Occidental Chemical Corporation

May 30, 1989

Mr. John Westendorf
Director of Water Facilities
City of Niagara Falls WWTP
1200 Buffalo Avenue
Niagara Falls, NY 14302

Mr. David Brooks
Director of Environmental Services
City Hall
745 Main Street
Niagara Falls, NY 14302

Re: Buffalo Avenue Data Summary, Buffalo Avenue Plant

Gentlemen:

Pursuant to the letter received by Mr. David Scholes from Mayor O'Laughlin on May 3, 1989, three copies of the above referenced information on Buffalo Avenue is being supplied.

Should you have questions or comments concerning this matter, please call me at (716) 286-3607.

Alan Weston / JGJ

Alan F. Weston, Ph.D.
Manager, Analytical Services
Special Environmental Programs

AFW/mc
C:WEST.TY1

CC: K. Maiurano
P. Buechi
A. Strauss
W. Wertz

Occidental Chemical Corporation

BUFFALO AVENUE DATA SUMMARY

Buffalo Avenue Plant

prepared for:
City of Niagara Falls
May 1989

Occidental Chemical Corporation

BUFFALO AVENUE DATA SUMMARY

Buffalo Avenue Plant

prepared for:
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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) has prepared this document in response to a request from the City of Niagara Falls. In anticipation of planned reconstruction of Buffalo Ave., the City has requested all available information regarding the hydrogeologic nature of the soils under Buffalo Ave. as it traverses the Occidental Chemical Corporation (OCC) plant site.

Most of the hydrogeologic data is compiled from the various overburden well installations which are adjacent to Buffalo Ave., to the north and south. These wells have been installed over the past ten years (1979-1989) as part of various plant investigations. The stratigraphic logs for the wells along Buffalo Ave., as illustrated on Figure 1, are included in Attachment A. The wells of interest are the following:

WS2A	WS57	WS159	BH9A-89
WS3A	WS61	WS160	OW42A(R)
WS20A	WS62	OW30	OW44A(R)
WS26A	WS93	OW303	A1W-1
WS28A	WS94	OW312	A1W-2
WS29A	WS95	OW315	A1W-3
WS30A	WS122	OW322	A1W-4
WS42A	WS124	OW323	B-5
WS44A	WS156	BH5A-89	B-10
WS55	WS157	BH5B-89	B-11
WS56	WS158	BH9A-88	

One of the purposes of installing groundwater monitoring wells is to monitor the surface elevation of the water table. This is accomplished through the aquisition of water levels within the wells which

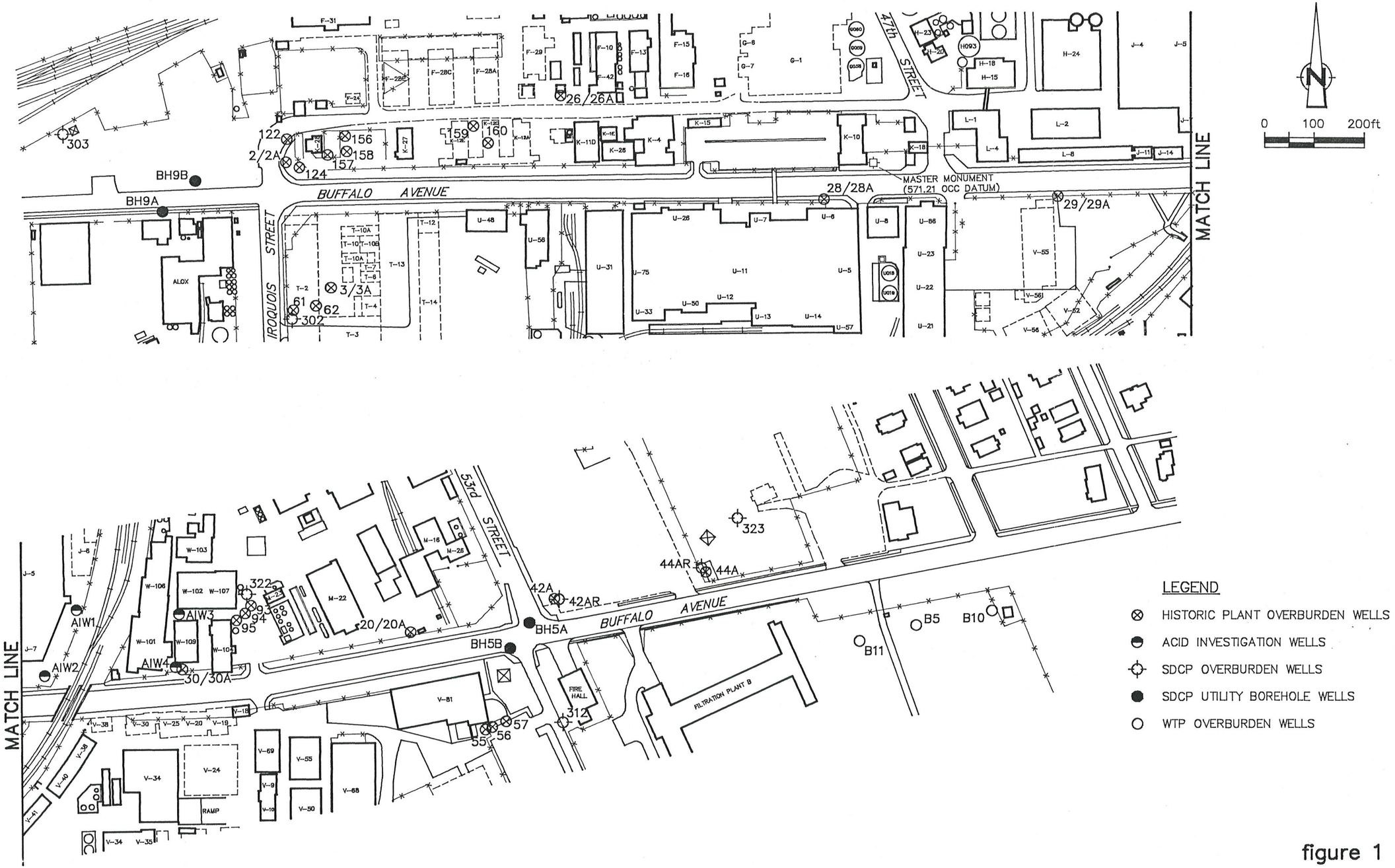


figure 1

OVERBURDEN WELLS ALONG BUFFALO AVENUE

OCC — NIAGARA PLANT

CRA

626-19/05/89-66-0 (P-4)

are then converted into elevations. Attachment B contains all the water level data from 1987 to date. The wells of interest are indicated within these tables.

Another purpose of installing groundwater monitoring wells is for sample collection and analysis. Over the years, various sampling programs have been conducted at the plant site. Between 1979 and 1982, sampling programs were conducted as part of the preliminary investigations at the plant site. Attachment C contains the relevant analytical data from these programs as reported in several Arthur D. Little (ADL) reports. The wells of interest are again indicated on these tables. Attachment C also contains chemical data from an acid spill investigation conducted in late 1987 and the currently on-going Supplemental Data Collection Program (SDCP).

During 1988, CRA was involved in an investigation regarding the source of high pH water infiltrating the Niagara Mohawk conduit manholes in the vicinity of Buffalo Ave. and 47th Street. The investigation included four sets of pump tests. Information obtained included the water levels and pH values which are contained in Attachment D.

ATTACHMENT A
Stratigraphic Logs

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augured to 10.5 feet below grade and installed a 10 foot well screen, to .4 feet below grade. Sand packed for full length with cement on top.		
Fill, composed of crushed rock; cinders; silt; dry (auger sample)	1.0	1.0
Fill, composed of cinders; sand; gravel, (auger sample)	2.0	3.0
Silt, clayey, tan-gray, no odor, dry	1.5	4.5
No return	1.5	6.0
Silt, clayey, tan-gray; sand, very fine; dry, no odor	1.5	7.5
Silt, clayey, tan-gray; sand, very fine to fine, silty; no odor	1.5	9.0
Top: silt, clayey, tan-gray; bottom; clay, silty, red-brown; hard, dry, no odor	1.5	10.5

OWNER: Hooker Chemicals and Plastics Corp Niagara Falls Plant

LOCATION: Purchasing Department Visitors Parking Lot

WELL NO.: B-2a

DATE COMPLETED: January 11, 1979

DRILLING COMPANY: Rochester Drilling Co

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: No samples

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 571.4 feet above MSL

CASING: None

SCREEN-TYPE: Johnson stainless steel

DIAM.: 1½ inch SLOT NO. 10

SETTING: 0.4 feet to 10.4 feet

PUMPING TEST-DATE:

DURATION:

STATIC WATER LEVEL: 7.03 feet below March 1,197

PUMPING WATER LEVEL:

YIELD: .25 gpm

REMARKS:

1/ TOC = 571.08 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered to 6.5 feet and installed 5 feet of screen: no samples taken screen sand packed for entire length		
Fill, composed of cinders; stones sand, fine to coarse; silt; black, dry, no odor	1.5	1.5
Fill, composed of cinders, stones; sand, fine to coarse; silt; black, wet no odor	1.5	3.0
Fill, composed of silt, brown, clayey some sand, fine to coarse; gravel; chemical odor	1.5	4.5
Fill, gravel, fine to coarse; stones, sand, fine to coarse; some silt and clay; wet, chemical odor	1.5	6.0
Clay, brown, sticky, no odor	1.5	7.5

OWNER: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

LOCATION: SW corner of Bldg T-9

WELL No.: B-3a

DATE COMPLETED: January 11, 1979

DRILLING COMPANY: Rochester Drilling Co.

DRILLING METHOD: Hollow stem auger

SAMPLING METHOD: No samples taken

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 568.5 feet above MSL

CASING: 1.0 feet of 1¼ inch galvanized

SCREEN: TYPE: Johnson stainless stee

DIAM.: 1¼inch SLOT No. 10

SETTING: 1.5 feet to 6.5 feet

PUMPING TEST: DATE:

DURATION:

STATIC WATER LEVEL: 1.85 feet below TOC, March 19, 1979

PUMPING WATER LEVEL:

YIELD: 1 gpm

REMARKS:

1/ TOC = 568.17 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Crushed stone (no return)	1.5	1.5
Crushed stone; gravel; sand, coarse;		
chemical odor, dry	1.5	3.0
Silt, tan; chemical odor, dry	1.5	4.5
Silt, tan; no odor, dry	1.5	6.0
Silt, tan; faint odor, dry	2.0	8.0
Clay, brown-red, silty, hard	1.0	9.0
Clay, silty, hard, brown	0.5	9.5

OWNER: Hooker Chemical and Plastics Corp. Niagara Falls Plant

LOCATION: Buff. Ave. near 53rd S

WELL No.: B-20a

DATE COMPLETED: February 19, 1979

DRILLING COMPANY: Rochester Drilling Co.

DRILLING METHOD: Hollow -stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: grade 1/

ELEVATION OF R. P.: 572.2 feet above MSL

CASING: 4½ feet of 1½-inch galvanized

SCREEN TYPE: Johnson Stainless Steel

DIAM.: 1½-inch SLOT No. 10

SETTING: 4½-9½ feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 3.96 feet below TOC, March 1, 1979

PUMPING WATER LEVEL:

YIELD: .15 gpm

REMARKS:

1/ TOC = 572.06 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Fill, composed or wood; silt; cinders;		
crushed brick; sand	1.5	1.5
Silt, clayey, tan-gray	1.5	3.0
Silt, clayey, tan-gray	3.0	6.0
Silt, clayey, tan-gray, wet	2.0	8.0
Clay, silty, red-brown	1.0	9.0
Clay, somewhat silty, laminated,		
light brown; chemical odor	4.5	13.5
Clay, plastic, brown; trace of		
chemical odor; some till, composed		
of sand, fine to medium, brown	1.5	15.0
Till, silty; some clay, brown; and		
cobbles, angular, dark gray	1.5	16.5
Till, silty; some clay, brown; and		
cobbles, angular, dark gray; little		
sand, brown; trace of sand-like		
substance (which does not look		
native)	3.0	19.5
Bedrock, dolomite, few rounded frag-		
ments, weathered, dark gray with		
some light gray	3.5	23.0
Bedrock, solid	4.0	27.0
Hole caved 2 feet, set screen		
20-25 feet below grade.		

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant

LOCATION: Near Bldg. 27 or r-33a

WELL NO.: B-26

DATE COMPLETED: February 14, 1979

DRILLING COMPANY: Rochester Drilling Company

DRILLING METHOD: Hollow-stem auger 1/

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica & G. S. Sikora

REFERENCE POINT: Grade 2/

ELEVATION OF R. P.: 571.2 feet above MSL

CASING: 20 feet of 1½-inch galvanized

SCREEN TYPE: Johnson stainless steel

DIAM.: 1½-inch SLOT NO. 10

SETTING: 20 feet - 25 feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 19.42 feet below top of casing March 1,.1979

PUMPING WATER LEVEL:

YIELD: 15 gpm

REMARKS:

1/ Hollow-stem auger to top of clay; drive and wash to top of rock; tricone bit in rock.

2/ TOC=571.38 feet abov MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered (fill)	3.0	3.0
Silt; sand, very fine, tan	2.0	5.0
Silt; sand, very fine, tan	1.0	6.0
Clay, brown-red	.5	6.5

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant
LOCATION: Buffalo Ave., Bldg.U
WELL NO.: B-28a
DATE COMPLETED: January 25, 1979
DRILLING COMPANY: Rochester Drillin Company
DRILLING METHOD: Hollow-stem auger
SAMPLING METHOD: Split spoon
SAMPLES EXAMINED BY: R. Lamonica
REFERENCE POINT: Grade 1/
ELEVATION OF R. P.: 570.1 feet above
CASING: 1 foot of 1½-inch galvanized
SCREEN- TYPE: Johnson stainless steel
DIAM.: 1½-inch SLOT NO. 10
SETTING: 1.5 to 6.5 feet
PUMPING TEST- DATE:
DURATION:
STATIC WATER LEVEL: 1.84 feet below TOC, March 1, 1979
PUMPING WATER LEVEL:
YIELD: 2 gallons in 30 mi

REMARKS:

1/ TOC . = 570.02 fee above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered through 1.5 ft of crushed sone, fill and silt	1.5	1.5
Fill, of silt, brown, clayey; sand, fine to coarse; silt, tan-gray, clayey	1.5	3.0
Silt, clayey, tan	1.5	4.5
Silt, clayey, tan	1.0	5.5
Till, red, composed of clay; silt; small amounts of sand; gravel; stones	0.5	6.0

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant

LOCATION: Buffalo Ave., Bldg.55

WELL NO.: B-29a

DATE COMPLETED: January 26, 1979

DRILLING COMPANY: Rochester Drilling Company

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade[1/]

ELEVATION OF R. P.: 570.8 feet above MSL

CASING: .7 foot of 1¼-inch galvanized

SCREEN - TYPE: Johnson stainless steel

DIAM.: 1¼-inch SLOT NO.: 10

SETTING: 1 foot - 6 feet

PUMPING TEST - DATE:

DURATION:

STATIC WATER LEVEL: 6.43 feet below TOC March 20, 1979

PUMPING WATER LEVEL:

YIELD: Approximately 8 hours to recover from evacuation

REMARKS:

1/ TOC.=570.53 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augured to 10.5 feet below grade		
and installed a 10 foot well		
screen, to .4 feet below grade.		
Sand packed for full length with		
cement on top.		
Fill, composed of crushed rock;		
cinders; silt; dry (auger sample)	1.0	1.0
Fill, composed of cinders; sand;		
gravel, (auger sample)	2.0	3.0
Silt, clayey, tan-gray, no odor, dry	1.5	4.5
No return	1.5	6.0
Silt, clayey, tan-gray; sand, very		
fine; dry, no odor	1.5	7.5
Silt, clayey, tan-gray; sand, very		
fine to fine, silty; no odor	1.5	9.0
Top: silt, clayey, tan-gray; bottom;		
clay, silty, red-brown; hard, dry,		
no odor	1.5	10.5

OWNER: Hooker Chemicals and Plastics Corp Niagara Falls Plant

LOCATION: Purchasing Department Visitors Parking Lot

WELL NO.: B-2a

DATE COMPLETED: January 11, 1979

DRILLING COMPANY: Rochester Drilling Co

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: No samples

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 571.4 feet above MSL

CASING: None

SCREEN: TYPE: Johnson stainless steel

DIAM.: 1½ inch SLOT NO. 10

SETTING: 0.4 feet to 10.4 feet

PUMPING TEST: DATE:

DURATION:

STATIC WATER LEVEL: 7.03 feet below March 1,197

PUMPING WATER LEVEL:

YIELD: .25 gpm

REMARKS:

1/ TOC = 571.08 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.

CONSULTING GROUND-WATER GEOLOGISTS

55 WEST STATE STREET

WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered to 6.5 feet and installed		
5 feet of screen; no samples taken		
screen sand packed for entire		
length		
Fill, composed of cinders; stones		
sand, fine to coarse; silt;		
black, dry, no odor	1.5	1.5
Fill, composed of cinders, stones;		
sand, fine to coarse; silt;		
black, wet no odor	1.5	3.0
Fill, composed of silt, brown,		
clayey some sand, fine to coarse;		
gravel; chemical odor	1.5	4.5
Fill, gravel, fine to coarse;		
stones, sand, fine to coarse;		
some silt and clay; wet, chemical		
odor	1.5	6.0
Clay, brown, sticky, no odor	1.5	7.5

OWNER: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

LOCATION: SW corner of Bldg T-9

WELL NO.: B-3a

DATE COMPLETED: January 11, 1979

DRILLING COMPANY: Rochester Drilling Co.

DRILLING METHOD: Hollow stem auger

SAMPLING METHOD: No samples taken

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 568.5 feet above MSL

CASING: 1.0 feet of 1¼ inch galvanized

SCREEN TYPE: Johnson stainless stee

DIAM.: 1¼inch SLOT NO.: 10

SETTING: 1.5 feet to 6.5 feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 1.85 feet below TOC, March 19, 1979

PUMPING WATER LEVEL:

YIELD: 1 gpm

REMARKS:

1/ TOC = 568.17 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Crushed stone (no return)	1.5	1.5
Crushed stone; gravel; sand, coarse;		
chemical odor, dry	1.5	3.0
Silt, tan; chemical odor, dry	1.5	4.5
Silt, tan; no odor, dry	1.5	6.0
Silt, tan; faint odor, dry	2.0	8.0
Clay, brown-red, silty, hard	1.0	9.0
Clay, silty, hard, brown	0.5	9.5

OWNER: Hooker Chemical and Plastics Corp. Niagara Falls Plant

LOCATION: Buff. Ave. near 53rd S

WELL NO.: B-20a

DATE COMPLETED: February 19, 1979

DRILLING COMPANY: Rochester Drilling Co.

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: grade 1/

ELEVATION OF R. P.: 572.2 feet above MSL

CASING: 4½ feet of 1¼-inch galvanized

SCREEN TYPE: Johnson Stainless Steel

DIAM.: 1¼-inch SLOT NO. 10

SETTING: 4½-9½ feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 3.96 feet below TOC, March 1, 1979

PUMPING WATER LEVEL:

YIELD: .15 gpm

REMARKS:

1/ TOC = 572.06 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Fill, composed or wood; silt; cinders;		
crushed brick; sand	1.5	1.5
Silt, clayey, tan-gray	1.5	3.0
Silt, clayey, tan-gray	3.0	6.0
Silt, clayey, tan-gray, wet	2.0	8.0
Clay, silty, red-brown	1.0	9.0
Clay, somewhat silty, laminated,		
light brown; chemical odor	4.5	13.5
Clay, plastic, brown; trace of		
chemical odor; some till, composed		
of sand, fine to medium, brown	1.5	15.0
Till, silty; some clay, brown; and		
cobbles, angular, dark gray	1.5	16.5
Till, silty; some clay, brown; and		
cobbles, angular, dark gray; little		
sand, brown; trace of sand-like		
substance (which does not look		
native)	3.0	19.5
Bedrock, dolomite, few rounded frag-		
ments, weathered, dark gray with		
some light gray	3.5	23.0
Bedrock, solid	4.0	27.0
Hole caved 2 feet, set screen		
20-25 feet below grade.		

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant

LOCATION: Near Bldg. 27 or F-33a

WELL NO.: B-26

DATE COMPLETED: February 14, 1979

DRILLING COMPANY: Rochester Drilling Company

DRILLING METHOD: Hollow-stem auger 1/

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica & G. S. Sikora

REFERENCE POINT: Grade 2/

ELEVATION OF R. P.: 571.2 feet above MSL

CASING: 20 feet of 1½-inch galvanized

SCREEN TYPE: Johnson stainless steel

DIAM.: 1½-inch SLOT NO. 10

SETTING: 20 feet - 25 feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 19.42 feet below top of casing March 1, 1979

PUMPING WATER LEVEL:

YIELD: 15 gpm

REMARKS:

1/ Hollow-stem auger to top of clay; drive and wash to top of rock; tricone bit in rock.

2/ TOC=571.38 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered (fill)	3.0	3.0
Silt; sand, very fine, tan	2.0	5.0
Silt; sand, very fine, tan	1.0	6.0
Clay, brown-red	.5	6.5

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant

LOCATION: Buffalo Ave., Bldg. U-

WELL NO.: B-28a

DATE COMPLETED: January 25, 1979

DRILLING COMPANY: Rochester Drilling Company

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 570.1 feet above

CASING: 1 foot of 1½-inch galvanized

SCREEN - TYPE: Johnson stainless steel

DIAM.: 1½-inch SLOT NO. 10

SETTING: 1.5 to 6.5 feet

PUMPING TEST - DATE:

DURATION:

STATIC WATER LEVEL: 1.84 feet below TOC, March 1, 1979

PUMPING WATER LEVEL:

YIELD: 2 gallons in 30 mi

REMARKS:

1/ TOC . = 570.02 fee above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.

CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered through 1.5 ft of crushed sone, fill and silt	1.5	1.5
Fill, of silt, brown, clayey; sand, fine to coarse; silt, tan-gray, clayey	1.5	3.0
Silt, clayey, tan	1.5	4.5
Silt, clayey, tan	1.0	5.5
Till, red, composed of clay; silt; small amounts of sand; gravel; stones	0.5	6.0

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant

LOCATION: Buffalo Ave., Bldg. 56

WELL NO.: B-29a

DATE COMPLETED: January 26, 1979

DRILLING COMPANY: Rochester Drilling Company

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 570.8 feet above MSL

CASING: .7 foot of 1½-inch galvanized

SCREEN - TYPE: Johnson stainless steel

DIAM.: 1½-inch SLOT NO.: 10

SETTING: 1 foot - 6 feet

PUMPING TEST - DATE:

DURATION:

STATIC WATER LEVEL: 6.43 feet below TOC March 20, 1979

PUMPING WATER LEVEL:

YIELD: Approximately 8 hours to recover from evacuation

REMARKS:

1/ TOC. = 570.53 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Concrete and crushed stone	1.5	1.5
Fill, coarse, brown	3.0	4.5
Clayey silt, tan-gray, moist	1.5	6.0
Clayey silt, some gravel	1.5	7.5
Silt, tan, wet, trace clay, gray	1.5	9.0
Silt, tan, wet, trace clay, gray	.5	9.5
Clay, red, hard, dry	1.0	10.5

OWNER: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

LOCATION: NE corner of Buffalo Avenue and 53rd St.

WELL NO.: B-42a

DATE COMPLETED: June 7, 1979

DRILLING COMPANY: Rochester Drilling

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 572.8 feet above MS

CASING: 5.5 feet of 1½ inch galvanized

SCREEN-TYPE: Johnson Stainless Steel

DIAM: 1½ inch SLOT NO: 10

SETTING: 5.5 feet -10.5

PUMPING TEST-DATE:

DURATION:

STATIC WATER LEVEL: 5.86 feet below TOC, June 25, 1979

PUMPING WATER LEVEL:

YIELD: .2 gpm

REMARKS:

1/ TOC =572.49 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.

CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Topsoil	1.0	1.0
Sand, medium, brown	2.0	3.0
Silt, tan; trace clay, gray	6.5	9.5
Clay, red, dry, hard	1.0	10.5

OWNER: Hooker Chemicals an Plastics Corp. Niagara Falls Plant

LOCATION: NE corner of Buffa Avenue and 54th St

WELL NO.: B-44a

DATE COMPLETED: June 7, 1979

DRILLING COMPANY: Rochester Drilling

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 573.2 feet above

CASING: 4 feet of 1½inch galvanized

SCREEN TYPE: Johnson Stainless Steel

DIAM.: 1½ inch SLOT NO. 10

SETTING: 4.5 feet-9.5 feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 7.94 feet below TOC, June 25, 1979

PUMPING WATER LEVEL:

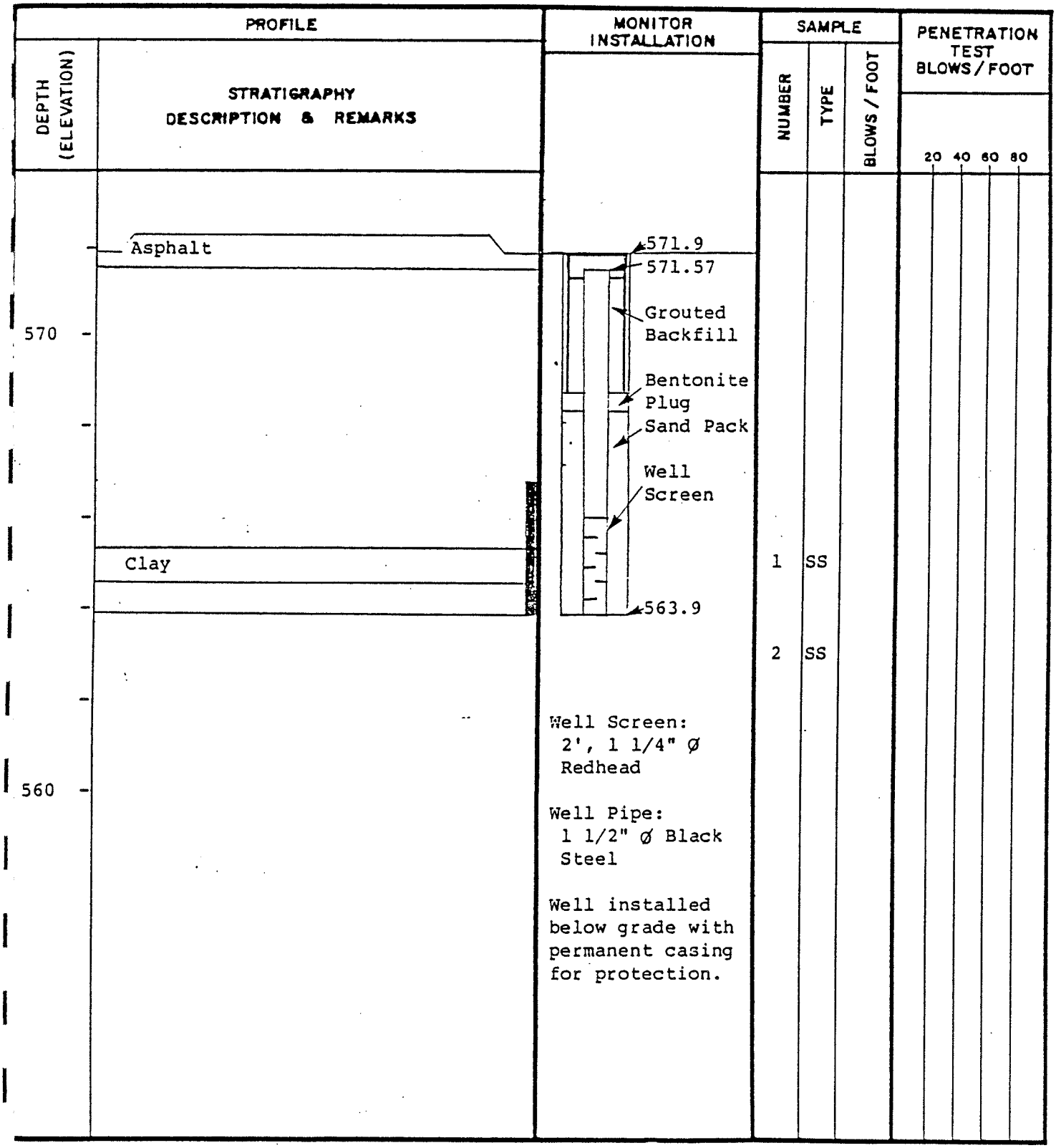
YIELD: .1 gpm

REMARKS:

1/ TOC =572.98 feet above MSL

STRATIGRAPHIC AND INSTRUMENTATION LOG

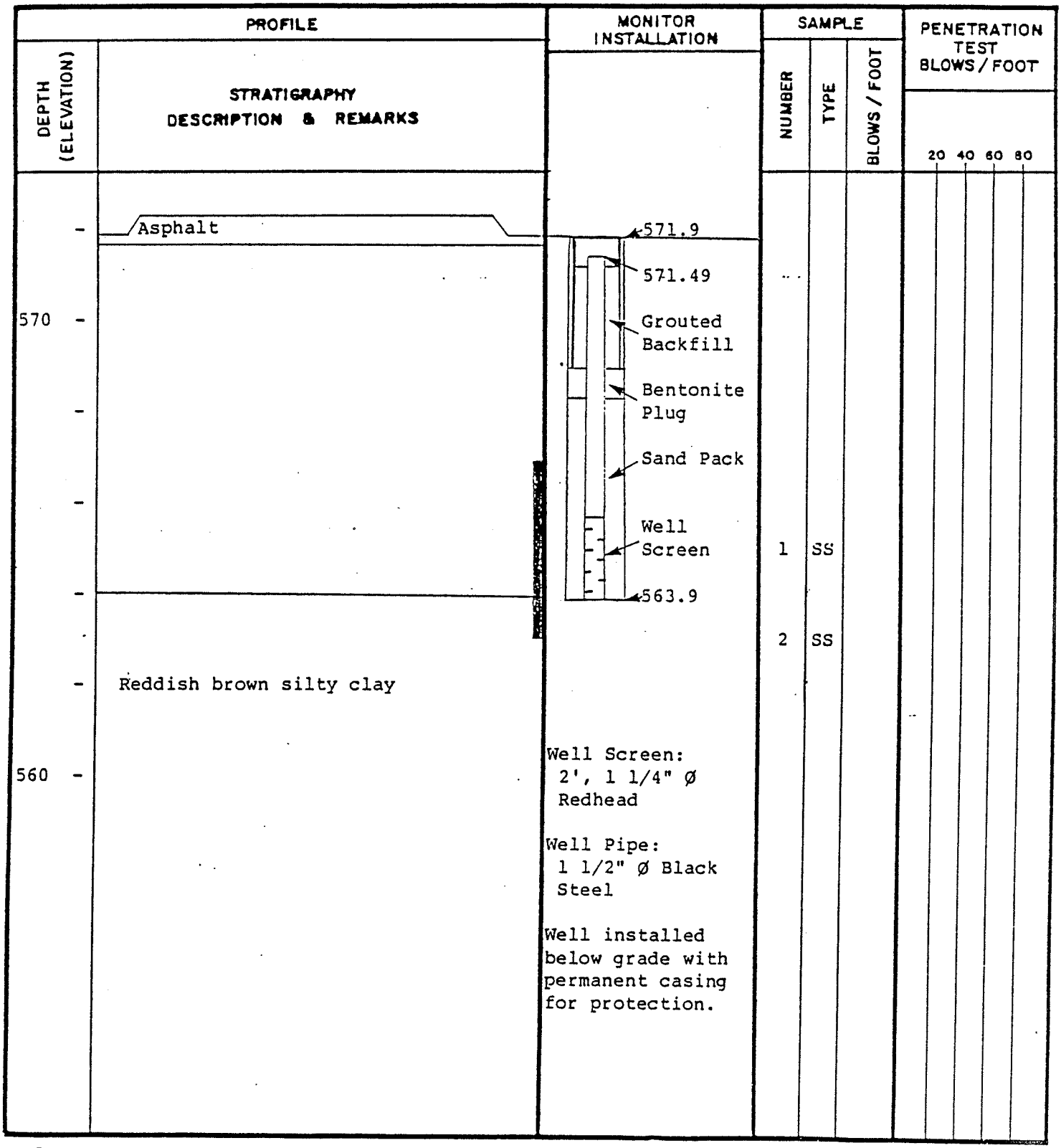
PROJECT NAME: NIAGARA PLANT
HOLE Nº: 55
JOB Nº: 979-625
DATE COMPLETED: June 23, 1980
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
GEOLOGIST/ENGINEER: P. Flood
HOLE TYPE: 7" Ø Hollow Stem Auger
GROUND ELEVATION: 571.9
LOCATION: V Area - V81 Parking Lot
TOP OF PIPE ELEVATION: 571.57



○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
HOLE Nº: 56
JOB Nº: 979-626
DATE COMPLETED: June 23, 1980
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE: 7" Ø Hollow Stem Auger
GROUND ELEVATION: 571.9
LOCATION: V Area - V81 Parking Lot
TOP OF PIPE ELEVATION: 571.49



○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
JOB Nº: 979-626
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE: 7" Ø Hollow Stem Auger
LOCATION: V Area - V81 Parking Lot

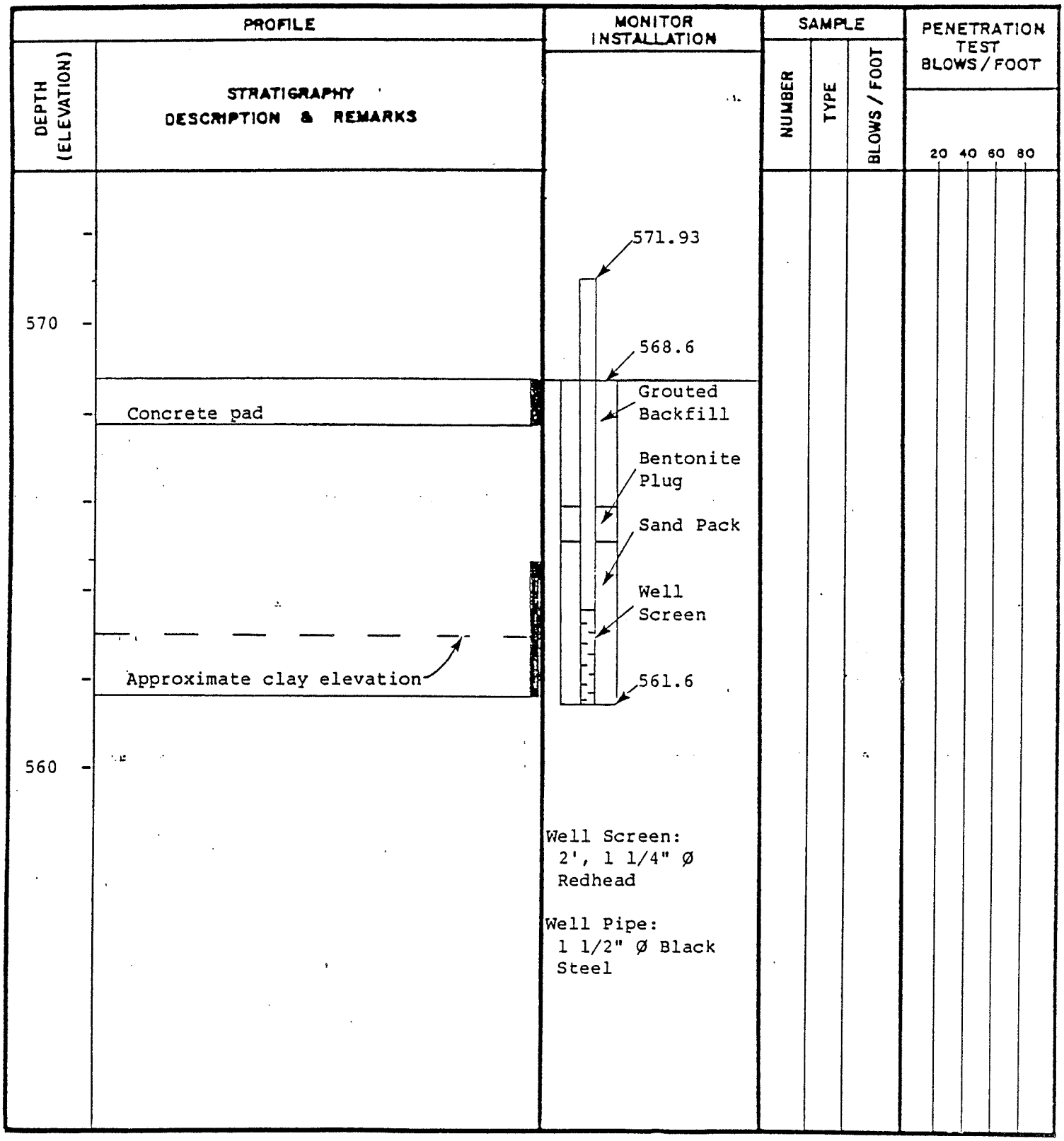
HOLE Nº: 57
DATE COMPLETED: June 24, 1980
GEOLOGIST/ENGINEER: J. Kay
GROUND ELEVATION: 571.9
TOP OF PIPE ELEVATION: 571.73

PROFILE		MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS / FOOT
DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS		NUMBER	TYPE	BLOWS / FOOT	20 40 60 80
	Asphalt	571.9 571.73 Grouted Backfill Bentonite Plug Sand Pack Well Screen 563.9				
570			1	SS		
			2	SS		
	Reddish brown silty clay	Well Screen: 2', 1 1/4" Ø Redhead Well Pipe: 2', 1 1/2" Ø Black Steel Well installed below grade with permanent casing for protection.				
560						

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
HOLE Nº: 61
JOB Nº: 979-626
DATE COMPLETED: June 23, 1980
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE: 7" Ø Hollow Stem Auger
GROUND ELEVATION: 568.6
LOCATION: T Area - T2
TOP OF PIPE ELEVATION: 571.93

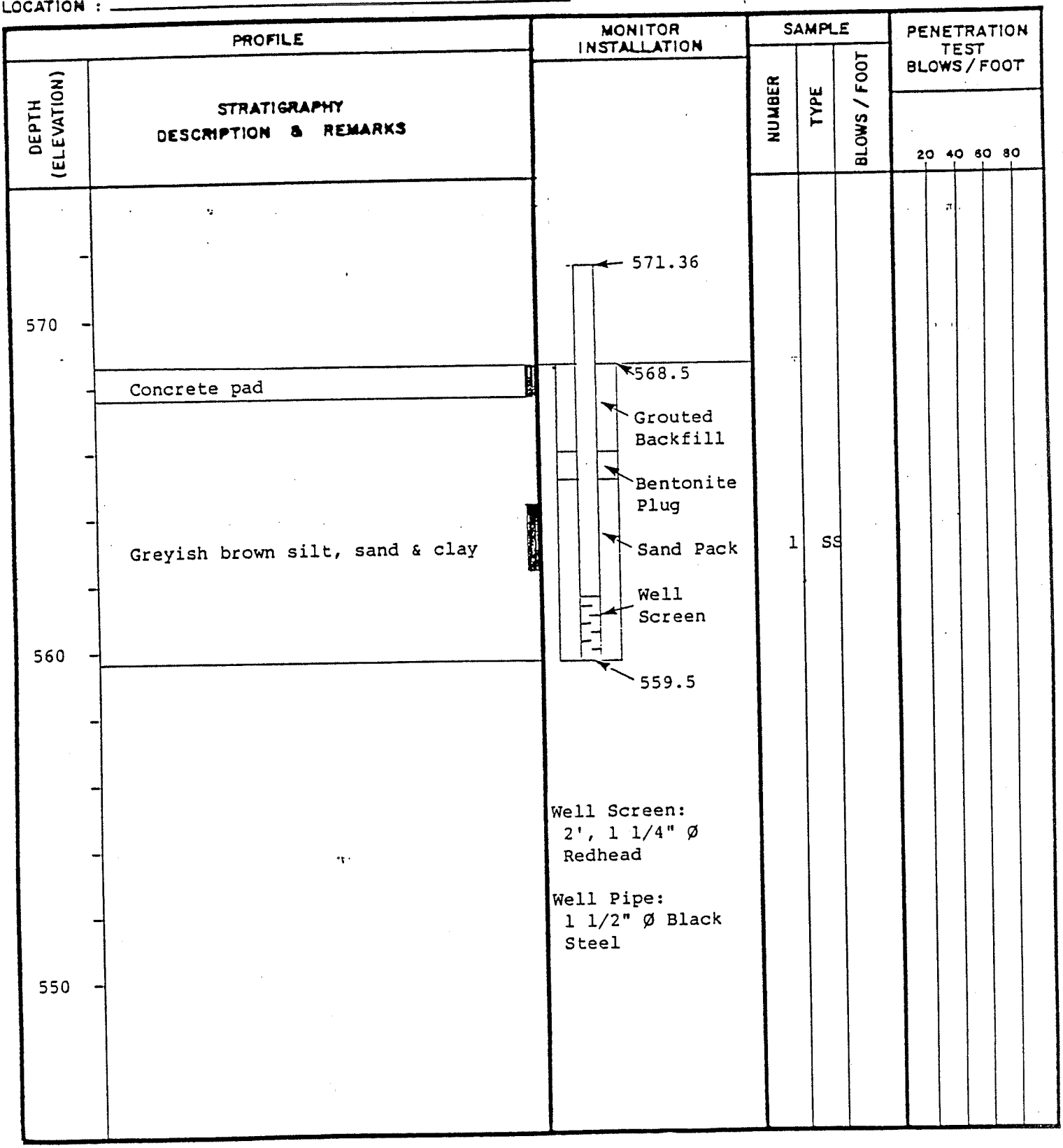


○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
JOB Nº: 979-626
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE: 7" Ø Hollow Stem Auger
LOCATION: T Area - T2

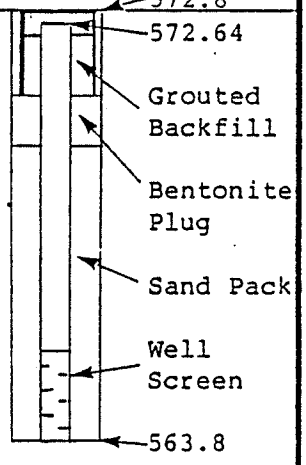
HOLE Nº: 62
DATE COMPLETED: June 23, 1980
GEOLOGIST/ENGINEER: J. Kay
GROUND ELEVATION: 568.5
TOP OF PIPE ELEVATION: 571.36



○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
HOLE Nº: 93
JOB Nº: 979-626
DATE COMPLETED: July 2, 1980
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE: 7" Ø Hollow Stem Auger
GROUND ELEVATION: 572.8
LOCATION: W Area - East of W-107
TOP OF PIPE ELEVATION: 572.64

PROFILE		MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS/FOOT
DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS		NUMBER	TYPE	BLOWS/FOOT	20 40 60 80
570	Grey silt & sand - damp		1	SS		
560	Hard clay					

Well Screen:
2', 1 1/4" Ø
Redhead

Well Pipe:
1 1/2" Ø Black Steel

Well installed below grade with permanent casing for protection.

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME : NIAGARA PLANT
979-626
JOB Nº :
CLIENT : HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE : 7" Ø Hollow Stem Auger
LOCATION : W Area - East of W-107

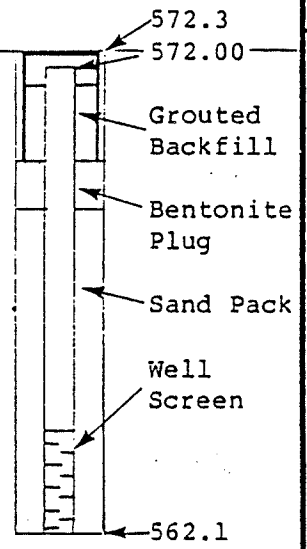
HOLE Nº: 94
DATE COMPLETED: July 2, 1980
GEOLOGIST/ENGINEER: J. Kay
GROUND ELEVATION: 572.5
TOP OF PIPE ELEVATION: 572.32

PROFILE		MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS / FOOT
DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS		NUMBER	TYPE	BLOWS / FOOT	20 40 60 80
570	Grey silt & sand - damp	572.5 572.32 Grouted Backfill Bentonite Plug Sand Pack Well Screen 563.6	1	SS		
	Hard red clay		2	SS		
560		Well Screen: 2', 1 1/4" Ø Redhead Well Pipe: 1 1/2" Ø Black Steel Well installed below grade with permanent casing for protection.				

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
HOLE Nº: 95
JOB Nº: 979-626
DATE COMPLETED: July 1, 1980
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE: 7" ø Hollow Stem Auger
GROUND ELEVATION: 572.3
LOCATION: W Area - East of W-104
TOP OF PIPE ELEVATION: 572.00

PROFILE		MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS / FOOT
DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS		NUMBER	TYPE	BLOWS / FOOT	20 40 60 80
570	Sand & grey clay - damp		1	SS		
	Reddish grey clay		2	SS		
560		Well Screen: 2', 1 1/4" ø Redhead Well Pipe: 1 1/2" ø Black Steel Well installed below grade with permanent casing for protection.				

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
JOB Nº: 979-626
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE: 7" Ø Hollow Stem Auger
LOCATION: K Area - West of K-28

HOLE Nº: 122
DATE COMPLETED: July 7, 1980
GEOLOGIST/ENGINEER: J. Kay
GROUND ELEVATION: 571.6
TOP OF PIPE ELEVATION: 571.25

PROFILE		MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS/FOOT
DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS		NUMBER	TYPE	BLOWS/FOOT	20 40 60 80
570	Grey silt & sand	571.6 571.25 Grouted Backfill Bentonite Plug Sand Pack Well Screen 562.6	1	SS		
	Clay - damp					
560						

Well Screen:
2', 1 1/4" Ø
Redhead

Well Pipe:
1 1/2" Ø Black Steel

Well installed below grade with permanent casing for prtection

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME : NIAGARA PLANT
JOB Nº : 979-626
CLIENT : HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE : 7" ø Hollow Stem Auger
LOCATION : K Area - West of K-28

HOLE Nº: 124
DATE COMPLETED: July 7, 1980
GEOLOGIST/ENGINEER: J. Kay
GROUND ELEVATION: 570.6
TOP OF PIPE ELEVATION: 570.37

PROFILE		MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS / FOOT
DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS		NUMBER	TYPE	BLOWS / FOOT	20 40 60 80
570		570.6 570.37 Grouted Backfill Bentonite Plug Sand Pack				
	Sand & fill		1	SS		
		Well Screen 560.6				
560						

Well Screen:
2', 1 1/4" ø
Redhead

Well Pipe:
1 1/2" ø Black
Steel

Well installed below grade with permanent casing for protection.

◯ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
B N2: 979-626
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
LE TYPE: 7" Ø Hollow Stem Auger
LOCATION: K Area - East of K-28

HOLE N2: 156
DATE COMPLETED: May 26, 1981
GEOLOGIST/ENGINEER: D Millard
GROUND ELEVATION: 571.4
TOP OF PIPE ELEVATION: 571.15

PROFILE		MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS / FOOT
DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS		NUMBER	TYPE	BLOWS / FOOT	20 40 60 80
570	Greenish gold silt & sand - moist	571.4 571.15 Grouted Backfill Bentonite Plug Sand Pack Well Screen 562.2	1	SS	13	•
	Brown clay - hard		2	SS	21	•
560		Well Screen: 2', 1 1/4" Ø Redhead Well Pipe: 1 1/2" Ø Black Steel Well installed below grade with permanent casing for protection.				

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: NIAGARA PLANT
JOB Nº: 979-626
CLIENT: HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE: 7" Ø Hollow Stem Auger
LOCATION: K Area - East of K-28

HOLE Nº: 157
DATE COMPLETED: May 26, 1981
GEOLOGIST/ENGINEER: D. Millard
GROUND ELEVATION: 571.3
TOP OF PIPE ELEVATION: 571.09

DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS / FOOT	PENETRATION TEST BLOWS / FOOT (20 40 60 80)
		571.3				
		571.09				
		Grouted Backfill				
570		Bentonite Plug				
	Grey brown & black silt, sand, clay & stone - wet	Sand Pack	1	SS	12	
	Silt & sand - moist	Well Screen	2	SS	21	
	Brown clay - hard	562.1				
560						

Well Screen:
2', 1 1/4" Ø
Redhead

Well Pipe:
1 1/2" Ø Black
Steel

Well installed below grade with permanent casing for protection.

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

OJECT NAME: NIAGARA PLANT
OB Nº: 979-626
IENT: HOOKER CHEMICALS & PLASTICS CORP.
OLE TYPE: 7" Ø Hollow Stem Auger
CATION: K Area - East of K-28

HOLE Nº: 158
DATE COMPLETED: May 22, 1981
GEOLOGIST/ENGINEER: D. Millard
GROUND ELEVATION: 571.0
TOP OF PIPE ELEVATION: 570.73

DEPTH (ELEVATION)	PROFILE: STRATIGRAPHY DESCRIPTION & REMARKS	MONITOR INSTALLATION	SAMPLE: NUMBER	SAMPLE: TYPE	SAMPLE: BLOWS / FOOT	PENETRATION TEST BLOWS / FOOT (20 40 60 80)
570	FILL - Black silt & sand, shot rock	571.0; 570.73; Grouted Backfill				
	Greenish yellow & brown sand & silt - moist	Bentonite Plug	1	SS	9	
	Green-grey silt & sand - wet	Sand Pack				
	Black silt & sand - wet	561.7				
	Hard red clay	Well Screen	2	SS	25	
560						
550						

Well Screen:
2', 1 1/4" Ø
Redhead

Well Pipe:
1 1/2" Ø Black
Steel

Well installed below grade with permanent casing for protection.

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

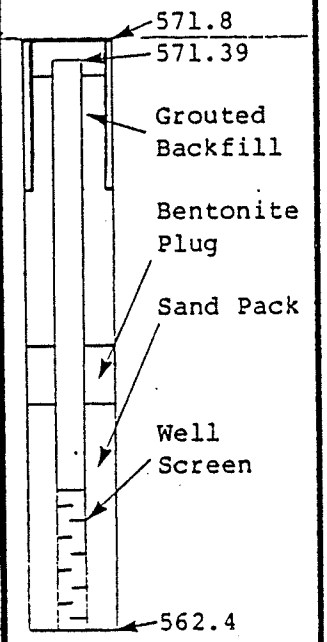
STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME : NIAGARA PLANT
JOB Nº : 979-626
CLIENT : HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE : 7" Ø Hollow Stem Auger
LOCATION : K Area - East of K-27

HOLE Nº: 159
DATE COMPLETED: May 26, 1981
GEOLOGIST/ENGINEER: D. Millard
GROUND ELEVATION: 571.8
TOP OF PIPE ELEVATION: 571.39

DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS
	Concrete
570	
	Greyish green sand & silt - moist
	Brownish green sand & silt - moist
	Reddish brown clay - hard
560	

MONITOR INSTALLATION



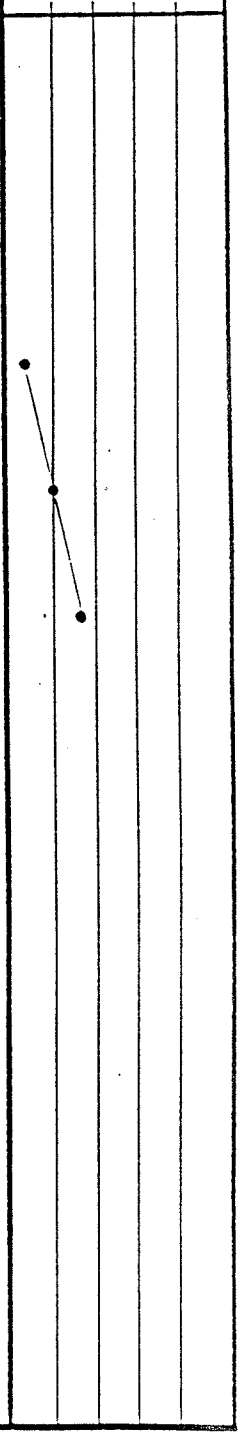
Well Screen:
2', 1 1/4" Ø
Redhead

Well Pipe:
1 1/2" Ø Black
Steel

Well installed below grade with permanent casing for protection.

SAMPLE NUMBER	SAMPLE TYPE	BLOWS / FOOT
1	SS	8
2	SS	20
3	SS	33

PENETRATION TEST BLOWS / FOOT



○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME : NIAGARA PLANT
JOB Nº : 979-626
CLIENT : HOOKER CHEMICALS & PLASTICS CORP.
HOLE TYPE : 7" Ø Hollow Stem Auger
LOCATION : K Area - East of K-27

HOLE Nº: 160
DATE COMPLETED: May 26, 1981
GEOLOGIST/ENGINEER: D. Millard
GROUND ELEVATION: 572.0
TOP OF PIPE ELEVATION: 571.56

DEPTH (ELEVATION)	STRATIGRAPHY DESCRIPTION & REMARKS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE BLOWS / FOOT	PENETRATION TEST BLOWS / FOOT (20 40 60 80)
		572.0				
		571.56 Grouted Backfill				
570		Bentonite Plug				
		Sand Pack	1	SS	54	
	Red clay & stone (1" recovery)	Well Screen				
	Red brown clay	562.6	2	SS	27	
560						

Well Screen:
2', 1 1/4" Ø
Redhead

Well Pipe:
1 1/2" Ø Black Steel

Well installed below grade with permanent casing for protection.

○ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

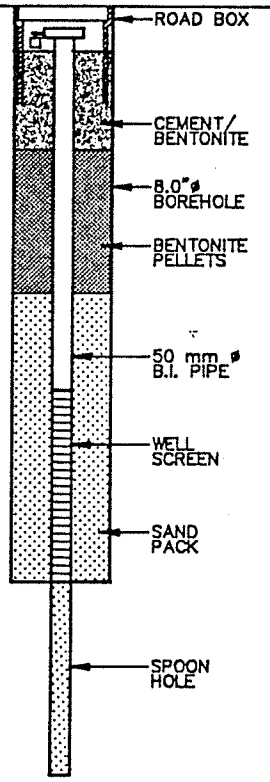
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: ACID PLUME WELLS
PROJECT NO.: 0626
CLIENT: OCCIDENTAL
LOCATION: J–5

HOLE DESIGNATION: AIW1–87
DATE COMPLETED: 12/2/87
DRILLING METHOD: H.S.A. 4.25" ID DIEDRICH D–50
CRA SUPERVISOR: P. SMITH

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION GROUND ELEVATION	571.14 571.4
1.0	Fill – Gray Sandy coarse to fine Gravel.	
2.0		569.4
3.0	Gray fine Sandy Silt, trace Clay, iron staining, moist, native	
4.0		
5.0		
6.0		565.4
	Red Brown Clayey Silt, moist, plastic, native	564.9
7.0	Red Brown fine Gravelly Silt, some Clay, wet, native, Till	564.4
	Brown Gravelly Silt, moist, nonplastic, native, Till	
8.0		563.4
	END OF HOLE AT 8.0 FT. BGS, AUGERS ADVANCED TO 6.0 FT. BGS	
9.0	Observation well installed, screen set at 6.	
	NOTE: Elevations are based on OCC plant datum	
10.0		
11.0		
12.0		
13.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
567.4 to 565.4 AMSL
Length – 0.61m
Diameter – 50mm
Slot # 10
Material– STAINLESS STEEL

SAMPLE NUMBER	SAMPLE STATE	'N' VALUE
1SS		60
2SS		8
3SS		9
4SS		54

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

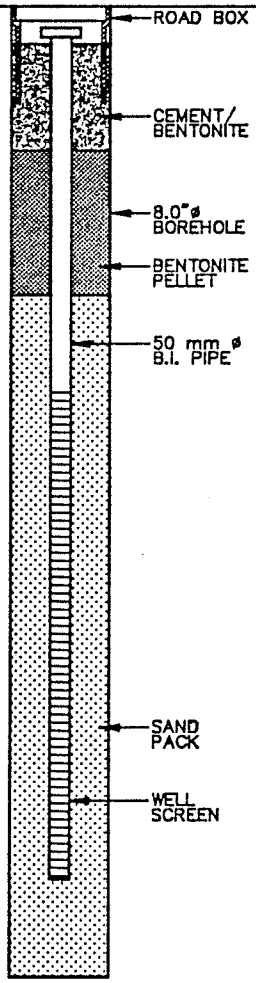
GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: ACID PLUME WELLS
HOLE DESIGNATION: AIW2–87
PROJECT NO.: 0626
DATE COMPLETED: 12/1/87
CLIENT: OCCIDENTAL
DRILLING METHOD: H.S.A. 4.25" ID
LOCATION: J–7
CRA SUPERVISOR: P. SMITH

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION GROUND ELEVATION	*571.43* *571.7*
	augered through 0.5 ft. of asphalt	*571.2*
1.0	Fill – Gray Sandy fine to coarse Gravel, moist	*570.5*
	Fill – mottled Brown to dark Gray Silty fine Sand, some rounded Gravel, moist	*569.7*
2.0		
3.0	Dark Brown to Gray Silty fine Sand, trace Clay, fine shell fragments, mottled, iron staining, moist, native	
4.0	same, trace coarse Gravel	*567.7*
5.0		
6.0		
	Red Brown Silty fine to medium Sand, trace fine Gravel, moist, native, Till	*565.2*
7.0	same, fine to coarse Gravel, wet	*564.6*
8.0	same, moist	*563.7*
9.0		
	augered to 10.0 ft.	*562.2*
10.0		*561.7*
	END OF HOLE AT 10.0 FT. BGS	
11.0	Observation well installed, screen set at 9.	
	NOTE : Elevations are based on OCC plant datum.	
12.0		
13.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
562.1 to 567.1 AMSL
Length – 0.61m
Diameter – 50mm
Slot # 10
Material– STAINLESS STEEL

SAMPLE NUMBER	STATE	'N' VALUE
1SS		31
2SS		14
3SS		10
4SS		51
5SS		>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

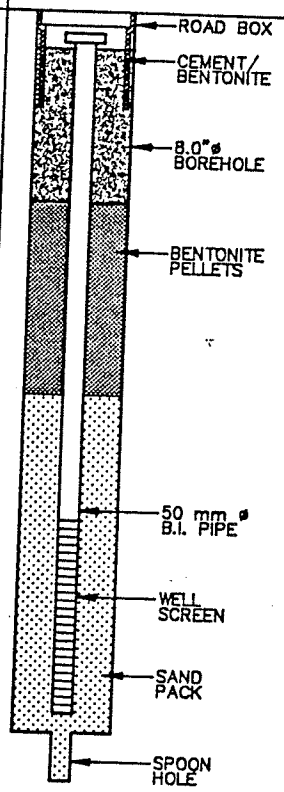
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: ACID PLUME WELLS
PROJECT NO.: 0626
CLIENT: OCCIDENTAL
LOCATION: W–109

HOLE DESIGNATION: AIW3–87
DATE COMPLETED: 12/3/87
DRILLING METHOD: H.S.A. 4.25" ID
CRA SUPERVISOR: P. SMITH

DEPTH m BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION m AMSL
	REFERENCE ELEVATION GROUND ELEVATION	572.86 573.2
	Augered through 0.5 ft. of concrete	
1.0	Fill – dark Brown Gravelly, Silt, cement, moist	572.7
2.0	Gray fine Sandy Silt (with iron staining), trace Clay, trace fine shell material, moist, native	571.2
3.0		
4.0		
5.0		
6.0		
	Gray Silty fine Sand, wet, native	567.2
7.0		
	Red Silty Clay, moist, native, plastic	565.7
8.0	END OF HOLE AT 8.0 FT. BGS	565.2
	Observation well installed, screen set at 7.3	
9.0	NOTE : Elevations are based on OCC plant datum.	
10.0		
11.0		
12.0		
13.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
565.9 to 567.9 AMSL
Length – 0.61m
Diameter – 50mm
Slot # 10
Material– STAINLESS STEEL

SAMPLE NUMBER	STATE	'N' VALUE
1SS		18
2SS		8
3SS		9
4SS		8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: ACID PLUME WELLS
PROJECT NO.: 0626
CLIENT: OCCIDENTAL
LOCATION: W–109

HOLE DESIGNATION: AIW4–87
DATE COMPLETED: 12/3/87
DRILLING METHOD: H.S.A. 4.5" ID
CRA SUPERVISOR: P. SMITH

DEPTH m BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION m AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	572.15 572.4				
	ASPHALT	572.1	ROAD BOX			
	Fill – angular Gravel	572.4				
-1.0	Fill – dark Gray Brown fine Sandy Silt, trace Clay, moist		CEMENT/ BENTONITE	1SS		19
-2.0	no recovery	570.4	8.0"ø BOREHOLE BENTONITE PELLETS			
-3.0				2SS		13
-4.0	Gray (with rust stains) fine Sandy Silt, trace Clay, moist, native		50 mm ø B.I. PIPE			
-5.0			SAND PACK	3SS		9
-6.0			WELL SCREEN			
	Red Silty Clay with Gray Silty partings, native	565.9				
-7.0	Red Clayey Silt little fine rounded Gravel, moist, native, Till	565.4		4SS		17
-8.0						
-9.0	same		SPOON HOLE	5SS		31
-10.0	END OF HOLE AT 10.0 FT. BGS	562.4				
-11.0	At completion augers advanced to 7.0 ft. and a well was set to 6.5 ft.		SCREEN DETAILS: Screened Interval: 565.9 to 567.9 AMSL Length – 0.61m Diameter – 50mm Slot # 10 Material– STAINLESS STEEL			
-12.0	NOTE : Elevations are based on OCC plant datum.					
-13.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

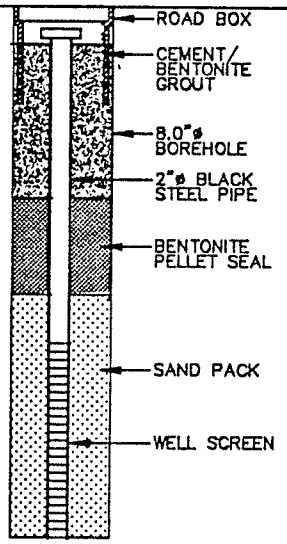
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-10)

PROJECT NAME: NIAGARA PLANT – SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: EAST SIDE OF IROQUOIS STREET

HOLE DESIGNATION: OW302–88
DATE COMPLETED: OCTOBER 26, 1988
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	GROUND ELEVATION	569.1				
	REFERENCE ELEVATION (Top of Riser)	568.96				
	Augered to 1.0 ft. BGS (no sample)					
1.0	Gray brown fine to medium SAND, some silt, fine to medium gravel, trace brick, moist, FILL					
2.0	Gray brown SILT, some clay, little fine to medium sand, trace fine gravel, brick, moist					
3.0						
4.0	Gray GRAVEL, some silt and clay, little fine sand, wet					
5.0	Brown gray SILT, some clay and fine sand, trace fine gravel, wet	563.8				
6.0	Black grading to mottled brown CLAY, some silt, trace fine sand, moist, occasional sand partings, plastic, NATIVE	563.6				
	END OF HOLE @ 5.5 FT. BGS					
7.0	NOTES: 1. At completion a 2.0" ID observation well was installed to 5.5 ft. BGS.					
	2. Stratigraphy for 0.0 to 5.5 ft. BGS taken from OW402–88.					
8.0						
9.0						
10.0						
11.0						
12.0						
13.0						



SCREEN DETAILS:
Screened Interval:
3.5' to 5.5' BGS
Length – 2'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.0' to 5.5' BGS
Material – QROC–1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

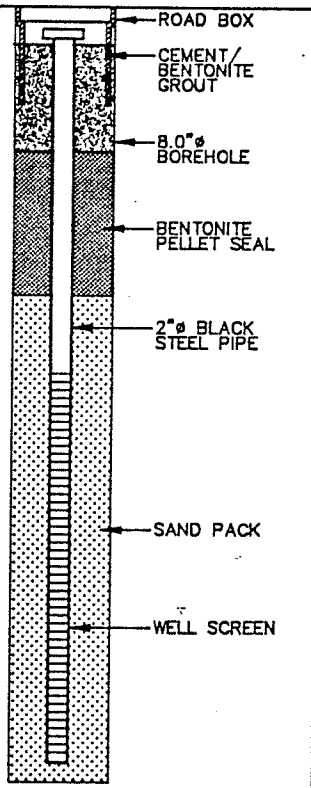
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-11)

PROJECT NAME: NIAGARA PLANT – SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: MOST NORTHWEST OVERBURDEN WELL

HOLE DESIGNATION: OW303-88
DATE COMPLETED: NOVEMBER 2, 1988
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	GROUND ELEVATION	570.1				
	REFERENCE ELEVATION (Top of Riser)	569.77				
1.0	Augered to 1.0 ft. BGS through road gravel (no sample) Black SILT, trace clay, wood fiber, fine gravel, moist, FILL					
2.0						
3.0						
4.0						
5.0	Gray brown mottled SILT, some fine sand, trace clay, moist, NATIVE	565.5				
6.0	Same, except wet					
7.0	Red brown and gray mottled SILT, some clay, moist, plastic	563.6				
8.0	END OF HOLE @ 8.0 FT. BGS	562.1				
9.0	NOTES: 1. At completion a 2.0" ID observation well was installed to 7.8 ft. BGS. 2. Stratigraphy for 0.0 to 8.0 ft. BGS taken from OW403-88.					
10.0						
11.0						
12.0						
13.0						



SCREEN DETAILS:
Screened Interval:
3.8' to 7.8' BGS
Length – 4'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.0' to 8.0' BGS
Material – QROC-1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

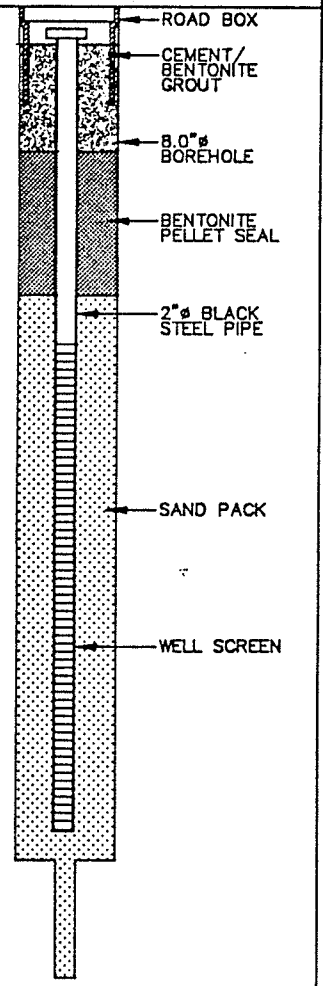
(L-20)

PROJECT NAME: NIAGARA PLANT – SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: NORTHEAST OF V-81

HOLE DESIGNATION: OW312-88
DATE COMPLETED: NOVEMBER 21, 1988
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	GROUND ELEVATION	572.3			
	REFERENCE ELEVATION (Top of Riser)	572.19			
1.0	Gray coarse to fine GRAVEL, some coarse to fine sand, dry, FILL		1SS		16
2.0	Same, except wet				
3.0			2SS		10
4.0	Dark gray SILT, some fine sand, trace clay, moist				
5.0		567.3	3SS		3
6.0	Brown gray mottled fine SAND, some silt, trace clay, moist, NATIVE Brown gray mottled SILT, some fine sand and clay, moist, low plasticity Gray brown fine SAND, some silt, moist to wet				
7.0			4SS		4
8.0					
		563.8			
9.0	Red brown CLAY, some silt, trace fine sand, trace vegetation, moist		5SS		17
10.0		562.3			
	END OF HOLE @ 10.0 FT. BGS				
11.0	NOTES: At completion augers were advanced to 8.8 ft. BGS and a 2.0" ID observation well was installed to 8.5 ft. BGS.				
12.0					
13.0					

MONITOR INSTALLATION



SCREEN DETAILS:
Screened interval:
3.5' to 8.5' BGS
Length – 5'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.0' to 10.0' BGS
Material – QROC-1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

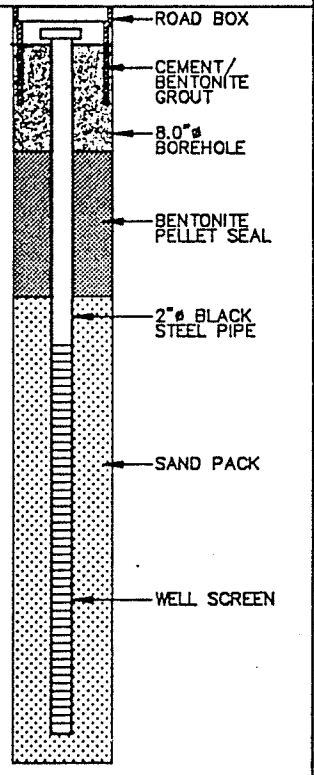
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-22)

PROJECT NAME: NIAGARA PLANT – SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: EAST OF U-23

HOLE DESIGNATION: OW315-88
DATE COMPLETED: NOVEMBER 14, 1988
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	GROUND ELEVATION	571.7				
	REFERENCE ELEVATION (Top of Riser)	571.47				
	Augered through asphalt and gravel to 2.0 ft. BGS (no sample)					
1.0						
2.0	Dark brown to dark gray SILT, some fine sand, trace clay, trace glass, brick, moist, FILL					
3.0						
4.0		567.7				
	Gray to brown mottled SILT, some fine sand, trace clay, moist NATIVE					
5.0	Gray to brown mottled SAND, some silt, trace clay, moist					
6.0						
7.0						
	Red brown fine SAND, some silt, trace coarse to fine rounded gravel, clay, moist, TILL	564.2				
8.0		563.9				
	END OF HOLE @ 7.8 FT. BGS					
	NOTES: 1. At completion a 2.0" ID observation well was installed to 7.5 ft. BGS. 2. Stratigraphy for 0.0 to 7.8 ft. BGS taken from OW415-88.					
9.0						
10.0						
11.0						
12.0						
13.0						



SCREEN DETAILS:
Screened interval:
3.5' to 7.5' BGS
Length – 4.5'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.0' to 7.8' BGS
Material – QROC-1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

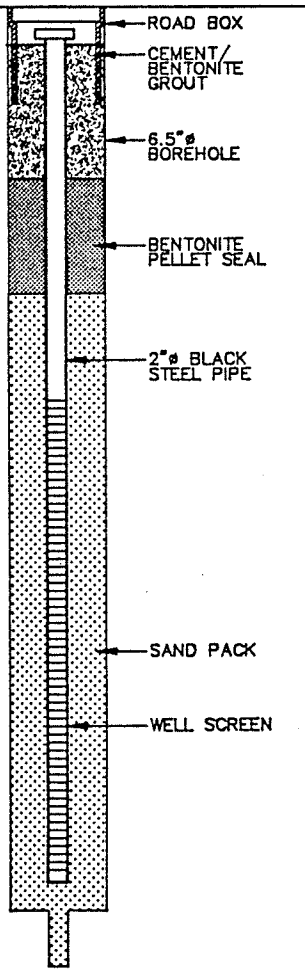
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-6)

PROJECT NAME: NIAGARA PLANT – SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: EAST OF W–102

HOLE DESIGNATION: OW322–88
DATE COMPLETED: NOVEMBER 15, 1988
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	GROUND ELEVATION	573.3
	REFERENCE ELEVATION (Top of Riser)	573.02
1.0	Dark brown to black fine SAND, some silt and coarse to fine gravel, trace white filter cake, moist, FILL	
		571.8
	Dark brown fine SAND, some silt, NATIVE	
2.0	Same, except dark and light brown mottled	
3.0	Gray brown mottled SILT, some fine sand, trace clay, moist	
4.0	Same, except gray, moist to dry	
5.0		
6.0	Gray SILT, some clay, trace fine sand, moist	
7.0	Gray fine SAND, some silt, trace clay, moist to wet	
8.0		
9.0		564.2
	Red brown CLAY, some silt, with occasional fine sand partings, moist to dry	
10.0		563.3
	END OF HOLE @ 10.0 ft. BGS	
	NOTES: 1. At completion augers were advanced to 9.4 ft. BGS and a 2.0" ID observation well was installed to 9.1 ft. BGS	
11.0		
12.0		
13.0		



SCREEN DETAILS:
Screened Interval:
4.1' to 9.1' BGS
Length – 5'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.0' to 10.0' BGS
Material – QROC–1

SAMPLE NUMBER	SAMPLE STATE	'N' VALUE
1SS		12
2SS		26
3SS		13
4SS		7
5SS		11

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-7)

PROJECT NAME: NIAGARA PLANT – SDCP
HOLE DESIGNATION: OW323-88

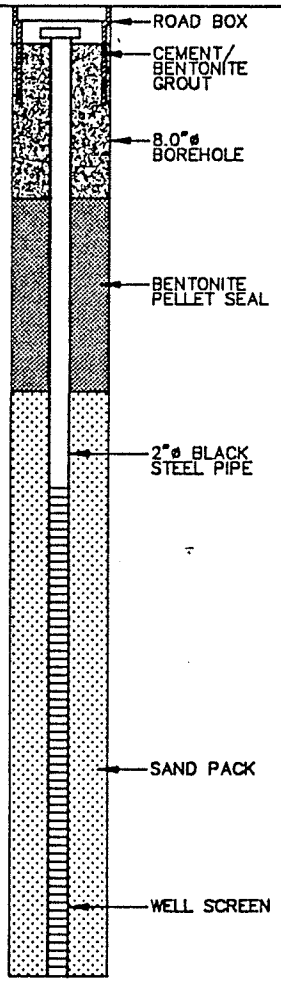
PROJECT NO.: 2583
DATE COMPLETED: NOVEMBER 11, 1988

CLIENT: OCC
DRILLING METHOD: 8.0" OD HSA

LOCATION: NORTH OF BUFFALO AVENUE, EAST OF 53RD STREET
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	GROUND ELEVATION	573.6
	REFERENCE ELEVATION (Top of Riser)	573.24
1.0	Dark gray to black, medium to fine SAND, some silt, trace brick, cement, roots, moist, FILL	
		572.3
2.0	Brown fine SAND, trace silt and clay, moist, NATIVE	
3.0		
4.0	Brown SILT, some fine sand, trace clay, moist	
5.0		
6.0	Gray brown mottled fine SAND, some silt, moist	
7.0		
8.0	Same, except moist to wet	
9.0		
	Red brown SILT, some clay, moist	564.1
10.0	END OF HOLE @ 10.0 ft. BGS	563.6
	NOTES: 1. At completion augers were advanced to 10.0 ft. BGS and a 2.0" ID observation well was installed to 10.0 ft. BGS	
11.0		
12.0		
13.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened interval:
5.0' to 10.0' BGS
Length – 5'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
4.0' to 10.0' BGS
Material – QROC-1

SAMPLE NUMBER	STATE	'N' VALUE
1SS		6
2SS		10
3SS		7
4SS		14
5SS		16

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

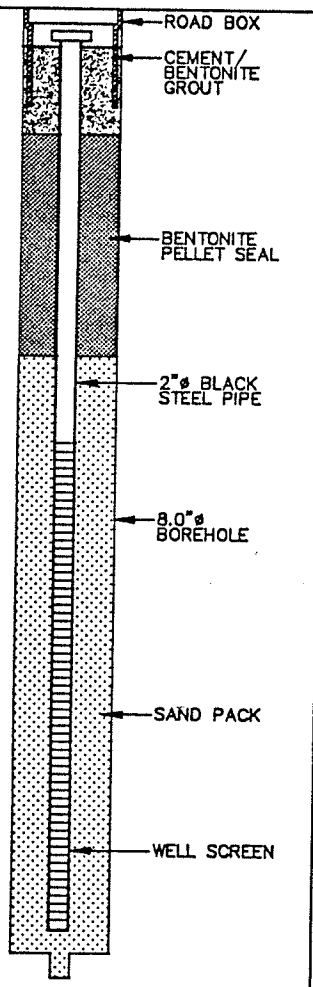
(L-31)

PROJECT NAME: NIAGARA PLANT–SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: BUFFALO AVENUE AND 53RD STREET

HOLE DESIGNATION: BH5A–89
DATE COMPLETED: JANUARY 10, 1989
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	GROUND ELEVATION 572.1 REFERENCE ELEVATION (Top of Riser) 571.71				
1.0	Augered through asphalt and concrete to 2.0 ft. BGS (no sample)				
2.0	Gray medium to coarse SAND, some fine gravel, trace silt and clay, moist, FILL				
3.0			1SS		10
	Brown WOOD, moist				
4.0	Gray brown SILT, some cement, trace clay and fine sand, moist				
5.0			2SS		11
6.0	Gray fine to coarse SAND, trace brick and clay, moist Brown WOOD, moist Augered to 8.0 ft. BGS (no sample)		3SS		100/0.2
7.0					
8.0	Red brown CLAY, some silt, moist, NATIVE	564.1			
9.0			4SS		4
10.0	END OF HOLE @ 10.0 FT. BGS	562.1			
	NOTES: At completion augers were advanced to 9.8 ft. BGS and a 2.0" ID observation well was installed to 9.5 ft. BGS.				
11.0					
12.0					
13.0					

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
4.5' to 9.5' BGS
Length – 5'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.5' to 10.0' BGS
Material – QROC–1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

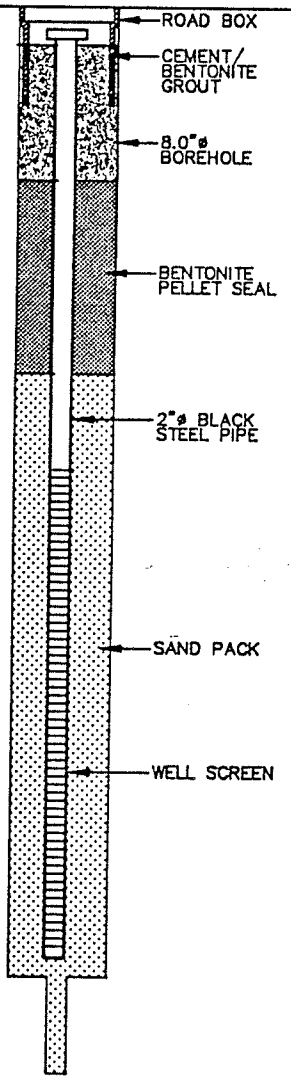
(L-32)

PROJECT NAME: NIAGARA PLANT–SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: BUFFALO AVENUE AND 53RD STREET

HOLE DESIGNATION: BH5B–89
DATE COMPLETED: JANUARY 9, 1989
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	GROUND ELEVATION *572.1* REFERENCE ELEVATION (Top of Riser) *571.78*	
1.0	Augered through asphalt and concrete to 2.0 ft. BGS (no sample)	
2.0	Black SILT, some sand and gravel, trace brick, moist, FILL	
3.0		
4.0	Brown and gray mottled fine SAND, some silt, trace clay, moist	
5.0		
6.0		
7.0	Gray CONCRETE, some fine gravel and fine sand, dry	
8.0		
9.0	Red brown CLAY, some silt, moist, NATIVE	*563.1*
10.0		
11.0	END OF HOLE @ 11.0 FT. BGS	*561.1*
12.0	NOTES: 1. At completion augers were advanced to 10.0 ft. BGS and a 2.0" ID observation well was installed to 9.8 ft. BGS.	
13.0	2. Stratigraphy derived from a borehole split, ie. stratigraphy for 0.0 to 5.0 ft. BGS taken from an adjacent borehole (2.0 ft. northwest).	

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
4.8' to 9.8' BGS
Length – 5'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.8' to 11.0' BGS
Material – QROC–1

SAMPLE NUMBER	STATE	'N' VALUE
1SS		19
2SS		5
3SS		4
4SS		14
5SS		3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

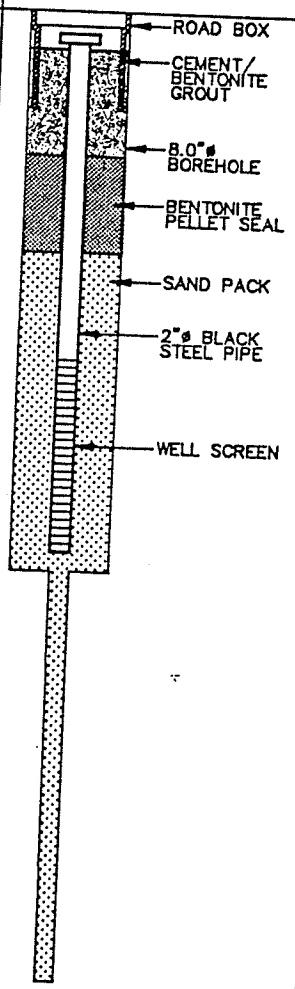
(L-26)

PROJECT NAME: NIAGARA PLANT – SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: BUFFALO AVENUE AND IROQUOIS STREET

HOLE DESIGNATION: BH9A-88
DATE COMPLETED: DECEMBER 7, 1988
DRILLING METHOD: 8.0" OD HSA
CRA SUPERVISOR: N.W. THOMPSON

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	GROUND ELEVATION REFERENCE ELEVATION (Top of Riser)	570.4 570.15
1.0	Dark brown silty sand, TRACE slag and vegetation, dry, FILL	
2.0		
3.0	Dark brown to red brown SILT, trace vegetation, dry	
4.0		
5.0	Same, except with no vegetation	
	Gray silty SAND, dry to moist, strong diesel odor	
6.0	Gray to red brown silty CLAY, moist, NATIVE	564.6
7.0		
8.0	Same, except with trace fine angular gravel, TILL	562.4
9.0		
10.0	END OF HOLE @ 10.0 FT. BGS	560.4
	NOTES: 1. At completion augers were advanced to 5.8 ft. BGS and a 2.0"ID observation well was installed to 5.6 ft. BGS.	
11.0	2. Stratigraphy derived from a borehole split, ie stratigraphy for 5.0 to 7.0 ft. taken from an adjacent borehole (1.0 ft. west)	
12.0		
13.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
3.6' to 5.6' BGS
Length – 2'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
2.5' to 10.0' BGS
Material – QROC-1

SAMPLE NUMBER	STATE	'N' VALUE
1SS		8
2SS		7
3SS		2
4SS		12
5SS		9
6SS		11

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-35)

PROJECT NAME: NIAGARA PLANT-SDCP
HOLE DESIGNATION: BH9B-89

PROJECT NO.: 2583
DATE COMPLETED: JANUARY 3, 1989

CLIENT: OCC
DRILLING METHOD: 8.0" OD HSA

LOCATION: BUFFALO AVENUE AND IROQUOIS STREET
CRA SUPERVISOR: N.W. THOMPSON

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	GROUND ELEVATION REFERENCE ELEVATION (Top of Riser)	570.4 570.12				
	Augered through gravel to 1.0 ft. BGS (no sample)		ROAD BOX			
1.0	Dark brown coarse SAND, some slag, wet, FILL Olive gray to brown silty CLAY, trace fine angular gravel, wet		CEMENT/BENTONITE GROUT 8.0"ø BOREHOLE			
2.0			2"ø BLACK STEEL PIPE	1SS		18
3.0	No recovery					
4.0			BENTONITE PELLET SEAL	2SS		8
5.0	Olive gray to brown silty CLAY, trace fine angular gravel, wet			3SS		1
6.0	Red brown fine SAND and silty CLAY, moist					
7.0				4SS		5
			SAND PACK			
8.0	Same, except moist to wet					
9.0			WELL SCREEN	5SS		2
10.0	Same, except with black coarse slag, wet, slight diesel odor					
11.0				6SS		3
12.0	Red brown silty CLAY, moist, plastic, NATIVE	558.6 558.4				
	END OF HOLE @ 12.0 FT. BGS					
13.0	NOTES: 1. At completion a 2.0" ID observation well was installed to 11.8 ft. BGS. 2. Stratigraphy derived from a borehole split, ie. stratigraphy for 0.0 to 6.0 ft. BGS taken from an adjacent borehole (3.0 ft. south).					

