915011

SUPPORTING DOCUMENTS FOR ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

Buffalo City - Hopkins Street Landfill Site No. 915011

City of Buffalo Erie County

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, *Commissioner*

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., *Director*

By:

Rust Environment & Infrastructure of New York, Inc.

in association with

TAMS CONSULTANTS, INC.

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November 1993

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SUPPORTING DOCUMENTATION

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Section 1

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LIST OF REFERENCES

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Ecology and Environment Engineering, P. C.
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Site Number 915011, Buffalo, Erie County, September 1989.

ND-2900 D1719

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

CITY OF BUFFALO - HOPKINS STREET, SITE NUMBER 915011 BUFFALO, ERIE COUNTY

September 1989

Prepared for:

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, Commissioner

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., P.E., Director

Prepared by:

ecology and environment engineering, p.c.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060

Reference A-2

NUS Corporation, Superfund Division
Project for Performance of Remedial Response Activities
at Uncontrolled Hazardous Substance Facilities - Zone 1, 1985.

NUS CORPORATION
A Halliburton Company

REF.
USEPA
Region II
26 Fed Plaza
NY, NY 10278
Ben Conetta

[redacted]

Hopkins ST.

PROJECT FOR PERFORMANCE OF REMEDIAL RESPONSE ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCE FACILITIES—ZONE 1

NUS CORPORATION
SUPERFUND DIVISION

FINAL DRAFT
SITE INSPECTION REPORT
AND HAZARDOUS RANKING SYSTEM MODEL
HOPKINS STREET
BUFFALO, NEW YORK

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8303-133A
CONTRACT NO. 68-01-6699

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

APRIL 8, 1985

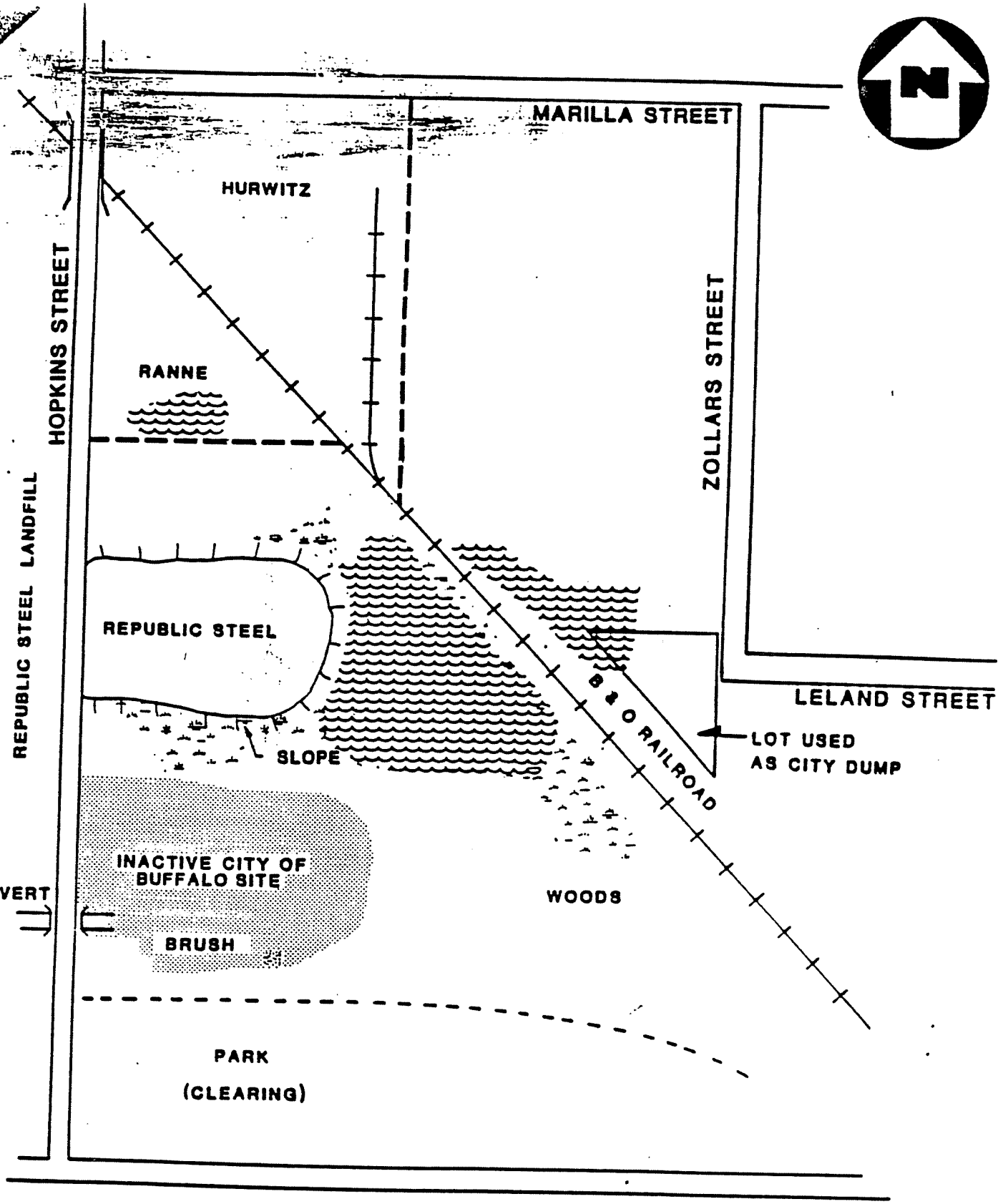
NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

JOSEPH LOGAN
PROJECT MANAGER

REVIEWED/APPROVED BY

TERRY A. RITTER
REGIONAL PROJECT MANAGER



SITE MAP

HOPKINS STREET SITE, BUFFALO, N.Y.

(NOT TO SCALE)

FIGURE A-2

NUS CORPORATION

A Halliburton Company

ecology and environment

SW-2

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MB0340

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 3000

QC REPORT NO. 5450

Matrix H2O

Elements Identified and Measured

(ug/L) or mg/kg (Circle One)

1.	Aluminum	1200 (P)	13.	Magnesium	NR (P)
2.	Antimony	<20 (F)	14.	Manganese	838 (P)
3.	Arsenic	<10 (F)	15.	Mercury	<0.2 (P)
4.	Barium	<100 (P)	16.	Nickel	<40 (P)
5.	Beryllium	<5 (P)	17.	Potassium	NR (P)
6.	Cadmium	<1 (P or (F))	18.	Selenium	<2 (F)
7.	Calcium	NR (P)	19.	Silver	<10 (P)
8.	Chromium	12 (P)	20.	Sodium	NR (P)
9.	Cobalt	<50 (P)	21.	Thallium	<10 (F)
10.	Copper	<50 (P)	22.	Tin	28 (P)
11.	Iron	3520 (P)	23.	Vanadium	<200 (P)
12.	Lead	108 ((P) or ~~(F)~~) KKO	24.	Zinc	80 (P)

Cyanide NR Percent Solids NR

Footnotes: For reporting results to EPA, standard result qualifiers are used defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

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SW-3

EPA Sample No.
MB0341

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INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 3000

QC REPORT NO. 5450

Matrix H2O

Elements Identified and Measured

(ug/L) or mg/kg (Circle One)

1.	Aluminum	442 (P)	13.	Magnesium	NR (P)
2.	Antimony	<20 (F)	14.	Manganese	3220 (P)
3.	Arsenic	<10 (F)	15.	Mercury	<0.2 (P)
4.	Barium	117 (P)	16.	Nickel	<40 (P)
5.	Beryllium	<5 (P)	17.	Potassium	NR (P)
6.	Cadmium	~~17~~ (P or F)	18.	Selenium	<2 (F)
7.	Calcium	NR (P)	19.	Silver	<10 (P)
8.	Chromium	<10 (P)	20.	Sodium	NR (P)
9.	Cobalt	<50 (P)	21.	Thallium	<10 (F)
10.	Copper	<50 (P)	22.	Tin	<20 (P)
11.	Iron	4540 (P)	23.	Vanadium	<200 (P)
12.	Lead	5.7 (P or F)	24.	Zinc	20 (P)
	Cyanide	NR		Percent Solids	NR

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SW 7
EPA Sample No.
MB0345

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 3000

QC REPORT NO. 5450

Matrix H_2O

Elements Identified and Measured

(ug/L) or mg/kg (Circle One)

1.	Aluminum	<200 (P)	13.	Magnesium	NR (P)
2.	Antimony	<20 (F)	14.	Manganese	380 (P)
3.	Arsenic	<10 (F)	15.	Mercury	<.02 (P)
4.	Barium	<100 (P)	16.	Nickel	<40 (P)
5.	Beryllium	<5 (P)	17.	Potassium	NR (P)
6.	Cadmium	<1 (P or F)	18.	Selenium	<2 (F)
7.	Calcium	NR (P)	19.	Silver	<10 (P)
8.	Chromium	<10 (P)	20.	Sodium	NR (P)
9.	Cobalt	<50 (P)	21.	Thallium	<10 (F)
10.	Copper	<50 (P)	22.	Tin	122 (P)
11.	Iron	5480 (P)	23.	Vanadium	<200 (P)
12.	Lead	11 (P or F)	24.	Zinc	10 (P)

Cyanide NR

Percent Solids NR

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S-3

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EPA Sample No.
MB 0491

Date 8/24/84

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 3000

LAB SAMPLE ID. NO. — QC REPORT NO. 5450

Matrix SOIL

Elements Identified and Measured

ug/L or mg/kg (Circle One)

1.	Aluminum	3640 (P)	13.	Magnesium	NR
2.	Antimony	<1 (F)	14.	Manganese	256 (P)
3.	Arsenic	12 (F)	15.	Mercury	0.10 (CV)
4.	Barium	24 (P)	16.	Nickel	7.1 (P)
5.	Beryllium	<0.25 (P)	17.	Potassium	NR
6.	Cadmium	1.6 (P) or (F)	18.	Selenium	<1 (F)
7.	Calcium	NR	19.	Silver	<0.5 (P)
8.	Chromium	9.6 (P)	20.	Sodium	NR
9.	Cobalt	<2.5 (P)	21.	Thallium	<0.5 (F)
10.	Copper	19 (P)	22.	Tin	~~5.3~~ — (P)
11.	Iron	11900 (P)	23.	Vanadium	12 (P)
12.	Lead	110 (P) or (F)	24.	Zinc	272 (P)
	Cyanide	NR		Percent Solids	NR

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SED-2

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EPA Sample No.
MB0347

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 3000

QC REPORT NO. 5450

Matrix Soil

Elements Identified and Measured

ug/L or (mg/kg) (Circle One)

1.	Aluminum	5090 (P)	13.	Magnesium	NR (P)
2.	Antimony	~~<0.02~~ <1 soil (F)	14.	(Manganese)	5590 (P)
3.	Arsenic	8.2 (F)	15.	Mercury	<0.1 (P)
4.	Barium	129 (P)	16.	Nickel	15 (P)
5.	Beryllium	0.45 (P)	17.	Potassium	NR (P)
6.	Cadmium	1.4 ((P) or F)	18.	Selenium	<1 (F)
7.	Calcium	NR (P)	19.	Silver	0.90 (P)
8.	Chromium	773 (P)	20.	Sodium	NR (P)
9.	Cobalt	3.9 (P)	21.	Thallium	<0.5 (F)
10.	Copper	80 (P)	22.	Tin	~~15~~ (P)
11.	Iron	29,400 (P)	23.	Vanadium	75 (P)
12.	Lead	173 ((P) or F)	24.	Zinc	164 (P)

Cyanide NR Percent Solids NR

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

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SED-3

EPA Sample No.
MB0348

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INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 3000

QC REPORT NO. 5450

Matrix Soil

Elements Identified and Measured

ug/L or (mg/kg) (Circle One)

1.	Aluminum	3900 (P)	13.	Magnesium	NR (P)
2.	Antimony	~~<0.02~~ <1 SDA (F)	14.	Manganese	184 (P)
3.	Arsenic	4.4 (F)	15.	Mercury	<0.1 (P)
4.	Barium	20 (P)	16.	Nickel	11 (P)
5.	Beryllium	<0.25 (P)	17.	Potassium	NR (P)
6.	Cadmium	0.23 (P or (F))	18.	Selenium	<1 (F)
7.	Calcium	NR (P)	19.	Silver	<0.5 (P)
8.	Chromium	8.0 (P)	20.	Sodium	NR (P)
9.	Cobalt	3.4 (P)	21.	Thallium	<0.5 (F)
10.	Copper	16 (P)	22.	Tin	~~4.4~~ (P)
11.	Iron	9110 (P)	23.	Vanadium	<10 (P)
12.	Lead	24 ((P) or F)	24.	Zinc	45 (P)

Cyanide NR Percent Solids NR

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S-2

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EPA Sample No.
MB0353

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 3000

QC REPORT NO. 5450

Elements Identified and Measured

Matrix Soil

ug/L or mg/kg (Circle One)

1.	Aluminum	4870 (P)	13.	Magnesium	NR (P)
2.	Antimony	~~<0.02~~ <1 SOR (F)	14.	Manganese	236 (P)
3.	Arsenic	12 (F)	15.	Mercury	0.18 (P)
4.	Barium	42 (P)	16.	Nickel	14 (P)
5.	Beryllium	0.37 (P)	17.	Potassium	NR (P)
6.	Cadmium	3.8 ((P) or F)	18.	Selenium	<1 (F)
7.	Calcium	NR (P)	19.	Silver	0.76 (P)
8.	Chromium	16 (P)	20.	Sodium	NR (P)
9.	Cobalt	3.3 (P)	21.	Thallium	<0.5 (F)
10.	Copper	34 (P)	22.	Tin	~~9.4~~ (P)
11.	Iron	15,100 (P)	23.	Vanadium	13 (P)
12.	Lead	201 ((P) or F)	24.	Zinc	505 (P)

Cyanide NR Percent Solids NR

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SED-7

EPA Sample No. MB0493

Date 8/24/84

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Sample Management Office
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703/557-2490 FTS: 8-557-2490

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 3000

LAB SAMPLE ID. NO. — QC REPORT NO. 5450

Elements Identified and Measured

Matrix SOIL

ug/L or (mg/kg) (Circle One)

1.	Aluminum	3140 (P)	13.	Magnesium	NR (P)
2.	Antimony	~~<0.02~~ <1 SOAC (F)	14.	Manganese	173 (P)
3.	Arsenic	3.2 (F)	15.	Mercury	<0.1 (P)
4.	Barium	16 (P)	16.	Nickel	5.3 (P)
5.	Beryllium	<0.25 (P)	17.	Potassium	NR (P)
6.	Cadmium	0.95 (P or F)	18.	Selenium	<1 (F)
7.	Calcium	NR (P)	19.	Silver	<0.5 (P)
8.	Chromium	6.1 (P)	20.	Sodium	NR (P)
9.	Cobalt	<2.5 (P)	21.	Thallium	<0.5 (F)
10.	Copper	11 (P)	22.	Tin	~~3.3~~ (P)
11.	Iron	9090 (P)	23.	Vanadium	<10 (P)
12.	Lead	53 (F) or (P)	24.	Zinc	133 (P)
	Cyanide	NR ~~(P or F)~~ MW		Percent Solids	NR

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

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U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

000017 | B2453

SW 2

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ROCKY MOUNTAIN ANALYTICAL Case No: ~~26~~ 3000
Lab Sample ID No: 7057-02 QC Report No: ~~705~~ 7057
Sample Matrix: H_2O Contract No.: 68-01-6738
Data Release Authorized By: [signature] Date Sample Received: 7/13/84

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7/18/84
DATE ANALYZED: 7/30/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: x 1

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2- chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2- nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u
	65-85-0	benzoic acid	100 u
	95-48-7	2-methylphenol	5 u
	108-39-4	4-methylphenol	5 u
	95-95-4	2,4,5-trichlorophenol	100 u
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u

PP #	CAS #		ug/l or ug/kg (circle one)
(52B)	87-68-3	hexachlorobutadiene	10
(53B)	77-47-4	hexachlorocyclopentadiene	10
(54B)	78-59-1	isophorone	10
(55B)	91-20-3	naphthalene	10
(56B)	98-95-3	nitrobenzene	10
(61B)	62-75-9	N-nitrosodimethylamine	25
(62B)	86-30-6	N-nitrosodiphenylamine	10
(63B)	621-64-7	N-nitrosodipropylamine	10
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10
(67B)	85-68-7	benzyl butyl phthalate	11
(68B)	84-74-2	di-n-butyl phthalate	10
(69B)	117-84-0	di-n-octyl phthalate	11
(70B)	84-66-2	diethyl phthalate	11
(71B)	131-11-3	dimethyl phthalate	10
(72B)	56-55-3	benzo(a)anthracene	11
(73B)	50-32-8	benzo(a)pyrene	2
(74B)	205-99-2	benzo(b)fluoranthene	20
(75B)	207-08-9	benzo(k)fluoranthene	20
(76B)	218-01-9	chrysene	2
(77B)	208-96-8	acenaphthylene	10
(78B)	120-12-7	anthracene	10
(79B)	191-24-2	benzo(ghi)perylene	2
(80B)	86-73-7	fluorene	11
(81B)	85-01-8	phenanthrene	10
(82B)	53-70-3	dibenzo(a,h)anthracene	2
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	2
(84B)	129-00-0	pyrene	10
	62-53-3	aniline	5
	100-51-6	benzyl alcohol	20
	106-47-8	4-chloroaniline	50
	132-64-9	dibenzofuran	10
	91-57-6	2-methylnaphthalene	20
	88-74-4	2-nitroaniline	100
	99-09-2	3-nitroaniline	10
	100-01-6	4-nitroaniline	10

* not listed in exhibit C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

000018

Sample Number: B-2453 542

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: Rocky Mountain Analytical Lab
Lab Sample ID No: 7057-C2
Sample Matrix: Low Waters
Data Release Authorized By: [signature]

Case No: 3000
QC Report No: 7057
Contract No.: 68-01-6938
Date Sample Received: 7/13/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: —
DATE ANALYZED: 7/19/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: —

PP #	CAS #		ug/l or ug/kg (circle one)
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	10U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	[redacted]
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	trans-1,2-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(49V)	75-69-4	fluorotrichloromethane	10 X U
(50V)	75-71-8	dichlorodifluoromethane	10 X U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U
	67-64-1	acetone	5U
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene	5U
	108-05-4	vinyl acetate	5U
	1330-20-7	total xylenes	5U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7/10/84
DATE ANALYZED: 7/26/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: —

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 U
(90P)	60-57-1	dieldrin	0.005 U
(91P)	57-74-9	chlordane	0.05 U
(92P)	50-29-3	4,4'-DDT	0.01 U
(93P)	72-55-9	4,4'-DDE	0.005 U
(94P)	72-54-8	4,4'-DDD	0.01 U
(95P)	115-29-7	α-endosulfan	0.005 U
(96P)	115-29-7	β-endosulfan	0.005 U
(97P)	1031-07-8	endosulfan sulfate	0.01 U
(98P)	72-20-8	endrin	0.005 U
(99P)	7421-93-4	endrin aldehyde	0.01 U
(100P)	76-44-8	heptachlor	0.005 U
(101P)	1024-57-3	heptachlor epoxide	0.005 U
(102P)	319-84-6	α-BHC	0.005 U
(103P)	319-85-7	β-BHC	0.005 U
(104P)	319-86-8	δ-BHC X10	0.05 U
(105P)	58-89-9	γ-BHC (lindane) X10	0.05 U
(106P)	53469-21-9	PCB-1242	0.05 U
(107P)	11097-69-1	PCB-1254	0.05 U
(108P)	11104-28-2	PCB-1221	0.1 U
(109P)	11141-16-5	PCB-1232	0.1 U
(110P)	12672-29-6	PCB-1248	0.05 U
(111P)	11096-82-5	PCB-1260	0.10 U
(112P)	12674-11-2	PCB-1016	0.10 U
(113P)	8001-35-2	toxaphene	0.20 U

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: —
DATE ANALYZED: —
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: —

PP #	CAS #		ug/l or ug/k (circle o
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	

December 1

ORGANICS ANALYSIS DATA SHEET - Page 3 000035

Sample No.: B-245 S1

Laboratory Name: ROCKY MOUNTAIN ANALYTICAL LAB Case No.: 3000

QC Report No.: 7057-C2

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: Cas)	Estimated Concentration (ug/L or ug/Kg)
1.		NONE DETECTED	VOA			
2.						
3.	110-83-8	CYCLOHEXENE	GNA	193	776	13
4.	127-18-4	TETRACHLOROETHENE	BNA	320	973	4
5.		UNKNOWN	BNA	389		4
6.	36-7-12-4	2-ETHOXYETHER	BNA	420	948	9
7.						
8.						
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30.						

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
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000021

Sample Number
B-2454
SW3

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: Rocky Mountain Analytical
Case No: ~~30~~ 3000
Lab Sample ID No: 7057-04
QC Report No: ~~7057~~ 7057
Sample Matrix: H2O
Contract No.: 68-01-6738
Data Release Authorized By:
Date Sample Received: 7/13/84

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7/18/84
DATE ANALYZED: 8/1/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: x1

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6- trichlorophenol	10
(22A)	59-50-7	p-chloro-m-cresol	10
(24A)	95-57-8	2- chlorophenol	10
(31A)	120-83-2	2,4-dichlorophenol	10
(34A)	105-67-9	2,4-dimethylphenol	10
(57A)	88-75-5	2- nitrophenol	20
(58A)	100-02-7	4-nitrophenol	50
(59A)	51-28-5	2,4-dinitrophenol	50
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20
(64A)	87-86-5	pentachlorophenol	10
(65A)	108-95-2	phenol	10
	65-85-0	benzoic acid	100
	95-48-7	2-methylphenol	5
	108-39-4	4-methylphenol	5
	95-95-4	2,4,5-trichlorophenol	100
(1B)	83-32-9	acenaphthene	10
(5B)	92-87-5	benzidine	10
(8B)	120-82-1	1,2,4-trichlorobenzene	10
(9B)	118-74-1	hexachlorobenzene	10
(12B)	67-72-1	hexachloroethane	10
(18B)	111-44-4	bis(2-chloroethyl)ether	10
(20B)	91-58-7	2-chloronaphthalene	10
(25B)	95-50-1	1,2-dichlorobenzene	10
(26B)	541-73-1	1,3-dichlorobenzene	10
(27B)	106-46-7	1,4-dichlorobenzene	10
(28B)	91-94-1	3,3'-dichlorobenzidine	20
(35B)	121-14-2	2,4-dinitrotoluene	20
(36B)	606-20-2	2,6-dinitrotoluene	20
(37B)	122-66-7	1,2-diphenylhydrazine	20
(39B)	206-44-0	fluoranthene	10
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10
(41B)	101-55-3	4-bromophenyl phenyl ether	10
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20
(43B)	111-91-1	bis (2-chloroethoxy) methane	20

PP #	CAS #		ug/l or ug/k (circle o
(52B)	87-68-3	hexachlorobutadiene	10
(53B)	77-47-4	hexachlorocyclopentadiene	10
(54B)	78-59-1	isophorone	10
(55B)	91-20-3	naphthalene	10
(56B)	98-95-3	nitrobenzene	10
(61B)	62-75-9	N-nitrosodimethylamine	50
(62B)	86-30-6	N-nitrosodiphenylamine	10
(63B)	621-64-7	N-nitrosodipropylamine	10
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10
(67B)	85-68-7	benzyl butyl phthalate	10
(68B)	84-74-2	di-n-butyl phthalate	10
(69B)	117-84-0	di-n-octyl phthalate	10
(70B)	84-66-2	diethyl phthalate	10
(71B)	131-11-3	dimethyl phthalate	10
(72B)	56-55-3	benzo(a)anthracene	10
(73B)	50-32-8	benzo(a)pyrene	20
(74B)	205-99-2	benzo(b)fluoranthene	20
(75B)	207-08-9	benzo(k)fluoranthene	20
(76B)	218-01-9	chrysene	20
(77B)	208-96-8	acenaphthylene	10
(78B)	120-12-7	anthracene	10
(79B)	191-24-2	benzo(ghi)perylene	20
(80B)	86-73-7	fluorene	10
(81B)	85-01-8	phenanthrene	10
(82B)	53-70-3	dibenzo(a,h)anthracene	20
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20
(84B)	129-00-0	pyrene	10
	62-53-3	aniline	5
	100-51-6	benzyl alcohol	20
	106-47-8	4-chloroaniline	50
	132-64-9	dibenzofuran	10
	91-57-6	2-methylnaphthalene	20
	88-74-4	2-nitroaniline	100
	99-09-2	3-nitroaniline	100
	100-01-6	4-nitroaniline	100

December 1983

* see listed in exhibit C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

000021

Sample Number
B-2454

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: Rocky Mountain Analytical Lab
Lab Sample ID No: 7057-04
Sample Matrix: Low Waters
Data Release Authorized By: [signature]

Case No: 3000 SAS
QC Report No: 7057
Contract No.: 68-01-6238
Date Sample Received: 7/13/84

VOLATILES

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: —
DATE ANALYZED: 7/15/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: —

PP #	CAS #		ug/l or ug/kg (circle one)
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(6V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	trans-1,2-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	5U
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(49V)	75-69-4	fluorotrichloromethane	10U
(50V)	75-71-8	dichlorodifluoromethane	10U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U
	67-64-1	acetone	5U
	78-93-3	2-butanone	5U
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene	5U
	108-05-4	vinyl acetate	5U
	1330-20-7	total xylenes	5U

PESTICIDES

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7/14/84
DATE ANALYZED: 7/26/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: x2

PP #	CAS #		ug/l or (circ
(89P)	309-00-2	aldrin	0.010
(90P)	60-57-1	dieldrin	0.010
(91P)	57-74-9	chlordane	0.10
(92P)	50-29-3	4,4'-DDT	0.02
(93P)	72-55-9	4,4'-DDE	0.010
(94P)	72-54-8	4,4'-DDD	0.02
(95P)	115-29-7	α-endosulfan	0.010
(96P)	115-29-7	β-endosulfan	0.010
(97P)	1031-07-8	endosulfan sulfate	0.02
(98P)	72-20-8	endrin	0.010
(99P)	7421-93-4	endrin aldehyde	0.02
(100P)	76-44-8	heptachlor	0.010
(101P)	1024-57-3	heptachlor epoxide	0.010
(102P)	319-84-6	α-BHC	0.010
(103P)	319-85-7	β-BHC	0.010
(104P)	319-86-8	δ-BHC	0.010
(105P)	58-89-9	γ-BHC (lindane)	0.010
(106P)	53469-21-9	PCB-1242	0.10
(107P)	11097-69-1	PCB-1254	0.10
(108P)	11104-28-2	PCB-1221	0.2
(109P)	11141-16-5	PCB-1232	0.2
(110P)	12672-29-6	PCB-1248	0.10
(111P)	11096-82-5	PCB-1260	0.20
(112P)	12674-11-2	PCB-1016	0.20
(113P)	8001-35-2	toxaphene	0.4

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug or ug (circle on
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	

Sample Number B-2454

Laboratory Name: Rocky Mountain Analytical Lab Case No: 3000 SW 3

QC Report No: 7057-04

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: pu)	Estimated Concentration (ug/L or ug/kg)
1.		NONE Detected	VOA			
2.						
3.		~~NONE DETECTED~~	BNA		787	180
4.	110-83-8	CYCLOHEXENE				
5.						
6.						
7.						
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9.						
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FORM II (continued)

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

000029

Sample Number
B-2458

SW)

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ROCKY MOUNTAIN ANALYTICAL Case No: ~~26~~ 3007
Lab Sample ID No: 7057-08 QC Report No: ~~7052~~ 7057
Sample Matrix: H_2O Contract No.: 68-01-6738
Data Release Authorized By: [signature] Date Sample Received: 7/13/84

SEMIVOLATILE COMPOUNDS

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7/18/84
DATE ANALYZED: 8/1/84
PERCENT MOISTURE:
CONC./DILUTION FACTOR: x 1

PP #	CAS #		(ug/l or ug/kg (circle one))
(21A)	88-06-2	2,4,6- trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2- chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2- nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u
	65-85-0	benzoic acid	100 u
	95-48-7	2-methylphenol	5 u
	108-39-4	4-methylphenol	5 u
	95-95-4	2,4,5-trichlorophenol	100 u
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u

PP #	CAS #		(ug/l or ug/kg (circle one))
(52B)	87-68-3	hexachlorobutadiene	10
(53B)	77-47-4	hexachlorocyclopentadiene	4
(54B)	78-59-1	isophorone	10
(55B)	91-20-3	naphthalene	10
(56B)	98-95-3	nitrobenzene	10
(61B)	62-75-9	N-nitrosodimethylamine	25
(62B)	86-30-6	N-nitrosodiphenylamine	10
(63B)	621-64-7	N-nitrosodipropylamine	10
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10
(67B)	85-68-7	benzyl butyl phthalate	10
(68B)	84-74-2	di-n-butyl phthalate	10
(69B)	117-84-0	di-n-octyl phthalate	10
(70B)	84-66-2	diethyl phthalate	10
(71B)	131-11-3	dimethyl phthalate	10
(72B)	56-55-3	benzo(a)anthracene	10
(73B)	50-32-8	benzo(a)pyrene	20
(74B)	205-99-2	benzo(b)fluoranthene	20
(75B)	207-08-9	benzo(k)fluoranthene	20
(76B)	218-01-9	chrysene	20
(77B)	208-96-8	acenaphthylene	10
(78B)	120-12-7	anthracene	10
(79B)	191-24-2	benzo(ghi)perylene	20
(80B)	86-73-7	fluorene	10
(81B)	85-01-8	phenanthrene	10
(82B)	53-70-3	dibenzo(a,h)anthracene	20
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20
(84B)	129-00-0	pyrene	10
	62-53-3	aniline	5
	100-51-6	benzyl alcohol	20
	106-47-8	4-chloroaniline	50
	132-64-9	dibenzofuran	10
	91-57-6	2-methylnaphthalene	20
	88-74-4	2-nitroaniline	100
	99-09-2	3-nitroaniline	100
	100-01-6	4-nitroaniline	100

* not listed in exhibit C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

000030

Sample Number
8-2458
SW7

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: Rocky Mountain Analytical LAB
Lab Sample ID No: 7057-08
Sample Matrix: LOW WATER
Data Release Authorized By: E Mayer

Case No: 3000
QC Report No: 7057
Contract No.: 68-01-6738
Date Sample Received: 7/13/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: —
DATE ANALYZED: 7/20/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: —

PP #	CAS #		ug/l or ug/kg (circle one)
(2V)	107-02-8	acrolein	100 U
(3V)	107-13-1	acrylonitrile	100 U
(4V)	71-43-2	benzene	5 U
(6V)	56-23-5	carbon tetrachloride	5 U
(7V)	108-90-7	chlorobenzene	5 U
(10V)	107-06-2	1,2-dichloroethane	5 U
(11V)	71-55-6	1,1,1-trichloroethane	5 U
(13V)	75-34-3	1,1-dichloroethane	5 U
(14V)	79-00-5	1,1,2-trichloroethane	5 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 U
(16V)	75-00-3	chloroethane	10 U
(19V)	110-75-8	2-chloroethylvinyl ether	10 U
(23V)	67-66-3	chloroform	5 U
(29V)	75-35-4	1,1-dichloroethene	5 U
(30V)	156-60-5	trans-1,2-dichloroethene	5 U
(32V)	78-87-5	1,2-dichloropropane	10 U
(33V)	10061-02-6	trans-1,3-dichloropropene	5 U
	10061-01-05	cis-1,3-dichloropropene	5 U
(38V)	100-41-4	ethylbenzene	5 U
(44V)	75-09-2	methylene chloride	5 U
(45V)	74-87-3	chloromethane	10 U
(46V)	74-83-9	bromomethane	10 U
(47V)	75-25-2	bromoform	10 U
(48V)	75-27-4	bromodichloromethane	5 U
(49V)	75-69-4	fluorotrichloromethane	10 U
(50V)	75-71-8	dichlorodifluoromethane	10 U
(51V)	124-48-1	chlorodibromomethane	5 U
(85V)	127-18-4	tetrachloroethene	5 U
(86V)	108-88-3	toluene	5 U
(87V)	79-01-6	trichloroethene	5 U
(88V)	75-01-4	vinyl chloride	10 U
	67-64-1	acetone	5 U
	78-93-3	2-butanone	10 U
	75-15-0	carbondisulfide	5 U
	519-78-6	2-hexanone	5 U
	108-10-1	4-methyl-2-pentanone	5 U
	100-42-5	styrene	5 U
	108-05-4	vinyl acetate	5 U
	1330-20-7	total xylenes	5 U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7/14/84
DATE ANALYZED: 8/1/84
PERCENT MOISTURE: —
CONC./DILUTION FACTOR: X1.7

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.009 U
(90P)	60-57-1	dieldrin	0.009 U
(91P)	57-74-9	chlordane	0.09 U
(92P)	50-29-3	4,4'-DDT	0.02 U
(93P)	72-55-9	4,4'-DDE	0.009 U
(94P)	72-54-8	4,4'-DDD	0.02 U
(95P)	115-29-7	α-endosulfan	0.009 U
(96P)	115-29-7	β-endosulfan	0.009 U
(97P)	1031-07-8	endosulfan sulfate	0.02 U
(98P)	72-20-8	endrin	0.009 U
(99P)	7421-93-4	endrin aldehyde	0.02 U
(100P)	76-44-8	heptachlor	0.009 U
(101P)	1024-57-3	heptachlor epoxide	0.009 U
(102P)	319-84-6	α-BHC	0.009 U
(103P)	319-85-7	β-BHC	0.009 U
(104P)	319-86-8	δ-BHC	0.009 U
(105P)	58-89-9	γ-BHC (lindane)	0.009 U
(106P)	53469-21-9	PCB-1242	0.09 U
(107P)	11097-69-1	PCB-1254	0.09 U
(108P)	11104-28-2	PCB-1221	0.2 U
(109P)	11141-16-5	PCB-1232	0.2 U
(110P)	12672-29-6	PCB-1248	0.09 U
(111P)	11096-82-5	PCB-1260	0.17 U
(112P)	12674-11-2	PCB-1016	0.17 U
(113P)	8001-35-2	toxaphene	0.34 U

