	(201) 321-6776

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Donna J. Restivo	U.S. EPA	NUS Corp. - FIT 2	(201) 225-6160	12 04 87

EPA FORMS WITH EPA FORM 2070-12 (7-81)

02-8710-78-PA

Rev. No. 0

ATTACHMENT

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

02-8710-78-PA
Rev. No. 0

04. DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Trichloroethylene, freon, epoxies, and cutting oils

05. DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Groundwater is used for drinking purposes in the area. There is a potential for contamination of groundwater, surface water, air, and soil. There is also a potential for direct contact, fire/explosive conditions, worker exposure/injury, and damage to flora and fauna.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	[illegible]

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

_ A. SOLID
_ B. POWDER, FINES
X C. SLUDGE
_ D. OTHER _____ (SPECIFY)
_ E. SLURRY
X F. LIQUID
_ G. GAS

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS _____
NO. OF DRUMS Unknown

03 WASTE CHARACTERISTICS (Check all that apply)

X A. TOXIC
_ B. CORROSIVE
_ C. RADIOACTIVE
_ D. PERSISTENT
_ E. SOLUBLE
_ F. INFECTIOUS
_ G. FLAMMABLE
_ H. IGNITABLE
_ I. HIGHLY VOLATILE
_ J. EXPLOSIVE
_ K. REACTIVE
_ L. INCOMPATIBLE
_ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	Unknown		
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		
IOC	INORGANIC CHEMICALS	Unknown		
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Isopropyl alcohol	67-63-0	Drums	Unknown	
ACD	Hydrochloric acid	7647-01-0	Drums	Unknown	
ACD	Phosphoric acid	7664-38-2	Drums	Unknown	
OCC	Toluene	108-88-3	Drums	Unknown	
OCC	Xylene	1330-20-7	Drums	Unknown	
OCC	Trichloroethane	71-55-6	Drums	Unknown	
OCC	Trichloroethylene	79-01-6	Drums	Unknown	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

New York State Department of Environmental Conservation Memorandum from Thomas Christoffel to Peter Buech, September 2, 1987.

Telecon note: Conversation between Nelson Schnabel, NYSDEC Region 9, and Gerald Gilliland, NUS Corporation December 3, 1987.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	0[illegible]

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUNDWATER CONTAMINATION
02 __ OBSERVED (DATE _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3200
04 NARRATIVE DESCRIPTION

There is a potential for groundwater contamination if any hazardous materials were dumped, stored, or treated on site. Groundwater is used for drinking in the area. There are two community wells within a 1 mile of the site.

01 X B. SURFACE WATER CONTAMINATION
02 _ OBSERVED (DATE _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: unknown
04 NARRATIVE DESCRIPTION

There is a potential for surface water contamination if any hazardous materials were dumped, stored, or treated on site. There is an intermittant creek behind the facility which runs to Cattaraugus Creek 0.5 mile away.

01 X C. CONTAMINATION OF AIR
02 __ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3238
04 NARRATIVE DESCRIPTION

There is potential for air contamination as the site is active, and it is not known if any hazardous materials are on site.

01 X D. FIRE/EXPLOSIVE CONDITIONS
02 __ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1968
04 NARRATIVE DESCRIPTION

There is a potential for fire explosive conditions as the site is active, and it is not known if any hazardous materials are on site.

01 X E. DIRECT CONTACT
02 __ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1968
04 NARRATIVE DESCRIPTION

There is potential for direct contact if any hazardous materials were dumped, stored, or treated on site. The area surrounding the site is unfenced and easily accessible.

01 X F. CONTAMINATION OF SOIL
02 __ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 AREA POTENTIALLY AFFECTED: unknown (Acres)
04 NARRATIVE DESCRIPTION

There is a potential for contamination of soil due to the impoundment facilities behind the site not being properly closed in 1976.

01 X G. DRINKING WATER CONTAMINATION
02 __ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3200
04 NARRATIVE DESCRIPTION

There is a potential for drinking water contamination if any hazardous materials were dumped, stored, or treated on site. Groundwater is used for drinking in the area.

01 X H. WORKER EXPOSURE/INJURY
02 __ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: unknown
04 NARRATIVE DESCRIPTION

There is a potential for worker exposure/injury, the site is an active facility.

01 X I. POPULATION EXPOSURE/INJURY
02 __ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3238
04 NARRATIVE DESCRIPTION

There is a potential for population exposure/injury due to contamination of groundwater, surface water, air, and soil, as well as direct contact, fire/explosive conditions, and worker exposure. Groundwater is used for drinking purposes.

EPA POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 8-30193-[illegible]-30

II. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)

01 [ ] J. DAMAGE TO FLORA — 02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

There is a potential for damage to flora if any hazardous materials were dumped, stored, or treated on site.

01 [ ] K. DAMAGE TO FAUNA — 02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

There is a potential for damage to fauna if any hazardous materials were dumped, stored, or treated on site.

01 [ ] L. CONTAMINATION OF FOOD CHAIN — 02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

There is a potential for contamination of the food chain. It is not known what wastes, if any, are present on site or whether the contaminants which may be present will bioaccumulate.

01 [X] M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 1968 — 04 NARRATIVE DESCRIPTION

There is a potential for the unstable containment of wastes if hazardous materials were dumped, stored, or treated on site. There is no evidence of a liner being present.

01 [X] N. DAMAGE TO OFF-SITE PROPERTY — 02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

There is a potential for damage to off-site property if hazardous materials were dumped, stored, or treated on site, and there was no method of containment.

01 [X] O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

There is a potential for contamination of sewers and/or storm drains as the site is an active facility, and there are sewers and storm drains in the area.

01 [X] P. ILLEGAL/UNAUTHORIZED DUMPING — 02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

There is a potential for illegal/unauthorized dumping; there are no fences around the site.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

There are no other known, potential, or alleged hazards.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 4338

IV. COMMENTS

None

V. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

U.S. Department of the Interior, Geological Survey, Topographic Map, 7.5 minute series, Arcade Quadrangle, N.Y., 1966, revised 1979.

Telecon note. Conversation between Larry Kilburn, Arcade Village Offices, and Donna Restivo, NUS Corporation, December 2, 1987.

New York State Department of Health, New York State Atlas of Community Water System Sources, 1982. (See Attachment)

ATTACHMENT

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONTITIONS AND INCIDENTS

02-8710-78-PA
Rev. No. 0

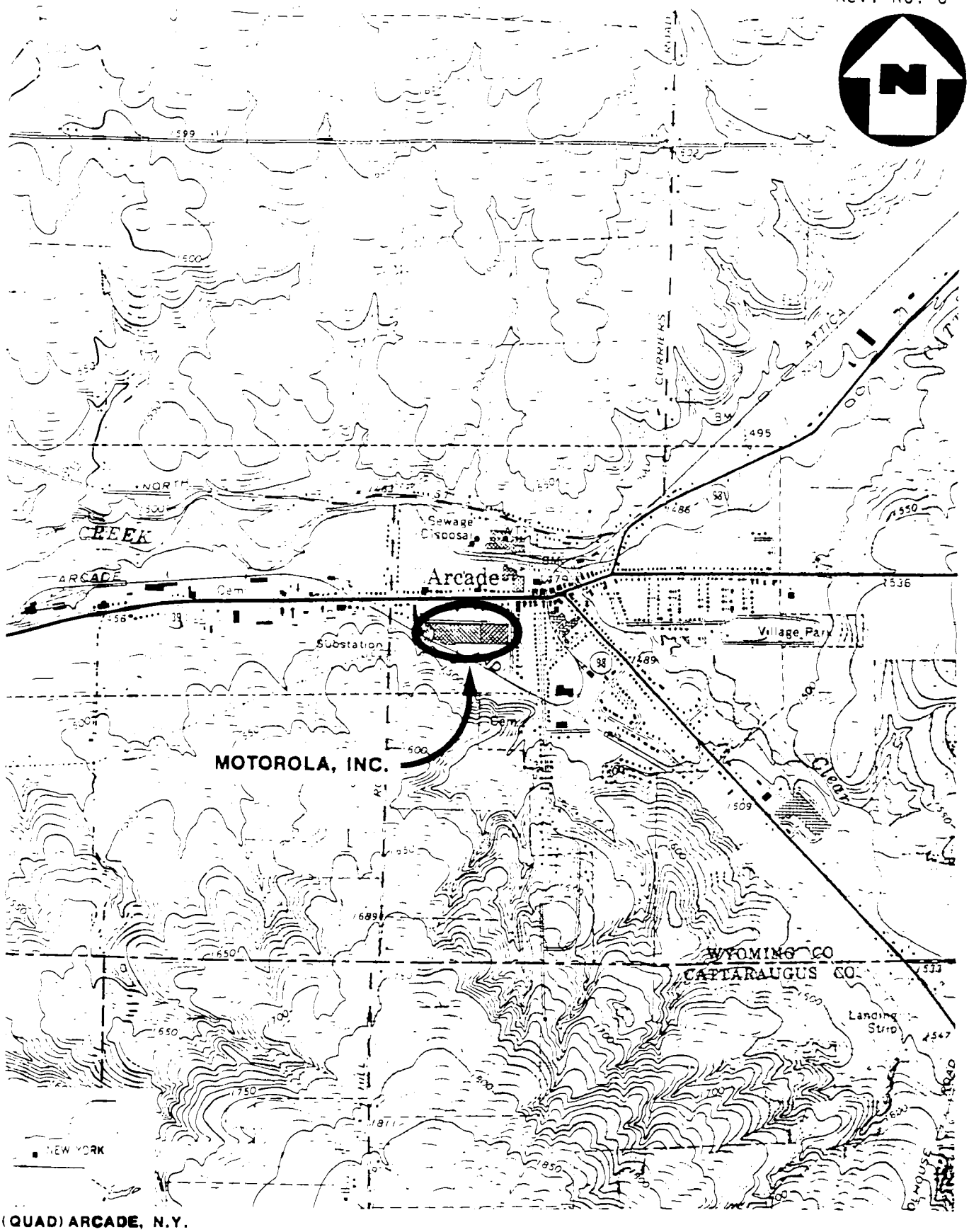
V. SOURCES OF INFORMATION *(Cite specific references, e.g. state files, sample analysis, reports)*

U.S. EPA Notification of Hazardous Waste Site, Victoria, Inc., June 9, 1981.

Telecon note: Conversation between Carry Groves, Water Commissioner of Yorkshire Township and Gerald Gilliland, NUS Corporation, December 3, 1987

APPENDIX A

MAPS AND PHOTOGRAPHS



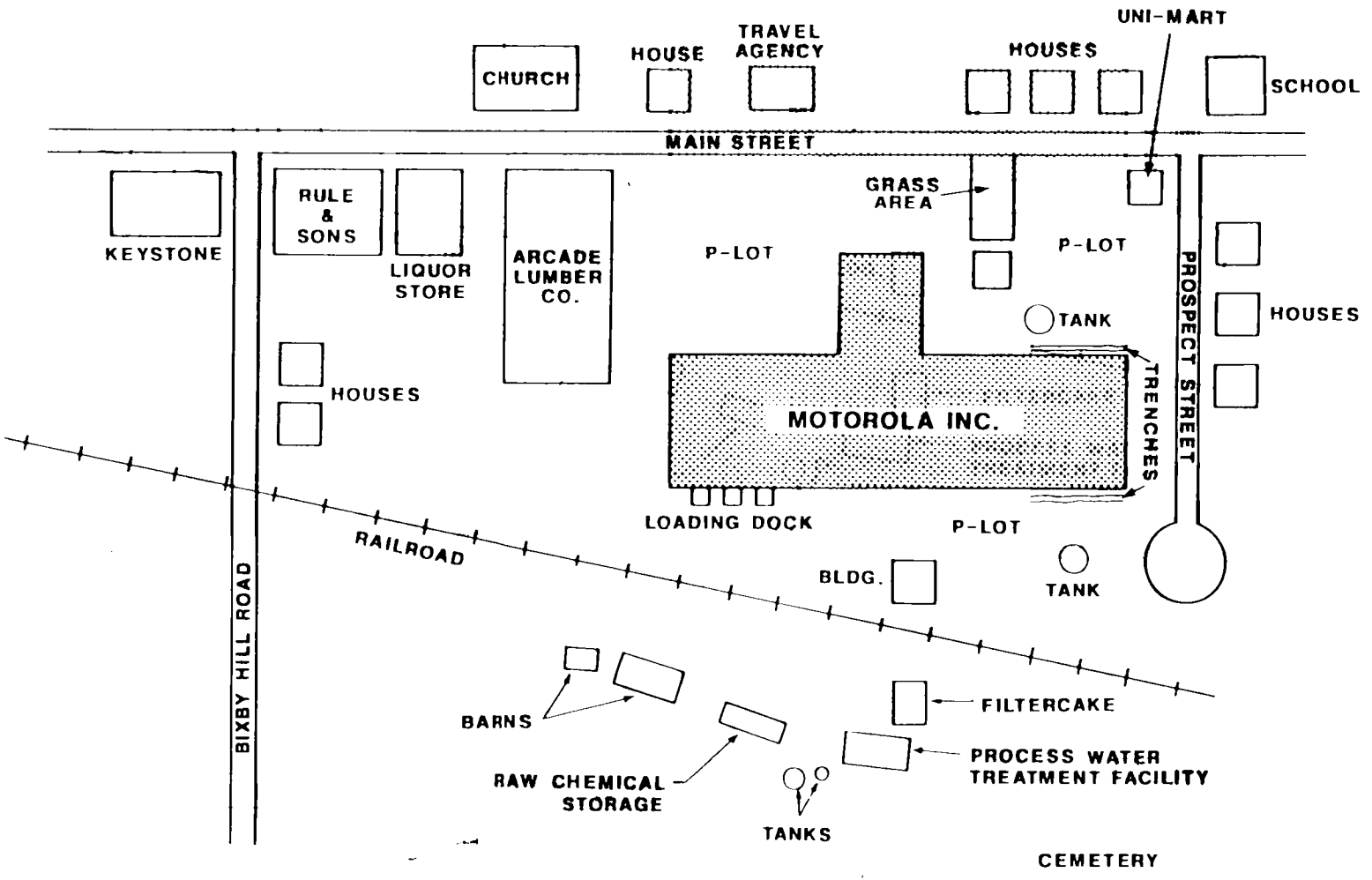
(QUAD) ARCADE, N.Y.

SITE LOCATION MAP
MOTOROLA, INC., ARCADE, N.Y.

SCALE: 1" = 2000'

FIGURE 1

NUS CORPORATION



SITE MAP

MOTOROLA, INC., ARCADE, N.Y.

(NOT TO SCALE)

FIGURE 2

NUS CORPORATION

MOTOROLA, INC.
ARCADE, NEW YORK
02-8710-78
NOVEMBER 10, 1987

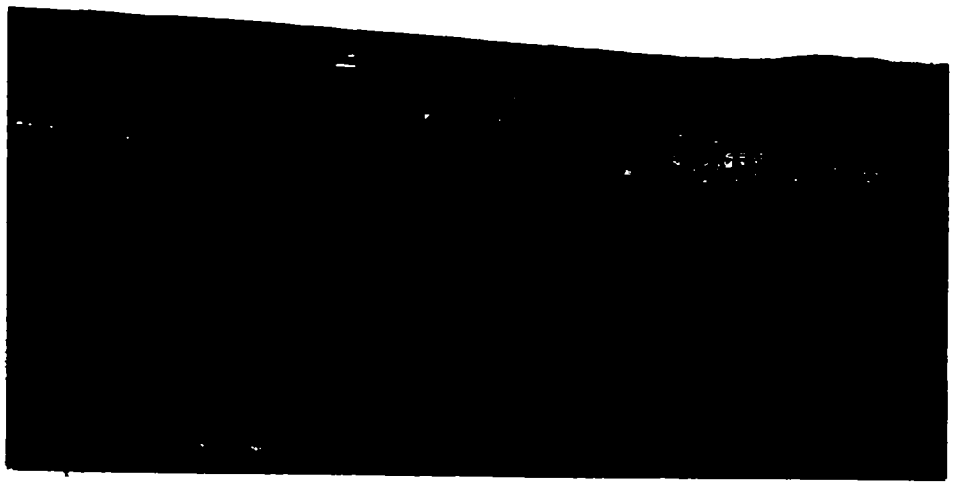
PHOTOGRAPH LOG

MOTOROLA, INC.
ARCADE, NEW YORK
02-8710-78
NOVEMBER 10, 1987

PHOTOGRAPH INDEX

Photo Number	Description	Time
1P-14	From Bixby Hill Road, facing the back of the site. Photographer: Robert Nies	1325
1P-15	Facing the site from Main Street, the front of the building. Photographer: Donna Restivo.	1328

MOTOROLA INC., ARCADE, NEW YORK



1P-14 November 10, 1987 1325
From Bixby HillRoad, facing the back of the site.
Photographer: Robert Nies.

1P-15 November 10, 1987 1328
Facing the site from Main Street, the front of the building.
Photographer: Donna Restivo.

APPENDIX B

BACKGROUND INFORMATION

NUS CORPORATION

TELECON NOTE

CONTROL NO	DATE:	TIME:
	12/3/87	0905

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Nelson Schnabel	NYSDEC-Region 9	(716)847-4600

AND:
Gerald V. Gilliland NUS

DISCUSSION:

Nelson Schnabel told me that the Attica Correctional Facility is a RCRA facility under EPA ID # NYD074037193. They notified on 12/8/80 and their Part A was received on 3/28/81.

He said that Motorola, Inc. in Arcade, NY is a RCRA facility under EPA ID # NYD001931120. They notified on 8/11/80 and their Part A was received on 11/19/80. Motorola just recently closed out their ~~#~~ 90-day long-term storage area in which they were storing wastes for more than 90 days. He knows of no dumping of wastes on the site.

ACTION ITEMS:

NUS 087 REVISED 0581

TELECON N.

CONTROL NO

DATE 12/2/87

TIME 915

DISTRIBUTION

BETWEEN Larry Killburn OF Arcade Village Offices PHONE (716) 492-111

AND Donna Restivo

DISCUSSION

I asked Mr. Killburn about well use in the area and he said the Village of Arcade is on 2 community wells in the village. These wells also serve from Arcade South to Sandusky. The Town of Arcade, outside the village, is all on private wells and you would have to count houses to get a number of people on the wells.

ACTION ITEMS

NUS 067 REVISED 0581

NUS CORPORATION

TELECON NOTE

CONTROL NO.	DATE:	TIME:
02-8710-78	12/3/87	1645 EST

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Larry Groves - Water Commissioner	Yorkshire Township, NY	(716) 492-2642

AND:

Gerald V. Gilliland

(NUS)

DISCUSSION:

Mr. Groves said a community water well exists in the hamlet of Yorkshire. It is less than 3 years old. It serves 200 families in Yorkshire.

ACTION ITEMS:

NUS 081 REV SEP 2581

15 (12/75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Peter Buechi
FROM: Thomas Christoffel
SUBJECT: Motorola Sites in the Southern Tier

DATE: September 2, 1982

Wastes were hauled from the Motorola facility in Arcade, New York, to the locations listed below. Included in these wastes were varnishes, fluxes, flux thinners, isopropyl alcohol, hydrochloric acid, phosphoric acid, toluene, xylene, trichloroethane, trichloroethylene, freon, epoxies and cutting oils. These materials are listed in literature as being mildly to moderately toxic.

The following is the list of known disposal sites for the industrial waste from Motorola in Arcade:

Previty Auto Wrecking, Galen Hill Road - Approximately 1000 drums were disposed at this site. These drums were emptied by Mr. Previty onto his property.

Tidd's Junkyard, Route 72, Yorkshire Corners - Approximately 600 drums were deposited at this site. An analysis of samples taken from this site revealed the presence of chlorinated solids, chlorinated solvents, flammable solids, acids, oil and a number of other materials. Fifty (50) percent of the barrels at Tidd's reportedly have been opened.

Town of Machias Gravel Pit, Very Road - Approximately 600 drums were placed at this site. It has been reported that half of these barrels were opened, and the oils were spread on county roads, but this has not been verified. The gravel pit is near Bird Swamp.

Norman Rogers, California Road, Delavan - 100 drums used for fill on this property.

Camp Arrowhead, Route 16 - Reportedly 20 drums delivered here from a Mr. Tillinghast from Tidd's Junkyard, which were ~~labor~~ later buried.

Boehmer Site, Route 16 - 13 barrels were buried 225 feet from the County Infirmary well.

An unknown quantity of waste in a ravine on the south side of Route 242, west of Route 16. Waste was spilled here.

It is recommended that these sites be investigated under the State Superfund Act, to determine their potential threat to health and the environment. Most of these sites are in the vicinity of waterways. The sites should be investigated in the order they are listed in this memo.

cag

EPA Notification of Hazardous Waste Site

United States Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

810609 NYS 000 001 2/7

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Motorola, Inc.
Street: 400 Main Street
City: Arcade, State: NY Zip Code: 14009

B Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Motorola, Inc.
Street: 400 Main Street
City: Arcade County: Wyoming State: NY Zip Code: 14009

NYD001931120

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Vought, John H., Facility Engineer
Phone: 716-492-1234

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year) 1971 To (Year) March, 1976

E Waste Type: Choose the option you prefer to complete

Option I: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____
_____
_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____
_____
_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

F006		

Form Approved
OMB No. 2000-0138
EPA Form 8900-1

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☑ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet 810 C

gallons _____

Total Facility Area

square feet 3450 S

acres _____

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☑ Likely ☐ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

See attached Plot Plan

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

(This material was sludge which was periodically collected from a settling basin through which the general effluent from Motorola's metal finishing operations flowed, prior to the installation of Motorola's Process Water Treatment Facilities, pursuant to the conditions of our NPDES Permit No NY 000 2267, originally dated May 1, 1974. As a part of our construction plans, approximately 30 yd^3. of earth and sludge were excavated from the area and disposed of in a manner approved by the New York State Department of Environmental Conservation. This took place on March 26, 1976. As a result of that building program, the area where the material had been deposited has been filled in, graded, and seeded with grass.)

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name Motorola, Inc.

Street 400 Main Street

City Arcade, State NY Zip Code 14009

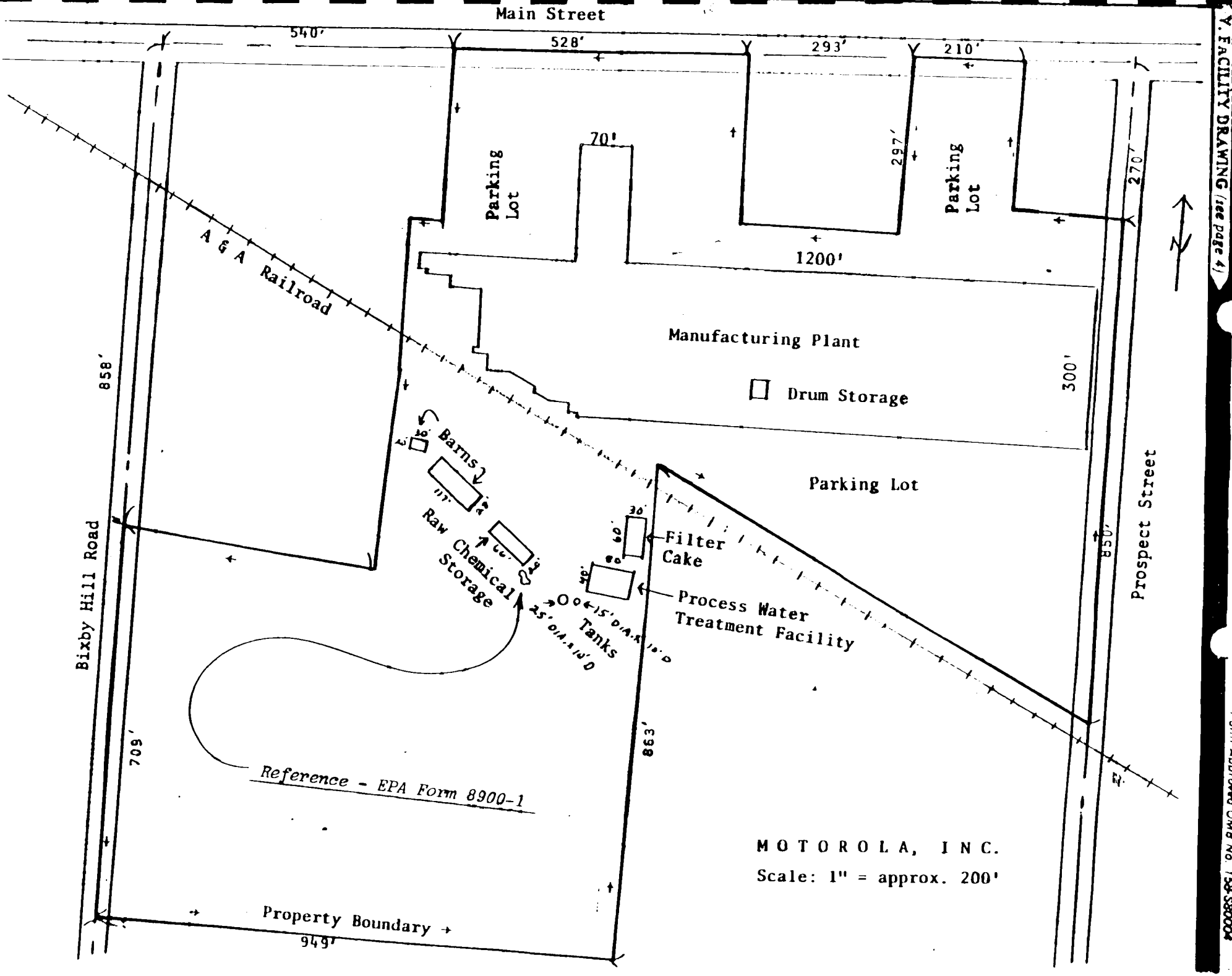
Signature Raymond A. Emery Date 6-1-81

Raymond A. Emery, Plant Manager

- ☑ Owner, Present
- ☐ Owner, Past
- ☐ Transporter
- ☐ Operator, Present
- ☐ Operator, Past
- ☐ Other

Continued from page 4.

V. FACILITY DRAWING (see page 4)



Form Approved OMB No. 158-S80004

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F N Y D 0 0 1 9 3 1 1 2 0

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X			D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to [illegible]		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: MOTOROLA INC

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
2 VOUGHT JOHN H FACILITY ENGINEER	716 492 1234

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 400 MAIN STREET

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 ARCADE	NY	14009

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 400 MAIN STREET

B. COUNTY NAME: WYOMING

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
6 ARCADE	NY	14009	WYO

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
3694 (specify) Electrical equipment for internal combustion engines	3621 (specify) Motors and generators
C. THIRD	**D. FOURTH**
3699 (specify) Electrical machinery, equipment, and supplies, not otherwise classified	3471 (specify) Electroplating

VIII. OPERATOR INFORMATION

A. NAME

MOTOROLA INC

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL; S = STATE; P = PRIVATE; M = PUBLIC (other than federal or state); O = OTHER (specify)

P

(specify)

D. PHONE (area code & no.)

A 716 492 1234

E. STREET OR P.O. BOX

00 MAIN STREET

F. CITY OR TOWN

ARCADE

G. STATE

NY

H. ZIP CODE

14009

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)

9 N NY 000 2267

B. PSD (Air Emissions from Proposed Sources)

9 P

C. UIC (Underground Injection of Fluids)

9 U

D. OTHER (specify)

9

(specify)

E. RCRA (Hazardous Wastes)

9 R

F. OTHER (specify)

9

(specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

F9:A/50

XII. NATURE OF BUSINESS (provide a brief description)

Motorola produces automobile and industrial electronic products, such as automobile charging systems, thick film voltage regulators, active and passive thick film networks, automotive and marine solid state ignition systems, automotive microprocessor engine management systems, proximity reluctance and ceramic sensor modules for automotive applications, electronic speedometers and odometers, feedback carburetor controls, ignition coils, and electronic engine governors. There are also metal fabricating processes ancillary to these products, such as zinc and aluminum die casting and finishing, screw machining, metal stamping and machining operations, coil winding, compression molding of plastics, and metal washing, electroplating, and phosphatizing operations.

F9:A/51

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Joseph C. Rygiel, Vice President and Director of Alternator Business	Joseph C. Rygiel	11-14-80

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch)

Form Approved OMB No. 158-S80004

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
F	N	Y	D	0	0	1	9	3	1	1	2	0	3	1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	76	03	26

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. **PROCESS CODE** – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. **PROCESS DESIGN CAPACITY** – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G	
X-2	T03	20	E	
1	T04	545,000 000	V	
2	T01	545,000 000	V	
3	T04	545,000 000	V	
4	T04	545,000 000	V	
5	T04	545,000 000	V	
6	T01	545,000 000	V	
7	T04	545,000 000	V	
8	T04	216 00 000	U	
9	T01	2632 00 000	U	
10	T01	108,800 000	V	

C DUP T/A C 1

Continued from the front.

III. PROCESSES (continued)

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES (code "T04"). FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

The hydrogen ion concentration of the applicable effluent streams is adjusted to an alkalinity which will effect the precipitation of the insoluble metal hydroxides (Line 1, T04, 545,000 liters/day). The effluent is subsequently accumulated (Line 2, T01, 545,000 liters/day), coagulated and agglomerated with organic and inorganic additives to enable clarification of the effluent stream(Line 3, T04, 545,000 liters/day), in preparation for a polishing filtration process (Line 4, T04, 545,000 liters/day). The resultant filtrate is neutralized (Line 5, T04, 545,000 liters/day), and accumulated for blending of the neutralizing compounds with the effluent stream (Line 6, T01, 545,000 liters/day, then discharged to a surface waterway (Line 7, T04, 545,000 liters/day). The resultant filter cake and sludges are dewatered with a filter press (Line 8, T04, 900 liters/hour). The objective of this treatment is to remove heavy metals and other contaminents, such as, but not limited to, oil and grease, suspended solids and surfactants, from a Point Source Discharge operating under and NPDES Permit No. NY 000 2267.

Also, cadmium and copper electroplated ware, emerging from cyanide-containing plating baths, is immersed in a chlorinated treatment wash (Line 9, T01, 6,800 liters/hour). The cyanide-contaminated treatment wash is allowed reaction time to complete the chemical destruction of cyanides (Line 10, T01, 108,800 liters/day). The objective of this treatment is to chemically destroy the cyanides used in electroplating processes, to prevent their release into the environment in the effluent streams described above.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER – Enter the four-digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four-digit number(s) from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non-listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV (shown in line numbers X-1, X-2, X-3, and X-4 below) – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				included with above

Continued from page 2

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1): W N Y D 0 0 1 9 3 1 1 2 0 T/A 3 C 1

FOR OFFICIAL USE ONLY: W DUP T/A 3 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	F001	14,720 000	K	S01	
2	F002				~~included with above~~
3	F003	4,876 000	K	S01	
4	F001				~~included with above~~
5	F005				~~included with above~~
6	F006	43,020 000	K	S03	
7	D006				~~included with above~~
8	D008				~~included with above~~
9	F006	173,368 000	K	S02	
10	D002				~~included with above~~
11	D006				included with above
12	D008				~~included with above~~
13	D001	6,814 000	K	S01	
14	D002	49,579 000	K	S01	
15	K062				~~included with above~~
16	D008	3,765 000	K	S01	
17	F002	44,408 000	K	S01	
18					
19					
20					
21					
22					
23					
24					
25					
26					

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

F6: A/55 F6: A/56

EPA I.D. NO. (enter from page 1)

F	N	Y	D	0	0	1	9	3	1	1	2	0	3	6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

VI. PHOTOGRAPHS

All existing facilities must include photographs (aerial or ground—level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LONGITUDE (degrees, minutes, & seconds)
42 31 54C	078 25 39C

VIII. FACILITY OWNER

[X] A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
Joseph C. Rygiel, Vice President & Director of Alternator Business	Joseph C. Rygiel	11-14-80

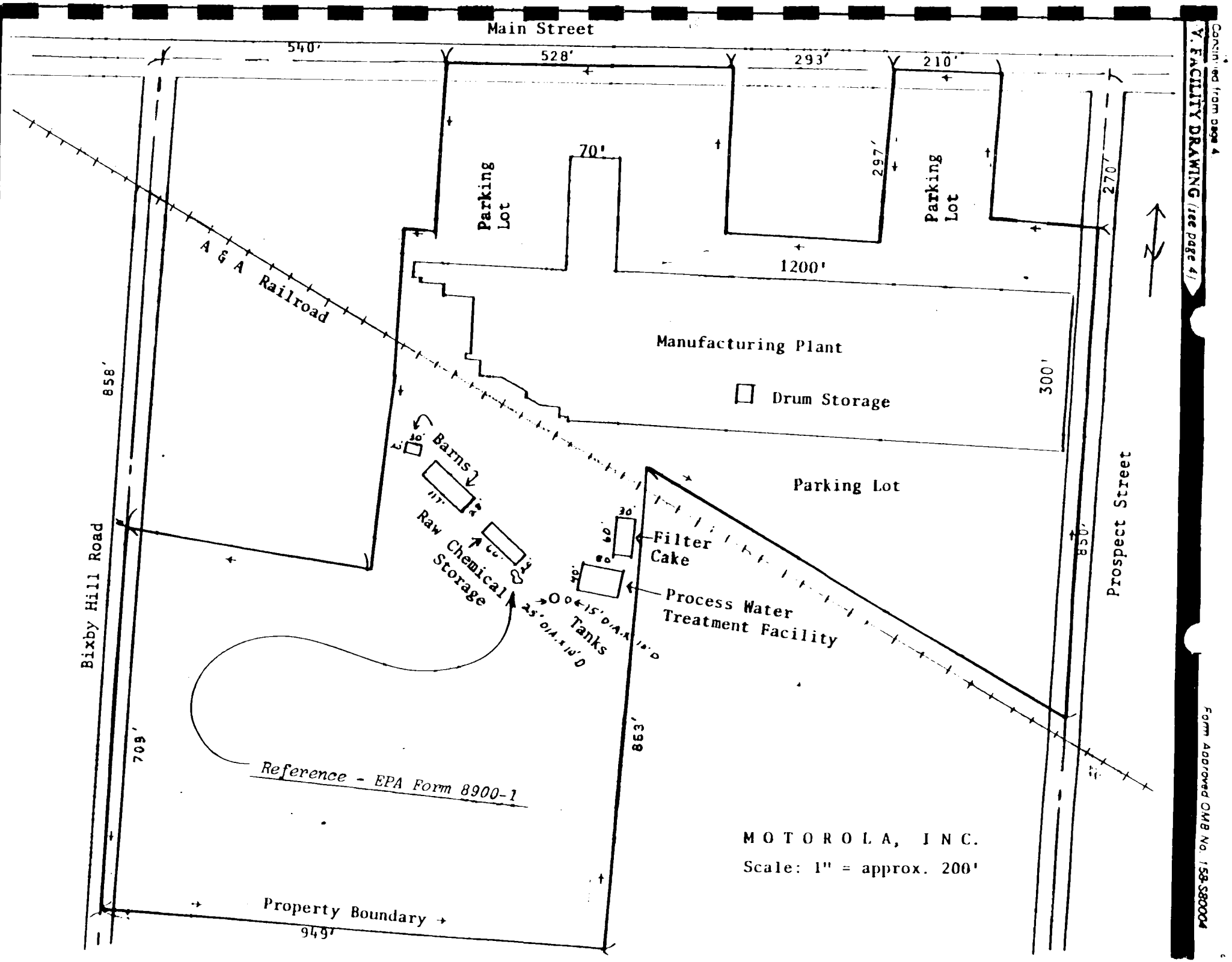
X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED

Continued from page 4

V. FACILITY DRAWING (see page 4)

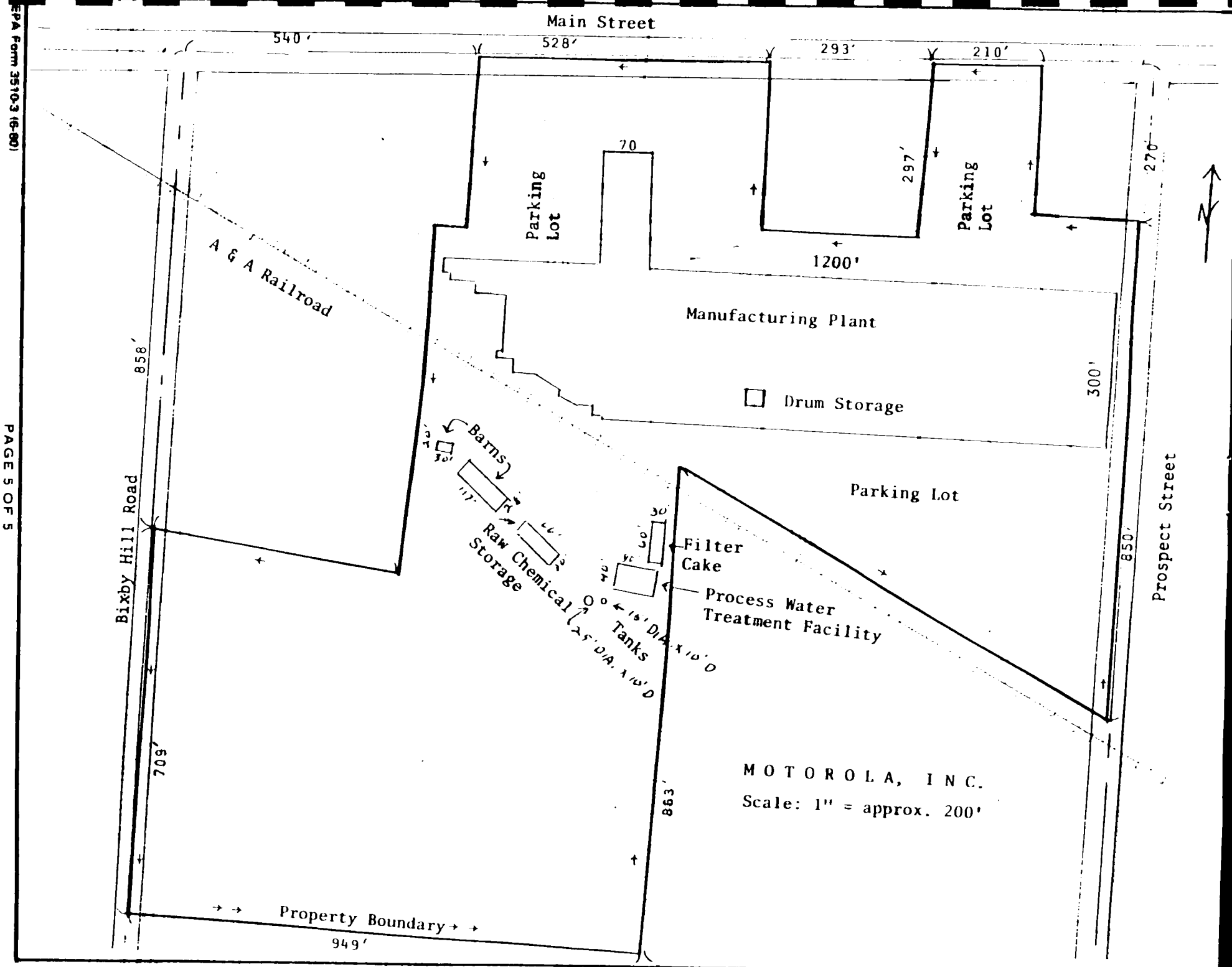


Form Approved OMB No. 158-S80004

Continued from page 4

V. FACILITY DRAWING (see page 4)

MOTOROLA INC NYD001931120



Form Approved OMB No. 158-S80004

New York State Atlas of Community Water System Sources 1982

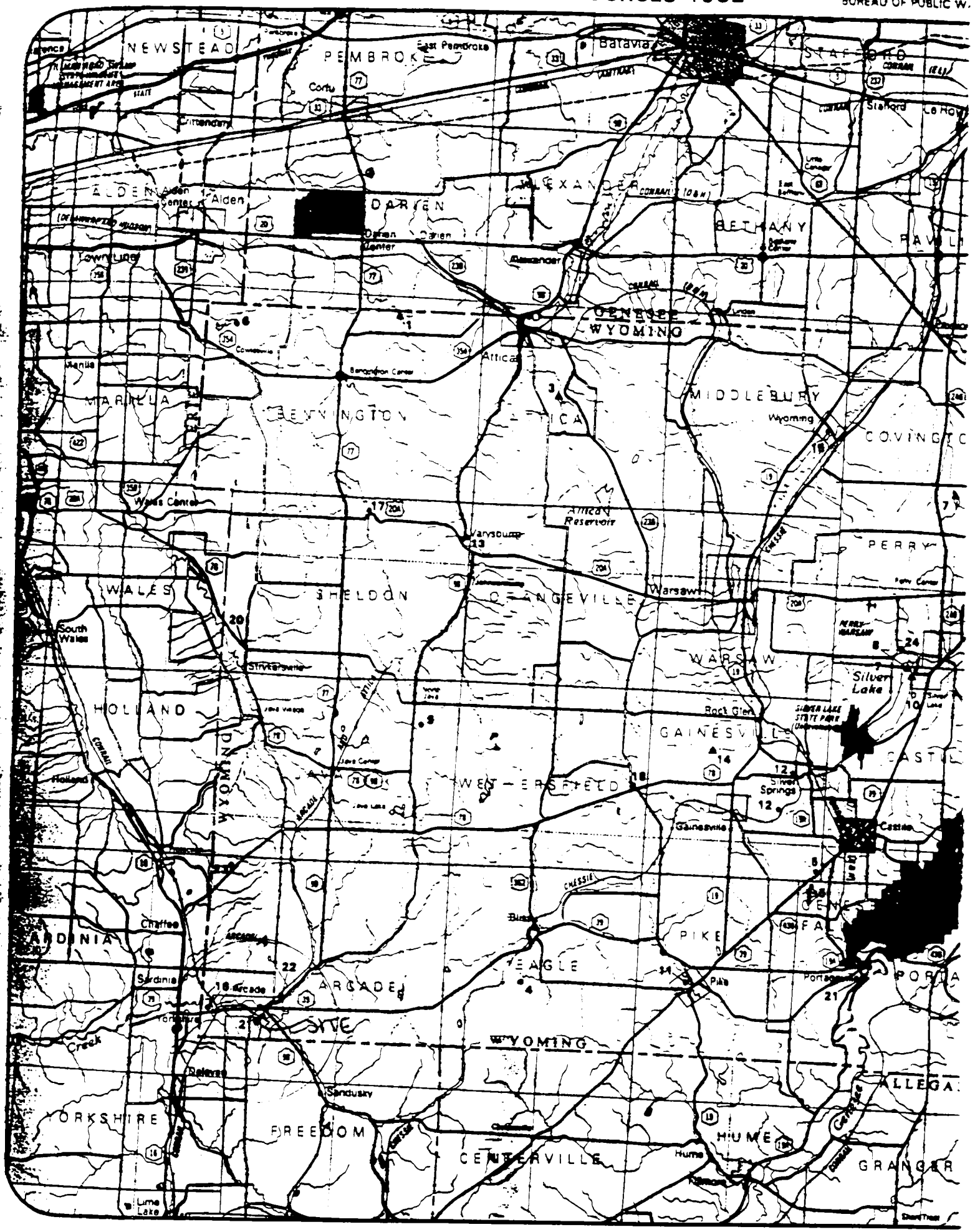
NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