SCREEN DETAILS:
Screened Interval:
5.8' to 11.8' BGS
Length - 6'
Diameter - 2"
Slot # 6
Material - Stainless Steel
Sand pack interval:
4.8' to 12.0' BGS
Material - QROC-1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

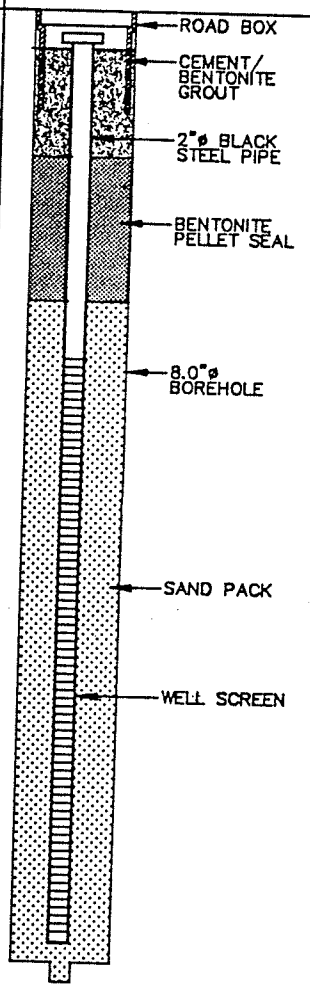
(L-9)

PROJECT NAME: NIAGARA PLANT – SDCP
PROJECT NO.: 2583
CLIENT: OCC
LOCATION: 53RD STREET AND BUFFALO AVENUE

HOLE DESIGNATION: OW42A–88(R)
DATE COMPLETED: DECEMBER 13, 1988
DRILLING METHOD: 8" OD HSA
CRA SUPERVISOR: P. SMITH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	GROUND ELEVATION	574.0
	REFERENCE ELEVATION (Top of Riser)	573.68
1.0	Augered through asphalt to 1.0 ft. BGS (no sample)	
	Dark brown and black SILT, some coarse to fine sand and asphalt, moist, FILL	
2.0		
3.0		
		570.3
4.0	Brown fine SAND, some silt, moist, NATIVE	
	No recovery (4.0–6.0 ft. BGS)	
5.0		
6.0	Gray fine SAND, some silt, trace clay, moist	
7.0		
	Gray SILT, some clay	
8.0	Gray fine SAND, some silt, trace clay, moist	
9.0		
		564.4
10.0	Red brown SILT, some clay, moist	
		564.0
	END OF HOLE @ 10.0 FT. BGS	
	NOTES: 1. At completion augers were advanced to 9.8 ft. BGS and a 2.0" ID observation well was installed to 9.6 ft. BGS.	
11.0		
12.0		
13.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
3.6' to 9.6' BGS
Length – 6'
Diameter – 2"
Slot # 6
Material – Stainless Steel
Sand pack interval:
3.0' to 10.0' BGS
Material – QROC–1

SAMPLE NUMBER	SAMPLE STATE	'N' VALUE
1SS		100/1
2SS		9
3SS		9
4SS		7
5SS		13

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augured to 10.5 feet below grade		
and installed a 10 foot well		
screen, to .4 feet below grade.		
Sand packed for full length with		
cement on top.		
Fill, composed of crushed rock;		
cinders; silt; dry (auger sample)	1.0	1.0
Fill, composed of cinders; sand;		
gravel, (auger sample)	2.0	3.0
Silt, clayey, tan-gray, no odor, dry	1.5	4.5
No return	1.5	6.0
Silt, clayey, tan-gray; sand, very		
fine; dry, no odor	1.5	7.5
Silt, clayey, tan-gray; sand, very		
fine to fine, silty; no odor	1.5	9.0
Top: silt, clayey, tan-gray; bottom;		
clay, silty, red-brown; hard, dry,		
no odor	1.5	10.5

OWNER: Hooker Chemicals and Plastics Corp Niagara Falls Plant

LOCATION: Purchasing Department Visitors Parking Lot

WELL NO.: B-2a

DATE COMPLETED: January 11, 1979

DRILLING COMPANY: Rochester Drilling Co

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: No samples

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 571.4 feet above MSL

CASING: None

SCREEN - TYPE: Johnson stainless steel

DIAM.: 1½ inch SLOT NO.: 10

SETTING: 0.4 feet to 10.4 feet

PUMPING TEST - DATE:

DURATION:

STATIC WATER LEVEL: 7.03 feet below March 1,197

PUMPING WATER LEVEL:

YIELD: .25 gpm

REMARKS:

1/ TOC = 571.08 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.

CONSULTING GROUND-WATER GEOLOGISTS

55 WEST STATE STREET

WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered to 6.5 feet and installed 5 feet of screen; no samples taken; screen sand packed for entire length		
Fill, composed of cinders; stones sand, fine to coarse; silt; black, dry, no odor	1.5	1.5
Fill, composed of cinders, stones; sand, fine to coarse; silt; black, wet no odor	1.5	3.0
Fill, composed of silt, brown, clayey some sand, fine to coarse; gravel; chemical odor	1.5	4.5
Fill, gravel, fine to coarse; stones, sand, fine to coarse; some silt and clay; wet, chemical odor	1.5	6.0
Clay, brown, sticky, no odor	1.5	7.5

OWNER: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

LOCATION: SW corner of Bldg T-9

WELL NO.: B-3a

DATE COMPLETED: January 11, 1979

DRILLING COMPANY: Rochester Drilling Co.

DRILLING METHOD: Hollow stem auger

SAMPLING METHOD: No samples taken

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 568.5 feet above MSL

CASING: 1.0 feet of 1¼ inch galvanized

SCREEN TYPE: Johnson stainless stee

DIAM.: 1¼inch SLOT NO. 10

SETTING: 1.5 feet to 6.5 feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 1.85 feet below TOC, March 19, 1979

PUMPING WATER LEVEL:

YIELD: 1 gpm

REMARKS:

1/ TOC = 568.17 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Crushed stone (no return)	1.5	1.5
Crushed stone; gravel; sand, coarse;		
chemical odor, dry	1.5	3.0
Silt, tan; chemical odor, dry	1.5	4.5
Silt, tan; no odor, dry	1.5	6.0
Silt, tan; faint odor, dry	2.0	8.0
Clay, brown-red, silty, hard	1.0	9.0
Clay, silty, hard, brown	0.5	9.5

OWNER: Hooker Chemical and Plastics Corp. Niagara Falls Plant

LOCATION: Buff. Ave. near 53rd S

WELL No.: B-20a

DATE COMPLETED: February 19, 1979

DRILLING COMPANY: Rochester Drilling Co.

DRILLING METHOD: Hollow -stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: grade 1/

ELEVATION OF R. P.: 572.2 feet above MSL

CASING: 4½ feet of 1½-inch galvanized

SCREEN-TYPE: Johnson Stainless Stee

DIAM.: 1½-inch SLOT No. 10

SETTING: 4½-9½ feet

PUMPING TEST-DATE:

DURATION:

STATIC WATER LEVEL: 3.96 feet below TOC, March 1, 1979

PUMPING WATER LEVEL:

YIELD: .15 gpm

REMARKS:

1/ TOC = 572.06 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Fill, composed or wood; silt; cinders;		
crushed brick; sand	1.5	1.5
Silt, clayey, tan-gray	1.5	3.0
Silt, clayey, tan-gray	3.0	6.0
Silt, clayey, tan-gray, wet	2.0	8.0
Clay, silty, red-brown	1.0	9.0
Clay, somewhat silty, laminated,		
light brown; chemical odor	4.5	13.5
Clay, plastic, brown; trace of		
chemical odor; some till, composed		
of sand, fine to medium, brown	1.5	15.0
Till, silty; some clay, brown; and		
cobbles, angular, dark gray	1.5	16.5
Till, silty; some clay, brown; and		
cobbles, angular, dark gray; little		
sand, brown; trace of sand-like		
substance (which does not look		
native)	3.0	19.5
Bedrock, dolomite, few rounded frag-		
ments, weathered, dark gray with		
some light gray	3.5	23.0
Bedrock, solid	4.0	27.0
Hole caved 2 feet, set screen		
20-25 feet below grade.		

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant

LOCATION: Near Bldg. 27 or F-33a

WELL NO.: B-26

DATE COMPLETED: February 14, 1979

DRILLING COMPANY: Rochester Drilling Company

DRILLING METHOD: Hollow-stem auger 1/

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica & G. S. Sikora

REFERENCE POINT: Grade 2/

ELEVATION OF R. P.: 571.2 feet above MSL

CASING: 20 feet of 1½-inch galvanized

SCREEN-TYPE: Johnson stainless steel

DIAM.: 1½-inch SLOT NO. 10

SETTING: 20 feet - 25 feet

PUMPING TEST-DATE:

DURATION:

STATIC WATER LEVEL: 19.42 feet below top of casing March 1,.1979

PUMPING WATER LEVEL:

YIELD: 15 gpm

REMARKS:

1/ Hollow-stem auger to top of clay; drive and wash to top of rock; tricone bit in rock.

2/ TOC=571.38 feet abov MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.
CONSULTING GROUND-WATER GEOLOGISTS
55 WEST STATE STREET
WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Augered through 1.5 ft of crushed sone, fill and silt	1.5	1.5
Fill, of silt, brown, clayey; sand, fine to coarse; silt, tan-gray, clayey	1.5	3.0
Silt, clayey, tan	1.5	4.5
Silt, clayey, tan	1.0	5.5
Till, red, composed of clay; silt; small amounts of sand; gravel; stones	0.5	6.0

OWNER: Hooker Chemicals and Plastics Corp., Niagara Falls Plant

LOCATION: Buffalo Ave., Bldg.55

WELL NO.: B-29a

DATE COMPLETED: January 26, 1979

DRILLING COMPANY: Rochester Drilling Company

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 570.8 feet above MSL

CASING: .7 foot of 1½-inch galvanized

SCREEN-TYPE: Johnson stainless steel

DIAM.: 1½-inch SLOT NO. 10

SETTING: 1 foot - 6 feet

PUMPING TEST-DATE:

DURATION:

STATIC WATER LEVEL: 6.43 feet below TOC March 20, 1979

PUMPING WATER LEVEL:

YIELD: Approximately 8 hours to recover from evacuation

REMARKS:

1/ TOC.=570.53 feet above MSL

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.

CONSULTING GROUND-WATER GEOLOGISTS

55 WEST STATE STREET

WESTPORT, CONNECTICUT

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Fill, of silt; sand, fine to coarse;		
gravel; brick	1.5	1.5
Silt, tan; sand, very fine	5.8	7.3
Change to clay		7.3
Clay, brown-red	.2	7.5

OWNER: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

LOCATION: Buffalo Ave. Bldg.W10

WELL NO.: B-30a

DATE COMPLETED: January 25, 1979

DRILLING COMPANY: Rochester Drilling Co

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: Split spoon

SAMPLES EXAMINED BY: R. Lamonica

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 571.9 feet above MSL

CASING: 1.5 feet of 1¼-inch galvanized

SCREEN-TYPE: Johnson Stainless Ste-

DIAM.: 1¼ inch SLOT NO. 10

SETTING: 2 feet - 7 feet

PUMPING TEST-DATE:

DURATION:

STATIC WATER LEVEL: 4.32 feet below TOC, (2/13/79) 2.90 feet below TOC (3/1/79)

PUMPING WATER LEVEL:

YIELD: 15 gpm

REMARKS:

1/ TOC = 571.48 feet above MSL

ATTACHMENT B
Water Level Data

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	1	2	4	4A	7A	8	8A	9
TYPE	R	R	R	O	O	R	O	R
CASING EL.	573.01	571.15	570.02	569.86	572.36	569.79	569.89	571.21
GROUND EL.	571.3	571.5	568.1	567.9	570.2	569.9	570.1	570.4
06-06-88	550.76	551.47	551.74	BENT	566.42	552.94	566.41	555.73
09-21-88	552.23	552.66	553.02		566.08	554.40	566.12	556.51
11-25-88	NM	NM	NM		NM	NM	NM	NM
12-20-88	550.59	551.33	551.64		567.39	554.57	567.40	555.02
01-26-89	NM	NM	NM		NM	NM	NM	NM
02-20-89	NM	NM	NM	564.76	565.83	NM	566.45	NM
03-30-89	NM	NM	NM	NM	NM	NM	NM	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.
Well 4A was repaired and resurveyed February 1989.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	10	10A	14A	14B	15A	16	16A	17
TYPE	R	O	O	O	O	R	O	R
CASING EL.	570.29	569.34	573.35	573.08	573.84	572.57	571.94	573.31
GROUND EL.	570.0	569.7	573.6	573.3	573.2	570.7	570.9	572.0
06-06-88	559.86	566.71	NM	NM	NM	NM	NM	NM
09-21-88	560.10	566.80	NM	NM	NM	NM	NM	NM
11-25-88	NM	NM	NM	NM	NM	560.83	563.28	560.79
12-20-88	558.99	567.49	565.05	564.06	564.37	560.36	562.90	560.34
01-26-89	NM	NM	NM	NM	NM	560.47	562.98	560.41
02-20-89	NM	567.23	564.79	NM	564.42	NM	559.68	NM
03-30-89	NM	NM	NM	NM	NM	560.15	563.08	560.10

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	17A	18	18A	19	20	20A	21	21A
TYPE	O	R	O	R	R	O	R	O
CASING EL.	574.13	573.76	574.85	571.41	572.08	572.36	573.31	573.09
GROUND EL.	572.2	571.6	571.6	571.9	572.5	572.5	573.2	573.2
06-06-88	NM	NM	NM	NM	559.91	565.36	555.98	570.86
09-21-88	NM	NM	NM	560.83	560.20	565.26	557.12	570.51
11-25-88	565.96	560.86	568.25	NM	NM	NM	NM	NM
12-20-88	565.60	560.66	567.75	561.17	560.46	FROZEN	556.28	572.88
01-26-89	565.88	560.57	567.90	NM	NM	NM	NM	NM
02-20-89	568.66	NM	567.90	NM	NM	566.04	NM	FLOODED
03-30-89	565.81	560.53	567.86	NM	NM	NM	NM	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	23	23A	25	25A	26	26A	27	27A
TYPE	R	O	R	O	R	O	R	O
CASING EL.	572.21	572.70	571.13	571.27	571.68	571.21	571.72	571.73
GROUND EL.	572.8	572.8	571.6	571.6	571.5	571.5	571.9	571.9
06-06-88	553.32	570.81	550.85	569.94	551.70	570.12	553.29	565.62
09-21-88	553.86	570.62	551.92	569.79	552.93	FLOODED	554.76	566.13
11-25-88	NM	NM	NM	NM	NM	NM	NM	NM
12-20-88	NM	NM	550.50	569.93	FROZEN	FLOODED	552.75	566.00
01-26-89	NM	NM	NM	NM	NM	NM	NM	NM
02-20-89	NM	570.35	NM	FLOODED	NM	FLOODED	NM	565.87
03-30-89	NM	NM	NM	NM	NM	NM	NM	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	28	28A	30	30A	33A	35A	36A	37A
TYPE	R	O	R	O	O	O	O	O
CASING EL.	570.18	570.32	571.78	571.78	570.58	569.46	577.12	572.00
GROUND EL.	570.4	570.4	572.2	572.2	570.6	569.7	575.3	572.2
06-06-88	NM	567.26	553.85	567.41	567.12	565.87	PLUGGED	569.32
09-21-88	555.15	566.84	554.79	567.37	566.75	565.70		568.98
11-25-88	NM	NM	NM	NM	NM	NM		NM
12-20-88	554.72	567.02	553.42	567.28	567.29	566.14		569.37
01-26-89	NM	NM	NM	NM	NM	NM		NM
02-20-89	NM	566.86	NM	567.25	563.52	566.01		570.09
03-30-89	NM	NM	NM	NM	NM	NM		NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	39A	40	40A	40B	43A	45A	46A	47A
TYPE	O	R	O	O	O	O	O	O
CASING EL.	571.95	572.22	571.99	572.15	572.20	574.77	573.59	575.08
GROUND EL.	572.8	572.4	572.4	572.4	568.5	571.9	572.5	572.3
06-06-88	570.79	552.70	565.93	568.80	BURIED	NM	NM	NM
09-21-88	570.79	553.91	565.74	568.88		NM	NM	NM
11-25-88	NM	NM	NM	NM		566.65	567.92	565.22
12-20-88	571.22	552.73	565.52	568.40		566.33	567.42	564.77
01-26-89	NM	NM	NM	NM		567.38	567.49	564.96
02-20-89	570.75	NM	FLOODED	554.45		566.31	567.17	564.68
03-30-89	NM	NM	NM	NM		566.50	567.67	565.08

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	53	54	55	56	57	58	73	89
TYPE	O	O	O	O	O	O	O	O
CASING EL.	569.74	570.32	571.87	571.79	572.03	570.08	569.66	572.59
GROUND EL.	569.4	570.7	572.2	572.2	572.2	570.3	569.9	569.8
06-06-88	BENT	567.56	567.97	566.52	566.51	567.97	BURIED	NM
09-21-88		567.18	566.71	565.44	565.88	567.83		NM
11-25-88		NM	NM	NM	NM	NM		NM
12-20-88		567.45	567.59	566.59	566.67	566.90		565.33
01-26-89		NM	NM	NM	NM	NM		NM
02-20-89	565.89	NM	567.13	566.24	566.30	FLOODED	565.89	564.53
03-30-89	NM	NM	NM	NM	NM	NM	NM	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.
Well 53 was repaired and resurveyed February 1989.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	93	94	95	96	97	98	107	109
TYPE	O	O	O	O	O	O	O	O
CASING EL.	572.94	572.62	572.30	576.28	573.55	573.50	573.61	572.43
GROUND EL.	573.1	572.8	572.6	573.6	573.6	573.6	573.9	572.6
06-06-88	570.26	569.37	568.21	568.53	568.39	570.76	572.13	568.99
09-21-88	570.45	569.73	568.51	569.95	569.49	570.95	572.31	569.82
11-25-88	NM	NM	NM	NM	NM	NM	NM	NM
12-20-88	570.22	569.11	567.89	570.21	569.47	571.42	572.50	569.88
01-26-89	NM	NM	NM	NM	NM	NM	NM	NM
02-20-89	570.94	569.28	568.07	570.42	569.10	571.07	570.33	569.46
03-30-89	NM	NM	NM	NM	NM	NM	NM	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	111	113	117	122	150	151	156	157
TYPE	O	O	O	O	O	O	O	O
CASING EL.	572.58	571.46	571.02	571.55	569.83	568.66	571.45	571.39
GROUND EL.	573.7	571.8	571.2	571.9	570.1	568.9		
06-06-88	568.15	567.42	567.74	564.57	569.52	565.11	568.54	567.45
09-21-88	568.08	567.59	567.18	564.08	569.27	564.62	568.54	567.25
11-25-88	NM	NM	NM	NM	NM	NM	NM	NM
12-20-88	567.47	567.38	566.94	565.71	568.42	564.90	568.86	567.32
01-26-89	NM	NM	NM	NM	NM	NM	NM	NM
02-20-89	567.51	FLOODED	FLOODED	567.15	567.06	564.79	568.75	567.07
03-30-89	NM	NM	NM	NM	NM	NM	NM	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	158	159	160
TYPE	O		
CASING EL.	571.03		
GROUND EL.			
06-06-88	567.93		
09-21-88	567.76		
11-25-88	NM		
12-20-88	567.81		
01-26-89	NM		
02-20-89	566.94	FLOODED	FLOODED
03-30-89	NM		

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
T/C elevations were surveyed February 1983.
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	OW302	OW303	OW304	OW305	OW306	OW307	OW308	OW309
TYPE	O	O	O	O	O	O	O	O
CASING EL.	568.96	569.77	570.84	572.79	571.59	571.94	571.19	573.69
GROUND EL.	569.1	570.1	571.3	573.2	572.0	572.2	571.4	573.9
06-06-88								
09-21-88								
11-25-88								
12-20-88								
01-26-89								
02-20-89	564.77	FLOODED	567.30	569.77	568.72	563.41	FLOODED	570.21
03-30-89	NM	NM	NM	NM	NM	NM	NM	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	OW310	OW311	OW312	OW313	OW314	OW315	OW316	OW317
TYPE	O	O	O	O	O	O	O	O
CASING EL.	572.54	573.13	572.19	568.30	NA	571.74	569.78	572.25
GROUND EL.	572.8	573.4	572.3	568.8	NA	571.7	570.1	572.5
06-06-88								
09-21-88								
11-25-88								
12-20-88								
01-26-89								
02-20-89	570.89	570.33	565.62	564.43	NA	566.22	566.11	570.34
03-30-89								

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	OW318	OW319	OW320	OW321	OW322	OW323	OW324	OW325
TYPE	O	O	O	O	O	O	O	O
CASING EL.	571.45	571.19	573.89	573.02	573.02	573.24	NA	569.14
GROUND EL.	571.9	571.9	574.3	573.8	573.3	573.6	NA	569.7
06-06-88								
09-21-88								
11-25-88								
12-20-88								
01-26-89								
02-20-89	567.92	568.57	570.92	FLOODED	571.09	569.89	NA	FLOODED
03-30-89	NM	NM	NM	NM	NM	NM	NA	NM

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	B-1	B-2	B-3	B-5	B-6	B-10	B-11	B-12
TYPE	0	0	0	0	0	0	0	0
CASING EL.	575.90	576.13	571.89	576.48	574.98	576.22	576.07	576.92
GROUND EL.								
06-06-88	562.68	562.78	562.28	566.41	562.66	561.18	566.93	562.87
09-21-88	NM	NM	NM	NM	NM	NM	NM	NM
11-25-88	562.66	563.02	562.55	567.89	562.60	560.71	570.12	562.85
12-20-88	562.46	562.71	562.28	566.87	562.37	560.18	569.81	562.69
01-26-89	562.61	562.85	562.21	568.17	562.53	560.42	570.18	562.87
02-20-89	562.49	562.76	562.03	567.28	562.41	560.14	568.51	562.80
03-30-89	562.53	562.90	562.00	571.05	562.47	560.15	571.40	562.88

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	River Benchmark - Dock	River Benchmark - Intakes	WS44AR
TYPE			
CASING EL.			
GROUND EL.			
01-26-89	8.00§	561.79	
02-20-89	8.45§	561.19	
03-30-89	8.35§	561.58	6.45**

All elevations are based on 1986 OCC datum, reference drawing A-11-19200
R=Bedrock Well; I=Interface Well; O=Overburden Well
NM=Not Measured
*=Elevation of bottom of well screen.
§=Below top of dock.
**=Below top of casing.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	1	2	4	4A	7A	8	8A	9
TYPE	R	R	R	O	O	R	O	R
CASING EL.	572.71	570.85	569.72	569.21	572.06	569.49	569.59	570.91
GROUND EL.	571.0	571.2	567.8	567.6	569.9	569.6	569.8	570.1
JAN 27/87	549.58	NM	549.58	Bent	566.58	552.07	566.99	553.81
FEB 17/87	*547.0	NM	549.22		566.64	552.04	566.49	553.29
MAR16/87	*547.0	548.27	548.48		567.11	552.20	566.46	552.91
APR 20/87	*547.0	548.71	Bent		567.27	551.90	566.65	553.25
MAY 11/87	548.25	548.83	549.05		NM	551.70	565.83	553.73
JUN 19/87	548.79	549.06	549.66		567.13	551.66	566.16	554.00
JUL 06/87	548.63	549.03	549.22		567.03	551.78	566.62	554.08
AUG 10/87	549.61	550.05	550.14		568.21	552.19	567.67	554.64
SEP 09/87	549.90	550.06	550.29		567.93	552.15	568.41	554.62
OCT 26/87	550.90	551.15	551.75		567.41	551.98	566.96	555.17
DEC 07/87	NM	548.30	548.38		567.68	551.84	567.10	553.10
JAN 4/88	*547.0	NM	548.97		566.62	551.67	566.09	553.58
FEB 9/88	*547.0	549.11	549.21		566.38	551.48	566.05	553.62
MINIMUM	*547.0	544.92	548.38	549.69	564.73	551.39	565.49	552.91
MAXIMUM	552.91	553.99	565.36	567.42	569.68	561.53	568.41	557.34

All elevations are based on Hooker datum.
T/C elevations were surveyed February 1983.
R=Bedrock well; I=Interface well; O=Overburden well
NM Not measured
( ) Elevation of bottom of well screen

W ELL MONITORING PROGRAM
" IAGARA PLANT

WELL NO.	10	10A	14A	14B	15A	16	16A	17
(PE	R	O	O	O	O	R	O	R
A 3 EL.	569.99	569.04	573.05	572.78	573.54	572.27	571.64	573.01
GROUND EL.	569.7	569.4	573.3	573.0	572.9	570.4	570.6	571.7
AN 27/87	558.56	566.35	NM	565.43	565.67	560.31	563.71	560.34
FEB 17/87	558.04	NM	560.93	565.04	565.06	560.15	563.03	560.12
MAR16/87	558.04	566.31	562.04	565.58	565.39	559.72	563.41	559.72
PR 20/87	558.39	566.42	566.22	563.91	566.41	560.26	563.64	560.36
AY 11/87	558.86	566.30	563.50	566.61	565.39	560.27	563.09	559.70
JUN 19/87	558.78	566.49	563.52	564.30	564.19	560.81	562.63	560.65
JL 06/87	558.76	566.79	563.18	564.70	564.01	560.79	562.63	560.58
UG 10/87	559.24	567.72	565.57	565.06	564.51	560.85	562.94	560.79
SEP 09/87	559.24	567.38	564.11	564.84	563.82	561.00	562.62	560.97
CT 26/87	560.02	567.03	564.15	564.82	564.47	561.79	562.72	561.72
EC 07/87	558.29	566.56	565.33	563.31	565.18	560.05	563.05	559.97
JAN 4/88	558.84	566.16	563.13	565.83	565.25	560.62	563.18	560.55
EB 9/88	558.34	566.53	563.37	565.10	564.25	559.64	562.61	559.57
INIMUM	558.04	565.69	560.93	558.20	563.35	559.64	560.41	559.57
MAXIMUM	560.37	569.27	566.70	566.61	566.93	563.51	564.97	562.33

ll elevations are based on Hooker datum
/C elevations were surveyed February 1983.
R=Bedrock well; I=Interface well; O=Overburden well
" Not measured
evation of bottom of well screen

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	17A	18	18A	19	20	20A	21	21A
TYPE	O	R	O	R	R	O	R	O
T/C EL.	573.83	573.46	574.55	571.11	571.78	572.06	573.01	572.79
GROUND EL.	571.9	571.3	571.3	571.6	572.2	572.2	572.9	572.9
JAN 27/87	565.58	560.39	567.49	NM	NM	NM	NM	NM
FEB 17/87	565.37	560.13	567.22	NM	NM	NM	NM	NM
MAR16/87	565.71	561.04	567.68	559.22	559.26	565.48	NM	572.29
APR 20/87	565.77	560.13	568.02	559.41	558.36	564.64	554.48	NM
MAY 11/87	566.12	560.36	567.51	560.17	558.54	564.81	554.31	570.04
JUN 19/87	565.31	560.88	567.14	560.22	559.10	565.06	554.64	572.02
JUL 06/87	565.39	561.15	567.30	560.53	559.36	565.16	554.60	572.02
AUG 10/87	566.62	561.19	567.98	560.03	559.74	566.55	555.38	572.54
SEP 09/87	565.53	561.06	567.52	NM	559.71	566.69	555.95	572.58
OCT 26/87	565.56	560.93	568.08	560.87	559.85	565.75	555.99	572.55
DEC 07/87	565.73	560.06	568.48	559.02	557.63	567.00	553.98	572.42
JAN 4/88	565.61	559.79	567.99	561.43	558.28	565.24	553.82	571.45
FEB 9/88	565.25	559.73	567.36	558.69	558.12	565.72	Buried	Buried
MINIMUM	565.11	559.62	566.66	558.69	557.63	564.20	552.83	567.72
MAXIMUM	566.85	561.60	568.70	562.15	560.12	571.34	555.99	572.79