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/ (circle
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	

December

ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number B-3458 SW 7

Laboratory Name: Rocky Mountain Analytical Labs Case No: 3100

QC Report No: 7057-08

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify:)	Estimated Concentration (ug/L or ug/kg)
1.		NONE DETECTED	VOA	$		
2.						
3.		UNKNOWN	B/A	193		6
4.	75-09-2	2-FLUORO PHENOL	BNA	976	961	3
5.		HYDROCARBON	BNA	2155		15
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

6/82

P.O. Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
B2460
SED-2

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 3000
Lab Sample ID No: 8407063-06
QC Report No: 14
Sample Matrix: Soil
Contract No: 68-01-6853
Data Release Authorized By: [signature]
Date Sample Received: 7-13-84

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: —
Date Analyzed: 7-18-84
Conc/Dil Factor: 1:1 pH —
Percent Moisture: 54
Percent Moisture (Decanted): —

CAS Number		ug/l or (ug/Kg) (Circle One)
74-87-3	Chloromethane	19 U
74-83-9	Bromomethane	19 U
75-01-4	Vinyl Chloride	19 U
75-00-3	Chloroethane	19 U
75-09-2	Methylene Chloride	20.
67-64-1	Acetone	~~43.~~
75-15-0	Carbon Disulfide	9 U
75-35-4	1, 1-Dichloroethene	9 U
75-34-3	1, 1-Dichloroetnane	9 U
156-60-5	Trans-1, 2-Dichloroethene	9 U
67-66-3	Chloroform	9 U
107-06-2	1, 2-Dichloroethane	9 U
78-93-3	2-Butanone	~~30.~~
71-55-6	1, 1, 1-Trichloroetnane	9 U
56-23-5	Carbon Tetracnloride	9 U
108-05-4	Vinyl Acetate	19 U
75-27-4	Bromodichlorometnane	9 U

CAS Number		ug/l or (ug/Kg) (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroetnane	9 U
78-87-5	1, 2-Dichloropropane	9 U
10061-02-6	Trans-1, 3-Dichloropropene	9 U
79-01-6	Trichloroetnene	9 U
124-48-1	Dibromochloromethane	9 U
79-00-5	1, 1, 2-Trichloroethane	9 U
71-43-2	Benzene	9 U
10061-01-5	cis-1, 3-Dichloropropene	9 U
110-75-8	2-Chloroethylvinylether	19 U
75-25-2	Bromoform	9 U
591-78-6	2-Hexanone	19 U
108-10-1	4-Methyl-2-Pentanone	19 U
127-18-4	Tetrachloroethene	9 U
108-88-3	Toluene	9.
108-90-7	Chlorobenzene	9 U
100-41-4	Ethylbenzene	9 U
100-42-5	Styrene	9 U
	Total Xylenes	9 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read "U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample"

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 12J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

Environmental Protection Agency, CLP Sample Management Office,
P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

049(A) SED-2

Sample Number
B2460

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 8-1-84

Date Analyzed: 8-7-84

Conc/Dil Factor: 10.44g/2ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	2000 u
108-95-2	Phenol	2000 u
62-53-3	Aniline	2000 u
111-44-4	bis(2-Chloroethyl)Ether	2000 u
95-57-8	2-Chlorophenol	2000 u
541-73-1	1, 3-Dichlorobenzene	2000 u
106-46-7	1, 4-Dichlorobenzene	2000 u
100-51-6	Benzyl Alcohol	2000 u
95-50-1	1, 2-Dichlorobenzene	2000 u
95-48-7	2-Methylphenol	2000 u
39638-32-9	bis(2-chloroisopropyl)Ether	2000 u
106-44-5	4-Methylphenol	2000 u
621-64-7	N-Nitroso-Di-n-Propylamine	2000 u
67-72-1	Hexachloroethane	2000 u
98-95-3	Nitrobenzene	2000 u
78-59-1	Isophorone	2000 u
88-75-5	2-Nitrophenol	2000 u
105-67-9	2, 4-Dimethylphenol	2000 u
65-85-0	Benzoic Acid	9700 u
111-91-1	bis(2-Chloroethoxy)Methane	2000 u
120-83-2	2, 4-Dichlorophenol	2000 u
120-82-1	1, 2, 4-Trichlorobenzene	2000 u
91-20-3	Naphthalene	2000 u
106-47-8	4-Chloroaniline	2000 u
87-68-3	Hexachlorobutadiene	2000 u
59-50-7	4-Chloro-3-Methylphenol	2000 u
91-57-6	2-Methylnaphthalene	2000 u
77-47-4	Hexachlorocyclopentadiene	2000 u
88-06-2	2, 4, 6-Trichlorophenol	2000 u
95-95-4	2, 4, 5-Trichlorophenol	9700 u
91-58-7	2-Chloronaphthalene	2000 u
88-74-4	2-Nitroaniline	9700 u
131-11-3	Dimethyl Phthalate	2000 u
208-96-8	Acenaphthylene	2000 u
99-09-2	3-Nitroaniline	9700

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	2000 u
51-28-5	2, 4-Dinitrophenol	9700 u
100-02-7	4-Nitrophenol	9700 u
132-64-9	Dibenzofuran	2000 u
121-14-2	2, 4-Dinitrotoluene	2000 u
606-20-2	2, 6-Dinitrotoluene	2000 u
84-66-2	Diethylphthalate	2000 u
7005-72-3	4-Chlorophenyl-phenylether	2000 u
86-73-7	Fluorene	2000 u
100-01-6	4-Nitroaniline	9700 u
534-52-1	4, 6-Dinitro-2-Methylphenol	9700 u
86-30-6	N-Nitrosodiphenylamine (1)	2000 u
101-55-3	4-Bromophenyl-phenylether	2000 u
118-74-1	Hexachlorobenzene	2000 u
87-86-5	Pentachlorophenol	9700 u
85-01-8	Phenanthrene	7700.
120-12-7	Anthracene	2500.
84-74-2	Di-n-Butylphthalate	2500.
206-44-0	Fluoranthene	16,000.
92-87-5	Benzidine	9700 u
129-00-0	Pyrene	9400.
85-68-7	Butylbenzylphthalate	1310.
91-94-1	3, 3'-Dichlorobenzidine	4000 u
56-55-3	Benzo(a)Anthracene	6200.
117-81-7	bis(2-Ethylhexyl)Phthalate	2000 u
218-01-9	Chrysene	6000.
117-84-0	Di-n-Octyl Phthalate	2400.
205-99-2	Benzo(b)Fluoranthene	3900.
207-08-9	Benzo(k)Fluoranthene	3900.
50-32-8	Benzo(a)Pyrene	7000.
193-39-5	Indeno(1, 2, 3-cd)Pyrene	6800.
53-70-3	Dibenz(a, h)Anthracene	2100.
191-24-2	Benzo(g, h, i)Perylene	6900

(1)-Cannot be separated from diphenylamine

D2460
SED-2

DATA SHEET
Case No: 3000
QC Report No: 14
Contract No.: 68-01-6553
Date Sample Received: 7-13-84

Lab Sample ID No: [illegible]
Sample Matrix: SOIL
Data Release Authorized By: [illegible]

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: —
DATE ANALYZED: 7-20-84
PERCENT MOISTURE: 54%
CONC./DILUTION FACTOR: 1/1

PP #	CAS #		ug/l or ug/kg (circle one)
(1V)	107-02-8	acrolein	10 U
(2V)	107-13-1	acrylonitrile	10 U
(4V)	71-43-2	benzene	5 U
(5V)	56-23-5	carbon tetrachloride	5 U
(6V)	108-90-7	chlorobenzene	5 U
(10V)	107-06-2	1,2-dichloroethane	1 U
(11V)	71-55-6	1,1,1-trichloroethane	5 U
(13V)	75-34-3	1,1-dichloroethane	5 U
(14V)	79-00-5	1,1,2-trichloroethane	5 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 U
(16V)	75-00-3	chloroethane	10 U
(19V)	110-75-8	2-chloroethylvinyl ether	10 U
(23V)	67-66-3	chloroform	5 U
(28V)	75-35-4	1,1-dichloroethene	5 U
(30V)	156-60-5	trans-1,2-dichloroethene	5 U
(32V)	78-87-5	1,2-dichloropropane	10 U
(33V)	10061-02-6	trans-1,3-dichloropropene	5 U
	10061-01-05	cis-1,3-dichloropropene	5 U
(38V)	100-41-4	ethylbenzene	5 U
(44V) ✓	75-09-2	methylene chloride	19.8
(45V)	74-87-3	chloromethane	10 U
(46V)	74-83-9	bromomethane	10 U
(47V)	75-25-2	bromoform	10 U
(48V)	75-27-4	bromodichloromethane	5 U
(49V)	75-69-4	fluorotrichloromethane	5 U
(50V)	75-71-8	dichlorodifluoromethane	5 U
(51V)	124-48-1	chlorodibromomethane	5 U
(85V)	127-18-4	tetrachloroethene	5 U
(86V) ✓	108-88-3	toluene	9.1
(87V)	79-01-6	trichloroethene	5 U
(88V)	75-01-4	vinyl chloride	10 U
✓	67-64-1	acetone	43.1
✓	78-93-3	2-butanone	30.3
	75-15-0	carbondisulfide	1 U
	519-78-6	2-hexanone	5 U
	108-10-1	4-methyl-2-pentanone	5 U
	100-42-5	styrene	5 U
	108-05-4	vinyl acetate	5 U
	1330-20-7	total xylenes	5 U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7-31-84
DATE ANALYZED: 8-02-84
PERCENT MOISTURE: 54
CONC./DILUTION FACTOR: 5/10

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.1 U
(90P)	60-57-1	dieldrin	0.65 +
(91P)	57-74-9	chlordane	1.0 U
(92P)	50-29-3	4,4'-DDT	0.2 U
(93P)	72-55-9	4,4'-DDE	0.66 +
(94P)	72-54-8	4,4'-DDD	0.2 U
(95P)	115-29-7	α-endosulfan	0.1 U
(96P)	115-29-7	β-endosulfan	0.1 U
(97P)	1031-07-8	endosulfan sulfate	0.2 U
(98P)	72-20-8	endrin	0.1 U
(99P)	7421-93-4	endrin aldehyde	0.2 U
(100P)	76-44-8	heptachlor	0.1 U
(101P)	1024-57-3	heptachlor epoxide	0.1 U
(102P)	319-84-6	α-BHC	0.1 U
(103P)	319-85-7	β-BHC	0.1 U
(104P)	319-86-8	δ-BHC	0.1 U
(105P)	58-89-9	γ-BHC (lindane)	0.1 U
(106P)	53469-21-9	PCB-1242	1.0 U
(107P)	11097-69-1	PCB-1254	2.0 U
(108P)	11104-28-2	PCB-1221	2.0 U
(109P)	11141-16-5	PCB-1232	2.0 U
(110P)	12672-29-6	PCB-1248	2.0 U
(111P)	11096-82-5	PCB-1260	4.0 U
(112P)	12674-11-2	PCB-1016	1.0 U
(113P)	8001-35-2	toxaphene	1.0 U

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	

Sample Number: B2460

Laboratory Name: Radian

QC Report No: 14

Case No: 3000

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration (ug/L or ug/kg)
1.	[illegible]	[illegible]				
2	610-48-0	[illegible]	BNA	[illegible] ✓	957	3,200
3.	10544-50-0	[illegible]		1069 ✓	917	3,100
4.	10544-50-0	[illegible]		1132 ✓	539	1,900
5.	69770-96-3	[illegible]		1135 ✓	979	4,300
6.	21078-65-9	[illegible]		1199 ✓	957	4,500
7.				1476 ✓	470	5,200
8.	544-?-3	[illegible]				
9.	36653-82-4	1-Hexadecanol		1565 ✓	977	16,000
10.	—	Unknown		1643 ✓	929	4,500
11.	74742-35-1	[illegible]		1659 ✓	959	20,000
12.	629-?-9	[illegible]		1651 ✓	926	3,400
13.				1701 ✓	962	4,100
14.	[illegible]	Bicyclo[2.2.1]heptan-2-ol, 1,7,7-	✓	1793 ✓		
15.		trimethyl-, acetate endo			890	3,029
16.	3299-05-6	Benzene, (1-ethoxyethyl)-	"	1682 " ✓	913	1150
17.	42569-58-4	4,8-Dioxatricyclo[5.1.0.0 3,5]	"	1754 ✓	910	840
18.		octane, 1-methyl-5-1				
19.	17312-45-7	Decane, 3,4-dimethyl	"	1520 ✓	930	1330
20.	56666-90-1	Bicyclo[6.1.0]nonane,				
21.		9-(1-methylethylidene)	"	1536 ✓	920	1540
22.						
23.						
24.						
25.						
26.			VOA	546 ✓		
27.						
28.						
29.						
30.						

FORM II (continued)

Environmental Protection Agency. CLP Sample Management Office.
P. O. Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
B2461

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Case No: 3000
Lab Sample ID No: 8407063-07
QC Report No: 14
Sample Matrix: SOIL
Contract No: 68-01-6853
Data Release Authorized By: Keith Krown
Date Sample Received: —

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 8-1-84
Date Analyzed: 8-7-84
Conc/Dil Factor: 1:1 pH —
Percent Moisture: 40
Percent Moisture (Decanted): —

CAS Number		ug/l or (ug/Kg) (Circle One)
[illegible]-87-3	Chloromethane	19 U
74-83-9	Bromomethane	19 U
[illegible]-01-4	Vinyl Chloride	19 U
[illegible]-00-3	Chloroethane	19 U
75-09-2	Methylene Chloride	15
[illegible]-64-1	Acetone	~~58~~
[illegible]-15-0	Carbon Disulfide	9 U
75-35-4	1, 1-Dichloroethene	9 U
[illegible]-34-3	1, 1-Dichloroethane	9 U
[illegible]6-60-5	Trans-1, 2-Dichloroethene	9 U
67-66-3	Chloroform	9 U
[illegible]07-06-2	1, 2-Dichloroethane	9 U
[illegible]-93-3	2-Butanone	~~28~~
71-55-6	1, 1, 1-Trichloroethane	9 U
[illegible]-23-5	Carbon Tetrachloride	9 U
[illegible]08-05-4	Vinyl Acetate	19 U
75-27-4	Bromodichloromethane	9 U

CAS Number		ug/l or (ug/Kg) (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	9 U
78-87-5	1, 2-Dichloropropane	9 U
10061-02-6	Trans-1, 3-Dichloropropene	9 U
79-01-6	Trichloroethene	9 U
124-48-1	Dibromochloromethane	9 U
79-00-5	1, 1, 2-Trichloroethane	9 U
71-43-2	Benzene	9 U
10061-01-5	cis-1, 3-Dichloropropene	9 U
110-75-8	2-Chloroethylvinylether	19 U
75-25-2	Bromoform	9 U
591-78-6	2-Hexanone	19 U
108-10-1	4-Methyl-2-Pentanone	19 U
127-18-4	Tetrachloroethene	9 U
108-88-3	Toluene	1.8
108-90-7	Chlorobenzene	9 U
100-41-4	Ethylbenzene	9 U
100-42-5	Styrene	9 U
	Total Xylenes	9 U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration / dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read "U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample."

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when reviewer's spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Laboratory Name: Radian
Lab Sample ID No: 8407063-07
Sample Matrix: Soil
Data Release Authorized By:

DATA SHEET

Case No: 3000
QC Report No: 14
Contract No.: 68-01-6553
Date Sample Received: 7-13-84

SEDI

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: —
DATE ANALYZED: 7-16-84
PERCENT MOISTURE: 40%
CONC./DILUTION FACTOR: 1.1

PP #	CAS #		ug/l or ug/kg (circle one)
(2V)	107-02-8	acrolein	100U
(3V)	107-13-1	acrylonitrile	100U
(4V)	71-43-2	benzene	5U
(5V)	56-23-5	carbon tetrachloride	5U
(7V)	108-90-7	chlorobenzene	5U
(10V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(13V)	75-34-3	1,1-dichloroethane	5U
(14V)	79-00-5	1,1,2-trichloroethane	5U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10U
(16V)	75-00-3	chloroethane	10U
(19V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(28V)	75-35-4	1,1-dichloroethene	5U
(29V)	156-60-5	trans-1,2-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V) ✓	75-09-2	methylene chloride	14 B
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(49V)	75-69-4	fluorotrichloromethane	5U
(50V)	75-71-8	dichlorodifluoromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V) ✓	108-88-3	toluene	18 J
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U
✓	67-64-1	acetone	57.8
✓	78-93-3	2-butanone	28.0
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene	5U
	108-05-4	vinyl acetate	5U
	1330-20-7	total xylenes	5U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: 7.31.84
DATE ANALYZED: 8.24.84
PERCENT MOISTURE: 40%
CONC./DILUTION FACTOR: 43:10

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.11U
(90P)	60-57-1	dieldrin	0.21U
(91P)	57-74-9	chlordane	1.0U
(92P)	50-29-3	4,4'-DDT	0.02U
(93P)	72-55-9	4,4'-DDE	0.11U
(94P)	72-54-8	4,4'-DDD	0.02U
(95P)	115-29-7	∝-endosulfan	0.11U
(96P)	115-29-7	β-endosulfan	0.11U
(97P)	1031-07-8	endosulfan sulfate	0.02U
(98P)	72-20-8	endrin	0.11U
(99P)	7421-93-4	endrin aldehyde	0.02U
(100P)	76-44-8	heptachlor	0.11U
(101P)	1024-57-3	heptachlor epoxide	0.11U
(102P)	319-84-6	∝-BHC	0.11U
(103P)	319-85-7	β-BHC	0.11U
(104P)	319-86-8	δ-BHC	0.11U
(105P)	58-89-9	γ-BHC (lindane)	0.11U
(106P)	53469-21-9	PCB-1242	1.0U
(107P)	11097-69-1	PCB-1254	2.0U
(108P)	11104-28-2	PCB-1221	2.0U
(109P)	11141-16-5	PCB-1232	2.0U
(110P)	12672-29-6	PCB-1248	2.0U
(111P)	11096-82-5	PCB-1260	4.0U
(112P)	12674-11-2	PCB-1016	4.0U
(113P)	8001-35-2	toxaphene	4.0U

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	

105(a)

SEDS

Environmental Protection Agency. CLP Sample Management Office.
P. O Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
B2461
SED-3

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: (8-1-84)
Date Analyzed: 8-7-84
Conc/Dil Factor: 36g/2ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	550 U
108-95-2	Phenol	550 U
62-53-3	Aniline	550 U
111-44-4	bis(2-Chloroethyl)Ether	550 U
95-57-8	2-Chlorophenol	550 U
541-73-1	1, 3-Dichlorobenzene	550 U
106-46-7	1, 4-Dichlorobenzene	550 U
100-51-6	Benzyl Alcohol	550 U
95-50-1	1, 2-Dichlorobenzene	550 U
95-48-7	2-Methylphenol	550 U
39638-32-9	bis(2-chloroisopropyl)Ether	550 U
106-44-5	4-Methylphenol	550 U
621-64-7	N-Nitroso-Di-n-Propylamine	550 U
67-72-1	Hexachloroethane	550 U
98-95-3	Nitrobenzene	550 U
78-59-1	Isophorone	550 U
88-75-5	2-Nitrophenol	550 U
105-67-9	2, 4-Dimethylphenol	550 U
65-85-0	Benzoic Acid	2700 U
111-91-1	bis(2-Chloroethoxy)Methane	550 U
120-83-2	2, 4-Dichlorophenol	550 U
120-82-1	1, 2, 4-Trichlorobenzene	550 U
91-20-3	Naphthalene	550 U
106-47-8	4-Chloroaniline	550 U
87-68-3	Hexachlorobutadiene	550 U
59-50-7	4-Chloro-3-Methylphenol	550 U
91-57-6	2-Methylnaphthalene	550 U
77-47-4	Hexachlorocyclopentadiene	550 U
88-06-2	2, 4, 6-Trichlorophenol	550 U
95-95-4	2, 4, 5-Trichlorophenol	2700 U
91-58-7	2-Chloronaphthalene	550 U
88-74-4	2-Nitroaniline	2700 U
131-11-3	Dimethyl Phthalate	550 U
208-96-8	Acenaphthylene	550 U
99-09-2	3-Nitroaniline	2700 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	550 U
51-28-5	2, 4-Dinitrophenol	2700 U
100-02-7	4-Nitrophenol	2700 U
132-64-9	Dibenzofuran	550 U
121-14-2	2, 4-Dinitrotoluene	550 U
606-20-2	2, 6-Dinitrotoluene	550 U
84-66-2	Diethylphthalate	550 U
7005-72-3	4-Chlorophenyl-phenylether	550 U
86-73-7	Fluorene	550 U
100-01-6	4-Nitroaniline	2700 U
534-52-1	4, 6-Dinitro-2-Methylphenol	2700 U
86-30-6	N-Nitrosodiphenylamine (1)	550 U
101-55-3	4-Bromophenyl-phenylether	550 U
118-74-1	Hexachlorobenzene	550 U
87-86-5	Pentachlorophenol	2700 U
85-01-8	Phenanthrene	550 K
120-12-7	Anthracene	550 U
84-74-2	Di-n-Butylphthalate	550 K
206-44-0	Fluoranthene	645
92-87-5	Benzidine	2700 U
129-00-0	Pyrene	550 K
85-68-7	Butylbenzylphthalate	550 K
91-94-1	3, 3'-Dichlorobenzidine	1100 U
56-55-3	Benzo(a)Anthracene	550 K
117-81-7	bis(2-Ethylhexyl)Phthalate	615
218-01-9	Chrysene	550 K
117-84-0	Di-n-Octyl Phthalate	550 K
205-99-2	Benzo(b)Fluoranthene	550 K
207-08-9	Benzo(k)Fluoranthene	550 K
50-32-8	Benzo(a)Pyrene	550 K
193-39-5	Indeno(1, 2, 3-cd)Pyrene	550 K
53-70-3	Dibenz(a, h)Anthracene	550 K
191-24-2	Benzo(g, h, i)Perylene	550 K

(1)-Cannot be separated from diphenylamine

ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
E24 G1

Laboratory Name: Radian Case No: 3000

Lab Report No: 14

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration (ug/L or ug/kg)
1.	[illegible]	[illegible]	BNA	721 ✓	905	14,000 J
2.	455-42-7	[illegible]		904 ✓	954	1,100 J
3.	69770-96-3	[illegible]		1055 ✓	951	1,100 J
4.	5113-94-0	[illegible]		1093 ✓	967	5,600 J
5.	505-54-4	Hexadecanoic Acid		1100 ✓	958	5,100 J
6.	74663-83-5	1,5-heptadiene, 2,5-dimethyl-3-methylene-		1110 ✓	965	3,400 J
7.	10544-50-0	Sulfur, mol. (S8)		1141 ✓	957	6,100 J
8.	74685-36-2	Cyclotetradecane, [illegible]		1202 ✓	971	2,500 J
9.	74663-83-5	1,5-heptadiene, 2,5-dimethyl-3-methylene-		1220 ✓	957	1,100 J
10.	629-36-7	[illegible]		1232 ✓	915	1,300 J
11.	24524-58-1	Bicyclo[2.1.0]hexane, [illegible]		1252 ✓	926	1,700 J
12.	65147-64-0	Cyclobutanone, 2-(7,6-dimethyl[illegible])-		1453 ✓	926	2,700 J
13.	629-92-5	Nonadecane		1566 ✓	956	4,980 J
14.	2136-70-1	Ethanol, 2-(tetradecyloxy)-		1595 ✓	963	650 J
15.	6151-80-9	Undecane, 5-cyclohexyl-[illegible]		1645 ✓	966	551 J
16.	629-78-7	Heptadecane		1661 ✓	975	3,000 J
17.	26248-42-0	Tridecanol		1203 ✓	963	1,600 J
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

4/82

FORM II (continued)

O ox 818. Alexandria, Virginia 22313 703 557-2490

Sample Number B2465 S-2

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Sample ID No: 8407063-02
Sample Matrix: Soil
Data Release Authorized By: [signature]

Case No: 3000
QC Report No: 14
Contract No: 68-01-6853
Date Sample Received: 7-13-84

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: —
Date Analyzed: 7-17-84
Conc/Dil Factor: 1:1 pH —
Percent Moisture: 51
Percent Moisture (Decanted): —

CAS Number		ug/l or (ug/Kg) (Circle One)
74-87-3	Chloromethane	20 U
74-83-9	Bromomethane	20 U
75-01-4	Vinyl Chloride	20 U
75-00-3	Chloroethane	20 U
75-09-2	Methylene Chloride	91.
67-64-1	Acetone	68.
75-15-0	Carbon Disulfide	10 U
75-35-4	1, 1-Dichloroethene	10 U
75-34-3	1, 1-Dichloroethane	10 U
156-60-5	Trans-1, 2-Dichloroethene	10 U
67-66-3	Chloroform	10 U
107-06-2	1, 2-Dichloroethane	10 U
78-93-3	2-Butanone	20 K
71-55-6	1, 1, 1-Trichloroethane	10 U
56-23-5	Carbon Tetrachloride	10 U
108-05-4	Vinyl Acetate	20 U
75-27-4	Bromodichloromethane	10 U

CAS Number		ug/l or (ug/Kg) (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	10 U
78-87-5	1, 2-Dichloropropane	10 U
10061-02-6	Trans-1, 3-Dichloropropene	10 U
79-01-6	Trichloroethene	10 U
124-48-1	Dibromochloromethane	10 U
79-00-5	1, 1, 2-Trichloroethane	10 U
71-43-2	Benzene	10 U
10061-01-5	cis-1, 3-Dichloropropene	10 U
110-75-8	2-Chloroethylvinylether	20 U
75-25-2	Bromoform	10 U
591-78-6	2-Hexanone	20 U
108-10-1	4-Methyl-2-Pentanone	20 U
127-18-4	Tetrachloroethene	10 U
108-88-3	Toluene	10 U
108-90-7	Chlorobenzene	10 U
100-41-4	Ethylbenzene	10 U
100-42-5	Styrene	10 U
	Total Xylenes	10 U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used Additional flags or footnotes explaining results are encouraged However, the definition of each flag must be explicit

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected Report the minimum detection limit for the sample with the U (e g , 10U) based on necessary concentration/dilution actions (This is not necessarily the instrument detection limit) The footnote should read U- Compound was analyzed for but not detected The number is the minimum attainable detection limit for the sample

K Indicates an estimated value This flag is used either when estimating a concentration for tentatively identified compounds where a 1 1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but

C This flag applies to pesticide parameters where the identification has been confirmed by GC MS Single component pesticides ≥10 ng ul in the final extract should be confirmed by GC MS

B This flag is used when the analyte is found in the blank as well as a sample It indicates possible probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results If used, they must be fully described and such description attached to the data summary report

ironmental Protection Agency. CLP Sample Management Office.
). Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
B2465
5-2

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 8-1-84
Date Analyzed: 8-6-84
Conc/Dil Factor: 18.44g/2ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	1100 U
108-95-2	Phenol	1100 U
62-53-3	Aniline	1100 U
111-44-4	bis(2-Chloroethyl)Ether	1100 U
95-57-8	2-Chlorophenol	1100 U
541-73-1	1, 3-Dichlorobenzene	1100 U
106-46-7	1, 4-Dichlorobenzene	1100 U
100-51-6	Benzyl Alcohol	1100 U
95-50-1	1, 2-Dichlorobenzene	1100 U
95-48-7	2-Methylphenol	1100 U
39638-32-9	bis(2-chloroisopropyl)Ether	1100 U
106-44-5	4-Methylphenol	1100 U
621-64-7	N-Nitroso-Di-n-Propylamine	1100 U
67-72-1	Hexachloroethane	1100 U
98-95-3	Nitrobenzene	1100 U
78-59-1	Isophorone	1100 U
88-75-5	2-Nitrophenol	1100 U
105-67-9	2, 4-Dimethylphenol	1100 U
65-85-0	Benzoic Acid	5300 U
111-91-1	bis(2-Chloroethoxy)Methane	1100 U
120-83-2	2, 4-Dichlorophenol	1100 U
120-82-1	1, 2, 4-Trichlorobenzene	1100 U
91-20-3	Naphthalene	1100 U
106-47-8	4-Chloroaniline	1100 U
87-68-3	Hexachlorobutadiene	1100 U
59-50-7	4-Chloro-3-Methylphenol	1100 U
91-57-6	2-Methylnaphthalene	1100 U
77-47-4	Hexachlorocyclopentadiene	1100 U
88-06-2	2, 4, 6-Trichlorophenol	1100 U
95-95-4	2, 4, 5-Trichlorophenol	5300 U
91-58-7	2-Chloronaphthalene	1100 U
88-74-4	2-Nitroaniline	5300 U
131-11-3	Dimethyl Phthalate	1100 U
208-96-8	Acenaphthylene	1100 U
99-09-2	3-Nitroaniline	5300 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	1100 U
51-28-5	2, 4-Dinitrophenol	5300 U
100-02-7	4-Nitrophenol	5300 U
132-64-9	Dibenzofuran	1100 U
121-14-2	2, 4-Dinitrotoluene	1100 U
606-20-2	2, 6-Dinitrotoluene	1100 U
84-66-2	Diethylphthalate	1100 U
7005-72-3	4-Chlorophenyl-phenylether	1100 U
86-73-7	Fluorene	1100 U
100-01-6	4-Nitroaniline	5300 U
534-52-1	4, 6-Dinitro-2-Methylphenol	5300 U
86-30-6	N-Nitrosodiphenylamine (1)	1100 U
101-55-3	4-Bromophenyl-phenylether	1100 U
118-74-1	Hexachlorobenzene	1100 U
87-86-5	Pentachlorophenol	5300 U
85-01-8	Phenanthrene	1100.
120-12-7	Anthracene	1100.
84-74-2	Di-n-Butylphthalate	1100 K
206-44-0	Fluoranthene	2200.
92-87-5	Benzidine	1100 U
129-00-0	Pyrene	1600.
85-68-7	Butylbenzylphthalate	1100 K
91-94-1	3, 3'-Dichlorobenzidine	2200 U
56-55-3	Benzo(a)Anthracene	1100 K
117-81-7	bis(2-Ethylhexyl)Phthalate	1100 U
218-01-9	Chrysene	1100.
117-84-0	Di-n-Octyl Phthalate	1100 K
205-99-2	Benzo(b)Fluoranthene	1100 U
207-08-9	Benzo(k)Fluoranthene	1100 U
50-32-8	Benzo(a)Pyrene	1100 U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	1100 U
53-70-3	Dibenz(a, h)Anthracene	1100 U
191-24-2	Benzo(g, h, i)Perylene	1100 U

(1)-Cannot be separated from diphenylamine

BZ465

5-2

RGANICS ANALYSIS DATA SHEET

Case No: 3CCO

QC Report No: 14

Contract No.: 68-01-6853

Date Sample Received: 7-13-84

circle one)

PESTICIDES

CONCENTRATION: LOW MEDIUM HIGH (circle one)

DATE EXTRACTED/PREPARED: 7-31-84

DATE ANALYZED: 8-23-84

PERCENT MOISTURE: 51%

CONC./DILUTION FACTOR: 20.10

ug/l or ug/kg (circle one)	PP #	CAS #		ug/l or ug/kg (circle one)
100U	(89P)	309-00-2	aldrin	0.1U
100U	(90P)	60-57-1	dieldrin	0.1U
5U	(91P)	57-74-9	chlordane	1.0U
5U	(92P)	50-29-3	4,4'-DDT	0.02U
5U	(93P)	72-55-9	4,4'-DDE	0.1U
1U	(94P)	72-54-8	4,4'-DDD	0.2U
5U	(95P)	115-29-7	α-endosulfan	0.1U
5U	(96P)	115-29-7	β-endosulfan	0.1U
5U	(97P)	1031-07-8	endosulfan sulfate	0.2U
ane 10U	(98P)	72-20-8	endrin	0.1U
10U	(99P)	7421-93-4	endrin aldehyde	0.2U
er 0U	(100P)	76-44-8	heptachlor	0.1U
5U	(101P)	1024-57-3	heptachlor epoxide	0.1U
5U	(102P)	319-84-6	α-BHC	0.1U
hene 5U	(103P)	319-85-7	β-BHC	0.1U
10U	(104P)	319-86-8	δ-BHC	0.1U
cene 5U	(105P)	58-89-9	γ-BHC (lindane)	0.1U
ene 5U	(106P)	53469-21-9	PCB-1242	1.0U
5U	(107P)	11097-69-1	PCB-1254	2.0U
94.0	(108P)	11104-28-2	PCB-1221	2.0U
10U	(109P)	11141-16-5	PCB-1232	2.0U
10U	(110P)	12672-29-6	PCB-1248	2.0U
10U	(111P)	11096-82-5	PCB-1260	4.0U
ane 5U	(112P)	12674-11-2	PCB-1016	2.0U
ane 5U	(113P)	8001-35-2	toxaphene	1.0U
ane 5U				
ane 5U				
e 5U				
5U				
5U				
10U				
67.0				
3.9J				
1U				
5U				
ane 5U				
5U				
5U				
5U				

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)

DATE EXTRACTED/PREPARED: /

DATE ANALYZED: 11/4

PERCENT MOISTURE: 11/4

CONC./DILUTION FACTOR: 1

PP #	CAS #		ug/l or ug/kg (circle one
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	

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ology and environment

December 198

[illegible] Case No: 3000

1✓

B. Tentatively Identified Compounds

Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration (ug/L or ug/kg)
				1[illegible]
[illegible] 2,3-dimethyl-[illegible]	5[illegible]	922 ✓	900	1900
4-undecan[illegible], 7-ethyl-2-methyl-		1012 ✓	951	1500
1-pentadecene [illegible]		1016 ✓	951	6070
4-hexadecanoic Acid		1033 ✓	953	2700
[illegible] 4-[illegible]		1090 ✓	965	1,500
[illegible] (F)		1121 ✓	956	11,000
7 4-pentadecenoic Acid		1200 ✓	970	2,700
tetradecanoic Acid		1210 ✓	964	2,500
cyclododecane		1379 ✓	974	4,400
1-pentanol 4-methyl-2-propyl		1475 ✓	951	14,000
5 nonadecane		1565 ✓	989	2,100
8 1-heptine 1,2-propyl-		1607 ✓	912	2,200
0 4H-1,3 [illegible] -4-(2-methyl[illegible])		1641 ✓	931	20,020
unknown		1660 ✓	973	2,300
[illegible] Acid, triethyl ester		1693 ✓	941	