WYOMING COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Akron Village (See Erie Co, Pg. 6).		Akron Reservoir
2	Arcade Village (See also NO 2 Cattaraugus Co, Page 4).	2052.	Wells
		2643.	Crow Creek Reservoir
3	Attica Village.	364.	Wells
4	Bliss Water Supply.	1135.	Wells
5	Castile Village.	91.	Wells
6	Highland Glens.		Lake LaGrange, Silver Lake
7	LeRoy Village (Genesee County Pg. 8).		Silver Lake
8	Mt. Morris Village (Livingston Co, Pg 10).	295.	Wells
9	North Java Water District.	3501.	Silver Lake
10	Perry Village.	367.	Wells
11	Pike Village Water Supply.	801.	Wells
12	Silver Springs Village.	310.	Wells
13	Varysburg Water District #1.	3594.	Oatka Creek
14	Warsaw Village.	507.	Wells
15	Wyoming Public Water Supply.		
Non-Municipal Community			
16	Birchwood Court.	80.	Wells
17	Buffalo Hill Trailer Park.	65.	Wells
18	Hermitage Meadows Mobile Home Park.	48.	Wells
19	Hilltop Acres Inc.	42.	Wells
20	Hogan's Apartments.	40.	Wells
21	Letchworth Court Mobile Home.	42.	Wells
22	Open Gate Trailer Court.	51.	Wells
23	Triton Valley Estates.	231.	Wells
24	West Lake Apartments.	35.	Wells

LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

NEW YORK STATE D
DIVISION OF ENVIRO
BUREAU OF PUBLIC W



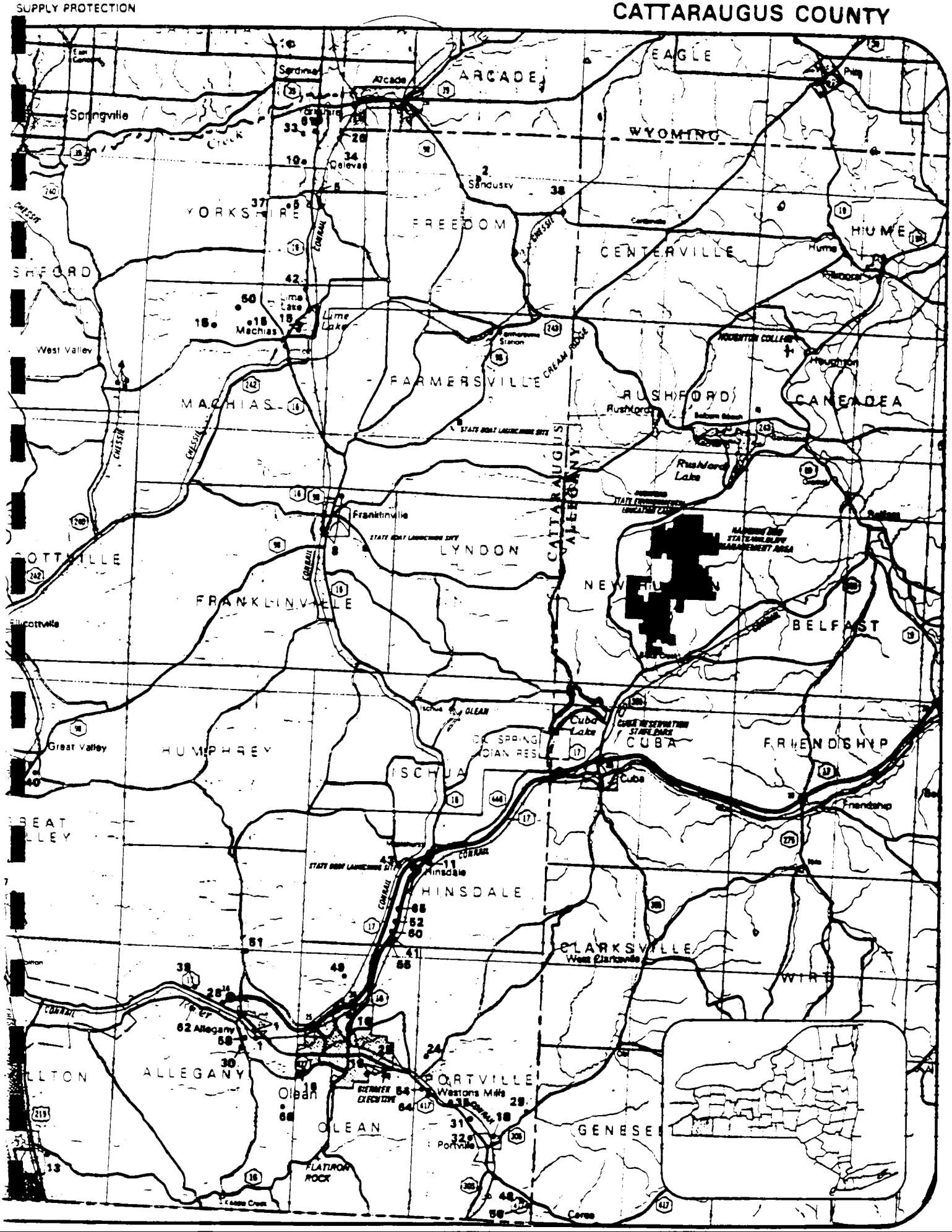
SCALE 1

CATTARAUGUS COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Allegany Village	2200	Wells
2	Arcade Village (Wyoming Co, Page 10)		Wells
3	Cattaraugus Village	1200	Wells (Springs)
4	Crystal Water Company (West Valley)	600	Wells
5	Delevan Village	1050	Wells (Springs)
6	East Randolph Village	1200	Wells
7	Ellicottville Village	1100	Wells
8	Franklinville Village	1900	Wells
9	Gowanda Village	3500	Point Peter Brook Reservoir, Wells
10	Grove Street Water Supply	70	Wells
11	Hinsdale Water District	350	Wells
12	Jimersontown Resettlement	250	Wells
13	Limestone Village	550	Wells
14	Little Valley Village	1700	Wells
15	Machias Water District	1000	Wells (Springs)
16	Olean City	18207	Olean Creek, Wells
17	Otto Water District	100	Wells
18	Portville Village	1300	Wells
19	Randolph Village	1500	Wells
20	Salamanca City	6890	Newton Run Reservoir, Wells
21	South Dayton Village	700	Wells
22	Steamburg Resettlement Area	200	Wells
Non-Municipal Community			
23	Allegany State Park	45	Wells
24	Barbers Trailer Ranch	50	Wells
25	Burton's Trailer Court	12	Wells
26	Charlie Browns Trailer Court	NA	Wells
27	Chase's Trailer Park	27	Wells
28	Colonial Village	NA	Wells
29	Country Corners Trailer Park	80	Wells
30	Country Squire Mobile Court	78	Wells
31	Deans Trailer Court	45	Wells
32	Deer Pen Mobile Home Park	24	Wells
33	Dumar Trailer Court	NA	Wells
34	Elliott's Apartments	NA	Wells
35	Five Acres Trailer Park	23	Wells
36	Forestry Camp 2	60	Wells
37	Foxfire Haven	35	Wells
38	Freedom Park	14	Wells
39	Giardini Mobile Court	NA	Wells
40	Green Valley Estates	NA	Wells
41	Happy Days Mobile Court	33	Wells
42	Highland Park Village	15	Wells
43	Hillview Village	150	Wells
44	Hoag's Mobile Manor Sec # 1	24	Wells
45	Hoag's Mobile Manor Sec # 2	30	Wells
46	Hoag's Mobile Manor Sec # 3	130	Wells
47	J.N. Adam Developmental Center	550	Wells
48	Jolee Mobile Home Court	40	Wells
49	Kent's Trailer Park	20	Wells
50	Lazy B Ranch	45	Wells
51	Longacres Mobile Court	36	Wells
52	Mac Haven Mobile Park	15	Wells
53	Muzi's Trailer Park	37	Wells
54	Pines Trailer Park	63	Wells
55	Pleasant Valley Mobile Court	36	Wells
56	Prosser Homes	36	Wells
57	Seneca Trailer Park	45	Wells
58	Sherwood Mobile Home Court	54	Wells
59	Siafakas Trailer Park	42	Wells
60	Sweet Mountain Trailer Park	39	Wells
61	Twin Lakes Mobile Homes	330	Wells
62	Valley View Estates	90	Wells
63	Weber's Mobile Home Court	45	Wells
64	White Birch Trailer Court	63	Wells
65	White Lantern Mobile Court	63	Wells
66	Woodlawn Mobile Home Court	25	Wells

MENT OF HEALTH
NTAL PROTECTION
SUPPLY PROTECTION

CATTARAUGUS COUNTY



02-8710-78

MOTOROLA, INC.

Lat: 42°31'58"N Long: 78°25'43"W

Data List of Dataset: NYSL Number of Records = 6

REC #	POP		HOUSE			DISTANCE	SEC
1		0		0		0.400000	
2		0		0	0.5	0.800000	
3		1794		598	1	1.60000	
4	1794	0	698	0	2	3.20000	
5	3931	2137	1478	780	3	4.80000	
6	4338	407	1602	124	4	6.40000	

PRELIMINARY ASSESSMENT
OFF SITE RECONNAISSANCE
INFORMATION REPORTING FORM

Date: Nov. 10, 1987

Site Name: Motorola, Inc. TDD: 02-8710-78

Site Address: 400 Main St.
Street, Box, etc.

Arcade
Town

Wyoming
County

New York
State

NUS Personnel:

Name	Discipline
Donna Restivo	Toxicologist
~~Gerry Gilliland~~ Bob Nyes DR 11/5/87	Geologist

Weather Conditions (clear, cloudy, rain, snow, etc.):
Partly Cloudy, 30-35°F

Estimated wind direction and wind speed: 5 mph Westerly

Estimated temperature: 30-35°F

Signature: Donna J. Restivo Date: 11/10/87

Countersigned: Robert G. Nyes Date: 11/10/87

PRELIMINARY ASSESSMENT

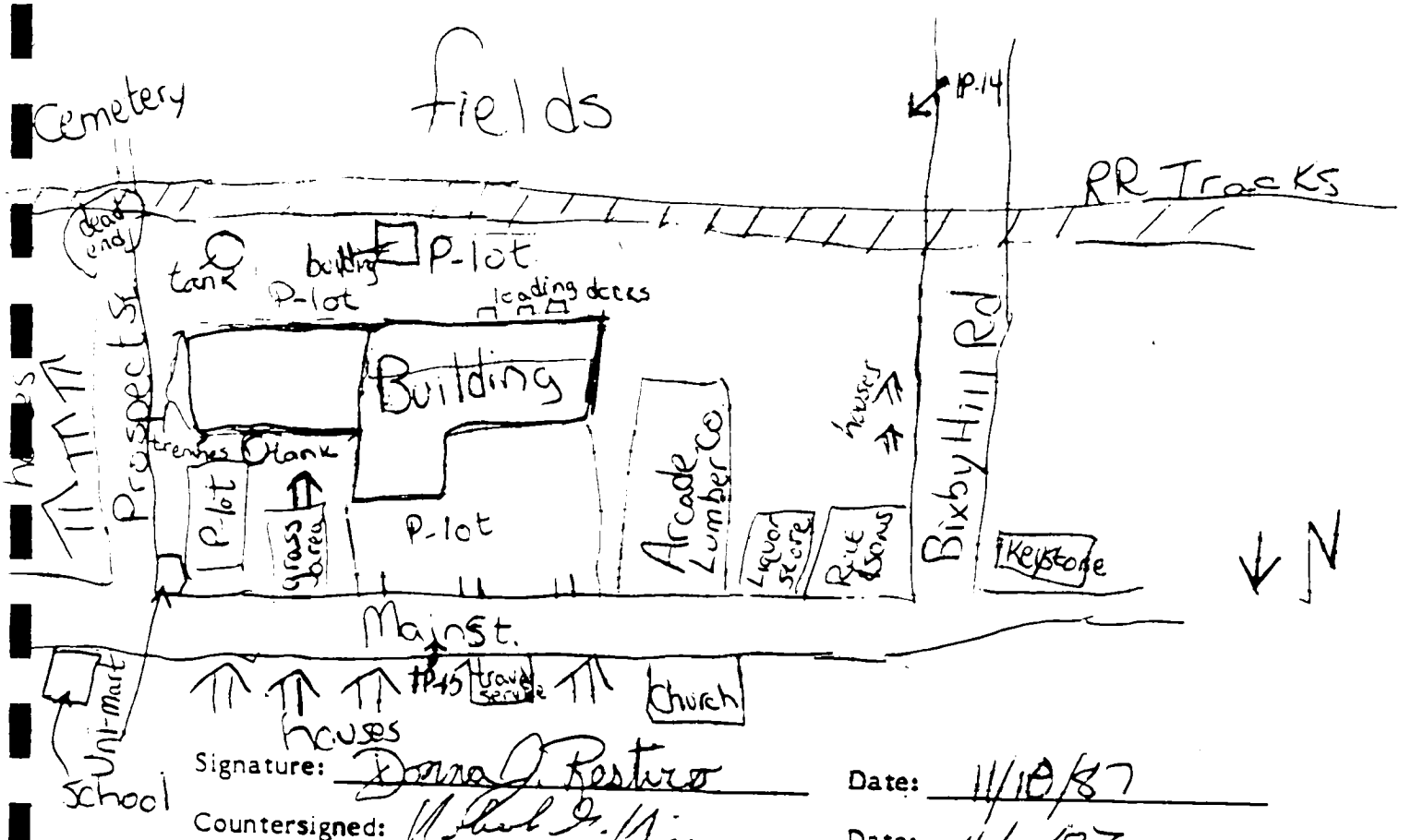
INFORMATION REPORTING FORM

Date: Nov. 10, 1987

Site Name: Motorola, Inc. TDD: 02-8710-78

Site Sketch:

Indicate relative landmark locations (streets, buildings, streams, etc.). Provide locations from which photos are taken.



Signature: Donna J. Restivo Date: 11/10/87

Countersigned: Michael G. Nix Date: 11/6/87

PRELIMINARY ASSESSMENT

INFORMATION REPORTING FORM

Date: Nov. 10, 1987

Site Name: Motorola, Inc. TDD: 02-8710-78

Notes (Periodically indicate time of entries in military time):

1325 Motorola appears to be mostly offices although in the rear is a warehouse-like building with loading docks. There are small trenches on both sides of the warehouse bldg.; the one in the back contained water, the other did not.
The area around Motorola is a mixed residential & commercial area. There is fields & a cemetery in the back. There are fire hydrants on the street.
1330 There is a water(?) tank behind the building & a compressor(?) tank in the front. The compressor tank had ice around it's pipes. The site is an active facility

Signature: Donna J. Restuccio Date: 11/10/87
Countersignature: Robert F. Mir Date: 11/10/87

PRELIMINARY ASSESSMENT

INFORMATION REPORTING FORM

Date: _____

Site Name: Motorola, Inc. TDD: 02-8710-78

Notes (Cont'd):

Attach additional sheets if necessary. Provide site name, TDD number, signature, and countersignature on each.

Signature: _____ Date: _____

Countersignature: _____ Date: _____

PRELIMINARY ASSESSMENT

INFORMATION REPORTING FORM

Date: Nov. 10, 1987

Site Name: Motorola, Inc. TDD: 02-8710-78

Photolog:

Frame/Photo Number	Date	Time	Photographer	Description
IP-14	11/10/87	1325	B. Nies	From Bixby Hill Rd. - Back of site
IP-15	11/10/87	1328	D. Restivo	Front of building

Attach additional sheets if necessary. Provide site name, TDD number, signature, and countersignature on each.

Signature: Donna J. Restivo Date: 11/10/87

Countersignature: Robert [illegible] Date: 11/10/87

MOTOROLA INC.
Automotive Products Division

RECEIVED 10/18

October 10, 1983

Mr. Conrad Simon
Director, Air & Waste Management Division
U. S. Environmental Protection Agency, Region II
26 Federal Plaza
New York, NY 10278

Re: Your Request for Information, Closure Plan - NYD 001931120

Dear Mr. Simon:

This letter is in reply to your recent Request for Information, addressed to my attention. I am enclosing a copy of Motorola's Closure Plans for our waste storage areas, as well as Closure Cost estimates, as they were previously filed with your office under our Corporate Financial Test Letter.

There was no "Certification of Answers to Request for Information" document enclosed with your letter. Consequently, in a telephone conversation inquiring about this omission, I was told by a Miss Harper, at (212)- 264-3408, to disregard that paragraph in your letter. Therefore, we ar not including that form with this letter.

We trust that this satisfies your needs. If there are any further questions about this matter, please call me at (716)-492-1234.

Sincerely yours,

John H. Vought, Facility Engineer

400 Main Street, Arcade, N.Y. 14009 (716) 492-1234

MOTOROLA INC. Automotive Products Division

CLOSURE PLAN - HAZARDOUS WASTE STORAGE AREA

DESCRIPTION

The design capacity for the Storage Area is one hundred twenty (120) 55 gallon drums. However, in the event of cessation of all manufacturing activities, it is anticipated that the collection of all in-plant satellite waste accumulations would temporarily exceed that quantity. Therefore, the closure plan encompasses the disposal of one hundred sixty (160) drums of possible waste material (two truckloads). The lack of available space effectively prevents the possibility of a major expansion of the facility at this location. The life of the Storage Area is estimated to be 50 years.

CLOSURE

After proper disposition of all containerized hazardous waste, the Storage Area would, upon closure, mainly require decontamination of the flooring to remove any hazardous residues remaining from spills or accidents within the facility. The area surrounding the facility is concrete. Therefore, no post closure further considerations in or around the facility should be needed.

MOTOROLA INC. Automotive Products Division

CLOSURE PLAN - FILTER CAKE STORAGE AREA

DESCRIPTION

The Filter Cake referred to is a waste product of the Process Water Treatment Facility, which treats Metal Finishing wastewaters by clarification and filtration, under NPDES Permit No. NY 0002267, issued jointly by Region II of the USEPA and the New York State Department of Environmental Conservation. The Permit expires April 1, 1987. The waste material is stored out of doors, in plastic containers, in an area adjacent to the Treatment Facility building. It is retained until sufficient quantity to warrant trucking to an approved secure landfill is accumulated. The design capacity is for an amount of containerized waste equivalent to one truckload (approx. 40,000 lbs.).

CLOSURE

After proper disposition of all containerized waste, the Storage Area would, upon closure, mainly require decontamination by means of removal of the top 12 inches of the fill material, and suitably disposing of that material in an approved secure landfill. Since the waste as it is generated is in a stable condition, no post closure further considerations in or around the area should be needed.

MOTOROLA INC. Automotive Products Division

CLOSURE COSTS - HAZARDOUS WASTE STORAGE AREAS

SUBPART A - IN-PLANT HAZARDOUS WASTE STORAGE AREA

100.1	Disposal of (2) truckloads (160 drums) of waste from HWSA, including transportation	$7,800
100.2	Cleanup and decontamination of HWSA	1,600

SUBPART B - PROCESS WATER TREATMENT FACILITY, FILTER CAKE STORAGE AREA

101.1	Disposal of (1) truckload (40,000 lb.) of containerized filter cake from FCSA	2,800
101.2	Handling (loading truck) for above	300
101.3	Transportation for above	1,200
101.4	Cleanup of FCSA	1,500
101.5	Disposal of rubble and fill from demolition	3,360
101.6	Transportation for above	1,100

SUBPART C - ADMINISTRATION AND PROFESSIONAL

	Arcade Plant Administration	2,400
102.1	Registered Professional Engineer - pre-planning, site work, and final approval	3,000
		$25,060
	20% contingency	5,012
	TOTAL	*$30,072*

DATE RETURNED _____ MOTOROLA INC.

REASON _____ ☐ ACKNOWLEDGEMENT SENT

INTERNAL CHECKLIST ID # NYD001931120

1. Interim Regulatory Requirements

Comp

A. (1) FORM 1 MISSING ☐

(2) FORM 3 MISSING ☐

B. POSTMARK after NOVEMBER 19, 1980 ☐ Valid ☐

C. (1) DATE of OPERATION MISSING ☐

(2) DATE of OPERATION after NOVEMBER 19, 1980 ☐

D. (1) NON-NOTIFIER ☐
(2) NOTIFIED after AUGUST 18, 1980 ☐ Valid ☐

E. (1) FORM 1, XIII B SIGNATURE MISSING ☐

(2) FORM 3, IX B SIGNATURE MISSING ☐

2. A. HANDLER ☐

B. NONREGULATED ☐

C. UNSURE ☐

D. UNKNOWN FACILITY (missing name and address on Form 3) ☐

E. NEW FACILITY > NOV. 19, 1980 ☐

F. CORE ITEM(S) MISSING ☐

G. NON-CORE ITEM(S) MISSING ☐

H. OTHER ☐

MISSING:

MAP ☐

DRAWING ☐

PHOTO ☐

ACK

MOTOROLA INC.
Automotive and Industrial
Electronics Group

July 6, 1984

Ernest A. Regna
Chief, Solid Waste Branch
Air and Waste Management Division
U.S. Environmental Protection Agency, Region II
26 Federal Plaza
New York, NY 10278

Re: Motorola, Inc.
EPA I.D. No. NYD001931120

Dear Mr. Regna:

With this letter we are enclosing a completely revised closure plan for our facility at 400 Main St., Arcade, NY 14009. We would like to thank you for the extension of time granted for us to fulfill these requirements.

Subject to comment

It is our intention to fully comply with all the requests in your letter dated May 15, 1984. Consequently, please do not hesitate to contact me at 716-492-1234 if there are any questions, or if we have inadvertently failed to address any of the issues involved. We trust this meets with your approval.

Sincerely yours,
MOTOROLA, INC.

John H. Vought
Facility Engineer

cc: Dr. Baker
R. Emery
G. Wallace

MOTOROLA INC.
Automotive and Industrial Electronics Group

CLOSURE PLAN

FACILITY EPA ID NO.:	NYD001931120
Owner/Operator:	Motorola, Inc.
Address & Phone:	400 Main St., Arcade, NY 14009 716-492-1234
Facility Address:	400 Main St., Arcade, NY 14009
Facility Operation:	Generator-Storage Facility
Facilty Contact:	John H. Vought, Facility Engineer

CLOSURE (GENERAL)

The purpose of maintaining a closure plan and a closure estimate is to ensure that, should operations cease at this facility, the facility will be closed in a manner that will minimize the need for further maintenance and eliminate the possibility of hazardous waste, hazardous constituents, leachate, contaminated rainfall, or waste decomposition products from post-closure escape into the ground water, surface water, or atmosphere. The plan will ensure that all steps have been taken to eliminate any significant threat arising from these wastes to human health or the environment.

Motorola, Inc. will maintain an on-site copy of the approved closure plan and all revisions to the plan until the Certification of Closure Completeness has been submitted and accepted by USEPA, Region II. Motorola, Inc. will notify the Regional Administrator at least 180 days prior to the date final closure is expected to begin. It is expected that the actual date of this occurence will not be before January 1, 2084. Closure will begin at a time not more than 30 days after the final acceptance of waste. Within 90 days after

the final acceptance of waste, all waste will be removed and disposed of according to accepted practices. All closure activities will be completed within six months of receiving the final volune of wastes, unless due to unusual contingencies, the United States Environmental Protection Agency's (USEPA) Regional Administrator (RA) approves a longer period. Closure will be completed, from the standpoint of the Technical Requirements, when the closure has been certified, in accordance with the closure plan, by a registered Professional Engineer (see section entitled Closure Certification). Should closure become imminent, the closure plan will be sent to the USEPA RA at least six ,onths before closing is initiated. The RA will modify, approve, or disapprove the plan within three months of it's receipt and provide this facility the opportunity to submit written comments. The expected scenario for closure would be as follows, once closure is anticipated:

1). Closure plan submitted to USEPA for review
2). USEPA approves plan: 3 months from date of #1
3). Final date wastes produced at facility: 6 months from date of #1
4). Final date for removal and disposal of wastes: 9 months from date of #1
5). Final date for decontamination of facility: 9 months from date of #1
6). Closure completion (as certified by registered Professional Engineer): 12 months from date of #1

Partial closure was not considered in this plan inasmuch as the provisions incorporated into the Federal Regulations were primarily intended for landfills and surface impoundments, in which portions of landfill sites are expected to be capped (closed) as they are filled, or impoundments are closed during the "normal course of operations". In addition, this closure plan does not include any on-site pre-treatment, inasmuch as all wastes will be removed and disposed of. If any of the assumptions about the conditions of the facility, or any facility procedures change, which change could impact the closure plan, the plan and estimates will be revised to reflect those assumptions and procedures.

ESTIMATE OF MAXIMUM EXTENT OF OPERATIONS

Maximum closure inventory is a hypothetical inventory incorporating the maximum amount of waste in storage at any time in the life of the facilty, including all inventory that will presumably accumulate during normal conditions. The plan and estimate does not, however, include provisions for highly unusual conditions. If unusual circumstances are encountered which cause the actual operations to exceed the maximum expected extent of operations, the plan will be re-examined to see if the estimates should be increased, or if not, that the change in conditions was caused by an unlikely contingency, and this fact will be justified to the USEPA RA, without revision to the plan and estimate.

The manufacturing facility is approximately 350,000 ft^2, with the waste handling and storage areas approximately 2,600 ft^2 in size (see Attachment A). The waste storage areas consist of (1) drum storage area of 800 ft^2, in the factory proper, and (1) outdoor containerized waste storage area for filter cake, which is 1,800 ft^2 in size. The wastes are primarily electroplating process wastes, halogenated solvent wastes, and lesser quantities of assorted other wastes, as are enumerated in our August 1, 1980 application for Interim Status, and the accompanying Attachment B, "Estimate of Wastes on Hand at Closure".

The methodology used to obtain the hypothetical figure explained above was to select the highest inventory of each waste stream over the last twelve months, since this would most accurately reflect the current level in our manufacturing operations at any one time, as evidenced by our manifested waste shipments from this site. See Attachment B.

DISPOSAL OF WASTES

As previously stated, all wastes will be removed and disposed of within three months from the initiation of closure. In addition to the maximum amount of wastes held in drums and other containers, all affected facility equipment (pumps, tanks, hoses, tools, etc.) will be decontaminated by removing all hazardous waste and residues (cleaning wastes will be retained and containerized for disposal), or the equipment and appurtenances themselves will be physically removed and disposed of as hazardous waste. This would include concrete flooring in the factory drum storage area, if testing proves it necessary, and any soil which might be found contaminated in the filter cake storage area. Prior to removing soil, a limited number of soil analyses would be made to determine the extent of soil contamination, if any. These tests (EP Toxicity, metals, or organics, as determined by the Professional Engineer) are included in the plan, as well as, for the sake of worst case conditions, the physical removal of some soil to an acceptable secure landfill site. The volume of soil to be disposed of is determined by the potential surface area affected, and the depth of the contamination. The total volume is then expressed as cubic yards, and for cost purposes, as tons. No consideration will be given at the time of closure, to building a landfill on-site to dispose of wastes.

CLOSURE CERTIFICATION

Two certifications will be provided as a final step in the technical closure requirements. First, Motorola, Inc. will certify that closure of this facility has been done in accordance with this closure plan. Additionally, an independant Professional Engineer will certify that closure has been done, to the best of his knowledge, in accordance with the specifications of the approved closure plan. It is estimated that the selected Professional Engineer will make bi-weekly inspections during closure, and additionally, be on site during any critical periods of closure.

CLOSURE ESTIMATE

The goal of the closure cost estimate is to ensure that if at any time, this facility had to begin closure for reasons unrelated to a catastrophe at the site, the costs of the closure would not exceed the cost estimate. The estimate does not have the kind of detail and accuracy appropriate to a contractor preparing a bid for a job, inasmuch as this closure is for a hypothetical task that is to take place in the rather distant future.

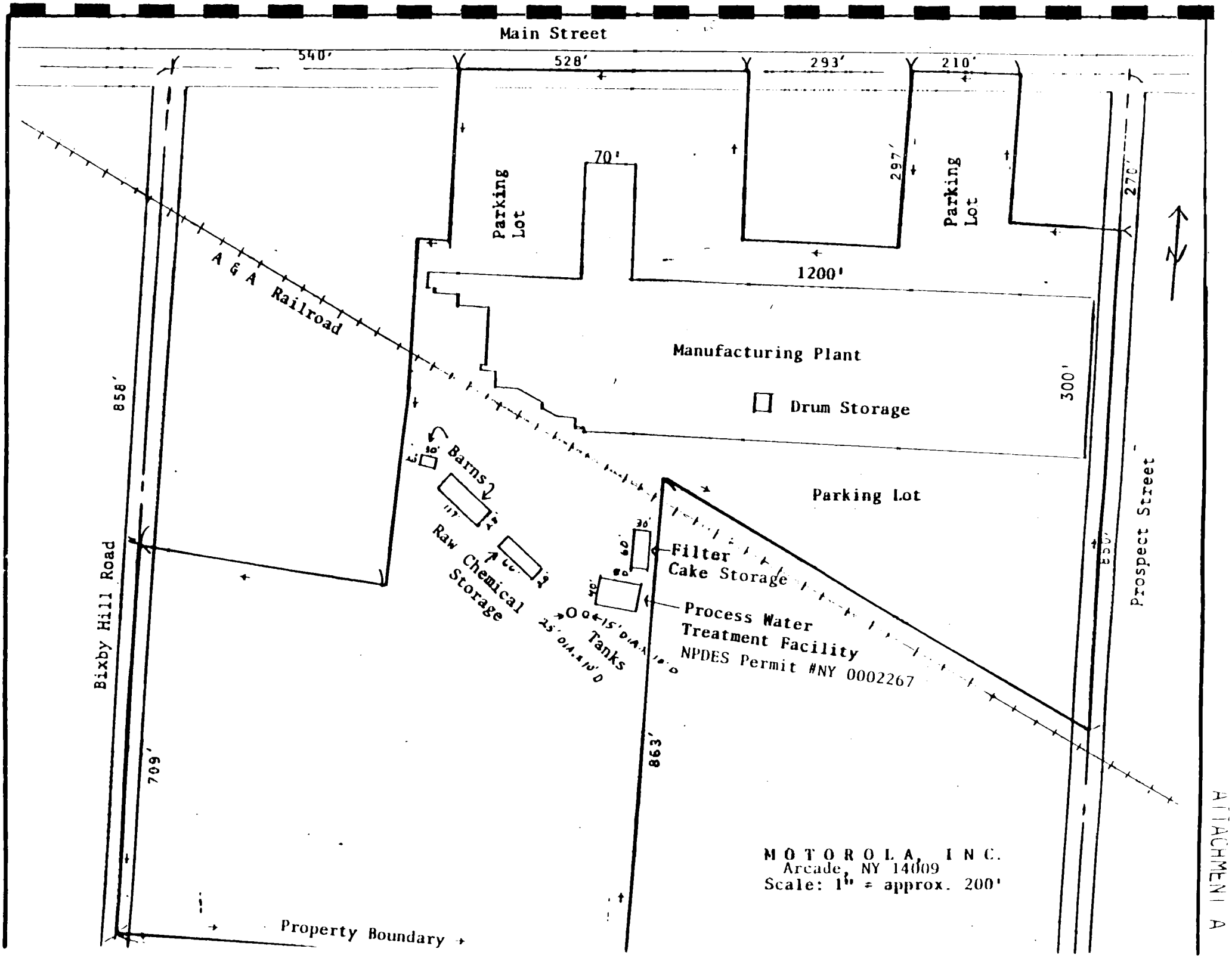
With regard to rendering the facility "non-hazardous", estimates are of primarily two types - the costs for decontamination of equipment, and those for removal of wastes, contaminated materials, and waste cleaning fluids and residues. Costs for decontamination of equipment are based on the knowledge and experience of this facility's Facility Engineer. Costs for disposal of wastes (including contaminated equipment, cleaning fluids, and residues) are based on the prevailing disposal costs experienced in the present day-to-day operations. Estimates for contaminated soil are based on prevailing charges per ton to a secure landfill.

The estimates for the Professional Engineer's certification are based on six months of service, with visits approximately twice a month, and an additional four visits during critical periods, with each inspection lasting four hours, plus travel time. Inasmuch as all wastes will be removed and the facility completely decontaminated, the inspection services are not expected to be needed subsequent to completion of closure.

The estimate contains a contingency factor to account for unforeseen events that might increase costs. Utilizing the standard engineering contingency range of 15-25%, the middle limit of 20% was utilized, for complete coverage.

Revisions will be made to the cost estimate whenever changes are made in the closure plan, if required. As an example, if the closure plan estimate of waste inventory is exceeded during normal operation, the plan will be revised, as well as the estimate. In addition, assuming that hazardous waste disposal/contamination cost increases are consistent with overall inflation, the closure cost estimate will be updated annually by utilizing an inflation factor which is calculated by dividing the latest published annual Deflator by the Deflator for the previous year, utilizing annual data.

Prepared by: John H. Vought, Facility Engineer
Motorola, Inc. 400 Main St., Arcade, NY 14009
July 5, 1984


Main Street
540'
528'
293'
210'
70'
297'
270'
Parking Lot
Parking Lot
1200'
A G A Railroad
Manufacturing Plant
Drum Storage
300'
858'
Barns
Parking Lot
Raw Chemical Storage
Tanks
Filter Cake Storage
Process Water Treatment Facility
NPDES Permit #NY 0002267
Bixby Hill Road
Prospect Street
709'
863'
Property Boundary
MOTOROLA, INC.
Arcade, NY 14009
Scale: 1" = approx. 200'
N
ATTACHMENT A

ESTIMATED WASTE ON HAND AT CLOSURE

WASTE DESCRIPTION	NO. OF DRUMS	EPA WASTE NO.	DISPOSAL COST	ITEM TOTAL	
1,1,1-trichloroethane	2	F002	$ 24	$ 48	
1,1,1-trichloroethane (non-recoverable)	2	F002	83	166	
Trichloroethylene	2	F001	30	60	
Acetone	2	F003	30	60	
Spent hydrochloric acid	2	D002	41	82	
Waste alkaline liquid (sodium hydroxide)	12	D002	40	480	
Waste alkaline liquid sludge (sodium hydroxide)	2	D002	83	166	
Halogenated solvents (Freons)	17	F002	83	1411	
Flux & thinner (isopropyl alcohol)	5	D001	70	350	
Isopropyl alcohol	1	D001	43	43	
Flux sludge (Still bottoms)	2	F002	83	166	
Methylene chloride	10	F002	83	830	
	59 Drums			$3862	Drum Total Cost
Filter cake	15 tons	F006		3100	
				$6962	Grand Total

ATTACHMENT B

SCHEDULE FOR FINAL CLOSURE

HAZARDOUS WASTE STORAGE AREA (HWSA) - FILTER CAKE STORAGE AREA (FCSA)

Activity	Days																	
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1. Receive approval of closure plan	XXXX																	
2. Collect & process all drummed waste in facilty		XXXX																
3. Manifest drums to TSDF		XXXX																
4. Dismantle & decontaminate HWSA			XXXX															
5. Analyze washwater for toxics & organics				XXXX	XXXX													
6. If high, repeat decontamination & re-analyze						XXXX	XXXX											
7. Process all remaining wastewater				XXXX	XXXX													
8. Manifest (1) truckload of filter cake to TSDF					XXXX													
9. Sample & test soil at FCSA for EP Toxicity, organics						XX	XXXX	XX										
10. Excavate soil								XXX	XXXX									
11. Manifest soil to TSDF (secure landfill)										XXXX								
12. Repeat Item 9											XXXX	XXXX						
13. Replace excavated soil with hard fill, level to grade													XXXX					
14. Submit certification to Regional Administrator														XXXX	XXXX			

FINAL CLOSURE COST ESTIMATE

ATTACHMENT 3

ITEM		COST
1. Final Inventory Disposal of Drummed Waste (Attachment B)[1]		3,860
2. Dismantling & Decontamination of HWSA		
Wastewater analysis (floor wash and rinsate)	300	
Wastewater disposal (approx. 200 gal.)[1]	160	
Labor & miscellaneous - dismantle fence, decontaminate floor (48 man hours)	960	
		1,420
3. Disposal of 1 Truckload (40,000 lb.) of		
Bagged Filter Cake from FCSA[2]	2,800	
Handling (loading truck) for above	300	
		3,100
4. Soil Analysis & Disposal - FCSA		
(8) tests for EP Toxicity (4 initial, 4 final), at $250 each	2,000	
Test for organics, at discretion of P.E.	2,000	
Excavate FCSA (30 x 60 x 1' deep = 67 yd^3), load dirt into dump trailer for disposal	1,500	
Disposal of excavated dirt (63T x $60/T)[2]	3,780	
Transportation to secure landfill[2]	700	
Replace excavated soil with hard fill & level grade - labor & material	400	
		10,380

1 - Removed by truck to Frontier Chemical Waste Process, Inc., Niagara Falls, New York, distance of 65 miles .

2 - Removed by truck to Cecos International, Niagara Falls, New York, distance of 65 miles.

5. Final Closure Certification		
Professional Engineer - 16 site visits @ $475 each		7,600
		26,360 Sub Total
6. Plant Management & Administration		4,000
		30,360
	20% contingency	6,070
		$36,430

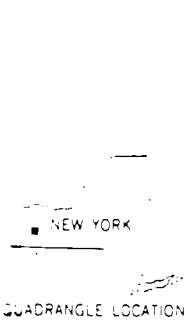
REFERENCE NO. 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ARCADE QUADRANGLE
NEW YORK
7.5 MINUTE SERIES (TOPOGRAPHIC)

ROAD CLASSIFICATION

Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
State Route

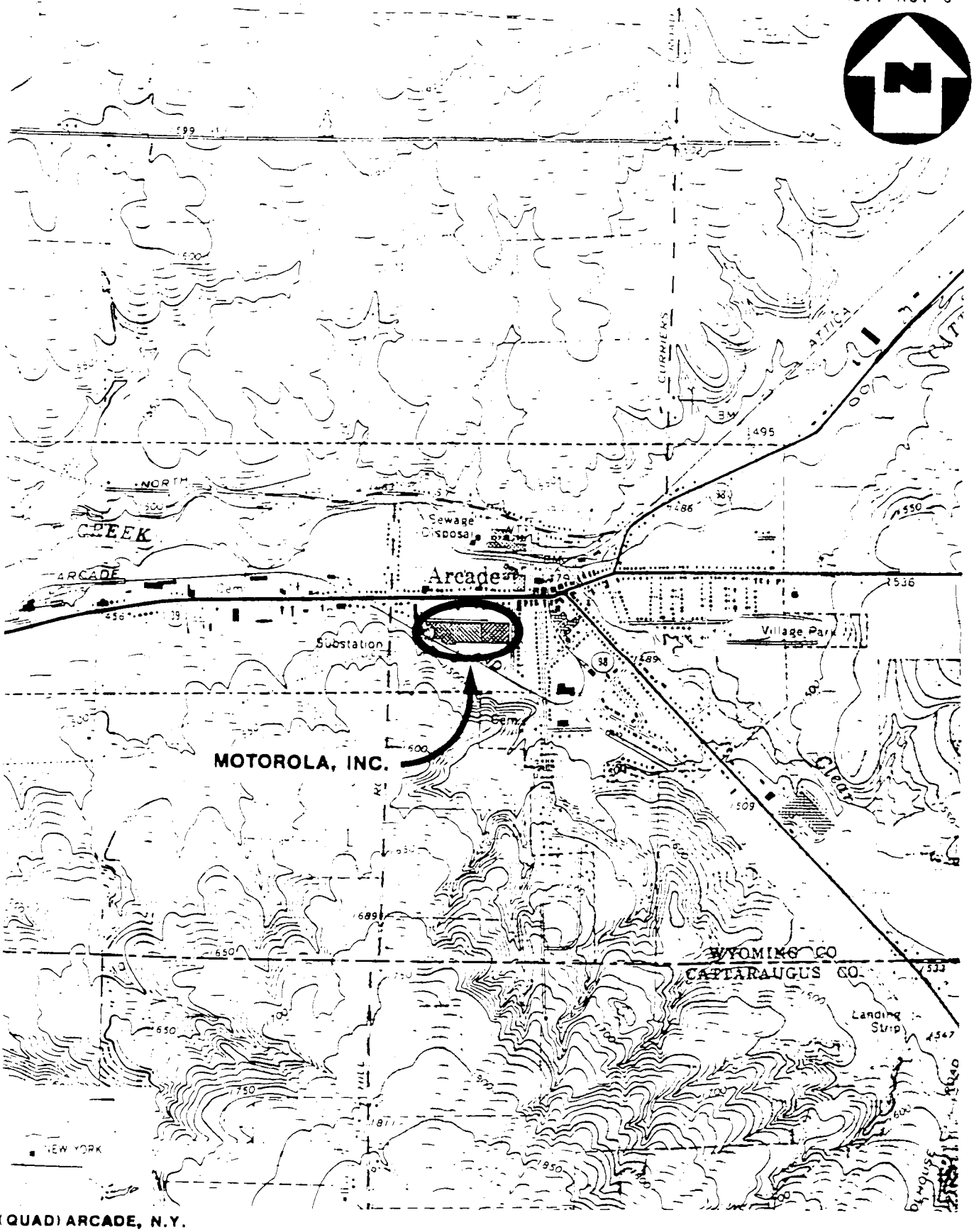


QUADRANGLE LOCATION

ARCADE, N. Y.

N4230—W7822.5/7.5

1966
PHOTOREVISED 1979
AMS 5369 III SW—SERIES V821



(QUAD) ARCADE, N.Y.