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983
R=Bedrock well; I=Interface well; O=Overburden well
NM=Not measured
levation of bottom of well screen

WELL MONITORING PROGRAM
IAGARA PLANT

ELL NO.	23	23A	25	25A	26	26A	27	27A
YPE	R	O	R	O	R	O	R	O
A G EL.	571.91	572.4	570.83	570.97	571.38	570.91	571.42	571.43
GROUND EL.	572.5	572.5	571.3	571.3	571.2	571.2	571.6	571.6
AN 27/87	NM	NM	NM	NM	NM	NM	NM	NM
FEB 17/87	NM	NM	NM	NM	NM	NM	550.96	566.70
MAR16/87	550.85	570.53	547.87	569.41	NM	NM	550.59	566.23
APR 20/87	551.33	570.92	548.89	569.64	548.92	NM	550.86	566.76
MAY 11/87	551.53	570.54	548.46	569.00	Flooded	Flooded	550.75	566.22
JUN 19/87	551.16	570.43	548.58	569.01	NM	NM	551.21	566.05
UL 06/87	Flooded	570.79	548.59	569.24	NM	NM	551.28	566.51
UG 10/87	552.13	571.04	549.37	569.51	Flooded	Flooded	552.03	566.20
SEP 09/87	552.39	571.05	549.64	569.31	Flooded	Flooded	552.03	566.05
CT 26/87	548.86	570.93	550.53	569.60	Flooded	Flooded	552.30	566.07
EC 07/87	550.87	570.92	547.94	569.77	Flooded	Flooded	550.64	566.24
AN 4/88	551.53	570.21	548.08	Frozen	Frozen	Frozen	550.60	566.18
EB 9/88	Buried	Buried	548.68	Buried	Frozen	Frozen	Frozen	Frozen
INIMUM	548.86	569.20	547.60	559.64	543.53	565.59	549.13	565.32
MAXIMUM	553.48	571.78	551.80	570.39	555.94	569.42	553.85	567.69

ll elevations are based on Hooker datum
T/C elevations were surveyed February 1983
R=Bedrock well; I=Interface well; O=Overburden well
M=Not measured
levation of bottom of well screen

WELL MONITORING PROGRAM
LAGARA PLANT

WELL NO.	28	28A	30	30A
TYPE	R	O	R	O
CASING EL.	569.88	570.02	571.48	571.48
GROUND EL.	570.1	570.1	571.9	571.9
JAN 27/87	Flooded	562.40	NM	NM
FEB 17/87	559.30	NM	NM	NM
MAR16/87	559.78	NM	550.87	567.96
APR 20/87	Flooded	567.43	551.34	568.01
MAY 11/87	567.90	567.15	551.59	567.62
JUN 19/87	566.33	567.01	551.47	567.06
JUL 06/87	564.46	567.56	551.77	567.27
AUG 10/87	562.11	567.68	552.64	570.53
SEP 09/87	Flooded	567.54	552.95	570.30
OCT 26/87	Flooded	567.56	553.08	570.37
DEC 07/87	566.88	567.49	550.99	570.49
JAN 4/88	Frozen	567.45	551.63	567.58
FEB 9/88	557.70	567.38	552.31	567.90
MINIMUM	545.47	559.35	550.87	566.49
MAXIMUM	569.15	569.20	559.61	570.78

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983
R=Bedrock well; I=Interface well; O=Overburden well
NM-Not measured
Elevation of bottom of well screen

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	33A	35A	36A	37A	39A	40	40A	40B
TYP	O	O	O	O	O	R	O	O
CA .G EL.	570.28	569.16	576.82	571.7	571.65	571.92	571.69	571.85
GROUND EL.	570.3	569.4	575.2	571.9	572.5	572.1	572.1	572.1
JAN 27/87	566.55	NM	567.88	NM	NM	NM	567.73	NM
FEB 17/87	566.84	NM	567.57	NM	NM	NM	567.70	NM
MAR 16/87	566.70	565.74	567.76	569.78	571.36	550.84	567.88	563.86
APR 20/87	566.84	566.00	568.31	569.83	NM	551.03	568.19	563.15
MAY 12/87	566.45	565.52	567.82	569.03	571.15	551.19	568.05	563.64
JUN 17/87	566.52	565.50	Dry	Plugged	571.24	551.67	568.01	563.64
JUL 06/87	566.54	565.72	Dry	Plugged	NM	Flooded	Flooded	563.48
AUG 10/87	566.97	566.29	Dry	Plugged	571.31	552.12	568.73	563.60
SEP 09/87	566.93	566.26	Dry	Plugged	571.32	552.54	568.88	563.65
OCT 26/87	566.73	565.82	568.01	Plugged	571.27	552.77	568.27	563.68
DEC 07/87	566.97	566.01	568.13	570.48	571.15	551.14	568.42	563.47
JAN 4/88	566.70	565.38	568.09	570.56	Frozen	Buried	Buried	563.33
FEB 9/88	566.71	565.65	568.09	Plugged	Frozen	Buried	Buried	565.72
MINIMUM	565.00	565.38	558.89	567.78	570.24	550.84	566.24	555.55
MAXIMUM	567.04	567.07	568.59	570.60	571.65	554.00	568.91	565.72

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983.
B=Bedrock well; I=Interface well; O=Overburden well
NM=Not measured
*=Elevation of bottom of well screen

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	43A	45A	46A	47A	53	54	55	56
TYPE	O	O	O	O	O	O	O	O
CA G EL.	571.9	574.47	573.29	574.78	571.62	570.02	571.57	571.49
GROUND EL.	568.2	571.6	572.2	572.0	569.1	570.4	571.9	571.9
JAN 27/87	Buried	566.14	560.18	564.68	Bent	NM	NM	NM
FEB 17/87		565.97	NM	564.47		NM	NM	566.61
MAR 16/87		566.22	NM	564.82		568.04	567.62	566.76
APR 20/87		566.35	560.24	564.92		568.09	567.64	567.38
MAY 12/87		566.18	560.21	564.95		568.10	567.42	566.31
JUN 17/87		565.85	560.53	564.23		567.37	567.22	565.93
JUL 06/87		566.01	560.71	564.25		567.28	567.04	566.22
AUG 10/87		566.43	560.81	564.84		568.14	567.29	NM
SEP 09/87		566.14	560.96	564.29		567.77	566.30	566.49
OCT 26/87		566.11	560.76	564.39		568.30	567.59	566.37
DEC 07/87		566.25	559.95	564.80		567.89	567.83	567.28
JAN 4/88		566.24	560.53	564.74		Frozen	567.32	566.70
FEB 9/88		566.11	560.61	564.39		Frozen	Frozen	566.37
MINIMUM	568.39	565.74	559.95	563.89	565.85	566.55	566.30	565.87
MAXIMUM	570.72	566.85	568.43	565.36	566.72	568.30	568.51	568.53

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983.
R=Bedrock well; I=Interface well; O=Overburden well
NM=Not measured
*=Elevation of bottom of well screen

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	(57)	58	73	89	(93)	(94)	(95)	96
TY	O	O	O	O	O	O	O	O
CA G EL.	571.73	569.78	569.36	572.29	572.64	572.32	572	575.98
GROUND EL.	571.9	570.0	569.6	569.5	572.8	572.5	572.3	573.3
JAN 27/87	566.81	567.57	NM	564.68	NM	568.72	568.02	568.44
FEB 17/87	566.62	567.47	NM	564.48	NM	568.99	568.23	568.56
MAR 16/87	566.79	567.59	566.83	565.19	570.06	569.12	568.14	568.65
APR 20/87	567.48	567.67	Buried	565.51	570.95	569.05	567.49	568.79
MAY 12/87	566.25	567.86		565.04	570.74	568.40	567.09	568.42
JUN 17/87	565.97	567.67		565.00	571.29	569.62	567.90	568.68
JUL 06/87	566.02	567.63		565.27	570.58	568.59	567.02	568.48
AUG 10/87	566.66	567.69		566.01	571.23	568.74	569.36	569.27
SEP 09/87	566.52	567.73		565.50	571.16	569.80	568.34	569.44
OCT 26/87	566.61	568.03		565.29	570.27	569.64	568.34	569.08
DEC 07/87	567.13	568.18		565.49	570.30	569.08	567.84	569.13
JAN 4/88	566.86	567.67		NM	569.64	568.75	567.71	568.36
FEB 9/88	566.31	567.58		NM	569.80	568.79	567.60	568.81
MINIMUM	565.86	566.79	566.83	564.48	568.00	561.38	564.40	566.97
MAXIMUM	568.92	568.24	568.00	566.04	571.29	569.98	569.36	572.37

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983.
B=Bedrock well; I=Interface well; O=Overburden well
NM=Not measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	97	98	107	109	111	113	117	122
TYPE	O	O	O	O	O	O	O	O
CASING EL.	573.25	573.2	573.31	572.13	572.28	571.16	570.72	571.25
GROUND EL.	573.3	573.3	573.6	572.3	573.4	571.5	570.9	571.6
JAN 27/87	568.91	NM	NM	NM	NM	567.16	NM	NM
FEB 17/87	568.86	571.04	NM	569.71	567.78	567.17	NM	NM
MAR 16/87	568.60	570.31	571.66	569.89	567.61	566.98	NM	565.88
APR 20/87	569.31	570.69	572.12	569.84	568.35	567.38	565.95	566.15
MAY 12/87	568.19	570.52	572.18	569.85	567.53	567.70	564.80	564.68
JUN 17/87	568.95	570.76	572.23	569.76	567.86	567.06	565.08	564.02
JUL 06/87	569.30	570.88	572.21	569.70	568.23	Flooded	565.11	564.10
AUG 10/87	570.09	571.22	572.67	569.46	568.84	567.71	566.20	568.25
SEP 09/87	569.82	571.51	572.74	568.98	568.55	567.28	566.15	565.83
OCT 26/87	570.26	571.84	572.87	568.36	568.35	567.78	566.36	565.93
DEC 07/87	569.72	571.42	572.57	569.07	568.42	Flooded	566.52	566.79
JAN 4/88	568.68	571.54	571.80	568.66	567.74	567.36	566.50	565.18
FEB 9/88	568.74	570.75	571.80	568.54	567.59	567.45	566.70	564.51
MINIMUM	566.37	565.20	568.58	568.22	567.49	564.09	*564.8	*562.0
MAXIMUM	570.26	571.89	572.87	570.98	568.84	568.70	567.07	569.77

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983.
B=Bedrock well; I=Interface well; O=Overburden well
NM=Not measured
*=Elevation of bottom of well screen.

WELL MONITORING PROGRAM
IAGARA PLANT

WELL NO.	150	151
YPE	O	O
CASING EL.	569.53	568.36
GROUND EL.	569.8	568.6
JAN 27/87	Frozen	NM
FEB 17/87	569.38	NM
MAR 16/87	569.00	564.86
APR 20/87	569.26	565.08
MAY 12/87	569.31	564.83
JUN 17/87	569.23	564.93
JUL 06/87	Flooded	NM
AUG 10/87	569.30	565.22
SEP 09/87	569.30	564.95
OCT 26/87	569.31	Buried
DEC 07/87	569.43	565.10
JAN 4/88	569.26	564.86
FEB 9/88	569.18	Buried
MINIMUM	563.12	564.42
MAXIMUM	569.51	565.61

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983.
B=Bedrock well; I=Interface well; O=Overburden well
NM=Not measured
*=Elevation of bottom of well screen

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	156	157	158	OW1S-80	OW2S-80	OW3S-80	OW4S-80	OW5S-80
TYP	O	O	O	O	O	O	O	O
CA G EL.	571.15	571.09	570.73	579.88	577.36	575.97	574.92	582.49
GROUND EL.	571.5	571.3	571.0	575.9	575.0	572.9	572.1	578.5
JAN 27/87	570.79	567.34	568.65	569.05	563.32	564.12	564.84	571.93
FEB 17/87	NM	567.26	NM	568.46	562.92	564.18	564.55	571.37
MAR 16/87	570.79	567.48	568.50	568.18	562.88	564.05	564.30	571.06
APR 20/87	570.80	567.74	568.49	568.76	563.32	564.05	564.57	571.11
MAY 11/87	570.81	566.82	567.67	568.93	563.03	564.05	564.63	571.15
JUN 17/87	569.97	567.91	567.56	568.58	562.43	564.06	565.09	570.98
JUL 06/87	569.65	567.76	568.25	568.47	562.39	563.96	565.49	571.08
AUG 10/87	569.75	568.88	568.30	568.55	562.65	564.02	566.13	571.58
SEP 09/87	568.99	568.59	567.77	568.56	562.47	564.01	566.02	571.76
OCT 26/87	569.24	568.22	568.36	569.14	562.69	564.19	565.62	572.07
DEC 07/87	569.29	568.51	568.36	568.60	562.50	564.22	565.09	571.99
JAN 4/88	569.20	567.51	568.02	569.26	563.08	564.16	564.76	572.09
FEB 9/88	567.72	567.59	567.54	568.31	562.33	564.11	564.45	571.45
MINIMUM	564.32	566.82	565.31	564.45	562.33	563.45	553.53	567.75
MAXIMUM	570.94	569.18	569.13	569.26	563.92	564.86	569.21	572.17

All elevations are based on Hooker datum
T/C elevations were surveyed February 1983
P Bedrock well; I=Interface well; O=Overburden
NM Not measured
*=Elevation of bottom of well screen

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	CW10A	CW11	CW11A	CW13	B-1	B-2	B-3	B-5
TYPE	O	R	O	R	O	O	O	O
CASING EL.	576.42	574.23	573.92	572.97	575.6	575.83	571.59	576.18
GROUND EL.	576.6	574.3	574.3	573.4				
JAN 27/87	NM	560.67	NM	560.47	562.93	563.21	562.17	569.13
FEB 17/87	NM	560.46	565.94	560.33	562.66	562.89	561.99	568.48
MAR 16/87	564.09	560.01	566.71	560.04	562.81	563.12	561.82	569.11
APR 20/87	564.48	560.13	567.60	560.31	563.04	563.39	561.99	569.74
MAY 12/87	564.16	560.23	565.72	560.28	562.56	562.77	561.92	567.50
JUN 18/87	563.16	560.46	565.03	561.06	562.33	562.39	561.99	564.66
JUL 06/87	562.75	561.13	564.87	561.05	562.36	562.32	562.09	564.43
AUG 11/87	563.26	561.14	564.69	561.03	562.31	562.43	562.31	564.35
SEP 10/87	563.05	561.42	564.62	561.44	562.33	562.37	562.31	563.71
OCT 28/87	562.93	561.39	564.90	560.77	562.50	562.80	562.43	565.53
DEC 08/87	563.31	560.88	566.52	560.24	562.53	562.85	562.07	569.57
JAN 4/88	563.43	560.06	Frozen	559.53	562.37	562.87	561.89	568.48
FEB 9/88	Buried	Frozen	564.93	559.73	562.33	562.51	561.68	567.50
MINIMUM	561.18	560.01	563.85	559.53	562.02	562.12	561.61	563.48
MAXIMUM	566.73	562.08	570.10	562.21	563.28	563.72	562.79	572.12

All elevations are based on Hooker datum
R=Bedrock well; I=Interface well; O=Overburden well
NM=Not meassured
*=Elevation of bottom of well screen

WELL MONITORING PROGRAM
NIAGARA PLANT

WELL NO.	B-6	B-10	B-11	B-12
TYPE	O	O	O	O
CASING EL.	574.68	575.92	575.77	576.62
GROUND EL.				
JAN 27/87	562.76	560.05	568.56	563.41
FEB 17/87	562.49	560.22	568.19	563.22
MAR 16/87	562.61	559.60	568.77	563.37
APR 20/87	562.90	560.13	569.19	563.44
MAY 12/87	562.47	559.98	567.30	562.90
JUN 18/87	562.27	560.81	565.96	562.48
JUL 06/87	562.31	560.90	565.86	562.45
AUG 11/87	562.26	560.71	567.47	562.46
SEP 10/87	562.31	NM	566.34	562.44
OCT 28/87	562.45	NM	568.58	562.68
DEC 08/87	562.44	NM	570.37	562.73
JAN 4/88	562.28	559.54	568.37	562.70
FEB 9/88	562.26	559.49	568.51	562.57
MINIMUM	561.97	559.49	565.13	562.17
MAXIMUM	563.14	561.97	571.83	564.68

All elevations are based on Hooker datum
B=Bedrock well; I=Interface well; O=Overburden well
NM=Not measured
*=Elevation of bottom of well screen

AIW-1

Cap is broken

Date	T/C Elev.	Plopper	w/l	w/l Elev.		
	571.14					
9-01-88		0.48	1.63	569.03	Sec	55
12/19/88		0.51	1.60	569.03	dss	55
2/10/89			1.69	569.45		
2/21/89		—	1.33	569.81		
3/29/89		—	0.94	570.20	1231 cd	

AIW-2

Date	TIC Elev. 571.43	Plopper	w/l	W/L Elev.	
9-21-88		6.48	4.98	565.97	✓
12/9/88		0.51	4.90	566.02	✓
2/10/89		—	5.39	566.04	
2/21/89		—	5.32	566.11	
3/29/89		—	5.18	566.25	

55
55

AIW-3

Date	T/C Elev.	Plopper	w/l	w/l Elev.		
	572.86					
9-21-88		0.48	- Asbestos Removal - No go!			SS
12/19/88		0.51	3.96	568.39	K ss	SS
2/10/89			5.12	567.74		
2/21/89		—	4.32	568.54		
3/29/89		—	4.90	567.96	1324 -cd	

AI W-4

Date	T/C Elev.	Plopper	W/l	W/l Elev.		
	572.15					
9-21-88		0.48	4.09	567.58	✓ ez.	55
12/19/88		0.51	4.34	567.30	✓ss	55
2/10/89			5.25	566.90		
2/21/89		—	4.82	567.33		
3/29/89		—	4.57	567.58	1321 cd	

ATTACHMENT C
Chemical Data

NIAGARA PLANT/WATER TREATMENT PLANT

SURVEY WELLS

MONITORING PARAMETER DATA

Report To

Wald, Harkrader & Ross

Prepared for EPA/State/City

S Area Settlement Discussions

April 1981

84204

TABLE 3

MONITORING PARAMETER DATA FOR OVERBURDEN WELLS

ADL NO.	DATE	PH	CL (PPM)	COND (MMHO/CM)	ALK (PPM)	TOC (PPM)	TOH (PPB)
WELL1A							
2	2 1 79	8.9	539	2.3	370	107	-1
3	3 16 79	8.2	782	2.76	120	90.7	-1
4	12 7 79	-1	-1	-1	-1	-1	55000
293	2 12 80	8.2	-1	1.86	-1	50	45000
WELL2A							
9	2 1 79	8.1	1757	1.6	180	30	-1
10	3 6 79	7.6	1915	6.01	304	17	-1
11	3 16 79	7.2	2597	7.18	384	39.5	-1
12	12 10 79	-1	-1	-1	-1	-1	300
WELL3A							
17	2 1 79	9	521	3.5	424	62	-1
18	3 16 79	8.4	937	4.04	96	19.2	-1
19	12 7 79	-1	-1	-1	-1	-1	2600
296	3 12 80	-1	-1	-1	-1	-1	1700
WELL4A							
24	1 31 79	7.8	101	0.5	110	2	-1
25	3 6 79	7.6	86	0.54	112	9	-1
26	3 16 79	10.1	87	0.47	128	18.1	-1
27	12 10 79	-1	-1	-1	-1	-1	6600
298	2 12 80	7.7	-1	0.38	-1	5	120

TABLE 5 (Continued)

MONITORING PARAMETER DATA FOR OVERBURDEN WELLS

ADL NO.	DATE	PH	CL (PPM)	COND (MMHO/CM)	ALK (PPM)	TOC (PPM)	TOH (PPB)
WELL19A							
133	1 29 79	7.5	507	3.12	406	10	-1
134	2 27 79	7	2131	2.6	184	19	-1
135	3 9 79	6.9	626	3.31	232	-1	-1
136	3 20 79	7.2	557	2.86	224	16.5	-1
137	12 26 79	6.9	-1	2.5	-1	1	-1
321	2 28 80	-1	-1	-1	-1	-1	400
WELL20A							
140	3 29 79	8	452	-1	92	-1	-1
141	12 18 79	7.9	-1	3.83	-1	1	-1
323	2 28 80	-1	-1	-1	-1	-1	130
WELL21A							
144	2 5 79	8.6	1467	4.22	176	47	-1
145	3 9 79	11.6	852	3.47	176	31	-1
146	3 29 79	8.3	1774	6.31	256	11.4	-1
147	12 19 79	7.9	-1	1.7	-1	1	950
WELL22A							
150	2 5 79	8.4	676	2.2	156	1	-1
151	3 9 79	12.8	1409	8.52	1204	-1	-1
152	3 20 79	10.4	1583	4.64	32	-1	-1
153	12 28 79	8.2	-1	1.49	-1	1	-1

TABLE 3 (Continued)

MONITORING PARAMETER DATA FOR OVERBURDEN WELLS

ADL NO.	DATE	PH	CL (PPM)	COND (MMHO/CM)	ALK (PPM)	TOC (PPM)	TOH (PPB)
WELL23A							
157	2 8 79	7.7	5209	13.7	144	53	-1
158	3 9 79	12.4	3166	12.3	672	31.4	-1
159	12 19 79	8.1	-1	3.78	-1	14	-1
324	2 28 80	-1	-1	-1	-1	-1	2000
WELL24A							
161	3 13 79	7.7	4315	11	240	705	-1
162	3 28 79	7.2	4923	10	220	795	-1
WELL25A							
165	2 3 79	8.9	17136	1.87	60	31	-1
166	3 13 79	8.5	2679	8.06	172	27	-1
167	12 26 79	8.2	-1	0.1	-1	137	-1
168	12 20 79	-1	-1	-1	-1	-1	610
327	2 25 80	-1	-1	-1	-1	-1	200
WELL26A							
170	2 2 79	10.4	1225	3.5	108	72	-1
171	3 12 79	8.3	1622	4.25	40	66	-1
329	3 4 80	-1	-1	-1	-1	-1	24000

TABLE 3 (Continued)

MONITORING PARAMETER DATA FOR OVERBURDEN WELLS

ADL NO.	DATE	PH	CL (PPM)	COND (MMHO/CM)	ALK (PPM)	TOC (PPM)	TOH (PPB)
WELL27A							
174	2 14 79	12.8	344	10.5	5200	31	-1
175	1 7 80	-1	-1	-1	-1	-1	1600
WELL28A							
178	2 6 79	10.4	2437	7.1	224	19	-1
179	3 29 79	10.6	1618	5.35	120	13.9	-1
180	3 13 79	11.8	1931	6.38	240	12	-1
181	12 28 79	10.3	-1	3.67	-1	37	-1
331	3 4 80	-1	-1	-1	-1	-1	2000
WELL29A							
185	2 6 79	6.4	34972	62.3	16	18	-1
WELL30A							
191	2 13 79	8.7	8929	19.7	96	6	-1
192	3 12 79	9.2	2208	6.28	68	15	-1
193	3 29 79	8.5	5653	12.1	100	8.3	-1

TABLE 3 (Continued)

MONITORING PARAMETER DATA FOR OVERBURDEN WELLS

ADL NO.	DATE	PH	CL (PPM)	COND (MMHO/CM)	ALK (PPM)	TOC (PPM)	TOH (PPB)
WELL41A							
221	5 17 79	7.7	88	0.89	288	41	-1
WELL42A							
223	6 5 79	7.1	546	1.89	80	[illegible]	-1
343	3 4 80	-1	-1	-1	-1	-1	[illegible]
222	12 19 79	7.9	-1	1.94	-1	1	-1
WELL43A							
224	5 31 79	7.3	730	2.86	128	48	-1
WELL44A							
225	6 6 79	7.9	459	1.73	116	32	-1
226	1 3 80	-1	-1	-1	-1	-1	560
344	3 12 80	-1	-1	-1	-1	-1	170
WELL45A							
227	5 31 79	5.7	18418	18	152	370	-1
228	12 14 79	-1	-1	-1	-1	-1	63000
345	2 19 80	5.8	-1	28	-1	329	63000

Chemical Concentration Data for Samples Taken on Hooker Niagara Plant Property and State Power Authority Property (Adjacent to "S" Disposal Area)

Report To

Wald, Harkrader & Ross
Washington, DC

Prepared By

Arthur D. Little, Inc.
Cambridge, Massachusetts

Reference No. 84204

July, 1980

TABLE 18

Niagara Plant Well (3A) (Overburden)
Pollutant Concentrations (µg/L)

SAMPLE NO.	DATE	ANALYST
(2159)	9 27 79	HYDROSCIENCE

ADL	SAMPLE NO.	2159
113	CHLOROFORM	-1
120	TRICHLOROETHYLENE	65
127	1,1,2,2-TETRACHLOROETHYLENE	-1
121	BENZENE	1
129	CHLOROBENZENE	0
301	DICHLOROBENZENES	0
802	TRICHLOROBENZENES	0
803	TETRACHLOROBENZENES	0
329	HEXACHLOROBENZENE	0
128	TOLUENE	-1
805	MONOCHLOROTOLUENES	0
806	DICHLOROTOLUENES	0
807	MONOCHLOROBENZOTRIFLUORIDE	80
311	HEXACHLOROBUTADIENE	0
317	HEXACHLOROCYCLOPENTADIENE	0
808	OCTACHLOROCYCLOPENTENE	0
203	PHENOL	-1
809	TRICHLOROPHENOL	0
812	HEXACHLOROCYCLOHEXANES(TOTAL	0
813	MIREX	-1
408	ENDOSULFAN I.	-1
502	ARSENIC	-1
505	CHROMIUM	-1
506	COPPER	-1
507	LEAD	-1
509	MERCURY	-1
510	NICKEL	-1
514	ZINC	-1