4/82

FORM II (continued)

0T
94
34
34
19
22
12
6
3
5

411 (A) 5-3

vironmental Protection Agency. CLP Sample Management Office.
O ox 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
B2467

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 8-1-84
Date Analyzed: 8-6-84
Conc/Dil Factor: 35.67g/2ml

CAS Number		ug/l or ug/Kg (Circle One)
62-75-9	N-Nitrosodimethylamine	470U
108-95-2	Phenol	470 u
62-53-3	Aniline	470 u
111-44-4	bis(2-Chloroethyl)Ether	470 u
95-57-8	2-Chlorophenol	470 u
541-73-1	1, 3-Dichlorobenzene	470 u
106-46-7	1, 4-Dichlorobenzene	470 u
100-51-6	Benzyl Alcohol	470 u
95-50-1	1, 2-Dichlorobenzene	470 u
95-48-7	2-Methylphenol	470 u
39638-32-9	bis(2-chloroisopropyl)Ether	470 u
106-44-5	4-Methylphenol	470 u
621-64-7	N-Nitroso-Di-n-Propylamine	470 u
67-72-1	Hexachloroethane	470 u
98-95-3	Nitrobenzene	470 u
78-59-1	Isophorone	470 u
88-75-5	2-Nitrophenol	470 u
105-67-9	2, 4-Dimethylphenol	470 u
65-85-0	Benzoic Acid	2600 u
111-91-1	bis(2-Chloroethoxy)Methane	470 u
120-83-2	2, 4-Dichlorophenol	470 u
120-82-1	1, 2, 4-Trichlorobenzene	470 u
91-20-3	Naphthalene	470 u
106-47-8	4-Chloroaniline	470 u
87-68-3	Hexachlorobutadiene	470 u
59-50-7	4-Chloro-3-Methylphenol	470 u
91-57-6	2-Methylnaphthalene	470 u
77-47-4	Hexachlorocyclopentadiene	470 u
88-06-2	2, 4, 6-Trichlorophenol	470 u
95-95-4	2, 4, 5-Trichlorophenol	2600 u
91-58-7	2-Chloronaphthalene	470 u
88-74-4	2-Nitroaniline	2600 u
131-11-3	Dimethyl Phthalate	470 u
208-96-8	Acenaphthylene	470 u
99-09-2	3-Nitroaniline	2600 u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	470 u
51-28-5	2, 4-Dinitrophenol	2600 u
100-02-7	4-Nitrophenol	2600 u
132-64-9	Dibenzofuran	470 u
121-14-2	2, 4-Dinitrotoluene	470 u
606-20-2	2, 6-Dinitrotoluene	470 u
84-66-2	Diethylphthalate	470 u
7005-72-3	4-Chlorophenyl-phenylether	470 u
86-73-7	Fluorene	470 u
100-01-6	4-Nitroaniline	470 u
534-52-1	4, 6-Dinitro-2-Methylphenol	470 u
86-30-6	N-Nitrosodiphenylamine (1)	470 u
101-55-3	4-Bromophenyl-phenylether	470 u
118-74-1	Hexachlorobenzene	470 u
87-86-5	Pentachlorophenol	2600 u
85-01-8	Phenanthrene	470K
120-12-7	Anthracene	470K
84-74-2	Di-n-Butylphthalate	470K
206-44-0	Fluoranthene	860
92-87-5	Benzidine	2600 u
129-00-0	Pyrene	570
85-68-7	Butylbenzylphthalate	470u
91-94-1	3, 3'-Dichlorobenzidine	940 u
56-55-3	Benzo(a)Anthracene	470K
117-81-7	bis(2-Ethylhexyl)Phthalate	470K
218-01-9	Chrysene	470K
117-84-0	Di-n-Octyl Phthalate	470K
205-99-2	Benzo(b)Fluoranthene	470u
207-08-9	Benzo(k)Fluoranthene	470u
50-32-8	Benzo(a)Pyrene	470u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	470 u
53-70-3	Dibenzo(a, h)Anthracene	470u
191-24-2	Benzo(g, h, i)Perylene	470 u

(1)-Cannot be separated from diphenylamine

B2467

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Radian
Lab Sample ID No: 8407063-03
Sample Matrix: Soil
Data Release Authorized By:

Case No: 3000
QC Report No: 14
Contract No: 68-01-6853
Date Sample Received: 7-13-84

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: —
Date Analyzed: 7-17-84
Conc/Dil Factor: 1:1 pH —
Percent Moisture: 41
Percent Moisture (Decanted): —

CAS Number		ug/l or (ug/Kg) (Circle One)
74-87-3	Chloromethane	17 U
74-83-9	Bromomethane	17 U
75-01-4	Vinyl Chloride	17 U
75-00-3	Chloroethane	17 U
75-09-2	Methylene Chloride	49
67-64-1	Acetone	53
75-15-0	Carbon Disulfide	8 U
75-35-4	1, 1-Dichloroethene	8 U
75-34-3	1, 1-Dichloroethane	8 U
156-60-5	Trans-1, 2-Dichloroethene	8 U
67-66-3	Chloroform	8 U
107-06-2	1, 2-Dichloroethane	8 U
78-93-3	2-Butanone	17 K
71-55-6	1, 1, 1-Trichloroethane	8 U
56-23-5	Carbon Tetrachloride	8 U
108-05-4	Vinyl Acetate	17 U
75-27-4	Bromodichloromethane	8 U

CAS Number		ug/l or (ug/Kg) (Circle One)
79-34-5	1, 1, 2, 2-Tetrachloroethane	8 U
78-87-5	1, 2-Dichloropropane	8 U
10061-02-6	Trans-1, 3-Dichloropropene	8 U
79-01-6	Trichloroethene	8 U
124-48-1	Dibromochloromethane	8 U
79-00-5	1, 1, 2-Trichloroethane	8 U
71-43-2	Benzene	8 U
10061-01-5	cis-1, 3-Dichloropropene	8 U
110-75-8	2-Chloroethylvinylether	17 U
75-25-2	Bromoform	8 U
591-78-6	2-Hexanone	17 U
108-10-1	4-Methyl-2-Pentanone	17 U
127-18-4	Tetrachloroethene	8 U
108-88-3	Toluene	8 U
108-90-7	Chlorobenzene	8 U
100-41-4	Ethylbenzene	8 U
100-42-5	Styrene	8 U
	Total Xylenes	8 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read "U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample."

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 12J).

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Case No: 2000

QC Report No: 14

Contract No.: 68-01-6353

Date Sample Received: 7-13-84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)

DATE EXTRACTED/PREPARED: -

DATE ANALYZED: 7-17-84

PERCENT MOISTURE: 41%

CONC./DILUTION FACTOR: 1:1

	CAS #		ug/l or ug/kg (circle one)
(1V)	107-02-8	acrolein	100U
(2V)	107-13-1	acrylonitrile	100U
	71-43-2	benzene	5U
(5V)	56-23-5	carbon tetrachloride	5U
(6V)	108-90-7	chlorobenzene	5U
(7V)	107-06-2	1,2-dichloroethane	1U
(11V)	71-55-6	1,1,1-trichloroethane	5U
(9V)	75-34-3	1,1-dichloroethane	5U
(10V)	79-00-5	1,1,2-trichloroethane	5U
(13V)	79-34-5	1,1,2,2-tetrachloroethane	1U
(14V)	75-00-3	chloroethane	10U
(15V)	110-75-8	2-chloroethylvinyl ether	10U
(23V)	67-66-3	chloroform	5U
(29V)	75-35-4	1,1-dichloroethene	5U
(30V)	156-60-5	trans-1,2-dichloroethene	5U
(32V)	78-87-5	1,2-dichloropropane	10U
(33V)	10061-02-6	trans-1,3-dichloropropene	5U
	10061-01-05	cis-1,3-dichloropropene	5U
(38V)	100-41-4	ethylbenzene	5U
(44V)	75-09-2	methylene chloride	4.6
(45V)	74-87-3	chloromethane	10U
(46V)	74-83-9	bromomethane	10U
(47V)	75-25-2	bromoform	10U
(48V)	75-27-4	bromodichloromethane	5U
(49V)	75-69-4	fluorotrichloromethane	5U
(50V)	75-71-8	dichlorodifluoromethane	5U
(51V)	124-48-1	chlorodibromomethane	5U
(85V)	127-18-4	tetrachloroethene	5U
(86V)	108-88-3	toluene	5U
(87V)	79-01-6	trichloroethene	5U
(88V)	75-01-4	vinyl chloride	10U
	67-64-1	acetone	53.1
	78-93-3	2-butanone	6.0
	75-15-0	carbondisulfide	1U
	519-78-6	2-hexanone	5U
	108-10-1	4-methyl-2-pentanone	5U
	100-42-5	styrene	5U
	108-05-4	vinyl acetate	5U
	1330-20-7	total xylenes	5U

PESTICIDES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)

DATE EXTRACTED/PREPARED: 7 31 84

DATE ANALYZED: 8 28 84

PERCENT MOISTURE: 41%

CONC./DILUTION FACTOR: 49 10

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.1U
(90P)	60-57-1	dieldrin	0.1U
(91P)	57-74-9	chlordane	1.0U
(92P)	50-29-3	4,4'-DDT	0.2U
(93P)	72-55-9	4,4'-DDE	0.1U
(94P)	72-54-8	4,4'-DDD	0.2U
(95P)	115-29-7	α-endosulfan	0.1U
(96P)	115-29-7	β-endosulfan	0.1U
(97P)	1031-07-8	endosulfan sulfate	0.2U
(98P)	72-20-8	endrin	0.1U
(99P)	7421-93-4	endrin aldehyde	0.2U
(100P)	76-44-8	heptachlor	0.1U
(101P)	1024-57-3	heptachlor epoxide	0.1U
(102P)	319-84-6	α-BHC	0.1U
(103P)	319-85-7	β-BHC	0.1U
(104P)	319-86-8	δ-BHC	0.1U
(105P)	58-89-9	γ-BHC (lindane)	0.1U
(106P)	53469-21-9	PCB-1242	1.0U
(107P)	11097-69-1	PCB-1254	2.0U
(108P)	11104-28-2	PCB-1221	2.0U
(109P)	11141-16-5	PCB-1232	2.0U
(110P)	12672-29-6	PCB-1248	2.0U
(111P)	11096-82-5	PCB-1260	4.0U
(112P)	12674-11-2	PCB-1016	1.0U
(113P)	8001-35-2	toxaphene	1.0U

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)

DATE EXTRACTED/PREPARED: N/A

DATE ANALYZED: VR1

PERCENT MOISTURE: 1

CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	

Sample Number: B2467

Laboratory Name: Radian

Case No: 3000

IC Report No: 14

B. Tentatively Identified Compounds

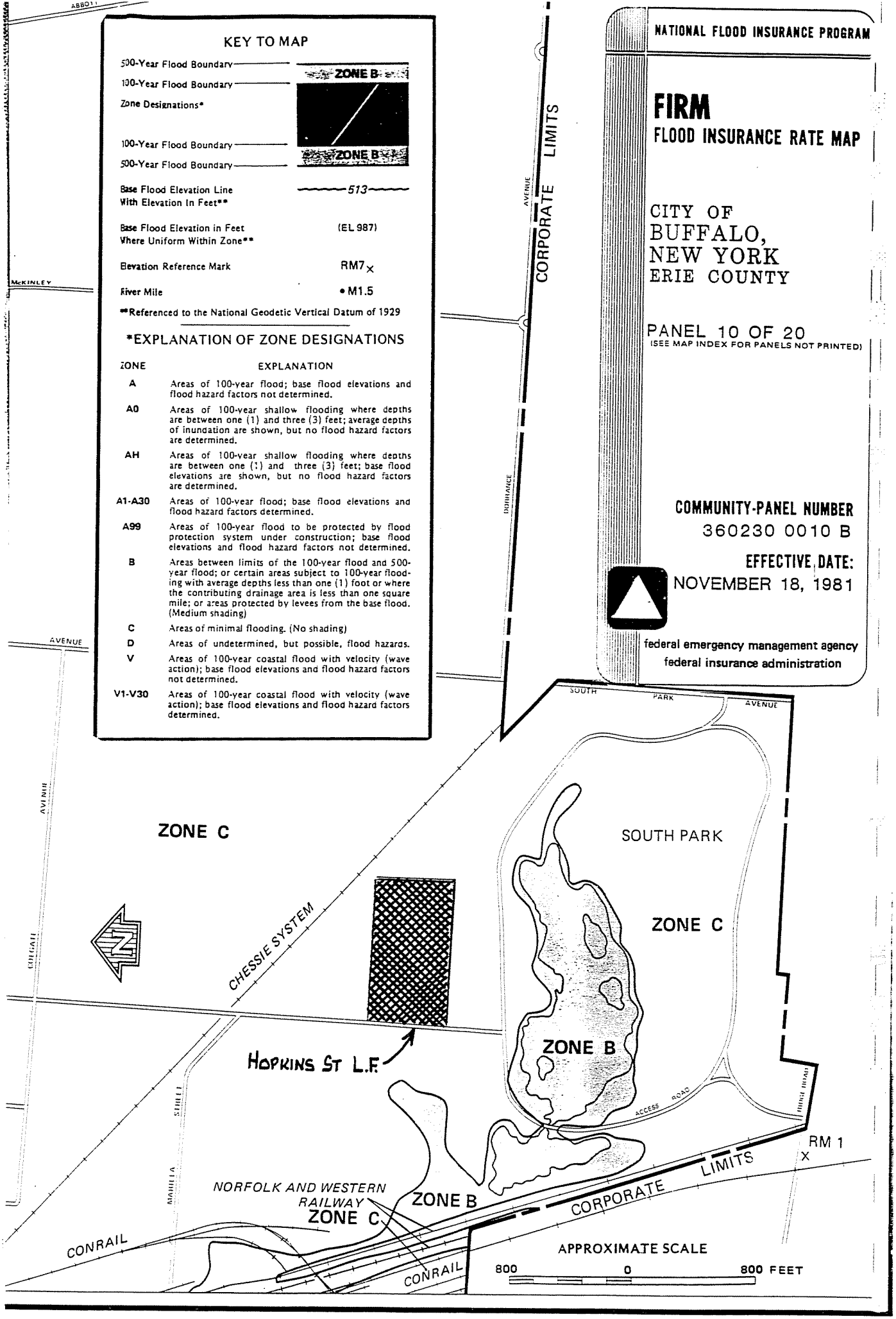
	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration (ug/L or ug/kg)
1.	[illegible]	[illegible] Tetra[illegible]	[illegible]	380 ✓	921	1,100
2.	10500-53-4	[illegible]		424 ✓	533	1,000
3.	[illegible]-55-0	[illegible]		535 ✓	971	890
4.	5370-[illegible]-4	[illegible] Bromide		605 ✓	355	490
5.	—	Unknown		1034 ✓	961	750
6.	69770-96-3	[illegible], 2-methyl-4-(1-propyl[illegible]		1059 ✓	941	510
7.	453-55-2	[illegible] trimethyl	propyl)-	1197 ✓	945	2,300
8.	18956-15-5	[illegible]		1240 ✓	955	1,100
9.	74685-33-9	2-[illegible] {-3-[illegible]		1379 ✓	957	4,000
10.	54410-95-9	1-[illegible]		1429 ✓	923	820
11.	2490-45-4	1-[illegible], 2-methyl[illegible]		1476 ✓	979	7,100
12.	629-59-4	Tetradecane		1521 ✓	921	1,700
13.	—	Unknown		1565 ✓	903	11,000
14.	—	Unknown		1596 ✓	915	1,100
15.	54410-95-9	[illegible]		1605 ✓	941	1,400
16.	—	Unknown		1660 ✓	946	10,200
17.	629-59-4	[illegible]		1776 ✓	921	1,200
18.	—	Unknown				
19.			(BN)	1506	907	1,300
20.						
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

4/82

FORM II (continued)

Reference A-3

Federal Emergency Management Agency (FEMA)
Flood Insurance Rate Map, City of Buffalo, New York, Erie County
Community Panel Number 360230-0010B, November 1981.

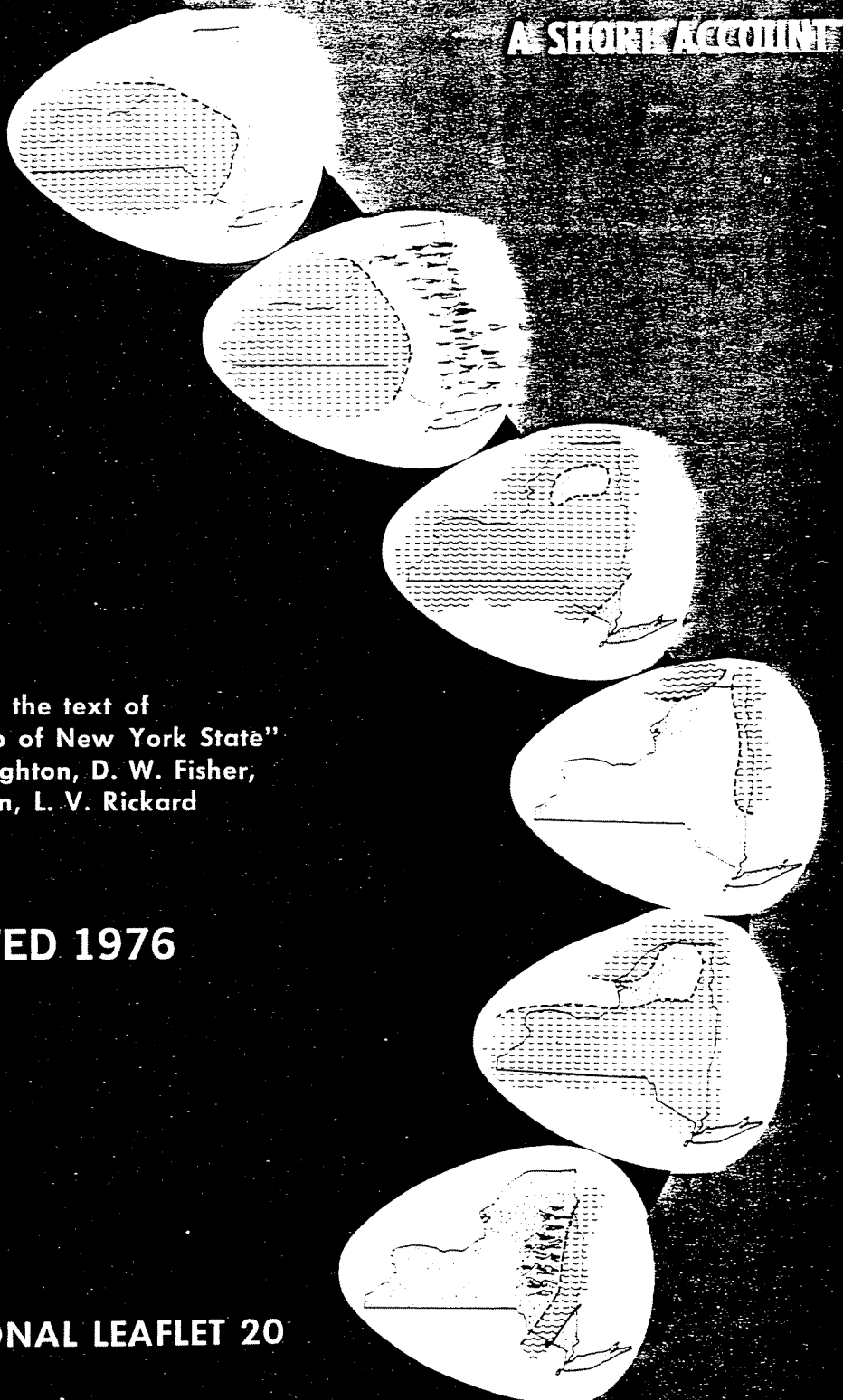

KEY TO MAP
500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations*
100-Year Flood Boundary
500-Year Flood Boundary
ZONE B
ZONE B
Base Flood Elevation Line With Elevation In Feet**
513
Base Flood Elevation in Feet Where Uniform Within Zone**
(EL 987)
Elevation Reference Mark
RM7x
River Mile
M1.5
**Referenced to the National Geodetic Vertical Datum of 1929
*EXPLANATION OF ZONE DESIGNATIONS
ZONE
EXPLANATION
A
Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0
Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH
Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30
Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99
Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B
Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C
Areas of minimal flooding. (No shading)
D
Areas of undetermined, but possible, flood hazards.
V
Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30
Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF BUFFALO, NEW YORK ERIE COUNTY
PANEL 10 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)
COMMUNITY-PANEL NUMBER
360230 0010 B
EFFECTIVE DATE:
NOVEMBER 18, 1981
federal emergency management agency
federal insurance administration
CORPORATE LIMITS
ZONE C
SOUTH PARK
ZONE C
ZONE B
CHESSIE SYSTEM
HOPKINS ST L.F.
NORFOLK AND WESTERN RAILWAY
ZONE C
ZONE B
CONRAIL
CONRAIL
CORPORATE LIMITS
RM 1
APPROXIMATE SCALE
800 0 800 FEET

Reference A-4

Broughton, J. G., Fisher, D. W., Isaachsen, Y. W., Rickard, L. V.
Geology of New York State - A Short Account, Educational Leaflet 20.
The University of the State of New York/The State Education Department
NYS Museum and Science Service, Albany, New York, 1976.

Geology of New York

A SHORT ACCOUNT



adapted from the text of
"Geologic Map of New York State"
by J. G. Broughton, D. W. Fisher,
Y. W. Isachsen, L. V. Rickard

REPRINTED 1976

EDUCATIONAL LEAFLET 20

THE UNIVERSITY OF THE STATE OF NEW YORK / THE STATE EDUCATION DEPARTMENT
NEW YORK STATE MUSEUM AND SCIENCE SERVICE / ALBANY, 1966

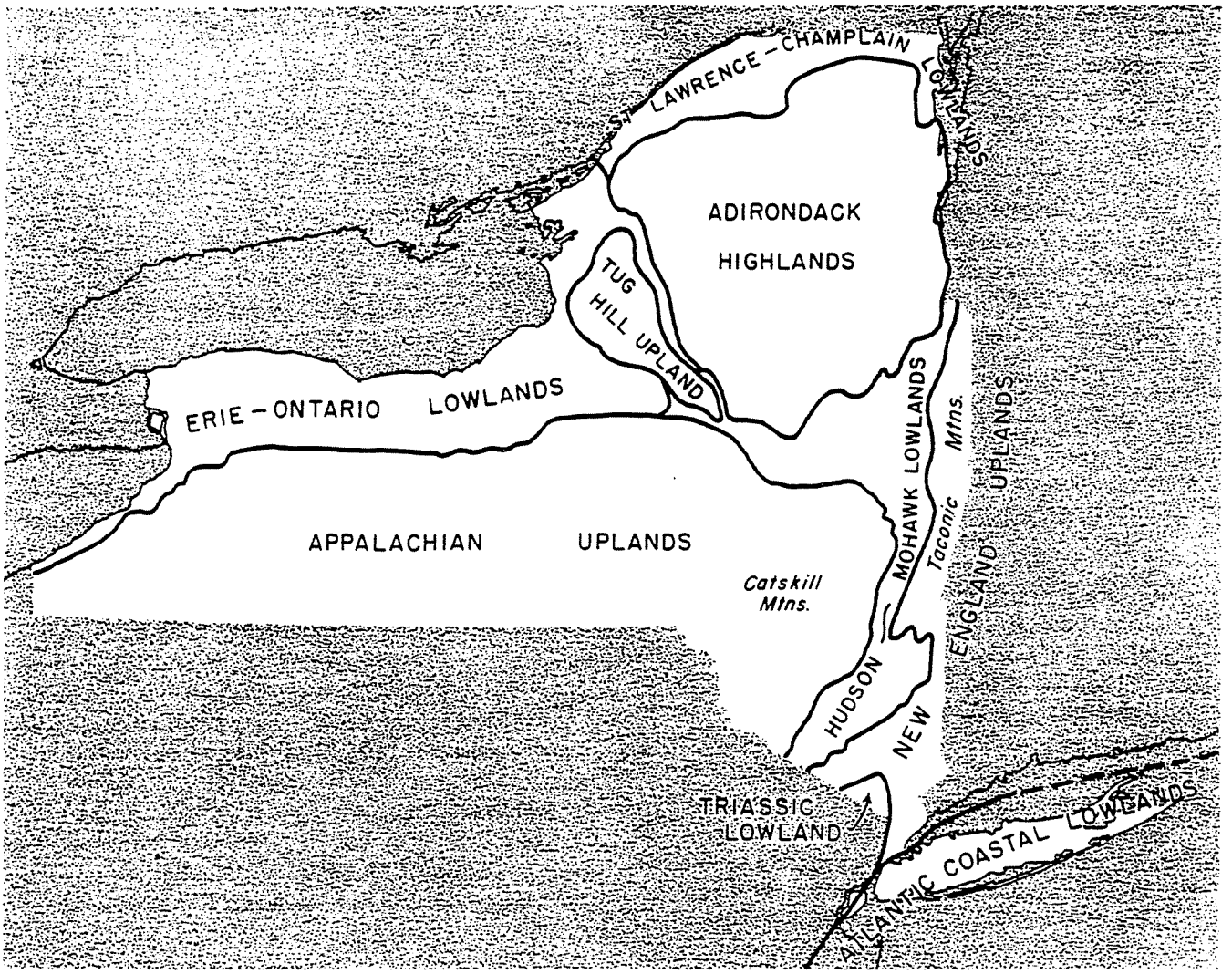


FIGURE 19. Physiographic provinces of New York, based on relief and geology (Modified after G. B. Cressey, 1952)

Cenozoic Era

PHYSIOGRAPHIC PROVINCES AND TERTIARY HISTORY

The physiographic provinces of New York are shown in figure 19. Modern landscapes of the State were shaped largely during the Cenozoic Era, the most recent 65 million years of geologic history. Although the overall features later would be modified and blurred by glaciation, the broad outlines of modern mountain, valley, and plain first were carved by the unrelenting rush of water to the earlier Cenozoic seas.

The long sequence of erosion presumably began with the arching of the Jurassic Fall Zone erosion surface in mid-Cretaceous time. As its eastern flank dipped beneath the encroaching Atlantic Ocean to receive Coastal Plain deposits, the axis domed sufficiently to initiate the sculpture of the Appalachians and Adirondacks. Few, if any of today's land forms can be traced so far back, however. Most researchers believe that all the exposed remnants of the dissected Fall Zone surface were obliterated by subsequent erosion.

South of New York, at least a partial record of Tertiary geology persists in the Coastal Plain deposits. In addition to a sedimentary record, datable igneous intrusions cut rocks of varying degrees of deformation in the western states. But in New York, no such tangible evidence of Cenozoic events exists. The Coastal Plains sediments derived from the long-continued degradation of New York and New England now rest on the Continental

Shelf, beneath many fathoms of water. Because of a relatively recent tilting of the coastline about a northwest-southeast axis near New York City, the Coastal Plain has been raised south of New York; east and north of the city, all but the Long Island Cretaceous has been depressed below sea level.

Since exposed Tertiary sedimentary deposits are absent in New York, its geological history must be reconstructed from the only data available, the present physiographic features of the State. In an area as small as New York, where climate does not vary significantly, land forms have been determined primarily by geology. Characteristic differences between the physiographic provinces have resulted from the ways in which rocks of differing lithologies and structures have reacted to the erosional force of the Cenozoic. Thus, while many authorities have classified New York's physiographic provinces in various ways, all are more or less in agreement as to the outlines of the major provinces; they differ mainly in the names applied to the provinces. Those used here were proposed by George B. Cressey (1952, personal communication, J.G. B.). From north to south, the physiographic provinces of New York are:

St. Lawrence-Champlain Lowlands

New York's northernmost province includes the St. Lawrence River Valley (northeast of the Thousand Islands), the low hills south of the river valley, and the Lake Champlain Valley (figure 19). The underlying rocks —Cambrian and Ordovician sandstones, dolomites, and limestones—dip gently away from the Adirondacks. Relief is approximately 100 feet. Streams draining the northern and eastern slopes of the Adirondacks flow across the province. The shoreline of Lake Champlain is largely controlled by north-south and east-west faults which have chopped the Paleozoic sandstones and carbonates into large blocks.

Adirondack Highlands

The highest mountains in New York occur in the Adirondack Highlands, especially in the High Peaks region; the High Peaks, in the east-central part of the province, are underlain by anorthosite, which is highly resistant to erosion. Two peaks—Mt. Marcy and Mt. Algonquin—are over 5,000 feet in elevation, and many exceed 4,000 feet. Average relief in the Adirondack Highlands is 2,000 feet. North, west, and south of the High Peaks area, elevations decrease gradually; east to the Champlain Lowland, the slope is more abrupt.

The Adirondacks are transected by long, northeast-southwest lineaments, representing shear zones or major faults. The lineaments frequently control drainage and the shape of land forms. Many lakes follow geologic contacts, or are confined to valleys along weak metasedimentary rocks. Because glacial deposits have clogged the normal radial drainage, lower areas are dotted with lakes, ponds, and swamps.

Tug Hill Upland

The Tug Hill, an isolated upland in the eastern part of the Erie-Ontario Lowlands, is probably the most desolate area of the State. Elevation is 1,800 to 2,000 feet, and relief is very low. The Tug Hill results from a resistant cap rock of Oswego Sandstone (an Ordovician sedimentary quartzite), resting on a thick series of sandy shales. These, in turn, overlie Trenton and Black River limestones, which form a flight of rock terraces along the west side of the Black River Valley. The low slope of the cap rock and the thin cover of glacial deposits have caused poor drainage and many swamps.

Erie-Ontario Lowlands

This province encompasses the relatively low, flat areas lying south of Lake Erie and Lake Ontario and extending up the Black River Valley. From the lake levels of 570 feet and 244 feet, respectively, the land rises gently eastward and southward. The maximum elevation (1,000-1,500 feet) occurs along the Portage Escarpment, the boundary with the Appalachian Uplands to the south. Particularly in the Ontario Lowland, east-west escarpments are formed by the Onondaga Limestone and Lockport Dolomite. (The Lockport is the cap rock of Niagara Falls and the falls of the Genesee River at Rochester.) The simple erosional topography has been modified substantially by glacial deposition of drumlin fields, recessional moraines, and shoreline deposits.

Hudson-Mohawk Lowlands

The general topography of the Hudson-Mohawk Lowlands resulted from erosion along outcrop belts of weak rocks. In the Mohawk Lowlands, the outcrop belts lie between the Adirondacks and the Helderberg Escarpment; for the Hudson, they lie between the Catskills and the metamorphosed shale hills of the Taconics. Most of the province has low elevation and relief. It is underlain primarily by Ordovician shales which have been exposed by the southward and westward stripping off of Silurian and Devonian limestones.

Reference A-5

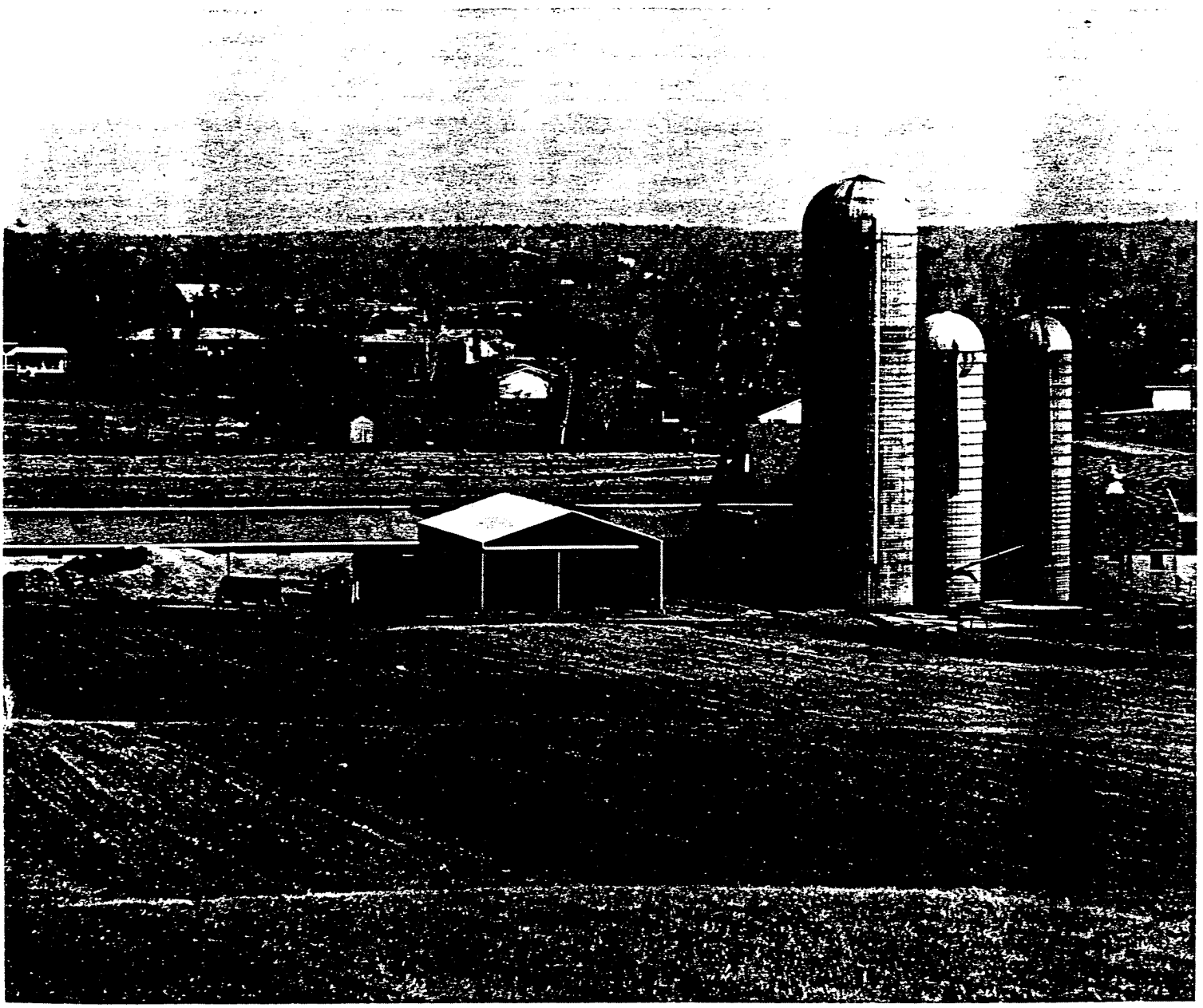
U.S. Department of Agriculture, Soil Conservation Survey
in cooperation with Cornell University
Soil Survey of Erie County, 1986.