SITE LOCATION MAP
MOTOROLA, INC., ARCADE, N.Y.

SCALE: 1" = 2000'

FIGURE 1

NUS CORPORATION

REFERENCE NO. 4

NUS CORPORATION

TELECON NOTE

CONTROL NO.	DATE:	TIME:
	12/3/87	0905

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Nelson Schnabel	NYSDEC-Region 9	(716)847-4600

AND:
Gerald V. Gilliland (NUS)

DISCUSSION:

Nelson Schnabel told me that the Attica Correctional Facility is a RCRA facility under EPA ID# NYD074037193. They notified on 12/8/80 and their Part A was received on 3/28/81.

He said that Motorola, Inc. in Arcade, NY is a RCRA facility under EPA ID# NYD001931120. They notified on 8/11/80 and their Part A was received on 11/19/80. Motorola just recently closed out their ~~#6~~ 4/6 long-term storage area in which they were storing wastes for more than 90 days. He knows of no dumping of wastes on the site.

ACTION ITEMS:

NUS 061 REVISED 0581

REFERENCE NO. 5

TELECON N

CONTROL NO 02-[illegible] DATE 12/2/87 TIME 915

DISTRIBUTION

BETWEEN Larry Killburn OF Arcade Village Offices PHONE (716) 492-111

AND Donna Restivo

DISCUSSION:

I asked Mr. Killburn about well use in the area and he said the Village of Arcade is on 2 community wells in the village. These wells also serve from Arcade South to Sandusky. The Town of Arcade, outside the village, is all on private wells and you would have to count houses to get a number of people on the wells. 12/2

ACTION ITEMS:

NUS 087 REVISED 0581

REFERENCE NO. 6

NUS CORPORATION

TELECON NOTE

CONTROL NO.	DATE:	TIME:
02-8710-78	12/3/87	1645 EST

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Larry Groves - Water Commissioner	Yorkshire Township, NY	(716) 492-2642

AND: Gerald V. Gilliland (NUS)

DISCUSSION:

Mr. Groves said a community water well exists in the hamlet of Yorkshire. It is less than 3 years old. It serves 200 families in Yorkshire.

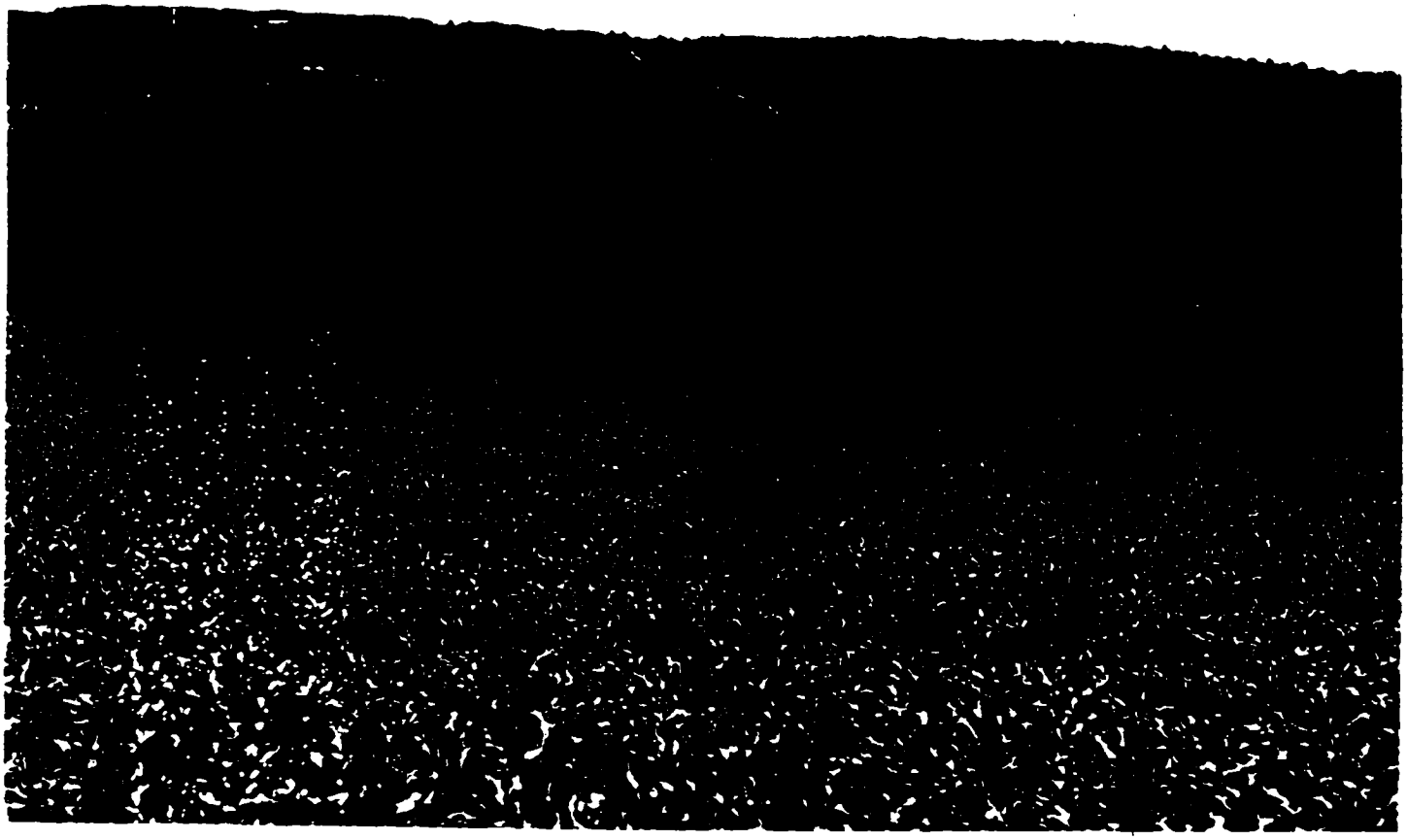
ACTION ITEMS:

NUS 067 REVISED 0581

REFERENCE NO. 7

SOIL SURVEY OF

Wyoming County, New York



United States Department of Agriculture
Soil Conservation Service
In cooperation with
Cornell University
Agricultural Experiment Station

Issued April 1974

(Joins sheet 37)

Included with this soil in mapping were spots of Alden, Appleton, Dalton, Ellery, and Lyons soils. Areas of Alden soils that have a mucky surface layer are indicated on the soil map by the symbol for wet spot or drainageways. Drier Appleton soils were included in mapping in the northern part of the county along with similar, but finer textured, Lyons soils. Also included were somewhat poorly drained Dalton soils in adjacent areas to the south. Ellery soils are similar, but they are finer textured and have a fragipan.

Undrained areas of Sun soils are suited mainly to pasture or trees. If adequately drained and properly managed, this soil is suited to most crops commonly grown in the county, including cash crops. This soil is well suited to pond sites and wildlife marshes. Capability unit IVw-2; woodland suitability group 4w2.

Teel Series

The Teel series is made up of deep, moderately well drained to somewhat poorly drained, medium-textured soils that are slightly acid to neutral. These nearly level soils are along the large meandering creeks and rivers in the northern half of the county. They formed in alluvium.

In a representative profile the surface layer is very dark grayish-brown silt loam 10 inches thick. The subsoil is friable silt loam that is neutral in reaction and that extends from a depth of 10 down to 38 inches. The upper part, from a depth of 10 down to 18 inches, is dark grayish-brown. The middle part, from a depth of 18 down to 24 inches, is brown to dark brown with grayish-brown mottles. The lower part, from a depth of 24 down to 38 inches, is grayish brown with faint and distinct mottles. The substratum, to a depth of 60 inches or more, is friable, dark grayish-brown silt loam that is faintly mottled and neutral.

Teel soils are subject to annual flooding and remain under water from 2 to 4 days in places. The water table is governed by the water level of the adjacent stream and persists at a depth of 18 to 24 inches for significant periods. During the growing season, rooting depth extends to a depth of 30 inches or more in places. Permeability is moderate in the root zone. Available water capacity is high. Reserves of nitrogen, phosphorus, and potassium are medium. Lime needs are low. These soils respond well to management and are easy to manage. Seasonal wetness and the hazard of flooding are the main limitations to use.

Representative profile of Teel silt loam in a cultivated field in the town of Middlebury, three-tenths mile east of junction of School Road and State Route 19, 40 feet south of School Road:

Ap—0 to 10 inches, very dark grayish-brown (10YR 3/2) silt loam, gray to light gray (10YR 6/1) when dry; moderate, medium, granular structure; friable; many roots; slightly acid; abrupt, smooth boundary.

B21—10 to 18 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, subangular blocky structure; friable; common fine and medium roots; many fine pores; neutral; gradual, smooth boundary.

B22—18 to 24 inches, brown to dark-brown (10YR 4/3) silt loam; common, medium, faint, grayish-brown (10YR 5/2) mottles; weak, medium, subangular blocky structure; friable; common roots; many fine pores; neutral; clear, smooth boundary.

B3—24 to 38 inches, grayish-brown (10YR 5/2) silt loam; common, fine, faint, yellowish-brown (10YR 5/4) and distinct brown (7.5YR 5/4) mottles; very weak, coarse, prismatic structure; friable; few roots in upper part; many fine pores; neutral; gradual, smooth boundary.

C—38 to 60 inches, dark grayish-brown (10YR 4/2) silt loam; common, medium, faint, dark yellowish-brown (10YR 4/4) mottles; massive; friable; common fine pores; neutral.

The solum ranges from 24 to 40 inches in thickness. Carbonates are at a depth of more than 40 inches. Bedrock is at a depth of more than 6 feet. The solum ranges from slightly acid to neutral in the upper part and from neutral to mildly alkaline in the lower part. It is dominantly silt loam but ranges to fine sandy loam. Coarse fragments generally are absent. The solum has a hue of 7.5YR to 2.5Y, a value of 3 to 5, and a chroma of 2 or 3.

The B horizon has very weak to moderate subangular blocky or prismatic structure.

The C horizon is similar to the B horizon in texture. Distinct mottles are in this horizon. It generally is massive or has platy structure. Reaction ranges from neutral to mildly alkaline.

Teel soils are closely associated on flood plains with well drained Hamlin soils and the wetter Wallkill and Wayland soils. They are also near shaly, well drained to moderately well drained Herkimer soils on adjacent alluvial fans.

Teel silt loam (Te).—This is the only Teel soil mapped in the county. It is nearly level and is on the flood plains of the larger streams. Individual areas occupy narrow strips within the flood plains and generally are 10 to 50 acres in size. It is subject to annual flooding, generally early in spring.

Included with this soil in mapping were areas of Hamlin, Herkimer, and Wayland soils. Hamlin soils were on thicker and slightly elevated deposits near the stream. Wetter Wayland soils were in depressions and low areas along the flood plain, and they receive seepage water from higher adjacent soils. Also included, along the fringe areas of Herkimer fans, were some areas of Teel soils that have coarse fragments in the substratum. Areas of soils that are slightly wetter than this one were also included.

This Teel soil is very well suited to crops because it is easy to cultivate and is free of stones. It is used mainly for cash crops and crops used in support of dairying. Natural fertility is high. Periodic flooding and a seasonal high water table are the major limitations to use. Where artificial drainage is needed, outlets are difficult to establish. Streambank erosion is a hazard in some areas. This soil is an excellent source of topsoil. Capability unit IIw-4; woodland suitability group 2o3.

Tioga Series

The Tioga series is made up of deep, well-drained, medium-textured soils that formed in alluvium. These nearly level soils are on flood plains along the larger tributary streams in the narrower valley areas. Reaction in these soils is dominantly medium acid.

In a representative profile the surface layer is very dark grayish-brown silt loam 9 inches thick. The subsoil, to a depth of 24 inches, is brown, friable, medium acid silt loam. The upper part of the substratum, from a depth of 24 down to 42 inches, is dark grayish-brown, friable, slightly acid silt loam. It has some mottling. Between depths of 42 and 50 inches or more, the lower part of the

substratum is grayish-brown very gravelly loamy sand that is slightly acid.

Tioga soils are subject to occasional flooding. The water table generally is at a depth of more than 2 feet, except during periods of flooding. It is governed by the water level of the adjacent streams. Rooting depth generally is unrestricted. Available water capacity is high. Permeability is moderate in the silty part and rapid in the underlying sand and gravel. Natural fertility is medium. These soils respond well to good management. Flooding is the main limitation for farming, but it rarely occurs during the growing season.

Representative profile of Tioga silt loam in a cultivated area 1½ miles southeast of village of Arcade, 100 feet north of Bray Road, 500 feet east of its junction with State Route 98:

Ap—0 to 9 inches, very dark grayish-brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) crushed and dry; moderate, medium, granular structure; friable; many fine roots; medium acid; clear, smooth boundary.

B—9 to 24 inches, brown (10YR 4/3) silt loam; weak, fine, subangular blocky structure; friable; common fine roots; many fine roots; medium acid; clear, smooth boundary.

C1—24 to 42 inches, dark grayish-brown (10YR 4/2) silt loam; few, medium, distinct, yellowish-brown (10YR 5/4) and dark yellowish-brown (10YR 4/4) mottles; massive; friable; few fine roots; porous; slightly acid; clear, wavy boundary.

IIC2—42 to 50 inches, grayish-brown (10YR 5/2) very gravelly loamy sand; single grain; loose; stratified; slightly acid.

The solum ranges from 15 to 30 inches in thickness. Gravelly layers are at a depth of more than 40 inches. Coarse fragments are lacking or few between depths of 10 to 40 inches. The solum is strongly acid or medium acid in the upper 20 inches and is slightly acid or neutral at a depth of less than 40 inches.

The Ap horizon has a hue of 10YR to 2.5Y, a value of 3 to 5, and a chroma of 2 or 3.

The B horizon has a hue of 2.5Y to 7.5YR, a value of 4 or 5, and a chroma of 2 to 4. This horizon lacks mottles to a depth of 30 inches. It is silt loam, fine sandy loam, or loam and has very weak to weak, blocky or moderate, granular structure. Consistence is very friable to friable.

Tioga soils are similar to and near Allard soils, which are on higher stream terraces that do not flood. They lack the sandy or gravelly C horizon within a depth of 20 to 40 inches of the surface that is characteristic of Allard soils. These soils are similar to Hamlin soils but are more acid in the upper 20 inches. They are commonly near wetter Papakating and Wayland soils on flood plains.

Tioga silt loam (Tg).—This is the only Tioga soil mapped in the county. It is nearly level and is on flood plains adjacent to streams in the southern part of the county. These streams drain the more acid uplands of the plateau. Individual areas range from 20 to 50 acres or more in size.

Included with this soil in mapping were small areas of similar, but moderately well drained, soils along outer margins of the flood plain. Also included were many spots where stratified sand and gravel is within a depth of 20 to 40 inches.

Most areas of this Tioga soil are cleared and farmed at a rather high level of intensity. Potatoes, corn, grain, and hay are the main crops. This soil has no surface stones, so tillage and harvesting operations are not restricted. Streambank erosion is a hazard in places. Capability unit I–2; woodland suitability group 2o3.

Tuller Series

The Tuller series is made up of shallow, somewhat poorly drained and poorly drained, medium-textured soils. These soils are strongly acid. They formed in mixed sandstone and shale till. They are nearly level to gently sloping and are on uplands associated with Arnot and Lordstown soils, mainly in an area extending from the central through the northern and northwestern parts of the county.

In a representative profile the surface layer is very dark grayish-brown channery silt loam 8 inches thick. The subsurface layer is 2 inches of distinctly mottled, light brownish-gray channery silt loam. The subsoil, from a depth of 10 down to 17 inches, is friable, distinctly mottled, dark grayish-brown very channery silt loam. The surface and subsurface layers and the subsoil are strongly acid. Hard, grayish-brown sandstone bedrock is at a depth of 17 inches.

Tuller soils have a seasonally high water table. The rooting depth is confined to the 10 to 20 inches above the bedrock. The plow layer is porous but contains many flat stone fragments that interfere with tillage operations in places. Available water capacity generally is low to very low but varies with the depth to bedrock. Permeability is moderate in the soil mantle. Lime needs are high for most crops. Natural fertility is low to medium.

Representative profile of Tuller channery silt loam, 3 to 8 percent slopes, in a cultivated field in the town of Bennington, 2½ miles southeast of village of Bennington, near junction of Hoover and French Roads:

Ap—0 to 8 inches, very dark grayish-brown (10YR 3/2) channery silt loam; moderate, medium, granular structure; friable; many fine roots; 30 percent coarse fragments; strongly acid; abrupt, smooth boundary.

A2g—8 to 10 inches, light brownish-gray (10YR 6/2) channery silt loam; many, fine, distinct, yellowish-brown (10YR 5/6) mottles; weak, fine, subangular blocky structure; friable; common fine roots; 35 percent coarse fragments; strongly acid; clear, wavy boundary.

B2g—10 to 17 inches, dark grayish-brown (2.5Y 4/2) very channery silt loam; many, medium, distinct, light brownish gray (10YR 6/2) and yellowish-brown (10YR 5/8) mottles; weak, medium, subangular blocky structure; firm; few fine roots; 40 to 45 percent coarse fragments; strongly acid; abrupt, smooth boundary.

R—17 inches +, hard grayish-brown sandstone.

The solum thickness ranges from 10 to 20 inches and corresponds with the depth to bedrock. The content of coarse fragments, mainly flat sandstone, ranges from 35 to 50 percent. The solum ranges from very strongly acid to strongly acid. It has a hue of 10YR or 2.5Y.

The Ap horizon has a value of 3 or 4 and a chroma of 2 or 3.

The A2 horizon, if present, has a chroma of 2 or less and a value of mainly 6. Mottles are few to many and distinct. The A2 horizon is loam or silt loam.

The B horizon has a value of 4 or 5 and a chroma of 2 or 3. Ped faces have a chroma of 2 or less. Mottles are few to many and distinct. This horizon has weak to moderate subangular blocky to weak prismatic structure. It is loam or silt loam.

The underlying bedrock is mainly fractured sandstone that is commonly interbedded with shale.

Tuller soils are commonly associated with the moderately well drained to well drained, shallow Arnot soils and the moderately deep, well drained Lordstown soils that formed in similar material. Tuller soils are also near Ellery, Erie, and Volusia soils. These soils are deeper than Tuller soils, and they have a fragipan, which is lacking in Tuller soils.

Tuller channery silt loam, 0 to 3 percent slopes (TuA).—This soil has a profile similar to that described as representative for the series, but runoff generally is slower,

matter. Keeping tillage to a minimum also helps to preserve soil structure.

CAPABILITY UNIT I-2

This unit consists of deep, well-drained, nearly level, medium-textured soils on flood plains. These soils are in the Hamlin and Tioga series. They are free of stone fragments.

Permeability in these soils is moderate in the root zone, which generally is unrestricted. The available water capacity is high. Hamlin soils are slightly acid to neutral in the surface layer, and Tioga soils are strongly acid to medium acid. These soils are subject to flooding, but they rarely are flooded during the growing season. The most serious hazard of flooding is in the Oatka and Tonawanda Valleys.

The soils in this unit are easy to work and can be tilled early in spring. They are well suited to all crops grown in the county, including vegetables. They are well suited to deep-rooted crops. Generally, these soils are more suitable for intertilled crops than for pasture. They respond well to good management and are among the most productive soils in the county. They are suited to irrigation because of nearness to a source of water, depth, and permeability. Irrigation water can be applied at a moderate rate. Moderate amounts of lime and some phosphorus and potassium are needed on Tioga soils for good crop response.

Row crops can be grown for several years if the content of organic matter is maintained and if soil structure is preserved. Minimum tillage coupled with annual use of crop residue and cover crops or occasionally growing a sod crop helps to maintain the content of organic matter and preserve soil structure.

CAPABILITY UNIT IIe-1

This unit consists of deep, generally well-drained, gently sloping, medium-lime to low-lime soils in the Herkimer, Lansing, and Madrid series. All the soils are well drained, except for Herkimer soils, which are well drained to moderately well drained. Few to moderate amounts of pebbles and shale fragments are on the surface of these soils.

Permeability in the root zone, which extends to a depth of 24 to 30 inches or more, is moderate to moderately rapid in the Herkimer soils, and moderate in the Madrid and Lansing soils. The available water capacity is moderate to high. Natural fertility is medium to high in the Herkimer and Lansing soils and low in the Madrid soils. The hazard of erosion is slight to moderate.

The soils in this unit are well suited to most forage and field crops commonly grown in the county. They are among the better suited soils for farming. They are easy to till and can be used for all kinds of crops. Forage mixtures with deep-rooted legumes grow very well. Vegetables can also be grown, but stoniness interferes with the operation of some machinery in places. Crops respond to applications of lime and fertilizer. Applications should be based on crop needs.

The soils in this unit should not be continuously cultivated to row crops; however, they can be cultivated frequently if erosion is controlled. Contour stripcropping, grassed waterways, and other measures are needed to help control erosion if row crops are grown on long or steep slopes. Diversions can be constructed on long slopes if the soils are used intensively for row crops. Crops that provide a cover in winter help to maintain a good soil structure. Keeping tillage to a minimum on short, complex slopes and using crop residue with no-plow tillage help to control erosion. The supply of water for irrigation is limited in places, but these soils take in water at a moderate to rapid rate.

CAPABILITY UNIT IIe-2

This unit consists of deep and moderately deep, generally well-drained, gently sloping, medium-textured, low lime to very low lime soils. These soils are in the Bath, Lordstown, Manlius, and Valois series. All the soils are well drained, except for the Manlius soils, which are well drained to excessively drained. These soils have moderate amounts of gravelly, shaly, and channery fragments on the surface.

Bedrock is at a depth of 20 to 40 inches in the Lordstown and Manlius soils, and this is generally the range of depth of root penetration in the soils of this unit. Premeability in these soils is mainly moderate, but it ranges to moderately rapid in the Valois soils. The available water capacity is moderate to low. The hazard of erosion is moderate.

The soils in this unit are well suited to crops commonly grown in the county, but the restricted root zone hinders crop growth in places. Lime is needed for most crops, especially legumes. Crops respond well to applications of fertilizer. Fragments on the surface of these soils interfere with the operation of precision machinery needed for cultivation of fine-seeded crops, but transplanted crops grow well.

These soils should not be continuously cultivated, and, unless measures to control erosion are used, sod-based cropping systems are needed. Contour tillage, contour stripcropping, and the use of diversions to break long slopes help to control erosion and loss of water. Measures are needed to increase infiltration, mainly during the growing season. Crops that provide winter cover are helpful. Keeping tillage to a minimum and using crop residue help to control erosion.

CAPABILITY UNIT IIe-3

This unit consists of deep, well-drained, gently sloping, medium-textured soils. These soils are in the Allard and Arkport series.

Permeability generally is moderate to rapid in the root zone, which extends to a depth of 24 inches or more. Available water capacity is moderate to high in the Allard soils and moderate to low in the more sandy Arkport soils. All soils in this unit are very erodible. Natural fertility is low to medium. The content of organic matter is low.

The soils in this unit are well suited to crops and pasture. These relatively stone-free soils are well suited to vegetable crops. In nonirrigated areas deep-rooted crops grown in a cropping system are better suited than other crops. In places shallow-rooted crops need supplemental irrigation. Slopes limit use of precision machinery in some areas. These acid soils need lime and fertilizer if they are used for crops. Applications of lime and fertilizer should be based on crop needs, as indicated by tests.

If these soils are cultivated, measures are needed that help to control erosion. Contour tillage and contour stripcropping are effective, but terraces can be constructed if the soils are used intensively. Keeping the areas protected most of the time helps to control soil blowing and water erosion. Returning crop residue to the soil, growing sod crops in a cropping system, and growing crops that provide winter cover are ways to maintain desirable soil struc-

REFERENCE NO. 8

SURVEY OF SELECTED ORGANIC COMPOUNDS IN AQUIFERS OF NEW YORK STATE EXCLUDING LONG ISLAND

By Roy A. Schroeder and Deborah S. Snavely

U.S. GEOLOGICAL SURVEY

Water Resources Investigations 81-47

Prepared in cooperation with the

NEW YORK STATE DEPARTMENT OF HEALTH

Albany, New York

1981

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:

U.S. Geological Survey
P.O. Box 1350
Albany, New York 12201
(518) 472-3107

CONTENTS

TABLES

TABLES (continued)

ILLUSTRATION

CONVERSION FACTORS AND ABBREVIATIONS

The following factors may be used to convert inch-pound units of measurement to the International System of Units.

Multiply	by	To obtain
inch (in)	2.540	centimeter (cm)
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609	kilometer (km)
degree Fahrenheit (°F)	5/9(°F-32)	degree Celsius (°C)

Abbreviations used in the text of this report include:

mg/L, milligrams per liter
µg/L, micrograms per liter
mL, milliliter
µL, microliter
µg, micrograms

Table 8.--Description of site locations (Continued)

Site 30

Well owner: Village of Cuba, Allegany County

Date sampled: November 15, 1978

Owner's well identification: Bicentennial Well (new well)

Well location: 42°12'55" N lat.; 78°16'22" W long.

Quadarangle: Cuba, N.Y.

Well data:
Construction: drilled in 1978
Depth: about 70 ft
Finish: screened in sand and gravel

Site-selection criteria:
To compare the organic content of this water to that from the wells in the fertilizer processing plant area (sites 27 and 28).

Remarks: Village owns two other drilled wells in sand and gravel.

Reference: Frimpter (1974).

Site 31

Well owner: Village of Arcade, Wyoming County

Date sampled: November 16, 1978

Owner's well identification: Church Street Well

U.S. Geological Survey number: 232-825-1

Well location: 42°32'06" N lat.; 78°25'30" W long., about 150 ft south of Cattaraugus Creek

Quadrangle: Arcade, N.Y.

Well data:
Construction: drilled in 1953
Depth: 53 ft
Casing: 12-in., 10-in., and 8-in. diameter casing to a depth of 44 ft
Finish: 10-in. diameter, 100-slot screen from 44 to 49 ft and packed in sand and gravel

Site-selection criteria:
To determine the quality of water infiltrated from Cattaraugus Creek.

Table 8.--Description of site locations (Continued)

Site 31 (cont.)

Remarks: Aquifer is in hydraulic contact with Cattaraugus Creek. The Village owns three other wells in the same aquifer.

Reference: La Sala (1968).

Site 32

Well owner: Village of Springville, Erie County

Date sampled: November 16, 1978

Date resampled: March 9, 1979 (nonvolatiles only)

Owner's well number: 2

U.S. Geological Survey number: 230-840-3

Well location: 42°30'54" N lat.; 78°40'14" W long., about 100 ft north of unnamed stream

Quadrangle: Springville, N.Y.

Well data:
Construciton: drilled in 1942
Depth: 159 ft
Casing: 18-in. and 10-in. in diameter
Finish: screened with 10-in. diameter, 100-slot from 144 to 149 ft, 80-slot from 149 to 159 ft and packed in sand and gravel

Site-selection criteria:
To compare the organic content of this water with water from a site to the greater Buffalo area (site 33) and a site further away from Buffalo (site 31).

Remarks: Aquifer is in hydraulic contact with the stream. Village owns another well in the same aquifer.

Reference: La Sala (1968).

Site 33

Well owner: Village of North Collins, Erie County

Date sampled: November 16, 1978

Owner's well number: 4

Table 2.--Results of gas chromatograph/mass spectrometer analysis for

	Group 1 (trihaloforms)				Group 2 (saturated halocarbons)							Group 3 (unsaturated halocarbons)			
Well site	Chloroform	Dichlorobromomethane	Chlorodibromomethane	Bromoform	Methylene chloride	1,1,1-Trichloroethane	Carbon tetrachloride	Trichlorofluoromethane	1,1-Dichloroethane	1,1,2,2-Tetrachloroethane	1,2-Dichloropropane	1,1-Dichloroethylene	1,2-trans-Dichloroethylene	Trichloroethylene	Tetrachloroethylene
27B	--	--	--	--	2.3	--	--	--	--	--	--	--	--	2.1	--
28	--	--	--	--	4.0	--	--	1.5	3.9	--	--	--	--	--	--
28	--	--	--	--	13	--	--	--	9.5	--	--	--	--	--	--
29	--	--	--	--	5.2	--	--	--	--	--	--	--	--	--	--
30	--	--	--	--	8.8	--	--	--	--	--	--	--	--	--	--
31	--	--	--	--	5.0	--	--	--	--	--	--	--	--	--	--
32	--	--	--	--	5.1	--	--	0.4	--	--	--	--	--	--	--
33	--	--	--	--	1.8	--	--	--	--	--	--	--	--	--	--
34	--	--	--	--	27	--	--	5.1	--	--	--	--	--	--	--
35	--	--	--	--	16	14	0.9	--	4.5	--	--	--	8.7	11	--
36	--	--	--	--	27	1.3	--	--	--	--	--	--	--	--	--
37	--	--	--	--	34	1.0	--	4.4	--	--	--	--	1.6	--	--
38	--	--	--	--	29	--	--	3.8	--	--	--	--	--	--	--
39	--	--	--	--	12	--	--	2.8	--	--	--	--	--	--	--
40	--	--	--	--	31	--	1.0	1.7	--	--	--	--	--	--	--
41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
41	--	--	--	--	0.7	--	--	--	--	--	--	--	--	--	--
42	--	--	--	--	1.7	--	--	--	--	--	--	--	--	--	--
43	--	--	--	--	1.8	--	--	--	--	--	--	--	--	--	--
44	--	--	--	--	1.0	--	--	--	--	--	--	--	--	--	--
45	--	--	--	--	2.5	--	--	4.2	--	--	--	--	--	--	--
46	--	--	--	--	12	--	--	0.4	--	--	--	--	--	--	--
46	--	--	--	--	24	--	--	4.1	--	--	--	--	--	--	--
47	5.5	3.5	--	--	0.5	--	--	--	--	--	--	--	--	--	--
48	0.5	--	--	--	--	0.1	--	1.2	--	--	0.4	--	--	--	--
32	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
32	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
40	--	--	--	--	2	--	--	--	--	--	--	--	--	--	0.6
37	0.8	0.9	--	--	--	0.6	--	--	--	--	--	--	--	--	--
35	12	7.8	13	2.9	53	18	3.6	--	--	--	--	--	--	16	3.0
13C	1.7	--	--	--	320	--	--	--	--	--	--	--	--	2.1	1.0
13E	1.5	--	--	--	210	--	--	--	--	--	--	--	--	0.7	0.2
49	18	--	--	--	29	--	--	--	--	--	--	1.3	--	13	--

* Indicates volatile fraction not analyzed.

priority pollutants in New York State ground-water samples, 1978-79 (continued)

	Group 4 (benzenes)			Group 5 (phenols)		Group 6 (phthalates)						Group 7 (PAH)			
Well site	Benzene	Toluene	Ethylbenzene	Phenol	2,4,6-Trichlorophenol	Dimethyl phthalate	Diethyl phthalate	Dibutyl phthalate	Dioctyl phthalate	Butylbenzyl phthalate	bis(2-Ethylhexyl) phthalate	Anthracene/phenanthrene	Pyrene	Fluorene	Fluoranthene
27B	--	10	--	--	--	--	--	0.3	--	--	3.4	0.3	--	--	--
28	0.7	6.6	4.4	--	--	--	--	0.2	--	0.1	2.8	0.1	--	--	--
28	--	5.0	--	--	--	--	--	0.2	--	--	12	0.1	--	--	--
29	--	4.4	--	--	--	--	0.3	0.4	--	2.6	56	0.1	--	--	--
30	--	7.2	--	--	--	--	1.2	--	--	0.9	6.7	0.1	--	--	--
31	--	7.2	--	--	--	--	0.7	0.8	--	--	5.3	0.2	--	--	--
32	--	2.8	--	--	--	--	1.2	0.9	8.0	38	170	0.1	--	--	--
33	--	10	--	--	--	--	0.9	14	0.2	--	3.0	0.1	--	--	--
34	--	3.5	--	--	--	--	1.4	470	1600	15000	--	21	--	--	--
35	--	15	--	0.2	--	4.1	--	4.2	--	--	1.9	2.3	0.1	--	0.3
36	--	0.6	--	--	--	1.1	--	0.8	1.7	1.5	20	0.4	--	--	--
37	--	0.8	--	--	--	1.1	--	1.6	0.4	--	4.6	0.4	--	--	--
38	--	0.6	--	0.2	--	0.8	--	1.0	0.2	--	9.1	0.3	--	--	--
39	--	1.2	--	--	--	1.2	--	1.0	--	0.3	2.0	0.4	--	--	--
40	--	0.3	--	0.05	--	0.4	--	1.0	--	--	3.5	0.2	--	--	--
41	--	0.8	--	--	--	--	--	1.2	--	--	0.7	--	--	--	--
41	0.2	0.6	--	--	--	--	--	0.4	--	--	1.4	--	--	--	--
42	--	0.8	0.1	--	--	--	--	2.3	--	--	0.8	--	--	--	--
43	0.5	0.6	--	--	--	--	--	--	--	--	2.0	--	--	--	--
44	--	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--
45	0.1	0.6	0.04	--	--	--	0.3	1.9	--	--	--	--	--	--	--
46	3.9	2.8	--	--	--	--	--	0.98	--	1.5	0.64	--	--	--	--
46	1.5	7.3	0.1	--	--	--	--	0.5	--	--	5.1	--	--	--	--
47	--	1.6	--	0.05	--	--	--	1.2	--	4.5	7.2	0.2	--	--	--
48	--	--	--	--	--	--	--	0.2	--	--	5.5	--	--	--	--
32	*	*	*	--	--	--	1.2	2.3	--	0.2	4.3	1.4	--	--	--
32	*	*	*	--	--	--	2.0	1.5	--	0.2	3.1	1.1	--	--	--
34	*	*	*	--	--	--	1.9	2.4	--	0.4	3.2	0.2	--	--	--
40	--	--	--	**	**	**	**	**	**	**	**	**	**	**	**
37	--	--	--	**	**	**	**	**	**	**	**	**	**	**	**
35	--	--	--	**	**	**	**	**	**	**	**	**	**	**	**
13C	1.5	7.4	0.7	**	**	**	**	**	**	**	**	**	**	**	**
13E	0.6	3.1	--	**	**	**	**	**	**	**	**	**	**	**	**
49	2.6	6.6	0.3	--	--	--	0.2	0.1	--	0.1	5.9	0.2	--	--	--

** Indicates extractable fraction not analyzed.

REFERENCE NO. 9

EPA Notification of Hazardous Waste Site

United States Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

810609

NYS 000 001 217

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Motorola, Inc.
Street: 400 Main Street
City: Arcade, State: NY Zip Code: 14009

B Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Motorola, Inc.
Street: 400 Main Street
City: Arcade County: Wyoming State: NY Zip Code: 14009

NYD001931120

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Vought, John H., Facility Engineer
Phone: 716-492-1234

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1971 To (Year): March, 1976

E Waste Type: Choose the option you prefer to complete

Option I: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____
_____
_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____
_____
_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

F006		

Form Approved
OMB No. 2000-0138
EPA Form 8900-1

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☑ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet 810 C

gallons _____

Total Facility Area

square feet 3450 S

acres _____

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☑ Likely ☐ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

See attached Plot Plan

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

(This material was sludge which was periodically collected from a settling basin through which the general effluent from Motorola's metal finishing operations flowed, prior to the installation of Motorola's Process Water Treatment Facilities, pursuant to the conditions of our NPDES Permit No NY 000 2267, originally dated May 1, 1974. As a part of our construction plans, approximately 30 yd^3. of earth and sludge were excavated from the area and disposed of in a manner approved by the New York State Department of Environmental Conservation. This took place on March 26, 1976. As a result of that building program, the area where the material had been deposited has been filled in, graded, and seeded with grass.)

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name Motorola, Inc.

Street 400 Main Street

City Arcade, State NY Zip Code 14009

Signature Raymond A. Emery Date 6-2-81

Raymond A. Emery, Plant Manager

☑ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

REFERENCE NO. 10

15 (12/75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Peter Buechi
FROM: Thomas Christoffel
SUBJECT: Motorola Sites in the Southern Tier

DATE: September 2, 1982

Wastes were hauled from the Motorola facility in Arcade, New York, to the locations listed below. Included in these wastes were varnishes, fluxes, flux thinners, isopropyl alcohol, hydrochloric acid, phosphoric acid, toluene, xylene, trichloroethane, trichloroethylene, freon, epoxies and cutting oils. These materials are listed in literature as being mildly to moderately toxic.

The following is the list of known disposal sites for the industrial waste from Motorola in Arcade:

Previty Auto Wrecking, Galen Hill Road - Approximately 1000 drums were disposed at this site. These drums were emptied by Mr. Previty onto his property.

Tidd's Junkyard, Route 72, Yorkshire Corners - Approximately 600 drums were deposited at this site. An analysis of samples taken from this site revealed the presence of chlorinated solids, chlorinated solvents, flammable solids, acids, oil and a number of other materials. Fifty (50) percent of the barrels at Tidd's reportedly have been opened.

Town of Machias Gravel Pit, Very Road - Approximately 600 drums were placed at this site. It has been reported that half of these barrels were opened, and the oils were spread on county roads, but this has not been verified. The gravel pit is near Bird Swamp.

Norman Rogers, California Road, Delavan - 100 drums used for fill on this property.

Camp Arrowhead, Route 16 - Reportedly 20 drums delivered here from a Mr. Tillinghast from Tidd's Junkyard, which were ~~labor~~ later buried.

Boehmer Site, Route 16 - 13 barrels were buried 225 feet from the County Infirmary well.

An unknown quantity of waste in a ravine on the south side of Route 242, west of Route 16. Waste was spilled here.

It is recommended that these sites be investigated under the State Superfund Act, to determine their potential threat to health and the environment. Most of these sites are in the vicinity of waterways. The sites should be investigated in the order they are listed in this memo.

cag

REFERENCE NO. 11

CATTARAUGUS COUNTY HEALTH DEPARTMENT
P.O. BOX 573, OLEAN, NY 14760
MEMORANDUM

TO : Jack McMahon, DEC - BRO DATE: October 3, 1978

FROM : Chester Halgas

SUBJECT: Motorola Industrial Waste Disposal

The following is a report on our activities concerning the subject waste from the Motorola plant in Arcade which found its way to various locations in northeastern Cattaraugus County.

On September 19, 1978, Mr. Dan Pascarella of our office observed 97 drums on the old Machias Town sanitary landfill site. He investigated the matter and wrote the attached report which was referred to Kevin Hintz of your Department. On or about September 25th, Mr. Reisner of this office brought to my attention that more drums were in the area. I then contacted Mr. George Wyllie, chief industrial engineer at Motorola, to more specifically determine the nature of the wastes.

Through subsequent field investigations by Messrs. Pascarella and Reisner, it was determined by September 29, 1978, that approximately 2500 drums of industrial waste from Motorola had been placed in Cattaraugus County by three unregistered waste haulers at the following locations.

Prior to May of 1976, apparently all of the wastes had been hauled by Community Disposal Services to their landfill in Erie County. At that time, they went out of business and waste was then hauled by William Ballard, Osmon Road, Freedom Town, Cattaraugus County (492-2113) from May 1976 to May of 1977. During that time, he took approximately 1,000 drums which were given to the Previty Auto Wrecking yard on Galen Hill Road, Freedom Town, which is located approximately ½ mile south from the intersection with Route #98. All of these drums had been emptied by Mr. Previty on his property. He has a private well for his house and business on the property. No other water supplies are in the immediate area, and it is doubtful if any appreciable amount of waste found its way into Clear Creek, a protected trout stream, approximately ½ mile to the north of the dumping site. Reportedly, the waste materials were used to oil roads, and the drums were used to support junk cars.

From May 1977 to March 1978, approximately 1,000 drums were taken by a Donald Tillinghast, 18 Yacht Club Drive, Machias (353-8826) to the following locations: From May to winter, approximately 600-800 drums were deposited at Tidds Junkyard on County Road #72, several hundred yards west of the Big N Plaza at Yorkshire Corners. Mr. Tidds reported that he gave away approximately 100 of these drums which are unaccounted for except for 20 which went to Michael Wolfer in Delevan. Approximately 50% of the drums at Tidds Junkyard had been spilled or opened and a considerable amount of spillage exists on the property. Nearby residences and businesses are served by the Yorkshire Town public water supply, and there appears to be no threat from a water supply standpoint. The site of the drums is very flat and it is doubtful if appreciable amounts of the waste got into Cattaraugus Creek which is approximately ½ mile away. Apparently the winter weather precluded dumping of the drums at Tidds Junkyard and reportedly Mr. Tillinghast gave 20 drums to Camp Arrowhead on Route #16, Yorkshire Town, which were later buried. He also gave approximately 100 drums to Norman Rogers who used them for fill on his property, approximately ½ mile east of the Village of Delevan on California Road. 13 drums were given to Terwilliger Excavation in Franklinville which are still intact, and 13 drums were dumped on the Boehmer property on Route #16, Machias, directly across

approximately 225' distant from the new Town of Machias and County Infirmary well. At the Boehmer site, more than half of the drums had been spilled. It is further reported that some unknown quantity of drums were dumped and covered in a ravine on the south side of Route #242 just west of its junction with Route #16. In addition, 97 drums had been dumped at the aforementioned Machias landfill site, which is no longer in operation there. A number of the drums had been spilled and significant amount of spilled wastes are on the site. Fortunately, except for the water supplies mentioned above, no other water supplies appear to be possibly affected, and the aforementioned spillages are not in locations where appreciable overland flow of the wastes to streams would occur.

From March 1978 to the end of September when Motorola discontinued allowing private haulers to take these wastes, approximately 600 drums were taken by a Dan Griswold, Reynolds Road, Franklinville (676-2403) to the Town of Machias gravel pit on Very Road, located approximately one mile south of the intersection of Very Road and County Road #16, which is slightly more than two miles directly west of the hamlet of Machias. At this location, approximately one-half of the drums had been emptied, and it is reported that the Town of Machias used these waste materials in oiling some of the Town roads. However, we have been unable to verify this report, and the Town Supervisor has stated that she knew nothing of the storage or the use of this material.

On Thursday, September 28th, the writer toured several of the sites with Messrs. Vought and Wyllie of Motorola and Mr. Reisner of this office. The Motorola representatives indicated that most, if not all, of the drums came from their plant. The drums are mainly identified by the product that they contained when they were shipped to Motorola and are largely characterized by the names of the chemicals, e.g. Magnoli Chemical, chlorothane, freon, etc. The newer drums have waste labels affixed to them by Motorola.