ADL	SAMPLE NO.	2155	2156	2157	2158	2159	2160
104	VINYL CHLORIDE	-1	-1	-1	-1	-1	-1
106	METHYLENE CHLORIDE	-1	-1	-1	-1	-1	-1
107	ACROLEIN	-1	-1	-1	-1	-1	-1
110	1,1-DICHLOROETHYLENE	-1	-1	-1	-1	-1	-1
111	1,1-DICHLOROETHANE	-1	-1	-1	-1	-1	-1
112	TRANS-1,2-DICHLOROETHYLENE	-1	-1	-1	-1	-1	-1
113	CHLOROFORM	-1	-1	-1	-1	-1	-1
114	1,2-DICHLOROETHANE	-1	-1	-1	-1	-1	-1
115	1,1,1-TRICHLOROETHANE	-1	-1	-1	-1	-1	-1
116	CARBON TETRACHLORIDE	0	0	0	0	0	0
118	1,2-DICHLOROPROPANE	-1	-1	-1	-1	-1	-1
120	TRICHLOROETHYLENE	0	19	45	11530	65	0
121	BENZENE	42400	380	56700	420	1	0
122	CIS-1,3-DICHLOROPROPYLENE	-1	-1	-1	-1	-1	-1
124	1,1,2-TRICHLOROETHANE	-1	-1	-1	-1	-1	-1
126	1,1,2,2-TETRACHLOROETHANE	-1	-1	-1	-1	-1	-1
127	1,1,2,2-TETRACHLOROETHYLENE	-1	-1	-1	-1	-1	-1
128	TOLUENE	-1	-1	-1	-1	-1	-1
129	CHLOROBENZENE	37600	945	7700	220	0	0
130	ETHYL BENZENE	-1	-1	-1	-1	-1	-1
201	2-CHLOROPHENOL	-1	-1	-1	-1	-1	-1
202	2-NITROPHENOL	-1	-1	-1	-1	-1	-1
203	PHENOL	-1	-1	-1	-1	-1	-1
205	2,4-DICHLOROPHENOL	-1	-1	-1	-1	-1	-1
206	2,4,6-TRICHLOROPHENOL	0	13	17	0	0	0
207	4-CHLORO-3-CRESOL	-1	-1	-1	-1	-1	-1
210	PENTACHLOROPHENOL	3	0	0	0	0	0
301	DICHLOROBENZENES	36000	1585	970	127	0	0
302	1,4 DICHLOROBENZENE	-1	-1	-1	-1	-1	-1
303	1,2 DICHLOROBENZENE	-1	-1	-1	-1	-1	-1
304	HEXACHLOROETHANE	-1	-1	-1	-1	-1	-1
311	HEXACHLOROBUTADIENE	0	2	0	0	0	0
312	1,2,4-TRICHLOROBENZENE	45000	1024	1030	36	0	0
315	NAPHTHALENE	-1	-1	-1	-1	-1	-1
317	HEXACHLOROCYCLOPENTADIENE	0	0	0	0	0	0
318	2-CHLORONAPHTHALENE	-1	-1	-1	-1	-1	-1
319	ACENAPHTHYLENE	-1	-1	-1	-1	-1	-1
320	ACENAPHTHENE	-1	-1	-1	-1	-1	-1
321	DIMETHYL PHTHALATE	-1	-1	-1	-1	-1	-1
324	FLUORENE	-1	-1	-1	-1	-1	-1
326	DIETHYL PHTHALATE	-1	-1	-1	-1	-1	-1
328	N-NITROSODIPHENYLAMINE	-1	-1	-1	-1	-1	-1
329	HEXACHLOROBENZENE	22	25	0	0	0	10
331	ANTHRACENE/PHENANTHRENE	-1	-1	-1	-1	-1	-1
332	PHENANTHRENE	-1	-1	-1	-1	-1	-1
333	DI-N-BUTYL PHTHALATE	-1	-1	-1	-1	-1	-1
334	FLUORANTHENE	-1	-1	-1	-1	-1	-1
335	PYRENE	-1	-1	-1	-1	-1	-1

ADL Sample No.		2155	2156	2157	2158	2159	2160
337	BUTYL BENZYL PHTHALATE	-1	-1	-1	-1	-1	-1
338	BIS(2-ETHYLHEXYL)PHTHALATE	-1	-1	-1	-1	-1	-1
339	DI-N-OCTYL PHTHALATE	-1	-1	-1	-1	-1	-1
340	CHRYSENE	-1	-1	-1	-1	-1	-1
341	BENZO(A)ANTHRACENE	-1	-1	-1	-1	-1	-1
343	BENZO(B)FLUORANTHENE	-1	-1	-1	-1	-1	-1
344	BENZO(K)FLUORANTHENE	-1	-1	-1	-1	-1	-1
345	BENZO(A)PYRENE	-1	-1	-1	-1	-1	-1
346	INDENO(1,2,3-C,D) PYRENE	-1	-1	-1	-1	-1	-1
348	BENZO (G,H,I) PERYLENE	-1	-1	-1	-1	-1	-1
401	ALPHA-BHC	0	551	21	0	0	0
402	GAMMA-BHC	0	1380	140	0	0	0
404	BETA-BHC	0	0	0	0	0	0
405	DELTA-BHC	0	0	0	0	0	0
408	ENDOSULFAN I.	-1	-1	-1	-1	-1	-1
409	DDE	-1	-1	-1	-1	-1	-1
421	PCB-1242	-1	-1	-1	-1	-1	-1
423	PCB-1254	-1	-1	-1	-1	-1	-1
501	ANTIMONY	-1	-1	-1	-1	-1	-1
502	ARSENIC	-1	-1	-1	-1	-1	-1
503	BERYLLIUM	-1	-1	-1	-1	-1	-1
504	CADMIUM	-1	-1	-1	-1	-1	-1
505	CHROMIUM	-1	-1	-1	-1	-1	-1
506	COPPER	-1	-1	-1	-1	-1	-1
507	LEAD	-1	-1	-1	-1	-1	-1
509	MERCURY	-1	-1	-1	-1	-1	-1
510	NICKEL	-1	-1	-1	-1	-1	-1
511	SELENIUM	-1	-1	-1	-1	-1	-1
512	SILVER	-1	-1	-1	-1	-1	-1
513	THALLIUM	-1	-1	-1	-1	-1	-1
514	ZINC	-1	-1	-1	-1	-1	-1
802	TRICHLOROBENZENES	61000	1324	1420	36	0	0
803	TETRACHLOROBENZENES	6920	99	124	13	0	21
804	PENTACHLOROBENZENES	-1	-1	-1	-1	-1	-1
805	MONOCHLOROTOLUENES	2300	36	545	3080	0	0
806	DICHLOROTOLUENES	2696	85	46	0	0	0
807	MONOCHLOROBENZOTRIFLUORIDE	0	0	0	164	80	0
808	OCTACHLOROCYCLOPENTENE	0	0	0	0	0	0
809	TRICHLOROPHENOL	18	37	24	0	0	0
810	M-CHLOROBENZOIC ACID	-1	-1	-1	-1	-1	-1
811	O-CHLOROBENZOIC ACID	-1	-1	-1	-1	-1	-1
812	HEXACHLOROCYCLOHEXANES(TOTAL	0	1931	161	0	0	0
813	MIREX	-1	-1	-1	-1	-1	-1

FROM:

NIAGARA PLANT

COMPREHENSIVE WATER MANAGEMENT STUDY

CHEMICAL LOADINGS AND GROUNDWATER QUALITY

Volume IV

Submitted To:

HOOKER CHEMICALS & PLASTICS CORP.

NIAGARA FALLS, NEW YORK

By

ARTHUR D. LITTLE, INC.

CAMBRIDGE, MASSACHUSETTS

SEPTEMBER 19, 1980

84204-10

TABLE 2 (Continued)

Comprehensive Water Management Investigation Study
Wells
Concentration Data, µg/L

Compound Name	2A 164	4A 157	5A 155	8A 158	19A 160	20A 161
Trichloroethylene	5	4	13,000	20	23	-
Tetrachloroethylene	1	3	24,000	70	10	4
Toluene	-	-	440	17	-	-
Chlorobenzotrifluorides	-	-	-	-	-	-
Monochlorobenzene	-	-	280	850	-	-
Dichlorobenzenes	31	-	22,000	2,700	-	-
Chlorotoluenes	-	-	2,400	23	-	-
Dichlorotoluenes	-	-	-	-	-	-
Trichlorobenzenes	16	8	-	22	-	11
Tetrachlorobenzenes	12	8	220	5	11	-
Hexachlorocyclopentadiene	-	-	-	-	-	-

Collection Dates - 5/13/80 - 5/19/80.

TABLE 2 (Continued)

Comprehensive Water Management Investigation Study
Wells

Concentration Data, ug/L

Compound Name	25A 163	26A 165	27A 156	35A 159	39A 162	40A 166
Trichloroethylene	2	2	3	170	1,000	3
Tetrachloroethylene	2	14	5	2,500	40,000	-
Toluene	-	58	-	49	120	30
Chlorobenzotrifluorides	-	-	-	-	24	-
Monochlorobenzene	-	7,900	-	120	-	20
Dichlorobenzenes	17	8,900	11	22,000	11,000	30
Chlorotoluenes	-	75	-	250	950	-
Dichlorotoluenes	-	-	-	1,300	95	-
Trichlorobenzenes	16	2,000	9	22,000	6,900	29
Tetrachlorobenzenes	20	1,000	63	67,000	33	17
Hexachlorocyclopentadiene	-	-	-	8,000	-	-

Collection Dates - 5/13/80 - 5/19/80.

TABLE 3 (Continued)

Comprehensive Water Management Investigation Study
Wells

Concentration Data, µg/L

Compound Name	2A 208	4A 209	5A 210	8A 211	19A 212	20A 213
Trichloroethylene	13	4	21,000	22	22	3
Tetrachloroethylene	4	-	38,000	21	8	15
Toluene	-	-	1,100	28	-	-
Chlorobenzotrifluorides	-	-	-	9	-	-
Monochlorobenzene	-	-	350	1,200	-	-
Dichlorobenzenes	-	-	44,000	4,000	-	-
Chlorotoluenes	-	-	3,200	53	-	-
Dichlorotoluenes	-	4	-	-	-	-
Trichlorobenzenes	45	-	-	25	47	32
Tetrachlorobenzenes	54	-	210	7	50	-
Hexachlorocyclopentadiene	-	-	-	-	-	-

Collection Dates - 5/27/80 - 6/2/80.

TABLE 3 (Continued)

Comprehensive Water Management Investigation Study
Wells

Concentration Data, ug/L

Compound Name	25A 214	26A 215	27A 216	35A 217	39A 218	40A 219
Trichloroethylene	3	12	3	250	1,400	4
Tetrachloroethylene	-	28	1	1,800	35,000	1
Toluene	-	98	-	19	200	51
Chlorobenzotrifluorides	-	-	-	-	28	-
Monochlorobenzene	-	9,900	62	250	-	-
Dichlorobenzenes	-	10,000	98	24,000	11,000	6
Chlorotoluenes	-	160	-	480	1,200	-
Dichlorotoluenes	8	27	-	7,900	280	-
Trichlorobenzenes	15	2,600	10	22,000	4,800	14
Tetrachlorobenzenes	10	1,900	118*	31,000	28	27
Hexachlorocyclopentadiene	-	-	-	6,000	**	-

* GC Peak Interference

** ECD Dilute, Being Reanalyzed.

Collection Dates - 5/27/80 - 6/2/80.

TABLE 5 (Continued)

Comprehensive Water Management Investigation Study

Concentration Data, µg/L

Compound Name	10A 285	13A 286	26A 287			
Trichloroethylene	5	12	3			
Tetrachloroethylene	4	40	9			
Toluene	82	1,200	53			
Chlorobenzotrifluorides	406	24	-			
Monochlorobenzene	220	140	6,400			
Dichlorobenzenes	390	111	4,200			
Chlorotoluenes	800	79,000	100			
Dichlorotoluenes	12	16	-			
Trichlorobenzenes	28	30	670			
Tetrachlorobenzenes	2	47	730			
Hexachlorocyclopentadiene	-	-	-			

Collection Dates - 7/8/80 - 7/14/80.

TABLE 6 (Continued)

Comprehensive Water Management Investigation Study

Wells

Concentration Data, µg/L

Compound Name	53 H294	54 H295	(55) H296	(56) H297	(57) H298	58 H327
Trichloroethylene	1600	1500	154	52	120	2
Tetrachloroethylene	700	600	6	2	5	-
Toluene	660	260	3	7	10	27
Chlorobenzotrifluorides	36	22	-	-	-	3
Monochlorobenzene	1200	500	-	-	-	-
Dichlorobenzenes	90	85	-	-	-	-
Chlorotoluenes	100	56	-	-	-	-
Dichlorotoluenes	-	-	-	-	-	-
Trichlorobenzenes	90	180	10	-	9	-
Tetrachlorobenzenes	25	108	9	-	25	-
Hexachlorocyclopentadiene	-	-	-	-	-	-

Collection Dates - 8/4/80 - 8/7/80.

TABLE 6 (Continued)

Comprehensive Water Management Investigation Study

Wells

Concentration Data, ug/L

Compound Name	59 H328	62 H300	64 H301	65 H302	68 H303	73 H304
Trichloroethylene	-	9	81	2,400	22,000	310,000
Tetrachloroethylene	-	1	8	620	1,600	7,000
Toluene	21	-	34	260	31	32
Chlorobenzotrifluorides	-	-	-	-	-	-
Monochlorobenzene	-	-	-	40	15	15
Dichlorobenzenes	5	-	-	-	88	-
Chlorotoluenes	-	-	-	88	36	160
Dichlorotoluenes	-	-	-	-	-	-
Trichlorobenzenes	-	5	53	12	11	-
Tetrachlorobenzenes	-	7	170	6	-	-
Hexachlorocyclopentadiene	-	-	-	-	-	-

Collection Dates - 8/4/80 - 8/7/80.

TABLE 6 (Continued)

Comprehensive Water Management Investigation Study
Wells

Concentration Data, ug/L

Compound Name	74 H305	75 H306	83 H010	84 H311	89 H299	(93) H313
Trichloroethylene	400,000	40,000	-	1	1,100	3
Tetrachloroethylene	5,000	32,000	-	2	2,300	1
Toluene	22	130	5	4	400	14
Chlorobenzotrifluorides	-	-	-	-	1,000	-
Monochlorobenzene	-	-	-	-	15,000	600
Dichlorobenzenes	21	-	-	-	800	-
Chlorotoluenes	-	-	-	22	650	-
Dichlorotoluenes	-	-	-	-	-	-
Trichlorobenzenes	-	-	-	-	2,700	-
Tetrachlorobenzenes	-	-	-	-	1,400	-
Hexachlorocyclopentadiene	-	-	-	-	-	-

Collection Dates - 8/4/80 - 8/7/80.

TABLE 6 (Continued)

Comprehensive Water Management Investigation Study
Wells

Concentration Data, ug/L

Compound Name	(94) H314	(95) H315	96 H312	97 H316	98 H317	105 H319
Trichloroethylene	1	1	7	3	-	-
Tetrachloroethylene	1	2	12	11	2	23
Toluene	6	13	8	18	-	5,400
Chlorobenzotrifluorides	-	-	3	-	-	-
Monochlorobenzene	470	-	-	-	-	4,500
Dichlorobenzenes	-	-	12	-	-	6,500*
Chlorotoluenes	-	-	11	-	-	8,300
Dichlorotoluenes	-	-	18	-	-	-*
Trichlorobenzenes	8	-	-	-	7	-*
Tetrachlorobenzenes	-	-	2	-	-	-*
Hexachlorocyclopentadiene	-	-	-	-	100	-*

*105/H319--results must be confirmed--large interferences.

Collection Dates - 8/4/80 - 8/7/80.

FROM:

NIAGARA PLANT COMPREHENSIVE WATER MANAGEMENT STUDY

CHEMICAL LOADING AND GROUNDWATER QUALITY

VOLUME IV

HOOKER CHEMICAL & PLASTICS CORP.

JULY, 1981

Arthur D Little, Inc.

TABLE 11 (Continued)

COMPREHENSIVE WATER MANAGEMENT STUDY

MONITORING WELLS

CONCENTRATION DATA

(µg/L)

Location	1A	5A	26A	64	68	73
Sample Number / Compound	378	382	380	383	386	385
1. Trichloroethylene	6	19,000	3	96	28,000	174,000
2. Tetrachloroethylene	10	39,000	6	18	8,900	5,400
3. Toluene	38	1,500	70	20	68	18
4. Chlorobenzotrifluorides	-	-	-	-	-	-
5. Monochlorobenzene	1,100	410	6,900	10	33	12
6. Dichlorobenzenes	3,300	8,800	3,200	17	530	6,300
7. Chlorotoluenes	86	13,000	75	-	-	-
8. Dichlorotoluenes	32	2,800	-	-	-	-
9. Trichlorobenzenes	920	380	770	67	16	21
10. Tetrachlorobenzenes	360	600	150	240	6	10
11. Hexachlorocyclopentadiene	-	-	-	-	-	-

Collection Date: 3/24/81

TABLE 13 (Continued)

COMPREHENSIVE WATER MANAGEMENT STUDY

MONITORING WELLS

CONCENTRATION DATA

(µg/L)

Location	WS-151	122	17A	WS-150*		
Sample Number / Compound	493	494	426	495		
1. Trichloroethylene	160	-	250	79,000		
2. Tetrachloroethylene	340	-	430	256,000		
3. Toluene	50	-	480	7,000		
4. Chlorobenzotrifluorides	-	-	-	-		
5. Monochlorobenzene	30	-	480	1,600		
6. Dichlorobenzenes	400	-	24	148,000		
7. Chlorotoluenes	210	-	1,100	30,000		
8. Dichlorotoluenes	60	-	-	13,000		
9. Trichlorobenzenes	130	29	2,300	129,000		
10. Tetrachlorobenzenes	120	9	1,900	120,000		
11. Hexachlorocyclopentadiene	-	-	-	49,000		

Collection Date: 5/29/81

* Sample was organic

CHEMICAL CONCENTRATION PROFILES

S AREA AND VICINITY

Report To

Wald, Harkrader & Ross

Washington, D.C.

Prepared for EPA/State/City

S Area Settlement Discussions

By

Arthur D. Little, Inc.

Cambridge, Massachusetts

January 1982

84204

TABLE 1

FOUR SPECIFIC PARAMETERS
CHEMICAL CONCENTRATIONS IN OVERBURDEN WELLS
µg/L

Well No.	A	B	C	D	Total
CW 1 A	2110	126	5	ND	2240
CW 1 d	247	0.26	2.5	ND	250
CW 2 A	998	1760	318	1.69	3580
CW 3 A	0.25	6.67	10	ND	16.9
CW 4 A	ND	2.13	1	ND	3.13
CW 6 A	300	745	24.2	0.0833	1140
CW 7 A	0.8	1.67	2.67	ND	5.14
CW 8 A	35.7	0.5	1.33	ND	37.5
S 14 A	1310	5890	4310	ND	11500
S 15 A	4100	50400	223000	12000	290000
S 16 A	1080	175	287	0.125	1540
S 17 A	8320	20900	14500	1090	44800
S 18 A	7500	15000	2720	3330	28700
SP-5A	ND	ND	ND	ND	ND
SP-6A	ND	ND	ND	ND	ND
SP-7A	20	25	11	ND	56
SP-8A	985	9285	12590	ND	22900
SP-9A	1100	180	130	ND	1410
1A	1030	617	149	ND	1800
2A	ND	30.5	33	ND	63.5
4A	ND	4	4	ND	8
5A	353	230	450	ND	1030
7A	6.5	87.5	79.5	ND	173
8A	1030	23.5	6	ND	1060
10A	220	28	2	ND	250
13A	140	30	47	ND	217
19A	ND	23.5	30.5	ND	54
20A	ND	21.5	ND	ND	21.5
25A	ND	15.5	15	ND	30.5
26A	7760	1510	945	ND	10200
27A	31	9.5	90.5	ND	131
38A	185	22000	49000	7000	78200
39A	ND	5850	30.5	ND	5880
40A	10	21.5	22	ND	53.5
53	1200	90	25	ND	1320
54	500	180	108	ND	788
55	ND	10	9	ND	19
56	ND	ND	ND	ND	ND
57	ND	9	25	ND	34
58	ND	ND	ND	ND	ND
59	ND	ND	ND	ND	ND
62	ND	5	7	ND	12
64	5	60	205	ND	270
66	66.5	24	14.5	ND	105
68	23.7	13.5	3.33	ND	40.5
73	16.3	443	12.7	ND	472
74	ND	ND	ND	ND	ND
76	31.5	8.5	6	ND	46
83	ND	ND	ND	ND	ND
84	ND	ND	ND	ND	ND
89	15000	2700	1400	ND	19100
93	600	ND	ND	ND	600
94	470	8	ND	ND	478

TABLE 1 (Continued)

FOUR SPECIFIC PARAMETERS
CHEMICAL CONCENTRATION IN OVERBURDEN WELLS
µg/L

Well No.	A	B	C	D	Total
93	ND	ND	ND	ND	ND
96	ND	ND	2	ND	2
97	ND	ND	ND	ND	ND
98	ND	7	ND	100	107
105	4500	ND	ND	ND	4500
107	1800	ND	ND	700	2500
109	100	ND	ND	2400	2500
110	96	23	ND	250	369
111	500	ND	ND	250	750
112	190	5	ND	310	505
113	6000	5400	11000	520	23900
116	ND	ND	ND	ND	ND
117	ND	ND	ND	ND	ND
118	ND	ND	ND	ND	ND
121	150	28	ND	ND	178
MS-122	NA	29	9	NA	38
136	950	200	38	ND	1190
137	5630	1200	209	ND	7040
MS-150	1500	129000	120000	49000	300000
MS-151	30	130	120	NA	280
MS-154	2800	80	NA	NA	2880
MS-156	NA	NA	NA	NA	NA
MS-157	NA	NA	NA	NA	NA
MS-158	10	NA	NA	NA	10
MS-159	2300	1200	120	NA	3620
MS-160	5200	590	NA	NA	5790

A= Monochlorobenzene
B= Trichlorobenzenes
C= Tetrachlorobenzenes
D= Hexachlorocyclopentadiene
NA= Not Analyzed
ND= Not Detected

TABLE 3

SIX SPECIFIC PARAMETERS
CHEMICAL CONCENTRATIONS IN OVERBURDEN WELLS
µg/L

Well No.	A	B	C	D	E	F	Total
CW 1 A	2110	120	3	ND	ND	ND	2240
CW 1 B	247	0.26	2.5	ND	ND	ND	250
CW 2 A	998	1760	318	631	774	1.69	4960
CW 3 A	0.25	0.67	13	5	ND	ND	21.9
CW 4 A	ND	2.13	1	16.7	ND	ND	19.8
CW 6 A	366	748	24.2	1.2	3.81	0.0833	1140
CW 7 A	0.8	1.57	2.67	ND	0.157	ND	5.31
CW 8 A	35.7	0.8	1.33	ND	ND	ND	37.5
S 14 A	1310	5590	4310	1380	2140	ND	15000
S 15 A	4160	50400	223000	26200	22800	12000	338000
S 16 A	1080	175	287	15.7	36.8	0.125	1590
S 17 A	8320	20900	14500	6370	6660	1090	56900
S 18 A	7500	15000	2720	3820	5950	3330	38400
SP-5A	ND	ND	ND	NA	NA	ND	ND
SP-6A	ND	ND	ND	NA	NA	ND	ND
SP-7A	20	25	11	NA	NA	NC	56
SP-8A	985	5295	12500	3450	2030	ND	28300
SP-9A	1100	180	130	NA	NA	ND	1410
1A	1030	617	149	NA	NA	ND	1800
2A	ND	30.5	33	NA	NA	NC	63.5
4A	ND	4	4	NA	NA	ND	8
5A	353	230	480	NA	NA	NC	1030
7A	6.5	87.5	79.5	NA	NA	ND	173
8A	1030	23.5	5	NA	NA	ND	1060
10A	220	28	2	NA	NA	ND	250
13A	140	30	47	NA	NA	ND	217
14A	ND	23.5	30.5	NA	NA	ND	54
23A	ND	21.5	ND	NA	NA	ND	21.5
25A	ND	15.5	15	NA	NA	NC	30.5
26A	7780	1510	943	NA	NA	ND	10200
27A	31	9.5	90.5	NA	NA	NC	131
35A	185	22000	49000	NA	NA	7000	78200
39A	40	6500	30.5	NA	NA	ND	5860
40A	10	21.5	22	NA	NA	ND	53.5
53	1200	20	100	NA	NA	ND	1320
54	500	180	108	NA	NA	ND	788
55	ND	10	9	NA	NA	ND	19
56	ND	ND	ND	NA	NA	ND	ND
57	ND	6	28	NA	NA	ND	34
58	ND	ND	ND	NA	NA	NC	ND
59	ND	ND	ND	NA	NA	ND	ND
60	ND	5	7	NA	NA	ND	12
64	5	60	205	NA	NA	ND	270
66	66.5	24	14.5	NA	NA	ND	105
68	23.7	13.5	3.33	NA	NA	ND	40.5
75	16.3	443	12.7	NA	NA	NC	472

TABLE 3 (Continued)

SIX SPECIFIC PARAMETERS
CHEMICAL CONCENTRATIONS IN OVERBURDEN WELLS
µg/L

Well No.	A	B	C	D	E	F	Total
74	ND	ND	ND	NA	NA	ND	ND
75	31.5	8.5	5	NA	NA	ND	46
83	ND	ND	ND	NA	NA	ND	ND
84	ND	ND	ND	NA	NA	ND	ND
85	15000	2700	1400	NA	NA	ND	19100
[illegible]	600	ND	ND	NA	NA	ND	600
[illegible]	470	[illegible]	ND	NA	NA	ND	476
[illegible]	ND	ND	ND	NA	NA	ND	ND
96	ND	ND	2	NA	NA	ND	2
97	ND	ND	ND	NA	NA	ND	ND
98	ND	7	ND	NA	NA	100	107
105	4500	ND	ND	NA	NA	ND	4500
107	1500	ND	ND	NA	NA	700	2500
109	100	ND	ND	NA	NA	2400	2500
110	96	23	ND	NA	NA	250	369
111	500	ND	ND	NA	NA	250	750
112	190	5	ND	NA	NA	310	505
113	6000	6400	11000	NA	NA	520	23900
116	ND	ND	ND	NA	NA	ND	ND
117	ND	ND	ND	NA	NA	ND	ND
118	ND	ND	ND	NA	NA	ND	ND
121	150	28	ND	NA	NA	ND	178
MS-122	NA	2[illegible]	[illegible]	NA	NA	NA	3[illegible]
136	950	200	38	NA	NA	ND	1190
137	5630	1200	200	NA	NA	ND	7040
MS-150	1600	129000	120000	NA	NA	49000	300000
MS-151	30	130	120	NA	NA	NA	280
MS-154	2800	80	NA	NA	NA	NA	2880
MS-155	NA	NA	NA	NA	NA	NA	NA
MS-157	NA	NA	NA	NA	NA	NA	NA
MS-158	10	NA	NA	NA	NA	NA	10
MS-159	2300	1200	120	NA	NA	NA	3620
MS-161	5200	570	NA	NA	NA	NA	5790

A= Monochlorobenzene
B= Trichlorobenzenes
C= Tetrachlorobenzenes
D= Hexachlorobenzene
E= Hexachlorobutadiene
F= Hexachlorocyclopentadiene
NA= Not Analyzed
ND= Not Detected

TABLE 5

MONOCHLOROTOLUENES, HEXACHLOROCYCLOHEXANES AND DECHLORANE
CHEMICAL CONCENTRATIONS IN OVERBURDEN WELLS
(µg/L)

Well No.	A	B	C
CW 1 A	ND	102	ND
CW 1 B	ND	2.28	NA
CW 2 A	25.4	39.5	10.3
CW 3 A	ND	2.03	NA
CW 4 A	ND	25.2	11
CW 6 A	17.8	4	ND
CW 7 A	ND	0.803	NA
CW 8 A	ND	0.0229	NA
S 14 A	1830	789	633
S 15 A	9300	263	1610
S 16 A	189	110	15
S 17 A	4350	2720	1170
S 18 A	443	163	619
SP-5A	ND	NA	NA
SP-6A	800	NA	NA
SP-7A	3900	NA	NA
SP-8A	1530	ND	NA
SP-9A	600	NA	NA
1A	325	NA	NA
4A	ND	NA	NA
5A	ND	NA	NA
6A	5930	NA	NA
7A	235	NA	NA
8A	38	NA	NA
10A	800	NA	NA
13A	79000	NA	NA
19A	ND	NA	NA
20A	ND	NA	NA
23A	ND	NA	NA
24A	103	NA	NA
27A	ND	NA	NA
32A	365	NA	NA
33A	1030	NA	NA
40A	ND	NA	NA
53	100	NA	NA
54	56	NA	NA
56	ND	NA	NA
57	ND	NA	NA
58	ND	NA	NA
59	ND	NA	NA
62	ND	NA	NA
64	ND	NA	NA
66	424	NA	NA
68	18.3	NA	NA
73	220	NA	NA
74	ND	NA	NA
76	6	NA	NA
83	ND	NA	NA
84	22	NA	NA
85	650	NA	NA
86	ND	NA	NA
87	ND	NA	NA
88	ND	NA	NA
96	11	NA	NA
97	ND	NA	NA
98	ND	NA	NA

TABLE 5 (Continued)

MONOCHLOROTOLUENES, HEXACHLOROCYCLOHEXANES AND DECHLORANE
CHEMICAL CONCENTRATIONS IN OVERBURDEN WELLS
(µg/L)