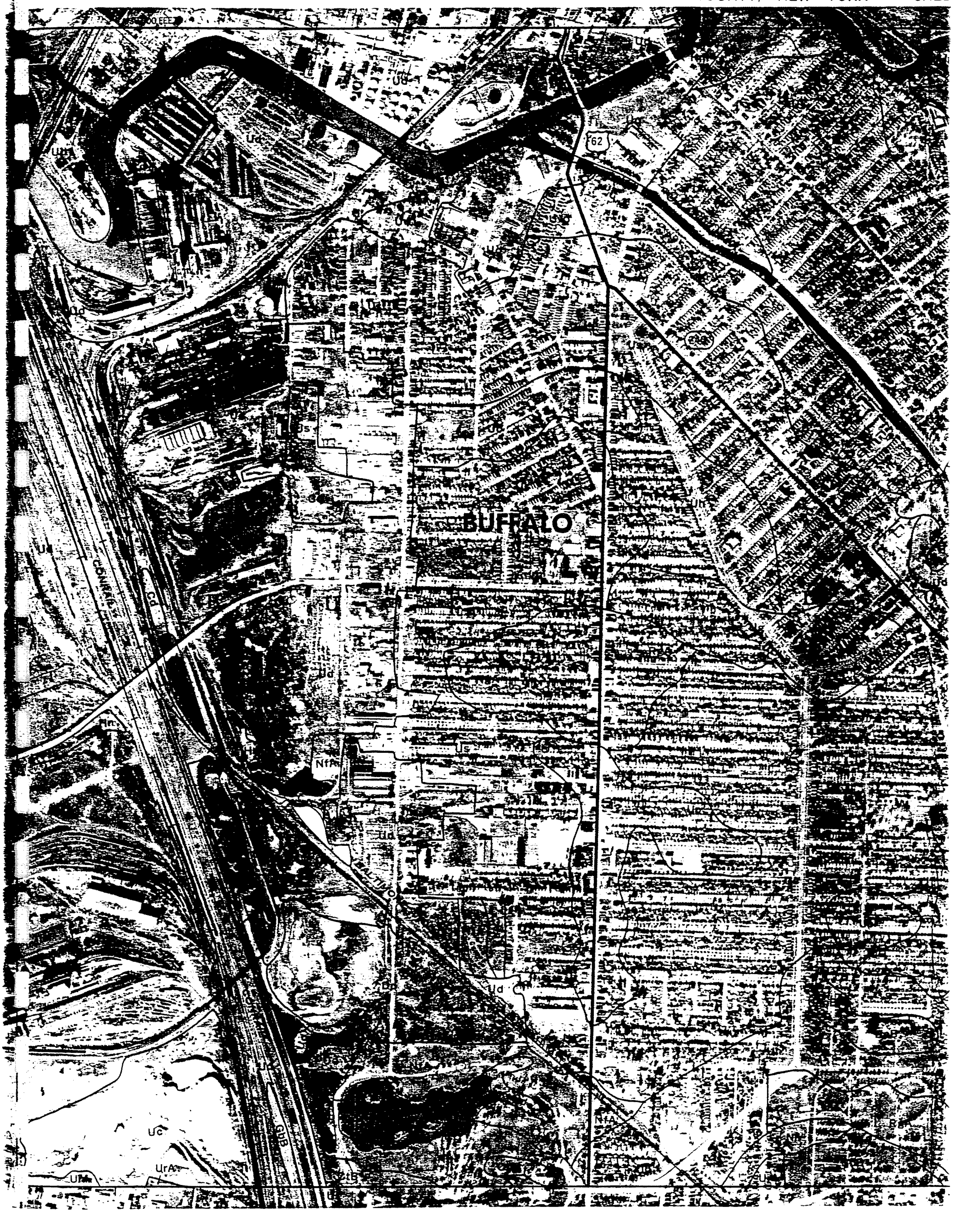
United States
Department of
Agriculture

Soil
Conservation
Service

In Cooperation with
the Cornell University
Agricultural
Experiment Station

Soil Survey of Erie County, New York




BUFFALO
Ud
62
Cd
NfA
Uc
UrA
GdB

lower part. The substratum to a depth of 60 inches is mottled, olive silty clay loam.

Included with this soil in mapping are small intermingled areas of 3 acres or less of the Schuyler, Orpark, and Hornell soils. The moderately well drained Schuyler soils are higher and are moderately steep. The Orpark soils are underlain by bedrock at a depth of 20 to 40 inches. The Hornell soils have a very high clay content in the subsoil. Also included are sizable areas of an unnamed soil that is similar to the Derb soil but has more sand and shale fragments in the subsoil.

From November through May this Derb soil has a perched seasonal high water table in the upper part of the subsoil. Permeability is moderate or moderately slow in the subsoil and slow in the substratum. The available water capacity is high, and runoff is medium. Shale fragments make up 10 percent or less of the surface layer and subsoil. Bedrock is as shallow as 40 inches below the surface in some areas. In unlimed areas, the surface layer and subsoil are strongly acid or very strongly acid.

Seasonal wetness and slope are limitations for farming and urban uses of this Derb soil. Most areas of this soil are in woodland or pasture or are idle.

This soil is poorly suited to most cultivated crops, unless drained. Interceptor drains that divert runoff and subsurface seepage make earlier cultivation of most fields possible. Erosion is a serious hazard on this silty soil. Keeping tillage to a minimum, using cover crops, incorporating crop residues into the soil, tilling at the proper soil moisture content, tilling on the contour, stripcropping, and rotating crops help promote good tilth and reduce the erosion hazard.

Hay and pasture plants that can withstand seasonal wetness do well, particularly if this soil is adequately limed. Overgrazing and grazing when the soil is wet are major concerns of pasture management because they restrict plant growth and may lead to the loss of the pasture seeding. Grazing when the soil is wet also causes it to compact and puddle.

The potential of this soil for wood crops is fair. Seasonal wetness limits equipment use on this soil, increases seedling mortality, and restricts rooting depth, which causes uprooting of trees during windstorms. Placing logging trails across the slope reduces trail gullying and erosion.

The seasonal wetness, slow permeability in the substratum, high risk of frost damage, and slope are serious limitations for most urban uses of this soil. Interceptor drains that divert runoff and subsurface seepage reduce the wetness around foundations. Lawns and gardens usually require liberal applications of lime because the soil is very acid. Where bedrock is nearly 40 inches below the surface, excavation is difficult. Construction sites should be revegetated as soon as possible to minimize the serious erosion hazard.

This Derb soil is in capability subclass IIIe.

Dp—Dumps. This miscellaneous area consists mos of excavations that are filled or to be filled with rubbis and debris. Some areas consist of piles of rubbish where the landscape has been only slightly altered by man. More commonly, landfills are made by removing the s and subsequently dumping trash and refuse into the excavated area. The refuse is covered, partially covered or mixed with earth material. These areas are usually 2 to 50 feet deep. The sides are steep, and rubbish, consisting mostly of garbage, trash, old tires, bottles, cans, slabs of asphalt, and discarded appliances, lines the pit floor. The depth of the refuse and amount of s covering are quite variable.

Included in mapping are small pools of water on some pit floors. These areas are irregular in shape, depending on the topography and ownership boundaries. They range from 3 to 160 acres or more.

Dumps usually have no vegetation, but some dumps have scattered bushes, grass, and other plants if the cover material has not been disturbed for a long perio The degree of wetness on these sites varies from dry ponded, depending on the type of soil deposited and the extent of grading.

The suitability of these areas for urban or recreation uses is quite variable. Often the sites have a pungent odor, poor stability, unsanitary effluent, and rodent infestations, which make them undesirable for these uses. Onsite investigation of each site is necessary to determine its reclamation value for other proposed uses. Some areas can be reclaimed for farming or woodland

This map unit is not assigned a capability subclass.

Du—Dumps, slag. This miscellaneous unit consists of mounds of iron ore residue. These areas were created by the dumping of waste material from the steel mills located in the cities of Buffalo and Lackawanna. The depth of these deposits varies, but mostly ranges from 3 to 60 feet. In some areas the sides of mounds are ste but in most areas they are gently sloping or sloping. Many of these slag piles have been formed and shaped by grading. Included in mapping are small pools of water. The areas are commonly irregular in shape, depending on the nature of the deposited material and ownership boundaries. They range from 50 to 100 acres or more.

This map unit, consisting of iron slag, usually has no vegetation, although some older areas have scattered bushes and grasses. The areas are usually quite droughty.

The suitability of these areas for urban, recreational, farming, and woodland uses is generally very poor. Onsite investigation is needed to determine the suitability and limitations for any proposed use.

This Dumps, slag, unit is not assigned a capability subclass.

Ed—Edwards muck. This level soil is very poorly drained. It formed in well decomposed organic material

stone. This soil is in low, flat areas at the northern of the upland plateau, just south of the limestone rpment. Slope is 0 to 3 percent. Areas of this soil regular in shape and range from 5 to 100 acres, but s of 5 to 20 acres are most common.

ypically, this soil has a surface layer of black loam 10 inches thick. The subsurface layer is mottled, t brown fine sandy loam about 3 inches thick. The soil, which extends to a depth of 21 inches, is ttled, dark brown loam. The substratum is mottled, dish brown gravelly loam about 6 inches thick. Hard, limestone bedrock is at a depth of 27 inches.

ncluded with this soil in mapping are small mingled areas of the Wassaic, Appleton, and ndala soils. The Wassaic soils are better drained than Newstead soil and are on slightly elevated parts of landscape. The somewhat poorly drained Appleton Kendaia soils are underlain by bedrock at a depth of feet or more. Also included are some areas where edrock is less than 20 inches below the soil surface a few areas where the soil is poorly drained. Areas included soils range from 1/2 acre to 3 acres.

From December through May this Newstead soil has a erched seasonal high water table that rises into the pper part of the subsoil. Permeability is moderate roughout the soil. Runoff is slow. Gravel makes up 2 to 15 percent of the surface layer. Bedrock is at a depth of 20 to 40 inches. Reaction ranges from medium acid to ildly alkaline in the surface layer.

Because of seasonal wetness and depth to bedrock, is soil is poorly suited to most farm and urban uses. Most of the acreage is in woodland, or it is idle. Some areas of this soil are farmed, and a few areas are used for urban purposes.

This Newstead soil is poorly suited to cultivated crops, unless drained. Subsurface drainage is difficult to install because bedrock is at a moderate depth and the soil should be deeper to insure adequate installation. Where open drains can be installed, this soil is suited to many crops grown in the county. Keeping tillage to a minimum, using cover crops, incorporating crop residues into the soil, plowing at proper soil moisture level, and rotating crops improve tilth and help maintain the organic matter content. Because of seasonal wetness, this soil is poorly suited to pasture and hay. Surface drainage or land shaping is desirable for optimum production of forage crops.

Grazing when the soil is wet is the major concern of pasture management on this soil. Grazing during wet periods causes soil compaction and trampling of pasture plants, which reduce forage growth. Proper stocking, rotation of pastures, yearly mowing, and deferment of grazing during wet periods are the main management needs.

The potential of this soil for wood crops is poor because of seasonal wetness and moderate depth to bedrock, but many areas are wooded. Erosion is not a hazard, but limited use of equipment and seedling mortality are serious problems. Because of the restricted rooting depth, trees may uproot during windstorms.

The seasonally high water table and depth to bedrock are serious limitations for most urban uses of this soil. Where the soil is used for septic tank absorption fields, ground water may be contaminated because the fissured limestone bedrock is close to the soil surface. The bedrock is very hard and difficult to excavate; blasting is often required. Some areas have good potential for the development of wildlife habitat.

This Newstead soil is in capability subclass IIIw.

NfA—Niagara silt loam, 0 to 3 percent slopes. This nearly level, silty soil is deep and somewhat poorly drained. It is on broad, moderately low flats in the northern part of the county and in a few flat areas elsewhere. Areas of this soil are irregular in shape and range from 5 to 200 acres or more.

Typically, this soil has a surface layer of dark brown silt loam about 11 inches thick. The subsoil extends to a depth of 27 inches. The upper 5 inches is mottled, yellowish brown silt loam, and it is underlain by mottled, dark brown light silty clay loam grading to silt loam. The substratum is dark brown silt loam to a depth of 60 inches and olive brown coarse silt and very fine sand below 60 inches.

Included with this soil in mapping are small areas of the Niagara soils that have gravelly or stony deposits between depths of 40 and 60 inches. Also included are areas of the Cosad, Raynham, Collamer, and Canandaigua soils. The Cosad soils have a sandy surface mantle, the Raynham soils have a lower clay content than the Niagara soils, the Collamer soils are on slightly convex knolls and ridges, and the Canandaigua soils are in low depressions. In some areas, the surface layer is very fine sand or silty clay loam. Areas of included soils are 1/2 acre to 3 acres.

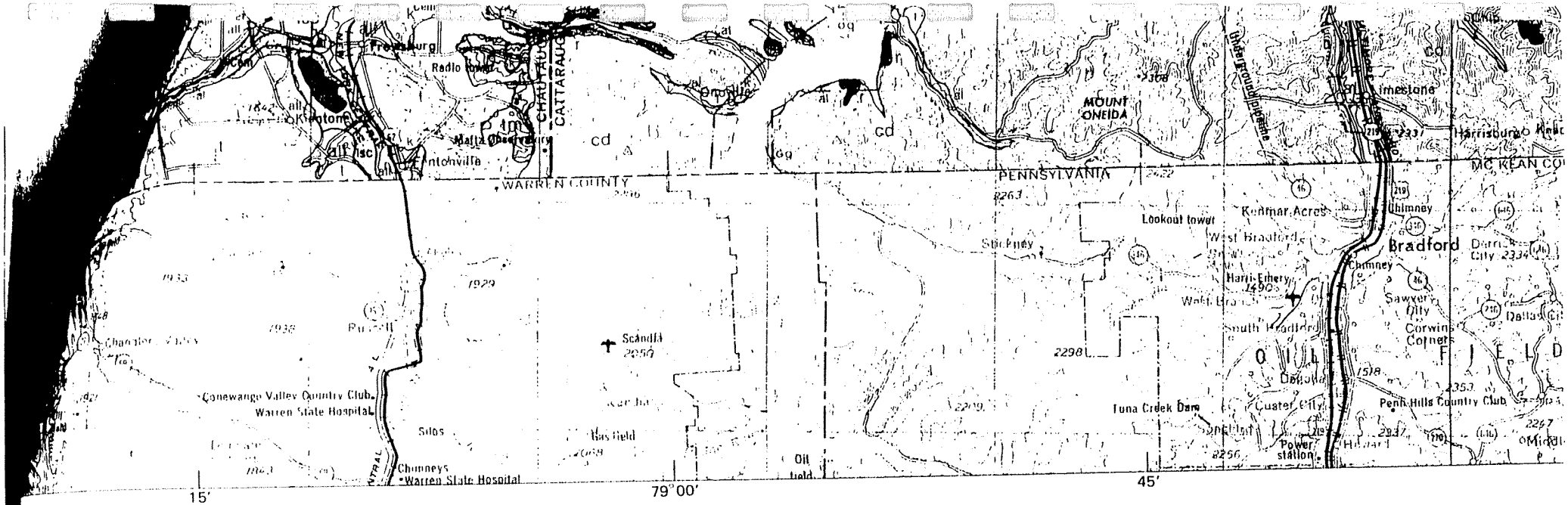
From December through May this Niagara soil has a seasonal high water table that rises into the upper part of the subsoil. Permeability is moderately slow in the subsoil and substratum. The available water capacity is high, and runoff and internal drainage are slow. Depth to bedrock is generally 5 feet or more. There are usually no gravel and stones in the soil. Reaction ranges from strongly acid to neutral in the surface layer and from medium acid to mildly alkaline in the subsoil.

Seasonal wetness, moderately slow permeability, and low soil strength limit many uses of this soil. This soil is used for various purposes, including residential and commercial development, farming, and woodland. Many areas of this soil are idle.

This Niagara soil is not well suited to farming, unless drained. Erosion is not a problem on this nearly level soil, but it may puddle and compact if tilled when wet. In some areas drainage is difficult to install because of the nearly level slopes, instability of cut banks, and lack of

Reference A-6

Cadwell, D.H., Surficial Geologic Map of
New York, Niagara Sheet, 1988.

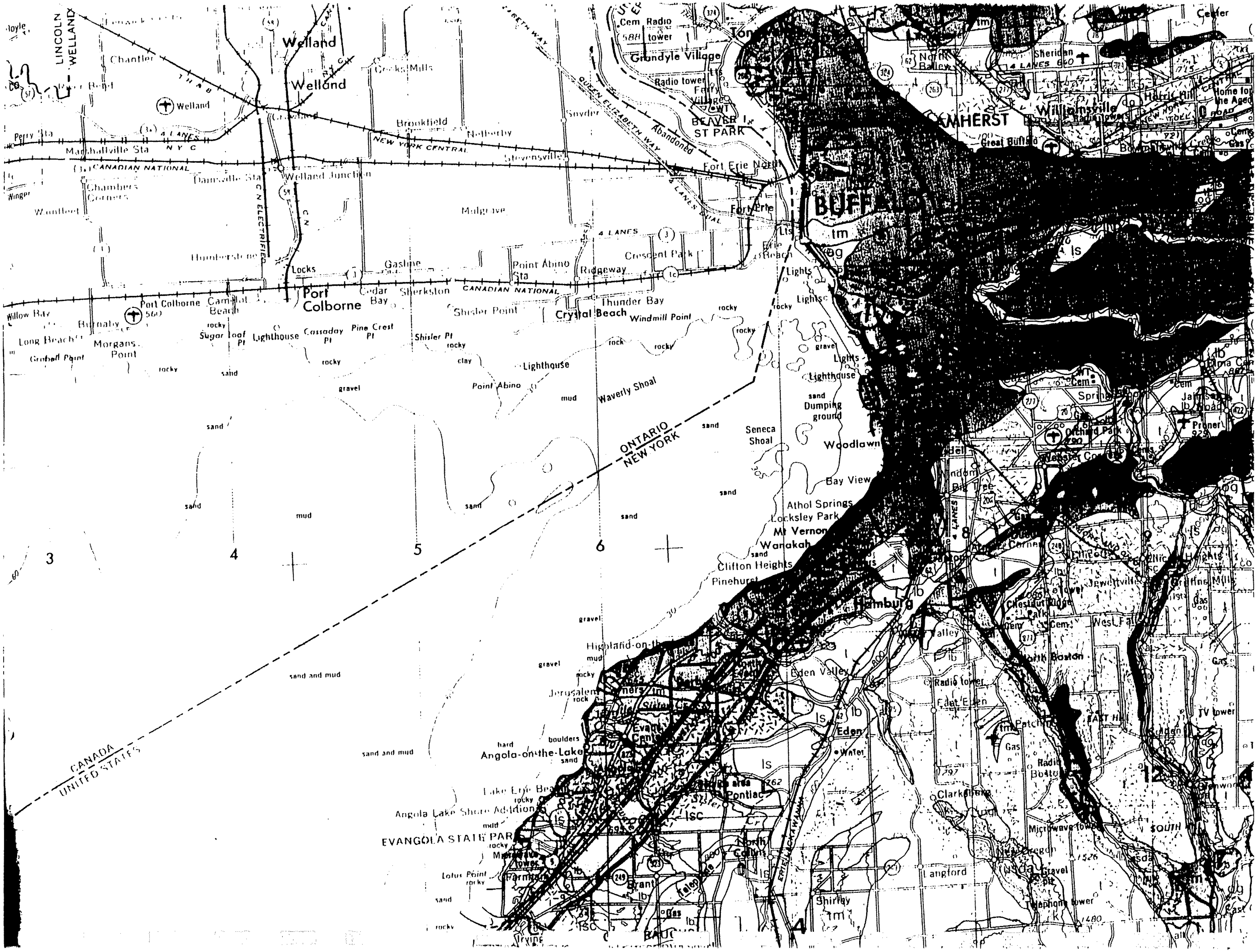


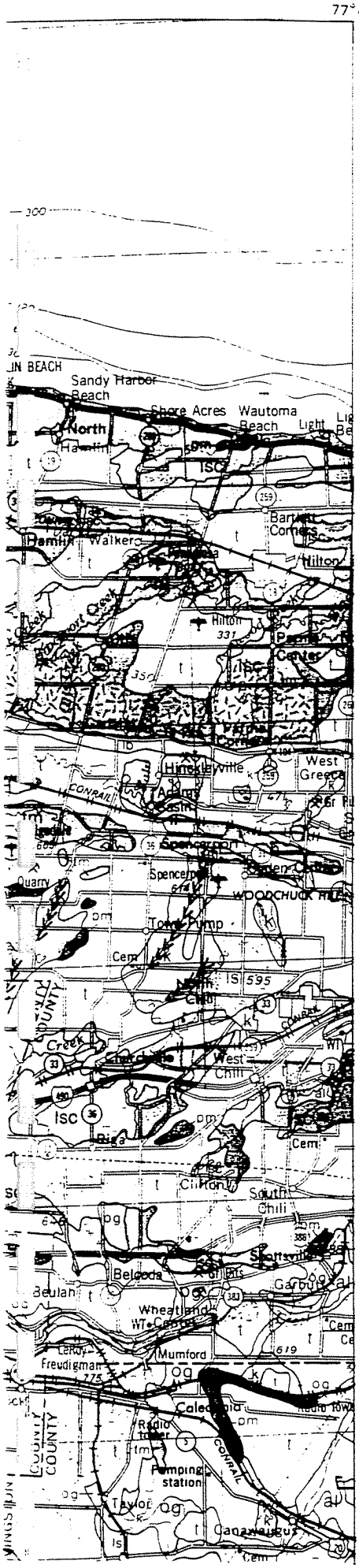
SURFICIAL GEOLOGIC MAP OF NEW YORK

NIAGARA SHEET

Compiled and Edited by Donald H. Cadwell

1988


LINCOLN
WELLAND
Welland
Chantler
Perry Sta
Marshallville Sta
CANADIAN NATIONAL
Chambers Corners
Wainfleet
Humberstone
Locks
Port Colborne
Willow Bay
Long Beach
Morgans Point
Sugar Loaf Pt
Lighthouse
Cassaday Pt
Pine Crest Pt
Welland Junction
C N ELECTRIFIED
Brookfield
NEW YORK CENTRAL
Stevensville
Snyder
Mulgrave
Gasline
Sherkston
Cedar Bay
Point Abino Sta
Ridgeway
Crystal Beach
Thunder Bay
Windmill Point
Crescent Park
Fort Erie
Fort Erie North
QUEEN ELIZABETH WAY
Abandoned
BEAVER Is ST PARK
Grandyle Village
Radio tower
BUFFALO
AMHERST
Williamsville
Great Buffalo
Sheridan
Lighthouse
Point Abino
Shisler Point
Shisler Pt
Waverly Shoal
ONTARIO
NEW YORK
CANADA
UNITED STATES
Seneca Shoal
Dumping ground
Woodlawn
Bay View
Athol Springs
Locksley Park
Mt Vernon
Wanakah
Clifton Heights
Pinehurst
Hamburg
Highland-on-the
Jerusalem
Angola-on-the-Lake
Angola Lake Shore Addition
EVANGOLA STATE PAR
Lotus Point
Eden Valley
Eden
North Boston
Orchard Park
Clarksburg
Langford
Shirley
North Collins
Brant
Farnham
Irving
ERIE LACKAWANNA
Microwave tower
TV tower
West Falls
sand
mud
rocky
gravel
clay
sand and mud
boulders
3
4
5
6



EXPLANATION

al

al — Recent deposits
Generally confined to floodplains within a valley,
oxidized, non-calcareous, fine sand to gravel,
in larger valleys may be overlain by silt,
subject to frequent flooding, thickness 1–10 meters.

alf

alf — Alluvial fan
Fan shaped accumulations,
poorly stratified silt, sand and boulders,
at the foot of steep slopes,
generally permeable.

co

co — Colluvium
Mixture of sediments,
deposited by mass wasting,
thickness generally 1–5 meters.

cof

cof — Colluvial fan
Fan shaped accumulation,
mixture of sediments,
at mouths of gullies,
thickness generally 1–5 meters.

cd

cd — Colluvial diamicton
Mixture of sediments,
unique to region beyond Wisconsinan glacial limit,
rebedded saprolite and glacial debris,
may be old (Illinoian) drift,
homogenized by varying degrees of colluviation,
bedrock may sporadically crop out or be within 1–3 meters of the surface.

pm — Swamp deposits
Peat-muck, organic silt and sand in poorly drained areas,
un-oxidized,
may overlay marl and lake silts,
potential land instability,
thickness generally 2–20 meters.

lb

lb — Lacustrine beach
Generally well sorted sand and gravel,
stratified, permeable and well drained,
deposited at a lake shoreline,
generally non-calcareous,
may have wave-winnowed lag gravel,
thickness variable (1–5 meters).

ld

ld — Lacustrine delta
Coarse to fine gravel and sand,
stratified, generally well sorted,
deposited at a lake shoreline,
thickness variable (3–15 meters).

lsc — Lacustrine silt and clay
Generally laminated silt and clay,
deposited in proglacial lakes,
generally calcareous,
potential land instability,
thickness variable (up to 100 meters);
stipple overprint where bedrock is within 1–3 meters of the surface.

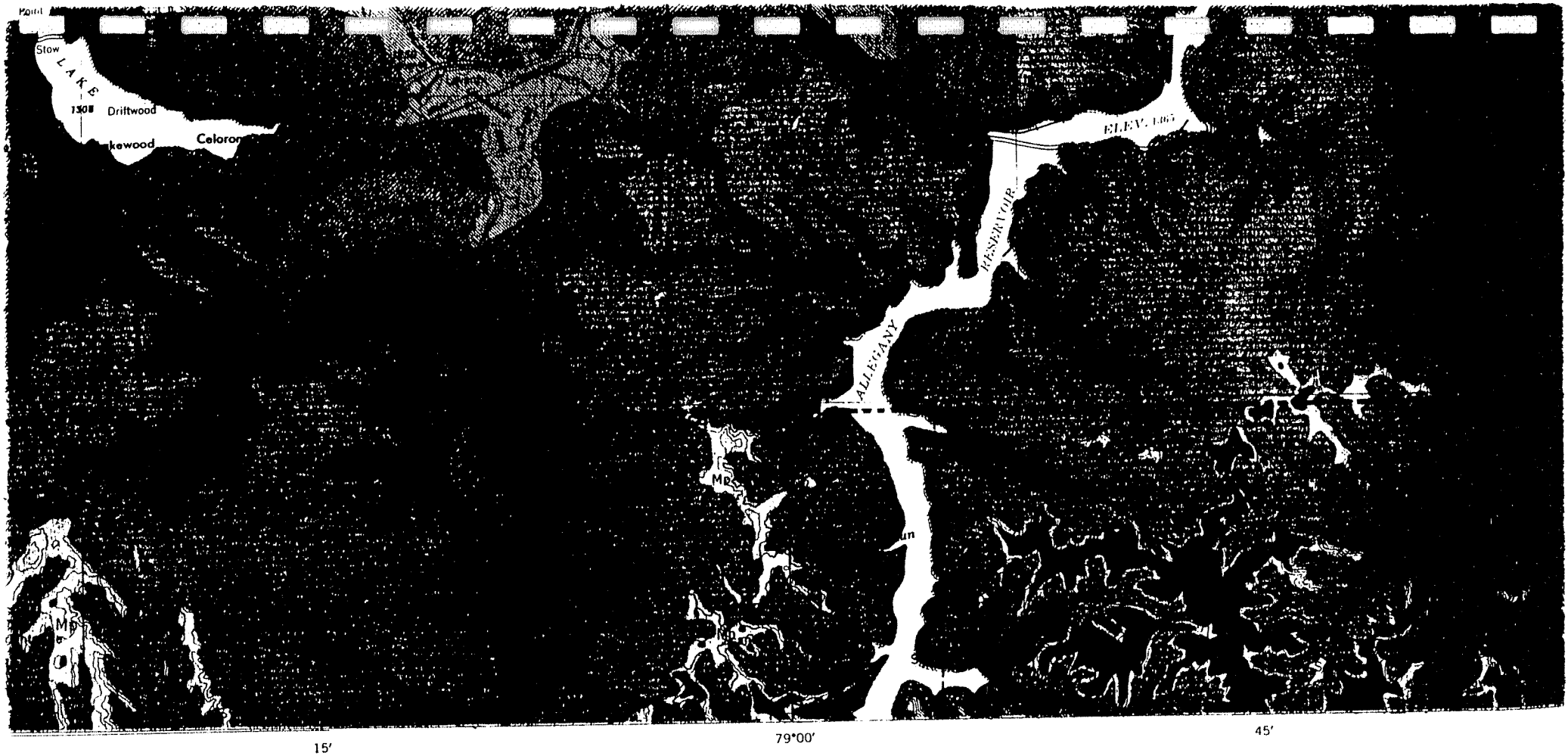
ls

ls — Lacustrine sand
Sand deposits associated with large bodies of water,
generally a near-shore deposit or near a sand source,
well sorted, stratified,
generally quartz sand,
thickness variable (2–20 meters).

og — Outwash sand and gravel

Reference A-7

Rickard and Fisher, Geologic Map of
New York, Niagara Sheet, 1970.