Motorola uses the following products which may in some part be discarded as industrial waste: Machining oils (Hamidraw D21-HV, GM Industries Limited 991, and HM 1301 DC), epoxies, epoxy solvent (Dibutylphthalate), flux, flux thinner (Alpha Metals 810), degreasers, polyurethane varnishes, Tolune, Xylene, Freon, dilute hydrochloric acid, metal grindings and metal. Motorola is to prepare a report stating the relative amounts of these products which may find their way into the industrial waste.

Investigation with suppliers and manufacturers revealed that many of the products are proprietary and that the exact content was not revealed to Motorola. The contents as reported by the suppliers and manufacturers are:

Hamidraw D21-HV - Harry Miller Corp., Philadelphia, PA (215-324-4000). Sulfonated petoleum oil 19.6% by weight; petroleum oil, 19.4%; chlorinated petroleum wax, 4.5%; lead tallate solution, 19.7% (75% kerosene and 25% lead tallate. % lead in lead tallate is 42%); Butyl Carbitol, 3% (the solution has a pH of 9.5 and the manufacturer advises handling with care. D21-HV is used in its undiluted form and also a 50% dilution with water at Motorola.

HM 1301 DC is also made by Harry Miller Corp. and contains: Mineral oil, 65%; sodium petroleum sulfonate, 14%; lead tallate, 19%; ethyloxylated alcohol, 2%.

The epoxy formulations used were obtained from a previous supplier, Hysol of Olean, New York, who reports that the epoxy resin is approximately a 400 molecular weight diglycidyl ether of bisphenol A plus 5% cresyl glycidyl ether. The hardener is a polyoxypropylene diamine.

The machine oil 991 supplied by GM Industries Limited in Tonawanda (693-6050) consists of the following: Tall oil, 10%; polysperm oil, 3%; sodium petroleum sulfonates, 7%; stearic acid, .3%; triethanolamine, 4.5%; hexylene glycol, 4%; Union Carbide U con LB 65, 2% (a proprietary compound which is a poly alkaline glycol); pine oil, .5%; emulsifier, .5%, chlorinated paraffin wax, 2%; petroleum oil, 15%; tetrasodium EDTA, .75%; biocide solution, 1.4% (solution of 18.5% 2' dihydroxy; 5' 5' dichloro-diphenyl methane, 6.7% of 50% sodium hydroxide and the rest water); Blue dye, .015%; water, 45.5%.

The flux is Alpha Metals, New Jersey (201-434-6778) and consists of a gum resin, an organic activator and a terpine alcohol solvent blend. The flux thinner is Alpha Metals 810 and a blend of alcohol and terpine solvent. No one was available who could give an exact formulation.

The degreasers used are trichloroethene and trichloroethylene.

The waste also contains metal grindings and machining wastes together with paper cups and rags, presumably from the epoxy casting process.

A literature review of the toxicity of the above chemicals indicates that practically all of them are mildly to moderately toxic, except for the biocide and lead. Fortunately, most of the spillage has occurred in environmentally insensitive areas except for the possible involvement of two water supplies. This Department plans to sample these two supplies together with any others that may be reasonably close to the two spillages, and have the samples analyzed for lead. It is the writer's opinion that lead will travel to the ground waters more quickly than any of the other chemicals and that it would therefore be a good indicator chemical.

In the writer's opinion, the spillages present a moderate environmental hazard that at this time, aside from the possible aforementioned affect on water supplies, poses no public health problem because of the remoteness and nature of the sites. The question of what to do with the spillages is therefore more properly the responsibility of the Department of Environmental Conservation, as is the matter of the three unregistered industrial waste haulers.

There are approximately 800 intact drums of Motorola's industrial waste at the aforementioned sites. Because of their nature and the potential deleterious environmental effects, they should be moved to a satisfactory disposal area. In this regard, this office has requested Motorola to move the intact drums. It is anticipated that they will be making a decision in the very near future.

Although ignorance of the exact nature of these chemicals is not a good excuse, it must be pointed out that in the opinion of the writer, neither Motorola nor the three haulers had any good indication as to the wastes' actual content.

CRH:PM
Attachment
CC: Machias Office
William Bruyere, Plant Manager, Motorola
Dr. Moss

REFERENCE NO. 12

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F N Y D 0 0 1 9 3 1 1 2 0

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent (*the area to the left of the label space lists the information that should appear*), please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI (*except VI-B which must be completed regardless*). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X			D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: MOTOROLA INC

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
2 VOUGHT JOHN H FACILITY ENGINEER	716 492 1234

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 400 MAIN STREET

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 ARCADE	NY	14009

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 400 MAIN STREET

B. COUNTY NAME: WYOMING

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
6 ARCADE	NY	14009	WYO

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

III. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
3694 (specify) Electrical equipment for internal combustion engines	3621 (specify) Motors and generators
C. THIRD	**D. FOURTH**
3699 (specify) Electrical machinery, equipment, and supplies, not otherwise classified	3471 (specify) Electroplating

VIII. OPERATOR INFORMATION

A. NAME

MOTOROLA INC

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

F = FEDERAL; S = STATE; P = PRIVATE; M = PUBLIC (other than federal or state); O = OTHER (specify)

P (specify)

D. PHONE (area code & no.)

A 716 492 1234

E. STREET OR P.O. BOX

00 MAIN STREET

F. CITY OR TOWN	G. STATE	H. ZIP CODE	IX. INDIAN LAND
ARCADE	NY	14009	Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)
9 N NY 000 2267	9 P
B. UIC (Underground Injection of Fluids)	**E. OTHER (specify)**
9 U	9 (specify)
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**
9 R	9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

F9:A50

XII. NATURE OF BUSINESS (provide a brief description)

Motorola produces automobile and industrial electronic products, such as automobile charging systems, thick film voltage regulators, active and passive thick film networks, automotive and marine solid state ignition systems, automotive microprocessor engine management systems, proximity reluctance and ceramic sensor modules for automotive applications, electronic speedometers and odometers, feedback carburetor controls, ignition coils, and electronic engine governors. There are also metal fabricating processes ancillary to these products, such as zinc and aluminum die casting and finishing, screw machining, metal stamping and machining operations, coil winding, compression molding of plastics, and metal washing, electroplating, and phosphatizing operations.

F9:A
51

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Joseph C. Rygiel, Vice President and Director of Alternator Business	Joseph C Rygiel	11-14-80

COMMENTS FOR OFFICIAL USE ONLY

REFERENCE NO. 13

NUS CORPORATION

TELECON NOTE

CONTROL NO.	DATE.	TIME.
	6-29-88	1130

DISTRIBUTION

02-8503-12

Motorola, Inc.

BETWEEN:	OF:	PHONE:
Larry Killburn	Arcade Village Offices	(716)492-1111

AND: Gerald V. Gilliland

NUS

DISCUSSION:

Mr. Killburn informed me that the Village of Arcade water supply system has 1000 customers. It is a mixed system of 3 wells: a Sandusky well which is 75' deep, the Church St. well which is 50' deep, and the Sullivan Ave. well which is 49' deep. He did not have information on the length of the well screens or on which formations of soils they might be screened in, or whether it is the surface aquifer. (M) Also, Cattaraugus Creek is used by the local population for fishing and possibly for other activities such as canoeing.

FOLLOWUP 6-30-88: I have found in a USGS bulletin that the Church St well is screened from 44' to 49' and that the aquifer is in hydraulic contact with Cattaraugus Creek, so it is probably the water table aquifer.

ACTION ITEMS:

1000 x 3.8 = 3800 people

REFERENCE NO. 14

Ref # 14

GROUND-WATER RESOURCES OF THE ERIE-NIAGARA BASIN, NEW YORK

Prepared for the
Erie-Niagara Basin Regional Water Resources
Planning Board

by

A. M. La Sala, Jr.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

in cooperation with

THE NEW YORK STATE CONSERVATION DEPARTMENT
DIVISION OF WATER RESOURCES

STATE OF NEW YORK
CONSERVATION DEPARTMENT
WATER RESOURCES COMMISSION

Basin Planning Report ENB-3

1968

GROUND-WATER RESOURCES OF THE ERIE-NIAGARA BASIN, NEW YORK

By
A. M. La Sala, Jr.

ABSTRACT

The Erie-Niagara basin, New York, borders Lake Erie and the Niagara River and includes the principal part of their drainage basin in New York. The area extends from the Cattaraugus Creek basin on the south to the Tonawanda Creek basin on the north. The northern part of the area and a narrow belt along Lake Erie are in the Erie-Ontario Lowlands, a region of low relief. The remainder of the area lies in the Appalachian Uplands, an area of considerable relief.

The principal water-bearing formations in the area are glacial sand and gravel deposits; the Camillus Shale, which contains interbedded gypsum; a limestone aquifer unit consisting of the Onondaga Limestone, Akron Dolomite, and Bertie Limestone; and the Lockport Dolomite. A number of thick and permeable sand and gravel deposits lie in valleys of the upland region and will yield supplies of 500 to 1,400 gpm (gallons per minute) to individual wells that are properly constructed. Several communities now obtain public water supplies from such deposits. The Camillus Shale, limestone unit, and Lockport Dolomite vary widely in water-bearing characteristics. Generally, only small to moderate supplies (less than 50 gpm) are available from these formations. However, where the water-bearing openings have been widened by solution of gypsum and carbonate minerals, the rocks provided large supplies. In and near Buffalo and Tonawanda, the Camillus Shale yields 400 to 1,200 gpm to individual wells, and the limestone unit yields as much as 300 gpm but more usually 100 gpm. The Lockport Dolomite does not yield more than 90 gpm to individual wells in the area. Data from nearby areas indicate the Lockport only occasionally yields as much as 100 gpm. Only small yields from wells, about enough for individual domestic supplies, can be obtained from shale, lake deposits, and till.

Average annual recharge to the sand and gravel deposits in the upland region ranges from about half a million to 4 million gallons per day per square mile. As the larger deposits are each several square miles in extent, the potential for development is large. To this potential should be added infiltration from streams that could be induced by pumping large quantities of ground water.

The quality of ground water in the Appalachian Uplands is marked by a high hardness but generally not by other unfavorable characteristics. The ground water in the Erie-Ontario Lowland generally is harder and otherwise poorer in quality, being high in dissolved solids. The water in the Camillus Shale is objectionably high in sulfate and, in some areas, chloride. The chloride may be dissolved out of deeply buried salt beds by water circulating through a regional flow system from a recharge area in the Appalachian Uplands to a discharge area along Tonawanda Creek. Shallow ground water in carbonate rocks and sand and gravel deposits locally has been polluted by septic tank effluent.

INTRODUCTION

PURPOSE AND SCOPE

This report presents the results of an investigation by the U.S. Geological Survey conducted for the Erie-Niagara Basin Regional Water Resources Planning Board. The area of study, called "Erie-Niagara basin" in this report, extends from the Cattaraugus Creek basin on the south to the Tonawanda Creek basin on the north, and includes Grand Island as shown in figure 1.

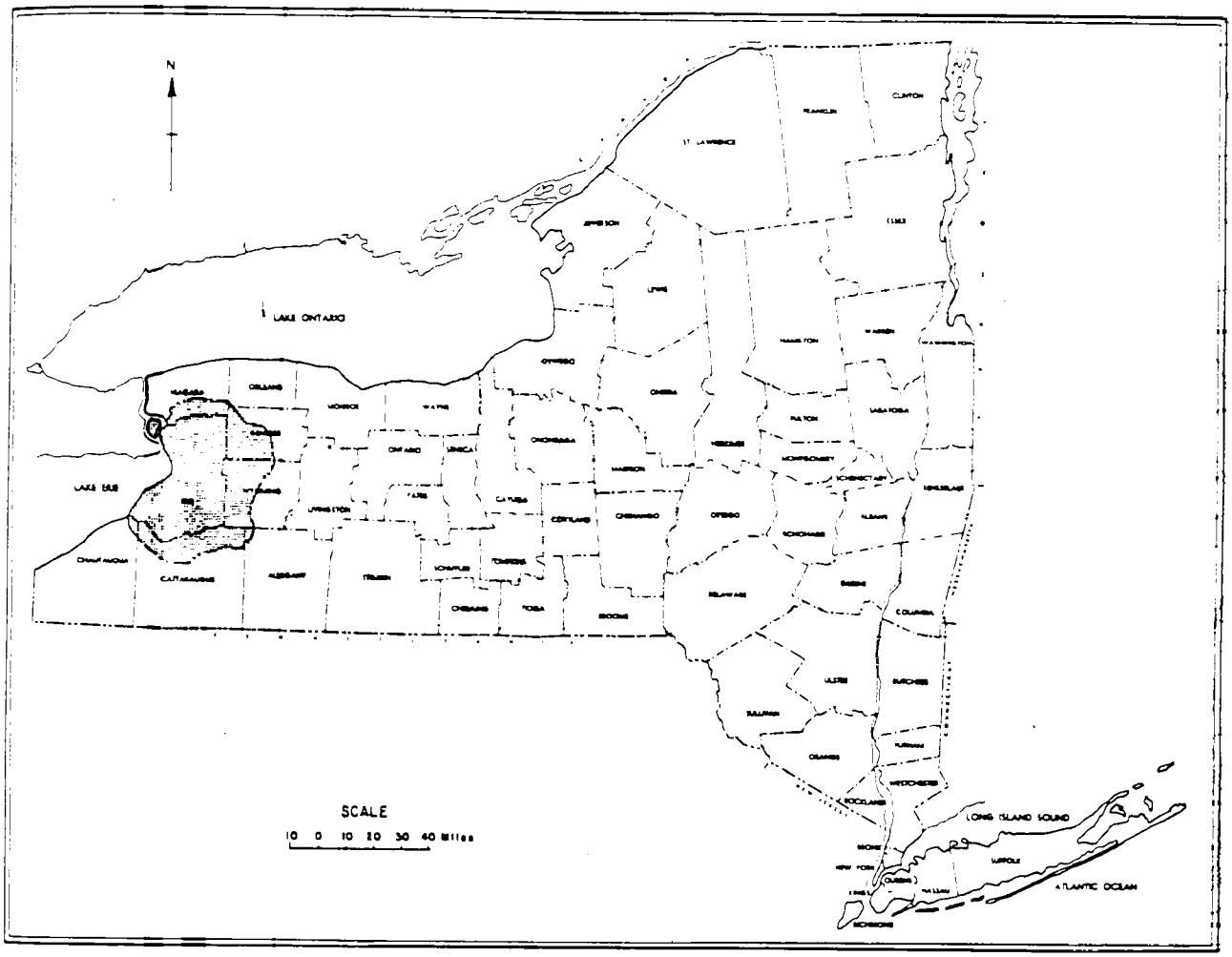


Figure 1.--Location map of the Erie-Niagara basin.

GEOLOGY AND TOPOGRAPHY

The Erie-Niagara basin is underlain by layers of sedimentary bedrock which are largely covered with unconsolidated deposits. Descriptions of the various bedrock units are given in figure 2. The bedrock consists mainly of shale, limestone, and dolomite; the Camillus Shale contains a large amount of interbedded gypsum. All the bedrock units were built up by fine-grained sediments deposited in ancient seas during the Silurian and Devonian Periods and, therefore, are bedded or layered. The dip of the rocks (inclination of the bedding planes) is gently southward at from 20 to 60 feet per mile, but the average dip is between 30 and 40 feet per mile. The dip is so gentle that it is hardly perceptible in outcrops.

The unconsolidated deposits are mostly glacial deposits formed during Pleistocene time about 10,000-15,000 years ago when an ice sheet covered the area. The glacial deposits consist of: (1) till, which is a nonsorted mixture of clay, silt, sand, and stones deposited directly from the ice sheet; (2) lake deposits, which are bedded clay, silt, and sand that settled out in lakes fed by the melting ice; and (3) sand and gravel deposits, which were laid down in glacial streams. The glacial sand and gravel deposits are of both the ice-contact and outwash types, as will be explained later in the report. The glacial deposits generally are less than 50 feet thick in the northern part of the basin. They are considerably thicker in some valleys in the southern part and reach a maximum known thickness of 600 feet near Chaffee. Other unconsolidated deposits are alluvium formed by streams in Recent times and swamp deposits formed by accumulation of decayed plant matter in poorly drained areas.

Relief of the present land surface is due to preglacial erosion of the bedrock and subsequent topographic modification by glaciation. In contrast to the southward dip of the rocks, the land surface rises to the south largely because preglacial erosion was more vigorous in the northern part of the basin. The shale in the southern part of the basin is somewhat more resistant to erosion than the rocks in the northern part of the basin but not significantly so. Figure 3 shows the relationship of the topography and rock structure and delineates the two topographic provinces of the basin: the Erie-Ontario Lowlands and the Appalachian Uplands. The rocks crop out in belts which trend generally east-west. The bedrock geologic map, plate 2, shows that the outcrop belts bend around to the southwest near Lake Erie. They assume this direction mainly because relatively intense erosion in the Erie-Ontario Lowland near Lake Erie has exposed the rock at lower elevations than farther east. The Lockport Dolomite and the Onondaga Limestone, because they are relatively resistant to erosion, form low ridges in the northern part of the basin. Tonawanda, Murder, and Ellicott Creeks descend the escarpment of the Onondaga at falls and cataracts.

In the hilly southern half of the basin (the Appalachian Uplands), preglacial valleys, deepened by glacial erosion, are cut into the shale. The valleys are partly filled with glacial deposits so that some of the present streams flow 200 to 600 feet above the bedrock floors of the valleys as shown in figure 3.

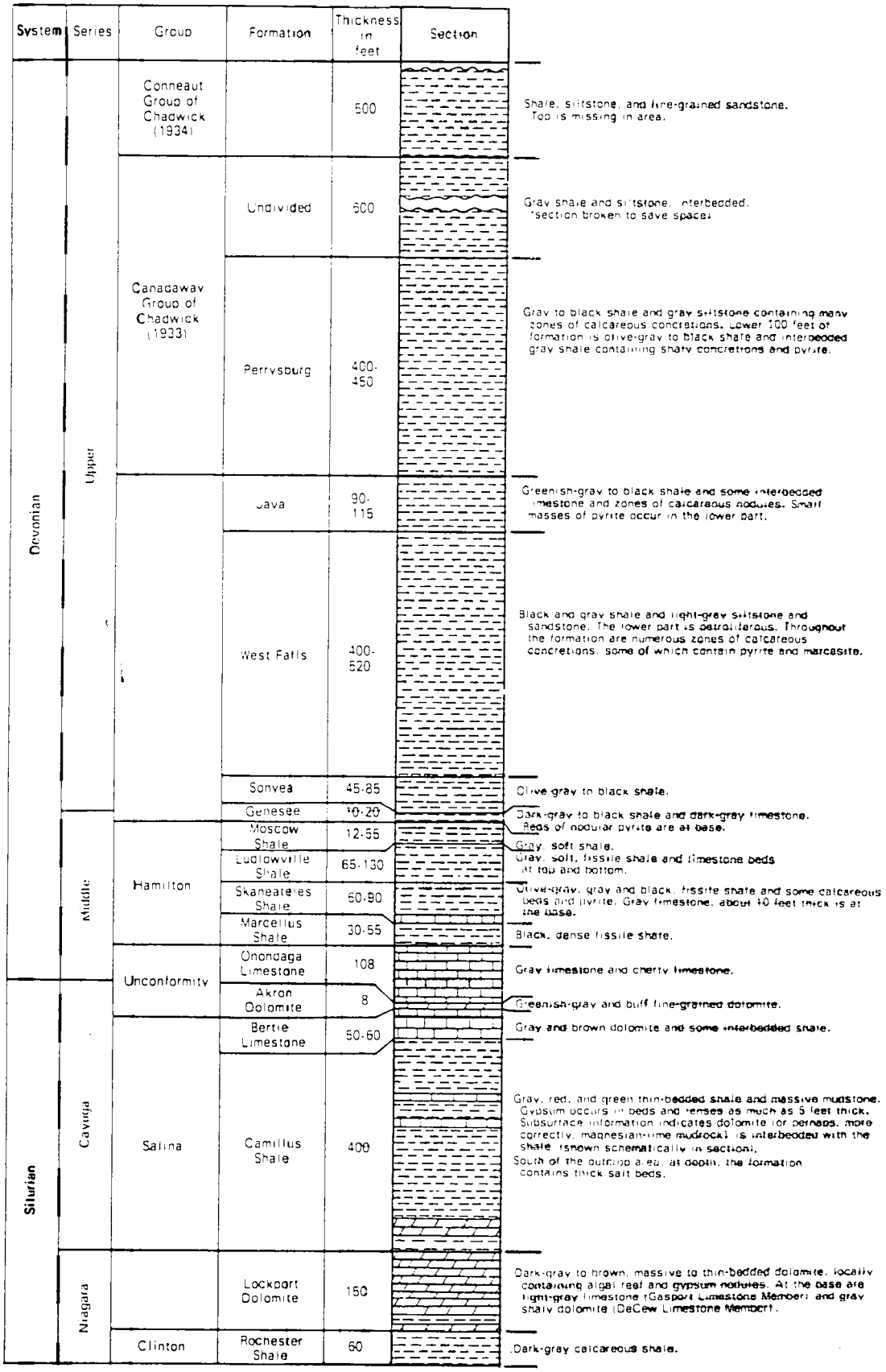


Figure 2.--Bedrock units of the Erie-Niagara basin.

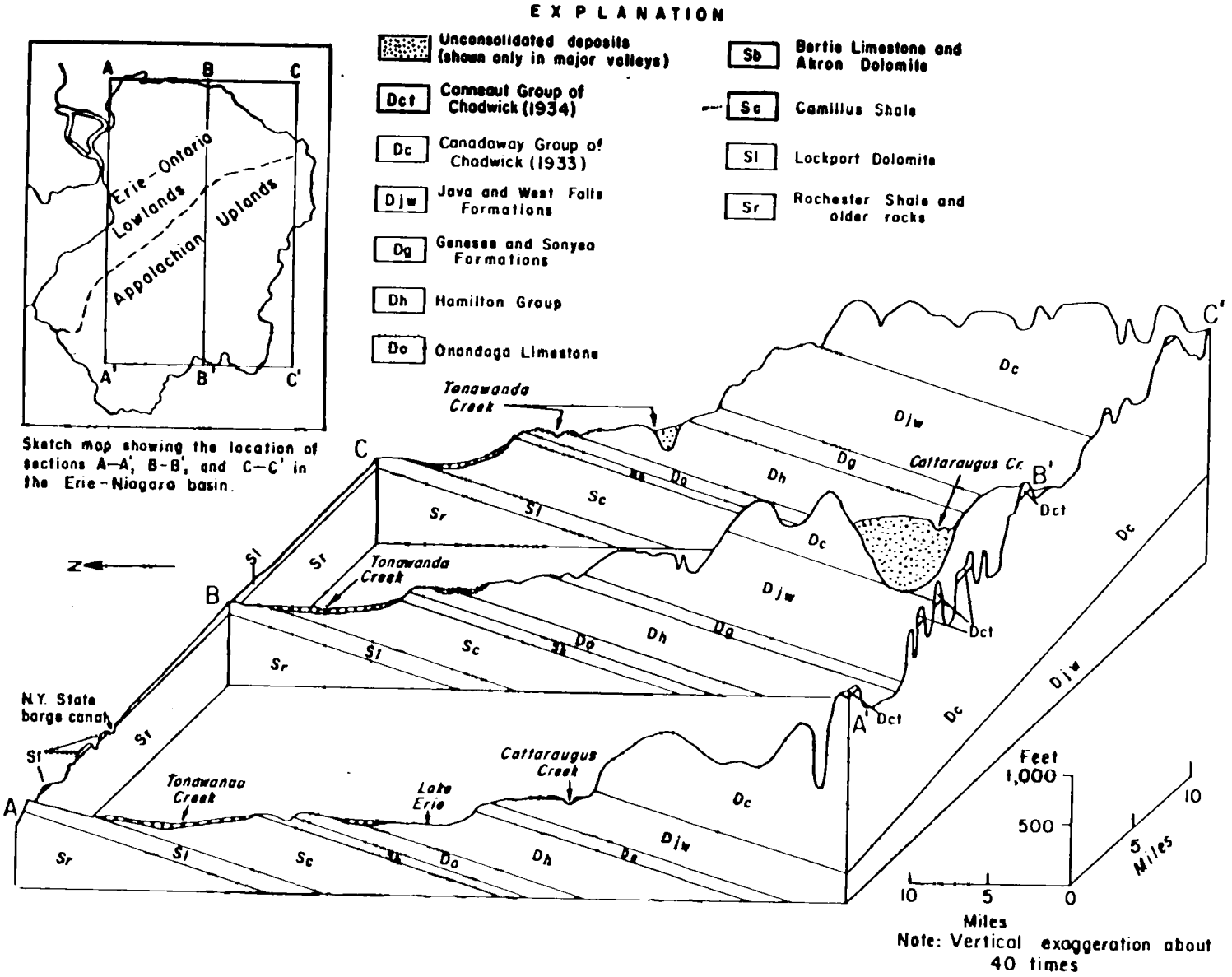


Figure 3.--Fence diagram of part of the Erie-Niagara basin.

OCCURRENCE OF WATER IN UNCONSOLIDATED DEPOSITS

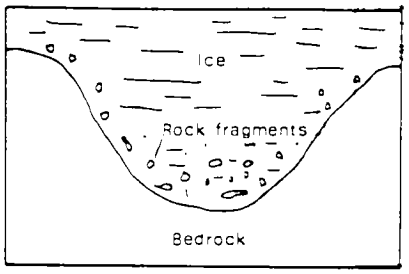
The unconsolidated deposits overlie the bedrock units previously discussed and consist of a variety of granular material. The bulk of the unconsolidated deposits are glacial in origin and include till, lake deposits, and sand and gravel deposits. The materials laid down since glaciation are thin and consist of alluvium and swamp deposits.

The deposits vary in their hydrologic characteristics because of differences in their lithology and thickness and because of their distribution and spatial relationships to one another. Plate 3 is a geologic map showing the division of the unconsolidated deposits into several groups on the basis of their origin. The distribution of these groups at the surface is readily apparent from the map. An understanding of the geologic processes that formed the deposits allows their subsurface distribution to be inferred. The map, therefore, can be read in three dimensions through proper interpretation.

An explanation of the origin and general features of the several types of deposits is given in figure 8. When the ice sheet advanced over the area, the ice tore and abraded the bedrock surface. The hills were somewhat reduced and rounded and the valleys were deepened. Some of the rock material eroded from the bedrock was redeposited by the ice and forms the poorly sorted mantle material that is called till (fig. 8A). Eventually, the ice began to wane with a change in climate. As the amount of snow nourishing it decreased, the ice sheet thinned. It had difficulty maintaining flow over rough topography along its marginal zone. The margin became scalloped, and some marginal zones grew so thin that they stagnated. These zones separated from the ice sheet and wasted away in place.

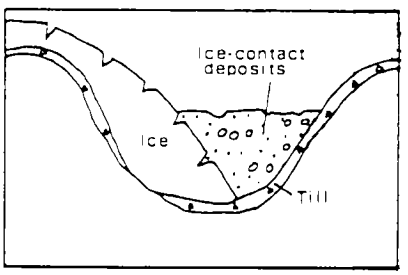
The sequence of deposition in an upland valley during retreat generally followed a particular order. A temporary valley was formed between the wasting ice and the rock wall of the valley. Melt water from the ice sheet, which at times of rapid melting was released in enormous quantities, flowed through the valley away from the retreating ice sheet. The melt water carried a heavy load of sediment washed out of the ice. It deposited sediment, mainly sand and gravel, and began to fill up the valley. This type of sand and gravel deposit is an ice-contact deposit (fig. 8B). In southward drained valleys, ice-contact deposits could form at low levels, even in the valley bottoms. In northward drained valleys, because of the divide to the south, the ice-contact deposits could form only high on the sides of the valley above the level of melt-water lakes impounded to the level of the spillway over the divides.

As the ice sheet melted back, a lower outlet for the melt water was uncovered. The melt-water stream was diverted from the ice-contact deposit. As the stagnant ice mass bordering the ice-contact deposits continued to melt away, the sand and gravel held up by the ice mass subsided toward the center of the valley. A lake formed in the open area left by the ice as it melted (fig. 8C). In a southward drained valley, the lake would be caused by a dam of earlier glacial deposits across the valley, perhaps part of the ice-contact deposits. In a northward drained valley, the lake would be formed between the divide to the south and the ice sheet to the north. Fine-grained sediments (clay, silt, and fine sand) settled out



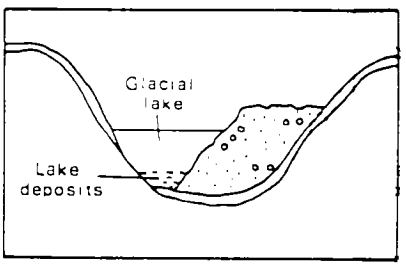
A

Ice advances over area and gathers load by eroding bedrock. Later, at the base of the ice, rock fragments are deposited to form till. (See B)



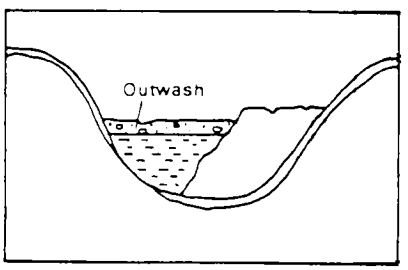
B

Ice begins to melt. Sand and gravel (ice-contact) deposits are laid down in a temporary valley between ice and valley wall.



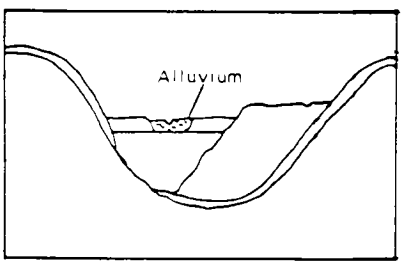
C

Stagnant ice melts. Ice-contact deposits slope toward center of valley. A glacial lake forms in which clay and silt accumulate.



D

Glacial lake is filled with sediment or is drained. Glacial streams flow over surface of lake deposits and lay down sand and gravel deposits.



E

Recent stream cuts into glacial deposits and lays down alluvium consisting of silt, sand and gravel.

Figure 8.--Origin of unconsolidated deposits.

in the lake and gradually filled it (fig. 8D).

Eventually the lake deposits built up to the threshold of the dam, or the dam was cut away by the water spilling over it, or the ice sheet retreated northward opening up the valley. Streams could then flow over the surface of the lake deposits and lay down a second sand and gravel deposit, an outwash deposit (fig. 8D). The sources of the stream waters were the wasting ice sheet (particularly so in southward drained valleys), small masses of wasting ice remaining in tributary valleys, and precipitation. The thickest and most extensive outwash deposits were formed in southward drained valleys and in zones peripheral to the ice sheet. With time, the ice sheet retreated still farther northward, the glacial streams ceased to flow, and glacial deposition came to an end.

As the ice sheet retreated farther north, the climate more nearly approached that of the present. A drainage system developed in response to precipitation. Streams began to incise channels into the deposits. Vegetation took hold as the weather warmed and helped stabilize the slopes. In time, with a change in regimen, the streams began to lay down alluvium (fig. 8E).

The sequence of events discussed above and shown in figure 8 is generalized. Nevertheless, it is useful in understanding the occurrence of the unconsolidated deposits, particularly in valley areas where they constitute an important source of ground water. In the following sections the lithology and water-bearing characteristics of each of the major types of deposits in the Erie-Niagara basin will be discussed.

TILL

As shown in plate 3, till is the most widespread of all the unconsolidated deposits in the Erie-Niagara basin. Till is essentially a nonsorted material whose character depends principally upon the types of rocks over which the ice passed and the vigor with which the ice crushed and abraded the rock. Till overlying the shale is dark gray and clayey or silty. In some areas, mainly on hillsides and terraces south of Cattaraugus Creek, part of the till is stony material. Till on the soluble rocks is light red and silty; in some morainic ridges it is mostly fine sand.

Thickness of the till varies considerably from a thin cover of 2 or 3 feet to more than 200 feet along the divides between Cattaraugus Creek and the northwestward flowing streams, such as Tonawanda, Buffalo, and Eighteenmile Creeks. On flat terraces mapped as till in Buttermilk Creek valley, the stony till is as much as 30 feet thick.

Only small supplies of water are available from till. The permeability of till is so small that wells with large wall areas are required to obtain even small supplies. This requirement for a large wall area is met by digging large-diameter wells.

LAKE DEPOSITS

Lake deposits consist of horizontally bedded clay, silt, and sand. They form a thin skin over till and bedrock in the Erie-Ontario Lowlands, but reach thicknesses of 300 feet or more in some valleys in the uplands. Thick sequences of clay (such as penetrated by well 229-842-1 near Springville) are so impermeable as to yield no water to wells. The lake deposits also contain thick sections of water-bearing fine sand in the major valleys of the Appalachian Uplands. This fine sand is called quicksand because it moves into wells. Small supplies can be developed from the fine sand by careful well construction, but usually these deposits are not utilized as sources of water.

GLACIAL SAND AND GRAVEL DEPOSITS

Glacial sand and gravel deposits include the ice-contact and outwash deposits shown in plate 3. In addition, deltaic deposits are present within the area. A prominent delta (lat 42°30', long 78°56') west of Collins, composed of sand and gravel, was built out from Clear Creek into a lake that occupied the Erie-Ontario Lowlands. Another delta (lat 42°50', long 78°34') was formed by Little Buffalo Creek, northeast of Marilla. These deltas are shown arbitrarily in plate 3 as ice-contact deposits. Deltaic deposits, presently concealed, probably interfinger with glacial lake deposits in the major valleys of the Appalachian Uplands where tributary streams deposited coarse-grained sediments in lakes. Subsurface data indicate deltaic deposits interfinger with lake deposits near the junction of Crow and Tonawanda Creeks south of the Attica State Prison. The sand and gravel deposits occur principally in the valleys of the Appalachian Uplands with only scattered, minor occurrences elsewhere. The relationship of the sand and gravel to the other unconsolidated deposits and to the bedrock is shown in figure 8. Where the deposits are thick and water bearing, they constitute the best aquifers found in the Erie-Niagara basin.

Lithology and thickness

The glacial sand and gravel deposits exhibit a variety of textures and sedimentary structures but they all are marked by stratification and a high degree of sorting. Characteristic of the deposits are horizontal beds of well-sorted sand, lenticular beds of cobble and boulder gravel, and scattered beds and lenses of open-work gravel. These various materials are interbedded in varying proportions, though boulder gravel is not present in most outwash deposits.

The deposits form thick fills in valleys of the upland section. In the valley bottoms the saturated thickness of the deposits exceeds 100 feet at many places. Thick deposits underlying terraces along the valley walls are to a large extent above the saturated zone. Buried sand and gravel deposits 10 to 40 feet thick underlie lake deposits in some valleys.

The thickness of the sand and gravel deposits can be inferred from the surficial geologic map (pl. 3) and the data on wells (table 6). The sand and gravel mapped as ice-contact deposits extends downward to till or bedrock. Till forms only a thin cover on the bedrock in most valleys, so the depth to bedrock can be assumed to be the thickness of the ice-contact deposits. The sand and gravel deposits mapped as outwash, on the other hand, are generally thin and overlie lake deposits in most valleys. The outwash deposits are thinnest wherever lake deposits are mapped in narrow bands along the edge of outwash terraces or as small areas within larger areas of outwash.

A thick outwash deposit of high permeability lies in the Tonawanda Creek valley south of Batavia. This outwash deposit contains open-work gravel which enhances its permeability. In addition its saturated thickness exceeds 70 feet. This is the most permeable large deposit known in the study basin.

The sand and gravel deposits that underlie lake deposits in the major valleys are not mapped. The location and thickness of these deposits are known only from subsurface data. The only such deposit developed for large ground-water supplies is at Gowanda. Small to moderate capacity public-supply wells are also developed from buried sand and gravel deposits at Holland, Varysburg, and at Hamburg for the Biehler Meadows development.

Hydraulic properties

Coefficients of transmissibility of the sand and gravel deposits given in table 4 were estimated on the basis of reported specific capacities of larger yield wells using graphs given by Walton (1962, p. 12-13). If the screened interval is small in relation to the thickness of the aquifer, the computed transmissibility applies mainly to the materials opposite the screen. The position of the aquifer and the depth of the screened interval are given to allow evaluation of these factors. The transmissibilities computed for some wells may be misleading because the drawdowns may have been affected by infiltration from streams. The transmissibility of the aquifer at well 259-809-1 is phenomenally high. Various wells drilled for the city of Batavia also had specific capacities that indicated similarly high transmissibilities. Yet, the transmissibilities computed from the specific capacities of wells 258-809-1 and 259-809-7 are an order of magnitude less. Irregularly distributed zones of open-work gravel in these deposits may account for this disparity.

Yields of wells

The yields of wells in the sand and gravel deposits vary greatly depending on the permeability and saturated thickness of the deposits and on well construction. Most wells for domestic supply are 6-inch diameter drilled wells with open-end casings. Such wells have low yields because they are necessarily inefficient; this type of construction is cheap and is adequate for household supplies. Wells drilled for public supplies are constructed for high efficiency and give a representative picture of the availability of water in the sand and gravel deposits. Efficient

Table 4.--Specific-capacity tests of wells finished in sand and gravel deposits

Well number	Pumping rate (gpm)	Drawdown (feet)	Specific capacity (gpm/ft)	Position of aquifer (feet below land surface) Top	Bottom	Screened interval (feet below land surface)	Coefficie. of transmiss bility (gpd/ft)
227-856-1	545	92	5.9	332	377	336-376	12,000
-4	517	81.3	6.4	301	347	303-333	12,000
229-822-1	425	30.5	13.9	1/ 24	75	64-74	17,000
229-856-1	150	9.5	15.8	1/ 19	35	30-35	18,000
230-840-1	830	25	33	100	157	119-138	40,000
231-825-1	150	3	50	1/ 16	48	38-48	55,000
-2	502	7.1	71	1/ 17	49	39-49	100,000
232-825-1	305	6.9	44.2	1/ 7	>53	44-49	60,000
234-856-3	254	19.3	13.1	1/ 11	>35	25-35	15,000
238-832-1	300	33	9.1	--	--	--	20,000
238-855-1	130	42.7	3.0	43	58	47-57	4,500
-2	137	12.6	10.9	1/ 9	24	19-24	13,000
239-853-1	115	42.4	2.7	47	54	49-54	3,500
246-836-1	690	46.5	14.8	40	>112	75-105	20,000
-2	700	102	6.9	72	>132	121-131	10,000
254-829-1	220	11.1	19.8	1/ 9	>34	29-34	25,000
258-809-1	456	12.8	35.6	1/ 26	>49	41-49	40,000
259-809-1	600	1.5	400	1/ 15	>64	40-60	600,000
-7	200	4.4	45.6	1/ 14	>60	50-60	60,000

1/ For a water-table aquifer, the depth to the water table is given.

wells yield 500 to 600 gpm from sand and gravel deposits in most valleys in the Uplands. The highly permeable outwash deposits in Tonawanda Creek valley provide yields of 1,000 to 1,400 gpm. Wells with these yields cannot be developed everywhere in the sand and gravel deposits. It is necessary to locate a sufficient thickness of water-saturated coarse-grained material (generally 10 to 20 feet), in which a screen can be set. Several test holes may be needed to locate the required aquifer materials. The success of communities and industries in developing large-yield supplies from sand and gravel deposits indicates that the relatively thick zones of permeable materials needed for well development are abundant.

ALLUVIUM AND SWAMP DEPOSITS

Some alluvium lies along all streams. Larger streams have built flood plains or terraces of alluvium consisting of silt, sand, and gravel. In most of the smaller streams with steep gradients, the alluvium is a bed deposit of gravel. The gravelly alluvium along Cattaraugus Creek is tapped for small supplies at places by means of driven and dug wells. Alluvial deposits otherwise are not significant sources of water.

Swamp deposits of muck and sediments lie in poorly drained areas. They generally mark areas of ground-water discharge. Because of their generally low permeability, they are not a significant source of water.

GROUND-WATER HYDROLOGY

The quantity of ground water in storage in the Erie-Niagara basin is enormous. Its magnitude can be roughly calculated as follows. Assume that the saturated zone available for development is 100 feet thick (it is certainly much thicker in many parts of the area) and that the porosity of the water-bearing formations is 10 percent (the porosity of much of the glacial deposits is higher but that of the bedrock is lower). These assumed figures indicate that storage in the ground-water reservoirs is equivalent to about 10 feet or 120 inches of water spread over the entire area, or about 2 billion gallons per square mile.

Ground water is added to storage intermittently as precipitation infiltrates the ground and percolates to the zone of saturation. This process is called recharge. It is obvious that if water were not also discharged from the ground, the ground would be water logged. Water moves through the saturated zone and discharges to the surface, generally to a stream, but in some places to springs or swamps. In its travels, a second type of ground-water discharge occurs. Plants whose roots extend to the saturated zone extract ground water from the ground and discharge it to the atmosphere as water vapor. Discharge equals recharge, except as relatively small changes in ground-water storage occur from year to year.

The estimate of 120 inches of ground water in storage is about 3 times the average annual precipitation and about 10 times the annual ground-water discharge. The replacement of water in storage obviously occurs at a slow rate. Despite this slowness, the ground-water reservoirs must be studied as dynamic systems. The usefulness of ground-water storage in providing supplies during periods of deficient precipitation is apparent. The reservoirs also function as conductors and transmit a considerable part of the water available for development from recharge areas to discharge areas. When ground water is pumped out of the ground, water moving through the reservoir is diverted toward the center of pumping. Natural discharge, and thereby streamflow, is ultimately reduced. Streamflow may also be reduced by a diversion of water from the stream into the ground as natural gradients are reversed due to pumping. Ideally, an understanding of the operation of ground-water reservoirs as part of a hydrologic system is needed in order to evaluate available ground-water supplies and the effects of their development on the total water regimen.

MOVEMENT OF GROUND WATER

How ground water moves from the point where it enters the saturated zone to the point where it is discharged is illustrated in figure 9. The most striking features of ground-water movement are the curvature of the lines of flow and the upward movement of the water as it approaches the the discharge area. The upward flow of ground water may seem at variance with the behavior of water at the surface where water always flows downslope. Water at the surface flows downslope because it follows a

hydraulic gradient that results from gravity. Ground water likewise follows a hydraulic gradient, but the gradient results from head as well as gravity. The equipotential lines in figure 9 are lines of equal head. The ground-water gradient and, hence, the direction of ground-water flow, is at right angles to the equipotential lines. Theories of ground-water flow are set forth by Hubbert (1940) and Toth (1962a, 1962b).