Well No.	A	B	C
106	5300	NA	NA
107	5300	NA	NA
109	4100	NA	NA
110	7600	NA	NA
111	720	NA	NA
112	540	NA	NA
113	140	NA	NA
115	730	NA	NA
117	1000	NA	NA
118	51	NA	NA
121	8	NA	NA
MS-122	ND	NA	NA
135	175	NA	NA
137	64	NA	NA
MS-150	30000	NA	NA
MS-161	210	NA	NA
MS-154	ND	NA	NA
MS-155	ND	NA	NA
MS-157	ND	NA	NA
MS-158	ND	NA	NA
MS-159	110	NA	NA
MS-160	180	NA	NA

A= Monochlorotoluenes
B= Hexachlorocyclohexanes
C= Dechlorane (Mirex, $C_{10}Cl_{12}$)
NA= Not Analyzed
ND= Not Detected

TABLE 7

GENERAL PARAMETER DATA FOR OVERBURDEN WELLS

Well No.	pH	TOC (mg/L)	TOH (µg/L)
1A	8.2	82.6	50000
2A	7.6	28.8	300
3A	8.7	40.6	2150
4A	7.75	3.53	3360
5A	12.2	170	63500
6A	12.4	135	NA
7A	12.8	72.3	9200
8A	12.3	115	3750
9A	13	195	NA
10A	10.7	89.7	5100
11A	8.3	19.3	NA
12A	7.4	94	NA
13A	7.5	50.1	24000
14A	7	563	68500
14B	6.7	750	72000
15A	6.6	195	79000
16A	6.9	38.9	9750
17A	6.2	102	34500
18A	6.75	57.2	37000
19A	7	11.6	400
20A	7.95	1	130
21A	8.45	22.6	950
22A	6.4	1	NA
23A	8.1	32.8	2000
24A	7.45	750	NA
25A	8.5	65	405
26A	8.35	89	24000
27A	12.8	31	1500
28A	10.5	20.5	2000
29A	6.4	19	NA
30A	8.7	9.77	NA
31A	7.8	14.4	2450
32A	7.6	21.4	17000
34A	7.7	2	2400
35A	6.9	10.5	10000
36A	4.2	366	133000
37A	7.3	1	420
39A	NA	NA	30000
40A	8.5	543	1500
40B	11.3	1030	520
41A	7.7	41	NA
42A	7.5	10	750
43A	7.3	48	NA
44A	7.9	32	365
45A	6.75	350	53000
46A	6.8	243	34000
47A	6.05	142	32400
SP1A	11.1	112	7630
SP2A	7.25	27	670
SP3A	7.4	NA	NA
SP4A	7.5	177	40000
SP5A	7.7	14	61.5
SP6A	7.6	41	1000
SP7A	7.35	27	2550
SP8A	7	103	22300
CW1A	NA	NA	4100
CW1B	NA	NA	6100
CW2A	6.7	50	21000
CW3A	7.3	17.5	81

CONESTOGA-ROVERS & ASSOCIATES LIMITED
Consulting Engineers

Niagara Falls
OFFICE COPY

INVESTIGATION FOR IMPACT ASSESSMENT OF MURIATIC ACID SPILL OCCIDENTAL CHEMICAL CORPORATION NIAGARA PLANT (W-AREA)

September 1988

Reference No. 0626

GROUNDWATER SAMPLE RESULTS
W-AREA

DATE	TIME	WELL NUMBER	pH	Cl-
12/11/87	08:45 a.m.	AIW-4	8.1	482 ppm
	09:10 a.m.	AIW-3	7.8	482 ppm
	09:40 a.m.	AIW-1	7.4	132 ppm
	10:05 a.m.	WS-30A	7.3	1096 ppm
	10:25 a.m.	W-95	8.2	1228 ppm
12/14/87	10:55 a.m.	AIW-1	7.4	263 ppm
	11:25 a.m.	AIW-3	7.8	263 ppm
	11:40 a.m.	AIW-4	8.1	395 ppm
	11:50 a.m.	WS-30A	7.3	1315 ppm
	12:10 p.m.	W-95	7.8	745 ppm

CRH

Reference No. 2583

THIS PAGE MUST BE KEPT WITH THE ATTACHED AT ALL TIMES

GENERAL PARAMETER SURVEY PROGRAM

- SAMPLING AND ANALYSIS
- SELECTION OF WELLS AND NAPL SAMPLES FOR COMPREHENSIVE ANALYSIS

BUFFALO AVENUE PLANT
SUPPLEMENTAL DATA COLLECTION PROGRAM

(Title ... Report 5 - 2583 Folder)

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

NIAGARA PLANT
SDCP - GROUNDWATER SURVEY ANALYSES

ND - Not Detected above method detection level.

Special Codes: D - FIELD DUPLICATE

* Method Detection Level for Lead varied for each batch.

Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 01/09/89 Sample Description:-> WS 8 A	01/09/89 WS 10 A	12/27/88 WS 21 A	01/09/89 WS 23 A	01/06/89 WS 26 A
		Special Code:------->					
PH			14	8.0	8.5	11	8.0
SPECIFIC CONDUCTANCE	umh/cm		15000	3400	5700	12000	39000
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	ND	ND	ND	ND	2500
MERCURY	ug/L	0.1	2.0	ND	ND	ND	ND
LEAD	ug/L	*	52	22	ND28	ND22	ND20
TOLUENE	ug/L	1	22	6	1	1	
2-CHLOROTOLUENE	ug/L	1	17	230	41	ND	
4-CHLOROTOLUENE	ug/L	1	7	16	4	ND	
2,5/2,4-DICHLOROTOLUENE	ug/L	1	5	2	ND	2	
3,4-DICHLOROTOLUENE	ug/L	1	2	ND	ND	ND	
2,6-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	
CHLOROBENZENE	ug/L	1	2200	77	ND	30	
1,2-DICHLOROBENZENE	ug/L	1	3300	34	ND	15	
1,4-DICHLOROBENZENE	ug/L	1	3900	24	ND	19	
1,2,3-TRICHLOROBENZENE	ug/L	1	5	5	ND	46	
1,2,4-TRICHLOROBENZENE	ug/L	1	42	15	ND	94	
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	2	3	ND	290	
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	3	2	4	91	
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	2	
TRICHLOROETHYLENE	ug/L	1	11	4	ND	8	
TETRACHLOROETHYLENE	ug/L	1	27	3	1	2	
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	11	ND	ND	
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	7	630	3	ND	
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	9	ND	ND	
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	19	ND	ND	
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND	2	
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	2	
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	2	
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	
2,4,5-TRICHLOROPHENOL	ug/L	1	2	1	ND	5	
a-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	2	
b-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	14	ND	18	
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	
d-HEXACHLOROCYCLOHEXANE	ug/L	1	2	2	ND	ND	
TOTAL ORGANIC CARBON (TOC)	mg/L	1	60	5.7	1.5	37	110
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	2800	850	200	2100	7100
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		9500	1107	57	631	
TOTAL CARBON INCLUDED IN GOP	ug/L		5000	572	34	231	
TOTAL HALOGEN INCLUDED IN GOP	ug/L		4200	290	19	391	
% TOC ACCOUNTED FOR BY GOP			8.4	10	2.3	0.6	
% TOX ACCOUNTED FOR BY GOP			150	34	9.6	19	

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

NIAGARA PLANT
SDCP - GROUNDWATER SURVEY ANALYSES

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Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 01/23/89	01/17/89	01/12/89	01/07/89	01/11/89
Sample Description:->			WS 26 A	WS 27 A	WS 28 A	WS 30 A	WS 33 A
Special Code:------->							
PH				8.7	9.4	9.7	10.0
SPECIFIC CONDUCTANCE	umh/cm			590	1400	730	1400
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10		ND	ND	200	ND
MERCURY	ug/L	0.1		ND	ND	ND	ND
LEAD	ug/L	*		ND23	ND31	ND20	ND31
TOLUENE	ug/L	1	5	ND	ND	ND	
2-CHLOROTOLUENE	ug/L	1	4	8	ND	ND	
4-CHLOROTOLUENE	ug/L	1	2	3	ND	ND	
2,5/2,4-DICHLOROTOLUENE	ug/L	1	7	5	ND	ND	
3,4-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	
2,6-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	
CHLOROBENZENE	ug/L	1	590	962	ND	ND	
1,2-DICHLOROBENZENE	ug/L	1	270	186	ND	ND	
1,4-DICHLOROBENZENE	ug/L	1	330	508	ND	ND	
1,2,3-TRICHLOROBENZENE	ug/L	1	45	1	ND	ND	
1,2,4-TRICHLOROBENZENE	ug/L	1	240	9	ND	ND	
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	15	3	3	ND	
1,2,4,5-TETRACHLORGBENZENE	ug/L	1	12	7	1	ND	
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	
TRICHLOROETHYLENE	ug/L	1	ND	9	2	ND	
TETRACHLOROETHYLENE	ug/L	1	1	4	ND	ND	
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND	ND	
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	ND	
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	
2,4,5-TRICHLOROPHENOL	ug/L	1	ND	ND	ND	ND	
a-HEXACHLOROCYCLOHEXANE	ug/L	1	8	ND	ND	ND	
b-HEXACHLOROCYCLOHEXANE	ug/L	1	18	ND	ND	ND	
g-HEXACHLOROCYCLOHEXANE	ug/L	1	2	ND	ND	ND	
d-HEXACHLOROCYCLOHEXANE	ug/L	1	4	1	ND	ND	
TOTAL ORGANIC CARBON (TOC)	mg/L	1		9.0	4.4	5.7	8.1
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	2100	810	110	90	190
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		1553	1706	6	1.5	
TOTAL CARBON INCLUDED IN GOP	ug/L		814	976	1.7	1.1	
TOTAL HALOGEN INCLUDED IN GOP	ug/L		689	667	4.2	0.3	
% TOC ACCOUNTED FOR BY GOP				11	0	0.0	
% TOX ACCOUNTED FOR BY GOP			33	82	3.9	0.4	

OCCIDENTAL CHEMICAL CORPORATION
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Analytes:	Units:	Method Detection Levels:	Sample Date: 01/12/89	01/12/89	01/11/89	12/09/88	12/09/88
			Sample Description: WS 42 A [R]	WS 42 A [R]	WS 53	WS 55	WS 56
			Special Code:	D			
PH			7.8		6.2	7.5	7.9
SPECIFIC CONDUCTANCE	umh/cm		4900		42000	3800	7400
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	ND	ND	ND	ND	ND
MERCURY	ug/L	0.1	ND	ND	ND	ND	ND
LEAD	ug/L	*	ND31	ND31	ND31	ND22	ND22
TOLUENE	ug/L	1	ND	ND	2900	ND	ND
2-CHLOROTOLUENE	ug/L	1	ND	ND	960	ND	ND
4-CHLOROTOLUENE	ug/L	1	ND	ND	490	ND	ND
2,5/2,4-DICHLOROTOLUENE	ug/L	1	ND	ND	12	ND	ND
3,4-DICHLOROTOLUENE	ug/L	1	ND	ND	6	ND	ND
2,6-DICHLOROTOLUENE	ug/L	1	ND	ND	3	ND	ND
CHLOROBENZENE	ug/L	1	ND	ND	6700	ND	ND
1,2-DICHLOROBENZENE	ug/L	1	ND	ND	260	ND	ND
1,4-DICHLOROBENZENE	ug/L	1	ND	ND	360	ND	ND
1,2,3-TRICHLOROBENZENE	ug/L	1	ND	ND	190	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	1	ND	ND	1500	1	ND
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	1	33	330	2	ND
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	ND	ND	120	ND	ND
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1	2	ND	13000	ND	ND
TETRACHLOROETHYLENE	ug/L	1	ND	ND	590	ND	ND
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	5	ND	ND
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	11	ND	ND
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	23	ND	ND
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	8	ND	ND
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	ND
2,4,5-TRICHLOROPHENOL	ug/L	1	ND	ND	7	ND	ND
a-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	3	ND	ND
b-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	4	3	1
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	ND
d-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	2	ND	ND
TOTAL ORGANIC CARBON (TOC)	mg/L	1	100	1.3	130	5.0	7.0
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	140	60	41000	260	740
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		3	33	27484	7.0	1
TOTAL CARBON INCLUDED IN GOP	ug/L		1	11	11510	2.2	0.2
TOTAL HALOGEN INCLUDED IN GOP	ug/L		2	22	15179	4.7	0.7
% TOC ACCOUNTED FOR BY GOP			0	0.8	8.9	0.0	0.0
% TOX ACCOUNTED FOR BY GOP			1.6	36	37	1.8	0.1

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

NIAGARA PLANT
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Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 01/03/89	01/04/89	01/14/89	01/13/89	01/14/89
			Sample Description:-> WS 93	WS 94	WS 95	WS 96	WS 97
			Special Code:------->				
PH			6.3	7.1			
SPECIFIC CONDUCTANCE	umh/cm		450	520			
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	8000	5400	ND	ND	7300
MERCURY	ug/L	0.1	ND	ND	ND	ND	ND
LEAD	ug/L	*	ND18	ND18	ND30	ND30	ND30
TOLUENE	ug/L	1	ND	ND	ND	ND	
2-CHLOROTOLUENE	ug/L	1	ND	ND	ND	140	
4-CHLOROTOLUENE	ug/L	1	ND	ND	ND	10	
2,5/2,4-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	1	
3,4-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	
2,6-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	
CHLOROBENZENE	ug/L	1	16	43	8	52	
1,2-DICHLOROBENZENE	ug/L	1	ND	ND	ND	14	
1,4-DICHLOROBENZENE	ug/L	1	ND	ND	ND	50	
1,2,3-TRICHLOROBENZENE	ug/L	1	ND	ND	1	ND	
1,2,4-TRICHLOROBENZENE	ug/L	1	ND	ND	5	1	
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	
TRICHLOROETHYLENE	ug/L	1	ND	ND	ND	ND	
TETRACHLOROETHYLENE	ug/L	1	ND	ND	ND	ND	
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	34	
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND	ND	
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	ND	
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	
2,4,5-TRICHLOROPHENOL	ug/L	1	ND	ND	ND	ND	
a-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	
b-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	
d-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	
TOTAL ORGANIC CARBON (TOC)	mg/L	1	3.0	3.2	3.3	5.9	310
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	85	150	90	410	30000
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		16	43	14	302	
TOTAL CARBON INCLUDED IN GOP	ug/L		10	28	8	181	
TOTAL HALOGEN INCLUDED IN GOP	ug/L		4.9	14	6	97	
% TOC ACCOUNTED FOR BY GOP			0.3	0.9	0.2	3.1	
% TOX ACCOUNTED FOR BY GOP			5.8	9.1	6.7	24	

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Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 01/07/89	Sample Description:-> WS 111	01/14/89 WS 113	01/26/89 WS 122	01/06/89 WS 157	01/14/89 WS 159
			Special Code:------->					
PH			7.7		7.6	7.9		
SPECIFIC CONDUCTANCE	umh/cm		15000		728	1100		
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	ND	ND	ND	ND	ND	
MERCURY	ug/L	0.1	ND	ND	ND	ND	ND	
LEAD	ug/L	*	ND20	ND30	33	ND20	46	
TOLUENE	ug/L	1	5	ND	ND	ND	87	
2-CHLOROTOLUENE	ug/L	1	29	ND	ND	ND	350	
4-CHLOROTOLUENE	ug/L	1	5	ND	ND	ND	150	
2,5/2,4-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	83	
3,4-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	26	
2,6-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	9	
CHLOROBENZENE	ug/L	1	24	ND	ND	ND	13000	
1,2-DICHLOROBENZENE	ug/L	1	5	ND	2	ND	4900	
1,4-DICHLOROBENZENE	ug/L	1	8	ND	3	ND	6300	
1,2,3-TRICHLOROBENZENE	ug/L	1	ND	ND	4	ND	800	
1,2,4-TRICHLOROBENZENE	ug/L	1	ND	ND	8	ND	4500	
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	ND	ND	11	ND	20	
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	ND	ND	4	ND	17	
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	ND	
TRICHLOROETHYLENE	ug/L	1	4	ND	ND	ND	2	
TETRACHLOROETHYLENE	ug/L	1	3	ND	ND	ND	2	
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND	
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND	
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND	
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND	
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND	ND	ND	
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	ND	ND	
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	ND	
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	ND	
2,4,5-TRICHLOROPHENOL	ug/L	1	ND	ND	ND	ND	5	
a-HEXACHLOROCYCLOHEXANE	ug/L	1	4	ND	ND	ND	190	
b-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	36	
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	250	
d-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	310	
TOTAL ORGANIC CARBON (TOC)	mg/L	1	6.4	1100	9.1	6.1	1100	
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	1700	1300	160	500	4400	
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		91	--	32	1.1	31037	
TOTAL CARBON INCLUDED IN GOP	ug/L		53	--	12	0.5	16602	
TOTAL HALOGEN INCLUDED IN GOP	ug/L		35	--	19	0.5	13401	
% TOC ACCOUNTED FOR BY GOP			0.8	--	0.1	0.0	1.5	
% TOX ACCOUNTED FOR BY GOP			2.0	--	12.1	0.1	305	

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

NIAGARA PLANT
SDCP - GROUNDWATER SURVEY ANALYSES

ND - Not Detected above method detection level.

Special Codes: D - FIELD DUPLICATE

* Method Detection Level for Lead varied for each batch.

Analytes:	Units:	Method Detection Levels;	Sample Date:--------> 01/06/89	12/27/88	01/09/89	12/09/88	12/09/88
			Sample Description:-> WS 160	OW 20 A	OW 151	OW 266	OW 267
			Special Code:------->				
PH			7.3	8.5	7.4	6.9	7.3
SPECIFIC CONDUCTANCE	umh/cm		2400	3000	1200	2900	500
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	ND	ND	ND	ND	180
MERCURY	ug/L	0.1	0.1	ND	0.1	ND	ND
LEAD	ug/L	*	ND20	ND28	ND22	ND22	ND22
TOLUENE	ug/L	1	13	ND	ND	2	ND
2-CHLOROTOLUENE	ug/L	1	34	ND	2	29	5
4-CHLOROTOLUENE	ug/L	1	5	ND	ND	4	5
2,5/2,4-DICHLOROTOLUENE	ug/L	1	33	ND	1	16	13
3,4-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	2	7
2,6-DICHLOROTOLUENE	ug/L	1	6	ND	ND	1	1
CHLOROBENZENE	ug/L	1	1000	10	31	120	ND
1,2-DICHLOROBENZENE	ug/L	1	1800	ND	30	8	2
1,4-DICHLOROBENZENE	ug/L	1	1700	ND	11	21	2
1,2,3-TRICHLOROBENZENE	ug/L	1	150	ND	ND	ND	15
1,2,4-TRICHLOROBENZENE	ug/L	1	800	ND	ND	30	88
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	9	ND	ND	ND	110
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	8	ND	ND	21	21
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	ug/L	1	ND	3	ND	ND	8
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND	1	5
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	1	ND	ND	ND
2,4,5-TRICHLOROPHENOL	ug/L	1	2	ND	ND	9	ND
a-HEXACHLOROCYCLOHEXANE	ug/L	1	4	ND	ND	39	ND
b-HEXACHLOROCYCLOHEXANE	ug/L	1	5	ND	ND	11	ND
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	7	ND
d-HEXACHLOROCYCLOHEXANE	ug/L	1	4	ND	ND	7	ND
TOTAL ORGANIC CARBON (TOC)	mg/L	1	840	2.1	11	6.0	1.0
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	3800	2500	220	2600	710
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		5500	16	75	330	290
TOTAL CARBON INCLUDED IN GOP	ug/L		2800	8.0	42	170	110
TOTAL HALOGEN INCLUDED IN GOP	ug/L		2600	7.4	31	160	170
% TOC ACCOUNTED FOR BY GOP			0.3	0.4	0.4	2.8	11
% TOX ACCOUNTED FOR BY GOP			69	0.3	14	6.0	24

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

NIAGARA PLANT
SDCP - GROUNDWATER SURVEY ANALYSES

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Special Codes: D - FIELD DUPLICATE

* Method Detection Level for Lead varied for each batch.

Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 12/15/88 Sample Description:-> OW 270 Special Code:------->	12/12/88 OW 271	12/12/88 OW 272	01/04/89 OW 273	01/18/89 OW 302
PH			8.1	9.5	7.6	7.4	8.3
SPECIFIC CONDUCTANCE	umh/cm		8300	880	1030	12000	620
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	150	ND	ND	ND	ND
MERCURY	ug/L	0.1	ND	ND	ND	ND	ND
LEAD	ug/L	*	ND30	ND26	ND26	ND18	160
TOLUENE	ug/L	1	91	ND	ND	20	ND
2-CHLOROTOLUENE	ug/L	1	8700	ND	ND	6500	ND
4-CHLOROTOLUENE	ug/L	1	2500	ND	ND	2600	ND
2,5/2,4-DICHLOROTOLUENE	ug/L	1	46	ND	ND	26	ND
3,4-DICHLOROTOLUENE	ug/L	1	13	ND	ND	10	ND
2,6-DICHLOROTOLUENE	ug/L	1	6	ND	ND	3	ND
CHLOROBENZENE	ug/L	1	510	3	6	860	ND
1,2-DICHLOROBENZENE	ug/L	1	53	ND	ND	31	ND
1,4-DICHLOROBENZENE	ug/L	1	160	4	4	170	ND
1,2,3-TRICHLOROBENZENE	ug/L	1	7	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ug/L	1	210	ND	ND	33	ND
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	15	ND	ND	25	ND
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	93	ND	ND	18	ND
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1	5	ND	ND	2	ND
TETRACHLOROETHYLENE	ug/L	1	ND	ND	ND	ND	ND
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	5	ND	ND	15	ND
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	490	29	160	750	2
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	3	ND	ND	ND	ND
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	76	1	2	1	ND
HEXACHLOROBUTADIENE	ug/L	1	9	ND	ND	ND	ND
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	1	ND
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	ND
2,4,5-TRICHLOROPHENOL	ug/L	1	14	ND	1	2	ND
a-HEXACHLOROCYCLOHEXANE	ug/L	1	290	ND	ND	130	ND
b-HEXACHLOROCYCLOHEXANE	ug/L	1	46	ND	ND	33	ND
g-HEXACHLOROCYCLOHEXANE	ug/L	1	2	ND	ND	ND	ND
d-HEXACHLOROCYCLOHEXANE	ug/L	1	2	ND	ND	3	ND
TOTAL ORGANIC CARBON (TOC)	mg/L	1	7.0	1.6	1.3	10	5.1
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	6200	230	640	4100	590
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		13000	41	180	11000	2
TOTAL CARBON INCLUDED IN GOP	ug/L		8400	19	83	7200	0.9
TOTAL HALOGEN INCLUDED IN GOP	ug/L		4000	11	39	3300	0.4
% TOC ACCOUNTED FOR BY GOP			120	1.2	6.3	69	0
% TOX ACCOUNTED FOR BY GOP			64	5.0	6.1	79	0

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

NIAGARA PLANT
SDCP - GROUNDWATER SURVEY ANALYSES

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* Method Detection Level for Lead varied for each batch.

Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 01/11/89	01/17/89	01/17/89	01/05/89	01/04/89
			Sample Description:-> OW 303	OW 304	OW 304	OW 305	OW 306
			Special Code:-------->		D		
PH			7.3			7.0	7.7
SPECIFIC CONDUCTANCE	umh/cm		2300			11000	70
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	ND	ND	ND	ND	ND
MERCURY	ug/L	0.1	ND	ND	ND	ND	ND
LEAD	ug/L	*	ND31	ND23	ND23	ND20	ND18
TOLUENE	ug/L	1	ND	1	1	ND	ND
2-CHLOROTOLUENE	ug/L	1	ND	10	9	ND	ND
4-CHLOROTOLUENE	ug/L	1	ND	9	9	ND	ND
2,5/2,4-DICHLOROTOLUENE	ug/L	1	ND	13	12	ND	ND
3,4-DICHLOROTOLUENE	ug/L	1	ND	3	3	ND	ND
2,6-DICHLOROTOLUENE	ug/L	1	ND	1	1	ND	ND
CHLOROBENZENE	ug/L	1	ND	770	710	ND	3
1,2-DICHLOROBENZENE	ug/L	1	ND	10000	9800	ND	2
1,4-DICHLOROBENZENE	ug/L	1	ND	9600	9300	ND	6
1,2,3-TRICHLOROBENZENE	ug/L	1	ND	2600	2700	ND	9
1,2,4-TRICHLOROBENZENE	ug/L	1	ND	11000	11000	ND	25
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	ND	520	430	ND	ND
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	ND	190	200	ND	ND
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1	2	ND	ND	ND	ND
TETRACHLOROETHYLENE	ug/L	1	ND	4	4	ND	ND
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	4
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	440
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	2
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND	ND	ND
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	ND
2,4,5-TRICHLOROPHENOL	ug/L	1	ND	13	12	ND	ND
a-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	14	14	ND	ND
b-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	14	2	ND	ND
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	4	4	ND	ND
d-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	4	4	ND	ND
TOTAL ORGANIC CARBON (TOC)	mg/L	1	1.0	5.3	7.6	2.6	2.8
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	170	19000	16000	1500	700
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		2	34770	34215	0.3	490
TOTAL CARBON INCLUDED IN GOP	ug/L		0.4	15777	15501	0.2	230
TOTAL HALOGEN INCLUDED IN GOP	ug/L		1.6	18184	17920	0.1	110
% TOC ACCOUNTED FOR BY GOP			0	298	204	0.0	8.1
% TOX ACCOUNTED FOR BY GOP			0.9	95.7	112	0.0	16

OCCIDENTAL CHEMICAL CORPORATION
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NIAGARA PLANT
SDCP - GROUNDWATER SURVEY ANALYSES

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Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 12/17/88	01/10/89	01/03/89	01/09/89	01/07/89
			Sample Description:-> OW 312	OW 313	OW 315	OW 316	OW 317
			Special Code:------->				
PH			7.8	6.8	7.9	14	7.2
SPECIFIC CONDUCTANCE	umh/cm		3300	13000	6900	13000	3000
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	ND	ND	700	390	ND
MERCURY	ug/L	0.1	ND	ND	ND	ND	ND
LEAD	ug/L	*	ND30	23	ND18	66	ND20
TOLUENE	ug/L	1	ND	1600	ND	48	7000
2-CHLOROTOLUENE	ug/L	1	ND	98000	ND	8	130
4-CHLOROTOLUENE	ug/L	1	ND	8500	ND	15	130
2,5/2,4-DICHLOROTOLUENE	ug/L	1	ND	1	ND	ND	110
3,4-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	2	66
2,6-DICHLOROTOLUENE	ug/L	1	ND	ND	ND	ND	ND
CHLOROBENZENE	ug/L	1	ND	260	ND	77	2600
1,2-DICHLOROBENZENE	ug/L	1	ND	18	ND	340	1800
1,4-DICHLOROBENZENE	ug/L	1	ND	11	ND	180	940
1,2,3-TRICHLOROBENZENE	ug/L	1	ND	180	ND	2	5100
1,2,4-TRICHLOROBENZENE	ug/L	1	ND	670	ND	8	19000
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	ND	20	ND	ND	260
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	ND	8	ND	ND	140
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1	ND	5	ND	83000	2
TETRACHLOROETHYLENE	ug/L	1	ND	3	ND	2900	5
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	3
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	2	ND	ND	160
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	79
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	ND	ND	ND
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND	ND	ND
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND	ND	ND
2,4,5-TRICHLOROPHENOL	ug/L	1	ND	ND	ND	ND	77
a-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	20	ND	ND	78
b-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	11	ND	ND	41
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	2
d-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	2	ND	ND	110
TOTAL ORGANIC CARBON (TOC)	mg/L	1	5.1	8.4	3.8	230	67
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	160	23000	280	160000	13000
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		1.9	109311	1.4	86580	31000
TOTAL CARBON INCLUDED IN GOP	ug/L		0.6	72733	0.5	15961	14000
TOTAL HALOGEN INCLUDED IN GOP	ug/L		1.3	30475	0.8	69957	17000
% TOC ACCOUNTED FOR BY GOP			0.0	866	0.0	6.9	21
% TOX ACCOUNTED FOR BY GOP			0.8	133	0.3	44	130

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

NIAGARA PLANT
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Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 01/07/89	01/07/89	01/17/89	01/17/89	01/03/89
			Sample Description:-> OW 318	OW 319	OW 320	OW 321	OW 322
			Special Code:------->				
PH			8.1	7.3			6.4
SPECIFIC CONDUCTANCE	umh/cm		3500	1900			700
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	ND	ND	ND	ND	12000
MERCURY	ug/L	0.1	ND	ND	0.1	ND	ND
LEAD	ug/L	*	ND22	ND20	ND23	ND23	ND18
TOLUENE	ug/L	1	710	91	2400	8400	ND
2-CHLOROTOLUENE	ug/L	1	830	400	590	4900	ND
4-CHLOROTOLUENE	ug/L	1	760	320	300	3400	ND
2,5/2,4-DICHLOROTOLUENE	ug/L	1	1800	630	20	1300	ND
3,4-DICHLOROTOLUENE	ug/L	1	830	200	14	400	ND
2,6-DICHLOROTOLUENE	ug/L	1	230	83	4	170	ND
CHLOROBENZENE	ug/L	1	5700	2700	800	3700	53
1,2-DICHLOROBENZENE	ug/L	1	8000	1100	150	2000	ND
1,4-DICHLOROBENZENE	ug/L	1	7800	1400	23	1100	ND
1,2,3-TRICHLOROBENZENE	ug/L	1	1900	180	ND	110	ND
1,2,4-TRICHLOROBENZENE	ug/L	1	7200	1100	ND	270	ND
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	1100	1000	19	72	ND
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	310	180	ND	260	ND
HEXACHLOROBENZENE	ug/L	1	ND	1	100	170	ND
TRICHLOROETHYLENE	ug/L	1	1	1	18000	25000	ND
TETRACHLOROETHYLENE	ug/L	1	2	ND	9700	4500	ND
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	9	3600	1	ND
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	2	89	4600	6	ND
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	34	ND	ND
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	21	5	ND
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	730	150	ND
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	12000	3700	ND
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	1200	340	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	6	ND	25	22	ND
2,4,5-TRICHLOROPHENOL	ug/L	1	9	2	22	8200	ND
a-HEXACHLOROCYCLOHEXANE	ug/L	1	340	3	26	86	ND
b-HEXACHLOROCYCLOHEXANE	ug/L	1	180	2	86	ND	ND
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND	ND	ND
d-HEXACHLOROCYCLOHEXANE	ug/L	1	5	2	40	27	ND
TOTAL ORGANIC CARBON (TOC)	mg/L	1	22	17	26	1300	3.6
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	13000	15000	75000	210000	250
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		38000	9400	54504	68289	53
TOTAL CARBON INCLUDED IN GOP	ug/L		19000	4900	15000	27489	34
TOTAL HALOGEN INCLUDED IN GOP	ug/L		18000	4200	36270	38271	17
% TOC ACCOUNTED FOR BY GOP			87	29	58	2.1	0.9
% TOX ACCOUNTED FOR BY GOP			140	29	48	18	6.7

OCCIDENTAL CHEMICAL CORPORATION
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NIAGARA PLANT
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Analytes:	Units:	Method Detection Levels:	Sample Date:--------> 01/03/89	01/04/89	01/04/89
			Sample Description:-> OW 322	OW 323	OW 325
			Special Code:-------> D		
PH				6.7	6.8
SPECIFIC CONDUCTANCE	umh/cm			1200	6400
PHOSPHORUS, TOTAL SOLUBLE (AS P)	ug/L	10	6400	50	ND
MERCURY	ug/L	0.1	ND	ND	ND
LEAD	ug/L	*	ND18	ND18	ND18
TOLUENE	ug/L	1	ND	ND	8
2-CHLOROTOLUENE	ug/L	1	ND	ND	280
4-CHLOROTOLUENE	ug/L	1	ND	ND	8
2,5/2,4-DICHLOROTOLUENE	ug/L	1	ND	ND	2
3,4-DICHLOROTOLUENE	ug/L	1	ND	ND	2
2,6-DICHLOROTOLUENE	ug/L	1	ND	ND	150
CHLOROBENZENE	ug/L	1	69	ND	420
1,2-DICHLOROBENZENE	ug/L	1	ND	ND	55
1,4-DICHLOROBENZENE	ug/L	1	ND	ND	90
1,2,3-TRICHLOROBENZENE	ug/L	1	ND	ND	3
1,2,4-TRICHLOROBENZENE	ug/L	1	ND	ND	39
1,2,3,4-TETRACHLOROBENZENE	ug/L	1	ND	ND	2
1,2,4,5-TETRACHLOROBENZENE	ug/L	1	ND	ND	1
HEXACHLOROBENZENE	ug/L	1	ND	ND	ND
TRICHLOROETHYLENE	ug/L	1	ND	ND	15
TETRACHLOROETHYLENE	ug/L	1	ND	ND	31
2-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	4
4-CHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	290
2,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	3
3,4-DICHLOROBENZOTRIFLUORIDE	ug/L	1	ND	ND	1
HEXACHLOROBUTADIENE	ug/L	1	ND	ND	ND
HEXACHLOROCYCLOPENTADIENE	ug/L	1	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/L	1	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	1	ND	ND	ND
2,4,5-TRICHLOROPHENOL	ug/L	1	ND	ND	2
a-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	2
b-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	3
g-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND
d-HEXACHLOROCYCLOHEXANE	ug/L	1	ND	ND	ND
TOTAL ORGANIC CARBON (TOC)	mg/L	1	3.5	1.5	12
TOTAL ORGANIC HALIDES (TOX)	ug/L	50	170	ND	4400
TOTAL GENERAL ORGANIC PARAMETERS	ug/L		70	0.0	1400
TOTAL CARBON INCLUDED IN GOP	ug/L		45	0.0	780
TOTAL HALOGEN INCLUDED IN GOP	ug/L		22	0.0	480
% TOC ACCOUNTED FOR BY GOP			1.3	0.0	6.5
% TOX ACCOUNTED FOR BY GOP			13	--	11

ATTACHMENT D
Niagara Mohawk Conduit Investigation

TABLE 1
PUMPING 1208A

Manhole Number	12/30/87 12/31/87 (I) (feet)	1/06/88 (I) (feet)	4/13/88/(Δ I) (feet)	4/14/88/(Δ 4/13) (feet)	4/15/88/(Δ 4/14) (feet)	4/18/88/(Δ 4/15) (feet)	4/19/88/(Δ 4/18) (feet)	Total Change (Δ) (feet)
ST155	--	2.61	2.58 / 0.03↑	2.51 / 0.07↑	2.50 / 0.01↑	2.47 / 0.03↑	2.39 / 0.08↑	0.22 Rise
Conduit 1208	4.62	4.31	5.46 / 1.15↓	5.54 / 0.08↓	5.58 / 0.04↓	5.52 / 0.06↑	5.20 / 0.32↑	0.89 Drop
156	3.87	3.88	3.87 / 0.01↑	3.76 / 0.11↑	3.78 / 0.02↓	3/81 / 0.03↓	3.77 / 0.04↑	0.11 Rise
156A	3.60	3.71	3.42 / 0.29↑	3.42 / ----	3.32 / 0.10↑	3.38 / 0.06↓	3.42 / 0.04↓	0.29 Rise
157	3.23	3.37	3.20 / 0.17↑	3.25 / 0.05↓	3.27 / 0.02↓	3.22 / 0.05↑	3.26 / 0.04↓	0.11 Rise
158	4.30		4.56 / 0.26↓	4.60 / 0.04↓	4.70 / 0.10↓	4.67 / 0.03↑	4.73 / 0.06↓	0.43 Drop
467	3.49		3.52 / 0.03↓	3.53 / 0.01↓	3.50 / 0.03↑	3.47 / 0.03↑	3.53 / 0.06↓	0.04 Drop
481	3.04		3.16 / 0.12↓	3.15 / 0.01↑	2.93 / 0.22↑	3.04 / 0.11↓	3.17 / 0.13↓	0.13 Drop
759B	2.81		3.60 / 0.79↓	3.62 / 0.02↓	3.78 / 0.16↓	3.72 / 0.06↑	3.42 / 0.30↑	0.61 Drop
760	3.60		3.83 / 0.23↓	3.77 / 0.06↑	3.78 / 0.01↓	3.60 / 0.18↑	3.62 / 0.02↓	0.02 Drop
Pumped Manhole Conduit 1208A	4.25	4.31	5.08 / 0.12↓ 5.09 / 0.13↓ (pumped by OCC since 4/08/88)	5.18 / 0.10↓ 5.19 / 0.10↓	5.26 / 0.08↓ 5.27 / 0.08↓	5.20 / 0.06↑ 5.20 / 0.06↑	4.89 / 0.31↑ (Recovery)	0.59 Drop

Baseline Waterlevels = I

Change in pumped manhole: 4/11 - 4.75 / 0.44
4/12 - 4.96 / 0.21

		Daily Amt.	Cumulative Total
Volume Removed Since:	4/08		
	4/13		5,077.6 gal.
	4/14	837	5,914.6 gal.
	4/15	1,056	6,970.6 gal.
	4/18	2,409	9,379.6 gal.

Pumping 1208 ceased in P.M. on 4/18/88

TABLE 2
PUMPING 156A

Manhole Number	4/19/88 (feet)	4/20/88/(Δ4/20) (feet)	4/21/88/(Δ4/21) (feet)	4/22/88/(Δ4/21) (feet)	4/25/88/(Δ4/22) (feet)	Total Change (Δ) (feet)
ST155	2.39	2.53 / 0.14↓	2.56 / 0.03↓	2.56 / ----	2.42 / 0.14↑	0.03 Drop
Conduit Manhole						
1208	5.20	4.78 / 0.42↑	4.68 / 0.10↑	4.54 / 0.14↑	4.39 / 0.15↑	0.81 Rise
1208A	4.89	4.60 / 0.29↑	4.41 / 0.19↑	4.23 / 0.18↑	4.10 / 0.13↑	0.79 Rise
156	3.77	3.81 / 0.04↓	3.91 / 0.10↓	3.91 / ----	3.71 / 0.20↑	0.06 Rise
157	3.26	3.29 / 0.03↓	3.41 / 0.12↓	3.56 / 0.15↓	3.33 / 0.23↑	0.07 Drop
158	4.73	4.79 / 0.06↓	4.76 / 0.03↑	4.98 / 0.22↓	4.65 / 0.33↑	0.08 Rise
467	3.53	3.52 / 0.01↑	3.56 / 0.04↓	3.54 / 0.02↑	3.43 / 0.11↑	0.10 Rise
481	3.17	3.13 / 0.04↑	3.14 / 0.01↓	3.23 / 0.09↓	3.06 / 0.17↑	0.11 Rise
759B	3.42	3.14 / 0.28↑	2.95 / 0.19↑	2.76 / 0.19↑	2.51 / 0.25↑	0.91 Rise
760	3.62	3.64 / 0.02↓	3.60 / 0.04↑	3.64 / 0.04↓	3.38 / 0.26↑	0.24 Rise
Pumped Manhole						
Conduit 156A	3.42	3.81 / 0.39↓	4.29 / 0.48↓	4.36 / 0.07↓	4.63 / 0.27↓	1.21 Drop
		3.81 / 0.39↓	4.30 / 0.49↓			

4/19 Base Waterlevels - Recovering

Volume Removed Since:	Daily Amt.	Cumulative Total
4/19		
4/20	791	791 gallons
4/21	836.4	1,627.4 gallons
4/22	719.6	2,347 gallons
4/25	1,656	4,003 gallons - assuming pump rate same as 4/22/88

Pump not on when waterlevels measured.

TABLE 3
PUMPING 157, 760, 759B SIMULTANEOUSLY

Manhole Number	4/25/88 (feet)	4/28/88/(Δ4/25) (feet)	4/29/88/(Δ4/28) (feet)	4/29/88/(Δ AM 4/29) (feet)	5/02/88 (feet)	Total Change (Δ)
ST155	2.42	2.24 / 0.18↑	1.94 / 0.30↑	1.77 / 0.17↑	2.60 / 0.83↓	0.18 Drop
Conduit Manhole						
1208	4.39	6.22 / 1.83↓	5.98 / 0.24↑	6.31 / 0.33↓	5.60 / 0.71↑	1.21 Drop
1208A	4.10	6.47 / 2.37↓	5.70 / 0.77↑	6.73 / 1.03↓	5.39 / 1.34↑	1.29 Drop
156	3.71	3.58 / 0.13↑	3.07 / 0.51↑	3.64 / 0.57↓	3.85 / 0.21↓	0.14 Drop
157*	3.33	6.52 / 3.19↓	5.73 / 0.79↑	5.09 / 0.64↑	3.73 / 1.36↑	0.40 Drop
158	4.65	4.81 / 0.16↓	4.79 / 0.02↑	4.77 / 0.02↑	5.14 / 0/37↓	0.49 Drop
467	3.43	3.47 / 0.04↓	4.46 / 0.99↓	3.47 / 0.99↑	3.56 / 0.09↓	0.13 Drop
481	3.06	3.04 / 0.02↑	2.85 / 0.19↑	2.55 / 0.30↑	3.08 / 0.53↓	0.02 Drop
759B*	2.51	5.27 / 2.76↓	4.63 / 0.64↑	6.22 / 1.06↑	4.04 / 2.18↑	1.12 Rise
760*	3.38	7.47 / 4.09↓	7.51 / 0.04↓	7.29 / 0.22↑	5.25 / 2.04↑	1.87 Drop
156A	4.63	3.59 / 1.04↑	3.50 / 0.09↑	3.13 / 0.37↑	3.56 / 0.43↓	1.07 Rise
759A+			5.84 (initial)	7.49 / 1.65↓	6.04 / 1.45↑	0.20 Drop

*Pumped 4/28

Notes: 759B drawn down to 7.28 ft. during pumping on 4/29 /88.
+Pumped on 4/29/88

Gallons Removed 4/28/88:

Manhole	Gallons
157	5,000
760	2,000
759	5,000

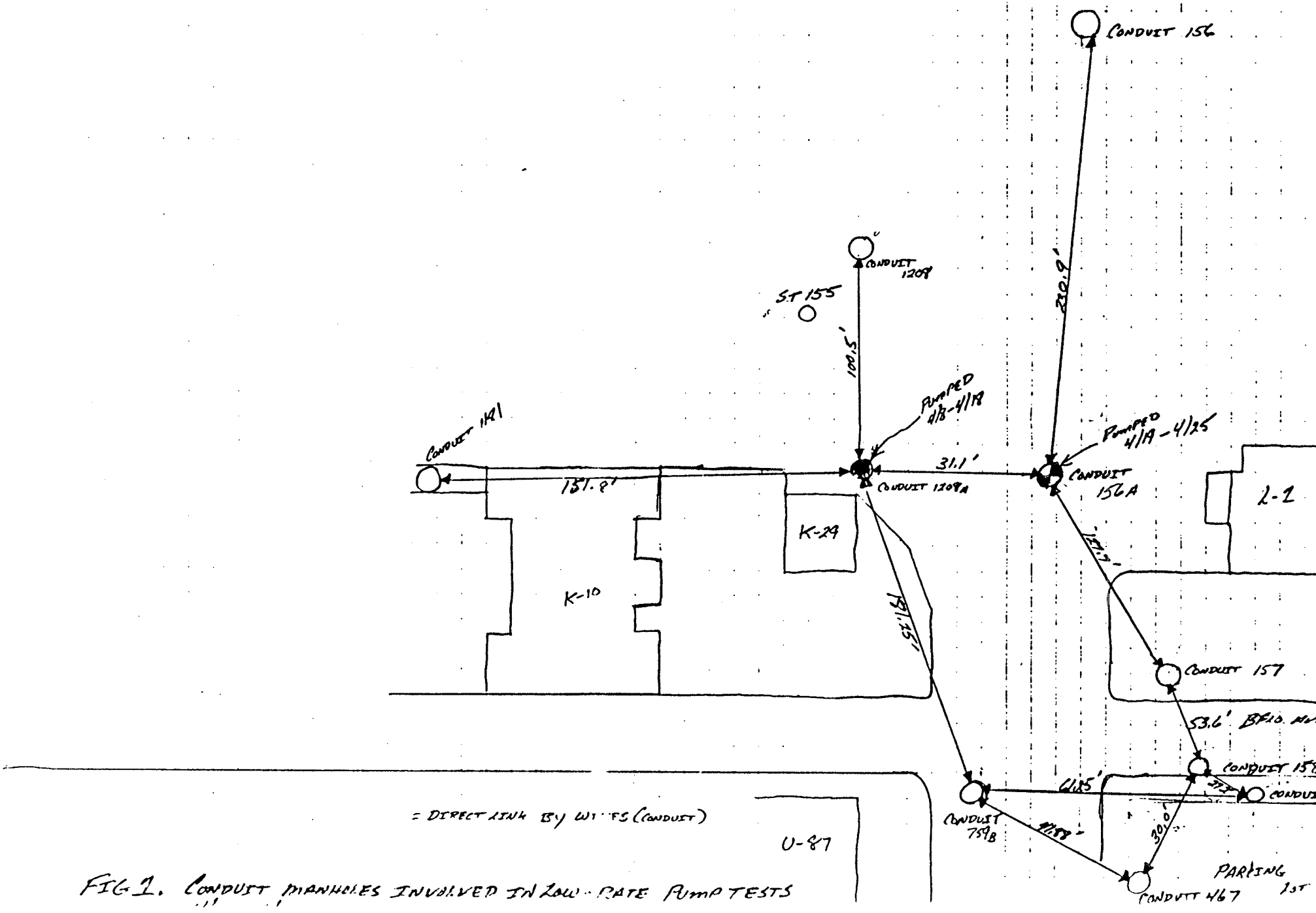


FIG 1. CONDUIT MANHOLES INVOLVED IN LOW-RATE PUMP TESTS

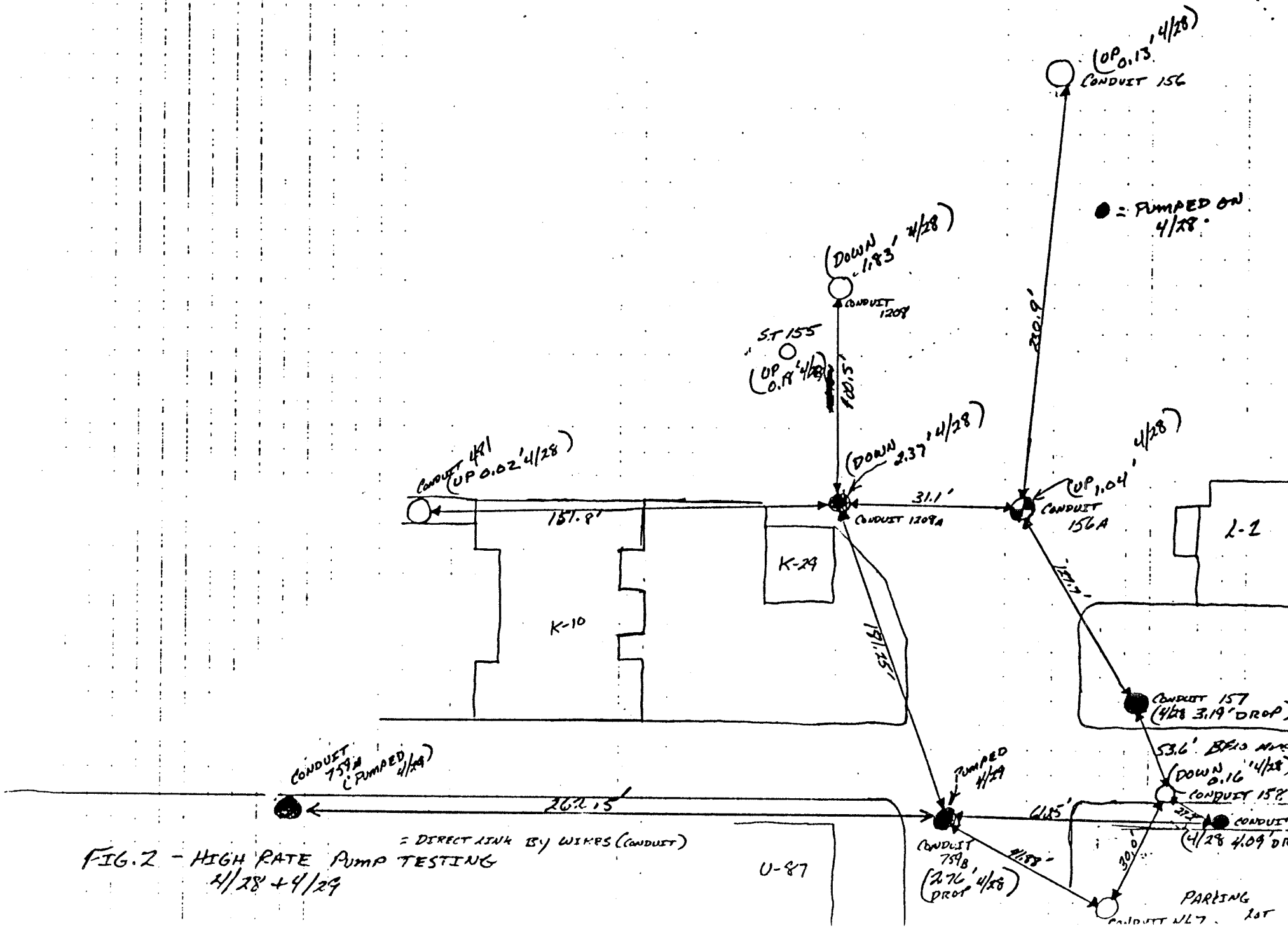


FIG. 2 - HIGH RATE PUMP TESTING
4/28 + 4/29

TABLE 1

Pumped Mahole 759B

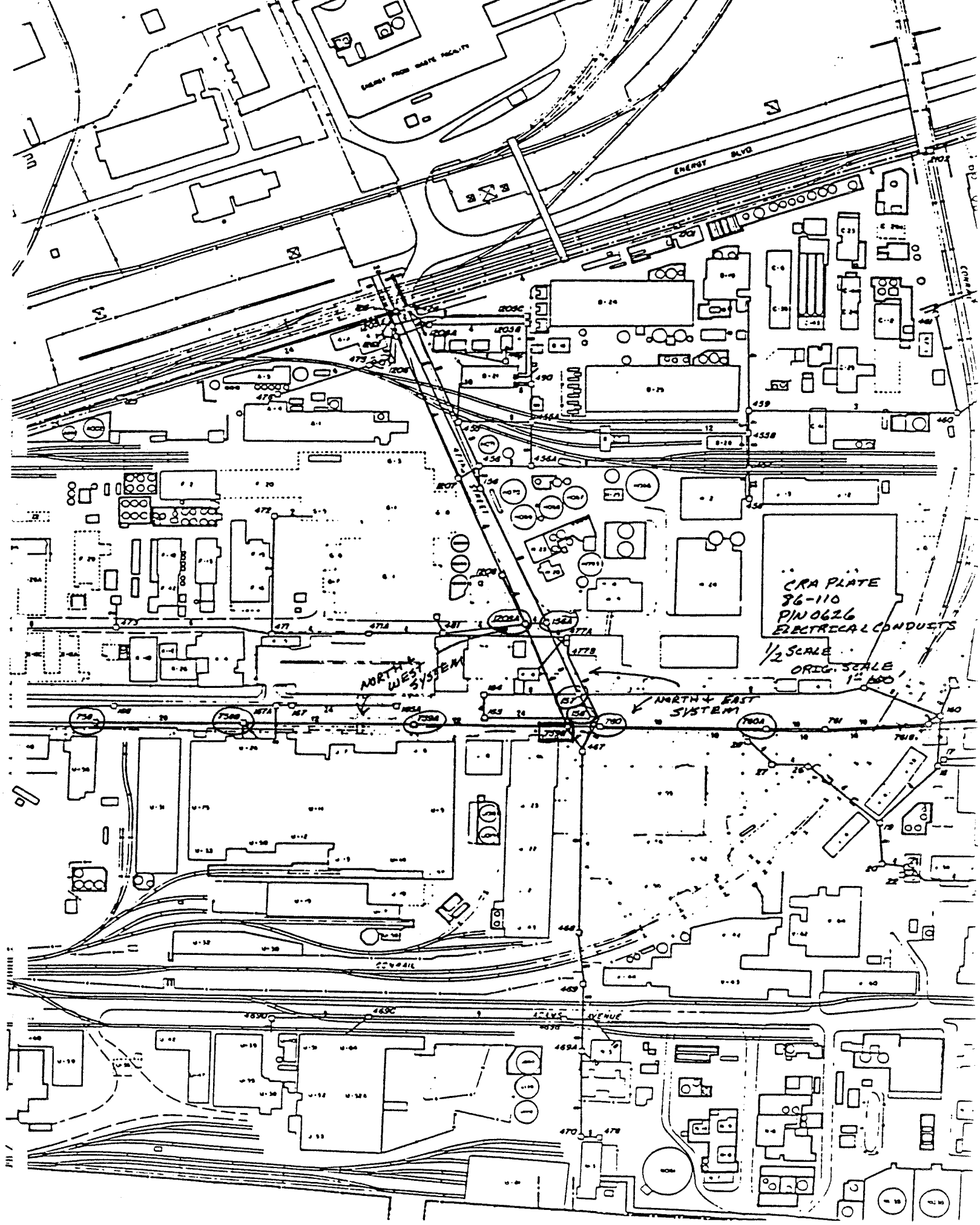
Manhole No.	W/L Initial (feet)	W/L 1.5 Hrs. After 1st Removal (feet)	Δ W/L (feet)	W/L Before Second Removal (feet)	W/L 2 Hrs. After 2nd Removal (feet)	Δ W/L (feet)	W/L 20.5 Hrs. After 2nd Removal (feet)	W/L From Initial W/L, 2nd Removal (feet)
759B	4.81	5.42	-0.61	5.42	7.29	-1.87	5.81	-0.39
1208A	4.66	6.57	-1.91	6.57	Dry	-0.30	6.58	-0.01
759A	4.48	5.60	-1.12	5.60	6.29	-0.69	6.25	-0.65
758B	4.81	5.55	-0.74	5.55	5.58	-0.03	5.56	-0.01
758	4.42	4.42	0.00	4.42	3.43 (4.43)*	+0.99(-0.01)	4.50	-0.08
156A	3.28	3.29	-0.01	3.29	3.29	0.00	3.32	-0.03
157	3.04	3.00	0.04	3.00	3.00	0.00	3.14	-0.14
158	5.46	4.48	0.98	4.48	4.44	0.04	5.42	-0.94
760	3.54	3.58	-0.04	3.58	3.66	-0.08	3.55	0.03
760A	3.28	- -	- -	- -	- -	- -	3.29	- -

Manhole	W/L Initial	W/L 24 Hrs. After Pumping	Δ W/L	pH	
759B	4.81	5.81	-1.00	12.1	
1208A	4.66	6.58	-1.92		
759A	4.48	6.25	-1.77	12.5	Western Group
758B	4.81	5.56	-0.75		
758	4.42	4.50	-0.08		
156A	3.28	3.32	-0.04	10.2	
157	3.04	3.14	-0.10		
158	5.46	5.42	-0.04		Eastern Group
760	3.54	3.55	0.01	10.0	
760A	3.28	3.29	-0.01		

Notes:

*Recorded reading may be in error, probably correct reading in brackets next to figure.

-pH obtained on selected manholes of each group upon OCC request on 11/09/88.


CRA PLATE
86-110
P/N 0626
ELECTRICAL CONDUITS
1/2 SCALE
ORIG. SCALE
1" = 600'
NORTH WEST SYSTEM
NORTH EAST SYSTEM
ENERGY BLVD
CONRAIL
ATLAS AVENUE