GEOLOGIC MAP OF NEW YORK

1970

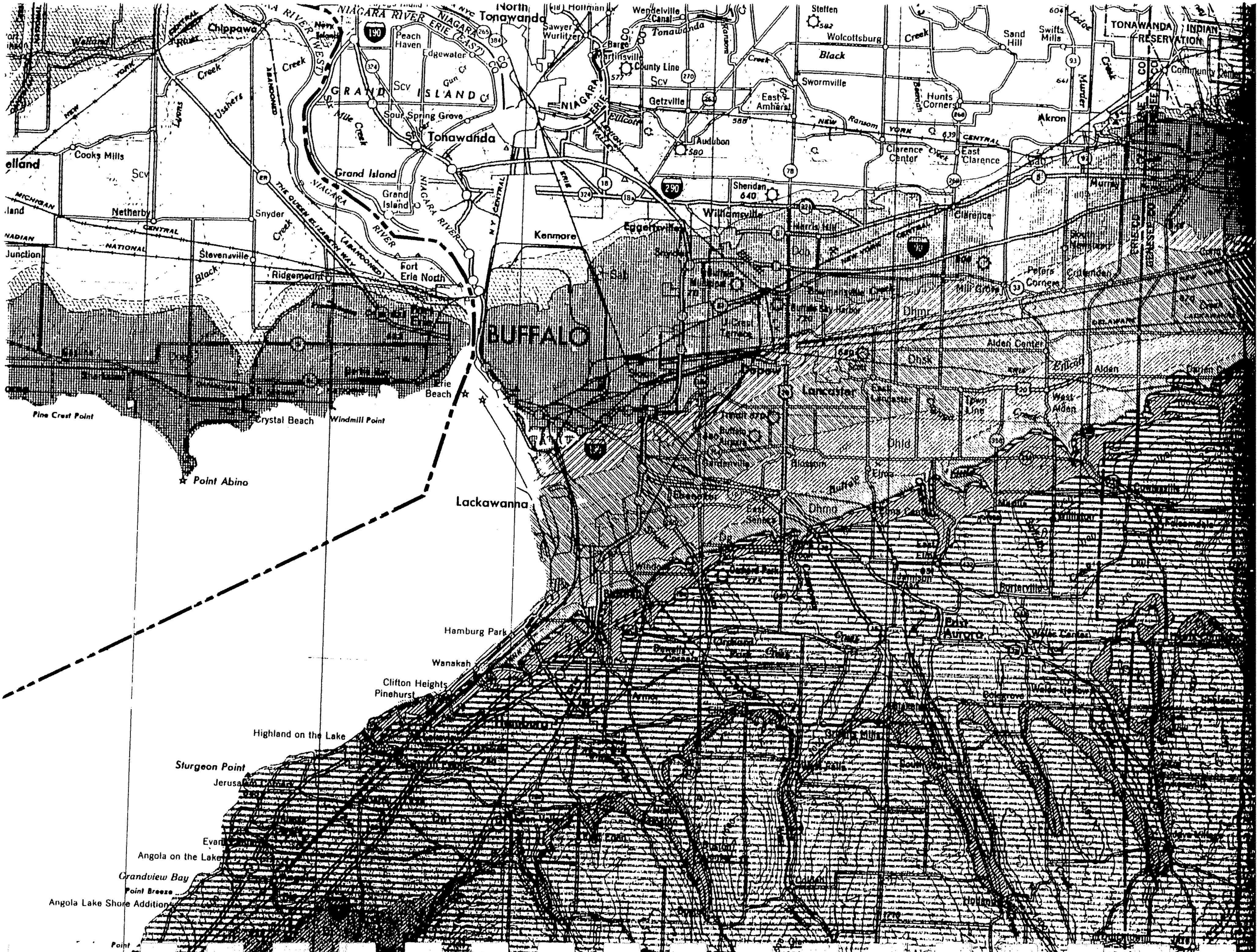
Niagara Sheet

Scale 1:250,000

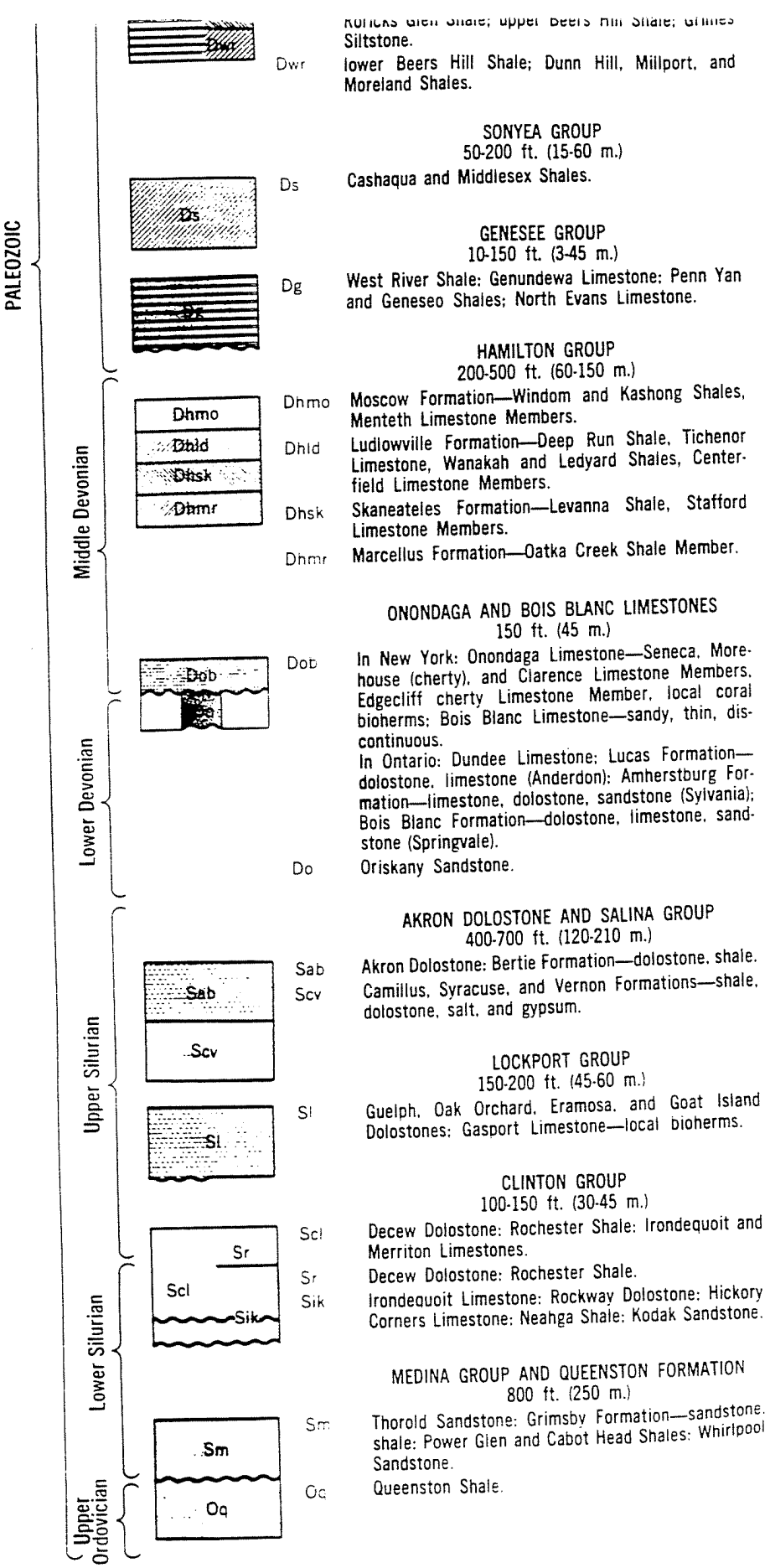
5 0 5 10 15 Statute Miles 20

5 0 5 10 15 20 25 Kilometers 30

CONTOUR INTERVAL 100 FEET



BUFFALO
North Tonawanda
Tonawanda
Kenmore
Lackawanna
Chippawa
Peach Haven
Edgewater
GRAND ISLAND
Grand Island
Sour Spring Grove
NIAGARA RIVER
Fort Erie North
Erie Beach
Crystal Beach
Windmill Point
Pine Crest Point
Point Abino
Ridgemount
Stevensville
Snyder
Netherby
Cooks Mills
Junction
Sawyer
Wurlitzer
Wendelville
Tonawanda
County Line
Getzville
Audubon
Swormville
East Amherst
Wolcottsburg
Steffen
Sheridan 640
Williamsville
Eggertsville
Clarence Center
Clarence
East Clarence
Hunts Corners
Sand Hill
Swifts Mills
Akron
TONAWANDA INDIAN RESERVATION
Murder
Black
Creek
Mill Grove
Peters Corners
Crittenden
Alden Center
Alden
West Alden
Lancaster
Depew
Town Line
Blossom
Elma
East Seneca
Aurora
Porterville
Hamburg Park
Wanakah
Clifton Heights
Pinehurst
Highland on the Lake
Sturgeon Point
Evans
Angola on the Lake
Grandview Bay
Point Breeze
Angola Lake Shore Addition
THE QUEEN ELIZABETH WAY
ABANDONED
NEW YORK CENTRAL



Rhinecks Glen Shale; upper Beers Hill Shale; Grimes Siltstone.

Dwr — lower Beers Hill Shale; Dunn Hill, Millport, and Moreland Shales.

SONYEA GROUP
50-200 ft. (15-60 m.)

Ds — Cashaqua and Middlesex Shales.

GENESEE GROUP
10-150 ft. (3-45 m.)

Dg — West River Shale: Genundewa Limestone: Penn Yan and Geneseo Shales; North Evans Limestone.

HAMILTON GROUP
200-500 ft. (60-150 m.)

Dhmo — Moscow Formation—Windom and Kashong Shales, Menteth Limestone Members.

Dhld — Ludlowville Formation—Deep Run Shale, Tichenor Limestone, Wanakah and Ledyard Shales, Centerfield Limestone Members.

Dhsk — Skaneateles Formation—Levanna Shale, Stafford Limestone Members.

Dhmr — Marcellus Formation—Oatka Creek Shale Member.

ONONDAGA AND BOIS BLANC LIMESTONES
150 ft. (45 m.)

Dob — In New York: Onondaga Limestone—Seneca, Morehouse (cherty), and Clarence Limestone Members, Edgecliff cherty Limestone Member, local coral bioherms; Bois Blanc Limestone—sandy, thin, discontinuous.
In Ontario: Dundee Limestone; Lucas Formation—dolostone, limestone (Anderdon); Amherstburg Formation—limestone, dolostone, sandstone (Sylvania); Bois Blanc Formation—dolostone, limestone, sandstone (Springvale).

Do — Oriskany Sandstone.

AKRON DOLOSTONE AND SALINA GROUP
400-700 ft. (120-210 m.)

Sab — Akron Dolostone: Bertie Formation—dolostone, shale.

Scv — Camillus, Syracuse, and Vernon Formations—shale, dolostone, salt, and gypsum.

LOCKPORT GROUP
150-200 ft. (45-60 m.)

Sl — Guelph, Oak Orchard, Eramosa, and Goat Island Dolostones; Gasport Limestone—local bioherms.

CLINTON GROUP
100-150 ft. (30-45 m.)

Scl — Decew Dolostone: Rochester Shale: Irondequoit and Merriton Limestones.

Sr — Decew Dolostone: Rochester Shale.

Sik — Irondequoit Limestone: Rockway Dolostone: Hickory Corners Limestone: Neahga Shale: Kodak Sandstone.

MEDINA GROUP AND QUEENSTON FORMATION
800 ft. (250 m.)

Sm — Thorold Sandstone: Grimsby Formation—sandstone, shale: Power Glen and Cabot Head Shales: Whirlpool Sandstone.

Oq — Queenston Shale.

Reference A-8

Buehler, E.J., and Tesmer, I.H., Geology of Erie County
Buffalo Society of Natural Science, Vol. 21, No. 3, 1963.

GEOLOGY

OF

ERIE COUNTY

New York

By

EDWARD J. BUEHLER

Professor of Geology
State University of New York at Buffalo

AND

IRVING H. TESMER

Professor of Geology
State University College at Buffalo

BUFFALO SOCIETY OF NATURAL SCIENCES
BULLETIN

Vol. 21. No. 3 Buffalo, 1963

Cephalopods

Agoniatites vanuxemi (Hall)
Goniatites sp.
Michelinoceras (?) *subulatum* (Hall)

Pelecypods

Aviculopecten exacutus Hall
Gosselettia triquetra (Conrad)
Leptodesma marcellense Hall
Lunulicardium curtum Hall
L. fragilis (Hall)
Modiomorpha subalata (Conrad)
Nuculites nyssa Hall
Orthonota (?) *parvula* Hall
*Panenka linck*laeni Hall

Cricoconarida

Styliolina fissurella (Hall)
Tentaculites gracilistriatus Hall

ARTHROPODS

Isochilina (?) *fabacea* Jones
Primitiopsis punctulifera (Hall)

Trilobites

Greenops boothi (Green)
Phacops rana (Green)

INCERTAE SEDIS

Coleolus tenuicinctum Hall

SKANEATELES FORMATION

TYPE REFERENCE: Vanuxem (1840, p. 380).

TYPE LOCALITY: Skaneateles Lake, Onondaga County, New York; Skaneateles quadrangle.

TERMINOLOGY: See Cooper (1930). In Erie County, the Skaneateles is represented by two members: the Stafford Limestone Member (older) and the Levanna Shale Member.

AGE: Middle Devonian (Erian).

THICKNESS: 60 - 90 feet.

LITHOLOGY: In western New York, the Skaneateles Formation consists of gray limestone overlain by fissile gray to black shale.

PROMINENT OUTCROPS: Lake Erie shore between Bayview and Hamburg Town Park; Cazenovia Creek west of Ebenezer; Buffalo Creek between Gardenville and Blossom; Cayuga Creek at entrance to Como Lake Park; Plumbottom Creek in Lancaster.

CONTACTS: The lower contact is transitional with the older Oatka Creek Shale Member of the Marcellus Formation. The upper contact, at the base of the Centerfield Limestone Member of the Ludlowville Formation, cannot be seen in Erie County.

PALEONTOLOGY: The Skaneateles Formation has a varied fauna including coelenterates, bryozoans, brachiopods, gastropods, pelecypods, cephalopods, and arthropods.

Stafford Limestone Member

TYPE REFERENCE: Clarke (1894, p. 342).

TYPE LOCALITY: Stafford township, Genesee County, New York; Batavia quadrangle.

TERMINOLOGY: See Clarke (1901), Wood (1901) and Cooper (1930).

AGE AND CORRELATION: According to Cooper (1930), the Stafford is the oldest member of the Skaneateles Formation. However, Cooper *et al.* (1942, p. 1788) included the Stafford as the uppermost member of the Marcellus Formation. The Stafford correlates with the Mottville of central New York.

THICKNESS: According to Wood (1901), the Stafford is 8.5 feet thick at Lancaster and 15 feet thick at Lake Erie. Cooper (1930) suggests that the lower 6.5 feet of Wood's Stafford at Lancaster should be assigned to the Marcellus Formation.

LITHOLOGY: The Stafford is a gray limestone which weathers chocolate brown. Bedding varies from massive to shaly.

PROMINENT OUTCROPS: Buffalo Creek near junction of Mineral Springs Road and Indian Church Road; Cayuga Creek at entrance to Como Lake Park; Plumbottom Creek in Lancaster.

CONTACTS: The lower contact with the Oatka Creek Shale Member of the Marcellus Formation is often transitional in Erie County. The contact with the overlying Levanna Shale Member is usually fairly distinct.

PALEONTOLOGY: This faunal list has been modified from Wood (1901, pp. 139-181):

COELENTERATES

Aulopora sp.
Aulocystis dichotoma (Grabau)
A. jacksoni (Grabau)
Favosites placenta Rominger
Stereolasma rectum (Hall)

BRYOZOANS

Fistulipora sp.
Hederella canadensis (Nicholson)
H. cirrhosa Hall
Orthoptera tortalinea (Hall and Simpson)
Reptaria stolonifera Rolle
Stictopora sp.

BRACHIOPODS

Ambocoelia nana Grabau
Atrypa spinosa Hall
Camarotoechia horsfordi Hall
C. pauciplicata Wood
C. prolifica (?) (Hall)
C. sappho Hall
Chonetes lepidus Hall
C. mucronatus Hall
C. scitulus Hall
Crania recta Wood
Cryptonella planirostra (Hall)
C. rectirostra (Hall)
Douvillina inaequistriata (Conrad)
Elytha fimbriata (Conrad)
Emanuella subumbona (Hall)
Leiorhynchus limitare (Vanuxem)
Meristella barrisi Hall
M. meta Hall
Mucrospirifer mucronatus (Conrad)
Nucleospira concinna (Hall)

Productella dumosa Hall
Protoleptostrophia perplana (Conrad)
Rhipidomella vanuxemi Hall
Schizobolus concentricus (Vanuxem)
Schuchertella arctostriata (Hall)
Spinulicosta spinulicosta Hall
Trematospira gibbosa Hall
Tropidoleptus carinatus Conrad
Truncalosia truncata Hall

ANNELID (?)
Spirorbis sp.

MOLLUSKS
Gastropods
Bembexia capillaria rustica (Conrad)
Loxonema sp.
Mourlonia itys (Hall)
M. lucina (Hall)
Platyceras (Orthonychia) attenuatum Hall
Pleurotomaria sp.

Cephalopods
Michelinoceras (?) *eriense* (Hall)
M. (?) *exile* (Hall)
Nephriticeras bucinum (Hall)
Protokionoceras fenestrulatum (Clarke)
Spyroceras aegea (Hall)
Striacoceras typum (Saemann)

Pelecypods
Actinopteria muricata Hall
Cypricardinia indenta Conrad
Leptodesma marcellense Hall
Palaeaneilo sp.
Panenka lincklaeni Hall
P. mollis Hall
Pterinopecten exfoliatus Hall
Pterochaenia fragilis (Hall)

Cricoconarida
Styliolina fissurella (Hall)
Tentaculites gracilistriatus Hall

ARTHROPODS
Onychochilus nitidulus (?) Clarke
Primitiopsis punctulifera (Hall)

Trilobites
Greenops boothi (Green)
Otarion craspidota (Hall and Clarke)
Phacops rana (Green)

Levanna Shale Member

TYPE REFERENCE: Cooper (1930, p. 217).

TYPE LOCALITY: Near Levanna, east shore of Cayuga Lake, Cayuga County, New York; Auburn quadrangle.

TERMINOLOGY: See Cooper (1930). Wood (1901, pp. 153-154) referred to approximately three feet of shale and shaly limestone above the Stafford as Marcellus. Grabau (1898, pp. 65-66) used the term Upper Marcellus and Houghton (1914, pp. 21-23) applied the name Cardiff to beds now called Levanna. Luther (1914, pp. 14-16) also used the term Cardiff Shale but for only the lower beds of the Levanna. He called the upper beds of the Levanna the Skaneateles Shale.

AGE AND CORRELATION: Middle Devonian (Erian). The Levanna correlates with the Delphi Station, Pompey and Butternut Members of the Skaneateles Formation in central New York.

THICKNESS: The Levanna thickens eastward from about 45 feet at Lake Erie to 80 feet at the eastern edge of the county.

LITHOLOGY: The Levanna is a fissile shale, dark gray or black near the bottom, and lighter olive gray near the top. There are some calcareous beds and some pyritiferous concretions.

PROMINENT OUTCROPS: Lake Erie shore between Bayview and Hamburg Town Park; Cazenovia Creek west of Ebenezer; Buffalo Creek between Gardenville and Blossom.

CONTACTS: The contact with the underlying Stafford Limestone Member is usually fairly sharp. The upper contact with the Centerfield Limestone Member of the Ludlowville Formation cannot be seen in Erie County.

PALEONTOLOGY: Most of the following species were listed by Grabau (1898) and Wood (1901, pp. 139-181) from beds termed "Upper Marcellus" by them and now recognized as Levanna:

PLANTS

various spores

COELENTERATES

Aulocystis dichotoma (Grabau)

BRACHIOPODS

Ambocoelia umbonata (Conrad)
Atrypa reticularis (Linnaeus)
Chonetes lepidus Hall
C. mucronatus Hall
C. setigerus (Hall)
Leiorhynchus limitare (Vanuxem)
Meristella barrisi Hall
Mucrospirifer mucronatus (Conrad)
Spinulicosta spinulicosta Hall
Truncalosia truncata (Hall)

MOLLUSKS

Gastropods

Paracyclas lirata (Conrad)
Serpulospira laxus (Hall)

Cephalopods

Centroceras marcellense (Vanuxem)
Protokionoceras fenestrulatum (Clarke)
Spyroceras aegea (Hall)

Pelecypods

Lunulicardium curtum Hall
Nuculites triqueter Conrad
Pterochaenia fragilis (Hall)

Cricoconarida

Styliolina fissurella (Hall)
Tentaculites gracilistriatus (Hall)

ARTHROPOD

Trilobite

Phacops rana (Green)

TYPE REFERI

TYPE LOCALI
New York ((
that a refere
County, New

TERMINOLOG
Formation ar
Wanakah Sh
Cooper *et al.*

AGE AND CO

THICKNESS:

LITHOLOGY:

PROMINENT
Creek; Eight
Creek near \
Creek in the

CONTACTS:
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Formation is
Tichenor Lim

PALEONTOLO
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pods, cephal
plants are als

TYPE REFER

TYPE LOCALI
New York; (

TERMINOLOG

AGE AND CO
the Ludlowvi
placed at th
Member is w

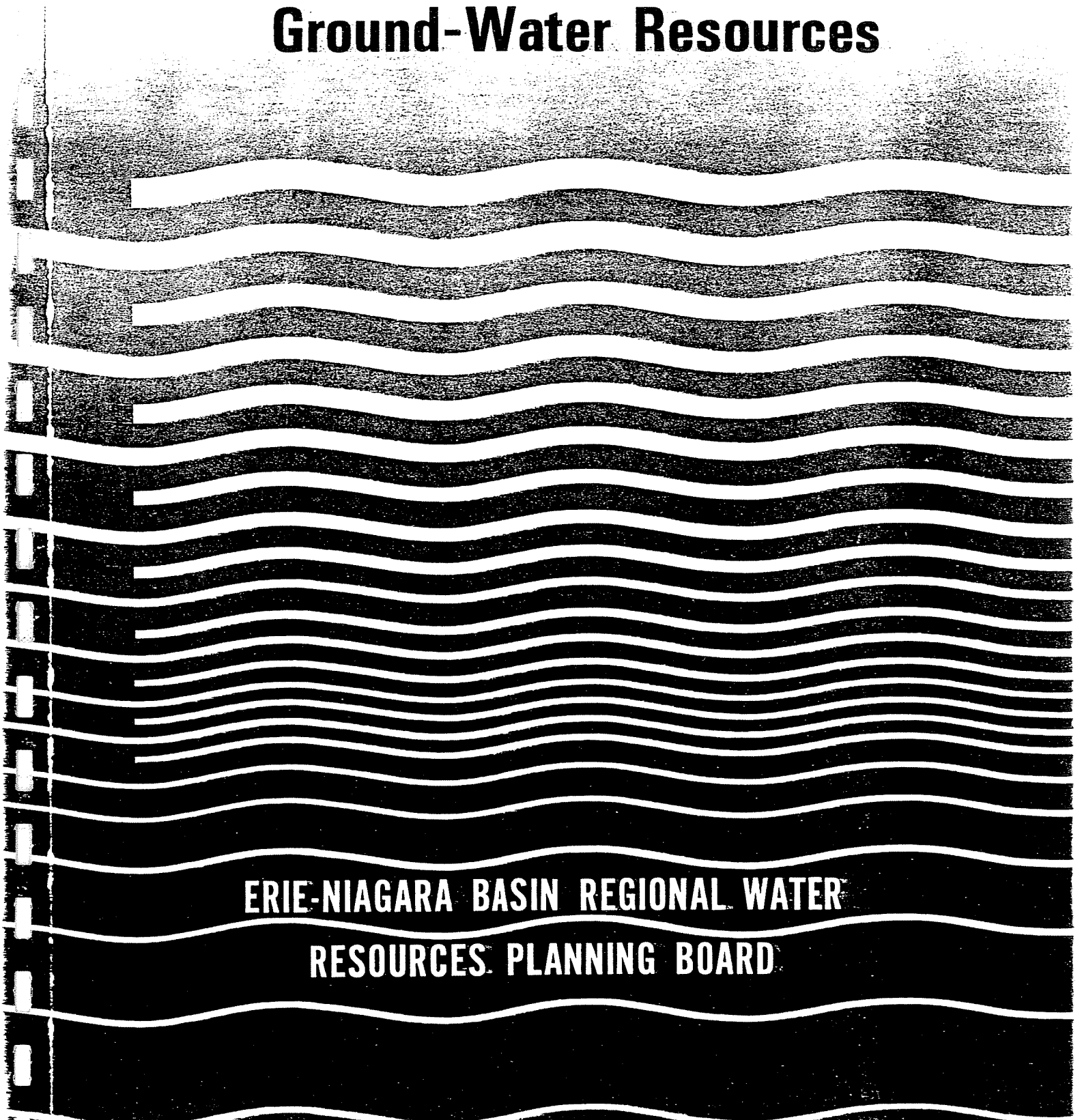
THICKNESS:

Reference A-9

LaSala, M. A., Jr., Ground-Water Resources of the
Erie-Niagara Basin, New York
New York State Conservation Department
Division of Water Resources, Albany, New York, 1968.

Erie-Niagara Basin

Ground-Water Resources



ERIE-NIAGARA BASIN REGIONAL WATER RESOURCES PLANNING BOARD

CONSERVATION DEPARTMENT • DIVISION OF WATER RESOURCES

ENB-3

Reference A-10

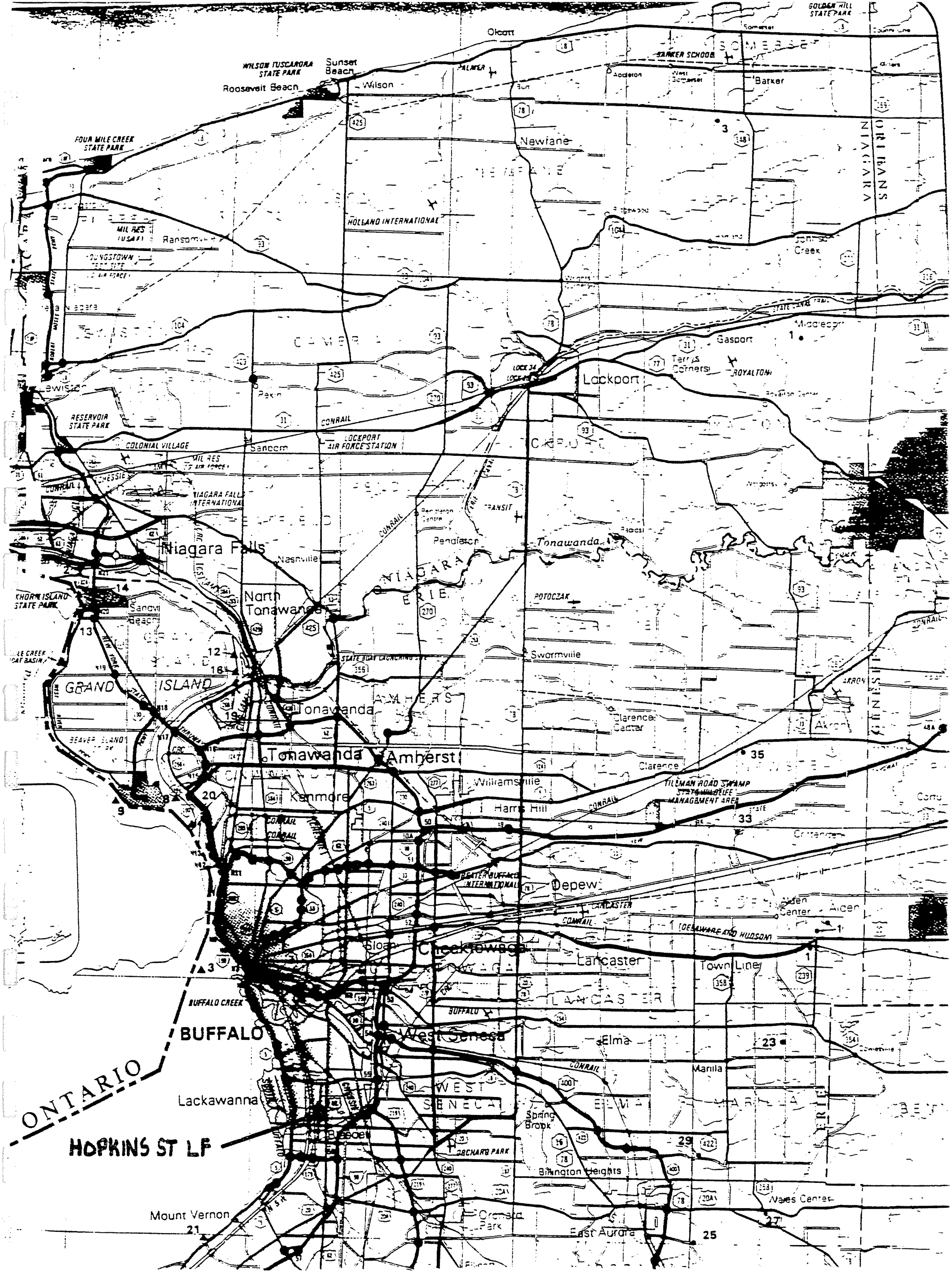
New York State Atlas of Community Water System Sources
New York State Department of Health, 1982.

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

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
	Akron Village (See No 1 Wyoming Co, Page 10).	3640	
1	Alden Village.	3460.	.Wells
2	Angola Village.	8500.	.Lake Erie
3	Buffalo City Division of Water. . .	357870.	.Lake Erie
4	Caffee Water Company.	210.	.Wells
5	Collins Water District #3.	704.	.Wells
6	Collins Water Districts #1 and #2. .	1384.	.Wells
7	Erie County Water Authority (Sturgeon Point Intake).	375000.	.Lake Erie
8	Erie County Water Authority (Van DeWater Intake).	NA.	.Niagara River - East Branch
9	Grand Island Water District #2. . .	9390.	.Niagara River
10	Holland Water District.	1670.	.Wells
11	Lawtons Water Company.	138.	.Wells
12	Lockport City (Niagara Co).		.Niagara River - East Branch
13	Niagara County Water District (Niagara Co). .		.Niagara River - West Branch
14	Niagara Falls City (Niagara Co).		.Niagara River - West Branch
15	North Collins Village.	1500.	.Wells
16	North Tonawanda City (Niagara Co)		.Niagara River - West Branch
17	Orchard Park Village.	3671.	.Pipe Creek Reservoir
18	Springville Village.	4169.	.Wells
19	Tonawanda City.	18538	.Niagara River - East Branch
20	Tonawanda Water District #1.	91269.	.Niagara River
21	Wanakah Water Company.	10750.	.Lake Erie
Non Municipal Community			
22	Aurora Mobile Park.	125.	.Wells
23	Bush Gardens Mobile Home Park. . . .	270.	.Wells
24	Circle B Trailer Court.	50.	.Wells
25	Circle Court Mobile Park.	125.	.Wells
26	Creekside Mobile Home Park.	120.	.Wells
27	Donnelly's Mobile Home Court.	99.	.Wells
28	Gowanda State Hospital.	NA.	.Clear Lake
29	Hillside Estates.	160.	.Wells
30	Hunters Creek Mobile Home Park. . . .	150.	.Wells
31	Knox Apartments.	NA.	.Wells
32	Maple Grove Trailer Court.	72.	.Wells
33	Millgrove Mobile Park.	100.	.Wells
34	Perkins Trailer Park.	75.	.Wells
35	Quarry Hill Estates.	400.	.Wells
36	Springville Mobile Park.	114.	.Wells
37	Springwood Mobile Village.	132.	.Wells
38	Taylors Grove Trailer Park.	39.	.Wells
39	Valley View Mobile Court.	42.	.Wells
40	Villager Apartments.	NA.	.Wells

NO	UNITY	SYSTE	ULATIO	SOURCE
Municipal Community				
	Lockport City (See No 12, Erie Co).		25000	
1	Middleport Village.		2000.	.Wells (Springs)
	Niagara County Water District (See No 13, Erie Co).		48	
2	Niagara Falls City (See also No 14 Erie Co).		77384.	.Niagara River - East
	North Tonawanda City (See No 16 Erie Co).		36000	
Non Municipal Community				
3	Country Estates Mobile Village. . . .		28.	.Wells



Olcott
Wilson
Sunset Beach
Roosevelt Beach
WILSON TUSCARORA STATE PARK
FOUR MILE CREEK STATE PARK
Barker
Newfane
HOLLAND INTERNATIONAL
Ransomville
NIAGARA
ORLEANS
Creek
Middleport
Gasport
Terrys Corners
ROYALTON
Lockport
LOCK 34
Lewiston
RESERVOIR STATE PARK
COLONIAL VILLAGE
Pekin
Sanborn
CONRAIL
LOCKPORT AIR FORCE STATION
CHESSIE
NIAGARA FALLS INTERNATIONAL
Pendleton Centre
Pendleton
TRANSIT
Tonawanda
Niagara Falls
Nashville
NIAGARA
ERIE
POTOCZAK
North Tonawanda
Swormville
GRAND ISLAND
Tonawanda
AMHERST
Clarence Center
Akron
BEAVER ISLAND
Tonawanda
Amherst
Clarence
Williamsville
TILLMAN ROAD SWAMP STATE WILDLIFE MANAGEMENT AREA
Kenmore
Harris Hill
Crittenden
GREATER BUFFALO INTERNATIONAL
Depew
LANCASTER
Alden Center
Alden
DELAWARE AND HUDSON
Sloan
Cheektowaga
Lancaster
Town Line
BUFFALO CREEK
BUFFALO
LANCASTER
West Seneca
Elma
Manila
ONTARIO
Lackawanna
WEST SENECA
ELMA
MARILLA
ERIE
Spring Brook
HOPKINS ST LF
ORCHARD PARK
Billington Heights
Wales Center
Mount Vernon
Orchard Park
East Aurora

Section 2

DOCUMENTS CITED

LIST OF DOCUMENTS CITED

B-1 NYSDEC Refuse Disposal and Inspection Reports.

B-2 Waste Disposal Sites (Erie County)

B-3 Erie County Department of Environment and Planning Memorandum.

B-4 Erie County Department of Environment and Planning, Hopkins/Marilla Street Site Survey, City of Buffalo, October 1982.

B-5 Ecology and Environment Correspondence and Telephone Interview Documents.

B-6 USEPA, Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites, March 1985.

B-7 Dunn Geoscience Engineering Co., P.C. Interview Documents.

B-8 Population Figures, Buffalo News, January 25, 1991.

Document B-1

NYSDEC Refuse Disposal and Inspection Reports.

N[illegible]ORK STATE DEPARTMENT OF ENVIRONMENTAL CON[illegible]'ATION

REFUSE DISPOSAL AND INSPECTION REPORT

NAME OF SITE	LOCATION (Town, Village, City)	COUNTY	REGION NO.
Hopkins ST -	Buffalo	Erie	
OPERATOR	**ADDRESS**		**SITE NO.**
Dept of Streets	City Hall		
OWNER	**ADDRESS**		

EXPLAIN YES ANSWERS ON REVERSE SIDE

	YES	NO
1. Burning at Time of Inspection. Illegal SITE — No Permit No Application for Approval on record	☐	☑
2. Evidence of On-site Burning.	☐	☑
3. Dumping into Water.	☐	☑
4. Leachate Observed At The Site.	☐	☑
5. Leaching into a Water Course.	☐	☑
6. Refuse not Confined to a Manageable Area. No order of organization	☑	☐
7. Unsatisfactory Daily Soil Cover. NONE	☑	☐
8. Refuse Protruding through Completed Areas. No cover material	☑	☐
9. Improper Spreading and Compaction of the Refuse. No Attempt is made to compact Refuse material	☑	☐
10. Pooling of Water, Cover Soil Cracking, Soil Erosion, or Improper Slope on Completed Area. Improper application of cover material created pooling of water, cover cracking.	☑	☐
11. Evidence of Rodents and Insects. Rodent signs were evident	☑	☐
12. Blowing Paper Problem. Large amounts of paper noted blown into trees surrounding dump area	☑	☐
13. Salvaging of Refuse Creating a Nuisance. Unauthorized person permitted to collect metal and scrap iron	☑	☐
14. Approach Road Impassable to Vehicular Traffic During part of the year.	☐	☐

CONTROL OF SITE

☐ Signs ☐ Fence and Gate ☐ Supervision ☑ None

EQUIPMENT AT SITE

Type		
N/A		
Size		
N/A		

TYPE OF REFUSE DISPOSED City owned

☒ Residential ☒ Commercial ☐ Industrial ☐ Demolition ☐ Agricultural ☐ Scavenger

PERSON INTERVIEWED	DATE	TIME
N/A	1 Feb	P.M.
INSPECTED BY (Signature)	**TITLE**	
Conrad C. Tita		

SW-1 (12/71)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Pg 4 of

REFUSE DISPOSAL AND INSPECTION REPORT

NAME OF SITE	LOCATION (Town, Village, City)	COUNTY	REGION NO.
Hopkins (South Park)	Buffalo	Erie	9
OPERATOR	**ADDRESS**		**SITE NO.**
City of Buffalo	City Hall Buffalo		
OWNER	**ADDRESS**		

EXPLAIN YES ANSWERS ON REVERSE SIDE

	YES	NO
1. Burning at Time of Inspection.	☐	☒
2. Evidence of On-site Burning.	☐	☒
3. Dumping into Water.	☐	☒
4. Leachate Observed At The Site.	☐	☒
5. Leaching into a Water Course.	☐	☒
6. Refuse not Confined to a Manageable Area.	☐	☒
7. Unsatisfactory Daily Soil Cover.	☒	☐
8. Refuse Protruding through Completed Areas.	☒	☐
9. Improper Spreading and Compaction of the Refuse.	☐	☒
10. Pooling of Water, Cover Soil Cracking, Soil Erosion, or Improper Slope on Completed Area.	☐	☒
11. Evidence of Rodents and Insects.	☐	☒
12. Blowing Paper Problem.	☐	☒
13. Salvaging of Refuse Creating a Nuisance.	☐	☒
14. Approach Road Impassable to Vehicular Traffic During part of the year.	☐	☒

CONTROL OF SITE

☐ Signs ☐ Fence and Gate ☐ Supervision ☒ None

EQUIPMENT AT SITE

Type		
NONE		
Size		

TYPE OF REFUSE DISPOSED

☐ Residential ☐ Commercial ☐ Industrial ☒ Demolition ☒ Agricultural ☐ Scavenger

PERSON INTERVIEWED	DATE	TIME
No one on site	May 21-1974	4 00 PM
INSPECTED BY (Signature)	**TITLE**	
Charles Smith	Asst San Engineer	

SW-1 (12/71)

QUESTION NO.	EXPLANATION OF YES ANSWERS
7. E.	This site has not been closed properly and some tree branches were recently dumped not covered (40 ft from entrance) Refuse, chairs - wood, paper, glass etc. is still being dump is street Right of way near the entrance. The southerly portion of dump has more than above described refuse protruding

REFUSE SITE SKETCH	LOCATION SKETCH

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

RECEIVED

JUN 25 1975

LAW ENFORCEMENT REGION 9 BUFFALO

REFUSE DISPOSAL AREA INSPECTION REPORT

NAME OF SITE	LOCATION (Town, Village, City)	COUNTY	REGION NO.
Hopkins St ROA	Bflo	Erie	9
OPERATOR	**ADDRESS**		SITE NO.
Bflo			
OWNER	**ADDRESS**		

EXPLAIN YES ANSWERS ON REVERSE SIDE

	YES	NO
1. Burning at Time of Inspection.	☐	☑
2. Evidence of On-site Burning.	☐	☑
3. Dumping into Water.	☐	☑
4. Leachate Observed At The Site.	☑	☐
5. Leaching into a Water Course.	☐	☑
6. Refuse not Confined to a Manageable Area.	☑	☐
7. Unsatisfactory Daily Soil Cover.	☑	☐
8. Refuse Protruding through Completed Areas.	☑	☐
9. Improper Spreading and Compaction of the Refuse.	☑	☐
10. Pooling of Water, Cover Soil Cracking, Soil Erosion, or Improper Slope on Completed Area.	☑	☐
11. Evidence of Rodents and Insects.	☐	☑
12. Blowing Paper Problem.	☑	☐
13. Salvaging of Refuse Creating a Nuisance.	☐	☑
14. Approach Road Impassable to Vehicular Traffic During part of the year.	☐	☑

CONTROL OF SITE

☑ Signs ☐ Fence and Gate ☐ Supervision ☐ None

EQUIPMENT AT SITE

Type: None

Size:

TYPE OF REFUSE DISPOSED

☑ Residential ☐ Commercial ☐ Industrial ☐ Demolition ☐ Agricultural ☐ Scavenger

PERSON INTERVIEWED	DATE Month	Day	Year	TIME
	6	20	75	

INSPECTED BY (Signature): W. A. Becker

TITLE: E. C. O.