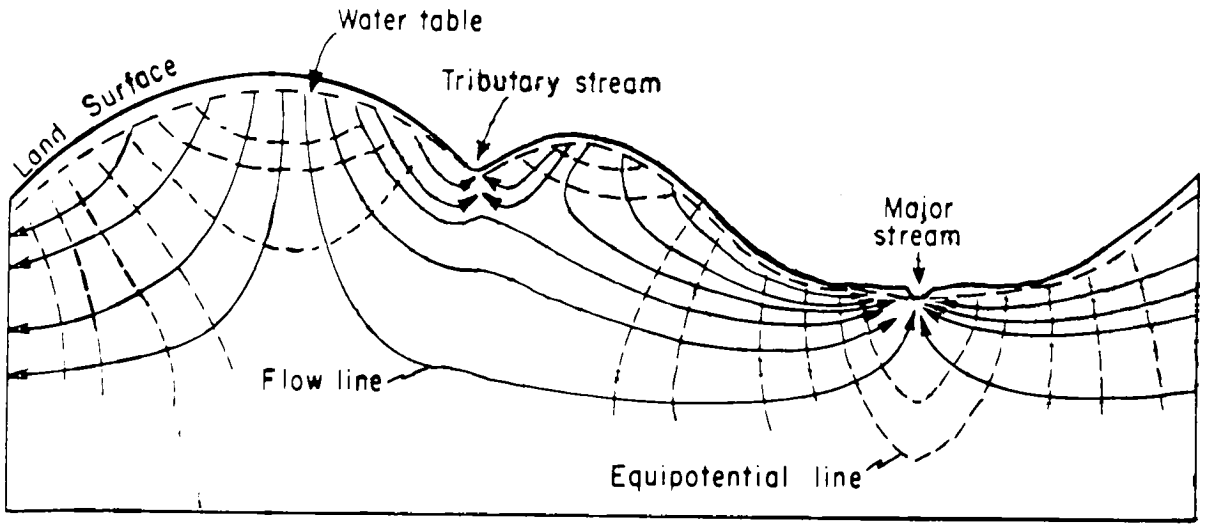


Figure 9.--Ground-water flow in a part of the Appalachian Upland section.

The paths of ground-water flow are generalized in figure 9. Ground-water flow concentrates in the more permeable zones in the unconsolidated deposits and follows the open fractures in bedrock. In detail, then, the paths of movement are irregular. Flow lines flatten out with depth because the permeability of the rocks decreases with depth and vertical circulation is restricted.

As can be seen from figure 9, minor flow systems can exist within a major system. Many small tributary streams draining hill slopes probably are fed by ground water discharging from minor flow systems. Figure 9 shows that only part of the water that infiltrates to the water table within the tributary drainage basin discharges within the basin. Water that infiltrates near the divide joins the major flow system and discharges to the main-stem stream. Furthermore, as the water table declines, its relief with respect to the tributary stream is considerably reduced and the amount of water moving through the minor flow system is substantially decreased. In the summer, as the water table falls, the amount of water moving through the minor flow system may be less than the evapotranspiration near the stream and the stream may dry up. The nature of the flow system explains why many tributary streams dry up in the summer even though the water table on the hill slopes remains at higher altitudes than the streambeds.

Differences in water levels among wells are also explained in the light of the flow system. Heads decrease with depth beneath recharge areas. Therefore, as a well in a recharge area is drilled deeper and deeper, its water level declines. Conversely, heads increase with depth beneath discharge areas and as a well is drilled deeper its water level rises.

CHANGES IN STORAGE

The ground-water reservoirs of the Erie-Niagara basin undergo seasonal changes in storage that are typical of the northeastern United States. A change in storage is brought about when recharge and discharge occur at different rates. Storage is almost always changing because recharge and discharge are equal only as a transient condition. The pattern of storage fluctuations is shown by the hydrographs in figure 10. The hydrographs are plots of water levels in selected wells that are unaffected by pumpage and, therefore, indicate, in a qualitative sense, fluctuations in storage.

What brings about the seasonal fluctuations in ground-water storage? Ground-water discharge is a continuing process. Its rate varies with the volume of water in storage because the higher the water levels in the ground, the steeper is the gradient to the streams and hence the higher is the discharge. The rate of decline of water levels in wells decreases as the levels drop. This fact is reflected in the hydrographs (fig. 10). Recharge is intermittent because it can occur only as a result of rain or snowmelt. Because precipitation is rather uniformly distributed throughout the year, there is year-round potential for recharge. The hydrographs show, nevertheless, that recharge is negligible from late spring to early fall. A third variable, evapotranspiration, fluctuates seasonally and is responsible for the observed seasonal lack of recharge.

The potential evapotranspiration shown in figure 11 is computed by the method of Thornthwaite and Mather (1957). During the growing season, evapotranspiration exceeds precipitation. Soil water is needed to supplement the demand made by plants so that a deficiency of soil moisture generally develops. During the middle part of the growing season, most of the precipitation that infiltrates is held in the soil. Only during an exceptionally wet period during the summer will the field capacity of the soil be exceeded so that infiltration can reach the water table.

Several characteristics of the ground-water regime are indicated by the water-level hydrographs (fig. 10):

(1) The zone of aeration acts as a reservoir and, where either thick or in fine-grained material, yields water slowly to the saturated zone. This dampening of increments of recharge is shown by the hydrograph of well 238-844-4, which penetrates a sand and gravel deposit containing water under water-table conditions. Infiltration into the soil occurs in discrete increments, yet the water level in the well rose gradually through periods of several days to 1 1/2 months.

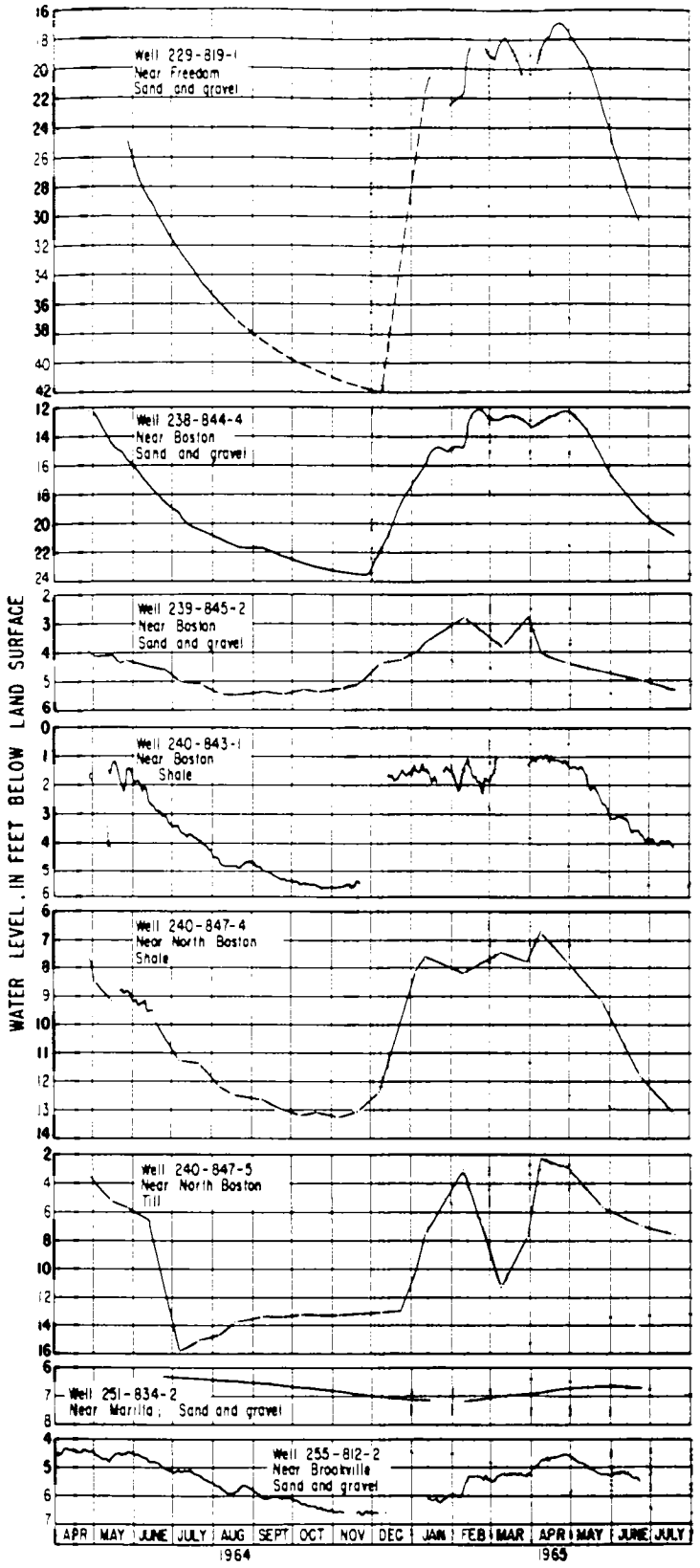


Figure 10.--Water levels in observation wells. A continuous record is shown by a solid line. A record obtained by periodic measurements is indicated by a dot for the measurement and intervening straight lines. Estimated water levels are shown by dashed lines.

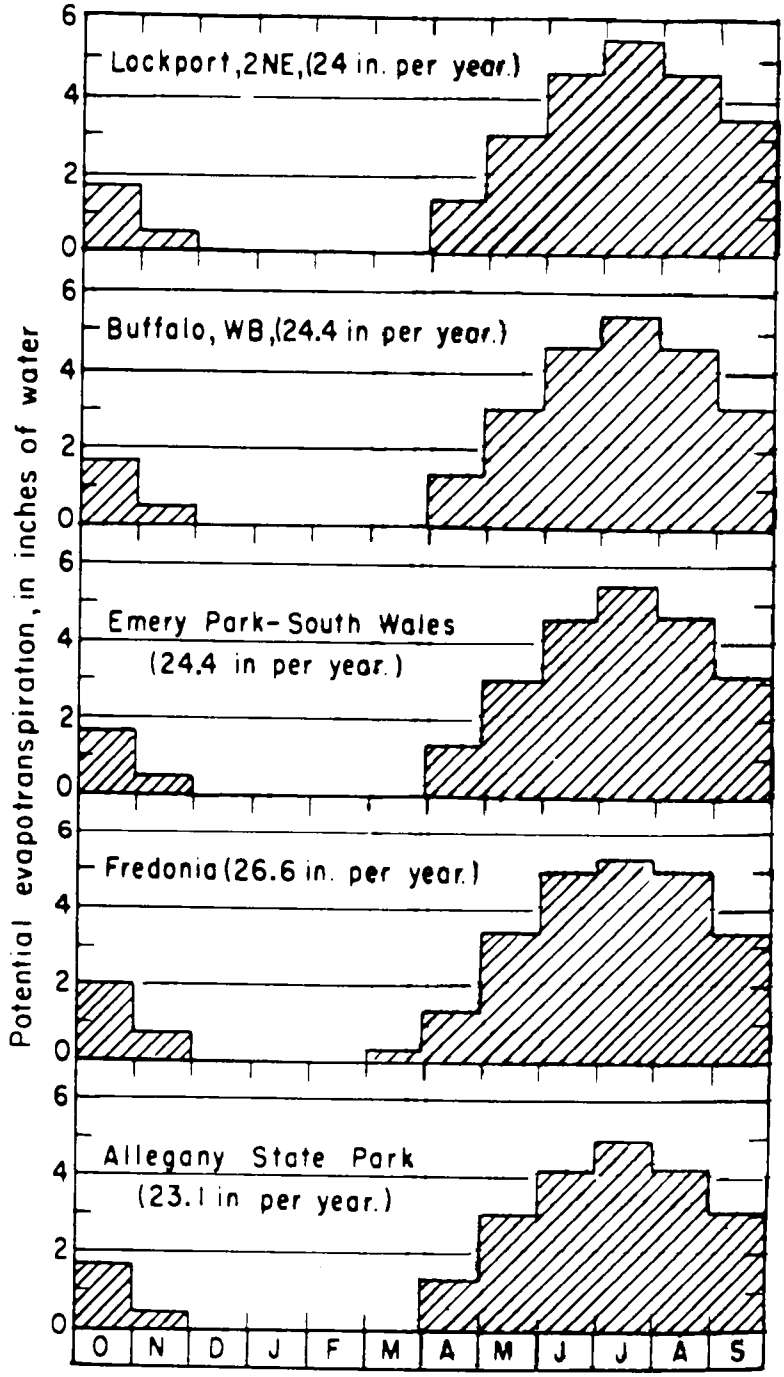


Figure 11.--Normal monthly potential evapotranspiration at climatological stations in and near the Erie-Niagara basin.

(2) Changes in storage are brought about by the percolation of streamflow into the ground as well as by the discharge of ground water to streams. The sand and gravel deposits near Freedom penetrated by well 229-819-1 (fig. 10) are recharged

by tributaries of Cattaraugus Creek. The headwaters of the stream near the well are perennial, but in the summer the streamflow percolates into the ground upstream from Freedom. At base flow a steady recharge is received from the stream, but this is considerably exceeded by discharge from the aquifer through subsurface flow down the valley. The hydrograph for the well is discontinuous, but it is apparent that sharp increments of recharge were received by the aquifer in January, February, and March of 1965. These rapid rises in level are at variance with those of well 238-844-4, discussed previously, and probably were caused by recharge from the stream when it flowed at high stages.

(3) Till and bedrock form a two-aquifer system. The geology and hydrology of the area require that the bedrock be recharged mainly by downward percolation from till on hilltops. Water-level fluctuations in the two units can be expected to be of different magnitudes because of differences in water-bearing properties. Where the recharge area of the bedrock is remote, the fluctuations in the two units may also be somewhat out of phase, as is shown by the hydrographs for wells 240-847-4 and -5.

(4) Wells in water-table aquifers close to streams show a narrow range of fluctuation. From April 27, 1964, to July 19, 1965, the water level in well 239-845-2 (measured bimonthly) fluctuated through a range of only 2.7 feet. Near streams, water-table aquifers receive water traveling along flow paths from recharge areas, but they also discharge water to the stream. The net effect is that there is little change in ground-water storage in the aquifers near streams. The water-level fluctuation at the well is due to the rise and fall of the stream stage, to recharge by direct infiltration, and to discharge by evapotranspiration in the immediate vicinity of the well.

(5) Wells in deposits that are remote from the recharge area have gradual fluctuations in water level that are usually out of phase with the trend of water levels in wells closer to areas of recharge. The hydrograph of well 251-834-2 is smooth, and the trend of the water level in the well lags the seasonal trends shown by other observation wells. This lag represents the time required for water to move from the recharge area to the well. The water-level fluctuations in the well are of a small magnitude because ground water from the deposits is discharging to a small stream 600 feet to the northwest.

(6) Confined aquifers undergo the same pattern of seasonal storage changes as water-table aquifers. However, water levels in wells in confined aquifers have many minor fluctuations of short duration that are superimposed on the seasonal ones, as is shown by the hydrographs of wells 240-843-1 and 255-812-2. The small, irregular pressure changes apparent on the

hydrographs are probably due to changes in atmospheric pressure. An increase in atmospheric pressure drives the water level down in a well tapping a confined aquifer. The water level in the well recovers as the atmospheric pressure decreases. The physical explanation of this phenomenon is given by Ferris and others (1962, p. 83-85). Thus, minor fluctuations of a diurnal (daily) nature observed in such wells are not indications of changes in storage, as are the longer term fluctuations.

GROUND-WATER DISCHARGE

The flow of water through the saturated zone is described by Darcy's Law:

$$Q = TIL$$

where: Q is discharge in gallons per day,

T is transmissibility in gallons per day per foot,

I is the hydraulic gradient in feet per foot,

L is the width, in feet, of the cross section through which discharge occurs.

This law can be applied to the Erie-Niagara basin in the general fashion shown in figure 12. If d (the distance from the stream) is constant, h (the height of the water table above the stream) is directly proportional to Q (the ground-water discharge to the stream). The depth to the water level in a well at a distance, d, is complementary to h, and therefore is inversely proportional to Q. Darcy's Law, therefore, suggests that a relationship can be developed between ground-water levels in wells and that portion of streamflow derived from ground-water discharge.

In periods of sustained dry weather, streams are supplied only by ground-water discharge. At other times, the stream is supplied also by overland runoff. On a hydrograph of a stream-gaging station, the periods of base flow (essentially ground-water discharge) are characterized by gentle recessions in flow. The periods of overland runoff are characterized by sharp increases in flow followed by steep recessions.

The relationship between ground-water levels and streamflow can be determined by plotting ground-water levels against average daily streamflow for periods when base flow was occurring. A typical plot is shown in figure 13. A curve can be drawn through the points. Points falling to the right of the curve do so because the stream was not truly at base flow on the days chosen. The graph is a curved line because the saturated thickness of deposits contributing ground water to the stream shrinks as ground-water storage is depleted.

Table 6.--Records of selected wells in the Lake Erie-Niagara basin (Continued)

Well number	County	Owner	Year completed	Type of well	Depth of well (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing material	Altitude above sea level (feet)	Water level: Below land surface (feet)	Water level: Date	Method of lift	Estimated pumpage or flow (gallons per day)	Use	Remarks
228-839-1	Cattaraugus	F. Waterstram	--	Dug	11.0	48	--	Sand and gravel	1,330	9.0	10-21-61	Sw	--	F	
228-840-1	do.	F. Felton	a1958	Drv	12.4	1 1/4	--	do.	1,280	p10.0	10-24-61	--	--	A	About 1 ft away from driven well used for farm supply.
-2	do.	H. Kelley	--	Drl	53.1	6	--	Shale	1,370	p12.4	4-20-62	Jet	--	D, Ag	Iron; supplies a chicken farm.
-3	do.	French	1961	Drl	54.4	6	32	do.	1,370	3.9	4-20-62	--	--	U	Yield 3 gpm bailer test (r).
228-846-1	Erie	D. Bylbie	1955	Dug	8.6	24	--	Sand and gravel	1,230	6.8	5-29-63	Sw	450	D	Anal; temp 48.0.
228-851-1	do.	B. Skuse	1932	Drl	r110	6	--	Shale	1,120	--	--	Jet	1,500	F	Anal; iron.
228-857-1	Cattaraugus	Seneca Nation of Indians	1964	Drl	298	8	78	do.	870	118.3	8-26-64	--	--	A	Gas; yield less than 1 gpm (r); "shot" with 39 sticks of dynamite which did not improve yield.
-2	do.	do.	1964	Drl	447.6	8	a70	do.	870	442.7	8-26-64	--	--	A	Temp 55.4; yield is negligible; "shot" with 39 sticks of dynamite which did not improve yield.
229-819-1	do.	Earl Thomas Estate	a1920	Drl	37.9	6	--	Sand and gravel	1,820	21.6	5-13-64	Sw M	--	A	OW.
-2	do.	do.	--	Dug	35.0	36	--	do.	1,820	21.0	5-13-64	--	--	A	Goes dry.
-3	do.	C. Owens	1947	Drl	39.2	6	--	do.	1,815	20.4	5-15-64	Jet	100	D	Anal; perennial supply.
229-822-1	do.	Village of Arcade	1954	Drl	r75.9	18, 12	--	do.	1,660	r23.5	10-11-54	Tur	600,000	PS	Screen, 12-inch diameter, 100-slot, from 65.9-75.9 ft; gravel packed; yield 425 gpm; on initial test, swl 21.0 ft, dd 30.5 ft; pumpage rate is prior to addition of well 231-825-2 to Arcade system.
-2	do.	do.	--	Drl	r54	12	--	do.	1,660	--	--	Tur	15,000	PS	Screen; yield 60 gpm; supplies community of Sandusky.
229-841-1	Erie	R. Gentner	--	Dug	16.6	24	--	do.	1,360	13.3	5- 7-64	Sw	--	F	
229-842-1	do.	do.	1959	Drl	r325	6	--	--	1,340	--	--	--	--	A	Dry hole; sand and gravel 0-15 ft; clay and sand 15-325 ft; filled with trash.
229-846-1	do.	D. Kessler	1953	Dug	11.0	30, 12	--	Sand	1,400	2.0	5-29-63	Sw	200	D	Anal; temp 46.0; yield about 10 gpm pump test.
229-849-1	do.	Town of Collins, Water District No. 3	1959	Drl	r60	10, 6	--	Sand and gravel	1,220	Flow	--	--	40,000	PS	Flows about 30 gpm through header 3 ft above LS into main of water system; flow provides sufficient supply for weekdays; screen, 6-inch diameter, 100-slot, 51-60 ft.
-2	do.	do.	1959	Drl	r56	18, 10	--	do.	1,220	Flow	--	Tur	--	PS	Iron; screen, 18-inch diameter, 100-slot, 51-56 ft; gravel packed; yield 150 gpm; generally pumped only on weekends.
229-856-1	do.	Town of Collins, Water Districts Nos. 1 & 2	1959	Drl	r35	18, 10	--	do.	820	r19	4-16-58	Tur	--	PS	Screen, 18-inch diameter, 100-slot, 30.3-35.3 ft; gravel packed; pumping test, 150 gpm, dd 9.5 ft.
229-857-1	do.	M. Gates	1964	Drl	r42	6	--	Sand	820	31	9-14-64	--	--	D	Screen, 5-inch diameter, .030-slot, 32-42 ft; yield 10 gpm bailer test with no appreciable drawdown.
230-829-1	Cattaraugus	W. Delaney	1962	Drl	r244	8, 6, 4	--	Gravel	1,400	r+30	2-11-63	--	3,000	F	Anal; H_2S; supplies house and barn by artesian pressure; when drilled flow was 200 gpm, estimated by driller.
230-833-1	Erie	E. Korowski	1954	Drl	56.2	6	--	Sand	1,265	40.6	8- 5-64	Jet	100	D	Anal.
230-835-1	do.	R. King	1955	Drl	57.8	6	--	Sand, silt, clay	1,245	e2	8- 5-64	--	--	A	Yield is inadequate for domestic supply.
-2	Cattaraugus	W. Winkey	--	Dug	20.2	36	--	Sand and gravel	1,390	17.9	8- 6-64	Sw	--	F	
230-837-1	Erie	L. Rumfola	a1941	Drl	33.7	6	--	Gravel	1,365	14.7	8- 5-64	Sw	3,500	F	Anal; cased to 40 ft; partly backfilled with crushed stone.

Table 6.--Records of selected wells in the Erie-Niagara basin (Continued)

Well number	County	Owner	Year completed	Type of well	Depth of well (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing material	Altitude above sea level (feet)	Water level: Below land surface (feet)	Water level: Date	Method of lift	Estimated pumpage or flow (gallons per day)	Use	Remarks
230-838-1	Erie	B. Mooney	--	Drv	14.1	1 1/4	--	Sand and gravel	1,380	3.8	5- 6-64	--	--	A	OW.
230-840-1	do.	Village of Springville	1931	Drl	r139	18, 6	--	do.	1,350	16	7-31	--	--	A, PS	Originally finished with shutter screen, 12-inch diameter from 121-135 ft; pumping test 830 gpm, dd 25 ft; gravel packed liner with 6-inch diameter screen from 119.5-135 ft, then installed to reduce amount of sand pumped from well; abandoned about 1944 because of sand pumping.
-2	do.	do.	1944	Drl	r137	18, 12	--	do.	1,350	pr27	1-29-63	Tur	200,000	PS	H_2S; pumping rate 630 gpm; screen, 12-inch diameter from 122-137 ft; gravel packed; pumping test on 8-5-44, 672 gpm, swl 27.4 ft, dd 16.4 ft after 8 hours pumping (swl at this time probably was affected by pumping from wells 230-840-1 and -3).
-3	do.	do.	1942	Drl	r159	18, 10	--	do.	1,350	p31.5	1-29-63	Tur	200,000	PS	H_2S; pumped at 600 gpm; screen, 10-inch diameter, 100-slot from 144-149 ft; 80-slot from 149-159 ft; gravel packed; pumping test 5-14-42, 513 gpm, swl 37.7 ft, dd 20.6 ft (swl probably affected by pumping of well 230-840-1).
230-842-1	do.	G. Kroll	1962	Drl	125	6	19	Shale	1,335	p46	7-28-64	Jet	200	D	Anal; iron; yield 1 gpm (r).
230-843-1	do.	C. Hunt	1964	Drl	r330	6, 4	--	Sand	1,385	199	8-11-64	--	--	D	Yield 5 gpm (r); casing backfilled with washed gravel to 310 ft.
230-845-1	do.	F. Schue	1961	Drl	37.9	6	--	Gravel	1,390	20.6	8-28-64	Sw	200	D	Yield 5 gpm.
230-856-1	do.	Town of Collins, Water Districts Nos. 1 & 2	1948	Drl	r42	18, 10	--	do.	835	r17	1948	Tur	--	PS	Pumping rate 150 gpm; construction details are reported to be similar to those of well 229-856-1.
-2	do.	Dan Garnett Gravel Products, Inc.	a1956	Drl	r36	--	--	Sand and gravel	830	--	--	Tur	100,000	I	Anal; supplies gravel plant, use is seasonal; yield 400 gpm.
-3	do.	do.	1962	Drl	30.3	18	--	do.	840	3.7	8-12-64	Tur	2,000	I	Anal; supplies cleaner at asphalt plant, use is seasonal; casing perforated from 26-30 ft; pumping test, 150 gpm, swl 4 ft, dd 7 ft.
231-825-1	Wyoming	Village of Arcade	1962	Drl	r50	12	--	Gravel	1,490	r16	3-26-62	--	--	T	Screen and gravel pack, 38-48 ft; pumping test, 150 gpm, swl 16 ft, dd 3.
-2	do.	do.	1962	Drl	r49	20, 12	--	Sand and gravel	1,490	r17	11-28-62	Tur	--	PS	Screen, 12-inch diameter, 100-slot, 39-49 ft; gravel packed; pumping test 500 gpm, swl 17 ft, dd 7.1 ft after 24 hours pumping.
231-830-1	Cattaraugus	M. Schaper	1956	Drl	200	6	--	do.	1,355	10.5	8- 7-64	Jet	300	D	On same property two wells, 60 ft deep, penetrated clay and were dry; a well 400 ft deep flowed but yielded sulfurous water and was destroyed.
-2	do.	C. Klas	1959	Drl	450	6	454	do.	1,375	Flow	8- 7-64	Sub	3,000	F	
231-831-1	Erie	W. Schlaner	1962	Drv	r22	1 1/4	--	do.	1,410	--	--	Sw	400	D	
231-833-1	do.	A. Zisser	1964	Drl	280	6, 4	--	Sand	1,390	8.1	8- 5-64	Sub	--	D	Yield 2 1/2 gpm (r).
-2	do.	J. Rung	1959	Drl	59.3	6	--	Gravel	1,430	39.7	8- 5-64	Jet	350	D	Anal; yield about 25 gpm baller test.
-3	do.	C. Butler	1962	Drl	94.4	6	--	do.	1,430	p47.2	8- 5-64	Jet	3,000	F	Iron; cased to 150 ft (r, driller); yield 25 gpm baller test when drilled; yield was inadequate in summer 1964; well may be partly filled in with sand entering at bottom of casing.
231-835-1	do.	P. Schuster	1958	Drl	99.7	6	--	Sand and gravel	1,445	p90.8	8- 6-64	Sub	100	D	Anal.
231-838-1	do.	G. Loncasty	--	Drv	17.6	1 1/4	--	do.	1,400	3.5	5-12-64	--	--	A, Ag	Screened from 14.9-17.6 ft; OW.
231-839-1	do.	K. Ploetz	1956	Drl	29.0	6	--	do.	1,400	18.8	5- 6-64	Jet	200	D	

Table 6.--Records of selected wells in the Erie-Niagara basin (Continued)

Table 6.--Records of selected wells in the Erie-Niagara basin (Continued)

Well number	County	Owner	Year completed	Type of well	Depth of well (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing material	Altitude above sea level (feet)	Water level: Below land surface (feet)	Water level: Date	Method of lift	Estimated pumpage or flow (gallons per day)	Use	Remarks
231-844-1	Erie	H. Kobler	1961	Drv	12	--	--	Sand and gravel	--	--	--	Sw	150	D	Iron.
231-858-1	do.	Seneca Nation of Indians	1964	Drl	288	8, 6	--	--	810	--	--	--	--	T	Casing stuck in hole; sand, 0-130 ft; sandy clay, 130-230 ft; sand and gravel, 230-288 ft.
-2	do.	do.	1964	Drl	385	8	366	Shale	810	94	3-65	--	--	D	Water-bearing zone at 370 ft; pumping test, 23 gpm, dd 156 ft.
231-900-1	Cattaraugus	do.	1964	Drl	76.9	8	50	do.	715	31.1	8-12-64	--	--	D	Bailer test, 25 gpm, swl 35 ft, dd 25 ft (r).
-2	do.	do.	1964	Drl	76.1	8	49	do.	715	29.8	8-12-64	--	--	D	Do.
232-825-1	Wyoming	Village of Arcade	1953	Drl	r53	12, 8, 10	--	Sand and gravel	1,480	--	--	Tur	650,000	PS	Anal; screen, 10-inch diameter, 100-slot, from 44-49 ft; gravel packed; pumping test of 11-53, 305 gpm, swl 7.1 ft, dd 6.9 ft.
232-827-1	do.	do.	1961	Drl	r149	10, 8, 6	--	do.	1,460	Flow	--	--	--	X, T	Temp 49 (r) 8-16-61; screen, 6-inch diameter, 125-slot, 139-144 ft; flow 60 gpm (r), pumping test 185 gpm, water level 29.7 ft after 24 hours pumping.
232-828-1	Erie	K. Wartz	1958	Drl	28.7	6	--	Gravel	1,435	18.3	6-25-64	Sw	--	C	
232-830-1	do.	N. Hogen	1963	Drl	175	6	--	Sand and gravel	1,405	11.4	8-11-64	Sub	150	D	Anal; H_2S.
232-831-1	do.	P. Loggans	1961	Drl	r87	r6	--	do.	1,435	r32	--	Jet	100	D	Anal.
232-838-1	do.	R. Schwelkert	a1963	Drl	129	6	--	Sand	1,430	32.6	5- 5-64	--	--	D	
232-839-1	do.	F. Knowlton	--	Dug	21	30	--	Sand and gravel	1,400	17.7	5- 7-64	--	--	A	Well has been partly backfilled by owner.
232-857-1	do.	Seneca Nation of Indians	1964	Drl	r76	8	14	Shale	845	5.8	8-12-64	--	--	D	Original depth 48.1 ft; no improvement in yield after deepening; yield 7.5 gpm bailer test; cased to 27 ft because of caving shale; water enters at bottom of casing.
-2	do.	do.	1964	Drl	50.8	8	16	do.	840	6.1	8-12-64	--	--	D	Gas; caving shale; casing slotted from 27-30 ft and set into shale and gravel packed.
-3	do.	do.	1964	Drl	55.7	8	16	do.	845	6.3	8-12-64	--	--	D	Gas; yield 1.5 gpm bailer test; water enters from caving shale at 28 ft.
-4	do.	do.	1964	Drl	r148	8	14	do.	--	--	--	--	--	A	Yield less than 2 gallons per hour.
233-828-1	do.	Chafee Water Works, Inc.	a1900	Drl	20.4	8	--	Sand and gravel	1,460	13.5	2-11-63	Sw	15,000	PS	Pumping rate is about 100 gpm.
-2	do.	Greatwood	1960	Drl	50.7	6	--	Sand	1,435	20.0	6-25-64	Sub	100	D	Yield 40 gpm.
233-838-1	do.	Miller	1963	Drl	86.5	6	45	Shale	1,455	18.6	5- 7-64	--	--	A	Yield is a few gallons per minute.
-2	do.	do.	1963	Drl	55.6	6	--	Sand and gravel	1,450	29.0	5- 7-64	--	--	F	
-3	do.	do.	1960	Drl	101.9	6	--	Shale	1,460	46.6	5-12-64	--	--	A, F	Insufficient yield; DW.
-4	do.	R. Wiede	1959	Drl	126.3	6	--	do.	1,440	24.0	11- 8-64	Jet	150	D	Anal; iron; H_2S; can be pumped dry.
233-839-1	do.	J. Buzak	1963	Drl	r528	7	--	Gravel	1,430	r200	4- 3-63	Sub	250	D	Anal; gas, iron.
233-840-1	do.	D. Zittel	1960	Dug	r18	24	--	do.	1,435	r16	--	Sw	4,000	F	Use includes 2,000 gpd for cooling.
233-844-1	do.	J. Pharner	--	Drl	55.5	6	--	Shale	1,470	27.0	7-28-64	--	--	D	
234-823-1	Wyoming	W. Lewandowski	a1935	Drl	r3,403	12	--	Shale?	1,600	Flow	--	--	2,000	GT	Anal; gas; salty taste; temp 53.8, 5-4-64; flow 1-2 gpm, 6.5 ft above LS, 5-4-64; water is presumed to enter well through break in casing at relatively shallow depth.

REFERENCE NO. 15

Uncontrolled Hazardous Waste Site Ranking System

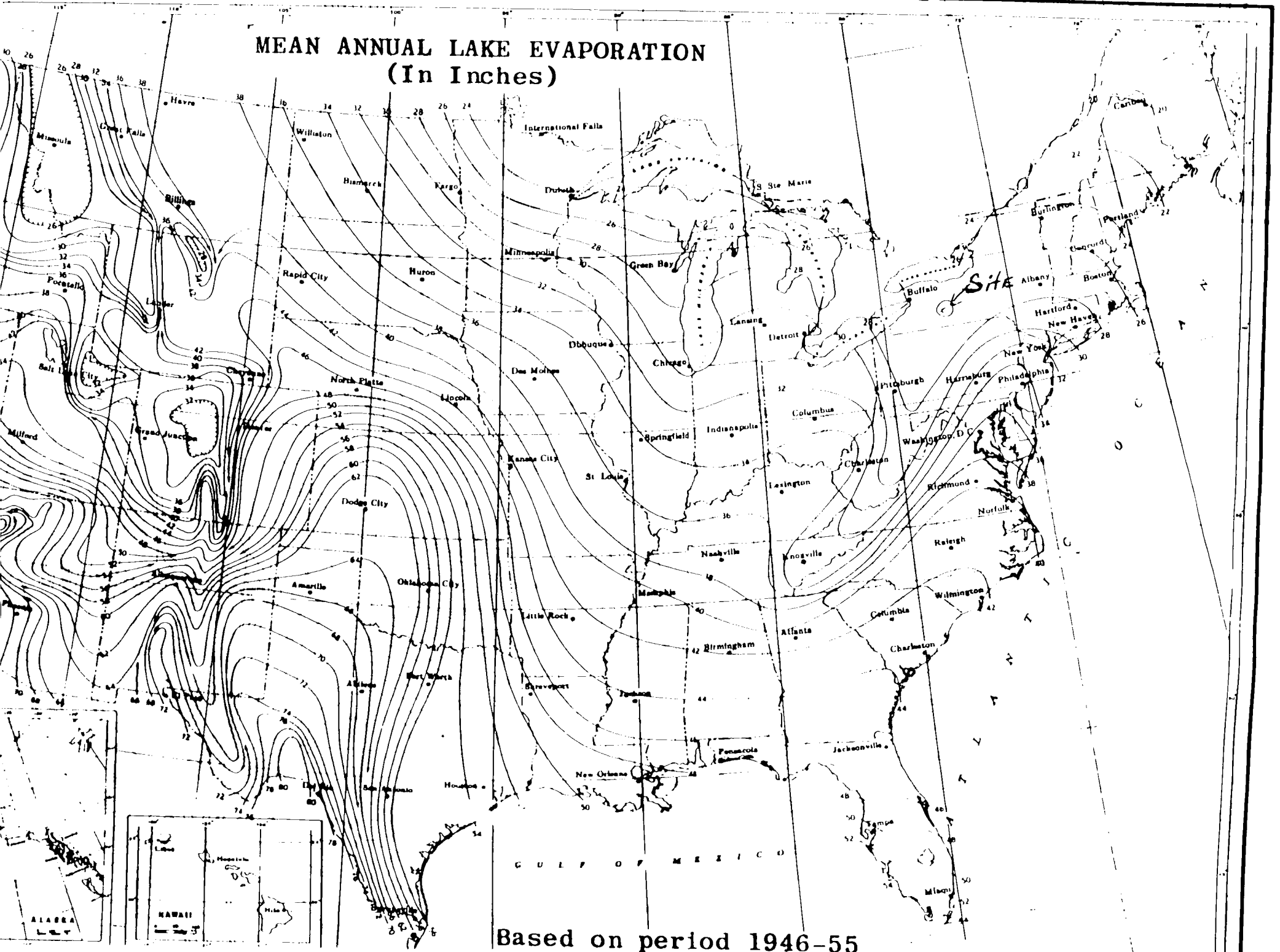
A Users Manual
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

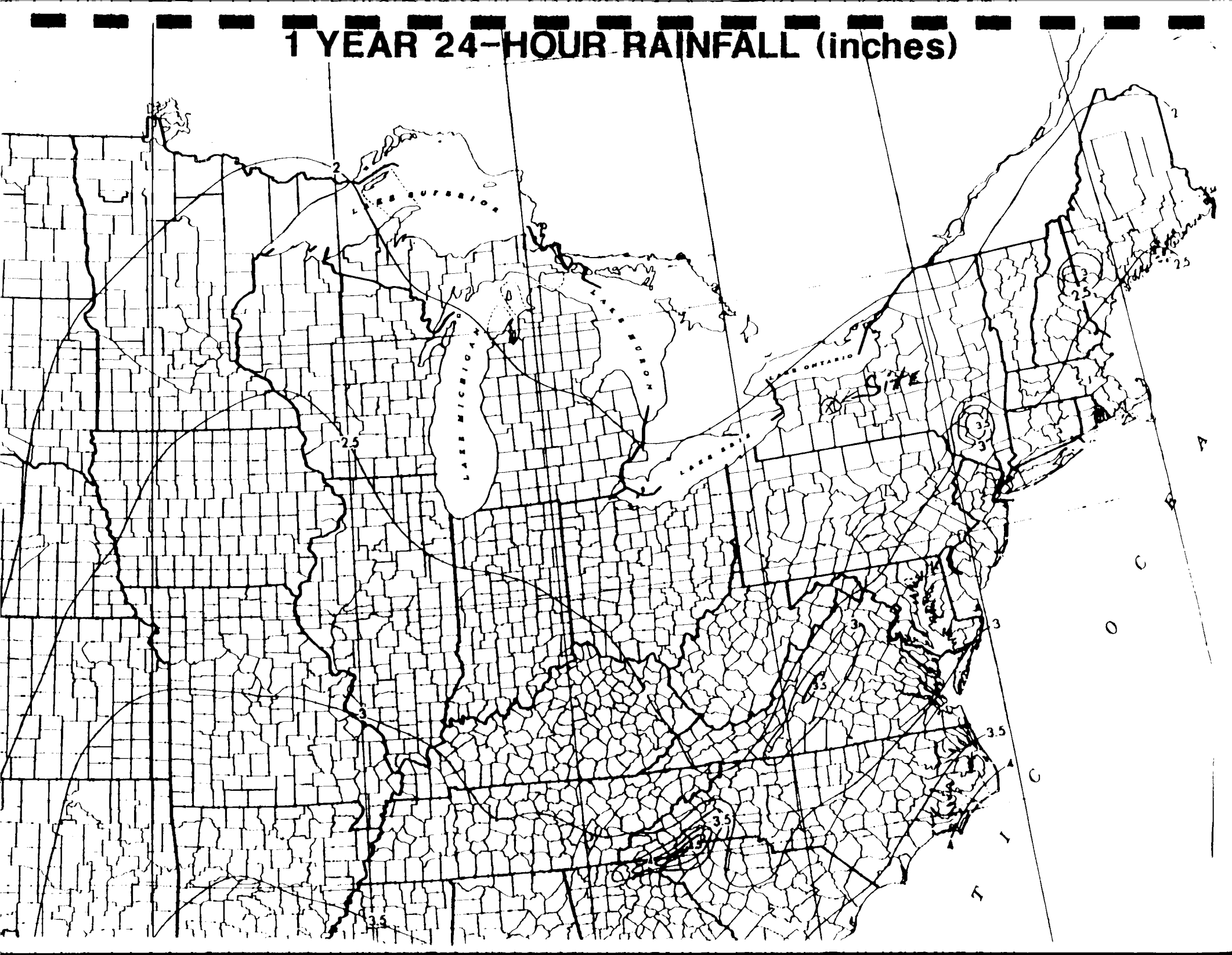
1984

MEAN ANNUAL LAKE EVAPORATION
(In Inches)

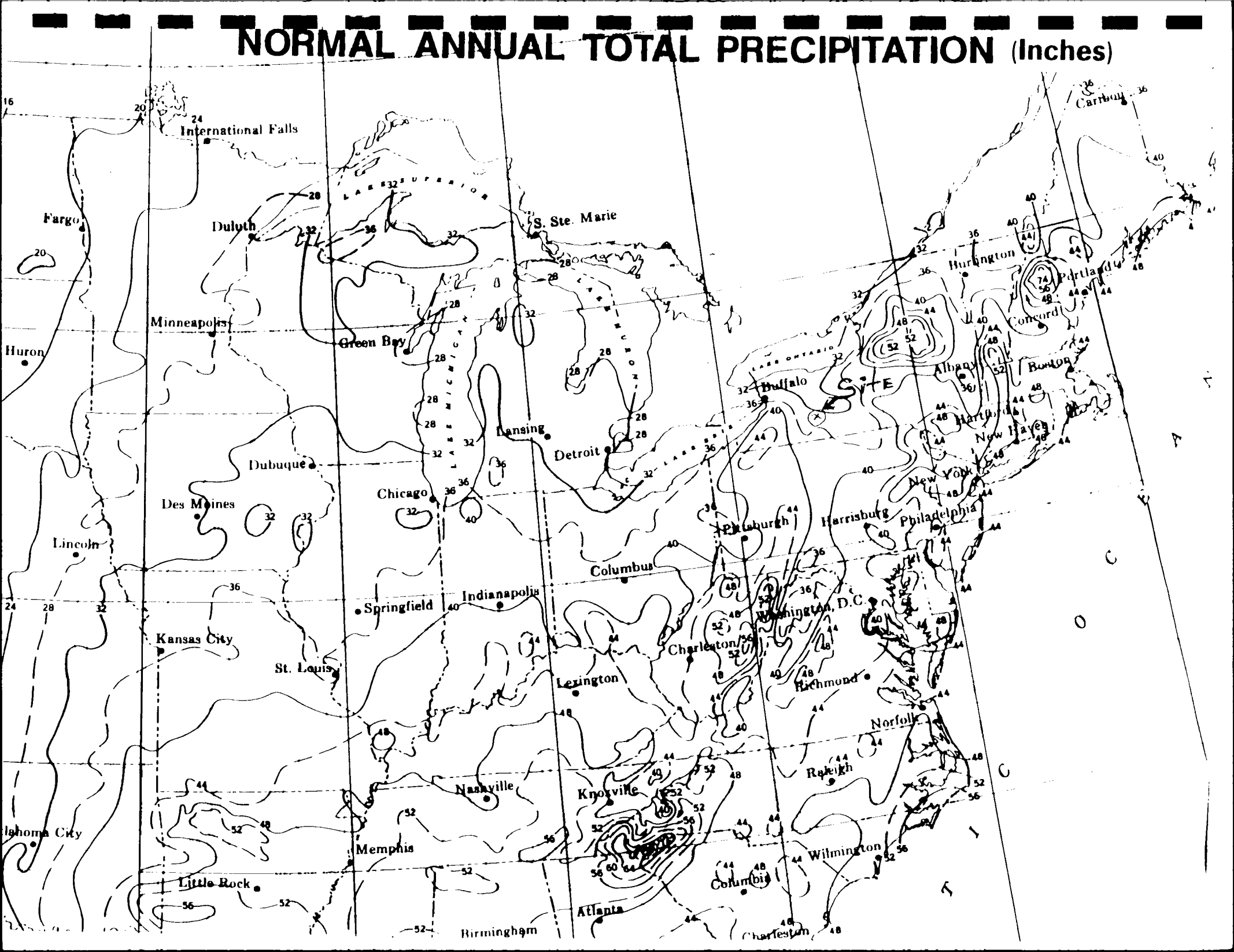


Based on period 1946-55

1 YEAR 24-HOUR RAINFALL (inches)



NORMAL ANNUAL TOTAL PRECIPITATION (Inches)



REFERENCE NO. 16

SITE NAME: MOTOROLA, INC.
TDD#: 02-8803-12
SAMPLING DATE: 04/07/88
EPA CASE NO.: 9296 LAB: METATRACE, INC.