SW-1 (12/71)

This is a mess. Garbage bags right next to the road

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

REFUSE DISPOSAL AREA INSPECTION REPORT

Owner FLORIDA Buffalo	LOCATION (Town, Village, City) Buffalo	COUNTY Erie	REGION NO. 9
	ADDRESS		SITE NO.
	ADDRESS		

ANSWERS ON REVERSE SIDE

	YES	NO
1. Burning at Time of Inspection.	☐	☑
2. Evidence of On-site Burning.	☐	☐
3. Dumping into Water.	☐	☐
4. Leachate Observed At The Site.	☐	☐
5. Leaching into a Water Course.	☐	☐
6. Refuse not Confined to a Manageable Area.	☐	☐
7. Unsatisfactory Daily Soil Cover.	☑	☐
8. Refuse Protruding through Completed Areas.	☐	☐
9. Improper Spreading and Compaction of the Refuse.	☐	☐
10. Pooling of Water, Cover Soil Cracking, Soil Erosion, or Improper Slope on Completed Area.	☐	☐
11. Evidence of Rodents and Insects.	☐	☑
12. Blowing Paper Problem.	☑	☐
13. Salvaging of Refuse Creating a Nuisance.	☐	☐
14. Approach Road Impassable to Vehicular Traffic During part of the year.	☐	☑

CONTROL OF SITE

☑ Signs ☐ Fence and Gate ☐ Supervision ☐ None

EQUIPMENT AT SITE

Type		
None		
Size		

TYPE OF REFUSE DISPOSED

☑ Residential ☐ Commercial ☐ Industrial ☐ Demolition ☐ Agricultural ☐ Scavenger

PERSON INTERVIEWED	DATE Month / Day / Year	TIME
	6 / 20 / 75	

INSPECTED BY (Signature)		TITLE
W. C. Bacher		E. C. O.

W-1 (12/71)

Pg 1 of 2

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

REFUSE DISPOSAL AND INSPECTION REPORT

NAME OF SITE	LOCATION (Town, Village, City)	COUNTY	REGION NO.
Hopkins St RDA	Buffalo	Erie	9
OPERATOR	**ADDRESS**		**SITE NO.**
	Foot of Hopkins St		
OWNER	**ADDRESS**		
Bflo.			

EXPLAIN YES ANSWERS ON REVERSE SIDE

	YES	NO
1. Burning at Time of Inspection.	☐	☑
2. Evidence of On-site Burning.	☐	☑
3. Dumping into Water.	☐	☑
4. Leachate Observed At The Site.	☐	☑
5. Leaching into a Water Course.	☐	☑
6. Refuse not Confined to a Manageable Area.	☑	☐
7. Unsatisfactory Daily Soil Cover.	☑	☐
8. Refuse Protruding through Completed Areas.	☑	☐
9. Improper Spreading and Compaction of the Refuse.	☑	☐
10. Pooling of Water, Cover Soil Cracking, Soil Erosion, or Improper Slope on Completed Area.	☑	☐
11. Evidence of Rodents and Insects.	☐	☑
12. Blowing Paper Problem.	☑	☐
13. Salvaging of Refuse Creating a Nuisance.	☐	☑
14. Approach Road Impassable to Vehicular Traffic During part of the year.	☐	☑

CONTROL OF SITE

☑ Signs ☐ Fence and Gate ☐ Supervision ☐ None

EQUIPMENT AT SITE

Type		
Front End Loader		
Size		

TYPE OF REFUSE DISPOSED

☑ Residential ☐ Commercial ☐ Industrial ☐ Demolition ☐ Agricultural ☐ Scavenger

PERSON INTERVIEWED	DATE Month	Day	Year	TIME
None	4	26	75	

INSPECTED BY (Signature)		TITLE
W. C. BECKER		E.C.O

SW-1 (12/71)

RECEIVED

APR 28 1975

ENVIRONMENTAL POLLUTION BUFFALO

Document B-2

Waste Disposal Sites (Erie County)

WASTE DISPOSAL SITES

INTERAGENCY TASK FORCE ON HAZARDOUS WASTES

MARCH 1979

SITE NO.	PRIORITY	COUNTY	SITE NAME AND LOCATION
177	3	ERIE	GEORGE SCHREIBER SITE, FEDDICK ROAD, BOSTON
178	3	ERIE	VILLAGE OF GOWANDA, CEMETERY HILL
179	3	ERIE	TOWN OF HAMBURG, LAKEVIEW ROAD
* 180	2	ERIE	HOPKINS STREET, BUFFALO
181	2	ERIE	HOUGHTON PARK, BUFFALO
182	2	ERIE	HUNTLEY POWER STATION, TONAWANDA
183	3	ERIE	JAMES FOX, GOWANDA ROAD, ANGOLA
184	3	ERIE	KELLY ISLAND, BUFFALO
185	2	ERIE	LACKAWANNA, ABBOT ROAD
186	2	ERIE	LANCASTER SANITARY LANDFILL, GUNNVILLE ROAD, LANCASTER
187	2	ERIE	LANCASTER RECLAMATION, PAVEMENT ROAD, LANCASTER
188	2	ERIE	LAND RECLAMATION, BROADWAY AND INDIAN ROAD, CHEEKTOWAGA
189	3	ERIE	LA SALLE RESERVOIR, EAST AURORA AND PARK RIDGE STREETS, BUFFALO
190	2	ERIE	LEHIGH VALLEY RAILROAD, TIFFT STREET, BUFFALO
191	3	ERIE	TOWN OF MARILLA, EASTWOOD ROAD, MARILLA
192	3	ERIE	MORRIS AND REIMAN WRECKING, RENSCH ROAD, AMHERST
193	3	ERIE	TOWN OF NEWSTEAD, SAND HILL ROAD
194	3	ERIE	N. Y. S. DEPT. OF TRANS., INDIAN RD., CHEEKTOWAGA
195	3	ERIE	N. Y. S. THRUWAY AUTHORITY, EXIT 52, CHEEKTOWAGA
196	2	ERIE	NIAGARA FRONTIER PORT AUTHORITY, FUHRMANN BLVD., BUFFALO
197	3	ERIE	TOWN OF NORTH COLLINS, KETCHUM ROAD
198	2	ERIE	FOX ROAD SITE, LANGFORD AND SHIRLEY ROADS, NORTH COLLINS
199	2	ERIE	PFOHL BROTHERS, AERO DRIVE, CHEEKTOWAGA
200	3	ERIE	PROCKNAL AND KATRA, ELECTRIC AVENUE, BLASDELL
201	2	ERIE	SEAWAY INDUSTRIAL PARK, RIVER ROAD, TONAWANDA
202	2	ERIE	VILLAGE OF SPRINGVILLE, MILL STREET
203	2	ERIE	SQUAW ISLAND, BUFFALO
204	3	ERIE	WILLIAM STRASSMAN PROPERTY, RIVER ROAD, TONAWANDA
205	2	ERIE	STOCKS POND, BROADWAY AND TRANSIT ROAD, DEPEW
206	2	ERIE	TIFFT FARM, BUFFALO
207	2	ERIE	CITY OF TONAWANDA, WALES AVENUE
208	3	ERIE	VETERANS PARK, NIAGARA STREET, TONAWANDA
209	3	ERIE	TOWN OF WALES, FISH HILL ROAD
210	2	NIAG	AIR FORCE PLANT 38, PORTER AND BALMER ROADS, PORTER
211	2	ERIE	AIR FORCE PLANT 40, KENMORE AVENUE, TONAWANDA
212	1	NIAG	AIR FORCE PLANT 68, LUTTS ROAD, MODEL CITY
213	2	NIAG	AIR FORCE PLANT 68, LUTTS ROAD, MODEL CITY
214	2	NIAG	LOCKPORT AIR FORCE BASE, LOCKPORT
215	1	NIAG	LAKE ONTARIO ORDINANCE WORKS, MODEL CITY IGLOO AREA, LEWISTON

Document B-3

Erie County Department of Environment and Planning Memorandum.

COUNTY OF ERIE
DEPARTMENT OF ENVIRONMENT & PLANNING
DIVISION OF ENVIRONMENTAL CONTROL

MEMORANDUM

FROM Don Campbell, P.E. DATE June 1, 1981

TO Lawrence G. Clare, P.E.

SUBJECT City of Buffalo Hopkins Street Area.

Inspection Date: May 29, 1981

Site # 915011, page B-9-49.

The entire site consists primarily of mounds of non-putrescible material; i.e., bed springs, bricks, concrete, white goods moulds, sand and that which is covered with mounds of dumped earth on what appears to be foundry sand.

Wet spots appear at the Southerly border of the site.

A fairly large body of shallow water exists along the Northern border.

No leachate was observed.

The site was difficult to maneuver because of tall weeds and bushes.

Past leaching swales not evident.

No suspicious barrels or drums noted. No oil observed in swamp or wet areas.

The appropriate section of aerial photograph # 21-09, dated 1972, is enclosed with this report.

DC:rb

Enc.

Document B-4

Erie County Department of Environment and Planning
Hopkins/Marilla Street Site Survey, City of Buffalo, October 1982.

HOPKINS/ MARILLA STREET

SITE SURVEY

CITY OF BUFFALO

CAMERON O'CONNOR
Env. Quality Technician
Dept. Env. & Planning
Division of Env. Control

HOPKINS/ MARILLA STREET

SITE SURVEY

CITY OF BUFFALO

INTRODUCTION

Due to NYSDEC's measurement (by their TAGA Mobile Unit) of PCB concentrations in the ambient air near 267 Marilla Street, City of Buffalo, this Department has started an investigation of the Hopkins/Marilla Street industrial area.

The purpose of the investigation is to attempt to identify possible sources of PCB's as well as other toxic materials.

On October 14, 1982, this Department performed a preliminary site survey to identify potential concerns and land uses in the area.

DESCRIPTION OF AREA

Exhibit 1 shows the major areas which were checked in the field. Four major land uses were noted: recreational, vacant land, industrial and residential.

Area A is South Park which represents the recreational use. South Park consists of a golf course, playground, and swamp and brushland. Review of aerial photography for the years 1958, 1960, 1968, and 1972 indicate no change in land use. This would indicate that no potential for a source of toxic materials in the area exist.

Area B is presently vacant land, however, at one time the area was reportedly used as disposal area by the City of Buffalo. Review of aerial photo indicates no major disturbances, change in elevation or evidence of heavy equipment. In the past the area was a wetland and much of the area still remains so. Minor amounts of exposed non-putrescible waste are visible on site. This site was investigated by DEP in 1981. Based on the data available and on site observation the use of this area for hazardous waste has a very low probability.

Area C is also presently vacant land that was once used as a landfill area by Republic Steel. Landfilling in this area reportedly consisted of construction and demolition debris. This was confirmed by on-site observation. There is a minor increase in grade in the fill area. The area is now covered with upland vegetation. To the east of the fill area is an open water/ wooded wetland, to the north is a shrub/wooded wetland area, and a portion of the Hopkins Machine and Wrecking Co. Iron and Metal yards. There was no visible evidence of leachate, stained earth, odors, or dead vegetation. It is unlikely that hazardous materials have been disposed in this area.

Area D is an industrial land use and contains the Republic Steel Landfill (15S32). This landfill has accepted wastes such as precipitator dust, blast furnace dust, clarifer filter cake, various mill scale, slag, various debris and pickle liquors. Filter cake, scale, slag, and BOF blast furnace dusts are usually reclaimed and recycled. The engineering report indicates that in the past oil was used for dust control on the landfill roads. The

engineering report also indicates that boring logs indicated a hardened slag stratum directly beneath the designated freshwater wetlands in the southwest corner of the property, indicating fill activities have taken place prior to Republic operations. A groundwater monitoring problem has taken place at this landfill - PCB's were not tested. The known materials landfilled at this site are not classified hazardous. There is the possibility the waste oils used for dust control may be contained PCB's and aromatics. Aerial photos for 1958, 1960, 1968 and 1972 show extensive modification of the landfill site (change to grade and roads location). Republic Steel is no longer in operation.

Area E is an industrial area which consists of "Hurwitz Bros. Iron and Metal, Inc," 267 Marilla Street. On October 21, 1982, DEP representatives met with Michael Davis of Hurwitz Bros. and toured the facility. Hurwitz Bros. mainly run a ferrous metal salvage yard. Business started in 1927. During the inspection various large piles of scrap iron and steel were noted. Fifty-five gallon drums were observed on site, however, all were empty. Mr. Davis stressed that all drums are checked to ensure that no material is inside prior to their being accepted. No old transformers were observed on site. Mr. Davis indicated that the firm never accepted old transformers as they are not interested in recovering copper and that they are aware that transformers may have PCB's. No chemical or strong oil odors were noted on site. Only minor soil staining was observed in several areas. No ponding of oil contaminated water was noted. Any waste oil that is

generated on site (i.e. cutting oils, motor oils) is stored and picked up by Booth Oil. Mr. Davis stated that for the past several years they have used calcium carbonate or coherex for dust control. In the past, it was reported that water was used as road dust control. Aerial photos for 1958, 1960, 1968, and 1972 were reviewed. No major landfilling was observed.

Area F is an industrial land use which consists of "Hopkins Machine and Wrecking" (site owned by John Ranney 662-1373). This area would be more classified as a "junk yard." On site observations included old tractor trailers, tank trucks, scrap metal, 55 gallon drums (there are approximately 50 old drums which were labelled Sodium Cyanide - all appeared empty) and car parts. No odors were noted on site. Minor ground staining evident. Portions of the property are freshwater wetlands. Sections of the wetland have been and are being filled with stone, slag, concrete and earth. Aerial photography intrepretation indicates that activity in this area began between 1968 and 1972.

Area H is occupied by " AA-1 Auto Wrecking." Observation of site from Hopkins Street Bridge indicate normal junkyard conditions. Aerial photography interpretation (1958, 1960, 1968, 1972) indicated no landfilling in this area.

Area G was once occupied by "Getzo Products Manufacturing Chemists' This firm is out of business. It appears that a portion of this building is nov used as a car repair shop. At this time there is no further information about Getzo Products or what was made there. There has never been any records or evidence that waste was disposed of at this site.

Residential land uses occur north of survey area along Marilla St. and east of the survey area on Zoller, Nevilly and Nevilly C.T.E.

RECOMMENDATIONS

Prior to any soil sample program by Erie County the following should be done:

1) The NYSDEC TAGA Unit should return to the area and take additional samples to confirm the first sample results. The unit should take samples on a day that had similar wind speed and direction (on Sept. 27, the wind speed at 2:00 PM was 11 mph and came from the southwest). Samples should also be taken from the entire surrounding area. If positive results are found taking samples from several points around the Marilla/ Hopkins Street area may help to "home" in to any trouble spots. In addition, samples should be taken in several areas around South Buffalo to see what type of readings prevail. There is presently nothing to compare the Sept. 27, 1982, sample results with.

2) During the Summer of 1982, the U.S.G.S. took soil samples in both the Horwitz Bros. and the Hopkin Machine and Wrecking Co. properties. Six sampling sites were taken to try to define an alleged Allied Chemical Dump Site in the area (see Exhibit II). The results of these samples should be known prior to an Erie Count

DEP sampling program is started (seems sort of repetitive at this point).

3) The NYSDEC has hired a contractor to investigate the allege Allied Chemical Corp. site on Hopkins Street. The USEPA F.I.T. Contractor is currently preparing a mitre model for this site. It would seem advantageous to have an exchange of already gathered information and knowledge between DEP and DEC before additional sampling occurs.

However, if it is required that samples will be taken without coordination, the following are suggested:

1) There are no known or observed areas that appear to be contaminated, so a "scattergun" (or hit and miss) approach will hav to be used.

2) If the values of 1.57 ug/m^3 and 1.11 ug/m^3 are accurate, they would probably reflect a fairly close source of contamination rather than a source that would have been carried for some distance by the atmosphere to the September 27 sampling point. The source would probably be Southwest of the sample point so we could narrow our sampling to the Republic Steel Landfill (Area D), Hurwitz Bros. (E) and Hopkins Machine and Metal (F).

3) Sampling at Republic Steel would probably not be fruitful As previously mentioned, oils containing PCB's may have been used

to oil the roads, however, due to the extensive filling and change in topography in the area, there is no guarantee that any road sample taken now would reflect previous or older road bases which were more likely to have received oil as a dust control measure. Random sampling of soil material would not be representative of the contents of the landfill. The sampling should be area specific (i.e., field inspection and sampling of any suspicious areas). Unapproved or illegal dumping in this area is possible as it is now largely abandoned.

4) There are no obvious contaminated areas on the Hurwitz Property. Five to eight samples at various areas around the yard may be representative. Mr. Davis of Hurwitz has no objection to any sampling program.

5) The same situation as Hurwitz would apply to Hopkins Machine and Wrecking (however, extra checking of old tanker trailers may prove interesting). The owner indicated that the County would have to supply insurance forms before they will be allowed onto the property. Mr. Ranney is angry about the way NYSDEC handled the previous sampling program and feels he is being taken advantage of.

Sampling results may indicate two possible corrective strategies: 1) high values of contamination which will need corrective action, and 2) values that show some contamination but not to excess.

In either case further study will be required to find out:

1) If all salvage yards will be so contaminated.

2) The baseline for contamination in an industrial area.

3) When values obtained are a concern.

It seems that it all comes down to the need to perform a County-wide study (as had been proposed) to determine what is actually in the environment and possibly establish ambient levels of substances. In the long run this may prove to be a more effective way of controlling contaminants in the environment and put an end to our present crisis approach.

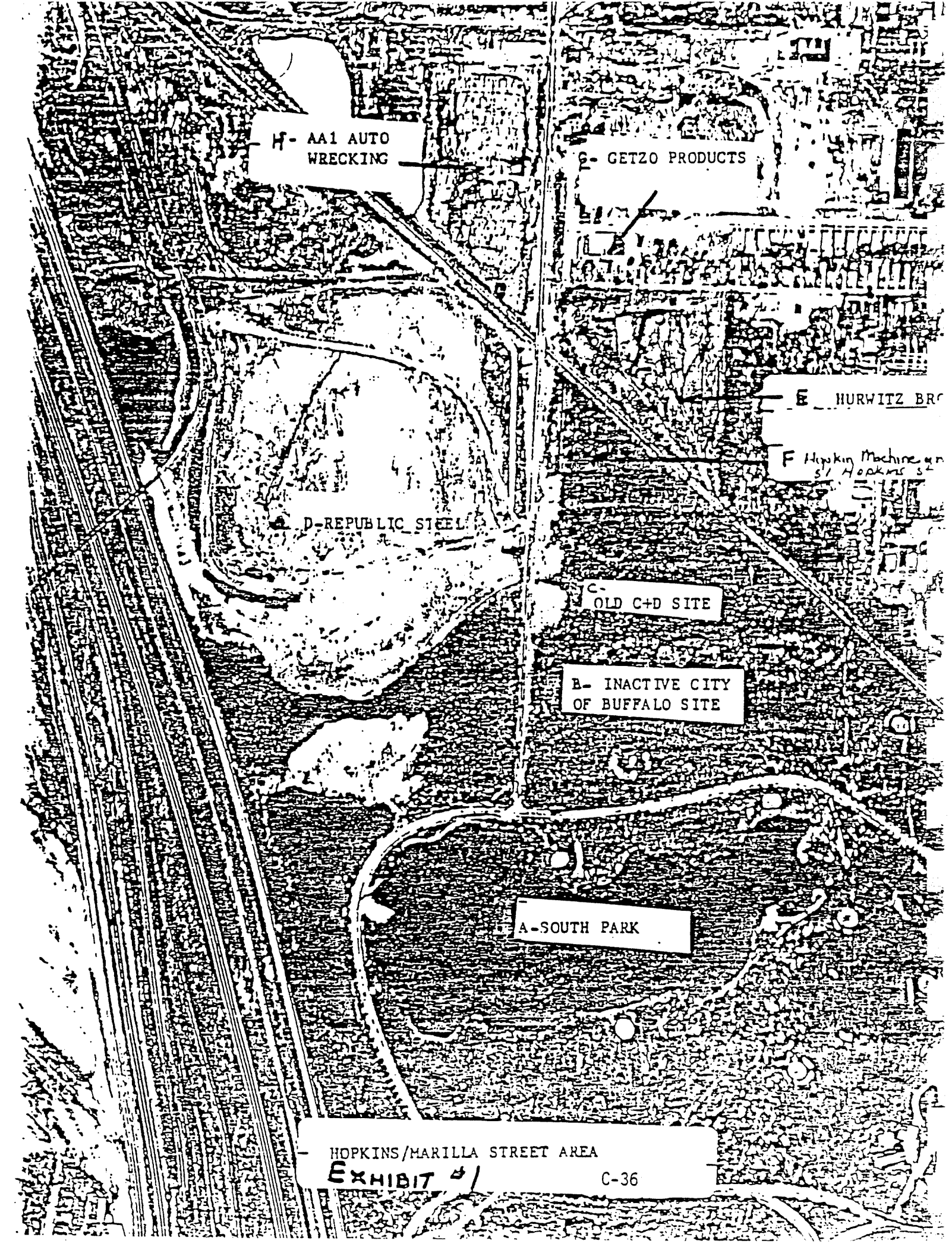

H- AA1 AUTO WRECKING
G- GETZO PRODUCTS
E HURWITZ BR
F Hopkins Machine on S. Hopkins St
D-REPUBLIC STEEL
C- OLD C+D SITE
B- INACTIVE CITY OF BUFFALO SITE
A-SOUTH PARK
HOPKINS/MARILLA STREET AREA

EXHIBIT 4/

SUSPECTED Allied Chem. dump site - Hopkins St, (

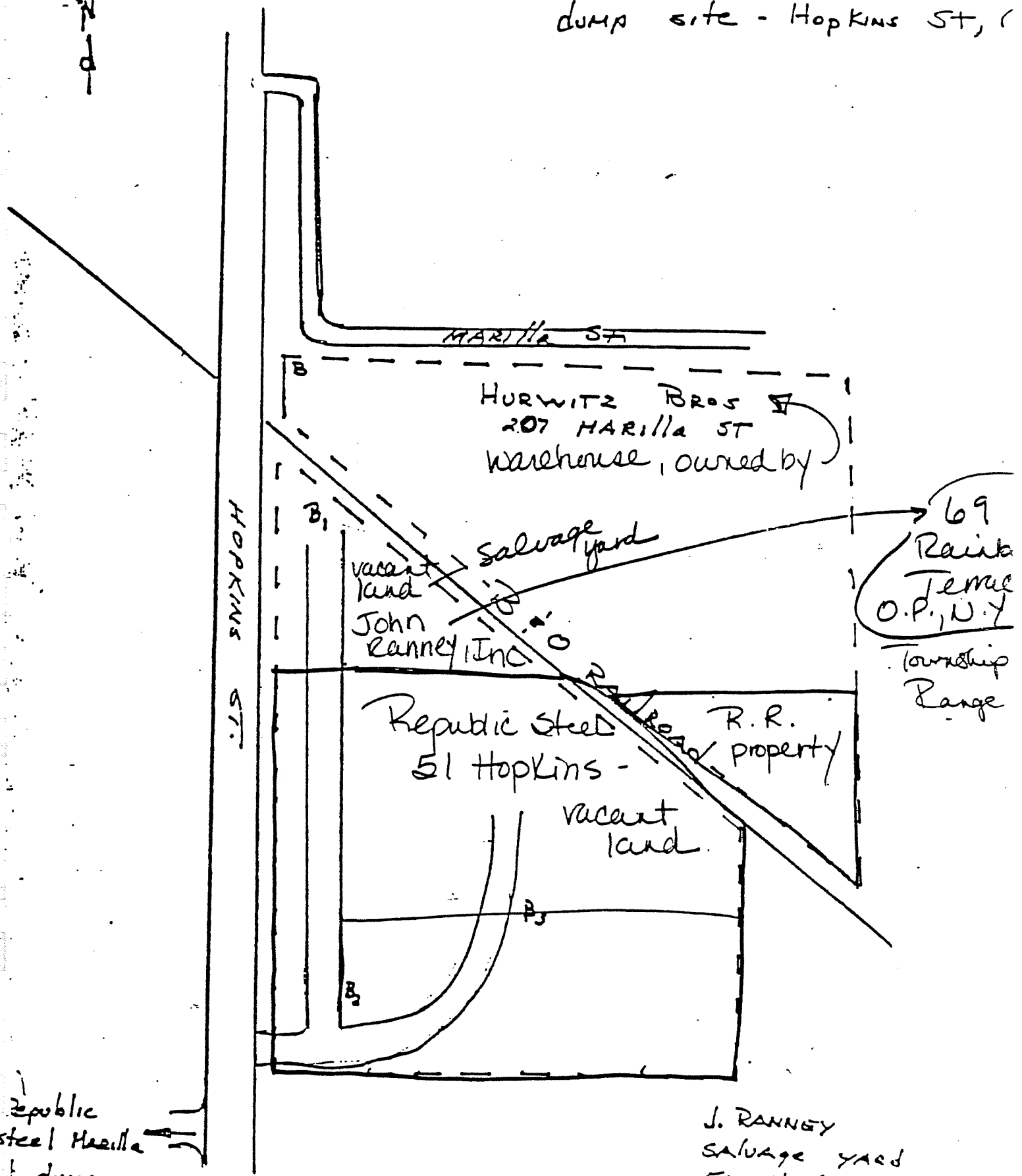


EXHIBIT 2

B - [illegible]

Document B-5

Ecology and Environment Correspondence
and Telephone Interview Documents.

TELEPHONE CONVERSATION MEMORANDUM

CLIENT	: NYDEC Phase I's	PROJECT NO.	: ND-2021
PROJECT	: 915011	DATE	: 07-08-87
CALL TO	: Dr. Sio Hong Mo, NYSDEC	TIME	: 1000
PHONE NO.	: 518-457-7454	REPRESENTING	: NYSDEC

SUMMARY OF CONVERSATION:

The TAGA Unit Study conducted by the NYSDEC in the Hopkins-Marilla Street area occurred on September 22, 1982, 2nd PCB's were detected. A follow-up study was conducted by the Erie County Department of Health which confirmed the findings.

The origin was thought to be the Horowitz Brothers Scrap Yard.

COPIES TO: 915011 file, report BY: A. Mark Sienkiewicz

INTERVIEW ACKNOWLEDGEMENT FORM

SITE NAME	:	I.D. NUMBER	:
PERSON CONTACTED	: Jack Gilbert Town Engineer	DATE	: 9/3/87
AFFILIATION	: Hamburg Water Dist.	PHONE NUMBER	: 649-6111
ADDRESS	: 5-6100 S. Park Ave., Hamburg, NY	CONTACT PERSON(S)	: P. Gunther
TYPE OF CONTACT	: Telephone		

INTERVIEW SUMMARY

Most everyone living in Blasdell and Hamburg utilizes ~~City of Buffalo municipal water.~~ water furnished by Erie County Water Authority The closest private well to either LSB Warehousing or Snyder Tank is a family residence at ~~the intersection of South Park Ave. and~~ 3742 Mile Strip Road.

ACKNOWLEDGEMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Signature: J J Gilbert Jr

Date: 9/2/87

CONTACT REPORT

TO	:	FRED MCKOSKY
FROM	:	A. M. SIENKIEWICZ
AGENCY	:	CITY OF BUFFALO, STREET LOT MAINTENANCE DEPARTMENT
PERSON CONTACTED	:	GERRY MILLIGAN AND BILL KENNEDY
PHONE NO.	:	(716) 855-5945
DATE	:	SEPTEMBER 25, 1987
RE	:	CITY OF BUFFALO-HOPKINS STREET 915011

Neither Gerry Milligan or Bill Kennedy knew of any dumping that occurred at the City of Buffalo - Hopkins Street site, The vegetation at the front of the site is regularly trimmed. Gerry Milligan has been with the City Lot Maintenance for 6 years and Bill Kennedy, foreman, has been with the city for two years.

The previous foreman was Ray Cooley who is now retired.

Ray Cooley was contacted. He was the foreman in 1980 and does not recall any dumping on the property.

db

Document B-6

USEPA, Preliminary Evaluation of Chemical Migration
to Groundwater and the Niagara River from
Selected Waste Disposal Sites, March 1985.

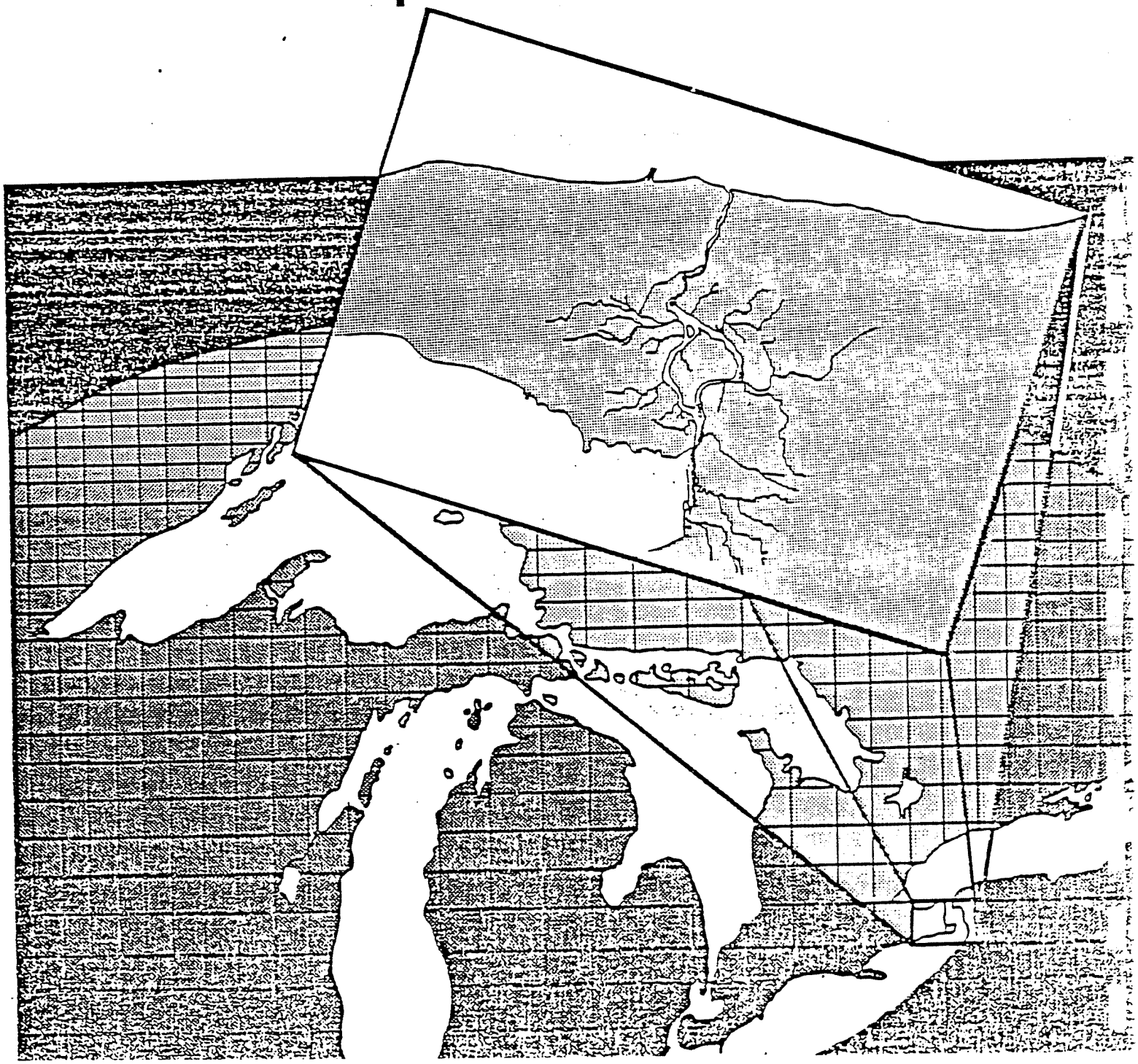
Environmental Protection
Agency

Program Office
536 South Clark Street
Chicago, Illinois 60605

March 1985

EPA

Preliminary Evaluation Of Chemical Migration To Groundwater and The Niagara River from Selected Waste-Disposal Sites



48. REPUBLIC STEEL (USGS field reconnaissance) NYSDEC 915047

General information and contaminant-migration potential.--The Republic Steel landfill, in the southern part of the city of Buffalo, has been used since 1930 for disposal and storage of precipitator dust, clarifier sludge, railroad ties, checker bricks, scrap wood, roll scale, blast-furnace dust, BOF brick, refuse, and miscellaneous debris.

Geologic and preliminary chemical data collected by the U.S. Geological Survey indicate a limited potential for contaminant migration. One water sample indicates contamination by ethylbenzene and phenol. The potential for contaminant migration is indeterminable.

Geologic information.--The site is underlain by a layer of lacustrine sediments ranging in thickness from 8 to more than 20 ft overlying a dense silty till that overlies shale bedrock.

Hydrologic information.--Water levels in five deep monitoring wells during August 1979 and February 1982 are shown in table A-12. The potentiometric surface at those times is depicted in figure A-11; both maps show the general direction of ground-water flow to be westward toward the Niagara River.

Chemical information.--The U.S. Geological Survey collected six ground-water samples from two shallow wells and from four deep wells on the site and a surface-water sample from a drainage ditch. All ground-water samples were analyzed for USEPA priority pollutants; results are given in table A-13. Concentrations of iron in the samples were higher than the USEPA criterion for drinking water or the New York State standard for ground water. Lead was higher than the New York State standard in all samples, and manganese in sample 3A was higher than the standard. Phenol in sample 2A was much higher than the State standard. The samples contained two organic priority pollutants, six organic nonpriority pollutants, and three organic compounds potentially of natural origin.

Table A-12.--Water levels in five deep monitoring wells on Republic Steel, site 148, Buffalo, N.Y.[1]
[Well locations are shown in fig. A-11.]

Well number	Water level (feet above sea level)	
	August 1979	February 1982
1	dry	dry
2	579.56	dry
3	580.49	581.57
4	dry	579.93
5	583.10	582.86

[1] August 1979 data from McPhee, Smith, Rosenstein Engineers, P.C. February 1982 data from Malcolm Pirnie Associates.

Table A-13.--Analyses of ground-water and surface-water samples from Republic Steel, site 148, Buffalo, N.Y., July 22-23, 1982.
[Locations shown in fig. A-11. Concentrations are in µg/L; dashe indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)			
	Surface water	Ground water		
	1	2 (24.8)	2A (4.3)	3A (14.9)
pH	7.8	9.2	11.4	8.0
Specific conductance (umho/cm)	1,430	608	2,125	900
Temperature (°C)	27.0	10.2	17.0	10.5
Inorganic constituents				
Aluminum	—	357	662	—
Antimony	—	—	--	--
Arsenic	--	—	14†	--
Barium	224	—	--	532
Beryllium	--	—	--	--
Cadmium	—	—	--	--
Chromium	30	17	37	46
Cobalt	—	—	--	--
Copper	--	--	--	--
Iron	373†	1,080†	829†	2,220†
Lead	53†	51†	36†	40†
Manganese	24	90	72	1,000†
Mercury	—	—	--	--
Nickel	--	—	--	--
Selenium	—	—	--	--
Silver	—	—	--	--
Tin	—	—	--	—
Tellurium	--	—	--	--
Vanadium	—	—	--	—
Zinc	—	26	18	46
Organic compounds				
Priority pollutants				
Ethylbenzene**	—	—	LT	—
Phenol	—	—	40†	—

[1] Tentative identification based on comparison with the National Bureau of Standards (NBS) library. No external standard was available. Concentration reported is semiquantitative and is based only on an internal standard. GC/MS spectra were examined and interpreted by GC/MS analysts.

† Exceeds USEPA criterion for maximum permissible concentration in drinking water or the NYS standard for maximum concentration in ground water.

** Volatile found in GC/MS extractions. Concentration probably higher than that detected.

Table A-13.--Analyses of ground-water and surface-water samples from Republic Steel, site 148, Buffalo N.Y., July 22-23, 1982 (continued)
[Locations shown in fig. A-11. Concentrations are in µg/L; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)			
	Surface water	Ground water		
	1	2 (24.8)	2A (4.3)	3A (14.9)
Organic compounds (continued)				
Nonpriority pollutants				
2,3-Dichloro-2-methyl butane[1]	LT	14	—	—
1,3-Dimethylbenzene[1]	—	24	—	20
3-Hexanol[1]	—	24	—	—
4-Methyl-2-pentanol[1]	—	13	—	—
1-(2-butoxyethoxy)-ethanol[1]	52	370	—	650

	Ground water		
	4 (19.7)	5 (17.7)	5A (4.6)
pH	11.2	7.5	7
Specific conductance (umho/cm)	710	1,025	3,625
Temperature (°C)	10.0	10.5	14.5
Inorganic constituents			
Aluminum	--	—	--
Antimony	--	—	--
Arsenic	—	—	--
Barium	158	—	--
Beryllium	--	—	--
Cadmium	—	—	4
Chromium	39	52	37
Cobalt	—	—	--
Copper	--	—	—
Iron	264	276,000†	23,400†
Lead	20	17	19
Manganese	26	574†	8,520†
Mercury	--	—	--
Nickel	—	—	--
Selenium	--	—	—
Silver	—	—	--
Tin	--	—	--
Tullerium	--	—	—
Vanadium	--	--	--
Zinc	--	17	33

Table A-13.--Analyses of ground-water and surface-water samples from Republic Steel, site 148, Buffalo N.Y., July 22-23, 1982 (continued)
[Locations shown in fig. A-11. Concentrations are in µg/L; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)		
	Ground water		
	4 (19.7)	5 (17.7)	5A (4.6)
Organic compounds			
Nonpriority pollutants			
1,3-Dimethylbenzene[1]	—	5.6	—
Cyclohexanol[1]	16	LT	—
Hexahydro-2H-azepho-2-one[1]	25	—	—
1-(2-butoxyethoxy)-ethanol[1]	—	150	—
Cyclohexanone[1]	78	—	—
2-Hexanone[1]	--	LT	--

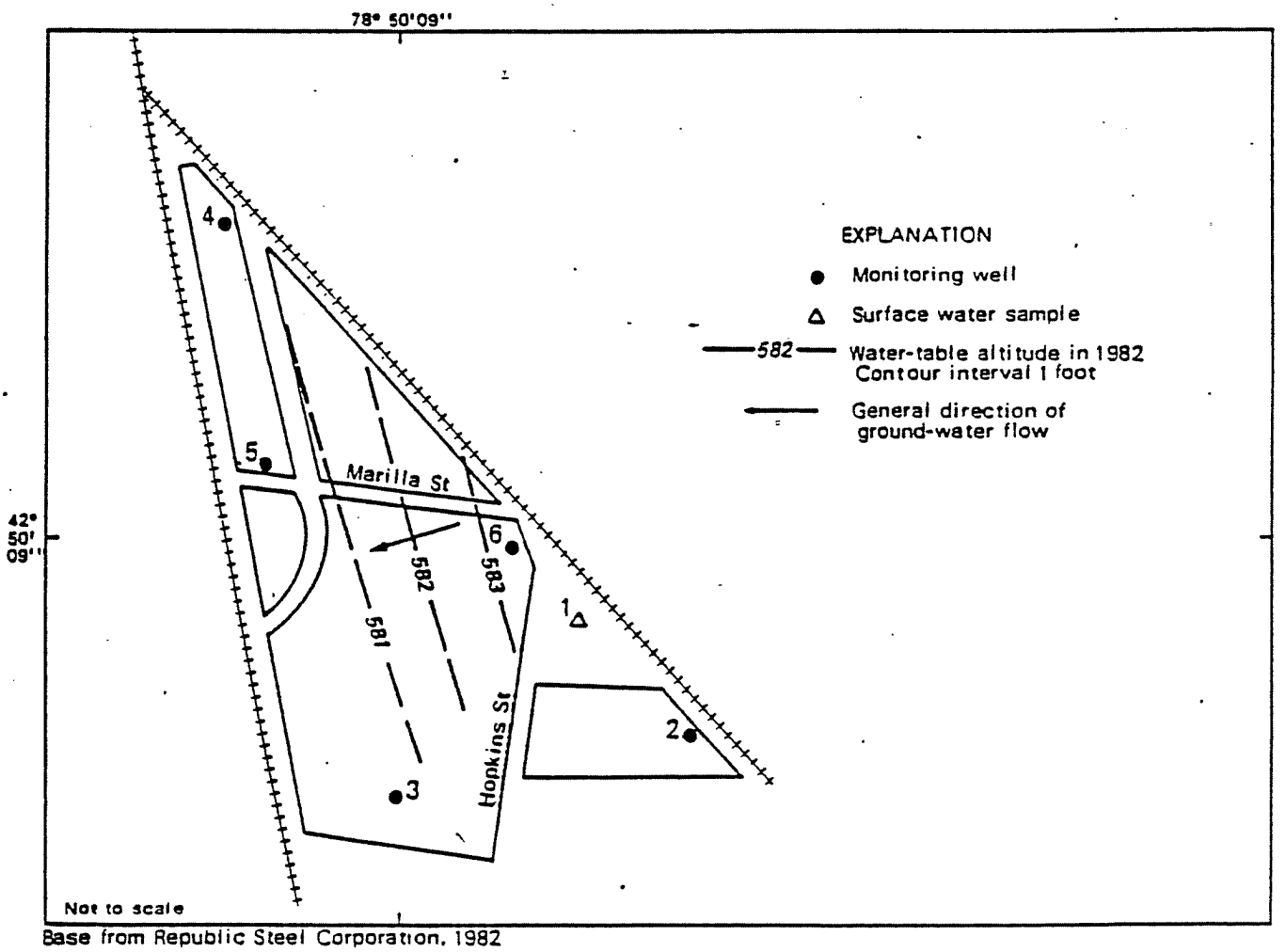


Figure A-11. Potentiometric surface and location of sampling holes at Republic Steel, site 148, Buffalo, August 1979 and February 1982.

162. ALLTIFT LANDFILL (Literature review) NYSDEC 915054

General information and contaminant-migration potential.--The Alltift Landfill, a 25-acre area south of the city of Buffalo, has been a disposal site since the 1950's. From the 1950's to the early 1970's, the site was used to dispose of bulk loads of dye, oil sludges, phenolic compounds, chrome sludge, copper sulfate, nitrobenzene, monochlorobenzene, and naphthalene. The amount of material deposited is unknown.

The landfill was inactive from the early 1970's to the late 1970's. Since then it has been used for the disposal of auto-demolition shredder waste, core sands, fly ash, and sand waste at a rate of 40,000 to 60,000 yd^3/yr. The disposal area is now in the northern third of the site (fig. A-12).

Chemical data suggest that inorganic contaminants are migrating through the clay unit. The concentration of phenols, arsenic, mercury, chlorides, and sulfates in the zone above the clay greatly exceed ground-water standards; therefore, the potential for contaminant migration would become major if the contaminants were to move through the clay and into the lower aquifer.

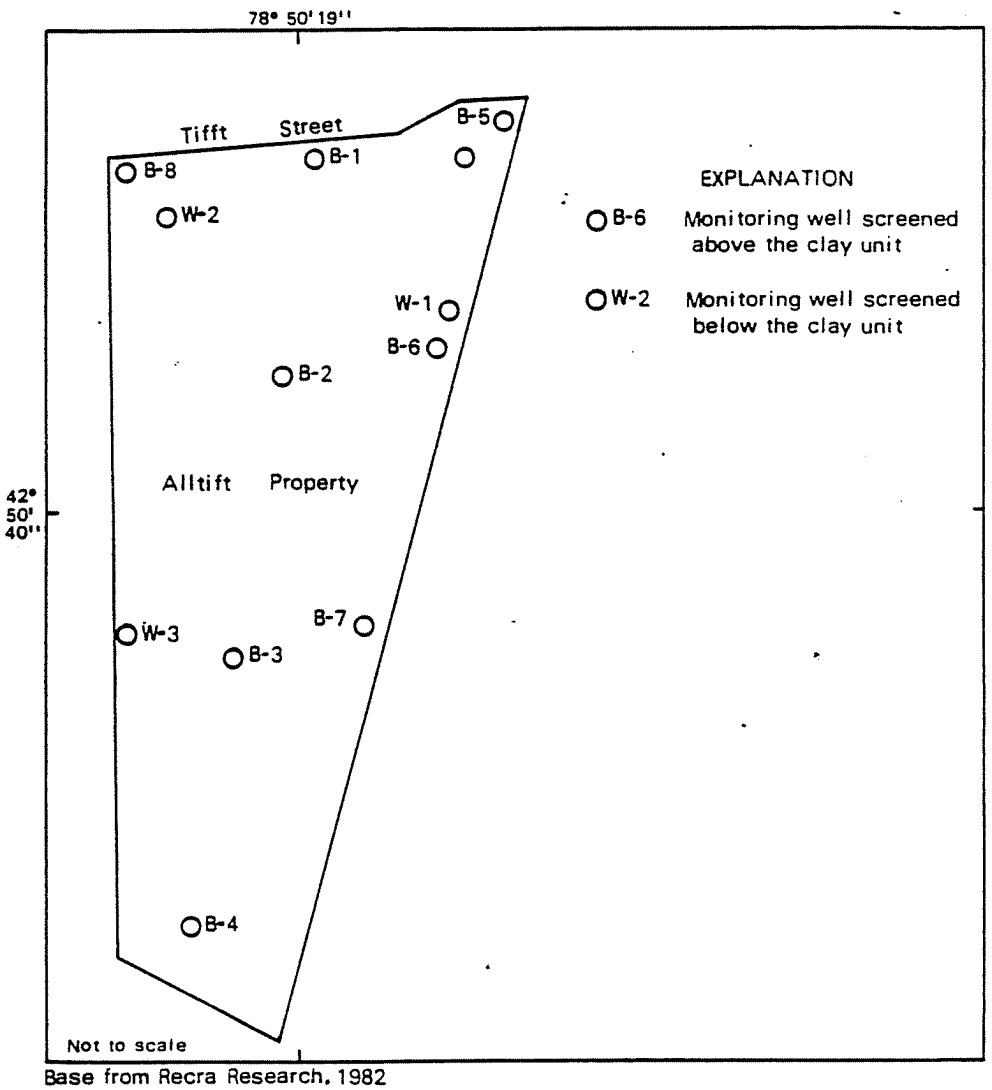


Figure A-12. Location of sampling holes at Alltift Landfill, site 162, Buffalo.

Geologic information.--The site consists of alluvium and fill of recent age underlain by till and lacustrine clay, which are in turn underlain by limestone and shale of Devonian age. Two consulting reports--Wehran Engineering and Recra Research (1978) and Recra Research (1982)--discuss these units in detail and include geologic cross sections. A generalized geologic column is shown in figure A-13.

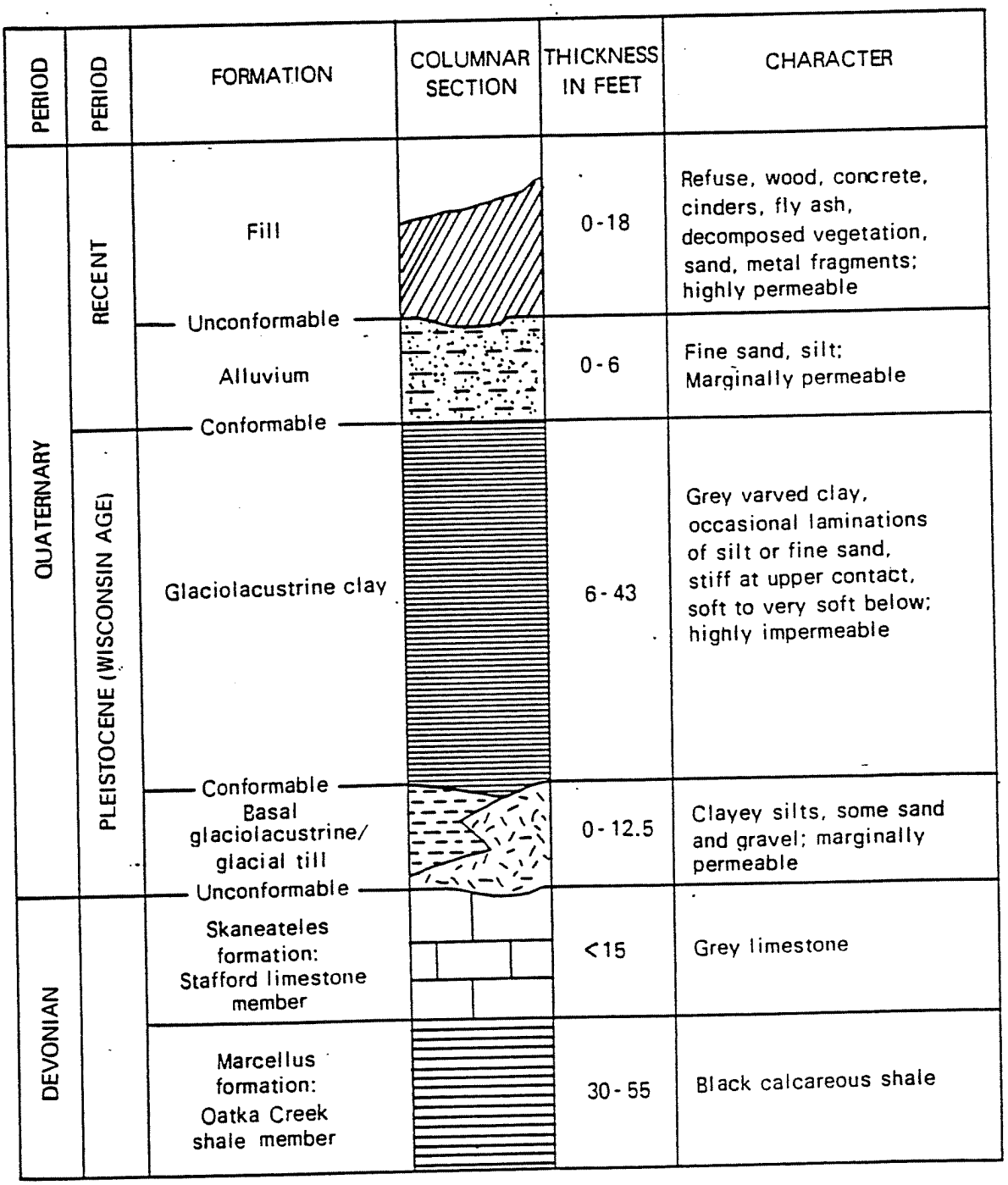


Figure A-13. Generalized geologic column of formations underlying the Alltift Landfill, site 162, Buffalo. (Site location is shown in fig. A-12. Modified from Recra Research, Inc., 1982.)

Hydrologic information.--A water-table map of the shallow fill and alluvium by Wehran and Recra (1978) indicates a ground-water mound near the eastern boundary of the site. Water levels in the eight borings used to construct the map ranged from 580.8 to 584.8 ft above NGVD. This mound is probably the result of the relatively impermeable glaciolacustrine clay, which inhibits vertical flow and causes water infiltrating from the surface soils and alluvium to move laterally away from the site.

Permeability tests on two samples of the glaciolacustrine clay by Wehran and Recra (1978) indicated permeabilities of 5.8×10^{-8} cm/s and 6.4×10^{-8} cm/s. The report concluded that the permeability of the clay was sufficiently low to prevent vertical migration of contaminants from the upper unconsolidated water-bearing zone to the lower aquifers.

In 1982, the site owner drilled four borings to the upper part of the bedrock aquifer, collected water-level data, and constructed a potentiometric-contour map. The potentiometric surface slopes gently northward and ranges from 576.3 ft to a low of 574.9 ft above NGVD. Comparison of the water-table and potentiometric-surface maps indicates that the heads beneath the clay are lower and that a vertical flow component is present; however, the rate of movement through the unit would be slow. Additional data would be needed to define the vertical ground-water gradients at the site.

Chemical information.--In 1978, the site owner collected seven ground-water samples from wells screened above the glaciolacustrine clay for inorganic constituent analysis; results are given in table A-14.

In 1982, the site owner drilled four wells screened below the clay and collected water samples for chemical analysis. Well locations are shown in fig. A-12. The samples were analyzed by Recra Research; results are given in table A-15.

Sources of data

Wehran Engineering and Recra Research, Inc., 1978, Hydrogeological investigation of Alltift Landfill, Buffalo, N.Y.: 50 p., 1 appendix, 2 maps, 5 figs., 10 tables.

Recra Research Inc. and Sodarholm Engineering, 1980, Part 360 application for permit to operate a solid waste management facility; Buffalo, N.Y.: Alltift Company, Inc., 22 p., 1 appendix.

Recra Research Inc., 1982, Supplemental hydrogeological investigation, Buffalo, N.Y.: Alltift Company, Inc., 17 p., 1 appendix, 3 tables, 1 fig., 3 prints.

Table A-14.—Analyses of ground-water samples from wells screened above glaciolacustrine clay at the Alltift landfill, site 162, Buffalo, N.Y., July 1978[1]

[Locations shown in fig. A-13. Concentrations are in µg/L except as indicated. NV indicates that value was not reported.]

Constituent or characteristic	Sample number			
	B1	B2	B4	B5
pH	7.28	7.47	6.43	7.10
Specific conductance (µmho/cm at 25°C)	6,000	21,000	11,000	4,000
Dissolved oxygen	5,800	4,300	7,200	4,200
Biochemical oxygen demand, 5-day	359,000	7,020,000	96,500	242,000
Chemical oxygen demand	489,000	2,580,000	593,000	291,000
Coliform, total (organisms/100mL)	130	24,000	230	130
Ammonia, as nitrogen	77,600	1,930,000	73,9000	61,200
Nitrate, as nitrogen	<100	<500	<500	120
Nitrite, as nitrogen	50	50	50	80
Total kjedahl nitrogen, as nitrogen	91,900	1,490,000	106,000	69,200
Phosphate, total (as phosphorous)	556	1,290	44	86
Sulfate	86,300	441,000	2,660,000	387,000
Detergent (Methylene blue active substances	160	50	190	150
Phenols	37	696	50	20
Alkalinity as $CaCO_3$	2,280,000	8,270,000	915,000	1,530,000
Total solids	4,410,000	30,000,000	9,590,000	2,990,000
Color (platinum-cobalt units)	500	NV	200	150
Hardness, total	665,000	1,250,000	2,260,000	665,000
Chlorides	3,630,000	8,450,000	3,880,000	730,000
Total organic carbon	950,000	1,400,000	313,000	110,000
Total halogenated hydrocarbons, as Cl	8.42	38.4	1.32	1.2
PCB	<1.0	<1.0	<1.0	<1.0
Aluminum, total	260	50	240	60
Arsenic, total	6.3	131	<4	5.1
Chromium, total	14	546	<3	10
Chromium, hexavalent	<10	40	<10	<10
Copper, total	<3	26	15	210
Lead, total	<30	<30	<30	<30
Mercury, total	<1.3	3.8	<1.3	<1.3
Potassium, total	98,000	908,000	146,000	118,000
Sodium, total	1,060,000	3,080,000	2,020,000	840,000
Calcium, total	214,000	54,000	760,000	146,000
Silver, total	<2	<2	<2	<2
Iron, total	280	2,430	5,080	160

[1] Data from Wehran Engineering and Recra Research, 1978.

Table A-14.--Analyses of ground-water samples from wells screened above glaciolacustrine clay at the Alltift landfill, site 162, Buffalo, N.Y., July 1978[1] (continued)
[Locations shown in fig. A-13. Concentrations are in µg/L except as indicated. NV indicates that value was not reported.)

Constituent or characteristic	Sample number		
	B6	B7	B8
pH	7.34	8.00	7.70
Specific conductance (25°C) (µmho/cm)	5,400	7,900	6,000
Dissolved oxygen	6,200	NV	NV
Biochemical oxygen demand, 5-day	605,000	NV	NV
Chemical oxygen demand	379,000	780,000	499,000
Coliform, total (organisms/100mL)	24,000,000	NV	NV
Ammonia, as nitrogen	107,000	259,000	113,000
Nitrate, as nitrogen	<100	<100	<100
Nitrite, as nitrogen	50	70	120
Total kjedahl nitrogen, as nitrogen	125,000	NV	NV
Phosphate, total (as phosphorus)	130	NV	44
Sulfate	240,000	NV	299,000
Detergent (Methylene blue active substances	30	NV	30
Phenols	30	89	71
Alkalinity as $CaCO_3$	1,760,000	2,250,000	2,390,000
Total solids	4,950,000	6,100,000	6,100,000
Color (platinum-cobalt units)	200	NV	700
Hardness, total	594,000	NV	536,000
Chlorides	1,010,000	2,070,000	1,430,000
Total organic carbon	488,000	NV	538,000
Total halogenated hydrocarbons, as Cl	3.33	NV	NV
PCB	<1.0	NV	NV
Aluminum, total	<30	<30	40
Arsenic, total	21.3	15.4	12.2
Chromium, total	6	16	12
Chromium, hexavalent	<10	10	10
Copper, total	5	10	14
Lead, total	<30	<30	<30
Mercury, total	<1.3	10.7	NV
Potassium, total	128,000	182,000	118,000
Sodium, total	1,140,000	1,560,000	1,300,000
Calcium, total	190,000	56,000	18,000
Silver, total	<2	<4	3
Iron, total	30	460	20

[1] Data from Wehran Engineering and Recra Research, 1978.

Table A-15.--Analyses of ground-water samples from four wells screened bel / glaciolacustrine clay at Alltift landfill, site 162, Buffalo, N.Y, May 1982[1]

[Locations are shown in fig. A-13. Concentrations are in µg/l unless otherwise indicated; LT indicates constituent or compo was found but below quantifiable detection limit.]

Characteristic	Sample number			
	W-1	W-2	W-3	W-4
Ammonia, as nitrogen	2,500	950	740	2,100
Nitrate, as nitrogen	<50	120	<50	170
Biochemical oxygen demand, 5-day	10,000	6,000	<5,000	<5,000
Chemical oxygen demand	16,000	24,000	11,000	23,000
Total kjedahl nitrogen, as N	4,400	2,200	1,700	2,800
Sulfate	29,000	52,000	45,000	54,000
Methylene blue active substances	29	<20	72	160
Total recoverable phenolics	<10	<10	<10	<10
Alkalinity (pH 4.5), as $CaCO_3$	590,000	310,000	350,000	700,000
Total filterable residue (180°C)	1,000,000	480,000	540,000	890,000
pH	7.73	8.11	7.99	12.31
True color (Platinum-cobalt units)	15	15	17.5	2.5
Total hardness, as $CaCO_3$	390,000	250,000	270,000	451,000
Chloride	260,000	88,000	83,000	88,000
Odor (Threshold odor number)	1.8	3.2	9.0	1.4
Specific conductance (µmho/cm at 25°C)	1,780	820	822	2,990
Total organic carbon	5,000	4,500	2,500	9,000
Coliform, total (organisms/100mL)	<3	<3	<3	<3
Aluminum, total	4,300	7,300	2,000	2,200
Arsenic, total	LT	LT	LT	LT
Chromium, total	40	50	64	40
Chromium, hexavalent	6	12	8	LT
Cadmium, total	LT	LT	LT	LT
Zinc, total	1,100	803	1,400	109
Selenium, total	LT	LT	LT	LT
Copper, total	100	38	22	40
Lead, total	30	LT	LT	LT
Mercury, total	LT	LT	LT	LT
Sodium, total	540,000	150,000	14,000	18,000
Calcium, total	68,000	46,000	28,000	170,000
Silver, total	LT	LT	LT	LT
Manganese, total	220	230	200	160
Iron, total	88,000	28,000	35,000	54,000
Nitrogen-phosphorus scan (µg/L as nitrogen; N,N'-dimethylaniline standard)	LT	LT	LT	LT

[1] Data from Recra Research (1982).

173. EMPIRE WASTE (USGS field reconnaissance) NYSDEC 915065

General information and contaminant-migration potential.--The Empire Waste site, in the northern part of the city of Buffalo, was used for storing sand and slag for resale and also received slag from a metal-castings firm in 1977. The concentrations of copper and zinc in substrates were higher than those in samples collected from undisturbed soils not affected by disposal sites. The potential for contaminant migration is indeterminable.

Geologic information.--The U.S. Geological Survey drilled four test borings on the site; the locations are shown in fig. A-14. The geologic logs are as follows:

Boring no.	Depth (ft)	Description
1	0 - 4.0	Fill, tannish, then black.
	4 - 6.0	Clay, reddish, discolored. to bluish by overlying fill. SAMPLE: 4 ft.
2	0 - 2.5	Topsoil.
	2.5 - 6.5	Clay, reddish, discolored. SAMPLE: 5.0 ft.
3	0 - 1.5	Topsoil, mixed.
	1.5 - 2.5	Black organic wet dirt.
	2.5 - 5.5	Clay, reddish, dry.
	5.5 - 6.5	Clay, greenish, wet. SAMPLE: 5.5 ft.
4	0 - 3.5	Topsoil, becoming black.
	3.5 - 5.5	Organic dirt, black, wet.
	5.5 - 6.5	Clay, greenish. SAMPLE: 5.5 ft.

Hydrologic information.--No hydrologic data were obtained from the site except for moist material encountered between 3.5 and 5.5 ft at an altitude of 595 ft above NGVD.

Chemical information.--The U.S. Geological Survey collected a substrate sample at each borehole for arsenic, cadmium, chromium, copper, iron, lead, mecury, and zinc analyses; results are given in table A-16. The substrate samples had higher concentrations of copper and zinc than samples from the undisturbed areas.

Table A-16.--Analyses of substrate samples from Empire Waste, site 173, Buffalo N.Y., July 30, 1982.
[Locations shown in fig. A-14. Concentrations are in µg/kg; dashes indicate that constituent or compound was not found.]

	Sample number and depth below land surface (ft)			
	1 (4.0)	2 (5.0)	3 (5.5)	4 (5.5)
Inorganic constituents				
Arsenic	--	--	--	--
Cadmium	1,000	--	1,000	--
Chromium	6,000	4,000	4,000	4,000
Copper	90,000††	17,000	95,000††	41,000†
Iron	23,000,000	13,000,000	17,000,000	38,000,000
Lead	30,000	20,000	100,000	40,000
Mercury	--	--	--	--
Zinc	170,000††	40,000	74,000	39,000

†† Exceeds concentrations in samples taken from undisturbed soils in the Buffalo area. Undisturbed soils were not analyzed for iron.

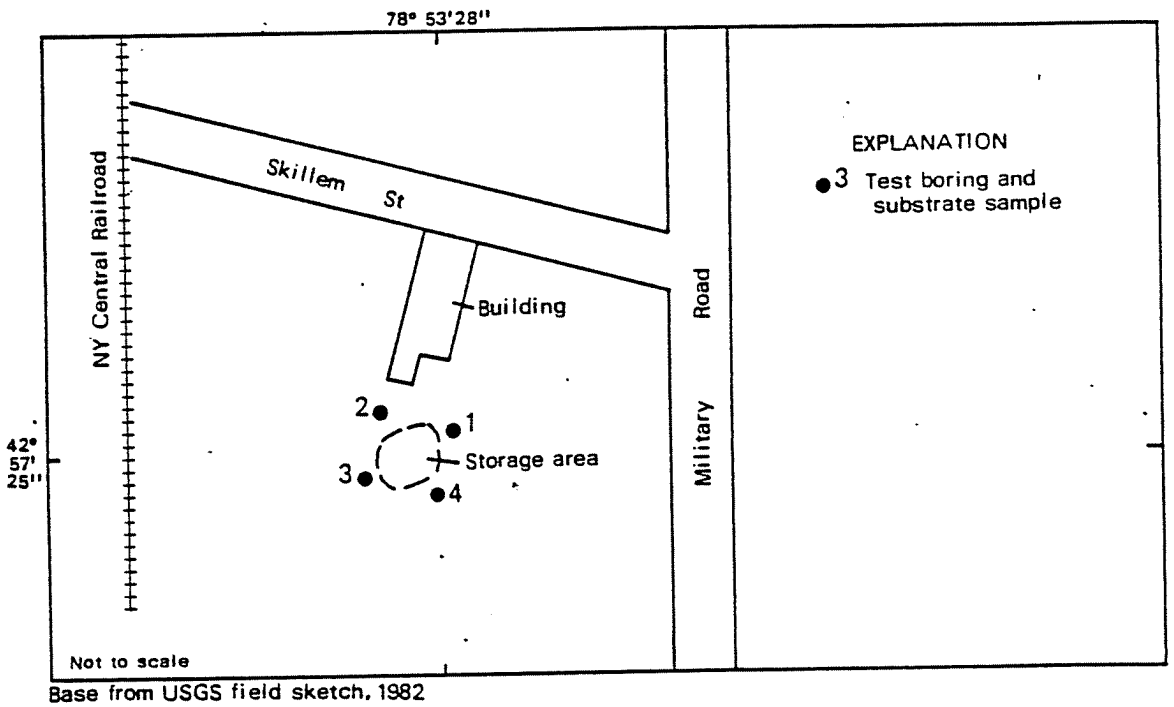


Figure A-14. Location of sampling holes at Empire Waste, site 173, Buffalo.