VOLATILES														
Sample ID No.	NYBL-GW-1(MS/MSD)	NYBL-GW-2	NYBL-GW-2A(DUP)	NYBL-GW-3	NYBL-S-1(MS/MSD)	NYBL-S-2	NYBL-S-2A(DUP)	NYBL-S-3	NYBL-S-4	NYBL-S-5	NYBL-S-6	NYBL-RIN-1	NYBL-RIN-2	NYBL-TBLK-1
Traffic Report No.	BR351	BR352	BR353	BR354	BR435	BR436	BR437	BR438	BR439	BR444	BR445	BR440	BR441	BR442
Matrix	WATER	WATER	WATER	WATER	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Moisture	--	--	--	--	26	22	22	25	31	24	24	--	--	--
Chloromethane														
Bromomethane														
Vinyl Chloride														
Chloroethane														
Methylene Chloride													B	
Acetone												J	B	B
Carbon Disulfide														
1,1-Dichloroethene														
1,1-Dichloroethane														
Trans-1,2-Dichloroethene (total)														
Chloroform														
1,2-Dichloroethane														
2-Butanone	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane														
Carbon Tetrachloride														
Vinyl Acetate														
Bromodichloromethane														
1,2-Dichloropropane														
cis-1,3-Dichloropropene														
Trichloroethene														
Dibromochloromethane														
1,1,2-Trichloroethane														
Benzene									J					
trans-1,3-Dichloropropene														
Bromoform														
4-Methyl-2-Pentanone														
2-Hexanone														
Tetrachloroethene														
Toluene					7				J	21				
1,1,2,2-Tetrachloroethane														
Chlorobenzene														
Ethylbenzene														
Styrene														
Xylenes (Total)														

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 a compound, but can't be identified
NR - analysis not required
Detection limits elevated if Dilution

SITE NAME: MOTOROLA, INC.
TDD#: 02-8803-12
SAMPLING DATE: 04/07/88
EPA CASE NO.: 9296 LAB: METATRACE, INC.

SEMI-VOLATILES														
Sample ID No.	NYBL-GW-1(MS/MSD)	NYBL-GW-2	NYBL-GW-2A(DUP)	NYBL-GW-3	NYBL-S-1(MS/MSD)	NYBL-S-2	NYBL-S-2A(DUP)	NYBL-S-3	NYBL-S-4	NYBL-S-5	NYBL-S-6	NYBL-RIN-1	NYBL-RIN-2	NYBL-TBLK-1
Traffic Report No.	BR351	BR352	BR353	BR354	BR435	BR436	BR437	BR438	BR439	BR444	BR445	BR440	BR441	BR442
Matrix	WATER	WATER	WATER	WATER	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	10.0	10.0	10.0	1.00	1.00	1.00	1.00	N/A
Percent Moisture	--	--	--	--	26	22	22	25	31	24	24	--	--	N/A
Pentachlorophenol														NR
Phenanthrene						J								NR
Anthracene														NR
Di-n-butylphthalate												B		NR
Fluoranthene						J								NR
Pyrene						J								NR
Butylbenzylphthalate														NR
3,3'-Dichlorobenzidine														NR
Benzo(a)anthracene														NR
Chrysene						J								NR
bis(2-Ethylhexyl)phthalate											B	B	B	NR
Di-n-octylphthalate								J						NR
Benzo(b)fluoranthene						J								NR
Benzo(k)fluoranthene														NR
Benzo(a)pyrene														NR
Indeno(1,2,3-cd)pyrene														NR
Dibenz(a,h)anthracene														NR
Benzo(g,h,i)perylene														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 a compound, but can't be identified
NR = analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: MOTOROLA, INC.
TOD#: 02-8803-12
SAMPLING DATE: 04/07/88
EPA CASE NO : 9296 LAB: METATRACE, INC.

SEMI-VOLATILES														
Sample ID No.	NYBL-GW-1(MS/MSD)	NYBL-GW-2	NYBL-GW-2A(DUP)	NYBL-GW-3	NYBL-S-1(MS/MSD)	NYBL-S-2	NYBL-S-2A(DUP)	NYBL-S-3	NYBL-S-4	NYBL-S-5	NYBL-S-6	NYBL-RIN-1	NYBL-RIN-2	NYBL-TBLK-1
Traffic Report No.	BR351	BR352	BR353	BR354	BR435	BR436	BR437	BR438	BR439	BR444	BR445	BR440	BR441	BR442
Matrix	WATER	WATER	WATER	WATER	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**10.0**	**10.0**	**10.0**	**1.00**	**1.00**	**1.00**	**1.00**	**N/A**
Percent Moisture	--	--	--	--	26	22	22	25	31	24	24	--	--	N/A
Phenol														NR
bis(2-Chloroethyl)ether														NR
2-Chlorophenol														NR
1,3-Dichlorobenzene														NR
1,4-Dichlorobenzene														NR
Benzyl alcohol														NR
1,2-Dichlorobenzene														NR
2-Methylphenol														NR
bis(2-Chloroisopropyl)ether														NR
4-Methylphenol														NR
N-Nitroso-di-n-dipropylamine														NR
Hexachloroethane														NR
Nitrobenzene														NR
Isophorone														NR
2-Nitrophenol														NR
2,4-Dimethylphenol														NR
Benzoic acid		R	R	R	R	R								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

SITE NAME: MOTOROLA, INC.
TDD#: 02-8803-12
SAMPLING DATE: 04/07/88
EPA CASE NO.: 9296 LAB: METATRACE, INC.

PESTICIDES														
Sample ID No.	NYBL-GW-1(MS/MSD)	NYBL-GW-2	NYBL-GW-2A(DUP)	NYBL-GW-3	NYBL-S-1(MS/MSD)	NYBL-S-2	NYBL-S-2A(DUP)	NYBL-S-3	NYBL-S-4	NYBL-S-5	NYBL-S-6	NYBL-RIN-1	NYBL-RIN-2	NYBL-TBLK-1
Traffic Report No.	BR351	BR352	BR353	BR354	BR435	BR436	BR437	BR438	BR439	BR444	BR445	BR440	BR441	BR442
Matrix	WATER	WATER	WATER	WATER	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER
Units	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Dilution Factor	1.00	1.00	1.00	1.00	10.0	1.00	10.0	10.0	10.0	10.0	10.0	1.00	1.00	N/A
Percent Moisture	--	--	--	--	26	22	22	25	31	24	24	--	--	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
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						91 E	197	1164	187	479				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 CRDL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of a compound, but can't be identified
NR - analysis not required
Detection limits elevated if Dilution Factor)1 and/or percent moisture)0%

[redacted]: [redacted], INC. [redacted]

TDD#: 02-8803-12

SAMPLING DATE: 04/07/88

EPA CASE NO.: 9296

LAB NAME: VERSAR, INC.

INORGANICS

Sample ID No.	NYBL-GW-1(MS/MSD)	NYBL-GW-2	NYBL-GW-2A(DUP)	NYBL-GW-3	NYBL-S-1(MS/MSD)	NYBL-S-2	NYBL-S-2A(DUP)	NYBL-S-3	NYBL-S-4	NYBL-S-5	NYBL-S-6	NYBL-RIN-1	NYBL-RIN-2	NYBL-TBLK-1
Traffic Report No.	MBN903	MBN904	MBN905	MBN906	MBN907	MBN908	MBN909	MBN910	MBN911	MBN914	MBN915	MBN912	MBN913	N/A
Matrix	WATER	WATER	WATER	WATER	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER	N/A
Units	ug/L	ug/L	ug/L	ug/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/L	ug/L	ug/L
Aluminum					13000	15000	10700	15000	19800	14000	13400			NR
Antimony														NR
Arsenic	J	J	J	J	14 E	18 E	13 E	19 E	16 E	20 E	14 E			NR
Barium					82	125	84	166	119	145	J	J	J	NR
Beryllium					J	J	J	J	J	J				NR
Cadmium														NR
Calcium	52800	56000	56300	76000	900	815	443	1960	241	976	10			NR
Chromium					2890	3720	4920	6770	8570	5170	J	J	J	NR
Cobalt					17	20	14	21	38	24	15			NR
Copper	J				J	15 E	J	16 E	J	J	J	J		NR
Iron					R	R	R	R	R	R	R			NR
Lead					25300	31700	23400	30900	25800	29100	24700	J		NR
Magnesium	8920	9530	9590	11700	33 E	58 E	42 E	152 E	178 E	74 E	22 E			NR
Manganese		J		J	3460	4100	3180	3560	7760	4400	3120		J	NR
Mercury					582	1320	529	2420	512	859	583		J	NR
Nickel														NR
Potassium	J	J		J	21	24	20	20	26	26	20			NR
Selenium					1520	1670	J	1500	2350	J	1520			NR
Silver														NR
Sodium	J	9740	9690	9100										NR
Thallium					R	R	R	R	R	R	R	J	J	NR
Vanadium														NR
Zinc	R	R	R	R	21	26	17	25	29	23	20			NR
Cyanide					328 E	420 E	261 E	528 E	1700 E	796 E	59 E	J	28	NR
					3.66	R	R	3.35		0.78				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

U.S. ENVIRONMENTAL PROTECTION AGENCY
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS:8-557-2490

DATE: 5/05/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

LAB NAME: VERSAR, INC.
SOW NO.: 785

G.C. REPORT: 194 - 195
CASE NO.: 9296
PROJECT NO.: 5027.0000

SAMPLE NUMBERS

EPA NO.	LAB ID NO.	EPA NO.	LAB ID NO.
MBN 907	47934	MBN 908	47935
MBN 909	47936	MBN 911	47937
MBN 914	47938	MBN 915	47939
MBN 910	48014	MBN 903	47922, 47928
MBN 904	47923, 47929	MBN 905	47924, 47930
MBN 906	47925, 47931	MBN 912	47926, 47932
MBN 913	47927, 49733		

COMMENTS: THE ZINC AND COPPER VALUES FOR THE SOIL MATRIX ~~HAVE BEEN~~ FLAGGED WITH E'S DUE TO THE SERIAL DILUTION;

ICP INTERELEMENT AND BACKGROUND CORRECTION APPLIED? YES.
CORRECTIONS APPLIED BEFORE GENERATION OF RAW DATA.

FOOTNOTES:

NR - NOT REQUIRED BY CONTRACT AT THIS TIME
FORM I:

VALUE - IF THE RESULT IS A VALUE GREATER THAN OR EQUAL TO THE INSTRUMENT DETECTION LIMIT BUT LESS THAN THE CONTRACT REQUIRED DETECTION LIMIT, REPORT THE VALUE IN BRACKETS (I.E., [10]). INDICATE THE ANALYTICAL METHOD USED WITH P (FOR ICP/FLAME AA) OR F (FOR FURNACE).
U - INDICATES ELEMENT WAS ANALYZED FOR BUT NOT DETECTED. REPORT WITH THE DETECTION LIMIT VALUE (E.G., 10U).
E - INDICATES A VALUE ESTIMATED OR NOT REPORTED DUE TO THE PRESENCE OF INTERFERENCE. EXPLANATORY NOTE INCLUDED ON COVER PAGE.
S - INDICATES VALUE DETERMINED BY METHOD OF STANDARD ADDITION
N - INDICATES SPIKE SAMPLE RECOVERY IS NOT WITHIN CONTROL LIMITS.
* - INDICATES DUPLICATE ANALYSIS IS NOT WITHIN CONTROL LIMITS.
+ - INDICATES THE CORRELATION COEFFICIENT FOR METHOD OF STANDARD ADDITION IS LESS THAN 0.995
DF - DILUTION FACTOR
SD - SAMPLE USED FOR ICP SERIAL DILUTION
M - INDICATES DUPLICATE INJECTION RESULTS EXCEED CONTROL LIMITS

INDICATE METHOD USED: P FOR ICP; A FOR FLAME AA; AND F FOR FURNACE.

Inorganics Laboratory
Response to Contract Compliance Screening

Laboratory : Versar, Inc.
Contract : 68-01-7317

Date : May 25, 1988
Case : 9296 QC 194-195

Criterion	Comments
B1	The potassium value for sample MBN 915 has been corrected and the amended Form I is enclosed.
B2	The manganese value for samples MBN 906 and MBN 913 have been corrected and amended Form I's are enclosed.
B3	The cyanide value for sample MBN 914 has been corrected and the amended Form I is enclosed.

Prepared by: PKW

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 903

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.
CASE NO. 9896
SDG NO. 785
LAB RECEIPT DATE 4/08/88
LAB SAMPLE ID. NO. 47922, 47928
QC REPORT NO. 194 - 195
PROJECT-TASK 5027.0000
BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER X SOIL WIPE

UG/L

1.	ALUMINUM	8.0 U	P	13.	MAGNESIUM	8920.	P
2.	ANTIMONY	22. U	P	14.	MANGANESE	2.0 U	P
3.	ARSENIC	10. U	F	15.	MERCURY	0.2 U	
4.	BARIUM	[53.]	P	16.	NICKEL	16. U	P
5.	BERYLLIUM	1.0 U	P	17.	POTASSIUM	[1790.]	P
6.	CADMIUM	4.0 U	P	18.	SELENIUM	5.0 U	F
7.	CALCIUM	52800.	P	19.	SILVER	2.0 U	P
8.	CHROMIUM	7.0 U	P	20.	SODIUM	[4610.]	P
9.	COBALT	5.0 U	P	21.	THALLIUM	10. U	F
10.	COPPER	[13.]	P	22.	VANADIUM	4.0 U	P
11.	IRON	13. U	P	23.	ZINC	~~[12.]~~	~~P~~
12.	LEAD	5.0 U	F				
	CYANIDE	10. U					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - COLORLESS; CLARITY - CLEAR; SD;

00002

LAB SUPERVISOR [signature]
JANET BECKMAN

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 904

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.

CASE NO. 9296

SOW NO. 785

LAB RECEIPT DATE 4/08/88

LAB SAMPLE ID. NO. 47923, 47929

QC REPORT NO. 194 - 195

PROJECT-TASK 5027.0000

BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER X SOIL WIPE

UG/L

1.	ALUMINUM	8.0 U	P	13.	MAGNESIUM	9530.	P
2.	ANTIMONY	22. U	P	14.	MANGANESE	[3.9]	P
3.	ARSENIC	10. U	F	15.	MERCURY	0.2 U	
4.	BARIUM	[92.]	P	16.	NICKEL	16. U	P
5.	BERYLLIUM	1.0 U	P	17.	POTASSIUM	[2160.]	P
6.	CADMIUM	4.0 U	P	18.	SELENIUM	5.0 U	F
7.	CALCIUM	56000.	P	19.	SILVER	2.0 U	P
8.	CHROMIUM	7.0 U	P	20.	SODIUM	9740.	P
9.	COBALT	5.0 U	P	21.	THALLIUM	10. U	F
10.	COPPER	5.0 U	P	22.	VANADIUM	4.0 U	P
11.	IRON	13. U	P	23.	ZINC	[9.5]	P
12.	LEAD	5.0 U	F				
	CYANIDE	10. U					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - COLORLESS; CLARITY - CLEAR;

00003

LAB SUPERVISOR Erica Fox for
JANET BECKMAN

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 905

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.

CASE NO. 9296

SOW NO. 785

LAB RECEIPT DATE 4/08/88

LAB SAMPLE ID. NO. 47924, 47930

QC REPORT NO. 194 - 195

PROJECT-TASK 5027.0000

BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER X SOIL WIPE

UG/L

1.	ALUMINUM	8.0 U	P	13.	MAGNESIUM	9590.	P
2.	ANTIMONY	22. U	P	14.	MANGANESE	2.0 U	P
3.	ARSENIC	10. U	F	15.	MERCURY	0.2 U	
4.	BARIUM	[94.]	P	16.	NICKEL	16. U	P
5.	BERYLLIUM	1.0 U	P	17.	POTASSIUM	1700. U	P
6.	CADMIUM	4.0 U	P	18.	SELENIUM	5.0 U	F
7.	CALCIUM	56300.	P	19.	SILVER	2.0 U	P
8.	CHROMIUM	7.0 U	P	20.	SODIUM	9690.	P
9.	COBALT	5.0 U	P	21.	THALLIUM	10. U	F
10.	COPPER	5.0 U	P	22.	VANADIUM	4.0 U	P
11.	IRON	13. U	P	23.	ZINC	~~[9.5]~~	P
12.	LEAD	5.0 U	F				
	CYANIDE	10. U					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - COLORLESS; CLARITY - CLEAR;

00004

LAB SUPERVISOR Linda Fox for

JANET BECKMAN

[illegible]
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 908

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

CASE NO. 9296

SOW NO. 785

LAB RECEIPT DATE 4/08/88

LAB SAMPLE ID. NO. 47925, 47951

QC REPORT NO. 194 - 195

PROJECT-TASK 5027.0000

BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER X SOIL WIPE

UG/L

1.	ALUMINUM	8.0 U	P	13.	MAGNESIUM	11700.	P
2.	ANTIMONY	22. U	P	14.	MANGANESE	[illegible]	P
3.	ARSENIC	10. U	F	15.	MERCURY	0.2 U	
4.	BARIUM	[illegible] 181.]	P	16.	NICKEL	16. U	P
5.	BERYLLIUM	1.0 U	P	17.	POTASSIUM	[illegible] 1080.]	P
6.	CADMIUM	4.0 U	P	18.	SELENIUM	5.0 U	F
7.	CALCIUM	76000.	P	19.	SILVER	8.0 U	P
8.	CHROMIUM	7.0 U	P	20.	SODIUM	9100.	P
9.	COBALT	5.0 U	P	21.	THALLIUM	10. U	F
10.	COPPER	5.0 U	P	22.	VANADIUM	4.0 U	P
11.	IRON	13. U	P	23.	ZINC	[illegible]	P
12.	LEAD	5.0 U	F				
	CYANIDE	10. U					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - COLORLESS; CLARITY - CLEAR;

00005

LAB SUPERVISOR [signature]

JANET BECKMAN

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 907

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.
CASE NO. 9296
SOW NO. 785
LAB RECEIPT DATE 4/08/88
LAB SAMPLE ID. NO. 47934
QC REPORT NO. 194 - 195
PROJECT-TASK 5027.0000
BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER SOIL X WIPE

MG/KG DRY WEIGHT

1.	ALUMINUM	13000.	P	13.	MAGNESIUM	3460.	P
2.	ANTIMONY	5.6 UN J	P	14.	MANGANESE	582.	P
3.	ARSENIC	14. N	F	15.	MERCURY	0.13 U	
4.	BARIUM	82.	P	16.	NICKEL	21.	P
5.	BERYLLIUM	[0.61]	P	17.	POTASSIUM	1520.	P
6.	CADMIUM	900.	P	18.	SELENIUM	1.3 U	P
7.	CALCIUM	2890.	P	19.	SILVER	0.51 U	P
8.	CHROMIUM	17. *	P	20.	SODIUM	~~[70.] J~~	P
9.	COBALT	[9.5] J	P	21.	THALLIUM	2.6 UN J	F
10.	COPPER	~~108. *E~~	F	22.	VANADIUM	21.	P
11.	IRON	25300. *	P	23.	ZINC	328. E	P
12.	LEAD	33. N	F		PERCENT SOLIDS	78.3	
	CYANIDE	3.66					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - BROWN; TEXTURE - MEDIUM; DF OF 5 FOR PB;

00008

LAB SUPERVISOR Erica Fox for
JANET BECKMAN

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 908

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.
CASE NO. 9296
SOW NO. 785
LAB RECEIPT DATE 4/08/88
LAB SAMPLE ID. NO. 47935
QC REPORT NO. 194 - 195
PROJECT-TASK 5027.0000
BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER SOIL X WIPE

MG/KG DRY WEIGHT

1.	ALUMINUM	15000.	P	13.	MAGNESIUM	4100.	P
2.	ANTIMONY	5.9 UN	P	14.	MANGANESE	1320.	P
3.	ARSENIC	18. N	F	15.	MERCURY	0.13 U	
4.	BARIUM	125.	P	16.	NICKEL	24.	P
5.	BERYLLIUM	[0.66]	P	17.	POTASSIUM	1670.	P
6.	CADMIUM	815.	P	18.	SELENIUM	1.3 U	F
7.	CALCIUM	3720.	P	19.	SILVER	0.53 U	P
8.	CHROMIUM	20. *	P	20.	SODIUM	~~[78.] E~~	P
9.	COBALT	15.	P	21.	THALLIUM	2.7 UN	F
10.	COPPER	~~100. *E~~	P	22.	VANADIUM	26.	P
11.	IRON	31700. *	P	23.	ZINC	420. E	P
12.	LEAD	58. N	F		PERCENT SOLIDS	75.0	
	CYANIDE	~~1.7~~					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - BROWN; TEXTURE - MEDIUM; DF OF 10 FOR PB;

00009

LAB SUPERVISOR Erica Fox for
JANET BECKMAN

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 909

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.
CASE NO. 9296
SOW NO. 785
LAB RECEIPT DATE 4/08/88
LAB SAMPLE ID. NO. 47936
QC REPORT NO. 194 - 195
PROJECT-TASK 5027.0000
BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER SOIL X WIPE

MG/KG DRY WEIGHT

1.	ALUMINUM	[10700.	P		
2.	ANTIMONY	5.5 UN J	P		
3.	ARSENIC	13. N J	F S+		
4.	BARIUM	84.	P		
5.	BERYLLIUM	[0.37]	P		
6.	CADMIUM	443.	P		
7.	CALCIUM	4920.	P		
8.	CHROMIUM	14. *	P		
9.	COBALT	[8.7] J	P		
10.	COPPER	~~80.~~ *E	P		
11.	IRON	23400. *	P		
12.	LEAD	42. N J	F		
	CYANIDE	~~2.91~~			
13.	MAGNESIUM	3180.	P		
14.	MANGANESE	529.	P		
15.	MERCURY	0.12 U			
16.	NICKEL	20.	P		
17.	POTASSIUM	[848.]	P		
18.	SELENIUM	1.2 U	F		
19.	SILVER	0.50 U	P		
20.	SODIUM	~~E 38.~~ J	~~P~~		
21.	THALLIUM	2.5 UN J	F		
22.	VANADIUM	17.	P		
23.	ZINC	261. E	P		
	PERCENT SOLIDS	80.3			

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - BROWN; TEXTURE - MEDIUM; DF OF 5 FOR AS, PB;

00010

LAB SUPERVISOR Erica Fox for
JANET BECKMAN

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 910

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.
CASE NO. 9296
SOW NO. 785
LAB RECEIPT DATE 4/12/88
LAB SAMPLE ID. NO. 48014
QC REPORT NO. 194 - 195
PROJECT-TASK 5027.0000
BATCH 195

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER SOIL X WIPE

MG/KG DRY WEIGHT

1.	ALUMINUM	15000.	P	13. MAGNESIUM	3560. P
2.	ANTIMONY	5.9 UN J	P	14. MANGANESE	2420. P
3.	ARSENIC	19. N F	S	15. MERCURY	0.13 U
4.	BARIUM	166.	P	16. NICKEL	20. P
5.	BERYLLIUM	E 0.761	P	17. POTASSIUM	1500. P
6.	CADMIUM	1960.	P	18. SELENIUM	1.3 U F
7.	CALCIUM	6770.	P	19. SILVER	0.54 U P
8.	CHROMIUM	21. *	P	20. SODIUM	~~E 166.~~ J P
9.	COBALT	16. J	P	21. THALLIUM	2.7 UN J F
10.	COPPER	~~143. *E~~	P	22. VANADIUM	23. P
11.	IRON	30900. *	P	23. ZINC	528. E P
12.	LEAD	152. N J	F	PERCENT SOLIDS	74.7
	CYANIDE	3.35			

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - BROWN; TEXTURE - MEDIUM; DF OF 20 FOR PB; DF OF 5 FOR AS; SD;

00014

LAB SUPERVISOR Erica Fox for
JANET BECKMAN

FORM 1

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 911

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.
CASE NO. 9296
SOW NO. 785
LAB RECEIPT DATE 4/08/88
LAB SAMPLE ID. NO. 47937
QC REPORT NO. 194 - 195
PROJECT-TASK 5027.0000
BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER SOIL X WIPE

MG/KG DRY WEIGHT

1.	ALUMINUM	19800.	P	13.	MAGNESIUM	7760.	P
2.	ANTIMONY	6.5 UN J	P	14.	MANGANESE	512.	P
3.	ARSENIC	16. N J	F	15.	MERCURY	0.15 U	
4.	BARIUM	119.	P	16.	NICKEL	26.	P
5.	BERYLLIUM	[0.61]	P	17.	POTASSIUM	2300.	P
6.	CADMIUM	241.	P	18.	SELENIUM	1.5 U	F
7.	CALCIUM	8570.	P	19.	SILVER	0.59 U	P
8.	CHROMIUM	38. *	P	20.	SODIUM	~~[109.] E~~	~~P~~
9.	COBALT	[8.2] J	P	21.	THALLIUM	3.0 UN J	F
10.	COPPER	~~2580. *E~~	~~P~~	22.	VANADIUM	23.	P
11.	IRON	25800. *	P	23.	ZINC	1700. E	P
12.	LEAD	178. N J	F		PERCENT SOLIDS	67.5	
	CYANIDE	0.74 U					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - BROWN; TEXTURE - MEDIUM; DF OF 20 FOR PB;

00011

LAB SUPERVISOR Enita Fox for
JANET BECKMAN

CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 914

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.

CASE NO. 9296

SOW NO. 785

LAB RECEIPT DATE 4/08/88

LAB SAMPLE ID. NO. 47938

QC REPORT NO. 194 - 195

PROJECT-TASK 5027.0000

BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER SOIL X WIPE

MG/KG DRY WEIGHT

1.	ALUMINUM	[14000.	P	13.	MAGNESIUM	4400.	P
2.	ANTIMONY	6.7 UN J	P	14.	MANGANESE	859.	P
3.	ARSENIC	20. N J	F	15.	MERCURY	0.13 U	
4.	BARIUM	146.	P	16.	NICKEL	26.	P
5.	BERYLLIUM	[0.83]	P	17.	POTASSIUM	[1040.]	P
6.	CADMIUM	376.	P	18.	SELENIUM	1.3 U	F
7.	CALCIUM	5170.	P	19.	SILVER	0.52 U	P
8.	CHROMIUM	24. *	P	20.	SODIUM	~~[70.1]~~ J	P
9.	COBALT	[9.4] J	P	21.	THALLIUM	2.6 UN J	F
10.	COPPER	~~633. NE~~	P	22.	VANADIUM	23.	P
11.	IRON	29100. *	P	23.	ZINC	796. E	P
12.	LEAD	74. N J	F S		PERCENT SOLIDS	76.9	
	CYANIDE	0.78					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - BROWN; TEXTURE - MEDIUM; DF OF 20 FOR PB;

00012

LAB SUPERVISOR Erica Fox for
JANET BECKMAN

[illegible]
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MSN 915

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.
CASE NO. 9296
SDG NO. 785
LAB RECEIPT DATE 4/08/88
LAB SAMPLE ID. NO. 47939
QC REPORT NO. 194 - 195
PROJECT-TASK 5027.0000
BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER SOIL X WIPE

MG/KG DRY WEIGHT

1.	ALUMINUM	[illegible] 13400.	P	13.	MAGNESIUM	3120.	P
2.	ANTIMONY	5.9 UN J	P	14.	MANGANESE	583.	P
3.	ARSENIC	14. N J	F	15.	MERCURY	0.13 U	
4.	BARIUM	E 48.3	P	16.	NICKEL	20.	P
5.	BERYLLIUM	0.27 U	P	17.	POTASSIUM	1560.	P
6.	CADMIUM	10.	P	18.	SELENIUM	1.3 U	F
7.	CALCIUM	E 1210.1	P	19.	SILVER	0.54 U	P
8.	CHROMIUM	15. *	P	20.	SODIUM	~~E 36.1 J~~	~~P~~
9.	COBALT	E 10.1 J	P	21.	THALLIUM	2.7 UN J	F
10.	COPPER	~~13. * E~~	~~P~~	22.	VANADIUM	20.	P
11.	IRON	24700. *	P	23.	ZINC	59. E	P
12.	LEAD	32. N J	F		PERCENT SOLIDS	74.7	
	CYANIDE	0.67 U					

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - BROWN; TEXTURE - MEDIUM; DF OF 4 FOR PB;

00013

LAB SUPERVISOR [signature]
JANET BECKMAN

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 912

DATE 5/05/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.

CASE NO. 9296

SOW NO. 785

LAB RECEIPT DATE 4/08/88

LAB SAMPLE ID. NO. 47926, 47932

QC REPORT NO. 194 - 195

PROJECT-TASK 5027.0000

BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER X SOIL WIPE

UG/L

1.	ALUMINUM	8.0 U	P	13. MAGNESIUM	10. U P
2.	ANTIMONY	22. U	P	14. MANGANESE	2.0 U P
3.	ARSENIC	10. U	F	15. MERCURY	0.2 U
4.	BARIUM	[3.3]	P	16. NICKEL	16. U P
5.	BERYLLIUM	1.0 U	P	17. POTASSIUM	1700. U P
6.	CADMIUM	4.0 U	P	18. SELENIUM	5.0 U F
7.	CALCIUM	[368.]	P	19. SILVER	2.0 U P
8.	CHROMIUM	7.0 U	P	20. SODIUM	[364.] P
9.	COBALT	[5.8]	P	21. THALLIUM	10. U F
10.	COPPER	5.0 U	P	22. VANADIUM	4.0 U P
11.	IRON	[23.]	P	23. ZINC	[14.] P
12.	LEAD	5.0 U	F		
	CYANIDE	10. U			

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - COLORLESS; CLARITY - CLEAR;

00006

LAB SUPERVISOR Erica Fox for
JANET BECKMAN

CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA. 22313
703/557-2490 FTS: 8-557-2490

SAMPLE NO.
MBN 913

DATE 5/05/98

INORGANIC ANALYSIS DATA SHEET

LAB NAME VERSAR INC.

CASE NO. 9296

SDG NO. 795

LAB RECEIPT DATE 4/08/98

LAB SAMPLE ID. NO. 47927, 47933

QC REPORT NO. 194 - 195

PROJECT-TASK 5027.0000

BATCH 194

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW X MEDIUM HIGH

MATRIX: WATER X SOIL WIPE

UG/L

1.	ALUMINUM	8.0 U P	13.	MAGNESIUM	[10.1 P
2.	ANTIMONY	23. U P	14.	MANGANESE	[3.C] P
3.	ARSENIC	10. U F	15.	MERCURY	0.2 U
4.	BARIUM	[3.3] P	16.	NICKEL	16. U P
5.	BERYLLIUM	1.0 U P	17.	POTASSIUM	1700. U P
6.	CADMIUM	4.0 U P	18.	SELENIUM	5.0 U F
7.	CALCIUM	[521.] P	19.	SILVER	3.0 U P
8.	CHROMIUM	7.0 U P	20.	SODIUM	[430.] P
9.	COBALT	5.0 U P	21.	THALLIUM	10. U F
10.	COPPER	5.0 U P	22.	VANADIUM	4.0 U P
11.	IRON	13. U P	23.	ZINC	28. P
12.	LEAD	5.0 U F			
	CYANIDE	10. U			

FOOTNOTES: SEE COVER PAGE.

COMMENTS: COLOR - COLORLESS; CLARITY - CLEAR;

00007

LAB SUPERVISOR Janet Fox for

JANET BECKMAN

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Acceptability Narrative

Date: Feb. 1988
Number: HW-2
Revision: 7

Case# 9296 Site Motorola Inc. Matrix: Soil 7

Lab VERSAR Water 6

Other -

A.2.1 Are all data of acceptable quality? Yes ____ No L

If no, list exceptions with reason(s) for rejection or qualification as estimated value (J).

1) The following analytes were qualified as estimated (flagged with 'J') because serial dilution % recovery is greater than 10 % but less than 100 %.
Na, Co → All soil samples.

2) The following analytes were qualified as estimated (flagged with 'J') because spike recovery is less than 75 %
Sb, As, Tl → All soil samples.
(As is also estimated due to coefficient of correlation ~~is~~ less than 0.995 in MSA)

3) The following analyte was qualified as estimated (flagged with 'J') because spike recovery is greater than 125 % and data not flagged with a "V".
Pb → All soil samples.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Acceptability Narrative

Date: Feb. 1988
Number: HW-2
Revision: 7

A.2.1 (continuation)

4) The following analyte was selected because RPD is greater than 100 % where sample and duplicate are both greater than 5 x CRDL.
Cu → All Soil Samples.

5) The following analytes were selected because field blank was > 2x IDL and the sample concentration was less than 5x field-blank value but not flagged with a "U".
Zn → MBN-903 - MBN-906.
Na → All Soil Samples.
(Na is previously estimated due to other QC criteria) The rejected data is not usable at all.

A.2.2 Contract Problems/Non-compliance

* Special Quantitation procedure was not followed for the MSA analysis. The samples should have been quantitated with 3 spikes at 50, 100 & 150 % at the sample absorbance. NO ACTION TAKEN.

(P.T.O)

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: Gurtej Sumbaly Date: 06-07-88
Signature

Verified by: _____ Date: _____

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Acceptability Narrative

Date: Feb. 1988
Number: HW-2
Revision: 7

A.2.1 (continuation)

6) The following analyte was Rejected because for field duplicate the difference between sample and duplicate is greater than 2xCRDL where sample and/or duplicate is less than 5x CRDL but greater than CRDL.

CN ⟶ MBN-908 -909.

A.2.2 Contract Problems/Non-compliance

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: Smita Sumbaly Date: 06-08-88
Signature

Verified by: Hari Sheth Date: 6-8-88

Total Review
CLP DATA ASSESSMENT Report
Functional Guidelines For Evaluating Organics
Analysis
(GC and GC/MS Analysis)

#Case 4296 #SDG BR351 Lab Meta-Trace Site Motorola Inc.

DATA ASSESSMENT

The new functional guidelines for evaluating of organic applied.

all Data are valid and acceptable except those analytes that have been qualified with a "J" (estimated), "U" (non-detects) "R" (unusable), "N" (presumptive evidence of presence of material) or "NJ" (presumptive evidence of the presence of the material at an estimated value). All actions are detailed on the attached sheet.

Contract problems/Non-Compliance

1- presence of a very longe peak in the pest/pcp fraction.
2- Some Samples yielded high surrogate Recovery.
3. Internal standards for some samples yielded an area outside QC limits.
4- In the BN/A Fraction, the lab used 50ppb standard from the initial Calibration as Continuing Calibration and used the RRF for quantitation.

Reviewer's Signature: Mahmoud S. Hamid Date: 9/12/88

Verified By: George Kazazi Date: 12/12/88

C:CLPDATA

DATA ASSESSMENT

1. Tuning and performance criteria are established to ensure mass resolution, identification, and to some degree, sensitivity. These criteria are not sample specific; conformance is determined using standard materials. Therefore, these criteria should be met in all circumstances. Tuning standard for volatile organics is Bromofluorobenzene, and for semivolatiles in Decafluorotriphyenylphosphine.

   If mass calibration is in error, all associated data will be classified as unusable "R."

All Mass Calibration was done satisfactorily.

DATA ASSESSMENT

1. Quality Assurance (QA) blanks (i.e., method, trip, field and water blanks) are prepared to identify any contamination which may be introduced into samples during sample preparation or field activity. Method blank measure laboratory contamination, trip blanks measure cross-contamination of samples during shipment, field banks measure cross contamination of samples during field decontamination and water blanks measure potential contamination introduced by the distilled water used during decontamination of field equipment. If the concentration of the analyte is less than 5 times (10 times for the commen-contaminents) the analytes are qualified as non-detects "U". The following analytes in the samples shown were qualified with "U" for this reason:

a) Method blank contamination

methylene chloride qualified with 'U' in : BR437, BR438, BR439.

Di-n-Butylphthalate qualified with "U" in : BR351, BR352, BR353, BR435 BR436, BR437, BR440, BR445.

b). Trip blank contaminations

Methylene chloride qualified with 'U' in : BR435, BR436, BR444

Bis(2-ethylhexyl)phthalate " " : BR435, BR436, BR438

c). Field or rinse blank contamination

Acetone qualified with 'U' in : BR352, BR353, BR354, BR435, BR436, BR439, BR444, BR438, BR437.

d). Water blank contamination

None.

Data Assessment

2. Holding time: The amount of an analyte in a sample changes with time due to chemical instability, degradation, volatization, etc. If the specified holding time are exceeded, the data may not be accurate. Those analytes detected in the samples will be qualified as estimated "J". The non-detects values sample quantiation limits will be flagged as estimated "J" or "R" unusable if the holding time are grossly exceeded.

The following actions were taken in the samples and analytes shown due to exceedence of holding time.

All Samples in all fractions were extracted and analyzed within the required holding time.

Data Assessment

3. Calibration

Satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning and continuing calibration checks document satisfactory daily instrument performance. The measure parameters are

a) Response Factor (RF)
Response factor measures the instruments response. The response factor for TCL Compounds must be $\geq$.05 either in the initial or continuing calibration. A value <.05 indicates serious detection and quantitation errors. Analytes detected in the sample will qualify with "J" while non-detects will be qualify with "R".

2. Butanone was qualified with "R" in : BR351, BR352, BR353, BR354, BR435, BR436, BR437, BR438, BR439, BR444, BR445, BR440, BR441, BR442.

Benzoic acid qualified with "R" in : BR352, BR353, BR435, BR436, BR354.

Data Assessment

3. Calibration

b) percent relative standard deviation and percent difference. percent relative standard deviation %RSD is calculated from the initial calibration and is used to indicate the stability of the response factor over increasing concentration. Percent difference compares the response factor from the continuing calibration with the mean response factor RRF from the initial calibration %D reflects the instrument daily performances. %RSD must be ≤ 30% and %D must be <25%. A value outside these limits indicates potential detection and quantitation errors. For this reason all positive results are flagged as estimate "J" and non-detects as "UJ". If there is gross exceedence of %RSD or %D the non-detects may qualify with "R".

The following analytes exhibited %RSD and/or %D criteria, but no action was taken since all results were negative.

Methylene chloride : BR 351 to BR 354, BR 435 to 438, BR 441, BR 442, BR 444

2-Hexanone : " " "

4-Methyl-2-pentanone : BR 435 to BR 438, BR 444, BR 440 DL

Vinyl acetate : BR 351 to 354, BR 435 to 438, BR 441, BR 442, BR 444.

1,1,2,2 tetrachloroethane : BR 435 to 438, BR 444

Carbon disulfide : BR 351 to 354, BR 440 to BR 442

Trans 1,3-dichloropropene : " " BR 440 DL

Chloromethane : BR 440 DL

Bromomethane : BR 435 to BR 438, BR 440 DL, BR 435 MS/MSD

2-Butanone : BR 440 DL

Benzoic Acid : BR 352 to 354, BR 435, BR 436, BR 445

2,4-Dinitrophenol : " " "

4,6-Dinitro-2-Methylphenol : BR 352, BR 354, BR 435, BR 436, BR 445

bis(2-ethylhexyl)phthalate : BR 445

Chloroethane : BR 440 DL

Data Assessment

5. All samples are spiked with surrogate compounds prior to sample preparation in order to evaluate laboratory performances and efficiency of the technique. If the measured surrogate concentrations are outside of contract specifications, results for related analytes may be qualified. The following qualifications were applied to the samples and analyte shown for this reason:

Sample NO: BR 437, yielded high recovery for the Surrogate Compounds phenol-d6 and 2-Fluorobiphenyl. No action.

In Sample NO: BR 444, Terphenyl-d14 yielded high recovery. No action.

7. Internal standards performance

Internal standard (IS) performance criteria ensure that GC/MS sensitivity and response is stable during every run. Internal standard area count must not vary by more than a factor of two (-50 to + 100%) from the associated-calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated calibrated standard. If the area count is outside -50% or +100% of the associated standard, all the positive results for compounds quantitated using that "IS" are flagged as estimated "J", all non-detects as "UJ" or as "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use his or her professional judgment for partial or total rejection of the data of that sample fraction.

The following actions was taken because of the internal standard Criteria :

a) Chrysene-d12 yielded an area count outside of Qc limits, all Corresponding TCL Compounds were qualified with "UJ" in BR 354

b) Chrysene-d12 and perylene-d12 yielded an Area Count outside Qc limits in BR438. All the corresponding TCL Compounds were qualified with "UJ".

c) phenanthrene-d10, Chrysene-d12 and perylene-d12 yielded an area Count outside of Qc limits in BR439, BR444. all Corresponding TCL Compounds were qualified with "UJ".

8. This package has Reextraction, Reanalysis or dilution. After reviewing the QA results, the following Form 1's are identified to be use.

pest - PCB Fraction :

BR 435	and	BR 435 DL	use	BR 435
BR 437	"	BR 437 DL	"	BR 437
BR 438	"	BR 438 DL	"	BR 438
BR 439	"	BR 439 DL	"	BR 439
BR 444	"	BR 444 DL	"	BR 444
BR 445	"	BR 445 DL	"	BR 445

System performance :

In the pest/PCB fraction, the GC chromatograms showed a very large peak in all soil samples which interferes with the first 6 analytes " alpha-BHC, Beta-BHC, Delta-BHC, gama-BHC, Heptachlor and aldrin. This peak disapears in case of reruning the samples at 10 times dilution. For this reason, the detection limits for these analytes raised 10 times as shown in Form 1s for the following samples: BR 437, BR 438, BR 439, BR 435, BR 444, BR 445.

Aroclor 1254 qualified with "J" in BR 436, BR 437, BR 439 because their values were below detection limits.

Region II

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 9296 SITE Motorola Inc

LABORATORY Meta-Trace NO. OF SAMPLES/ MATRIX 14 Tw 2S

SDG # BR 351 REVIEWER (IF NOT ESD) ESAT

SOW# REVIEWER'S NAME Mahmoud Hamid

DPO: ACTION _____ FYI _____ COMPLETION DATE 9-12-88

DATA ASSESSMENT SUMMARY

		VOA	BNA	PEST	OTHER
1.	HOLDING TIMES				
2.	GC/MS TUNE/INSTR. PERFORM.				
3.	CALIBRATIONS	M	M		
4.	BLANKS	X	X		
5.	SURROGATES		~~X~~ O		
6.	MATRIX SPIKE/DUP		X	M	
7.	OTHER QC				
8.	INTERNAL STANDARDS		M		
9.	COMPOUND IDENTIFICATION			M	
10.	SYSTEM PERFORMANCE				
11.	OVERALL ASSESSMENT				

O = Data had no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: 1- Internal standards in the BN/A Analysis inconsistency indicate potential quantitation problems. 2- Pest/PCB extraction was highly Contaminated

AREAS OF CONCERN: _____

NOTABLE PERFORMANCE: _____

metaTRACE, Inc. 13715 Rider Trail North • Earth City, MO 63045 • (314) 298-8566

REVISED 6/13/88

CASE NARRATIVE

RESUBMITTED DATA

Laboratory Name: metaTRACE, Inc.
13715 Rider Trail North
Earth City, MO 63045

Contract Number: 68-01-7417 SDG: BR351

Case Number: 9296 Lab Code: meta

EPA Sample Numbers:	metaTRACE Sample #:
BR435	AA10833
BR435MS	AA10834
BR435MSD	AA10835
BR436	AA10836
BR437	AA10837
BR438	AA10838
BR439	AA10839
BR444	AA10840
BR445	AA10841
BR351	AA10842
BR351MS	AA10843
BR351MSD	AA10844
BR440	AA10845
BR441	AA10846
BR442	AA10847
BR352	AA10848
BR353	AA10849
BR354	AA10850

General:

Seven soil and six water samples for full TCL analysis and one water for VOA only for Case 9296 were received on 4/8/88, by the metaTRACE Sample Custodian. All samples were received in good condition. Samples were logged into the metaTRACE LIMS sample tracking system and assigned the unique identifiers listed above.

Volatile Analysis:
Samples were analyzed on 4/11/88, 4/13/88 and 4/14/88. All contract QC was within limits for all samples, method blanks, and MS/MSDs; except for two percent recoveries in the MS/MSD. No corrective action was taken. One sample BR440, required dilution, both sets of data have been submitted.

Extraction:

All samples were extracted for BNAs and pesticide/PCBs on 4/13/88. GPC column clean-up was not performed. No problems were

000003A ~~000004~~ 6/13/88

encountered for the semi-volatiles.

Semi-volatile Analysis:

Semi-volatile extracts were analyzed on 4/15/88, 4/17/88 and 4/22/88. Surrogate spike recoveries were within contract criteria for all samples, blanks, and MS/MSDs. 15 of 156 internal standard areas were outside the -50 to +100 area window criteria. In every case , one or more of the last three internal standards were involved. metaTRACE has been working with H-P Technical Engineers to address this problem. Studies that have been conducted here at metaTRACE indicate that the apparent instability of the internal standards is due to the design of the HP MSD system and is independent of sample matrix. The laboratory is not in a position to reanalyze every sample when internal standards fail to meet criteria. No additional problems were encountered.

RESUBMITTED DATA

Pesticide Analysis:

The pesticide extracts were analyzed on 4/16/88, 4/17/88 and4/20/88 by the following procedures:

- Primary analysis: HP-5890-3A with a 6ft X 2mm ID glass column packed with 1.5% SP-2250/1.95 % SP-2401.
- Confirmation analysis: HP-5890-3B with a 6ft X 2mm ID glass column packed with 3% SP-2100.

The Nelson chromatography software used to reduce the raw data uses processed run time and not necessarily the exact time and date injected. The actual date and time of injection are taken from the HP-3390A integrator.

Pesticide Blank:

The pesticide portion of the soil method blank had a large contaminant peak earily in the chromatogram. This contaimination was also present in all soil samples. All of the soil samples required dilutions. The contaimination problem was traced to a plastic (non-Teflon) filtering apparatus that was used during the sodium sulfate drying step with methylene chloride. Due to the expiration of holding times the samples were diluted and not re-extracted. The filtering device has since been replaced, and the technician given additional training. Individual analytes effected by the contamination are annotated with a "D" on each Form I. Each sample has a Form I and data for the dilution.

Surrogate Recovery:

DBC recovery was within contract criteria for all samples, blanks, and MS/MSDs. The contaiminant in the soil MS/MSD caused problems with % Recoveries and RPDs on most of the spiked compounds.

metaTRACE, Inc. 13715 Rider Trail North • Earth City, MO 63045 • (314) 298-8566

RESUBMITTED DATA

Diskette Deliverable

metaTRACE has submitted the diskette in Format B, using the EPA Cincinnati software. There is a problem with the way this software rounds off numerical data that cannot be fixed by the laboratory. This difference in rounding results in diskette analytical results that differ from the raw data submitted from the GC/MS outputs. Neither HP or EPA have taken steps to correct this problem.

Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Kenneth J. Baughman
Vice President
Project Administration

June 13, 1988
Date

000003C

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: metaTRACE | EPA SAMPLE NUMBER: BR351
CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9256 SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID:AA10842

SAMPLE WT/VOL: 5 (G/ML): ML LAB FILE ID: C3350

LEVEL: LOW DATE RECEIVED:04-08-88

% MOISTURE: 0 % DATE ANALYZED:04-13-88

COLUMN (PACK/CAP): PACK DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/L

CAS NUMBER	COMPOUND	Q
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
540-59-0	1,2-Dichloroethene (TOTAL)	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-01-5	CIS-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-02-6	TRANS-1,3-Dichloropropene	5 U
75-25-2	Bromoform	5 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-6	2-Hexanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
1330-20-7	Xylenes (TOTAL)	5 U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: meta-TRACE EPA SAMPLE NUMBER: BR252
CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO: NA SDG NO: BR251

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID: AA10848

SAMPLE WT/VOL: 5 (G/ML): ML LAB FILE ID: >C375

LEVEL: LOW DATE RECEIVED: 04-08-88

PERCENT MOISTURE: 0 % DATE ANALYZED: 04-13-88

COLUMN (PACK/CAP): PACK DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	Q
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	21 JU
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
540-59-0	1,2-Dichloroethene (TOTAL)	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 UR
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-01-5	CIS-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-02-6	TRANS-1,3-Dichloropropene	5 U
75-25-2	Bromoform	5 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-6	2-Hexanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
1330-20-7	Xylenes (TOTAL)	5 U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR253

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 5196 SAS NO:NA SDG NO: BR251

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID:AA10849

SAMPLE WT/VOL: 5 (G/ML): ML LAB FILE ID:)C3357

LEVEL: LOW DATE RECEIVED:04-08-88

% MOISTURE: 0 % DATE ANALYZED:04-17-88

COLUMN (PACK/CAP): PACK DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/L

CAS NUMBER	COMPOUND	C
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	71 BU
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
540-59-0	1,2-Dichloroethene (TOTAL)	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 UR
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-01-5	CIS-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-02-6	TRANS-1,3-Dichloropropene	5 U
75-25-2	Bromoform	5 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-6	2-Hexanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
1330-20-7	Xylenes (TOTAL)	5 U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: metaTRACE — CONTRACT: 68-01-7417

LAB CODE: meta — CASE NO: 5799 — SAS NO: NA — SDG NO: [illegible]

MATRIX (SOIL, WATER): WATER — LAB SAMPLE ID: AA10800

SAMPLE WT/VOL: [illegible] — LAB FILE ID: >C1T38

LEVEL: LOW — DATE RECEIVED: 04-03-93

% SOLIDS: [illegible] — DATE ANALYZED: 04-17-93

COLUMN (PACK/CAP): PACK — DILUTION FACTOR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	Q
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
540-59-0	1,2-Dichloroethene (TOTAL)	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-01-5	CIS-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-02-6	TRANS-1,3-Dichloropropene	5 U
75-25-2	Bromoform	5 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-6	2-Hexanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
1330-20-7	Xylenes (TOTAL)	5 U

FORM I VOA

0000043

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: NORTHRIDGE — EPA SAMPLE NUMBER: BR415

LAB CODE: [illegible] — CASE NO: 4094 — CONTRACT: 68-01-7417

MATRIX (SOIL/WATER): SOIL — SAS NO.: NA — SDG NO: BR251

SAMPLE WT/VOL: 5.0 (G/ML): G — LAB SAMPLE ID: AA10532

LEVEL: LOW — LAB FILE ID: >C10510

PERCENT MOISTURE: 26 % — DATE RECEIVED: 04-08-88

COLUMN: (PACK/CAP): PACK — DATE ANALYZED: 04-11-88

DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	Q
74-87-3	Chloromethane	14 U
74-83-9	Bromomethane	7 U
75-01-4	Vinyl Chloride	7 U
75-00-3	Chloroethane	14 U
75-09-2	Methylene Chloride	3 U ✓U
67-64-1	Acetone	200 ✓U
75-15-0	Carbon Disulfide	7 U
75-35-4	1,1-Dichloroethene	7 U
75-34-3	1,1-Dichloroethane	7 U
540-59-0	1,2-Dichloroethene (TOTAL)	7 U
67-66-3	Chloroform	7 U
107-06-2	1,2-Dichloroethane	7 U
78-93-3	2-Butanone	14 U K
71-55-6	1,1,1-Trichloroethane	7 U
56-23-5	Carbon Tetrachloride	7 U
108-05-4	Vinyl Acetate	14 U
75-27-4	Bromodichloromethane	7 U
78-87-5	1,2-Dichloropropane	7 U
10061-01-5	CIS-1,3-Dichloropropene	7 U
79-01-6	Trichloroethene	7 U
124-48-1	Dibromochloromethane	7 U
79-00-5	1,1,2-Trichloroethane	7 U
71-43-2	Benzene	7 U
10061-02-6	TRANS-1,3-Dichloropropene	7 U
75-25-2	Bromoform	7 U
108-10-1	4-Methyl-2-Pentanone	14 U
591-78-6	2-Hexanone	14 U
127-18-4	Tetrachloroethene	7 U
108-88-3	Toluene	7
108-90-7	Chlorobenzene	7 U
100-41-4	Ethylbenzene	7 U
100-42-5	Styrene	7 U
1330-20-7	Xylenes (TOTAL)	7 U

FORM I VOA

VOLATILE ORGANICS ANALYSIS DATA SHEET

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG

CAS NUMBER	COMPOUND	Q
74-87-3	Chloromethane	12 U
74-83-9	Bromomethane	12 U
75-01-4	Vinyl Chloride	12 U
75-00-3	Chloroethane	12 U
75-09-2	Methylene Chloride	12 U
67-64-1	Acetone	21 U
75-15-0	Carbon Disulfide	6 U
75-35-4	1,1-Dichloroethene	6 U
75-34-3	1,1-Dichloroethane	6 U
540-59-0	1,2-Dichloroethene (TOTAL)	6 U
67-66-3	Chloroform	6 U
107-06-2	1,2-Dichloroethane	6 U
78-93-3	2-Butanone	12 U
71-55-6	1,1,1-Trichloroethane	6 U
56-23-5	Carbon Tetrachloride	6 U
108-05-4	Vinyl Acetate	12 U
75-27-4	Bromodichloromethane	6 U
78-87-5	1,2-Dichloropropane	6 U
10061-01-5	CIS-1,3-Dichloropropene	6 U
79-01-6	Trichloroethene	6 U
124-48-1	Dibromochloromethane	6 U
79-00-5	1,1,2-Trichloroethane	6 U
71-43-2	Benzene	6 U
10061-02-6	TRANS-1,3-Dichloropropene	6 U
75-25-2	Bromoform	6 U
108-10-1	4-Methyl-2-Pentanone	12 U
591-78-6	2-Hexanone	12 U
127-18-4	Tetrachloroethene	6 U
108-88-3	Toluene	6 U
108-90-7	Chlorobenzene	6 U
100-41-4	Ethylbenzene	6 U
100-42-5	Styrene	6 U
1330-20-7	Xylenes (TOTAL)	6 U

FORM I VOA

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB SAMPLE NUMBER: BR437

LAB NAME: METCALF&EDDY CONTRACT: 68-01-7417

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: [illegible]

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: AA13837

SAMPLE WT/VOL: 5 (G/ML) G LAB FILE ID: >CT314

LEVEL: LOW DATE RECEIVED: 04-03-88

% MOISTURE: [illegible] DATE ANALYZED: 04-11-88

GC COLUMN: [illegible] ID: [illegible] DILUTION FACTOR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	Q
74-87-3	[illegible]	10 U
75-09-2	Methylene Chloride	10 U
67-64-1	Acetone	131
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
540-59-0	1,2-Dichloroethene (TOTAL)	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-01-5	CIS-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-02-6	TRANS-1,3-Dichloropropene	5 U
75-25-2	Bromoform	5 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-6	2-Hexanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
1330-20-7	Xylenes (TOTAL)	5 U

FORM I VOA

0000072

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: [illegible]		CONTRACT: [illegible]	
[illegible]		[illegible]	
MATRIX: (SOIL/WATER)	SOIL	LAB SAMPLE ID: [illegible]	
[illegible]		LAB FILE ID: [illegible]	
LEVEL:	LOW	DATE RECEIVED: 04/	
PERCENT MOISTURE:	[illegible] %	DATE ANALYZED: 04/	
[illegible]	[illegible]	DILUTION FACTOR:	

CONCENTRATION UNITS (UG/L OR UG/KG DRY WEIGHT): UG/KG

CAS NUMBER	COMPOUND		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		
67-64-1	Acetone	11	J
75-15-0	Carbon Disulfide		
75-35-4	1,1-Dichloroethene		
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (TOTAL)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	CIS-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	TRANS-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	7	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylenes (TOTAL)	7	U

FORM I VOA

0000080

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR479

LAB NAME: [illegible] CONTRACT: [illegible]

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: NA SDG NO: [illegible]

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: AA[illegible]

SAMPLE WT/VOL: 5 (G/ML): G LAB FILE ID: >[illegible]

LEVEL: LOW DATE RECEIVED: 04-03-88

% MOISTURE: [illegible] % DATE ANALYZED: 04-14-88

GC COLUMN: [illegible] ID: [illegible] DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	Q
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	Chloromethane	14 U
[illegible]	Bromomethane	14 U
[illegible]	Vinyl Chloride	14 U
[illegible]	Chloroethane	14 U
[illegible]	Methylene Chloride	[illegible] U
67-64-1	Acetone	145 U
75-15-0	Carbon Disulfide	7 U
75-35-4	1,1-Dichloroethene	7 U
75-34-3	1,1-Dichloroethane	7 U
540-59-0	1,2-Dichloroethene (TOTAL)	7 U
[illegible]	Chloroform	7 U
[illegible]	1,2-Dichloroethane	7 U
78-93-3	2-Butanone	14 U
71-55-6	1,1,1-Trichloroethane	7 U
56-23-5	Carbon Tetrachloride	7 U
108-05-4	Vinyl Acetate	14 U
75-27-4	Bromodichloromethane	7 U
78-87-5	1,2-Dichloropropane	7 U
10061-01-5	CIS-1,3-Dichloropropene	7 U
79-01-6	Trichloroethene	7 U
124-48-1	Dibromochloromethane	7 U
79-00-5	1,1,2-Trichloroethane	7 U
71-43-2	Benzene	4 J
10061-02-6	TRANS-1,3-Dichloropropene	7 U
75-25-2	Bromoform	7 U
108-10-1	4-Methyl-2-Pentanone	14 U
591-78-6	2-Hexanone	14 U
127-18-4	Tetrachloroethene	7 U
108-88-3	Toluene	1 J
108-90-7	Chlorobenzene	7 U
100-41-4	Ethylbenzene	7 U
100-42-5	Styrene	7 U
1330-20-7	Xylenes (TOTAL)	7 U

FORM I VOA

0000090

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: [illegible] CONTRACT: [illegible]

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: [illegible] SDG NO: [illegible]

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: [illegible]

SAMPLE WT/VOL: 5 (G/ML): G LAB FILE ID: [illegible]

LEVEL: LOW DATE RECEIVED: [illegible]

% MOISTURE: 24 % DATE ANALYZED: [illegible]

COLUMN (PACK/CAP): PACK DILUTION FACTOR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	Compound	Q
[illegible]	Chloromethane	7 U
[illegible]	Bromomethane	7 U
[illegible]	Vinyl Chloride	7 U
[illegible]	Chloroethane	7 U
[illegible]	Methylene Chloride	5 J
[illegible]	Acetone	22 J
[illegible]	Carbon Disulfide	7 U
[illegible]	1,1-Dichloroethene	7 U
75-34-3	1,1-Dichloroethane	7 U
540-59-0	1,2-Dichloroethene (TOTAL)	7 U
67-66-3	Chloroform	7 U
107-06-2	1,2-Dichloroethane	7 U
78-93-3	2-Butanone	13 U
71-55-6	1,1,1-Trichloroethane	7 U
56-23-5	Carbon Tetrachloride	7 U
108-05-4	Vinyl Acetate	13 U
75-27-4	Bromodichloromethane	7 U
78-87-5	1,2-Dichloropropane	7 U
10061-01-5	CIS-1,3-Dichloropropene	7 U
79-01-6	Trichloroethene	7 U
124-48-1	Dibromochloromethane	7 U
79-00-5	1,1,2-Trichloroethane	7 U
71-43-2	Benzene	7 U
10061-02-6	TRANS-1,3-Dichloropropene	7 U
75-25-2	Bromoform	7 U
108-10-1	4-Methyl-2-Pentanone	13 U
591-78-6	2-Hexanone	13 U
127-18-4	Tetrachloroethene	7 U
108-88-3	Toluene	21
108-90-7	Chlorobenzene	7 U
100-41-4	Ethylbenzene	7 U
100-42-5	Styrene	7 U
1330-20-7	Xylenes (TOTAL)	7 U

FORM I VOA

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR43E

LAB NAME: [illegible] CONTRACT: [illegible]-7417

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: [illegible] SDG NO: BR351

MATRIX: (SOIL/WATER): SOIL LAB SAMPLE ID: AA10341

SAMPLE WT/VOL: 5 (G/ML): G LAB FILE ID: >C3587

LEVEL: LOW DATE RECEIVED: 04-03-96

% MOISTURE: 24 % DATE ANALYZED: 04-14-96

GC COLUMN: [illegible] ID: [illegible] DILUTION FACTOR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	Q
74-87-3	Chloromethane	13 U
74-83-9	Bromomethane	13 U
75-01-4	Vinyl Chloride	13 U
75-00-3	Chloroethane	13 U
75-09-2	Methylene Chloride	7 U
67-64-1	Acetone	13 U
75-15-0	Carbon Disulfide	7 U
75-35-4	1,1-Dichloroethene	7 U
75-34-3	1,1-Dichloroethane	7 U
540-59-0	1,2-Dichloroethene (TOTAL)	7 U
67-66-3	Chloroform	7 U
107-06-2	1,2-Dichloroethane	7 U
78-93-3	2-Butanone	13 U R
71-55-6	1,1,1-Trichloroethane	7 U
56-23-5	Carbon Tetrachloride	7 U
108-05-4	Vinyl Acetate	13 U
75-27-4	Bromodichloromethane	7 U
78-87-5	1,2-Dichloropropane	7 U
10061-01-5	CIS-1,3-Dichloropropene	7 U
79-01-6	Trichloroethene	7 U
124-48-1	Dibromochloromethane	7 U
79-00-5	1,1,2-Trichloroethane	7 U
71-43-2	Benzene	7 U
10061-02-6	TRANS-1,3-Dichloropropene	7 U
75-25-2	Bromoform	7 U
108-10-1	4-Methyl-2-Pentanone	13 U
591-78-6	2-Hexanone	13 U
127-18-4	Tetrachloroethene	7 U
108-88-3	Toluene	7 U
108-90-7	Chlorobenzene	7 U
100-41-4	Ethylbenzene	7 U
100-42-5	Styrene	7 U
1330-20-7	Xylenes (TOTAL)	7 U

FORM I VOA

0010150

VOLATILE ORGANICS ANALYSIS DATA SHEET

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (TOTAL)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	CIS-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	TRANS-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (TOTAL)	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: [illegible]TRACE — LAB SAMPLE NUMBER: BR441

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: NA SDG NO: BR551

MATRIX (SOIL/WATER): WATER — LAB SAMPLE ID: AA10834

SAMPLE WT/VOL: [illegible] — LAB FILE ID: C2254

LEVEL: LOW — DATE RECEIVED: 04-08-88

PERCENT MOISTURE: [illegible] % — DATE ANALYZED: 04-13-88

DILUTION FACTOR (LOW/MED): LOW — DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	C
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
67-64-1	Acetone	67 B
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
75-34-3	1,1-Dichloroethane	5 U
540-59-0	1,2-Dichloroethene (TOTAL)	5 U
[illegible]	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
[illegible]	2-Butanone	10 U
[illegible]	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-01-5	CIS-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-02-6	TRANS-1,3-Dichloropropene	5 U
75-25-2	Bromoform	5 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-6	2-Hexanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
1330-20-7	Xylenes (TOTAL)	5 U

FORM I VOA

0000124

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB NAME: [illegible]		CONTRACT: [illegible]	
LAB CODE: [illegible]	CASE NO.: [illegible]	SAS NO.:	SDG NO.:
MATRIX: (SOIL/WATER)	SOIL	LAB SAMPLE ID: [illegible]	
SAMPLE WT/VOL:	[illegible] (G/ML)	LAB FILE ID:	
LEVEL:	LOW	DATE RECEIVED:	
PERCENT MOISTURE:	[illegible] %	DATE ANALYZED:	
COLUMN: (PACK/CAP)	PACK	DILUTION FACTOR:	1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	Q
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
67-64-1	Acetone	11 J
[illegible]	[illegible]	[illegible]
75-15-0	Carbon disulfide	[illegible]
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
[illegible]	1,2-Dichloroethene (TOTAL)	5 U
[illegible]	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U R
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-01-5	CIS-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	5 U
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-02-6	TRANS-1,3-Dichloropropene	5 U
75-25-2	Bromoform	5 U
108-10-1	4-Methyl-2-Pentanone	10 U
591-78-6	2-Hexanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
1330-20-7	Xylenes (TOTAL)	5 U

FORM I VOA

0000132

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: 86751

H2O 5-6-86 MS

CAS NO.	COMPOUND	
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
108-60-1	bis(2-Chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy) Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
606-20-2	2,6-Dinitrotoluene	10 U

0000280

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR151

LAB NAME: [illegible] CONTRACT: 68-01-7417

LAB CODE: [illegible] CASE NO: 7096 SAS NO:NA SDG NO: BR151

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID:A4:0437

SAMPLE WT/VOL: 1000 (G/ML): ML LAB FILE ID: >C1411

LEVEL: LOW DATE RECEIVED:04-07-88

% MOISTURE NOT DEC:NA DEC: NA DATE EXTRACTED:04-13-88

EXTRACTION (Sep.F/Cont/Sonc):SEPF DATE ANALYZED:04-19-88

GPC CLEANUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/L

H2O 5-6-88 BS

CAS NUMBER	COMPOUND	Q
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
83-32-9	Acenaphthene	10 U
51-28-5	2,4-Dinitrophenol	50 U
100-02-7	4-Nitrophenol	50 U
132-64-9	Dibenzofuran	10 U
121-14-2	2,4-Dinitrotoluene	50 U
84-66-2	Diethylphthalate	50 U
7005-72-3	4-Chlorophenyl-phenylether	10 U
86-73-7	Fluorene	10 U
100-01-6	4-Nitroaniline	50 U
534-52-1	4,6-Dinitro-2-Methylphenol	50 U
86-30-6	N-Nitrosodiphenylamine	10 U
101-55-3	4-Bromophenyl-phenylether	10 U
118-74-1	Hexachlorobenzene	10 U
87-86-5	Pentachlorophenol	50 U
85-01-8	Phenanthrene	10 U
120-12-7	Anthracene	10 U
84-74-2	Di-N-Butylphthalate	102 BU
206-44-0	Fluoranthene	10 U
129-00-0	Pyrene	10 U
85-68-7	Butylbenzylphthalate	10 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	10 U
218-01-9	Chrysene	10 U
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U
117-84-0	Di-n-Octylphthalate	10 U
205-99-2	Benzo(b)Fluoranthene	10 U
207-08-9	Benzo(k)Fluoranthene	10 U
50-32-8	Benzo(a)Pyrene	10 U
193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
53-70-3	Dibenzo(a,h)Anthracene	10 U
191-24-2	Benzo(g,h,i)Perylene	10 U

0000200

1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR757

Lab Name: [illegible] CONTRACT: 68-01-7417

Lab Code: [illegible] Case No: 7275 SAS No: NA SDG No: BR[illegible]

Matrix (soil/water): WATER Lab Sample ID: [illegible]

Sample wt/vol: 1000 (g/mL) ML Lab File ID: >[illegible]

Level (low/med): LOW Date Received: [illegible]

% Moisture not dec: NA dec.: NA Date Extracted: 04-1[illegible]-88

Extraction: (SepF/Cont/Sonc): [illegible] Date Analyzed: 04-1[illegible]-88

GPC Cleanup (Y/N): N pH: NA Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) [illegible]

H2O 5-6-88 HB

CAS NO.	COMPOUND		
[illegible]	Phenol	[illegible]	[illegible]
[illegible]	bis(2-Chloroethyl)Ether	[illegible]	[illegible]
[illegible]	2-Chlorophenol	[illegible]	[illegible]
[illegible]	1,3-Dichlorobenzene	[illegible]	[illegible]
[illegible]	1,4-Dichlorobenzene	[illegible]	[illegible]
100-51-6	Benzyl Alcohol	[illegible]	[illegible]
95-50-1	1,2-Dichlorobenzene	[illegible]	[illegible]
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
106-44-5	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U R
111-91-1	bis(2-Chloroethoxy) Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

FORM I SV-1

0000293

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: B4T50

LAB NAME: [illegible] CONTRACT: [illegible]

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: NA SDG NO: [illegible]

MATRIX: (SOIL/WATER): WATER LAB FILE ID: >B4T50

LEVEL: (LOW) Date Received: 04-[illegible]

% MOISTURE NOT DEC: NA DEC: NA DATE EXTRACTED: 04-13-8[illegible]

CONCENTRATION: (LOW/MED) LOW Date Analyzed: [illegible]

GPC CLEANUP: (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG DRY WT.): UG/L

H2O 5-6-87 MD

CAS NUMBER	COMPOUND	
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
84-66-2	Diethylphthalate	10 U
[illegible]	4-Chlorophenyl-phenylether	[illegible]
86-73-7	Fluorene	[illegible]
100-01-6	4-Nitroaniline	50 U
534-52-1	4,6-Dinitro-2-methylphenol	50 U
86-30-6	N-Nitrosodiphenylamine	10 U
101-55-3	4-Bromophenyl-phenylether	10 U
118-74-1	Hexachlorobenzene	10 U
87-86-5	Pentachlorophenol	50 U
85-01-8	Phenanthrene	10 U
120-12-7	Anthracene	10 U
84-74-2	Di-N-Butylphthalate	10 U
206-44-0	Fluoranthene	10 U
129-00-0	Pyrene	10 U
85-68-7	Butylbenzylphthalate	10 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	10 U
218-01-9	Chrysene	10 U
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U
117-84-0	Di-n-Octylphthalate	10 U
205-99-2	Benzo(b)Fluoranthene	10 U
207-08-9	Benzo(k)Fluoranthene	10 U
50-32-8	Benzo(a)Pyrene	10 U
193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
53-70-3	Dibenzo(a,h)Anthracene	10 U
191-24-2	Benzo(g,h,i)Perylene	10 U

108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl) Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl) Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy) Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	50	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethylphthalate	50	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	50	U

R

SEMI VOLATILE ORGANICS ANALYTIC DATA SHEET

EPA SAMPLE NUMBER: BB5E3

LAB NAME: Lab-Trace CONTRACT: 67-01-7417

LAB SAMPLE ID: [illegible] CAS NO: [illegible] SAS NO:NA SDG NO: [illegible]

MATRIX (SOIL/WATER): WATER LAB FILE ID: >D1413

SAMPLE WT/VOL: 1000 (G/ML) ML LAB FILE ID: >D1413

LEVEL: LOW DATE RECEIVED:04-18-90

% MOISTURE NOT DEC:NA DEC: NA DATE EXTRCTED:04-17-90

EXTRACTION TYPE: [illegible] DATE ANALYZED:04-18-90

GPC CLEANUP: (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS: (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	ANALYTE CONCENTRATION	Q
108-60-1	Bis(2-Chloroisopropyl)Ether	10	U
62-75-9	N-Nitrosodimethylamine	10	U
95-50-1	1,2-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-48-7	2-Methylphenol	10	U
111-44-4	Bis(2-Chloroethyl)Ether	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	Bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
111-44-4	Bis(2-Chloroethyl)Ether	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-N-Butylphthalate	102	BU
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octylphthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenzo(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

FORM I SV-2

0000310

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR354

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO: NA SDG NO: BR351

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID: AA10850

SAMPLE WT/VOL: 1000 (G/ML): ML LAB FILE ID: >02419

LEVEL: LOW DATE RECEIVED: 04-06-88

% MOISTR NOT DEC: NA DEC: NA DATE EXTRCTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SEPF DATE ANALYZED: 04-16-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	H_2O 5-6-88 MS
~~108-95-2~~	~~Phenol~~	~~0~~
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
108-60-1	bis(2-Chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-44-5	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	10 U
111-91-1	bis(2-Chloroethoxy) Methane	50 U R
120-83-2	2,4-Dichlorophenol	10 U
120-83-2	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-20-3	2-Methylnaphthalene	10 U
106-47-8	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	10 U
91-58-7	2-Chloronaphthalene	50 U
88-74-4	2-Nitroaniline	10 U
131-11-3	Dimethyl Phthalate	50 U
208-96-8	Acenaphthylene	10 U
606-20-2	2,6-Dinitrotoluene	10 U
		10 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR354

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO: NA SDG NO: BR351

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID: MA10850

SAMPLE WT/VOL: 1000 (G/ML): ML LAB FILE ID: >D2419

LEVEL: LOW DATE RECEIVED: 04-08-88

% MOISTR NOT DEC: NA DEC: NA DATE EXTRCTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SEPF DATE ANALYZED: 04-14-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	WATER Soil SLUDGE
99-09-2	3-Nitroaniline	50 U
83-32-9	Acenaphthene	10 U
51-28-5	2,4-Dinitrophenol	50 U
100-02-7	4-Nitrophenol	50 U
132-64-9	Dibenzofuran	10 U
121-14-2	2,4-Dinitrotoluene	50 U
84-66-2	Diethylphthalate	50 U
7005-72-3	4-Chlorophenyl-phenylether	10 U
86-73-7	Fluorene	10 U
100-01-6	4-Nitroaniline	50 U
534-52-1	4,6-Dinitro-2-Methylphenol	50 U
86-30-6	N-Nitrosidiphenylamine	10 U
101-55-3	4-Bromophenyl-phenylether	10 U
118-74-1	Hexachlorobenzene	10 U
87-86-5	Pentachlorophenol	50 U
85-01-8	Phenanthrene	10 U
120-12-7	Anthracene	10 U
84-74-2	Di-N-Butylphthalate	50 U
206-44-0	Fluoranthene	10 U
129-00-0	Pyrene	10 U UJ
85-68-7	Butylbenzylphthalate	10 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	10 U
218-01-9	Chrysene	10 U
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U
117-84-0	Di-n-Octylphthalate	10 U
205-99-2	Benzo(b)Fluorathene	10 U
207-08-9	Benzo(k)Fluorathene	10 U
50-32-8	Benzo(a)Pyrene	10 U
193-39-5	Indeno(1,2,3-cd)Pyrene	10 U
53-70-3	Dibenzo(a,h)Anthracene	10 U
191-24-2	Benzo(g,h,i)Perylene	10 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR435

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID:AA10633

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: >D2431

LEVEL: LOW DATE RECEIVED:04-06-88

% MOISTR NOT DEC: 26 % DEC: NA DATE EXTRCTED:04-13-88

EXTRACTN (Sep+/Cont/Sonc):SONC DATE ANALYZED:04-16-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG Soil H2O 5-6-88 HS

CAS NUMBER	COMPOUND	~~EPA~~ 0	
108-95-2	Phenol	446	U
111-44-4	bis(2-Chloroethyl)Ether	446	U
95-57-8	2-Chlorophenol	446	U
541-73-1	1,3-Dichlorobenzene	446	U
106-46-7	1,4-Dichlorobenzene	446	U
100-51-6	Benzyl Alcohol	446	U
95-50-1	1,2-Dichlorobenzene	446	U
95-48-7	2-Methylphenol	446	U
108-60-1	bis(2-Chloroisopropyl)Ether	446	U
106-44-5	4-Methylphenol	446	U
621-64-7	N-Nitroso-Di-n-Propylamine	446	U
67-72-1	Hexachloroethane	446	U
98-95-3	Nitrobenzene	446	U
78-59-1	Isophorone	446	U
88-75-5	2-Nitrophenol	446	U
106-44-5	2,4-Dimethylphenol	446	U
65-85-0	Benzoic Acid	446	U R
111-91-1	bis(2-Chloroethoxy) Methane	446	U
120-83-2	2,4-Dichlorophenol	446	U
120-83-2	1,2,4-Trichlorobenzene	446	U
91-20-3	Naphthalene	446	U
106-47-8	4-Chloroaniline	446	U
87-68-3	Hexachlorobutadiene	446	U
59-50-7	4-Chloro-3-Methylphenol	446	U
91-20-3	2-Methylnaphthalene	446	U
106-47-8	Hexachlorocyclopentadiene	446	U
88-06-2	2,4,6-Trichlorophenol	446	U
95-95-4	2,4,5-Trichlorophenol	2162	U
91-58-7	2-Chloronaphthalene	446	U
88-74-4	2-Nitroaniline	2162	U
131-11-3	Dimethyl Phthalate	446	U
208-96-8	Acenaphthylene	446	U
606-20-2	2,6-Dinitrotoluene	446	U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR435

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 7276 SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID:AA10833

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: >D2421

LEVEL: LOW DATE RECEIVED:04-08-88

% MOISTR NOT DEC: 26 % DEC: NA DATE EXTRCTED:04-13-88

EXTRACTN (Sepf/Cont/Sonc):SONC DATE ANALYZED:04-16-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG

So.1 5.6.88 MD

CAS NUMBER	COMPOUND	~~Soil~~ C
99-09-2	3-Nitroaniline	2162 U
83-32-9	Acenaphthene	446 U
51-28-5	2,4-Dinitrophenol	2162 U
100-02-7	4-Nitrophenol	2162 U
132-64-9	Dibenzofuran	446 U
121-14-2	2,4-Dinitrotoluene	2162 U
84-66-2	Diethylphthalate	2162 U
7005-72-3	4-Chlorophenyl-phenylether	446 U
86-73-7	Fluorene	446 U
100-01-6	4-Nitroaniline	446 U
534-52-1	4,6-Dinitro-2-Methylphenol	2162 U
86-30-6	N-Nitrosidiphenylamine	446 U
101-55-3	4-Bromophenyl-phenylether	446 U
118-74-1	Hexachlorobenzene	446 U
87-86-5	Pentachlorophenol	2162 U
85-01-8	Phenanthrene	446 U
120-12-7	Anthracene	446 U
84-74-2	Di-N-Butylphthalate	514 JU
206-44-0	Fluoranthene	446 U
129-00-0	Pyrene	446 U
85-68-7	Butylbenzylphthalate	446 U
91-94-1	3,3'-Dichlorobenzidine	892 U
56-55-3	Benzo(a)Anthracene	446 U
218-01-9	Chrysene	446 U
117-81-7	bis(2-Ethylhexyl)Phthalate	459 JU
117-84-0	Di-n-Octylphthalate	446 U
205-99-2	Benzo(b)Fluorathene	446 U
207-08-9	Benzo(k)Fluorathene	446 U
50-32-8	Benzo(a)Pyrene	446 U
193-39-5	Indeno(1,2,3-cd)Pyrene	446 U
53-70-3	Dibenzo(a,h)Anthracene	446 U
191-24-2	Benzo(g,h,i)Perylene	446 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR436

LAB NAME: meta TRACE CONTRACT: 68-01-7412

LAB CODE: meta CASE NO: 7295 SAS NO: NA SDG NO: WA351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: WA351-36

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: >D2424

LEVEL: LOW DATE RECEIVED: 04-06-88

% MOISTURE NOT DEC: 22 % DEC: NA DATE EXTRCTED: 04-13-88

EXTRACTION (Sep/Cont/Sonc): SONC DATE ANALYZED: 04-14-88

GPC CLEANUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	SOIL
108-95-2	Phenol	423 U
111-44-4	bis(2-Chloroethyl)Ether	423 U
95-57-8	2-Chlorophenol	423 U
541-73-1	1,3-Dichlorobenzene	423 U
106-46-7	1,4-Dichlorobenzene	423 U
100-51-6	Benzyl Alcohol	423 U
95-50-1	1,2-Dichlorobenzene	423 U
95-48-7	2-Methylphenol	423 U
108-60-1	bis(2-Chloroisopropyl)Ether	423 U
106-44-5	4-Methylphenol	423 U
621-64-7	N-Nitroso-Di-n-Propylamine	423 U
67-72-1	Hexachloroethane	423 U
98-95-3	Nitrobenzene	423 U
78-59-1	Isophorone	423 U
88-75-5	2-Nitrophenol	423 U
106-44-5	2,4-Dimethylphenol	423 U
65-85-0	Benzoic Acid	423 U R
111-91-1	bis(2-Chloroethoxy) Methane	423 U
120-83-2	2,4-Dichlorophenol	423 U
120-83-2	1,2,4-Trichlorobenzene	423 U
91-20-3	Naphthalene	423 U
106-47-8	4-Chloroaniline	423 U
87-68-3	Hexachlorobutadiene	423 U
59-50-7	4-Chloro-3-Methylphenol	423 U
91-20-3	2-Methylnaphthalene	423 U
106-47-8	Hexachlorocyclopentadiene	423 U
88-06-2	2,4,6-Trichlorophenol	423 U
95-95-4	2,4,5-Trichlorophenol	2051 U
91-58-7	2-Chloronaphthalene	423 U
88-74-4	2-Nitroaniline	2051 U
131-11-3	Dimethyl Phthalate	423 U
208-96-8	Acenaphthylene	423 U
606-20-2	2,6-Dinitrotoluene	423 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR436

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO: NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: AA10836

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: >D2424

LEVEL: LOW DATE RECEIVED: 04-08-88

% MOISTR NOT DEC: 22 % DEC: NA DATE EXTRCTED: 04-11-88

EXTRACTN (Sep/Cont/Sonc): SONC DATE ANALYZED: 04-16-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	SOIL	C
99-09-2	3-Nitroaniline	2051	U
83-32-9	Acenaphthene	423	U
51-28-5	2,4-Dinitrophenol	2051	U
100-02-7	4-Nitrophenol	2051	U
132-64-9	Dibenzofuran	423	U
121-14-2	2,4-Dinitrotoluene	2051	U
84-66-2	Diethylphthalate	2051	U
7005-72-3	4-Chlorophenyl-phenylether	423	U
86-73-7	Fluorene	423	U
100-01-6	4-Nitroaniline	423	U
534-52-1	4,6-Dinitro-2-Methylphenol	2051	U
86-30-6	N-Nitrosidiphenylamine	423	U
101-55-3	4-Bromophenyl-phenylether	423	U
118-74-1	Hexachlorobenzene	423	U
87-86-5	Pentachlorophenol	2051	U
85-01-8	Phenanthrene	47	J
120-12-7	Anthracene	423	U
84-74-2	Di-N-Butylphthalate	423	B U
206-44-0	Fluoranthene	65	J
129-00-0	Pyrene	96	J
85-68-7	Butylbenzylphthalate	423	U
91-94-1	3,3'-Dichlorobenzidine	846	U
56-55-3	Benzo(a)Anthracene	423	U
218-01-9	Chrysene	96	J
117-81-7	bis(2-Ethylhexyl)Phthalate	423	B U
117-84-0	Di-n-Octylphthalate	423	U
205-99-2	Benzo(b)Fluorathene	64	J
207-08-9	Benzo(k)Fluorathene	423	U
50-32-8	Benzo(a)Pyrene	423	U
193-39-5	Indeno(1,2,3-cd)Pyrene	423	U
53-70-3	Dibenzo(a,h)Anthracene	423	U
191-24-2	Benzo(g,h,i)Perylene	423	U

000357

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR437

LAB NAME: M-E-TRACE — CONTRACT: 68-01-7417

LAB CODE: METE — CASE NO: 9296 — SAS NO: NA — SDG NO: BR351

MATRIX (SOIL/WATER): SOIL — LAB SAMPLE ID: AA10837

SAMPLE WT/VOL: 3 (G/ML): G — LAB FILE ID: >D2436

LEVEL: LOW — DATE RECEIVED: 04-08-88

% MOISTR NOT DEC: 22 % DEC: NA — DATE EXTRCTED: 04-13-88

EXTRACTION (Sonf/Cont/Sonc): SONC — DATE ANALYZED: 04-23-88

GPC CLNUP (Y/N): N — pH: NA — DILUTION FCTR: 10

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	SOIL
108-95-2	Phenol	4231 U
111-44-4	bis(2-Chloroethyl)Ether	4231 U
95-57-8	2-Chlorophenol	4231 U
541-73-1	1,3-Dichlorobenzene	4231 U
106-46-7	1,4-Dichlorobenzene	4231 U
100-51-6	Benzyl Alcohol	4231 U
95-50-1	1,2-Dichlorobenzene	4231 U
95-48-7	2-Methylphenol	4231 U
108-60-1	bis(2-Chloroisopropyl)Ether	4231 U
106-44-5	4-Methylphenol	4231 U
621-64-7	N-Nitroso-Di-n-Propylamine	4231 U
67-72-1	Hexachloroethane	4231 U
98-95-3	Nitrobenzene	4231 U
78-59-1	Isophorone	4231 U
88-75-5	2-Nitrophenol	4231 U
105-67-9	2,4-Dimethylphenol	4231 U
65-85-0	Benzoic Acid	4231 U
111-91-1	bis(2-Chloroethoxy) Methane	4231 U
120-83-2	2,4-Dichlorophenol	4231 U
120-82-1	1,2,4-Trichlorobenzene	4231 U
91-20-3	Naphthalene	4231 U
106-47-8	4-Chloroaniline	4231 U
87-68-3	Hexachlorobutadiene	4231 U
59-50-7	4-Chloro-3-Methylphenol	4231 U
91-57-6	2-Methylnaphthalene	4231 U
77-47-4	Hexachlorocyclopentadiene	4231 U
88-06-2	2,4,6-Trichlorophenol	4231 U
95-95-4	2,4,5-Trichlorophenol	20513 U
91-58-7	2-Chloronaphthalene	4231 U
88-74-4	2-Nitroaniline	20513 U
131-11-3	Dimethyl Phthalate	4231 U
208-96-8	Acenaphthylene	4231 U
606-20-2	2,6-Dinitrotoluene	4231 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR437

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9275 SAS NO: NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: AA10237

SAMPLE WT/VOL: 3 (G/ML): G LAB FILE ID: >02486

LEVEL: LOW DATE RECEIVED: 04-08-88

% MOISTR NOT DEC: 22 % DEC: NA DATE EXTRCTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SONC DATE ANALYZED: 04-27-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 10

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	SOIL	Q
99-09-2	3-Nitroaniline	20513	U
83-32-9	Acenaphthene	4231	U
51-28-5	2,4-Dinitrophenol	20513	U
100-02-7	4-Nitrophenol	20513	U
132-64-9	Dibenzofuran	4231	U
121-14-2	2,4-Dinitrotoluene	20513	U
84-66-2	Diethylphthalate	20513	U
7005-72-3	4-Chlorophenyl-phenylether	4231	U
86-73-7	Fluorene	4231	U
100-01-6	4-Nitroaniline	4231	U
534-52-1	4,6-Dinitro-2-Methylphenol	20513	U
86-30-6	N-Nitrosidiphenylamine	4231	U
101-55-3	4-Bromophenyl-phenylether	4231	U
118-74-1	Hexachlorobenzene	4231	U
87-86-5	Pentachlorophenol	20513	U
85-01-8	Phenanthrene	4231	U
120-12-7	Anthracene	4231	U
84-74-2	Di-N-Butylphthalate	4231	U
206-44-0	Fluoranthene	4231	U
129-00-0	Pyrene	4231	U
85-68-7	Butylbenzylphthalate	4231	U
91-94-1	3,3'-Dichlorobenzidine	8462	U
56-55-3	Benzo(a)Anthracene	4231	U
218-01-9	Chrysene	4231	U
117-81-7	bis(2-Ethylhexyl)Phthalate	4231	U
117-84-0	Di-n-Octylphthalate	4231	U
205-99-2	Benzo(b)Fluorathene	4231	U
207-08-9	Benzo(k)Fluorathene	4231	U
50-32-8	Benzo(a)Pyrene	4231	U
193-39-5	Indeno(1,2,3-cd)Pyrene	4231	U
53-70-3	Dibenzo(a,h)Anthracene	4231	U
191-24-2	Benzo(g,h,i)Perylene	4231	U

FORM I SV-2

0000391

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR438

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO: NA SDG NO: BRT51

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: AA10838

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: D2407

LEVEL: LOW DATE RECEIVED: 04-08-88

% MOISTR NOT DEC: 25 % DEC: NA DATE EXTRCTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SONC DATE ANALYZED: 04-27-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 10

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	SOIL (ug/kg)
108-95-2	Phenol	4400 U
111-44-4	bis(2-Chloroethyl)Ether	4400 U
95-57-8	2-Chlorophenol	4400 U
541-73-1	1,3-Dichlorobenzene	4400 U
106-46-7	1,4-Dichlorobenzene	4400 U
100-51-6	Benzyl Alcohol	4400 U
95-50-1	1,2-Dichlorobenzene	4400 U
95-48-7	2-Methylphenol	4400 U
108-60-1	bis(2-Chloroisopropyl)Ether	4400 U
106-44-5	4-Methylphenol	4400 U
621-64-7	N-Nitroso-Di-n-Propylamine	4400 U
67-72-1	Hexachloroethane	4400 U
98-95-3	Nitrobenzene	4400 U
78-59-1	Isophorone	4400 U
88-75-5	2-Nitrophenol	4400 U
105-44-5	2,4-Dimethylphenol	4400 U
65-85-0	Benzoic Acid	4400 U
111-91-1	bis(2-Chloroethoxy) Methane	4400 U
120-83-2	2,4-Dichlorophenol	4400 U
120-83-2	1,2,4-Trichlorobenzene	4400 U
91-20-3	Naphthalene	4400 U
106-47-8	4-Chloroaniline	4400 U
87-68-3	Hexachlorobutadiene	4400 U
59-50-7	4-Chloro-3-Methylphenol	4400 U
91-20-3	2-Methylnaphthalene	4400 U
106-47-8	Hexachlorocyclopentadiene	4400 U
88-06-2	2,4,6-Trichlorophenol	4400 U
95-95-4	2,4,5-Trichlorophenol	4400 U
91-58-7	2-Chloronaphthalene	21333 U
88-74-4	2-Nitroaniline	4400 U
131-11-3	Dimethyl Phthalate	21333 U
208-96-8	Acenaphthylene	4400 U
606-20-2	2,6-Dinitrotoluene	4400 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR430

LAB NAME: metaTRACC CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 4394 SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID:AA10838

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: >02487

LEVEL: LOW DATE RECEIVED:04-08-88

% MOISTR NOT DEC: 25 % DEC: NA DATE EXTRCTED:04-13-88

EXTRACTN (Sepf/Cont/Sonc):SONC DATE ANALYZED:04-23-88

GPC CLNUP (Y/N): N PH: NA DILUTION FCTR: 10

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG

CAS NUMBER	COMPOUND	SOIL G
99-09-2	3-Nitroaniline	21333 U
83-32-9	Acenaphthene	4400 U
51-28-5	2,4-Dinitrophenol	21333 U
100-02-7	4-Nitrophenol	21333 U
132-64-9	Dibenzofuran	4400 U
121-14-2	2,4-Dinitrotoluene	21333 U
84-66-2	Diethylphthalate	21333 U
7005-72-3	4-Chlorophenyl-phenylether	4400 U
86-73-7	Fluorene	4400 U
100-01-6	4-Nitroaniline	4400 U
534-52-1	4,6-Dinitro-2-Methylphenol	21333 U
86-30-6	N-Nitrosodiphenylamine	4400 U
101-55-3	4-Bromophenyl-phenylether	4400 U
118-74-1	Hexachlorobenzene	4400 U
87-86-5	Pentachlorophenol	21333 U
85-01-8	Phenanthrene	4400 U
120-12-7	Anthracene	4400 U
84-74-2	Di-N-Butylphthalate	4400 U
206-44-0	Fluoranthene	4400 U
129-00-0	Pyrene	4400 U UJ
85-68-7	Butylbenzylphthalate	4400 U
91-94-1	3,3'-Dichlorobenzidine	8800 U
56-55-3	Benzo(a)Anthracene	4400 U
218-01-9	Chrysene	4400 U UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	720 J
117-84-0	Di-n-Octylphthalate	4400 U UJ
205-99-2	Benzo(b)Fluorathene	4400 U
207-08-9	Benzo(k)Fluorathene	4400 U
50-32-8	Benzo(a)Pyrene	4400 U
193-39-5	Indeno(1,2,3-cd)Pyrene	4400 U
53-70-3	Dibenzo(a,h)Anthracene	4400 U
191-24-2	Benzo(g,h,i)Perylene	

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR439

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO: NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID: AA10839

SAMPLE WT/VOL: 3 (G/ML): G LAB FILE ID: >D2488

LEVEL: LOW DATE RECEIVED: 04-08-88

% MOISTR NOT DEC: 31 % DEC: NA DATE EXTRCTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SONC DATE ANALYZED: 04-23-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 10

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	SOIL G
108-95-2	Phenol	4783 U
111-44-4	bis(-2-Chloroethyl)Ether	4783 U
95-57-8	2-Chlorophenol	4783 U
541-73-1	1,3-Dichlorobenzene	4783 U
106-46-7	1,4-Dichlorobenzene	4783 U
100-51-6	Benzyl Alcohol	4783 U
95-50-1	1,2-Dichlorobenzene	4783 U
95-48-7	2-Methylphenol	4783 U
108-60-1	bis(2-Chloroisopropyl)Ether	4783 U
106-44-5	4-Methylphenol	4783 U
621-64-7	N-Nitroso-Di-n-Propylamine	4783 U
67-72-1	Hexachloroethane	4783 U
98-95-3	Nitrobenzene	4783 U
78-59-1	Isophorone	4783 U
88-75-5	2-Nitrophenol	4783 U
105-44-5	2,4-Dimethylphenol	4783 U
65-85-0	Benzoic Acid	4783 U
111-91-1	bis(2-Chloroethoxy) Methane	4783 U
120-83-2	2,4-Dichlorophenol	4783 U
120-83-2	1,2,4-Trichlorobenzene	4783 U
91-20-3	Naphthalene	4783 U
106-47-8	4-Chloroaniline	4783 U
87-68-3	Hexachlorobutadiene	4783 U
59-50-7	4-Chloro-3-Methylphenol	4783 U
91-20-3	2-Methylnaphthalene	4783 U
106-47-8	Hexachlorocyclopentadiene	4783 U
88-06-2	2,4,6-Trichlorophenol	4783 U
95-95-4	2,4,5-Trichlorophenol	23188 U
91-58-7	2-Chloronaphthalene	4783 U
88-74-4	2-Nitroaniline	23188 U
131-11-3	Dimethyl Phthalate	4783 U
208-96-8	Acenaphthylene	4783 U
606-20-2	2,6-Dinitrotoluene	4783 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR439

LAB NAME: metaTRACE CONTRACT: 68-01-7410

LAB CODE: meta CASE NO: 7294 SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID:AN1003

SAMPLE WT/VOL: 3 (G/ML): G LAB FILE ID: >02468

LEVEL: LOW DATE RECEIVED:04-06-88

% MOISTR NOT DEC: 31 % DEC: NA DATE EXTRCTED:04-12-88

EXTRACTN (Sepf/Cont/Sonc):SONC DATE ANALYZED:04-23-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 10

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG

CAS NUMBER	COMPOUND	SOIL Q
99-09-2	3-Nitroaniline	23188 U
83-32-9	Acenaphthene	4783 U
51-28-5	2,4-Dinitrophenol	23188 U
100-02-7	4-Nitrophenol	23188 U
132-64-9	Dibenzofuran	4783 U
121-14-2	2,4-Dinitrotoluene	23188 U
84-66-2	Diethylphthalate	23188 U
7005-72-3	4-Chlorophenyl phenylether	4783 U
86-73-7	Fluorene	4783 U
100-01-6	4-Nitroaniline	4783 U
534-52-1	4,6-Dinitro-2-Methylphenol	23188 U UJ
86-30-6	N-Nitrosodiphenylamine	4783 U
101-55-3	4-Bromophenyl-phenylether	4783 U
118-74-1	Hexachlorobenzene	4783 U
87-86-5	Pentachlorophenol	23188 U
85-01-8	Phenanthrene	4783 U
120-12-7	Anthracene	4783 U
84-74-2	Di-N-Butylphthalate	4783 U
206-44-0	Fluoranthene	4783 U
129-00-0	Pyrene	4783 U
85-68-7	Butylbenzylphthalate	4783 U
91-94-1	3,3'-Dichlorobenzidine	9565 U
56-55-3	Benzo(a)Anthracene	4783 U
218-01-9	Chrysene	4783 U
117-81-7	bis(2-Ethylhexyl)Phthalate	4783 U
117-84-0	Di-n-Octylphthalate	4783 U
205-99-2	Benzo(b)Fluorathene	4783 U
207-08-9	Benzo(k)Fluorathene	4783 U
50-32-8	Benzo(a)Pyrene	4783 U
193-39-5	Indeno(1,2,3-cd)Pyrene	4783 U
53-70-3	Dibenzo(a,h)Anthracene	4783 U
191-24-2	Benzo(g,h,i)Perylene	4783 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR444

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID:AA10840

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: >D2485

LEVEL: LOW DATE RECEIVED:04-08-88

% MOISTR NOT DEC: 24 % DEC: NA DATE EXTRCTED:04-13-88

EXTRACTN (Sepf/Cont/Sonc):SONC DATE ANALYZED:04-22-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG

CAS NUMBER	COMPOUND	SOIL	Q
108-95-2	Phenol	434	U
111-44-4	bis(-2-Chloroethyl)Ether	434	U
95-57-8	2-Chlorophenol	434	U
541-73-1	1,3-Dichlorobenzene	434	U
106-46-7	1,4-Dichlorobenzene	434	U
100-51-6	Benzyl Alcohol	434	U
95-50-1	1,2-Dichlorobenzene	434	U
95-48-7	2-Methylphenol	434	U
108-60-1	bis(2-Chloroisopropyl)Ether	434	U
106-44-5	4-Methylphenol	434	U
621-64-7	N-Nitroso-Di-n-Propylamine	434	U
67-72-1	Hexachloroethane	434	U
98-95-3	Nitrobenzene	434	U
78-59-1	Isophorone	434	U
88-75-5	2-Nitrophenol	434	U
106-44-5	2,4-Dimethylphenol	434	U
65-85-0	Benzoic Acid	434	U
111-91-1	bis(2-Chloroethoxy) Methane	434	U
120-83-2	2,4-Dichlorophenol	434	U
120-83-2	1,2,4-Trichlorobenzene	434	U
91-20-3	Naphthalene	434	U
106-47-8	4-Chloroaniline	434	U
87-68-3	Hexachlorobutadiene	434	U
59-50-7	4-Chloro-3-Methylphenol	434	U
91-20-3	2-Methylnaphthalene	434	U
106-47-8	Hexachlorocyclopentadiene	434	U
88-06-2	2,4,6-Trichlorophenol	434	U
95-95-4	2,4,5-Trichlorophenol	2105	U
91-58-7	2-Chloronaphthalene	434	U
88-74-4	2-Nitroaniline	2105	U
131-11-3	Dimethyl Phthalate	434	U
208-96-8	Acenaphthylene	434	U
606-20-2	2,6-Dinitrotoluene	434	U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR444

LAB NAME: mel-TRACE — CONTRACT: 68-01 7417

LAB CODE: mela CASE NO: 9295 — SAS NO: NA — SDG NO: BR351

MATRIX (SOIL/WATER): SOIL — LAB SAMPLE ID: AA10640

SAMPLE WT/VOL: 30 (G/ML): G — LAB FILE ID: >D2485

LEVEL: LOW — DATE RECEIVED: 04-05-88

% MOISTR NOT DEC: 24 % DEC: NA — DATE EXTRCTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SONC — DATE ANALYZED: 04-27-88

GPC CLNUP (Y/N): N — pH: NA — DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/KG

CAS NUMBER	COMPOUND	SOIL 0	
99-09-2	3-Nitroaniline	2105	U
83-32-9	Acenaphthene	434	U
51-28-5	2,4-Dinitrophenol	2105	U
100-02-7	4-Nitrophenol	2105	U
132-64-9	Dibenzofuran	434	U
121-14-2	2,4-Dinitrotoluene	2105	U
84-66-2	Diethylphthalate	2105	U
7005-72-3	4-Chlorophenyl-phenylether	434	U
86-73-7	Fluorene	434	U
100-01-6	4-Nitroaniline	434	U
534-52-1	4,6-Dinitro-2-Methylphenol	2105	U UJ
86-30-6	N-Nitrosodiphenylamine	434	U
101-55-3	4-Bromophenyl-phenylether	434	U
118-74-1	Hexachlorobenzene	434	U
87-86-5	Pentachlorophenol	2105	U
85-01-8	Phenanthrene	434	U
120-12-7	Anthracene	434	U
84-74-2	Di-N-Butylphthalate	434	U
206-44-0	Fluoranthene	434	U
129-00-0	Pyrene	434	U
85-68-7	Butylbenzylphthalate	434	U
91-94-1	3,3'-Dichlorobenzidine	868	U
56-55-3	Benzo(a)Anthracene	434	U
218-01-9	Chrysene	434	U
117-81-7	bis(2-Ethylhexyl)Phthalate	434	U
117-84-0	Di-n-Octylphthalate	434	U
205-99-2	Benzo(b)Fluorathene	434	U
207-08-9	Benzo(k)Fluorathene	434	U
50-32-8	Benzo(a)Pyrene	434	U
193-39-5	Indeno(1,2,3-cd)Pyrene	434	U
53-70-3	Dibenzo(a,h)Anthracene	434	U
191-24-2	Benzo(g,h,i)Perylene	434	U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR445

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL LAB SAMPLE ID:AA10841

SAMPLE WT/VOL: 30 (G/ML): G LAB FILE ID: >D2433

LEVEL: LOW DATE RECEIVED:04-08-88

% MOISTR NOT DEC: 24 % DEC: NA DATE EXTRCTED:04-13-88

EXTRACTN (Sep/Cont/Sonc):SONC DATE ANALYZED:04-17-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG

CAS NUMBER	COMPOUND	SOIL	C
108-95-2	Phenol	434	U
111-44-4	bis(-2-Chloroethyl)Ether	434	U
95-57-8	2-Chlorophenol	434	U
541-73-1	1,3-Dichlorobenzene	434	U
106-46-7	1,4-Dichlorobenzene	434	U
100-51-6	Benzyl Alcohol	434	U
95-50-1	1,2-Dichlorobenzene	434	U
95-48-7	2-Methylphenol	434	U
108-60-1	bis(2-Chloroisopropyl)Ether	434	U
106-44-5	4-Methylphenol	434	U
621-64-7	N-Nitroso-Di-n-Propylamine	434	U
67-72-1	Hexachloroethane	434	U
98-95-3	Nitrobenzene	434	U
78-59-1	Isophorone	434	U
88-75-5	2-Nitrophenol	434	U
106-44-5	2,4-Dimethylphenol	434	U
65-85-0	Benzoic Acid	434	U
111-91-1	bis(2-Chloroethoxy) Methane	434	U
120-83-2	2,4-Dichlorophenol	434	U
120-83-2	1,2,4-Trichlorobenzene	434	U
91-20-3	Naphthalene	434	U
106-47-8	4-Chloroaniline	434	U
87-68-3	Hexachlorobutadiene	434	U
59-50-7	4-Chloro-3-Methylphenol	434	U
91-20-3	2-Methylnaphthalene	434	U
106-47-8	Hexachlorocyclopentadiene	434	U
88-06-2	2,4,6-Trichlorophenol	434	U
95-95-4	2,4,5-Trichlorophenol	2105	U
91-58-7	2-Chloronaphthalene	434	U
88-74-4	2-Nitroaniline	2105	U
131-11-3	Dimethyl Phthalate	434	U
208-96-8	Acenaphthylene	434	U
606-20-2	2,6-Dinitrotoluene	434	U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR445

LAB NAME: metaTRACE

CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9996

SAS NO:NA SDG NO: BR351

MATRIX (SOIL/WATER): SOIL

LAB SAMPLE ID:AA10641

SAMPLE WT/VOL: 30 (G/ML): G

LAB FILE ID: >D2433

LEVEL: LOW

DATE RECEIVED:04-08-88

% MOISTR NOT DEC: 24 % DEC: NA

DATE EXTRCTED:04-13-88

EXTRACTN (Sepf/Cont/Sonc):SONC

DATE ANALYZED:04-17-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/KG

CAS NUMBER	COMPOUND	SOIL C
99-09-2	3-Nitroaniline	2105 U
83-32-9	Acenaphthene	434 U
51-28-5	2,4-Dinitrophenol	2105 U
100-02-7	4-Nitrophenol	2105 U
132-64-9	Dibenzofuran	434 U
121-14-2	2,4-Dinitrotoluene	2105 U
84-66-2	Diethylphthalate	2105 U
7005-72-3	4-Chlorophenyl-phenylether	434 U
86-73-7	Fluorene	434 U
100-01-6	4-Nitroaniline	434 U
534-52-1	4,6-Dinitro-2-Methylphenol	2105 U
86-30-6	N-Nitrosidiphenylamine	434 U
101-55-3	4-Bromophenyl-phenylether	434 U
118-74-1	Hexachlorobenzene	434 U
87-86-5	Pentachlorophenol	2105 U
85-01-8	Phenanthrene	434 U
120-12-7	Anthracene	434 U
84-74-2	Di-N-Butylphthalate	434 U
206-44-0	Fluoranthene	434 U
129-00-0	Pyrene	434 U
85-68-7	Butylbenzylphthalate	434 U
91-94-1	3,3'-Dichlorobenzidine	868 U
56-55-3	Benzo(a)Anthracene	434 U
218-01-9	Chrysene	434 U
117-81-7	bis(2-Ethylhexyl)Phthalate	421 B
117-84-0	Di-n-Octylphthalate	434 U
205-99-2	Benzo(b)Fluorathene	434 U
207-08-9	Benzo(k)Fluorathene	434 U
50-32-8	Benzo(a)Pyrene	434 U
193-39-5	Indeno(1,2,3-cd)Pyrene	434 U
53-70-3	Dibenzo(a,h)Anthracene	434 U
191-24-2	Benzo(g,h,i)Perylene	434 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BR440

LAB NAME: [illegible] CONTRACT: [illegible]

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: NA SDG NO: BR331

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID: [illegible]

SAMPLE WT/VOL: [illegible] (G/ML): ML LAB FILE ID: D2414

LEVEL: LOW DATE RECEIVED: 04-06-88

% MOISTURE NOT DEC: NA DEC: NA DATE EXTRCTED: 04-12-88

EXTRACTION [illegible] (Sep/Cont/Sonc): SEPF DATE ANALYZED: 04-15-88

GPC CLEANUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

H_2O soil UG

CAS NUMBER	COMPOUND	
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
108-60-1	bis(2-Chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy) Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
606-20-2	2,6-Dinitrotoluene	10 U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BB44n

LAB NAME: metaTRACE CONTRACT: 68-01-6417

LAB CODE: meta CASE NO: 9296 SAS NO:NA SDG NO: BB351

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID:MA1-0845

SAMPLE WT/VOL: 1000 (G/ML): ML LAB FILE ID: B2414

LEVEL: LOW DATE RECEIVED:04-08-88

% MOISTR NOT DEC:NA DEC: NA DATE EXTRCTED:04-13-88

EXTRACTN (Sepf/Cont/Sonc):SEPF DATE ANALYZED:04-17-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG):UG/L

CAS NUMBER	COMPOUND	WATER	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	50	U
84-66-2	Diethylphthalate	50	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-N-Butylphthalate	2	B
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1	B
117-84-0	Di-n-Octylphthalate	10	U
205-99-2	Benzo(b)Fluorathene	10	U
207-08-9	Benzo(k)Fluorathene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenzo(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

FORM I SV-2

000340

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: DR441

LAB NAME: metaTRACE CONTRACT: 68-01-7417

LAB CODE: meta CASE NO: 9296 SAS NO: NA SDG NO: DR441

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID: AA10846

SAMPLE WT/VOL: 1000 (G/ML): ML LAB FILE ID: D2415

LEVEL: LOW DATE RECEIVED: 04-06-88

% MOISTR NOT DEC: NA DEC: NA DATE EXTRCTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SEPF DATE ANALYZED: 04-15-88

GPC CLNUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

CAS NUMBER	COMPOUND	H_2O 5-6-88 MB CONC	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
106-44-5	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy) Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-83-2	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-20-3	2-Methylnaphthalene	10	U
106-47-8	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1B SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NUMBER: BB441

LAB NAME: [illegible] CONTRACT: [illegible]

LAB CODE: [illegible] CASE NO: [illegible] SAS NO: NA SDG NO: BB351

MATRIX (SOIL/WATER): WATER LAB SAMPLE ID: BA10746

SAMPLE WT/VOL: 1000 (G/ML): ML LAB FILE ID: DD415

LEVEL: LOW DATE RECEIVED: 04-08-88

% MOIST: NOT DEC: NA DEC: NA DATE EXTRACTED: 04-13-88

EXTRACTN (Sepf/Cont/Sonc): SEPF DATE ANALYZED: 04-15-88

GPC CLEANUP (Y/N): N pH: NA DILUTION FCTR: 1

CONCENTRATION UNITS (UG/L OR UG/KG): UG/L

H_2O 5-6-88 DB

CAS NUMBER	COMPOUND		
[illegible]	[illegible]	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	50	U
84-66-2	Diethylphthalate	50	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-N-Butylphthalate	50	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	26	B
117-84-0	Di-n-Octylphthalate	10	U
205-99-2	Benzo(b)Fluorathene	10	U
207-08-9	Benzo(k)Fluorathene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenzo(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

0003470

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. BR-351

Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-~~435~~ 351

Matrix: (soil/water) WATER Lab Sample ID: 10842

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 4/16/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	.05	U
319-85-7	beta-BHC	.05	U
319-86-8	delta-BHC	.05	U
58-89-9	gamma-BHC (Lindane)	.05	U
76-44-8	Heptachlor	.05	U
309-00-2	Aldrin	.05	U
1024-57-3	Heptachlor epoxide	.05	U
959-98-8	Endosulfan I	.05	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin ketone	.10	U
5103-71-9	alpha-Chlordane	0.5	U
5103-74-2	gamma-Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

0000663

1D

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BR 352

Lab Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-435 351

Matrix: (soil/water) WATER Lab Sample ID: 10848

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 4/16/88

GC Cleanup: (Y/N) N pH: ___ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	.05	U
319-85-7	beta-BHC	.05	U
319-86-8	delta-BHC	.05	U
58-89-9	gamma-BHC (Lindane)	.05	U
76-44-8	Heptachlor	.05	U
309-00-2	Aldrin	.05	U
1024-57-3	Heptachlor epoxide	.05	U
959-98-8	Endosulfan I	.05	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin ketone	.10	U
5103-71-9	alpha-Chlordane	0.5	U
5103-74-2	gamma-Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: BR 353

Lab Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-~~35~~351 4pm RPN.

Matrix: (soil/water) WATER Lab Sample ID: 10849

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 4/16/88

GPC Cleanup: (Y/N) N pH: ___ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	.05	U
319-85-7	beta-BHC	.05	U
319-86-8	delta-BHC	.05	U
58-89-9	gamma-BHC (Lindane)	.05	U
76-44-8	Heptachlor	.05	U
309-00-2	Aldrin	.05	U
1024-57-3	Heptachlor epoxide	.05	U
959-98-8	Endosulfan I	.05	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin ketone	.10	U
5103-71-9	alpha-Chlordane	0.5	U
5103-74-2	gamma-Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

BR 354

Lab Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-~~35~~351

Matrix: (soil/water) WATER Lab Sample ID: 10850

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 4/16/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	.05	U
319-85-7	beta-BHC	.05	U
319-86-8	delta-BHC	.05	U
58-89-9	gamma-BHC (Lindane)	.05	U
76-44-8	Heptachlor	.05	U
309-00-2	Aldrin	.05	U
1024-57-3	Heptachlor epoxide	.05	U
959-98-8	Endosulfan I	.05	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin ketone	.10	U
5103-71-9	alpha-Chlordane	0.5	U
5103-74-2	gamma-Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

META-TRACE Contract: 68-01-7417 | BR 435 BL

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-351

Matrix: (soil/water) SOIL Lab Sample ID: 10833

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. 26% dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 4/20/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	100	U
319-85-7	beta-BHC	100	U
319-86-8	delta-BHC	100	U
58-89-9	gamma-BHC (Lindane)	100	U
76-44-8	Heptachlor	100	U
309-00-2	Aldrin	100	U
1024-57-3	Heptachlor epoxide	100	U
959-98-8	Endosulfan I	100	U
60-57-1	Dieldrin	220	U
72-55-9	4,4'-DDE	220	U
72-20-8	Endrin	220	U
33213-65-9	Endosulfan II	220	U
72-54-8	4,4'-DDD	220	U
1031-07-8	Endosulfan sulfate	220	U
50-29-3	4,4'-DDT	220	U
72-43-5	Methoxychlor	1100	U
53494-70-5	Endrin ketone	220	U
5103-71-9	alpha-Chlordane	1100	U
5103-74-2	gamma-Chlordane	1100	U
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	1100	U
11104-28-2	Aroclor-1221	1100	U
11141-16-5	Aroclor-1232	1100	U
53469-21-9	Aroclor-1242	1100	U
12672-29-6	Aroclor-1248	1100	U
11097-69-1	Aroclor-1254	2200	U
11096-82-5	Aroclor-1260	2200	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BR 436

Lab Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-351

Matrix: (soil/water) SOIL Lab Sample ID: 10836

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

Moisture: not dec. 22% dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 4/24/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	10	U
319-85-7	beta-BHC	10	U
319-86-8	delta-BHC	10	U
58-89-9	gamma-BHC (Lindane)	10	U
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	21	U
72-55-9	4,4'-DDE	21	U
72-20-8	Endrin	21	U
33213-65-9	Endosulfan II	21	U
72-54-8	4,4'-DDD	21	U
1031-07-8	Endosulfan sulfate	21	U
50-29-3	4,4'-DDT	21	U
72-43-5	Methoxychlor	100	U
53494-70-5	Endrin ketone	21	U
5103-71-9	alpha-Chlordane	100	U
5103-74-2	gamma-Chlordane	100	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	91	J
11096-82-5	Aroclor-1260	200	U

0000684

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. BR 437 DL

Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-351

Matrix: (soil/water) SOIL Lab Sample ID: 10837

Sample wt/vol: 30. (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. 22% dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 4/20/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	100	U
319-85-7	beta-BHC	100	U
319-86-8	delta-BHC	100	U
58-89-9	gamma-BHC (Lindane)	100	U
76-44-8	Heptachlor	100	U
309-00-2	Aldrin	100	U
1024-57-3	Heptachlor epoxide	100	U
959-98-8	Endosulfan I	100	U
60-57-1	Dieldrin	200	U
72-55-9	4,4'-DDE	210	U
72-20-8	Endrin	210	U
33213-65-9	Endosulfan II	210	U
72-54-8	4,4'-DDD	210	U
1031-07-8	Endosulfan sulfate	210	U
50-29-3	4,4'-DDT	210	U
72-43-5	Methoxychlor	1000	U
53494-70-5	Endrin ketone	210	U
5103-71-9	alpha-Chlordane	1000	U
5103-74-2	gamma-Chlordane	1000	U
8001-35-2	Toxaphene	2100 2050 5b/mm	U
12674-11-2	Aroclor-1016	1000	U
11104-28-2	Aroclor-1221	1000	U
11141-16-5	Aroclor-1232	1000	U
53469-21-9	Aroclor-1242	1000	U
12672-29-6	Aroclor-1248	1000	U
11097-69-1	Aroclor-1254	1000	U
11096-82-5	Aroclor-1260	197	
		2100 2050 sb/mm	U

0000692

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BR 438 D.C.

Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-351

Matrix: (soil/water) SOIL Lab Sample ID: 10838

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

Moisture: not dec. 25% dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 4/20/88

GC Cleanup: (Y/N) N pH: ____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	100	U
319-85-7	beta-BHC	100	U
319-86-8	delta-BHC	100	U
58-89-9	gamma-BHC (Lindane)	100	U
76-44-8	Heptachlor	100	U
309-00-2	Aldrin	100	U
1024-57-3	Heptachlor epoxide	100	U
959-98-8	Endosulfan I	100	U
60-57-1	Dieldrin	210	U
72-55-9	4,4'-DDE	210	U
72-20-8	Endrin	210	U
33213-65-9	Endosulfan II	210	U
72-54-8	4,4'-DDD	210	U
1031-07-8	Endosulfan sulfate	210	U
50-29-3	4,4'-DDT	210	U
72-43-5	Methoxychlor	1100	U
53494-70-5	Endrin ketone	210	U
5103-71-9	alpha-Chlordane	1100	U
5103-74-2	gamma-Chlordane	1100	U
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	1100	U
11104-28-2	Aroclor-1221	1100	U
11141-16-5	Aroclor-1232	1100	U
53469-21-9	Aroclor-1242	1100	U
12672-29-6	Aroclor-1248	1100	U
11097-69-1	Aroclor-1254	1100	U
11096-82-5	Aroclor-1260	1164	
		2100	U

0000700

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BR 439 B.L.

Lab Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-351

Matrix: (soil/water) SOIL Lab Sample ID: 10839

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. 31 % dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 4/20/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	100	U
319-85-7	beta-BHC	100	U
319-86-8	delta-BHC	100	U
58-89-9	gamma-BHC (Lindane)	100	U
76-44-8	Heptachlor	100	U
309-00-2	Aldrin	100	U
1024-57-3	Heptachlor epoxide	100	U
959-98-8	Endosulfan I	100	U
60-57-1	Dieldrin	100	U
72-55-9	4,4'-DDE	230	U
72-20-8	Endrin	230	U
33213-65-9	Endosulfan II	230	U
72-54-8	4,4'-DDD	230	U
1031-07-8	Endosulfan sulfate	230	U
50-29-3	4,4'-DDT	230	U
72-43-5	Methoxychlor	230	U
53494-70-5	Endrin ketone	1200	U
5103-71-9	alpha-Chlordane	230	U
5103-74-2	gamma-Chlordane	1200	U
8001-35-2	Toxaphene	1200	U
12674-11-2	Aroclor-1016	2300	U
11104-28-2	Aroclor-1221	1200	U
11141-16-5	Aroclor-1232	1200	U
53469-21-9	Aroclor-1242	1200	U
12672-29-6	Aroclor-1248	1200	U
11097-69-1	Aroclor-1254	1200	U
11096-82-5	Aroclor-1260	187	
		2300	U

0000703

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BR 444 D.L.

Name: META-TRACE Contract: 68-01-7417

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-351

Matrix: (soil/water) SOIL Lab Sample ID: 10840

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. 24% dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 4/20/88

GC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	100	U
319-85-7	beta-BHC	100	U
319-86-8	delta-BHC	100	U
58-89-9	gamma-BHC (Lindane)	100	U
76-44-8	Heptachlor	100	U
309-00-2	Aldrin	100	U
1024-57-3	Heptachlor epoxide	100	U
959-98-8	Endosulfan I	100	U
60-57-1	Dieldrin	210	U
72-55-9	4,4'-DDE	210	U
72-20-8	Endrin	210	U
33213-65-9	Endosulfan II	210	U
72-54-8	4,4'-DDD	210	U
1031-07-8	Endosulfan sulfate	210	U
50-29-3	4,4'-DDT	210	U
72-43-5	Methoxychlor	1100	U
53494-70-5	Endrin ketone	210	U
5103-71-9	alpha-Chlordane	1100	U
5103-74-2	gamma-Chlordane	1100	U
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	1100	U
11104-28-2	Aroclor-1221	1100	U
11141-16-5	Aroclor-1232	1100	U
53469-21-9	Aroclor-1242	1100	U
12672-29-6	Aroclor-1248	1100	U
11097-69-1	Aroclor-1254	479	
11096-82-5	Aroclor-1260	2100	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BR 445 DL.

Lab Name: META - TRACE Contract: 68-01-7417

Lab code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-351

Matrix: (soil/water) SOIL Lab Sample ID: 10841

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. 24% dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 4/20/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	100	U
319-85-7	beta-BHC	100	U
319-86-8	delta-BHC	100	U
58-89-9	gamma-BHC (Lindane)	100	U
76-44-8	Heptachlor	100	U
309-00-2	Aldrin	100	U
1024-57-3	Heptachlor epoxide	100	U
959-98-8	Endosulfan I	100	U
60-57-1	Dieldrin	210	U
72-55-9	4,4'-DDE	210	U
72-20-8	Endrin	210	U
33213-65-9	Endosulfan II	210	U
72-54-8	4,4'-DDD	210	U
1031-07-8	Endosulfan sulfate	210	U
50-29-3	4,4'-DDT	210	U
72-43-5	Methoxychlor	1100	U
53494-70-5	Endrin ketone	210	U
5103-71-9	alpha-Chlordane	1100	U
5103-74-2	gamma-Chlordane	1100	U
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	1100	U
11104-28-2	Aroclor-1221	1100	U
11141-16-5	Aroclor-1232	1100	U
53469-21-9	Aroclor-1242	1100	U
12672-29-6	Aroclor-1248	1100	U
11097-69-1	Aroclor-1254	2100	U
11096-82-5	Aroclor-1260	2100	U

0000730

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: META-TRACE Contract: 68-01-7417 BR 440

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-~~755~~ 357 Rev. 4/21/88

Matrix: (soil/water) WATER Lab Sample ID: 10845

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 4/8/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 4/16/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	.05	U
319-85-7	beta-BHC	.05	U
319-86-8	delta-BHC	.05	U
58-89-9	gamma-BHC (Lindane)	.05	U
76-44-8	Heptachlor	.05	U
309-00-2	Aldrin	.05	U
1024-57-3	Heptachlor epoxide	.05	U
959-98-8	Endosulfan I	.05	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin ketone	.10	U
5103-71-9	alpha-Chlordane	0.5	U
5103-74-2	gamma-Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

b Name: META-TRACE Contract: 68-01-7417 BR 441

Lab Code: META Case No.: 9296 SAS No.: _____ SDG No.: BR-~~935~~351 DM 4/28/88

Matrix: (soil/water) WATER Lab Sample ID: 10846

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 4/9/88

% Moisture: not dec. _____ dec. _____ Date Extracted: 4/13/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 4/16/88

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	.05	U
319-85-7	beta-BHC	.05	U
319-86-8	delta-BHC	.05	U
58-89-9	gamma-BHC (Lindane)	.05	U
76-44-8	Heptachlor	.05	U
309-00-2	Aldrin	.05	U
1024-57-3	Heptachlor epoxide	.05	U
959-98-8	Endosulfan I	.05	U
60-57-1	Dieldrin	.10	U
72-55-9	4,4'-DDE	.10	U
72-20-8	Endrin	.10	U
33213-65-9	Endosulfan II	.10	U
72-54-8	4,4'-DDD	.10	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin ketone	.10	U
5103-71-9	alpha-Chlordane	0.5	U
5103-74-2	gamma-Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

0000713

HRS

	S	S^2
Groundwater Route Score (S_{gw})	52.50	2756.25
Surface Water Route Score (S_{sw})	4.78	22.85
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2779.10
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		52.72
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		30.47

WORKSHEET FOR COMPUTING S_M

PRO

	S	S^2
Groundwater Route Score (S_{gw})	69.07	4770.66
Surface Water Route Score (S_{sw})	5.03	25.30
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		4795.96
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		69.25
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		40.03

WORKSHEET FOR COMPUTING S_M

CONFIDENTIAL-NOT FOR PUBLIC RELEASE

Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	HRS	Max. Score	PRO
1 Observed Release	(0) 45	1	0	45	0
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					
Facility Slope and Intervening Terrain	(0) 1 2 3	1	0	3	0
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	2
Distance to Nearest Surface Water	0 1 (2) 3	2	4	8	4
Physical State	0 1 2 (3)	1	3	3	3
Total Route Characteristics Score			9	15	9
3 Containment	0 1 2 (3)	1	3	3	3
4 Waste Characteristics					
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	18
Hazardous Waste Quantity	0 (1) (2) 3 4 5 6 7 8	1	1	8	2
Total Waste Characteristics Score			19	26	20
5 Targets					
Surface Water Use	0 1 (2) 3	3	6	9	6
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	0
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	0
Total Targets Score			6	55	6
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			3078	64,350	3240
7 Divide line 6 by 64,350 and multiply by 100		S_{sw} =	4.78		5.03

HRS 0

PRO ☐

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Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	HRS	Max. Score	PRO
1 Observed Release	(0) 45	1	0	45	45
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					
Depth to Aquifer of Concern	0 1 [2] 3	2	4	6	4
Net Precipitation	0 1 [2] 3	1	2	3	2
Permeability of the Unsaturated Zone	0 1 2 [3]	1	3	3	3
Physical State	0 1 2 [3]	1	3	3	3
Total Route Characteristics Score			12	15	12
3 Containment	0 1 2 [3]	1	3	3	3
4 Waste Characteristics					
Toxicity/Persistence	0 3 6 9 12 15 [18]	1	18	18	18
Hazardous Waste Quantity	0 (1) [2] 3 4 5 6 7 8	1	1	8	2
Total Waste Characteristics Score			19	26	20
5 Targets					
Ground Water Use	0 1 2 [3]	3	9	9	9
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 [35] 40	1	35	40	35
Total Targets Score			44	49	44
6 If line 1 is 45, multiply 1 x 4 x 5			3009	57,330	39600
If line 1 is 0, multiply 2 x 3 x 4 x 5					
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 52.50		69.07

HRS 0

PRO ☐