180. HOPKINS STREET (Literature review) NYSDEC 915011

General information and contaminant-migration potential.--The Hopkins Street site, in the city of Buffalo, is reported to have been used as a landfill in the early and mid-1970's. Aerial photographs from these years indicate disposal operations to have been small and to have caused no major changes in the physical setting of the site.

No chemical monitoring has been recommended by NYSDEC, and the potential for chemical migration is indeterminable.

Geologic information.--No geologic data are available.

Hydrologic information.--No ground-water data are available. However, comparison of aerial photographs from past years with 1982 field observations indicates a change in drainage and grade; also a pond has formed on the site. The pond is probably perched upon fill or material of low permeability and does not reflect ground-water conditions.

Chemical information.--No chemical data are available.

184. KELLY ISLAND (Literature review) NYSDEC 915095

General information and contaminant-migration potential.--Kelly Island is a peninsula bounded by the Buffalo River, City Ship Canal, and Ohio Street. Most of the fill consists of demolition material, earth, and cinders. The area was extensively developed before the early 1900's, leaving little room for hazardous-waste-disposal operations.

The site is in direct hydraulic contact with the Buffalo River and the City Ship Canal; thus contaminants, if present, would migrate readily. However, no hazardous waste is known to have been buried at the site; therefore, NYSDEC has not recommended chemical monitoring. The potential for contaminant migration from this site is indeterminable.

Geologic information.--Construction borings from along Ganson Street (pl. 1) indicated a mixture of gravel, sand, silt, clay, cinders, and wood to a depth of 10 ft along the length of the site.

Hydrologic information.--No hydrologic data are available.

Chemical information.--No chemical data are available.

249. ALLIED CHEMICAL (HURWITZ-RANNE) HOPKINS STREET NYSDEC 91512
(USGS field reconnaissance)

General information and chemical-migration potential.--The Hopkins Street site in the southern part of the city of Buffalo, consists of two parcels of land having different owners. Site information indicates that neither area was u e for disposal or lagooning, but NYSDEC received information that burial trenche had been operated on both areas.

Geologic data indicate a limited potential for contaminant migration from the northern property. Vertical migration of contaminants on the southern pro erty is unlikely because the site is underlain by clay. Organic priority po l tants and a high chromium concentration suggest a possibility of contaminant migration, but the potential is indeterminable at this time.

Geologic information.--The two sites consist of 3 to 4 ft of fill and debris underlain by extensive clay. The U.S. Geological Survey drilled six test hole in August 1982 and another six in May 1983. Locations are shown in figure A 2 The geologic logs are as follows:

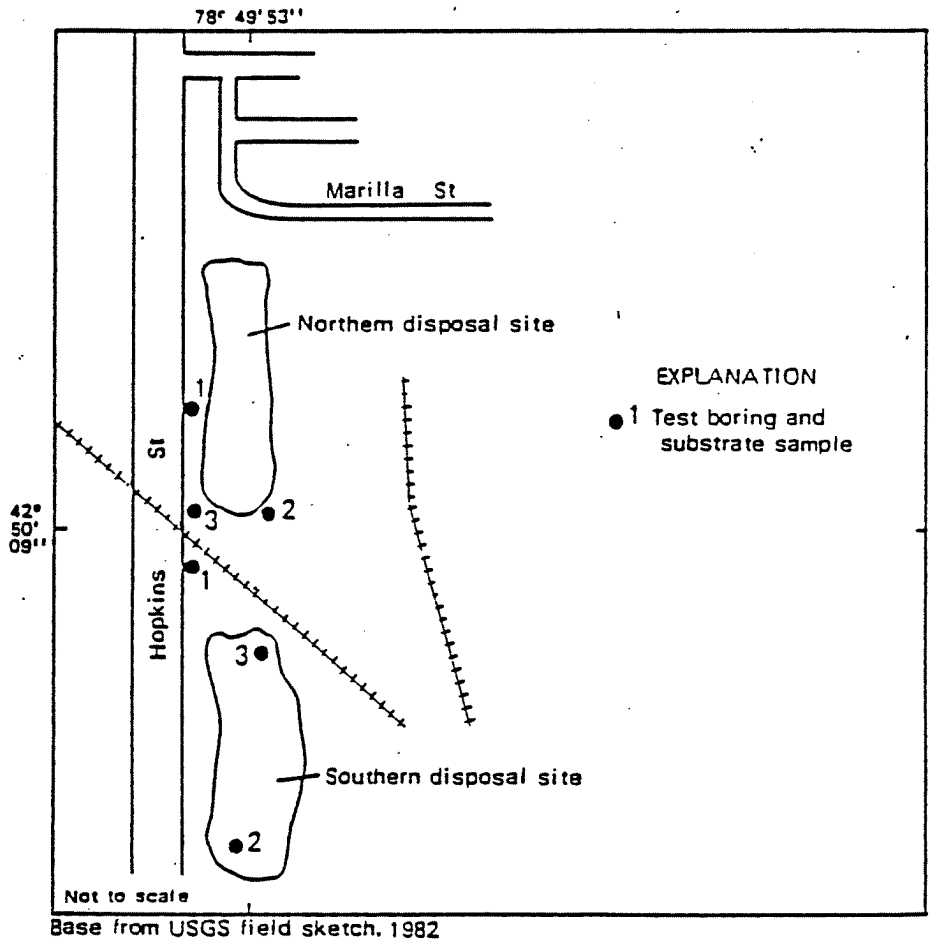


Figure A-23. Location of sampling holes at Allied Chemical, Hurwitz-Ranne Hopkins Street, site 249, Buffalo.

South Property

Boring no.	Depth (ft)	Description
1	0 - 3.5	Topsoil, dark brown.
	3.5 - 4.0	Clay, sand, with oily fluid.
		SAMPLE: 3.5 ft.
2	0 - 3.0	Fill, slag.
	3.0 - 5.0	Clay, dark green to yellow, wet.
		SAMPLE: 4 ft.
3	0 - 2.5	Topsoil, gray, gravel, turning. green at 1.0 ft.
	2.5 - 3.0	Clay, greenish, gray.
		SAMPLE: 2.5 ft.

North Property

Boring no.	Depth (ft)	Description
1	0 - 2.5	Topsoil and fill.
	2.5 - 3.0	Clay, green, tight.
	3.0 - 4.0	Clay, greenish-gray, wet.
		SAMPLE: 3 ft.
2	0 - 4.0	Fill, debris.
	4.0 - 5.0	Clay, green, wet.
	5.0 - 6.5	Clay, yellow, wet.
		SAMPLE: 4 ft.
3	0 - 3.0	Fill, debris, black.
	3.0 - 3.5	Hard zone, rock, and gravel.
	3.5 - 4.5	Clay, green, wet.
	4.5 - 6.5	Clay, yellow.
		SAMPLE: 3.5 ft.

Hydrologic information.--Test-boring data indicate a perched water table within the clay unit 3 to 4 ft below land surface. The altitude of this water table is approximately 580 ft above NGVD.

Chemical information.--The U.S. Geological Survey collected a soil sample from each test boring for chromium, iron, and organic compound analysis; results are given in table A-26. The samples contained 28 organic priority pollutants. The Erie County Department of Environment and Planning sampled the site; PCB's were detected in surface soils.

Table A-26.--Analyses of substrate samples from Allied Chemical (Hurwitz-Ranne) site 249, Hopkins Street, Buffalo, N.Y.

[Locations shown in fig. A-23. Concentrations are in µg/kg; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)		
	North Property		
	1	2	3
First sampling (8-11-82)	(3.0)	(4.0)	(3.5)
Inorganic constituents			
Chromium	30,000	180,000††	340,000††
Iron	10,000,000	28,000,000	29,000,000

	South Property			
	1 (3.5)	Duplicate sample	2 (4.0)	3 (2.5)
Chromium	30,000	(20,000)	180,000††	3,000
Iron	10,000,000	(10,000,000)	21,000,000	3,700,000

	Sample number (depths are same as in first sampling)					
	North Property			South Property		
Second sampling (5-18-83)	1A	2A	3A	1A	2A	3A
Organic compounds						
Priority pollutants						
Benzene	LT	19.1**	22.6	3.4	27.9	10.6
Methylene chloride	--	314**	538	--	313	--
Toluene	--	--	LT	--	2.8	--
Heptachlor	--	--	LT	--	--	--
2,4-Dimethylphenol	--	--	--	*	--	--
Phenol	--	--	--	*	--	--
Pentachlorophenol	--	--	--	--	--	* **
Acenaphthene	*	*	*	*	*	*
1,2-Diphenylhydrazine as azobenzene	--	--	--	--	--	*
Fluoranthene	*	* **	*	*	*	*

[1] Tentative identification based on comparison with the National Bureau of Standards (NBS) library. No external standard was available. Concentration reported is semiquantitative and is based only on an internal standard. GC/MS spectra were examined and interpreted by GC/MS analysts.

†† Exceeds concentrations in samples from undisturbed soils in the Buffalo area. Undisturbed soils were not analyzed for iron.

* Compounds detected but not quantified--Holding time exceeded before GC/MS acid- and base-neutral extractable compounds were extracted.

** Surrogate recoveries were outside the acceptance limits.

Table A-26.—Analyses of substrate samples from Allied Chemical (Hurwitz-Ranne), site 249, Hopkins Street, Buffalo, N.Y. (continued)
[Locations shown in fig. A-23. Concentrations are in µg/kg; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number (depths are same as in first sampling)					
	North Property			South Property		
Second sampling (continued)	1A	2A	3A	1A	2A	3A
Organic compounds (continued)						
Priority pollutants (continued)						
Naphthalene	*	*	*	*	*	*
Bis(2-ethylhexl) phthalate	*	—	—	—	*	—
Di-n-butyl/phthalate	*	* **	*	*	*	*
Diethyl/phthalate	*	—	—	—	—	*
Di-n-octyl/phthalate	—	—	—	*	—	—
Benzo(a)anthracene	*	* **	*	*	*	*
Benzo(a)pyrene	*	* **	*	*	*	*
Benzo(b)fluoranthene and benzo(k)fluoranthene	*	* **	*	*	*	*
Chrysene	*	* **	*	*	*	*
Acenaphthylene	*	*	*	*	—	—
Anthracene	—	—	—	*	—	—
Benzo(ghi)perylene	*	* **	*	*	*	—
Fluorene	—	*	*	*	—	—
Phenanthrene	—	—	—	*	—	—
Dibenzo(a,h)anthracene	*	* **	*	*	—	—
Indeno(1,2,3-cd)pyrene	*	* **	*	*	*	*
Pyrene	—	* **	*	*	*	*
N-nitrosodiphenyl-amine	—	—	—	*	—	—
Nonpriority pollutants						
Acetone	—	328**	696	—	—	—
2-Butanone	—	—	165	—	—	—
Carbon disulfide	—	55.5**	100	13.4	121	—
O-xylene	—	31.2**	—	—	—	—
4-Methylphenol	—	—	—	*	*	—
Dibenzofuran	*	*	*	*	*	*
2-Methylnaphthalene	*	*	*	*	*	*
2-Hexanone	—	—	—	—	*	*
4-Methyl-2-pentanone	—	—	—	—	*	*
Tetrahydrofuran[1]	—	*	*	—	*	—
3,2,1-Bicyclooctane[1]	—	*	—	—	—	—
2-Methylphenol	—	—	—	*	—	—
Cis-octahydropentelene[1]	—	*	—	—	—	—
Cis-1,2-dimethylcyclo-hexane[1]	—	*	—	—	—	—
Ethylcyclohexane[1]	—	*	—	—	—	—
2,6,6-Trimethyl-(3.1.1) bicyclo-hept-2-ene[1]	—	*	—	—	—	*

Table A-26.--Analyses of substrate samples from Allied Chemical (Hurwitz-Ranne) site 249, Hopkins Street, Buffalo, N.Y. (continued)
[Locations shown in fig. A-23. Concentrations are in ug/kg; dash indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number (depths are same as in first sampling)					
	North Property			South Property		
Second sampling (continued)	1A	2A	3A	1A	2A	3A
Organic compounds (continued)						
Nonpriority pollutants (continued)						
6,6-Dimethyl-2-methylene-bicyclo-(3.1.1)-heptane[1]	—	*	--	--	--	--
1,2,3-Trimethycyclo-hexane[1]	—	*	--	--	--	--
2-Methylnaphthalene[1]	—	--	--	*	--	--
1,8-Dimethyl-naphthalene[1]	—	--	--	*	--	--
Carbazole[1]	—	--	--	*	--	--
3-Methylphenanthrene[1]	—	--	--	*	--	--
9-Methylphenanthrene[1]	—	--	--	*	--	--
2-Phenylnaphthalene[1]	—	--	--	*	--	--
1-Methylpyrene[1]	—	--	--	*	--	--
7-Methyl-benzo(a)-anthracene[1]	--	--	--	*	--	--

253. SMALL BOAT HARBOR CONTAINMENT SITE (USGS field reconnaissance)

General information and contaminant-migration potential.--This site lies alo Lake Erie south of the Small Boat Harbor in the city of Buffalo and is operate by the Niagara Frontier Transportation Authority. The site was used for dispo sal of dredge spoils from the Buffalo River, Buffalo Harbor, and the Black R Canal (fig. A-24). This site was the first of three containment sites constructed and was a prototype for other containment sites--Times Beach (site 241) and Buffalo Harbor (site 254).

If the barrier is similar to the one at the Times Beach containment site (site 241), it would not prevent water from entering or leaving the site, an any leachate produced within the site would readily enter Buffalo Harbor. Therefore, this site has potential for contaminant migration. Additional wate quality monitoring would be needed to define the rate of contaminant migrati

Geologic information.--The dredged sediments on the area consist of sand, silt and clay. The underlying bedrock is Onondaga Limestone overlain by natural deposits of silt and clay.

Hydrologic information.--The U.S. Geological Survey installed three monitori wells in the area in 1982. The well data and geologic logs are as follows:

Document B-7

Dunn Geoscience Engineering Co., P.C. Interview Documents.

SITE INTERVIEW FORM

SITE: HOPKINS ST. LANDFILL PROJECT NUMBER: _____

DATE: 3.7.91 TIME: _____

INTERVIEWER (DUNN/TAMS): LESLIE E GRACE

INTERVIEWEE (OF SITE): GREG G. ECKER (NYSDEC)

NO. OF YEARS WORKING AT THE SITE: _____

DATES FROM: _____ TO: _____

JOB RESPONSIBILITIES AT SITE: _____

INTERVIEW:

MR. ECKER IS A WILDLIFE REPRESENTATIVE FOR THE STATE OF NEW YORK ENVIRONMENTAL CONSERVATION. MR ECKER ASSISTED MS. GRACE IN IDENTIFYING SIGNIFICANT WILDLIFE AND WETLAND AREAS WITH IN A THREE MILE RADIUS OF THE HOPKINS ST. LANDFILL. THERE ARE THREE SIGNIFICANT MANAGED WILDLIFE AREAS AND ONE SIGNIFICANT TO PLANT LIFE. TIFT FARM NATURE PRESERVE AND THE BUFFALO SMALL BOAT HARBOR ARE TWO OF THE THREE MANAGED AREAS, THE THIRD WAS NOT IDENTIFIABLE. OTHER MANAGED AREAS MAY EXIST BUT ARE NOT DOCUMENTED. THE EUGENIA BULBOSA OR THE HARBINGER OF SPRING IS AN UNPROTECTED PLANT LAST OBSERVED IN 1893 WITH IN A THREE MILE RADIUS OF THE LANDFILL. THERE ARE SEVERAL DESIGNATED WETLAND AREAS. THREE WETLAND AREAS: BU-15, BU-1 AND BU-7 ARE

CONTINUED

SIGNATURES:

ER INTERVIEWEE: Leslie E Grace DATE: 3.25.91

E INTERVIEWER: Greg G. Ecker DATE: 3/27/91

SITE INTERVIEW FORM

SITE: _____ PROJECT NUMBER: _____

DATE: _____ TIME: _____

INTERVIEWER (DUNN/TAMS): _____

INTERVIEWEE (OF SITE): _____

NO. OF YEARS WORKING AT THE SITE: _____

DATES FROM: _____ TO: _____

JOB RESPONSIBILITIES AT SITE: _____

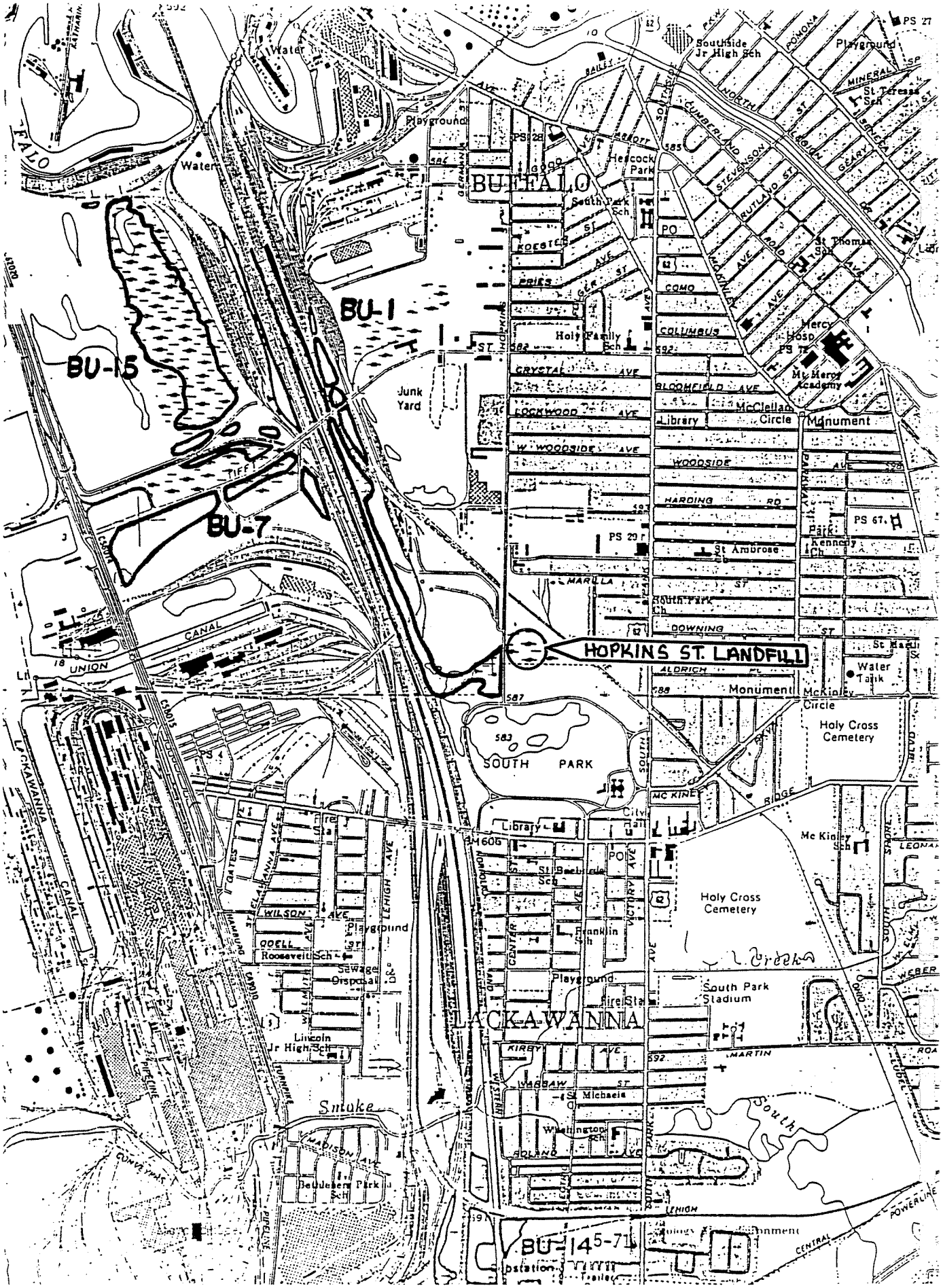
INTERVIEW: CONTINUED

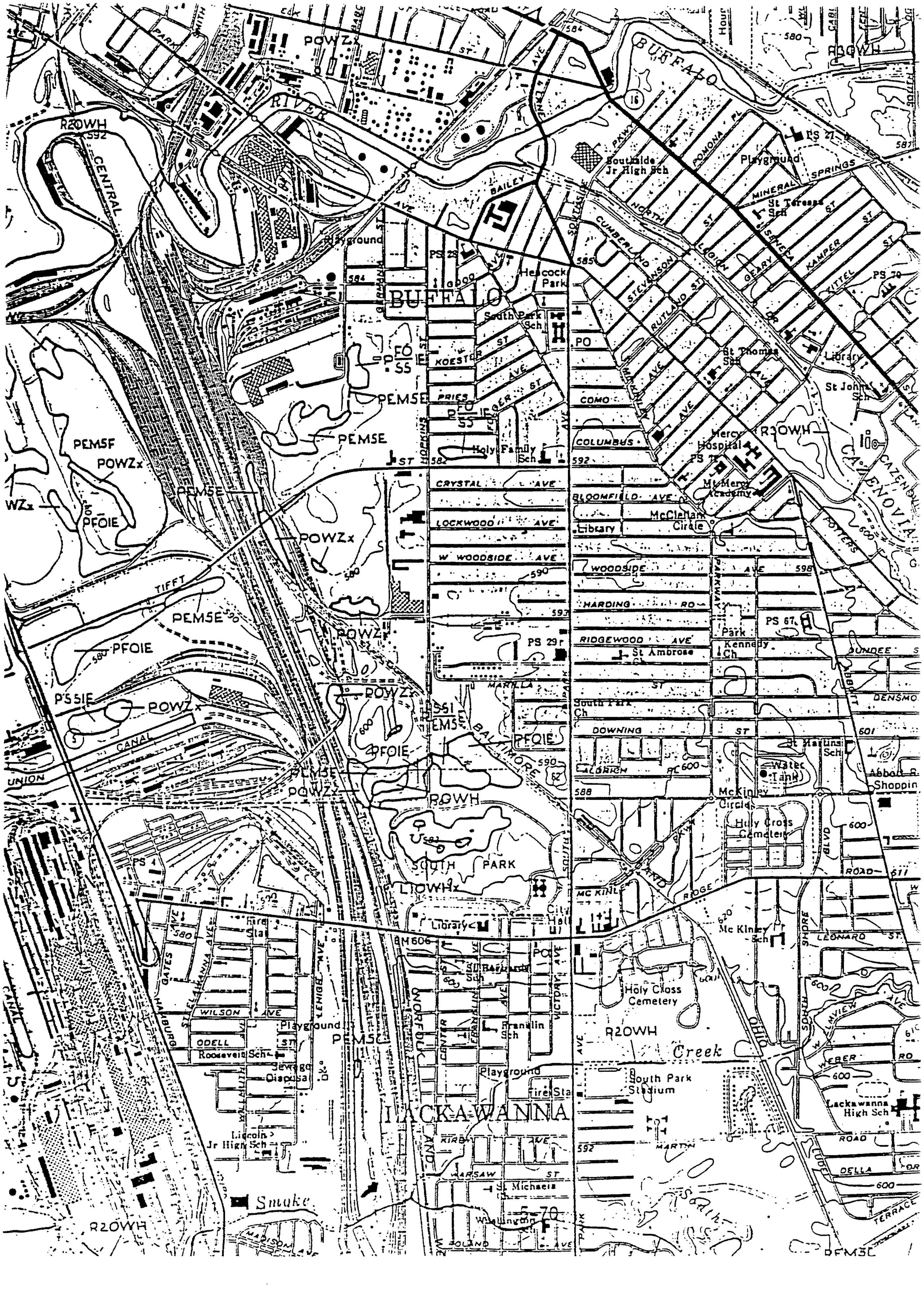
LOCATED WITHIN A 1MILE RADIUS NORTHEAST OF THE HOPKINS STREET LANDFILL ONE DESIGNATED WETLAND AREA BU-14 IS LOCATED WITHIN A (2) TWO MILE RADIUS SOUTH OF THE LANDFILL, AND ONE OTHER WETLAND AREA SOUTH OF THE LANDFILL WITHIN A THREE MILE RADIUS: BU-4. ADDITIONAL WETLAND AREAS LESS THAN 12.4 ACRES IN SIZE, MAY EXIST WITHIN A THREE MILE RADIUS, THESE AREAS ARE NOT STATE REGULATED.

SIGNATURES:

INTERVIEWEE: _____ DATE: _____

INTERVIEWER: _____ DATE: _____


BU-1
BU-15
BU-7
HOPKINS ST. LANDFILL
BU-145-71
BUFFALO
LACKAWANNA
Water
Playground
Junk Yard
Holy Family Sch
South Park Sch
Hefcock Park
Southside Jr High Sch
St Teresa Sch
St Thomas Sch
Mercy Hosp
Mt Mercy Academy
McClellan Circle
Monument
Library
PS 67
PS 29
St Ambrose
Kennedy Park
South Park Ch
Water Tank
Holy Cross Cemetery
SOUTH PARK
Fire Sta
Roosevelt Sch
Sewage Disposal
Lincoln Jr High Sch
Playground
South Park Stadium
St Michaels
Wilkinson Sch
Bellevue Park Sch
Franklin Sch
McKinley Sch
Creek
Smoke
CANAL
UNION
TIFFT
LEHIGH
WESTERN
CENTRAL
POWERLINE
PIPELINE
Station
Trailer


BUFFALO
RIVER
R2OWH
POWZx
CENTRAL
Southside Jr High Sch
Playground
PS 27
BAILEY AVE
CUMBERLAND
MINERAL SPRINGS
KAMPER ST
St Teresa Sch
Hecock Park
South Park Sch
KOESTER ST
PRIES
PO
St Thomas Sch
Library
St Johns Sch
COMO
COLUMBUS
R3OWH
Mercy Hospital
Mt Mercy Academy
CAZENOVIA
Holy Family Sch
PEM5F
PEM5E
PFOIE
CRYSTAL AVE
BLOOMFIELD AVE
McClellan Circle
LOCKWOOD AVE
W WOODSIDE AVE
WOODSIDE AVE
PARKWAY
TIFFT
HARDING RD
RIDGEWOOD AVE
St Ambrose Ch
PS 67
Park
Kennedy Ch
DUNDEE
PS 29
DENSMORE
CANAL
UNION
BALTIMORE
South Park Ch
DOWNING ST
St Martins Sch
Water Tank
McKinley Circle
Holy Cross Cemetery
SOUTH PARK
Library
City Hall
PS 4
Fire Sta
McKinley Sch
LEONARD ST
St Barbaras Sch
GATES AVE
HAMBURG
WILSON AVE
ODELL ST
Playground
Roosevelt Sch
Sewage Disposal
Franklin Sch
NORFOLK
VICTORY AVE
Holy Cross Cemetery
R2OWH
Creek
OHIO
Playground
South Park Stadium
Fire Sta
LACKAWANNA
Lackawanna High Sch
Lincoln Jr High Sch
KIRBY AVE
MARTIN
WARSAW ST
St Michaels
DELLA
TERRACE
Smoke
R2OWH
MADISON AVE
PEM5C

SITE INTERVIEW FORM

SITE: HOPKINS ST. LANDFILL PROJECT NUMBER: _____

DATE: 4-25-91 TIME: 0930

INTERVIEWER (~~DUNN~~/TAMS): GEORGE C MORETTI

INTERVIEWEE (~~OF SITE~~): JUDY LAROSA (HAMBURG TOWN ENGINEERS OFFICE)

NO. OF YEARS WORKING AT THE SITE: NA

DATES FROM: — TO: —

JOB RESPONSIBILITIES AT SITE: NA

INTERVIEW: (PHONE CALL (716) 649-6111)

ASKED MS. LAROSA IF A RESIDENCE AT 3742 MILE STRIP ROAD WAS ON WELL WATER. SHE CHECKED FILES AND INDICATED THE RESIDENCE ~~WHICH~~ IS IN WOODLAWN NEAR THE BLASDELL PROPERTY BOUNDARY HAS SINCE BEEN DEMOLISHED AND TAKE OVER BY A COMMERCIAL ESTABLISHMENT. THE PROPERTY IS NOW ON A PUBLIC WATER SUPPLY LINE.

SIGNATURES:

INTERVIEWEE: _____ DATE: _____

INTERVIEWER: George C Moretti DATE: 4-25-91

Document B-8

Population Figures, Buffalo News, January 25, 1991.

Area lost 4.3% of residents since '80, census shows

Erie County's decline of 4.62% ranks as the largest in the state

By DOUGLAS TURNER
News Washington Bureau Chief

WASHINGTON — Driven by the continuing flight of residents from Buffalo and Niagara Falls, the Buffalo metropolitan area lost 53,358, or 4.3 percent, of its residents in the last 10 years, according to the final 1990 census figures released Thursday.

The metropolitan area is made up of Erie County, which suffered the largest percentage decrease of any county in the state (4.62 percent), and Niagara County, which lost 2.9 percent of its population.

Combined, those two counties have dropped from 1,232,826 residents in 1980 to 1,189,288 in 1990.

Separately, Niagara County's population has gone from 227,354 to 220,756.

And Erie County's population has fallen from 1,015,472 to 968,532, the first time it has gone below the 1 million mark since 1950. It hit a high in 1970, with a count of 1,113,491.

County Executive Gorski could not be reached to comment. He is on his way to Tampa. Deputy County Executive David R. Smith said the population loss is not unexpected.

"I think the numbers verify something we've known for quite a while," he said. "Obviously, we lost people in the early part of the decade when plants were closing and jobs were evaporating."

While the county stands to lose some amount of federal and state aid, which is based on the local head count, the reduction should be modest, Smith said. State and local revenue sharing, which is tied directly to population tallies, already has been scaled back.

"We've already lost the big categories of aid that are populaton-driven, so I don't expect any major negative impact from the census numbers," he said.

The Census Bureau said 328,123 people now live in Buffalo, down 8.3 percent from the 357,870 recorded in 1980 — the largest decrease among the state's five major upstate cities, which include Albany, Rochester, Syracuse and Yonkers.

POPULATION DROPPING

Census figures down

	1980	1990
Erie, Niagara	1,232,826	1,189,288
Erie County	1,015,472	968,532
Niagara County	227,354	220,756
Niagara Falls	71,384	61,840
Buffalo	357,870	328,123

Niagara Falls declined 13.4 percent to 61,840.

The only significant gains the Buffalo metropolitan area we in towns close to the University at Buffalo North Campus — Amherst, up 2.8 percent to 111,71 Clarence, up 10.4 percent 20,041, and the Niagara Coun Town of Lockport, up 28.2 percent to 16,59

However, nearly every lar community in the eight Weste New York counties that once had a major industry — or was home for employees of those industri — experienced radical losses.

The four counties in the indu trial grid stretching from the Niagara Frontier to the Pennsylvania line — Erie, Niagara, Chautauqu and Cattaraugus — had 60,0 fewer residents than in 1980. All the cities in Western New York experienced declines, ranging fro 2 percent in Batavia to 9.2 perce in Dunkirk.

Al Price, acting dean of planning and design at UB, said the losses paralleled the decline heavy industry in the regio which he said was mainly caus by dramatic changes in the global economy and poor investment decisions by those who controll these American-owned exporti companies.

This shrinkage has clearly had an impact on the region's ret industry, Price said.

Niagara Falls Mayor Micha Michael C. O'Laughlin said he was surprised to see his city's population had dropped from 71,3 to 61,840.

The only large city in the state

See **Census** *Page C*

Census: State population is 17.9 million

Continued from Page C1

that gained was New York City, with 250,925 more residents than it had in 1980. The census reported 7,322,564 people lived in New York City in 1990.

Statewide, New York's population increased from 17,558,165 in 1980 to 17,990,455 in 1990, according to the bureau. But as a result of population shifts to the South and West, New York is expected to lose three House seats after redistricting.

The figures released Thursday are, for the most part, final. The Census Bureau has until July 15 to announce whether it will make any adjustment.

New York State is involved in a federal lawsuit to force the Commerce Department to make a statistical adjustment.

The 1990 census totals for Western New York cities and the percentage of change follow:

Batavia — 16,310, down 2 percent.

Dunkirk — 13,898, down 9.2 percent.

Jamestown — 34,681, down 3 percent.

Lackawanna — 20,585, down 9.3 percent.

Lockport — 24,426, down 1.8 percent.

North Tonawanda — 34,989, down 2 percent.

City of Tonawanda — 17,284, down 7.5 percent.

Olean — 16,946, down 6.9 percent.

Salamanca — 6,556, down 4.8 percent.

The totals for Erie County towns and their percentage of change follow:

Alden — 10,372, up 2.8 percent.

Aurora — 13,433, down 3.2 percent.

Boston — 7,445, down 3.1 percent.

Brant — 2,119, down 13 percent.

Cheektowaga — 99,314, down 9.3 percent.

Colden — 2,899, down 7.3 percent.

Collins — 6,020, up 19.5 percent.

Concord — 8,387, up 2.6 percent.

Eden — 7,416, up 1.2 percent.

Elma— 10,355, down 2.1 percent.

Evans — 17,478, down 2.7 percent.

Hamburg — 53,735, up 0.9 percent.

Holland — 3,572, up 3.7 percent.

Lancaster — 32,181, up 6.8 percent.

Marilla — 5,250, up 8 percent.

Newstead — 7,440, up 2.9 percent.

North Collins — 3,502, down 7.6 percent.

Orchard Park — 24,632, up 1.1 percent.

Sardinia — 2,667, down 4.5 percent.

Town of Tonawanda — 82,464, down 9.6 percent.

Wales — 2,917, up 2.6 percent.

West Seneca — 47,830, down 6.6 percent.

POPULATION WITHIN 3 MILES OF THE HOPKINS ST. LANDFILL

CITY / TOWN	APPROX % OF CITY/TOWN	POPULATION
BUFFALO	20	65626
LACKAWANNA	95	19556
HAMBURG	10	5374
WEST SENECA	10	4783
	TOTAL POPULATION:	95339

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY