Entered

Special Study Report

ALTERNATE WATER TREATMENT PLANT SITE INVESTIGATION

PHASE I

APPENDICES

City of Niagara Falls, New York

JUNE 1989

Project: 0337-19-1

MALCOLM PIRNIE

ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

APPENDIX A.1

BOREHOLE LOGS

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
								30.0
30.0								
								30.8
								31.0
31.0								31.1
								31.2
								31.33
						DOLOSTONE; GRAY;		31.50
						BEDDING THIN TO THINLY		
						LAMINATED; MEDIUM		31.80
32.0						HARD, HARDNESS; FRACTURES		32.10
						ARE TIGHT WITH BLOCKY		32.20
						TO BROKEN SPACING;		
						WEATHERING FRESH		
33.0						TO SLIGHT ESPECIALLY		
						AROUND CLOSELY SPACED		
						FRACTURES; GYPSUM		
						REPLACEMENT COMMON		
34.0						IN SOME FRACTURES AND		
						VUGS, SHALEY LAMINAE		
						COMMON		
35.0								
								35.90
36.0								
37.00								36.9
								37.5
38.00								37.8

SIGNATURE: N. ABRAMS DATE: 10-31-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C
PAGE 6 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
								38.20
								38.8
39.0								
	RUN #3	39.5		10	78			39.5
								39.7
40.0								40.1
						DOLOSTONE; GRAY;		
						BEDDING THIN TO THINLY		
						LAMINAED; HARDNESS		
						MEDIUM HARD WITH MEDIUM		
41.0						SOFT AREAS WITHIN		41.2
						FRACTURES; FRACTURES		
						TIGHT WITH BROKEN		
						SPACING; WEATHERING		
42.0						SLIGHT IN FRACTURES		42.2
						AND FRESH IN WHOLE		
						ROCK SECTIONS; GYPSUM		
						FILLED VUGS AND FRACTURES		
43.0						INFREQUENT		
								43.9
44.0								
								44.7
45.0								
46.0								

SIGNATURE: N. ABRAMS DATE: 11/1/85

DRF-2-1B 11/8/85

LIST OF EXHIBITS

Exhibit No.	Description
	Porter Road Site Borehole Logs:
A.1-1	- USGS
	84-4
	84-9
	LaSalle Area Borehole Logs:
A.1-2	- USGS
	NFB-9
	NFB-10
A.1-3	- NUS
	MW1A through MW1D
	MW4A through MW4D
	MW5A through MW5D
	MW6A through MW6D
	Buffalo Avenue Site Borehole Logs:
A.1-4	- Pittsburgh Testing Laboratory
	B1-81
	B2-81
	B3-81
	B4-81
	B6-81
	B9-81
	B10-81
A.1-5	- Conastoga-Rovers & Associates, Ltd.
	OW1-82
	OW2-82
	OW3-82
	OW4-82
	OW5-82

LIST OF EXHIBITS (Continued)

Exhibit No.	Description
	Buffalo Avenue Site Borehole Logs: (Cont)
A.1-6	- USGS (Summary) 1 through 9
A.1-7	- Dames & Moore MW-1D, MW-1S, MW-2D, MW-2S, MW-3D, MW-3S, MW-4D, MW-4S, MW-5D, MW-5S, MW-6D, MW-6S, MW-7D, MW-7S, MW-8D, MW-8S, B1-87, B2-87, B3-87
	East Area Site Borehole Logs:
A.1-8	- ES1 (1977) BH-1-77, BH-2-77, BH-3-77, BH-4-77, BH-5-77, BH-6-77, BH-7-77
A.1-9	- LBG (1979) CW-11, CW-11A, CW-13, CW-13A
A.1-10	- CEC (1982) B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, B-9, B-10, B-11, B-12

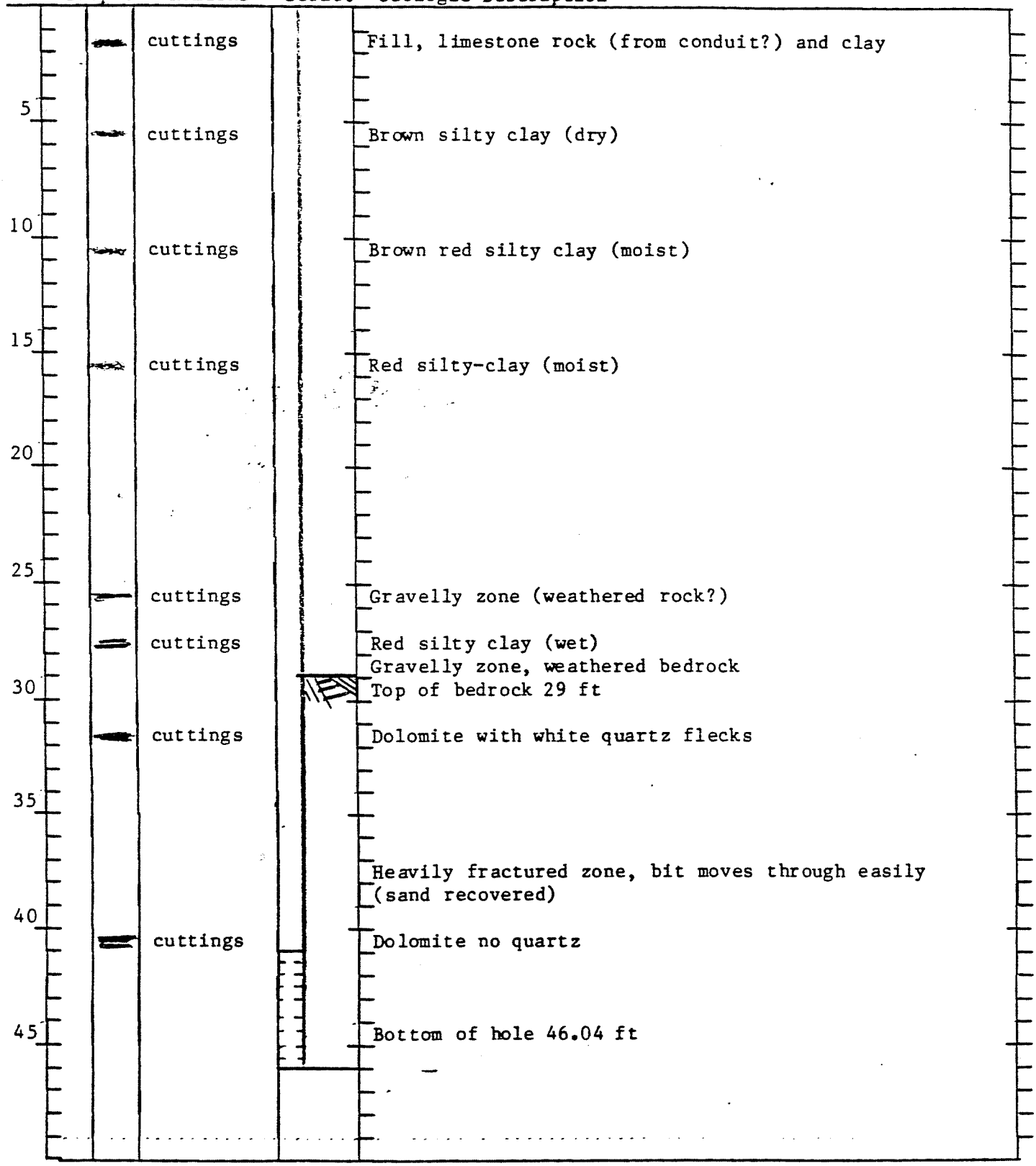
LIST OF EXHIBITS (Continued)

Exhibit No.	Description
	East Area Site Borehole Logs: (Cont)
A.1-11	- CRA/OCC (1987)

OW-200
OW-201
OW-202
OW-215
OW-220
OW-221
OW-261
OW-262
OW-263
OW-280
OW-281
OW-284
OW-285
OW-286
OW-287
OW-291
OW-294
BH-222
BG-223

Site: Hyde Park Golf Course (#4) Date July 13, 1984

Location: South of Golf Course Maintenance Building approx. 150 ft



Site: 84-9 (USGS well) Date Oct. 22, 1984

City of Niagara Falls Golf Course, Porter Road, Niagara Falls, N.Y.

Location: 13 ft west of PASNY well OW-152, **on conduit #1**

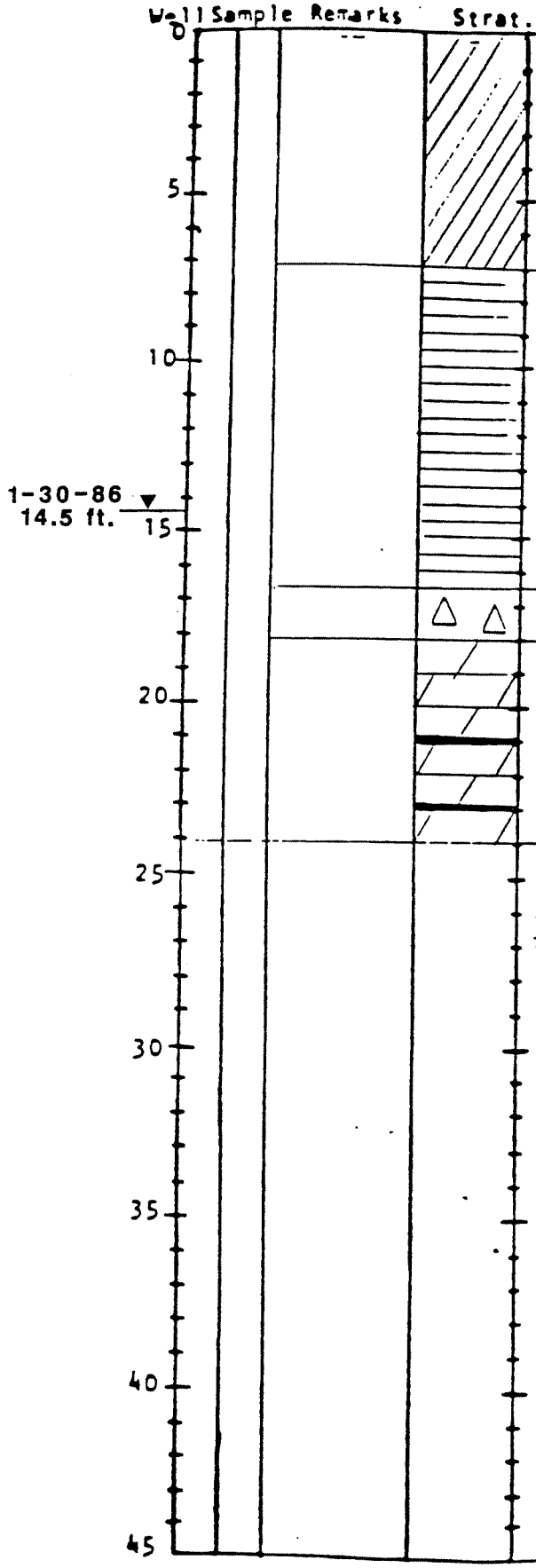
Well	Sample	Remarks	Strat.	Geologic Description
		Bentonite		Fill, poorly sorted silt, clay, and boulders.
		Silt/clay backfill from 3' to 30'		
5				
10				
15				
20				
25				
		Lost air & cuttings circulation		Shot rock, coarse cobble to boulder size Lockport Dolomite fragments. Very permeable
30		Hard drilling.		
		Bentonite-concrete from 30' to 40'		
35				
				Fill, poorly sorted silt, clay, and cobbles, wet.
40		C. qtz. sand pack 40-46'		
45				
				Bottom of hole at 47 ft.
50				

Sheet # 1 of 1

Site # NFB-9 (air rotary)

Date December 14, 1982

Location- Niagara Falls Quad, city of Niagara Falls, west side of 61st St., 370 ft south of Niagara Falls St.



Geologic Description

Fill, gravelly silt, bricks, oily, black chemical stains.

Clay, reddish brown, moist (saturated?).

Till, silty clay matrix w/embedded pebbles.

Dolostone, med. gray, f. sugary texture - very weathered from 20-22 ft.

Seam or shale bed, 0.5 in.

Seam or shale bed, 0.5 in. Pumps about 2-3 gpm.

Bottom of hole at 24 ft.

NFB-9

WELL INSTALLATION

NF82-7 (air rotary)

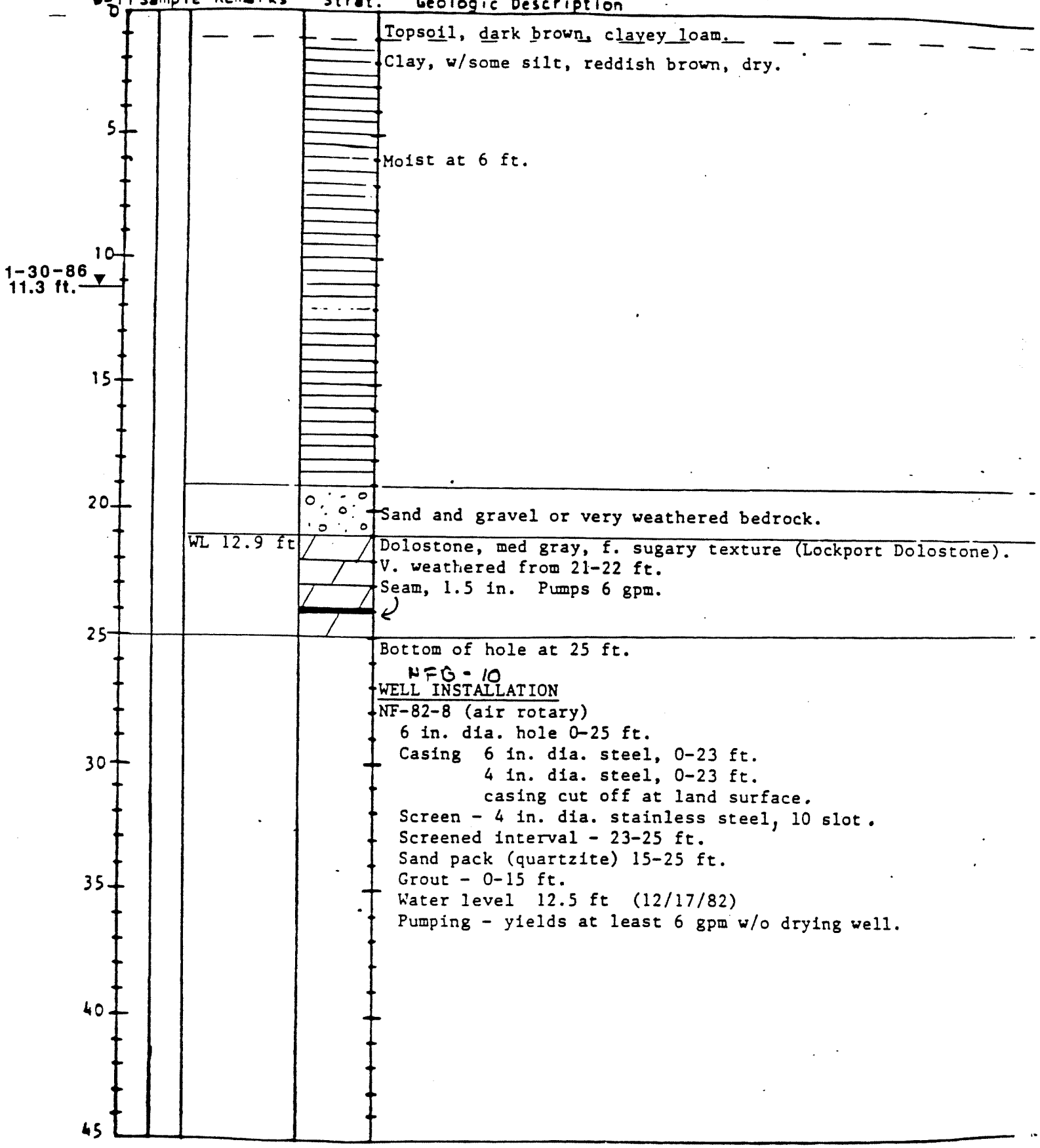
6 in. dia. hole to 24 ft.
casing - 4 in. dia. steel, 0-22 ft
casing cut off at land surface
screen - 4 in. dia. stainless steel, 10 slot
screened interval - 22-24 ft
sand pack (quartzite) 15-24 ft
grout - 0-15 ft
water level - 11.3 ft below LSD (12/17/82)
Pumping - yields 2 gpm w/o drying well.

Sheet # 1 of 1

Site # NFB-10 (air rotary)

Date December 14, 1982

Location- Niagara Falls Quad, city of Niagara Falls, west side of 60th St., 210 ft sou of Cortland.



Sheet # 1 of 1

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1A

BOREHOLE LOG

BOREHOLE LOCATION: SOUTHEAST CORNER OF NIAGARA FALLS BLVD & CHEVY
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: RON ANTHONY
GROUND SURFACE ELEV. (FROM MSL) +573 (FT.)
COMPLETION DEPTH: 13
DATE STARTED: 10/31 COMPLETED: 10/31/85
LOGGED BY: PETER MORTON CHECKED BY: P. VON SCHONDORF

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ TRACK MANUFACTURER: SIMCO
CASING DIA. _____ INCHES FROM _____ TO _____ FEET
DRILLING METHOD: HOLLOWSTEM AUGERS BIT TYPE _____ BIT DIA. _____
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON _____ DIA. 2½" Ø 50
TUBE _____ DIA. _____
CORE _____ DIA. _____
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 30"
CASING HAMMER WEIGHT (LBS) _____ AVERAGE FALL (INCHES) _____

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	4'	10-31-85	
SAMPLING	4'	1-31-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
							FILL	POSSIBLE SOIL FILL
1.0								TO 3'
2.0								
3.0						REFERENCE BORING	-?-	
						LOG MW1C FOR		
4.0						SOIL DESCRIPTION	SM/ML	
5.0								
6.0								
7.0								
8.0	1A	8-8.5	10			M. DENSE; RED BROWN;	CL/ML	LAB ANALYSIS ON
	1B	8.5-9	13			CLAY AND SILT; DRY;		8-10' SAMPLE
9.0	1C	9-9.5	15			BRITTLE		
	1D	9.5-10	14	1.8				

SIGNATURE: P. MORTON DATE: 10-31-85

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1A
PAGE 2 OF 2

BOREHOLE LOG

DEPTH (FT.)	SAMPLE					SAMPLE DESCRIPTION	STRATA	REMARKS
	TYPE & NO.	DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %			
10.0							CL/ML	
11.0								
12.0							CL	
13.0							CH	
						BOTTOM OF HOLE 13 FT.		

SIGNATURE: P. MORTON DATE: 10-31-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1B

BOREHOLE LOG

BOREHOLE LOCATION: SOUTHEAST CORNER OF NIAGARA FALLS BLVD AND CHEVY PL.
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: RON ANTHONY

GROUND SURFACE ELEV. (FROM MSL) +573 (FT.)
COMPLETION DEPTH: 23 FEET
DATE STARTED: 11-8-85 COMPLETED: 11-11-85
LOGGED BY: R. FRIEND CHECKED BY: P. VON SCHONDOR

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 2 I.D. INCHES FROM 0 TO 17.5 FEET
DRILLING METHOD: AUGER/WATER ROTARY BIT TYPE ROLLER BIT DIA. 8 INCH
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL DIA. 2" O.D.
TUBE DIA.
CORE DIA.
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 30
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	4'	11-8-85	820
SAMPLING	4'	1-31-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
							FILL	
1.0								POSSIBLE SOIL
								FILL FROM
2.0								HIGHWAY CONSTRUCTION
								TO 3'
3.0							- ? -	
						REFERENCE BORING		
						LOG MW1C FOR		
4.0						SOIL DESCRIPTION	SM/ML	
5.0								
							CL/ML	
	1A	8.5	12	0		DENSE; RED-BROWN;		LAB ANALYSIS
	1B	9.0	26	.2		NONPLASTIC; CLAY		ON 8-10' SAMPLE
	1C	9.5	30	.5		SOME SILT; DAMP		
10.0	1D	10.0	40	.5				

SIGNATURE: R. FRIEND DATE: 11-8-85

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1β

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
							CL/ML	
11.0							CL	
							CH	
15.0								
							GM	
20.0						AUGER REFUSAL AT 21 FEET		TOP OF ROCK
						DRILL TO 23 FT. WITH 5" ROLLER BIT	ROCK	21 FT.
25.0								BOTTOM OF HOLE 23'

SIGNATURE: R. FRIEND DATE: 11-8-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MWIC

BOREHOLE LOG

BOREHOLE LOCATION: SOUTHEAST CORNER OF NIAGARA FALLS BLVD. AND CHEVY PL.
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER:

GROUND SURFACE ELEV. (FROM MSL) +573 (FT.)
COMPLETION DEPTH: 69.75
DATE STARTED: 10-30-85 COMPLETED: 11-18-85
LOGGED BY: N. ABRAMS CHECKED BY: P. VON SCHONDORF

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 4 I.D. INCHES FROM +3.9 TO 32.0 FEET
DRILLING METHOD: HOLLOWSTEM AUGERS/WATER ROTARY BIT TYPE CORE BIT BIT DIA. HX
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL DIA. 2' O.D.
TUBE DIA.
CORE 15 FOOT CORE BARREL DIA. HX
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES)
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	5'	10-30-85	
SAMPLING	7'6	1-31-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
	1A	.5	1	.5		LOOSE; BROWN; NON-		
.5						PLASTIC; SILT SOME		
	1B	1.0	6	0		FINE SAND; MOIST		POSSIBLE SOIL
1.0								FILL FROM
	1C	1.5	8	0			FILL	HIGHWAY CONSTRUCTION
								TO 3'
	1D	2.0	8	0		MEDIUM DENSE; TAN;		
2.0						SAND AND SILT; MOIST;		
	2A	2.5	9	.4		OCCASSIONAL RECENT		
						GASTROPOD SHELLS		
	2B	3.0	9	.5		AND TOPSOIL LENSES;	??	
3.0						POSSIBLE FILL SOIL		
	2C	3.5	8	.5				
							SM	
	2D	4.0	11	.5		MEDIUM DENSE; TAN		
4.0						GRADING TO GRAY;		
	3A	4.5	9	.5		SAND AND SILT; MOIST		
5.0	3B	5.0	9	.5				

SIGNATURE: N. ABRAMS DATE: 10-30-85

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C
PAGE 2 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
						MEDIUM DENSE; TAN;	SM/ML	
	3C	5.5	16	.5		SILT AND VERY FINE		
						SAND; SATURATED		
6.0	3D	6.0	24	.5				
							CL/ML	
	4A	6.5	3	0		LOOSE; RED-BROWN;		
						NON PLASTIC; CLAY;		
7.0	4B	7.0	6	.4		MOIST		
	4C	7.5	16	.5				
8.0	4D	8.0	21	.5		DENSE; RED-BROWN;		AB ANALYSIS
						NONPLASTIC-BRITTLE;		SAMPLE 8-10'
	5A	8.5	11	.2		CLAY SOME SILT		
9.0	5B	9.0	21	.5				
						DENSE; RED-BROWN;		
	5C	9.5	25	.5		NONPLASTIC-BRITTLE;		
						CLAY SOME SILT,		
10.0	5D	10.0	21	.5		TRACE FINE GRAVEL;		
						MOIST; ROUNDED		
	6A	10.5	6	0				
11.0	6B	11.0	3	.5				
	6C	11.5	4	.5				
	6D	12.0	3	.5		LOOSE; RED-BROWN;	CL	
12.0						SLIGHTLY PLASTIC;		
	7A	12.5	1	.1		VARVED CLAY, WET	?	
13.0	7B	13.0	2	.5				

SIGNATURE: N. ABRAMS DATE: 10-30-85

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
	7C	13.5	1	.5				
13.5						VERY LOOSE; RED-BROWN		
	7D	14.0	1	.5		MOTTLED WITH GRAY;		
14.0						HIGHLY PLASTIC;		
	8A	14.5	1	0		CLAY, TRACE SILT;		
						WET; SOME INDICATION		
	8B	15.0	2	.2		OF VARVES	CH	
15.0								
	8C	15.5	2	.5				
	8D	16.0	1	.5				
16.0								
	9A	16.5	3	0				
	9B	17.0	9	.1				
17.0								
	9C	17.5	15	.5		DENSE; RED-BROWN		
						GRADING TO GRAY;		
	9D	18.0	15	.5		SILT AND FINE TO		
18.0						COARSE SAND, TRACE		
	10A	18.5	19	.5		FINE GRAVEL; MOIST;		
						ANGULAR TO SUBROUND	GM	POSSIBLE TOP
	10B	19.0	60	.5		SAND AND GRAVEL		OF REGOLITH 19 PT
19.0								
	10C	19.5						
	10D	20.0				AUGER 19 TO 20 FT.		
20.0								
						ROLLER BIT 20.0		TOP OF ROCK
21.0						TO 21.0		
								21.30

SIGNATURE: N. ABRAMS DATE: 10-30-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
22.0						DOLOSTONE; GRAY WITH		27.60 21.90
						NUMEROUS DARK GRAY		22.10 22.15
						SHALEY SEAMS; VERY THINLY		22.55
						TO THINLY LAMINATED		
23.0						BEDING, HARDNESS		22.80
						MEDIUM SOFT TO MEDIUM		23.20
						HARD; FRACTURES ARE		23.35 23.45
						OPEN WITH BROKEN SPACING;		23.70
24.0						WEATHERING MODERATE		23.90
						TO SLIGHT; GYPSUM		24.20
						REPLACEMENT WITHIN		24.40
						FRACTURES AND VUGS		24.55
25.0						COMMON, MOST FRACTURES		
						WITHIN THE BEDDING PLANE		25.05
						WITH RARE HIGH ANGLE		25.40
						FRACTURES, STYOLITES		25.45
	RUN #1	25.75		4.75	55	AND MINERIALIZATION		25.80
26.0						FREQUENT		26.00
								26.25
								26.65
								26.80
27.0								27.00
								27.60
28.0								28.05
								28.30
								28.85
29.0								29.20
	RUN #2	29.5		3.75	77			29.50
29.5								

SIGNATURE: N. ABRAMS DATE: 10-31-85

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
								46.3
46.5								
47.0								
48.0								
						DOLOSTONE; GRAY;		
						BEDDING THIN TO THINLY		48.55
						LAMINATED; HARDNESS		
49.0						MEDIUM HARD; FRACTURES		
						HAVE MASSIVE SPACING		49.70
	RUN #4	49.70	10.20		100	AND OCCUR WITHIN		
						THE BEDDING PLANE;		
50.0						WEATHERING FRESH;		
						GYPSUM AND CALCITE		
						COMMONLY FILL VUGS		
						AND HAVE SEALED SOME		
51.0						FRACTURES		
52.0								
53.0								
54.0								

SIGNATURE: N. ABRAMS DATE: 11-4-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
55.0								
								55.05
56.0								
57.0						DOLOSTONE; GRAY;		
						BEDDING THIN TO		
						THINLY LAMINATED, HARDNESS		
						MEDIUM HARD; FRACTURES		
58.0						HAVE MASSIVE SPACING		
						AND ARE GENERALLY		
						WITHIN THE BEDDING		
						PLANE WITH RARE		
						HIGH ANGLE FRACTURE		
59.0						AT 62.30; WEATHERING		
						FRESH; STYOLITES		
						FREQUENT, FOSSIL		
						BURROWS BETWEEN		
60.0	RUN #5	59.8		10.1	100	61.0 AND 62.00 FEET		59.80
61.0								
62.0								
								62.30

SIGNATURE: N. ABRAMS DATE: 11-14-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4C
PAGE 2 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
5.0								
5.5							SM	
6.0								
6.5								
7.0						SEE WELL LOG MW4B FOR SOIL DESCRIPTIONS		
7.5								
8.0								
8.5							CL	
9.0								
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								

DRAFT

SIGNATURE: RICHARD FRIEND Richard Friend DATE: 4-4-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4C
PAGE 3 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/ 6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
13.5								
14.0								
14.5								
15.0								
15.5							CL	
16.0						SEE WELL-LOG MW4B FOR SOIL DESCRIPTIONS		
16.5								
17.0								
17.5								
18.0								
18.5								
19.0								
19.5							GM ML	
20.0								
20.5								
21.0								
21.5								

DRAFT

SIGNATURE: RICHARD FRIEND DATE: 4-4-86

DRF-2-1B 11/3/

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
								62.8
63.0								63.2
								63.45
								64.00
64.0								
								64.30
								64.45
						DOLOSTONE; GRAY;		
65.0						BEDDING THIN TO		
						THINLY LAMINATED;		
						HARDNESS MEDIUM		
						HARD TO MEDIUM SOFT;		
66.0						FRACTURES ARE BROKEN		
						TO MASSIVELY SPACED		
						AND GENERALLY OCCUR		
						WITHIN THE BEDDING		
67.0						PLANE WITH THE		
						EXCEPTION OF A		67.45
						HIGH ANGLE FRACTURE		
						AT 64.00 FEET;		
68.0						WEATHERING SLIGHT		
						WITHIN FRACTURES AND		
						FRESH IN WHOLE ROCK		
						SECTIONS; STYOLITES		
69.0						RARE, CALCITE AND GYPSUM		
	RUN #6	69.75		9.9	93	FILLED VUGS AND		
						FRACTURES COMMON		BOTTOM OF
								CORE 69.75 FT.
70.0								

SIGNATURE: N. ABRAMS DATE: 11-5-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1D
PAGE 1 OF 5

BOREHOLE LOG

BOREHOLE LOCATION: NIAGARA FALLS BLVD. AND CHEVY PLACE
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: D. ZANAGLIO

GROUND SURFACE ELEV. (FROM MSL) 571.5 (FT.)
COMPLETION DEPTH: 70 FT.
DATE STARTED: 11-15-85 COMPLETED: 3-27-86
LOGGED BY: A. CHEREPON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☒ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☐ MANUFACTURER:
CASING DIA. 6 INCHES FROM -0.5 TO -60 FEET
DRILLING METHOD: AIR ROTARY BIT TYPE ROLLER BIT DIA. 5.0
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL/TEFLON DIA. 2.5
TUBE DIA.
CORE DIAMOND DIA. HX
SAMPLER HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED			
SAMPLING	6.6	5-14-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
1.0						REFER TO BOREHOLE LOG MW1C FOR SAMPLE DESCRIPTIONS		
2.0								
3.0								
4.0								
5.0								
6.0								
7.0								
8.0								
9.0								
10.0								

SIGNATURE: A. CHEREPON DATE: 11-15-85

DRF-2-1A 11/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1D
PAGE 2 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
11.0								
12.0								
13.0								
14.0								
15.0								
16.0								
17.0								
18.0							---?---	POSSIBLE TOP OF ROCK
19.0								
20.0	RUN 1	20		.27	0			
21.0						DOLOSTONE, LIGHT GRAY, HARDNESS MEDIUM, THINLY LAMINATED.		
22.0						FRACTURE SPACING V. BROKEN, HIGHLY WEATHERED, PROBABLY WITHIN REGOLITH ZONE TO 23		
23.0	RUN 2	23.5		.89	0	FEET.		23.5
24.0								23.7
25.0								24.8 24.9 25.2 25.5
26.0								25.85 26.3

SIGNATURE: A. CHEREPON A. Cherepon DATE: 11-15-85

DRF-2-1B 11/8/85

DRAFT

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1D
PAGE 3 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
27								26.5
	RUN 3	27.3		4.2	81			27.1
28								28.0
								28.1
29						DOLOSTONE, MEDIUM GRAY,		
						LAMINATED BEDDING GRADING		29.1
								29.6
30						TO THINLY LAMINATED, HARDNESS		30.0
						MEDIUM, FRACTURE SPACING		30.3
						BLOCKY, WEATHERING SLIGHT		30.6
31						SOME GYPSUM REPLACEMENT,		
						STYLOLITES NUMEROUS		
32								
33								
								33.6
34								
35								35.1
36								
								36.8
37	RUN 4	37.3		9.6	91			37.5
								37.9
38						DOLOSTONE, MEDIUM GRAY,		38.05
								38.10
								38.15
						MASSIVE BEDDING INTERBEDDED		38.2
39						WITH LAMINATED BEDS, HARDNESS		39.0
						HARD WITH SOME SOFT ASSOCIATED		
40						WITH FRACTURES, FRACTURE		40.5
						SPACING BLOCKY, WEATHERING		
41						SLIGHT TO MODERATE		41.4
42								
43								

SIGNATURE: A. CHEREPON A. Cherepon DATE: 11-16-85

DRF-2-1B 11/8/

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1D

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
44								44.4
45								
46								
47	RUN 5	47.3		9.9	92			
48						DOLOSTONE, MEDIUM GRAY,		48.3
49						BEDDING MASSIVE, HARDNESS		48.9 BROKEN ZONE
50						MEDIUM HARD, FRACTURE SPACING		
51						BLOCKY, WEATHERING SLIGHT		
52	RUN 6	52		4.7	82	NUMEROUS VUGS WITH GYPSUM - CALCITE REPLACEMNT		51.5
53								
54								53.3
55						SAME AS ABOVE, BEDDING THINLY		
56						LAMINATED, NUMEROUS FOSSILS		
57								56.8
58								57.5
59								58.3

SIGNATURE: A. CHEREPON DATE: 11-16-85

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW1D
PAGE 5 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
60								59.7
	RUN 7	61		8.9	99			60.6
61								
						TOOL LOST IN HOLE, OVER		
62						DRILLED TOOL TO 62 FEET,		
						DRILLED REMAINING HOLE WITH		
63						5 INC. ROLLER BIT TO 70 FEET		
64								
65								
66								
67								
68								
69								
70						BOTTOM OF HOLE 70'		

DRAFT

SIGNATURE: A. CHEREPON A. Cherepon DATE: 3-27-86

DRF-2-1B 11/8/8?

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4A
PAGE 1 OF 1

BOREHOLE LOG

BOREHOLE LOCATION: NORTHEAST CORNER OF 56TH AND GIRARD ST.
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: R. ANTHONY

GROUND SURFACE ELEV. (FROM MSL) 571.74 (FT.)
COMPLETION DEPTH: 11 FT.
DATE STARTED: 4-2-86 COMPLETED: 4-2-86
LOGGED BY: R. FRIEND CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 2 INCHES FROM -.5 TO -6 FEET
DRILLING METHOD: HOLLOW STEM AUGER BIT TYPE AUGER BIT DIA. 8 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL & TEFLON DIA. 2.5 IN. ID
TUBE DIA.
CORE DIA.
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 30
CASING HAMMER WEIGHT (LBS) 300 AVERAGE FALL (INCHES) 24

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	3	4-2-86	
SAMPLING	4.7	5-12-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
							FILL	
2.0							ML	
4.0	1A	4-5	4-10			REFER TO BORING LOG MW4B FOR SOIL DESCRIPTIONS	SM	LAB ANALYSIS ON 4-6 FT. SAMPLE
6.0								
8.0							CL	
10.0								BOTTOM OF HOLE
12.0								11 FT.

SIGNATURE: RICHARD FRIEND DATE: 4-2-86

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4B

BOREHOLE LOG

BOREHOLE LOCATION: NORTHEAST CORNER OF 56TH AND GIRARD STREET
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: WILLIAM CRAWFORD

GROUND SURFACE ELEV. (FROM MSL) +572 (FT.)
COMPLETION DEPTH: 27.1
DATE STARTED: 4-1-86 COMPLETED: 4-2-86
LOGGED BY: RICHARD FRIEND CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 2 INCHES FROM -0.5 TO 27.1 FEET
DRILLING METHOD: AUGER BIT TYPE HOLLOW STEM AUGER BIT DIA. 8 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL/TEFLON DIA. 2 IN.
TUBE DIA.
CORE DIA.
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 30
CASING HAMMER WEIGHT (LBS) 300 AVERAGE FALL (INCHES) 24

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	5 FEET	4-2-86	0800

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
.5			5	.5		LOOSE DK. BLACK FILL W/CINDERS AND ORGANICS	FILL	
1.0			6	.5				
1.5			4	.5		1.5-2.0 VERY LOOSE YELLOW-BROWN CLAYEY SILT, MOIST		
2.0			2	.4		2.0-4.0 LOOSE YELLOW BROWN SILT WITH SOME FINE SAND, SLIGHTLY MOIST AT BOTTOM	ML	
2.5			4	.5				
3.0			5	.5				
3.5			7	.3				
4.0			9	.0				
4.5			5	.5		SAME, WET AT 4.5 FT.		BECOMES WET
5.0			9	.5				SAMPLE TAKEN 4.0 TO 6.0 FOR LAB

SIGNATURE: RICHARD FRIEND Richard Friend DATE: 4-2-86

ORF-2-1A 11/

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4B
PAGE 2 OF 4

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
5.0								WET
5.5			13	.5			SM	
6.0			13	.0				
						LOOSE YELLOW-BROWN FINE SAND		
6.5			5	.5		WITH TRACE SILT, SATURATED		SATURATED
						MEDIUM DENSE REDDISH-BROWN		DRY
7.0			9	.5		SLIGHTLY PLASTIC CLAY; DRY		
7.5			10	.5				
						BECOMES MEDIUM PLASTIC	CL	
8.0			22	.4				
8.5			9	.5				
9.0			11	.5				
9.5			23	.5				
						DENSE, REDDISH-BROWN,	CH	
10.0			22	.45		PLASTIC, CLAY TR. SILT,		
						MOIST, SOME LENSES OF		
10.5			4	.5		DENSE SILT		
11.0			6	.5				
11.5			8	.0				
						MEDIUM DENSE, BROWN		
12.0			11	.0		LOOSE MEDIUM BROWN, HIGHLY		
						PLASTIC CLAY, SOME POCKETS OF		
12.5			9	.5		YELLOW-OLIVE SILT, MOIST		
						MEDIUM DENSE, MEDIUM BROWN		
13.0			7	.5		HIGHLY PLASTIC CLAY VARVED		
						W/SILT, MOIST		

SIGNATURE: RICHARD FRIEND DATE: 4-2-86

Richard Friend

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4B
PAGE 3 OF 4

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	ROD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
13.5			6	0				
14.0			5	0				
								BECOMES WET
14.5			2	.5		VERY LOOSE MEDIUM BROWN		
						SLIGHTLY PLASTIC CLAY WITH		
15.0			2	.5		RED LENSES OF SAME, WET		
15.5			2	.5				
16.0			2	.3			CL	
						SAME AS ABOVE		
16.5			2	.5				
17.0			2	.5				
17.5			2	.5				
18.0			2	.4				
18.5			3	.5				
19.0			3	.5				WET
								MOIST
19.5			3	.5			GM ML	
20.0			10	.4				
20.5			6	.5				
						MEDIUM DENSE DARK BROWN		
21.0			11	0		SILT WITH COARSE SAND TO		
						FINE GRAVEL ANGULAR TO		
21.5			14	0		SUBROUNDED, MOIST		

SIGNATURE: RICHARD FRIEND DATE: 4-2-86

Richard Friend

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW48
PAGE 4 OF 4

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
21.5								
			15	0				
22.0								TILL
			32	.5		DENSE LIGHT BROWN, SILT AND		
22.5						FINE SAND WITH FINE COARSE		
			35	.5		SUBANGULAR GRAVEL, MOIST	GM/ML	
23.0								
			37	.1				
23.5						VERY DENSE		
			53	0		SAME- LIGHT GRAY-BROWN		
24.0								
			27	.5				
24.5								
			100	.2				24.8 REFUSAL 24.9,24.95, 25,2.5
25.0								TOP OF ROCK 25.15
						DOLOSTONE, LIGHT GRAY, THINLY		25.4
25.5						LAMINATED MEDIUM HARD,		25.75
						FRACTURES VERY BROKEN,		
26.0						MODERATE WEATHERING WITH		26.05
						POROSITY, SOME GYPSUM ON		26.1
						FRACTURES		26.35
26.5								26.65
								26.75
27.0								
	RUN 2	27.1		2.3	14			BOTTOM OF HOLE
27.5								27.1

SIGNATURE: RICHARD FRIEND Richard Friend

DATE: 4-2-86

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4C

BOREHOLE LOG

BOREHOLE LOCATION: NORTHEAST CORNER OF 56TH AND GIRARD
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: R. ANTHONY

GROUND SURFACE ELEV. (FROM MSL) +571.69 (FT.)
COMPLETION DEPTH: 35 FT.
DATE STARTED: 4-3-86 COMPLETED: 4-7-86
LOGGED BY: RICHARD FRIEND CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 6 INCHES FROM 0 TO 30' FEET
DRILLING METHOD: AUGER - ROTARY BIT TYPE ROLLER BIT DIA. 5 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON 55. DIA. 2½'
TUBE DIA.
CORE 10' DIAMOND DIA. HX
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 30
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	3	4-3-86	
SAMPLING	20.7	5-12-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
.5						SEE WELL LOG MW4B FOR SOIL DESCRIPTIONS	FILL	
1.0								
1.5							ML	
2.0								
2.5								
3.0								
3.5								
4.0								LAB ANALYSIS ON 4-6 FT. SAMPLE
4.5								
5.0								

SIGNATURE: RICHARD FRIEND DATE: 4-4-86

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4C
PAGE 4 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
21.5								
22.0							GM ML	
22.5								
23.0							---?---	POSSIBLE TOP OF REGOLITH
23.5						DOLOSTONE, LIGHT TO DARK GRAY, THINLY LAMINATED, MEDIUM HARDNESS, VERY BROKEN FRACTURES ON BEDDING PLANE, SLIGHT TO MODERATE WEATHERING SOME FRACTURES HEALED WITH CALCITE/GYPSUM, BEDDING WAVEY, STROMATOLITIC ZONE ASSOCIATED WITH INCLINED BEDDING.		
24.0								TOP OF ROCK
24.5								
25.0								25.15 25.25
25.5								25.3-25.4 THIN FOSSIL ZONE 25.4 25.6
26.0								25.9 26.15
26.5								26.5 26.7
27.0								26.4 27.1 27.25
27.5								27.35 27.6 27.8-28.1
28.0		27.8		2.8	24			NO RECOVERY
28.5								28.4 28.65
29.0								28.8 HEALED WITH GYPSUM 29.2 29.25
29.5								29.6 29.7

SIGNATURE: RICHARD FRIEND DATE: 4-7-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/ 6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
30.0								29.95
	RUN 2	30.3		2.2	63			30.05
								30.2
30.5					63	DOLOSTONE, GRAY, LAMINATED,		30.3 END OF RUN 2
						BROKEN, MEDIUM HARDNESS,		30.6
						MODERATELY WEATHERED ABUNDANT		30.8
31.0						VUGS SOME REPLACEMENT W/		31.1
						GYPSUM, SEVERAL FRACTURES		31.3
31.5						FILLED WITH GYPSUM CALCITE		31.5
								31.9
32.0								32.2
								32.5
32.5								
33.0								
33.5								33.5
34.0								34.25
34.5								
	END RUN 3	35.55		5.25				
35.0								34.9 HEALED WITH GYPSUM
								35.4
35.5								35.5
								35.55 END OF RUN 3
36.0								
36.5								
37.0								
37.5								

DRAFT

SIGNATURE: RICHARD FRIEND DATE: 4-7-86

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 1 OF 9

BOREHOLE LOG

BOREHOLE LOCATION: NORTHEAST CORNER OF 56TH ST. AND GIRARD
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: D. ZANGHLIO

GROUND SURFACE ELEV. (FROM MSL) +571.6 (FT.)
COMPLETION DEPTH: 82
DATE STARTED: 3-31-86 COMPLETED: 4-2-86
LOGGED BY: R. FRIEND, N. ABRAMS CHECKED BY: PVS

TYPE OF RIG: TRUCK ☒ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☐ MANUFACTURER: DRILTECH
CASING DIA. 6 INCHES FROM -.5 TO +71.5 FEET
DRILLING METHOD: AIR ROTARY BIT TYPE ROLLER BIT DIA. 5.0 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON DIA. 2.5 IN.
TUBE STAINLESS/TEFLON DIA.
CORE DIAMOND DIA. HX
SAMPLER HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED			
SAMPLING	14.7	5-12-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
							FILL	
							ML	
4						FOR SOIL DESCRIPTIONS SEE WELL-LOG MW4B		
5								
6	1A	6	PUSH	2.0			SM	LAB ANALYSIS
7								ON 4-6 FT. SAMPLE
8							CL	
10								

SIGNATURE: PETE VON SCHONODORF DATE: 3-31-86

ORF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 2 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
15							CL	
20							GM/ML	
23								TOP OF REGOLITH
						DRILL TO 26 FT. 13.625 IN. ROCK BIT		TOP OF ROCK
26								

DRAFT

SIGNATURE: PETE VON SCHONDORF DATE: 3-31-86

Pete von Schondorf

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 3 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
26	RUN 1	26.0		0.1	0	DOLOSTONE LIGHT TO DARK GRAY,		
						WAVY LAMINATIONS THINLY		
26.5						BEDDED, HARDNESS MEDIUM, BROKEN		
						TO BLOCKY FRACTURES, MODERATELY		
27	RUN 2	27.0		9.8	72	WEATHERED		
27.5								27.55
								27.65
28								27.95
								28.15
28.5								28.30
29								28.80
								29.20
29.5						SAME AS ABOVE, DOLOSTONE VERY		
						BROKEN BELOW 32 FT. NUMEROUS		
						CAVITIES w/SOME RECRYSTALLIZATION		29.75 29.85
30						W/GYPSUM, BEDDING THICK TO		30.00 30.10
30.5						MASSIVE, MODERATELY WEATHERED		
						DOLOSTONE EXTREMELY FRACTURED		30.85
						STARTING AT 32 FEET TO		30.95 31.00
31						33.2 FT. ROCK CONTAINS		
31.5						MANY CAVITIES AND VUGS WITH		31.50
						SOME RECRYSTALIZATION OF GYPSUM		32.00
32						LAMINATIONS BEGIN TO DISAPPEAR		32.20
						AROUND 32 FEET, FRACTURES IN		
32.5						BEDDING PLANES		32.40 32.50
								32.00
33								32.80 32.95
								33.10 33.25
33.5								33.30

DRAFT

SIGNATURE: NELSON ABRAMS DATE: 4-2-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 4 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
34								34.15
34.5								34.70
35								
35.5								35.40
36								
36.5								
37	RUN 3	37.0		10.0		DOLOSTONE, DARK GRAY, LAMINATED BEDDING, HARDNESS MEDIUM, FRACTURES BLOCKY SPACED, SLIGHTLY WEATHERED, STYLOLITES, VUGS W/GYPSUM COMMON, FRACTURES ALONG BEDDING PLANES		36.80-END OF RUN 2 37.00
37.5								
38								38.00 38.25
38.5								
39								
39.5								
40								
40.5								40.7
41								40.9
41.5								

SIGNATURE: NELSON ABRAMS Nelson J. Abrams DATE: 4-2-86

DRF-2-1B 11/8/

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 5 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
42								42.10
42.5								
43								
43.5								
44						DOLOSTONE, DARK GRAY,		
44.5						BEDDING NONDISTINCT, HARDNESS MEDIUM, FRACTURES BLOCKY TO		
45						MASSIVE, WEATHERING SLIGHT, STYLOLITES, CAVITITES		
45.5						COMMON, OCCASIONALLY GYPSUM FILLED		45.35 45.50
46								46.10
46.5								
47	RUN 4	47.0		9.0	90	DARK GRAY DOLOSTONE,		47.00 END OF RUN 3
47.5						47-49 FEET, CONTAINS MANY CAVITITES AND VUGS FILLED WITH SECONDARY		
48						GYPSUM.		47.80
48.5								
49								48.85 LARGE GYPSUM SECONDARY FILLING OF VUG
49.5								

SIGNATURE: NELSON ABRAMS DATE: 4-2-86

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 6 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
50								
50.5								
51								
51.5						DOLOSTONE, DARK GRAY, BEDDING		
						NONDISTINCT, HARDNESS MEDIUM,		51.70
52						FRACTURES BLOCKY TO MASSIVE,		
						WEATHERING SLIGHT, FRACTURES		
52.5						ALONG BEDDING PLANES, CALCITE		
						FILLING CAVITIES		
53								
								53.10
53.5								
54								
54.5								
55								
55.5								
56								56.0 END OF RUN 4
	RUN 5	56.0		9.0	100			
56.5								
57								
57.5								

SIGNATURE: NELSON ABRAMS Nelson J. Abrams DATE: 4-2-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 7 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
58								58.10
58.5								
59								
59.5								
60								
60.5								
61								
61.5								61.30
								61.55
62								
62.5						DOLOSTONE, DARK GRAY, MOTTLED		
						LAMINATED BEDDING SOMETIMES		
63						ERRATIC, HARDNESS MEDIUM,		
						FRACTURES BROKEN TO MASSIVE,		
63.5						WEATHERING SLIGHT, FRACTURES		
						CONFINED TO BEDDING PLANES,		63.70
64						GYPSUM REPLACEMENT FOUND IN		
	RUN 6	64.7		8.7	100	VUGS		
64.5								61.50
65								
65.5								65.30
								END OF RUN 5

SIGNATURE: NELSON ABRAMS DATE: 4-2-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 8 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/ 6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
66								
66.5								
67								
67.5								
68								
68.5								
69								
69.5						DOLOSTONE, DARK GRAY, BEDDING		69.30 HIGH ANGLE
70						LAMINATED AND FOUND ASSOCIATED		
70.5						WITH STYLOLITES, HARDNESS		70.10
71						MEDIUM, FRACTURES BROKEN TO		70.75
71.5						MASSIVE, WEATHERING SLIGHT,		
72						OCCASIONAL VUGS, AND GYPSUM		71.20
72.5						FILLED CAVITIES.		
73	RUN	72.7		8.3	72			71.90
73.5								
								END OF RUN 6

SIGNATURE: NELSON ABRAMS Nelson N. Abrams DATE: 4-2-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW4D
PAGE 9 OF 9

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
74								
74.5								74.50
75								
75.5								
76								74.90
76.5								76.40
77								77.15
77.5								77.40 HIGH ANGLE
78								
78.5								
						DOLOSTONE, DARK GRAY, BEDDING		
79						LAMINATED, HARDNESS MEDIUM,		79.15
						FRACTURES VERY BROKEN TO		79.40
79.5						BLOCKY, WEATHERING MODERATE		
						DUE TO GROUNDWATER SOLUTION,		79.80
80						SOLUTION CAVITIES COMMON WITH		
						SECONDARY GYPSUM		80.30 HIGH ANGLE
80.5								
								80.60
81								80.70
								80.85
								81.00
81.5								81.35
	RUN 7	81.55		8.85	100			81.55 BOTTOM OF HOLE
82								

SIGNATURE: NELSON ABRAMS — DATE: 4-2-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5A

BOREHOLE LOG

BOREHOLE LOCATION: SOUTHWEST CORNER OF 61ST. AND GIRARD
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: KEN HARRIS

GROUND SURFACE ELEV. (FROM MSL) +573.25 (FT.)
COMPLETION DEPTH: 10 FT.
DATE STARTED: 4-14-86 COMPLETED: 4-14-86
LOGGED BY: D. SUTTON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 2 INCHES FROM -.5 TO 10.5 FEET
DRILLING METHOD: HOLLOW STEM AUGER BIT TYPE AUGER BIT DIA. 8"
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL/TEFLON DIA. 2.0 IN. OD
TUBE DIA.
CORE DIA.
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 30
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	2'	4-14-86	
SAMPLING	5'	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
			3			LOOSE, DARK BROWN SILT AND		
1.0	1A		5			MISC. FILL DAMP		FILL-CONST.
			7				FILL	DEBRIS AND CINDERS
2.0	1B		9					
			7					
3.0	2A		13			MEDIUM DENSE BROWN, W/GRAY TO	SM	
			9			LIGHT BROWN LENSES, FINE SAND,		
4.0	2B		10			SOME SILT, WET		
			PUSH					
5.0			PUSH					
			PUSH			SAME		LAB SAMPLE
6.0			PUSH					4-6'
			4					
7.0	3A		6					
			10				---?---	
8.0	3B		11			MEDIUM DENSE, RED BROWN		
			13			FINE-COARSE SAND SOME SILT	ML	
9.0	4A		15			GRADING TO RED/BROWN GRAY	CL	
			19			MOTTLED CLAY-SILT WET		
10.	4B		20					BOTTOM HOLE 10'

SIGNATURE: DENNIS SUTION DATE: 4-14-86

Dennis Sutton

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5B
PAGE 1 OF 5

BOREHOLE LOG

BOREHOLE LOCATION: SOUTHWEST CORNER OF 61ST AND GIRARD
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: KEN HARRIS

GROUND SURFACE ELEV. (FROM MSL) + 573.25 (FT.)
COMPLETION DEPTH: 35.6 FT.
DATE STARTED: 4-14-86 COMPLETED: 4-18-86
LOGGED BY: D. SUTTON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 2" I.D. SS INCHES FROM -5.0' TO -35.0' FEET
DRILLING METHOD: HOLLOW STEM BIT TYPE AUGER/ROLLER BIT DIA. 5 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL & TEFLON DIA. 2" O.D.
TUBE DIA.
CORE DIAMOND DIA. HX
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 24"
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	4 FT.	4-14-86	
SAMPLING	11 FT.	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
0.5							FILL	
1.0								
1.5						REFER TO BOREHOLE LOG MW5A FOR		AUGERED TO 4 FT.
2.0						SOIL DESCRIPTIONS FOR 0-10 FT.		BEFORE SAMPLING
2.5								
3.0								
3.5							SL	
4.0								
4.5	A		5	.5		LOOSE, BROWN, SAND AND CLAY, SOME LENSES OF CLAYEY MATERIAL		LAB SAMPLE FROM 4-6 FT.
5.0								

SIGNATURE: DENNIS SUTTON DATE: 4-14-86

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5B
PAGE 2 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
5.0	C		7	.5				
5.5	D		8	.5			SL	
6.0						REFER TO BOREHOLE LOG MW5A FOR SOIL DESCRIPTIONS FOR 0-10 FT.		
6.5								
7.0							----?---	
7.5								
8.0							ML/CL	
8.5								
9.0								
9.5								
10.0			12					
10.5			31					
11.0	1A		12			DENSE, LIGHT BROWN-RED CLAY, DRY		
11.5			12					
12.0	1B		16					
12.5			18					
13.0	2A		22					

ORIGINAL

SIGNATURE: DENNIS SUTTON DATE: 4-14-86

Dennis Sutton

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5B

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
13.5								
			22					
14.0							?	
	2B		2					
14.5								
			3					
15.0								
	3A		2			VERY LOOSE, LIGHT BROWN-RED		
15.5						WITH GREY STREAKS (VARVES?),		
			2			SLIGHTLY PLASTIC, CLAY, MOIST		
16.0								
	3B		2					
16.5								
			1				CL	
17.0								
	4A		2					
17.5								
			2					
18.0								
	4B		1					
18.5								
			2					
19.0								
	5A		2			VERY LOOSE, RED-BROWN, SLIGHTLY		
19.5						PLASTIC CLAY, MOIST		
			1					
20.0								
	5B		3					
20.5								
			2					
21.0								
	6A		2					
21.5								

DRAFT

SIGNATURE: DENNIS SUTTON DATE: 4-14-86

Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5B

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
			4					
22.0								
	6B		3			LOOSE, RED-BROWN, SLIGHTLY		
22.5						PLASTIC CLAY, TRACE GRAVEL		
							CL	
23.0								
	7A		4					
23.5								
			6					
24.0								
			2					
24.5								
			6					
25.0							---?---	
	7B		24					
25.5								
			47			DENSE, RED-BROWN CLAY AND ROCK		
26.0						FRAGMENTS, WET	GM	TILL
			39					
26.5								REGOLITH
						ATTEMPT TO CORE THROUGH REGOLITH		
27.0						ZONE, NUMEROUS CAVINGS		27.2
	RUN 1	27.2						
27.5								
28.0						DOLOSTONE, DARK GREY, INCOMPENT		
						ROCK, BROKEN FRAGMENTS		
28.5								
	RUN 2	29.0		.8	0			
29.0								
								29.05- TOP OF COMPETENT ROCK
29.5								29.30
								29.45
								29.65

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

D. Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5B
PAGE 5 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
30.0								
						DOLOSTONE, MEDIUM TO LIGHT GREY,		30.05
						MEDIUM SOFT TO MEDIUM HARD,		30.15
30.5						BROKEN FRACTURES, MANY STYLOLITES		30.25
						ALONG BEDDING PLANES, HIGH		30.75
31.0						POROSITY, SOME FOSSILIFEROUS		30.95
						PORTIONS NOTED, SOME GYPSUM,		
31.5								31.4
	RUN 3	31.5		2.5	37	NUMEROUS RUBBLE ZONES		31.6
								31.75
32.0								31.85
								32.2
32.5								32.4
								32.6
								32.75
33.0								32.85
						DOLOSTONE, MEDIUM TO DARK GREY,		32.15
						MEDIUM SOFT TO MEDIUM HARD,		33.55
33.5						BROKEN FRACTURES, STYLOLITES		33.8
						RUBBLE ZONES		
34.0								
								34.4
34.5								34.6
35.0								35.0
								35.2
	RUN 4	35.6		4.0	23			35.4
35.5								35.6 - BOTTOM OF HOLE
36.0								

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5C
PAGE 1 OF 5

BOREHOLE LOG

BOREHOLE LOCATION: SOUTHWEST CORNER OF GIRARD AND 61ST STREET
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: KEN HARRIS - BILL CRAWFORD

GROUND SURFACE ELEV. (FROM MSL) +573.20 (FT.)
COMPLETION DEPTH: 48 FT.
DATE STARTED: 4-15-86 COMPLETED: 4-25-86
LOGGED BY: D. SUTTON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 6" INCHES FROM -.5 TO -35 FEET
DRILLING METHOD: AUGERS-ROTARY BIT TYPE ROLLER BIT DIA. 5
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL W/TEFLON DIA. 2 IN OD
TUBE DIA.
CORE DIA.
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 24
CASING HAMMER WEIGHT (LBS) 300 AVERAGE FALL (INCHES) 24

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	4 FT.	4-15-86	9:15
CASING ON ROCK	8.2 FT.	5-2-86	11:30
SAMPLING	10.5 FT.	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
						REFER TO BOREHOLE LOG MW5A FOR SOIL DESCRIPTIONS 0-10 FT.	FILL	
						ATTEMPT SOIL SAMPLES 4-6' - NO RECOVERY	SM/ML	
5						LOOSE, BROWN SAND AND SILT, MOIST, DENSE, RED BROWN MOTTLED W/GRAY CLAY, DAMP	ML	LAB ANALYSIS SAMPLE 6-8'
10							CL	

SIGNATURE: DENNIS SUTTON Dennis Sutton DATE: 4 18-86

DRF-2-1A 11/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5C
PAGE 2 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
						REFER TO BOREHOLE LOG MW5B FOR SOIL DESCRIPTIONS 10-27 FT.		
15							CL	
20								
24								
25							GM/ML	
26								

DRAFT

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5C

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
27.0						DOLOSTONE, LIGHT TO MEDIUM		START CORING AT 27.0 FT.
						GRAY, THINLY BEDDED,		27.0 FT.
						MEDIUM-HARD, BLOCKY FRACTURE,		27.3
27.5						SLIGHTLY WEATHERED, MANY		27.75
						STYLOLITES ALONG BEDDING		27.95
28.0						PLANES, NO FOSSILS NOTED,		28.0
								28.2
	RUN 1	28.65		1.65	25	SOME GYPSUM REPLACEMENT,		28.45
28.5						HIGH POROSITY ASSOCIATED		28.55
								28.60
						W/VUGS		28.65
								28.8
29.0								29.05
								29.3
29.5								29.6
								29.7
30.0								30.05
								30.3
30.5								30.55
								30.6
31.0								31.1
31.5	RUN 2	31.55		2.9	43			
						DOLOSTONE, MEDIUM TO LIGHT		31.55
						GRAY, MEDIUM HARD, BLOCKY		31.9
32.0						FRACTURE, NUMEROUS STYLOLITES		32.0
						AT FRACTURES AND ALONG		
32.5						BEDDING PLANES, SOME		32.35
								32.4
						GYPSUM NOTED, WEATHERED		32.65
33.0	RUN 3	33.2		1.65	73	SLIGHTLY, OCCASIONAL BROKEN		33.2
						ZONES W/ASSOCIATED HIGH-		
33.5						MEDIUM POROSITY		33.65
								33.85
34.0								34.15
								34.33
34.5								34.4
								34.65
								34.75
								34.95

SIGNATURE: DENNIS SUTTON DATE: 4-25-86

Dennis Sutton

DRF-2-1B 11/87

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5C
PAGE 4 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
35.0								35.1 35.2
35.5								35.75
36.0								36.25
36.5								
37.0								37.35 37.65
37.5								
38.0								38.45
38.5	RUN 4	38.45		5.25	64			
	RUN 5	38.95		.5	100			38.95 39.15
39.0						DOLOSTONE, MEDIUM GRAY, MEDIUM HARD, SLIGHTLY WEATHERED, MEDIUM POROSITY, SOME FOSSILIFEROUS AREAS, STYLOLITES AND GYPSUM IN FILLING VUGS		
39.5								
40.0								40.1
40.5								
41.0								41.1 MAN MADE
41.5								
42.0								
42.5								42.4

DRAFT

SIGNATURE: DENNIS SUTTON DATE: 4-25-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5C
PAGE 5 OF 5

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
43.0								
43.5								
44.0						DOLOSTONE, MEDIUM GRAY, MEDIUM BEDDED TO THINLY LAMINATED, MEDIUM HARD, BLOCKY TO MASSIVE FRACTURES, SLIGHT WEATHERING, STYLOLITES AND GYPSUM REPLACEMENT COMMON		44.4
44.5								44.8 MAN MADE
45.0								45.1
46.0								46.0
								46.1
46.5								46.45
47.0								46.95
47.5								
48.0								
48.5	RUN 6	48.55		9.6	89			48.55 BOTTOM OF HOLE
49.0								

SIGNATURE: DENNIS SUTTON DATE: 4-25-86

DRF-2-1B 11/

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 1 OF 12

BOREHOLE LOG

BOREHOLE LOCATION: SOUTHWEST CORNER OF 61ST & GIRARD STREETS
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: D. ZANAGLIO

GROUND SURFACE ELEV. (FROM MSL) +573.1 (FT.)
COMPLETION DEPTH: 94.25 FT.
DATE STARTED: 4-4-86 COMPLETED: 5-2-86
LOGGED BY: D. SUTTON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☒ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☐ MANUFACTURER: DRILTECH
CASING DIA. 6 INCHES FROM 0 TO -72 FEET
DRILLING METHOD: AUGER/AIR ROTARY BIT TYPE ROLLER BIT DIA. 5.0 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL & TEFLON DIA. 2.5 IN. OD
TUBE DIA.
CORE DIAMOND DIA. HX
SAMPLER HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	4 FT.	4-4-86	
	26 FT.	5-2-86	
SAMPLING	10 FT.	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD %	SAMPLE DESCRIPTION	STRATA	REMARKS
.5						REFER TO BORING LOG MW5A FOR SOIL DESCRIPTIONS FROM 0 TO 10 FT.	FILL	
1.0								
1.5								
2.0							SM	
2.5								
3.0								
3.5								
4.0								LAB SAMPLE 4-6 FT.
4.5								
5.0								

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

DRF-2-1A 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 2 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
5.0								
5.5						MEDIUM DENSE BROWN W/GRAY LIGHT BROWN LENSES OF FINE	SM	
6.0		6	PUSH	24		SAND SOME SILT, WET		
6.5								
7.0							---?---	
7.5								
8.0							ML CL	
8.5								
9.0								
9.5								
10.0								
10.5								
11.0								
11.5						REFER TO BOREHOLE LOG		
12.0						MW5B FOR SOIL DESCRIPTIONS 10'-27'		
12.5								
13.0								

DRAFT

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 3 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
13.5							ML CL	
14.0							?- - -	
14.5								
15.0						REFER TO BOREHOLE LOG MW5B		
15.5						SOIL DESCRIPTIONS 10-27 FT.		
16.0							CL	
16.5								
17.0								
17.5								
18.0								
18.5								
19.0								
19.5								
20.0							CL	
20.5								
21.0								
21.5								

DRAFT

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
21.5								
22.0								
22.5								
23.0								
23.5								
24.0						REFUSAL WITH 18 IN. AUGER		TOP OF ROCK
24.5						AT 24.25 FT.		
25.0								
25.5								
26.0						ROTARY DRILL TO 27.65 TO SET SURFACE CASING. 13.879	GM/ML	
26.5						IN. DIAMETER HOLE		
27.0								
27.5								START CORING 27.65
28.0						DOLOSTONE, LIGHT GRAY, THINLY BEDDED TO LAMINATED, MEDIUM HARD, V. BROKEN TO BLOCKY,		2.79 28.10 28.5
28.5						NUMEROUS STYLOLITES W/BEDDING PLANE FRACTURES.		28.75
29.0								28.95 29.2
29.5								29.35 29.4 29.5 29.7

SIGNATURE: DENNIS SUTTON Dennis Sutton DATE: 4-18-86

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 5 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
30.0								29.9 30.15
30.5								30.35 30.5
31.0						DOLOSTONE, LIGHT GRAY,		30.7 31.05
31.5						THINLY BEDDED TO LAMINATED, MEDIUM HARD, V. BROKEN TO BLOCKY, MODERATE WEATHERING,		31.1 31.3 31.7
32.0						NUMEROUS STYLOLITES W/ ASSOCIATE BEDDING PLANE		31.9 32.1
32.5						FRACTURES		32.5 32.7 32.8
33.0								33.2
33.5								33.45
34.0								33.9
	RUN 1	34.25		6.75	47			34.25
34.5								34.3 34.5
35.0								34.85 35.05 35.10
35.5								
36.0								35.6 35.85
36.5						SAME AS ABOVE UNTIL 36.65		36.25
37.0						CHANGES BROWN TO LIGHT BROWN, MEDIUM GRAINED		36.65
37.5						DOLOSTONE INCREASED POROSITY W/GYPSUM FILLED VUGS, ENDS		37.75
38.0						AT 40.0		

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 6 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
38.0								38.25
38.5								
39.0								38.95
39.5								39.25
40.0						DOLOSTONE, LIGHT GRAY TO		
40.5						LIGHT BROWN, THICKLY BEDDED,		
41.0						MEDIUM SOFT TO MEDIUM HARD, BLOCKY FRACTURING, FEW		40.8
41.5						STYLOLITES, SLIGHT WEATHERING, GYPSUM REPLACEMENT IN		
42.0						VUGS		41.9
42.5								
43.0	RUN 2	43.15		8.9	88	DOLOSTONE, LIGHT BROWN TO		43.15
43.5						LIGHT GRAY, MEDIUM SOFT TO MEDIUM HARD, BLOCKY FRACTURING,		
44.0						MODERATE WEATHERING IN FRACTURES, SOME STYLOLITES, LOW		44.3
44.5						POROSITY, SOME GYPSUM		
45.0								
45.5								45.45
46.0								45.8
								46.05

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 7 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
46.5								
47.0								46.95
47.5								47.3
48.0						DOLOSTONE, LIGHT BROWN TO		
						LIGHT GRAY, MEDIUM HARD TO		
48.5						MEDIUM SOFT, BLOCKY FRACTURING,		
						SLIGHT WEATHERING INCREASING		
49.0						IN POROSITY, VUGS NOTED, MORE		
						GYPSUM NOTED AND FOSSILIFEROUS		49.75
49.5								
50.0								
50.5								50.35
51.0								51.0
51.5								
								51.8
52.0								
52.5								
								52.8
53.0								
53.5								53.35
	RUN 3	53.7		10.6	97			53.7
54.0								
54.5								

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-18 11/8/85

DRAFT

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 8 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
54.5								
55.0								55.05
55.5								
56.0						DOLOSTONE, LIGHT BROWN, MEDIUM SOFT TO MEDIUM HARD, BLOCKY FRACTURING, MODERATE WEATHERING, LOW POROSITY, OCCASIONAL VUGS, RARE GYPSUM		55.85
56.5								
57.0								
57.5								57.3 MAN MADE
58.0								58.2
58.5								58.3
59.0								
59.5								
60.0						DOLOSTONE, GRADING TO HIGHER POROSITY, MORE VUGGY WITH GYPSUM AND FOSSILS CONTINUING UNTIL THE END OF THIS RUN, STYLOLITES NOTED ALONG BEDDING PLANES		60.7
60.5								
61.0								
61.5								
62.0								62.1
62.5								

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 9 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
63.0								62.95
63.5								63.4
	RUN 4	63.95		10.25	99	DOLOSTONE, MEDIUM GRAY TO		63.95
64.0						MEDIUM BROWN, MEDIUM SOFT TO		
						MEDIUM HARD, BLOCKY FRACTURING,		
64.5						SLIGHT WEATHERING, THIS RUN		64.75 VERTICAL 65.8
						STARTS WITH MANY STYLOLITES		
65.0						AND SOME FOSSILS, GRADING		
						TO THICK BEDDING WITH FEW		
65.5						STYLOLITES OR FOSSILS, A		
						VERTICAL FRACTURE IS NOTED		
66.0						RUNNING FROM 64.75 TO 65.8,		
						FEW VUGS ARE NOTED, AT APPROX.		
66.5						68.5 THE ROCK THEN GRADES		
						BACK TO MORE POROUS, MORE		
67.0						STYLOLITES WITH NUMEROUS		
						GYPSUM VEINS RUNNING VERTICAL		
67.5						ON THE CORE, MORE VUGS ARE		
						EVIDENT AT THE END OF THE RUN		67.7 MAN MADE
68.0								
								68.5 MAN MADE
68.5								
								68.9
69.0								69.15
69.5								
70.0								
70.5								
71.0								

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 10 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
71.0								
71.5								71.4 MAN MADE
72.0								
72.5								
73.0								72.95
73.5								73.65
								73.75
74.0	RUN 5	74.25		10.3	96	DOLOSTONE, LIGHT GRAY TO MEDIUM GRAY, SOFT TO MEDIUM HARD, THIN BEDDING, BLOCKY FRACTURES, SLIGHT WEATHERING, FEW STYLOLITES, HIGH POROSITY.		74.25
74.5								
75.0								
75.5						RUN 6 STARTS WITH VERY VUGGY ROCK WITH GYPSUM INFILLING, FOSILIFEROUS GRADING TO LESS		75.55
76.0								75.95
76.5						VUGGY W/LOW POROSITY, NUMEROUS VERTICAL AND HORIZONTAL STYLOLITES, VERTICAL		
77.0						GYPSUM VEINS, VERY THICK		76.8
						GYPSUM BEDS AT APPROX. 80.9		77.0
77.5								77.45
78.0								
78.5								
79.0								78.8
								78.95

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D
PAGE 11 OF 12

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
79.5								79.3
80.0								
80.5								80.4
81.0								
81.5								81.6 81.7 81.85 81.95
82.0								82.35
82.5								
83.0								
83.5								83.65 83.9
84.0								84.2
84.5	RUN 6	84.55		10.3	93			84.55
85.0						DOLOSTONE, LIGHT GRAY-MEDIUM BROWN, THINLY BEDDED TO LAMINATED, SOFT TO MEDIUM HARD, BLOCKY FRACTURING, SOME STYLOLITES, LOW POROSITY, LARGE AMOUNTS OF GYPSUM, FROM 84.55 TO APPROX. 85.9 IS LARGELY GYPSUM, VERTICAL GYPSUM VEINS ARE NOTED		85.5 85.6
85.5								
86.0								
86.5								86.9 MAN MADE
87.0								

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

DRF-2-1B 11/87

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW5D

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
87.5								87.6
88.0								88.15
88.5								
89.0								89.2
89.5								
90.0								
90.5								
91.0						GRADES TO ROCK WITH		
91.0						LESS STYLOLITES AND VERY		
91.5						LITTLE GYPSUM, THERE IS		
92.0						SOME GYPSUM AND SMALL VUGS		
92.5						AND POROSITY. NUMEROUS		
93.0						STYLOLITES BETWEEN 92 AND 93,		92.85
93.5						WHICH FOLLOW BEDDING PLANES.		
94.0	RUN 7	94.25		9.7	99			94.25 BOTTOM OF HOLE
94.5								94.25 FT.

SIGNATURE: DENNIS SUTTON DATE: 4-18-86

Dennis Sutton

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6A
PAGE 1 OF 1

BOREHOLE LOG

BOREHOLE LOCATION: NORTHWEST CORNER OF GIRARD STREET AND CHEVY PLACE
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: KEN HARRIS

GROUND SURFACE ELEV. (FROM MSL) +571.94 (FT.)
COMPLETION DEPTH: 10 FT.
DATE STARTED: 4-24-86 COMPLETED: 4-24-86
LOGGED BY: D. SUTTON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 2 INCHES FROM -.5 TO -10 FEET
DRILLING METHOD: HOLLOW STEM AUGER BIT TYPE AUGER BIT DIA. 8 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL/TEFLON DIA. 2.5 OD
TUBE DIA.
CORE DIA.
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 24
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	.6 FT.	4-25-86	0800
SAMPLING	2.9 FT.	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
								AUGER TO 4 FEET
1.0								
						FOR COMPLETE SOIL DESCRIPTIONS	FILL	
2.0						SEE BORING LOG MW6B		
3.0								
4.0								
	1A		4	.5		MEDIUM DENSE, LIGHT BROWN	---?--- SM	
	1B		7	.5		SAND SOME SILT, SATURATED		SAMPLE 4 TO 6 FEET
5.0	1C		9	.5		GRADING TO RED BROWN, MEDIUM	---?--- CL	SENT TO LAB FOR
	1D		10	.5		DENSE, SLIGHTLY PLASTIC CLAY,		ANALYSIS
6.0						ALUMINUM FRAG FOUND IN		
						SAMPLE AT 4.3		
7.0								
8.0								
9.0								
10.0								

SIGNATURE: DENNIS SUTTON DATE: 4-24-86

DRF-2-1A 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6B
PAGE 1 OF 4

BOREHOLE LOG

BOREHOLE LOCATION: NORTHWEST CORNER OF GIRARD ST. AND CHEVY PLACE
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: KEN HARRIS

GROUND SURFACE ELEV. (FROM MSL) +572 (FT.)
COMPLETION DEPTH: 28.5 FT.
DATE STARTED: 4-24-86 COMPLETED: 4-25-86
LOGGED BY: R. FRIEND D. SUTTON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 2 INCHES FROM .5 TO 28.5 FEET
DRILLING METHOD: H.S. AUGER/F. WATER ROTARY BIT TYPE DIAMOND BIT DIA. HX 3.75
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON ____ DIA. 2.5
TUBE ____ DIA. ____
CORE DIAMOND DIA. HX
SAMPLER HAMMER WEIGHT (LBS) 140 AVERAGE FALL (INCHES) 24
CASING HAMMER WEIGHT (LBS) ____ AVERAGE FALL (INCHES) ____

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	3.6	4-24-86	1100
SAMPLING	10.9	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
.5			3	.5		0.0 TO 1.0 FILL W/ORGANICS AND GLASS	FILL	
1.0			7	.5		MEDIUM DENSE, LOOSE YELLOW BROWN/SAND W/SILT, DRY		
1.5			8	.3				
2.0			8	.0				
2.5			5	.5			ML	
3.0			6	.5		MEDIUM DENSE, YELLOW-OLIVE, SILT W/SOME FINE SAND, DRY		
3.5			7	.4				
4.0			8	.0			---?---	
4.5			5	.5		MEDIUM DENSE, YELLOW BROWN, FINE SAND W/TRACE SILT,		4 TO 6 FT. SAMPLE TAKEN FOR LAB ANALY S
5.0			5	.5		SATURATED		SATURATED 5.0 FT.

SIGNATURE: RICHARD FRIEND DATE: 4-29-86

Richard Friend

DRF-2-1A 11/8 3

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6B
PAGE 2 OF 4

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
5.0							SM	
5.5		4	.5			LOOSE, REDDISH BROWN		DRY @ 5.5 FT.
6.0		9	.4			CLAY , DRY, SLIGHTLY PLASTIC		
6.5		5	.5			CLAY		
7.0		8	.5			MEDIUM DENSE, REDDISH BROWN CLAY, DRY, SLIGHTLY PLASTIC,		
7.5		12	.5			CLAY TR. SILT, DRY	CL CH	
8.0		19	.3					
8.5		10	.5			SAME AS ABOVE BECOMING MORE PLASTIC W/SLIGHTLY INCREASED WATER CONTENT		
9.0		10	.3					
9.5		14	.0					
10.0		13	.0			SAME AS ABOVE UNTIL 10.75		
10.5		6	.5			MEDIUM DENSE, PURPLISH BROWN, MEDIUM PLASTIC, CLAY, MOIST	CH ---?---	
11.0		6	.5					
11.5		7	.4					
12.0		7	0			SAME AS ABOVE		
12.5		6	.5					
13.0		5	.5					

SIGNATURE: RICHARD FRIEND DATE: 4-24-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6B
PAGE 3 OF 4

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/ 6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
13.5			5	.4				
14.0			5	0				
14.5			2	.5		VERY LOOSE REDDISH BROWN,		
						MEDIUM PLASTIC, CLAY, MOIST		
15.0			2	.5		BECOMING WET AT 14.7	CL	
15.5			2	.5				
16.0			2	.1				
16.5			2	.5		SAME AS ABOVE		
17.0			2	.5				
17.5			2	.5				
18.0			2	.5				
18.5			2	.5				
						SAME AS ABOVE UNTIL 18.5		
19.0			70	.5		TOP OF REGOLITH OR TILL		
19.5			1					
						AUGER TO 20 FT.		
20.0			1				GM/ML	
20.5			3	.5				
21.0			87	0		DENSE, DARK BROWN, SILT AND		
						CLAY TR DOLOMITE PEBBLES		
21.5			9	0				

SIGNATURE: RICHARD FRIEND DATE: 4-24-86

Richard Friend

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6B
PAGE 4 OF 4

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
21.5								
22.0			28	0				
22.5			42	.5		DENSE REDDISH-BROWN, CLAY AND FINE-COARSE GRAVEL, MOIST	GM ML	
23.0			38	.5				
23.5			50/.3	0		NO SPLIT SPOON SAMPLE TAKEN PAST 23.3, AUGERED DOWN TO 24.7 WHERE BEDROCK WAS ENCOUNTERED		
24.0								
24.5						24.7 DOLOSTONE, LT. GREY TO BLUISH-GREY THINLY LAMINATED, MEDIUM HARD, BROKEN FRACTURING VERY WEATHERED, NUMEROUS STYLOLITES ASSOC. WITH BEDDING PLANE FRACTURES, ROCK IS VERY POROUS IN PLACES, MEDIUM POROSITY THROUGHOUT, GYPSUM IS PRESENT ON SOME FRACTURES, ONE AT A HIGH ANGLE (27.5), VUGS ALSO ARE PRESENT THROUGHOUT CORE		TOP OF ROCK 24.7 FT. 24.9 25.1 25.3 25.4 25.0 25.70 25.85 25.90 26.05 26.25 26.5 26.65 26.95 27.15 - HIGH ANGLE 27.3
25.0								
25.5								
26.0								
26.5								
27.0								
27.5								
28.0								27.8 - TOTAL WATER LOSS 28.0 AT 28.15 28.3
28.5	RUN 1	28.5		3.8	22	BOTTOM OF HOLE		28.5 - BOTTOM OF RUN
29.0								

SIGNATURE: RICHARD FRIEND DATE: 4-24-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6C
PAGE 1 OF 6

BOREHOLE LOG

BOREHOLE LOCATION: NORTHWEST CORNER OF GIRARD STREET AND CHEVY PLACE
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: KEN HARRIS

GROUND SURFACE ELEV. (FROM MSL) +572.3 (FT.)
COMPLETION DEPTH: 44.0 FT.
DATE STARTED: 4-24-86 COMPLETED: 4-29-86
LOGGED BY: D. SUTTON CHECKED BY: PVS

TYPE OF RIG: TRUCK ☐ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☒ ATV MANUFACTURER: SIMCO
CASING DIA. 6 IN. INCHES FROM -.5 TO -33 FEET
DRILLING METHOD: AUGER/ROTARY BIT TYPE ROTARY BIT DIA. 5 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL /TEFLON DIA. 2.5 IN. OD
TUBE DIA.
CORE DIA.
SAMPLER HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED	4 FT.	4-24-86	
SAMPLING	10.3 FT.	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
0.0								AUGERED TO 4.0, NO SAMPLES TAKEN
0.5						FOR SOIL DESCRIPTION SEE BORING LOG MW6B	FILL	
1.0							---?---	
1.5								
2.0								
2.5								
3.0							ML	
3.5								
4.0							---?---	
4.5						MEDIUM DENSE, YELLOW-BROWN SAND AND GRAVEL, TR. FILL, DEBRIS, WET	SM	

LOGGED BY: DENNIS SUTTON DATE: 4-24-86
17-94

DRF-2-1A 11-83

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6C
PAGE 2 OF 6

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
5.0			9					
5.5			10					SAMPLE 4' TO 6'
								TAKEN FOR LAB
6.0			13					ANALYSIS.
						MEDIUM DENSE, REDDISH BROWN,		
6.5						SLIGHTLY PLASTIC CLAY TR SAND,		
						WET ON TOP CLAY, INCREASINGLY		
7.0						DRIER W/DEPTH		
							CL	
7.5								
8.0								
8.5								
9.0								
9.5								
10.0							---?---	
10.5								
11.0								
							CH	
11.5								
12.0								
12.5								

SIGNATURE: DENNIS SUTTON DATE: 4-24-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6C
PAGE 3 OF 6

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
13.0								
13.5								
14.0								
14.5								
15.0							CH	
15.5						FOR SOIL DESCRIPTION REFERENCE BORING LOG MW6B		
16.0								
16.5								
17.0								
17.5								
18.0								TOP OF REGOLITH OR
18.5								TILL
19.0								
19.5							GM / ML	
20.0								
20.5								

SIGNATURE: RICHARD FRIEND DATE: 4-29-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6C
PAGE 4 OF 6

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
21.0								
21.5								
22.0								
22.5								TOP OF ROCK IS
23.0								DIFFICULT TO
23.5								DETERMINE; AUGER HIT
24.0								LARGE BLOCKS OF ROCK
24.5								ABOVE 25 FEET
25.0							---?---	TOP OF ROCK
25.5								25.85
26.0								26.15 26.35 26.45
26.5						DOLOSTONE, LT GRAY, THINLY LAMINATED W/ASSOCIATED STYLOLITES, SOME CONTORTION OF LAMINATIONS, MEDIUM HARD, FRACTURE SPACING BROKEN, WEATHERED W/SOME LG. VUGS AND GYPSUM REPLACEMENT DECREASED, WEATHERING W/DEPTH		26.6 26.85
27.0								27.26 27.40
27.5								
28.0								27.80
28.5								28.25 28.45
	RUN 1	29.0		3.33	48			28.85 - FALSE BREAK

DRAFT

SIGNATURE: RICHARD FRIEND DATE: 4-29-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6C
PAGE 5 OF 6

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
29.0								24.15
29.5								24.40
								29.05
30.0						DOLOSTONE, LIGHT GRAY GRADING		29.85
						TO BROWNISH-GRAY @ 38.0,		30.1
30.5						MEDIUM HARD, FRACTURES BROKEN		30.25
						TO BLOCKY, THINLY LAMINATED		30.5 WATER LOSS
31.0						W/ASSOCIATED STYLOLITES AND		30.70 LITTLE RETURN
						BEDDING PLANE FRACTURES, SOME		30.95 AFTER THIS
31.5						GYPSUM IN FRACTURES UP TO .175		31.25 POINT
						IN. THICK, LITTLE WEATHERING		31.55
32.0								31.7
								32.1
32.5								32.45
								32.55
33.0								32.85
								33.0
33.5								32.05
								33.85
34.0								34.35
34.5								34.80
								35.0
35.0								35.4
35.5								35.8
36.0								
36.5								36.05

SIGNATURE: RICHARD FRIEND DATE: 4-29-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6C
PAGE 6 OF 6

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
37.0								
37.5								37.7
38.0								38.0
38.5	RUN 2	38.85		9.8	53			38.55
39.0								
39.5								
40.0								
40.5								40.3
41.0						DOLOSTONE, GRAYISH-BROWN GRADING TO BROWN, MASSIVE BEDDING, MEDIUM HARD,		40.4
41.5						BLOCKY FRACTURES, SLIGHT		
42.0						WEATHERING, FEW STYLOLITES, LITTLE GYPSUM REPLACEMENT,		
42.5						REDUCED POROSITY, GRAIN SIZE INCREASE		
43.0								
43.5								
44.0	RUN 3	44.1		5.25	100			41.1 BOTTOM OF HOLE
44.5								

SIGNATURE: RICHARD FRIEND DATE: 4-29-86

DRF-2-1B 11/8/83

DRAFT

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 1 OF 3

BOREHOLE LOG

BOREHOLE LOCATION: NORTHWEST CORNER OF GIRARD STREET AND CHEVY PLACE
CONTRACTOR: L. ROBERT KIMBALL & ASSOC.
DRILLER: DAVE ZANAGLIO

GROUND SURFACE ELEV. (FROM MSL) +572 (FT.)
COMPLETION DEPTH: 60
DATE STARTED: 4-15-86 COMPLETED: 4-21-86
LOGGED BY: R. FRIEND CHECKED BY: PVS

TYPE OF RIG: TRUCK ☒ TRAILER MOUNTED ☐ TRIPOD ☐ OTHER ☐ MANUFACTURER: DRILTECH
CASING DIA. 6 INCHES FROM 0 TO 98 FEET
DRILLING METHOD: AUGER/AIR ROTARY BIT TYPE ROTARY BIT DIA. 8.75 IN.
SAMPLING EQUIP. (TYPE & SIZE) SPLIT SPOON STAINLESS STEEL/TEFLON DIA. 2.5" OD
TUBE DIA.
CORE DIAMOND DIA. HX
SAMPLER HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)
CASING HAMMER WEIGHT (LBS) AVERAGE FALL (INCHES)

GROUNDWATER	DEPTH	DATE	TIME
FIRST ENCOUNTERED			
SAMPLING	9.7	5-13-86	

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	BLOWS/6"	REC. (FT.)	RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
							FILL	
.5							---?---	
1.5						FOR SOIL DESCRIPTION		
						SEE BORING LOG MW6B		
2.0								
2.5								
3.0								
3.5								
4.0							---?---	
						MEDIUM DENSE YELLOW BROWN		SOIL SAMPLE TAKEN
4.5						SAND AND GRAVEL, WET	SM	FROM 4.0 TO 6.0 FT.
								FOR LAB ANALYSIS
5.0							---?---	
							CL	
5.5								

SIGNATURE: Richard Friend RICHARD FRIEND DATE: 4-21-86

DRF-2-1A 11/8/83

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 2 OF 8

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
5.5						MEDIUM DENSE, REDDISH BROWN		
		6.0	PUSH	100		SLIGHTLY PLASTIC, CLAY TR	CL	
6.0						SAND, DRY		
6.5								
7.0								
7.5								
8.0								
8.5								
9.0						FOR SOIL DESCRIPTIONS SEE BORING LOG MW6B		
9.5								
10.0							---?---	
10.5							CH	
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

ORIGINAL

SIGNATURE: RICHARD FRIEND DATE: 4-21-86

Richard Friend

DRF-2-1B 11/8/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 3 OF 8

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
14.0								
14.5								
15.0								
15.5								
16.0							CH	
16.5								
17.0						FOR SOIL DESCRIPTIONS SEE BORING LOG MW6B		
17.5								
18.0								TOP OF REGOLITH
18.5								OR TILL
19.0								
19.5							GM/ML	
20.0								
20.5								
21.0								
21.5								
22.0								

DRAFT

SIGNATURE: RICHARD FRIEND *Richard Friend* DATE: 4-21-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 4 OF 8

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
22.0								
22.5								
23.0							---?---	TOP OF ROCK AT 23.0
23.5								
24.0								
24.5						DOLOSTONE, LIGHT GRAY TO GRAY, THINLY BEDDED TO THINLY LAMINATED; MEDIUM HARD, VERY		
25.0								25.2
25.5						BROKEN TO BROKEN SPACING, MODERATE WEATHERING, MANY STYLOLITES, SOME ASSOCIATED		25.4 25.6 25.8
26.0						WITH BEDDING PLANE FRACTURES,		26.1 26.25
26.5						MANY FRACTURES ARE GYPSUM FILLED UP TO .125 IN. THICK,		26.45 BROKEN ROCK 26.6
27.0						POROSITY IS LOW, BUT LARGE VUGS ARE NOTED BETWEEN 26.2 & 26.4		26.9 27.0
27.5								27.45
28.0								28.0 28.25
28.5								28.55 28.7 28.85
29.0								29.15 29.5
29.5								29.85
30.0								30.0 30.25

SIGNATURE: RICHARD FRIEND DATE: 4-21-86

Richard Friend

DRF-2-1B 11/8

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 5 OF 8

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
30.5								30.6
								30.7
31.0								31.0
								31.1
31.5								31.4
	RUN 1	31.9		6.9	39			31.8
32.0								32.0 TOP OF RUN 2
								32.45
32.5								32.55
								32.70
33.0								32.4
								33.0
						DOLOSTONE, LIGHT GRAY TO		33.3
33.5						MEDIUM BROWN, FROM 38 TO 40.		33.4
						THINLY LAMINATED WHERE GRAY,		33.5
						MEDIUM HARD, VERY BROKEN TO		
34.0						BLOCKY FRACTURES, SLIGHT		33.9
						WEATHERING, STYLOLITES ASSOC.		34.1
34.5						WITH BEDDING PLANE FRACTURES,		34.7
						VUGS ARE NOT PRESENT, BUT		34.85
35.0						GYPSUM FOUND IN FRACTURES		
								35.75
35.5								35.95
36.0								
36.5								36.7
37.0								37.3
								37.55
37.5								
								37.8
								37.9
38.0								
38.5								

SIGNATURE: RICHARD FRIEND DATE: 4-21-86

DRF-2-1B 11/8/85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 6 OF 8

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
38.5						CHANGE AT 38: GRADES FROM		
						LIGHT GRAY DOLOSTONE TO LIGHT		38.8
39.0						BROWN TO MEDIUM BROWN		
						DOLOSTONE, GRAIN SIZE GRADES		
39.5						FROM FINE TO MEDIUM		39.65
								40.0
40.0								
	RUN 2	40.6		8.6	75			40.6 BOTH FRACTURE AND TOP OF RUN
40.5								
						DOLOSTONE, ALTERNATING		
41.0						INTERVALS OF LIGHT GRAY,		
						MEDIUM BROWN, DARK BROWN,		
41.5						B/W 40.0 AND 47.0 FEET, THINLY		
						LAMINATED TO MEDIUM BEDDED,		
42.0						VERY BROKEN TO BLOCKY, FEW		
						STYLOLITES, NO VUGS AND LITTLE		
42.5						GYPSUM UNTIL 49.0'AT 49.0		
						FOSSILS AND CALCITE FILLED		
43.0						VUGS		
43.5								
44.0								
44.5								
45.0								
45.5								
46.0								46.10
								46.35
46.5								46.45
								46.65

SIGNATURE: RICHARD FRIEND DATE: 4-21-86

Richard Friend

DRF-2-1B 11/8/

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 7 OF 8

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
47.0								
								47.35
47.5								
48.0								
48.5								48.75
49.0								
49.5								
50.0								50.0
						50.0 TO 50.6 LARGE CALCITE		
						REPLACEMENT		50.35
50.5	RUN 3	50.8		10.2	95			
51.0								50.8 LARGE WATER LOSS AT 51 FEET: NO WATER RETURNED TO THE SURFACE WHEN CORING
51.5						DOLOSTONE, MEDIUM TO DARK		51.45
						BROWN, MEDIUM TO THINLY		
52.0						BEDDED, MEDIUM SOFT TO MEDIUM		52.1
						HARD, BLOCKY FRACTURES,		
52.5						MODERATE WEATHERING W/NUMEROUS		52.5
						LARGE VUGS, HIGH POROSITY		
53.0								
53.5								
54.0								
54.5								
55.0								

SIGNATURE: RICHARD FRIEND DATE: 4-21-86

Richard Friend

DRF-2-1B 11/8 85

NUS CORPORATION
A Halliburton Company

TDD NO.: 02-8508-19 (NYD2)
PROJECT: NIAGARA FALLS
BOREHOLE NO.: MW6D
PAGE 8 OF 8

BOREHOLE LOG

DEPTH (FT.)	SAMPLE TYPE & NO.	SAMPLE DEPTH (FT.)	SAMPLE BLOWS/6"	SAMPLE REC. (FT.)	SAMPLE RQD. %	SAMPLE DESCRIPTION	STRATA	REMARKS
55.0								55.1
55.5								
56.0								55.91
56.5								56.65
57.0								
57.5								
58.0						DOLOSTONE, MEDIUM TO DARK		
58.5						BROWN, MEDIUM TO THINLY		58.3
59.0						BEDDED, BLOCKY FRACTURES,		
59.5						SLIGHT WEATHERING		
60.0								60.0
60.5								60.5
61.0	RUN 4	60.9		9.9	94			60.4 BOTTOM OF HOLE
61.5								
62.0								

SIGNATURE: RICHARD FRIEND DATE: 4-21-86

Richard Friend

DRF-2-1B 11/8/8

BLC-807-S (REV.) 2/8/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client Hibbard Engineers, Niagara Falls, N.Y.

Project Proposed Hysen Warehouse, Buffalo Ave., N.F., NY

Boring No. 1 Date 4/13/81 Sheet 1 of 3

Type of Boring H. Stem Rig B40L II

Casing used - Size - Drilling mud used -

Boring begun 3-21-81 Boring completed 3-21-81

Ground Elevation Grade referred to _____ Datum

Field Party: Doak & Misener

Location of Boring: As shown on plot plan	
Water Level	Not determined
Time	Completion of boring
Date	3-21-81

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
			Penetration Tests				0		
	1	0 1.5	36	5/6	24/6	12/6	1		Brown grassy sandy silt, little gravel & broken rock.
							2		2.2' (Probable Fill)
	2	3.0 4.5	25	10/6	11/6	14/6	3		Medium brown silty sand,
							4		
							5		
	3	6.0 7.5	11	3/6	5/6	6/6	6		little gravel.
							7		
							8		(Probable Fill)
	4	9.0 10.5	12	4/6	6/6	6/6	9		
							10		
							11		11.5' (Damp)
	5	12.0 13.5	33	8/6	12/6	21/6	12		Fill
							13		Dense brown silt, sand, gravel, broken rock & bits of cinders and brick.
							14		
							15		
	6	15.0 16.5	31	12/6	12/6	19/6	16		(Wet)
							17		17.1'
							18		Medium soft brown
							19		clay, little silt,
							20		
							21		

07-S (REV.) 2/6/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

lo. BF-9102

Boring No. 1 Date _____ Sheet 2 of 3

Type of Boring _____ Rig _____

Casing used _____ Size _____ Drilling mud used _____

Boring begun _____ Boring completed _____

Ground Elevation _____ referred to _____ Datum

Field Party: _____

ation of Boring:

er Level

ne

te

Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
						20		little brown silt in
7	20.0 21.5	4	1/6	2/6	2/6	21		seams & lenses.
						22		(Moist)
						23		-23.5'
						24		Soft reddish brown
						25		
8	25.0 26.5	2	1/6	1/6	1/6	26		clay, traces of silt
						27		(embedded) little
						28		grey clay seams.
						29		
						30		(Moist)
9	30.0 31.5	2	1/6	1/6	1/6	31		
						32		
						33		-33.9'
						34		Very dense brown
						35		
10	35.0 36.5	97	25/6	42/6	55/6	36		sandy silt, some gravel.
						37		(Damp)
						38		
						39		-39.5'
						40		Very dense brown silt,
						41		

SLC-807-5 (REV.) 2/8/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client _____

Project _____

Location of Boring:	
Water Level	
Time	
Date	

Boring No. 1 Date _____ Sheet 3 of 3

Type of Boring _____ Rig _____

Casing used _____ Size _____ Drilling mud used _____

Boring begun _____ Boring completed _____

Ground Elevation _____ referred to _____ Datum

Field Party: _____

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
									Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
									sand, gravel, broken rock.
		40.0	129	41	79	50	40		
	11	40.9	.4	6	.4	0	41		-40.9'
							42		Rock
							43		Dolomitic Limestone
							44		Drilled 5.0' - Recovered 95% core
							45		No voids - No loss of drill water
							46		-45.9' Rock slightly fossilized
									Drilling Terminated
							47		
							48		
							49		
							50		
							51		
							52		
							53		
							54		
							55		
							56		
							57		
							58		
							59		
							60		
							61		

SLC-807-S (REV.) 2/5/80

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client Hibbard Engineers, Niagara Falls, N.Y.

Project Proposed Hysen Whse., Buffalo Ave., N.F., N.Y.

Boring No. 2 Date 4/13/81 Sheet 1 of

Type of Boring H. Stem Rig B40L II

Casing used - Size - Drilling mud used -

Boring begun 3-24-81 Boring completed 3-24-81

Ground Elevation Grade referred to Datum

Field Party: Doak & Misener

Location of Boring: As shown on plot plan	
Water Level	-31.0'
Time	Completion of boring
Date	3-24-81

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
				Penetration Tests					Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
	1	0 1.5	37	13/6	25/6	12/6	0 1		Mixed Fill
							2		Silt, sand, clay,
	2	3.0 4.5	18	5/6	9/6	9/6	3 4		broken rock, glass,
							5		cinders & wood
							6		-6.2'
	3	6.0 7.5	12	4/6	5/6	7/6	7		Stiff brown silty clay,
							8		traces of fine gravel.
									-8.5' (Damp)
	4	9.0 10.5	11	3/6	5/6	6/6	9 10		Loose to medium black and grey silt & fine sand with black organic silt seams.
							11		-11.4' (Damp)
	5	12.0 13.5	15	4/6	7/6	8/6	12 13		Stiff to very stiff brown silty clay with grey and brown silt seams.
							14		-14.1' (Damp)
	6	15.0 16.5	6	2/6	3/6	3/6	15 16		Medium brown silty clay. (Damp)
							17		
							18		-18.1'
							19		Soft to very soft reddish
							20		
							1		

SLC-807-S (REV.) 2/5/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client

Project

Location of Boring:	
Water Level	
Time	
Date	

Boring No. 2 Date Sheet 2 of 2
Type of Boring Rig
Casing used Size Drilling mud used
Boring begun Boring completed
Ground Elevation referred to Datum
Field Party:

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
							20		
	7	20.0 21.5	2	1/6	1/6	1/6	21		
							22		brown clay, traces of silt,
							23		
							24		little grey clay seams.
	8	25.0 26.5	2/18"	1/9	1/9		25		
							26		
							27		(Moist)
							28		-28.6'
							29		
							30		Very dense sandy silt,
	9	30.0 31.5	126	31/6	45/6	B1/6	31		
							32		some fine to
							33		
							34		coarse gravel.
							35		
	10	35.0 36.5	118	39/6	55/6	63/6	36		
									-36.8'
							7		Auger Refusal - Boring Terminated
							8		
							9		
							0		
							1		

BLC-807-S (REV.) 2/8/80

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client Hibbard Engineers, Niagara Falls, N.Y.

Project Proposed Hysen Whse., Bflo. Ave., Niagara Falls NY

Boring No. 3 Date 4/13/81 Sheet 1 of 2

Type of Boring H. Stem Rig B40I II

Casing used - Size - Drilling mud used -

Boring begun 3-24-81 Boring completed 3-24-81

Ground Elevation Grade referred to Dat

Field Party: Doak & Misener

Location of Boring: As shown on plot plan	
Water Level	-22.6'
Time	Completion of boring
Date	3-24-81

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
				Penetration Tests					Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
		0		22/6	28/6	15/6	0		
	1	1.5	43				1		Mixed Fill
							2		
							3		
		3.0		3/6	5/6	25/6			Silt, sand, clay,
	2	4.5	30				4		
							5		
							6		broken rock, bits of
		6.0		3/6	6/6	12/6			
	3	7.5	18				7		
							8		bricks & concrete
							9		
		9.0		3/6	8/6	3/6			
	4	10.5	11				10		-10.1'
							11		Black organic silt and clay.
									-11.5' (Damp)
							12		Very stiff brown silty clay with brown silt seams.
		12.0		6/6	9/6	15/6	13		
	5	13.5	24						-14.3' (Dry to damp)
							14		
							15		Stiff brown silty clay
		15.0		5/6	6/6	8/6			
	6	16.5	14				16		traces of grey and brown silt seams.
							17		
							18		-18.0' (Damp)
							19		Soft reddish brown clay,
							20		
							21		

SLC-807-S (REV.) 2/8/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client

Project

Location of Boring:	
Water Level	
Time	
Date	

Boring No. 3 Date Sheet 2 of 2

Type of Boring Rig

Casing used Size Drilling mud used

Boring begun Boring completed

Ground Elevation referred to Datum

Field Party:

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (Inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
									Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
	7	20.0 21.5	3	1/6	1/6	2/6			little silt,
									little grey clay seams.
	8	25.0 26.5	2	1/6	1/6	1/6			(Moist)
									-28.6'
									Very dense brown sandy
	9	30.0 31.5	124	39/6	45/6	79/6			silt, some gravel and
									broken rock.
									(Dry)
									-34.0'
									Auger Refusal - Boring Terminated

PLC-807-S (REV.) 2/5/69

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client Hibbard Engineers, Niagara Falls, N.Y.

Project Proposed Hysen Whse., Bflo. Ave., Niagara Falls NY

Boring No. 4 Date 4/13/81 Sheet 1 of 2

Type of Boring S. Stem Rig B40L II

Casing used - Size - Drilling mud used -

Boring begun 4-3-81 Boring completed 4-3-81

Ground Elevation Grade referred to Datur

Field Party: Doak & Misener

Location of Boring: As shown on plot plan (See Note)	
Water Level	Not determined
Time	Completion of boring
Date	4-3-81

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
				Penetration Tests			0		Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
	1	0 1.5	75	6/6	54/6	21/6	1		Mixed Fill Clay, silt, broken
							2		
							3		
	2	3.0 4.5	25	3/6	15/6	10/6	4		rock. (Mostly broken rock)
							5		-4.9'
							6		Loose to medium brown and grey fine silty sand, little clay.
	3	6.0 7.5	10	4/6	5/6	5/6	7		
							8		-8.2' (Moist)
							9		Very stiff brown silty
	4	9.0 10.5	27	7/6	12/6	15/6	10		clay with brown and grey
							11		silt in seams and lenses.
							12		-11.5' (Damp)
	5	12.0 13.5	16	4/6	7/6	9/6	13		Very stiff to stiff brown silty clay with brown silt seams.
							14		
							15		-14.4' (Damp)
	6	15.0 16.5	3	1/6	1/6	2/6	16		Soft brown clay, little silt with little brown silt in seams and lenses.
							17		(Moist)
							18		-18.5'
							19		Soft to very soft reddish
							20		
							21		

Note:

After several attempts to penetrate broken rock boring location moved 15' east of plot plan location.

SLC-807-S (REV.) 2/5/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. ~~BF-9102~~

Client Hibbard Engineers, Niagara Falls, N.Y.

Project

Location of Boring:	
Water Level	
Time	
Date	

Boring No. 4 Date Sheet 2 of 2

Type of Boring Rig

Casing used Size Drilling mud used

Boring begun Boring completed

Ground Elevation referred to Datum

Field Party:

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
							20		Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
	7	20.0 21.5	2	1/6	1/6	1/6	21		brown clay, traces of silt,
							22		
							23		
							24		little grey clay seams.
							25		
	8	25.0 26.5	.2	1/6	1/6	1/6	26		(Moist)
							27		-27.2'
							28		Very dense brown
							29		fine silty sand, some
							30		fine to coarse gravel.
	9	30.0 31.5	60	33/6	24/6	36/6	31		(wet)
							32		
							33		-33.0'
							34		Auger Refusal - Boring Terminated
							35		
							36		
							37		
							38		
							39		
							40		
							41		

SLC-807-8 (REV.) 2/8/80

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client Hibbard Engineers, Niagara Falls, N.Y.

Project Proposed Hysen Whse., Bflo. Ave., Niagara Falls,

Boring No. 6 Date 4/13/81 Sheet 1 of 2

Type of Boring S. Stem Rig B40L II

Casing used - Size - Drilling mud used -

Boring begun 3-24-81 Boring completed 3-24-81

Ground Elevation Grade referred to _____ Datu

Field Party: Doak & Misener

Location of Boring: As shown on plot plan	
Water Level	-22.5'
Time	Completion of boring
Date	3-24-81

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
				Penetration Tests			0		
	1	0 1.5	13	5/6	7/6	6/6	1		Mixed Fill Silt, sand, clay -1.7' and broken rock.
							2		Loose to medium brown
	2	3.0 4.5	11	5/6	5/6	6/6	3		and grey fine silty
							4		sand.
							5		(Damp to moist)
							6		-6.1'
	3	6.0 7.5	12	3/6	5/6	7/6	7		Stiff brown silty clay with grey and brown
							8		-8.2' silt seams. (Damp)
							9		Very stiff brown silty clay with grey and brown silt seams.
	4	9.0 10.5	19	5/6	8/6	11/6	10		
							11		-11.1' (Dry to damp)
							12		Stiff brown silty clay
	5	12.0 13.5	11	3/6	5/6	6/6	13		traces of fine gravel.
							14		-14.3' (Damp)
							15		Medium to soft reddish brown clay, traces of silt, little grey clay seams.
	6	15.0 16.5	4	2/6	2/6	2/6	16		
							17		-17.9' (Moist)
							18		Very soft reddish
							19		brown clay, traces of silt
							20		
							21		

BLC-807-3 (REV.) 2/8/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. BF-9102

Client _____

Project _____

Location of Boring:	
Water Level	
Time	
Date	

Boring No. 6 Date _____ Sheet 2 of 2

Type of Boring _____ Rig _____

Casing used _____ Size _____ Drilling mud used _____

Boring begun _____ Boring completed _____

Ground Elevation _____ referred to _____ Datum

Field Party: _____

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
									Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
							20		
	7	20.0 21.5	2 18"	1 9	1 9		21		(embedded) little grey
							22		
							23		clay seams.
							24		
	8	23.5 25.0	2 18"	1 9	1 9		25		-25.0' (Moist) Boring Terminated
							6		
							7		
							8		
							9		
							30		
							1		
							2		
							3		
							4		
							5		
							6		
							7		
							8		
							9		
							40		
							1		

SLC-807-8 (REV.) 2/8/79

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No. ~~BF-9102~~

Client Hibbard Engineers, Niagara Falls, N.Y.

Project Proposed Hysen Whse., Bflo. Ave., Niagara Falls

Boring No. 9 Date 4/13/81 Sheet 1 of ?

Type of Boring S. Stem Rig B40L II

Casing used - Size - Drilling mud used -

Boring begun 4-3-81 Boring completed 4-3-81

Ground Elevation Grade referred to _____ Dat

Field Party: Doak & Misener

Location of Boring: As shown on plot plan	
Water Level	None found
Time	Completion of boring
Date	4-3-81

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
				Penetration Tests					Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
	1	0 1.5	10	5/6	5/6	5/6	0		Mixed Fill
							1		Silt, clay, fine sand,
							2		broken rock, gravel,
	2	3.0 4.5	9	3/6	4/6	5/6	3		cinders.
							4		(Dry to moist with depth)
							5		
	3	6.0 7.5	10	3/6	5/6	5/6	6		
							7		
							8		
	4	9.0 10.5	14	3/6	5/6	9/6	9		
							10		
							11		
	5	12.0 13.5	9	3/6	3/6	6/6	12		Clayey brown silt, sand, bits of broken rock. (Moist)
							13		
							14		
	6	15.0 16.5	7	3/6	3/6	4/6	15		Clayey brown silt, sand, bits of broken rock. (Moist)
							16		
							17		-17.5'
							18		Stiff brown silty clay
							19		
							20		
							21		

BLC-807-S (REV.) 2/8/89

PITTSBURGH TESTING LABORATORY

LOG OF BORING

Job No: BF-9102

ient

rroject

Location of Boring:	
Water Level	
Time	
Date	

Boring No. 9 Date Sheet 2 of 2
Type of Boring Rig
Casing used Size Drilling mud used
Boring begun Boring completed
Ground Elevation referred to Datu
Field Party:

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
									Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
	7	20.0 21.5	12	3/6	5/6	7/6			with grey silt/clay seams. (Damp to moist) -22.9'
	8	25.0 26.5	3	1/6	1/6	2/6			Soft reddish brown clay, little silt, little grey silt in seams and lenses. (Moist)
	9	30.0 31.5	2	1/6	1/6	1/6			-33.6'
	10	35.0 36.4	55 .9	18/6	24/6	31 .4			Very dense brown sandy silt, some gravel. -36.4' (Dry to damp) Auger Refusal - Boring Terminated

PITTSBURGH TESTING LABORATORY

J. Gentile, Manager
Buffalo District

3/Hibbard Engineers

dh

SLC-807-S (REV.) 2/5/69

PITTSBURGH TESTING LABORATORY

RECEIVE

APR 29 1981

HIBBARD ENGINEERS
NIAGARA FALLS, NEW YOR

LOG OF BORING

Job No. BF-9102

Client Hibbard Engineers, Niagara Falls, N.Y.

Project Proposed Hysen Warehouse, Buffalo Ave., N.F., NY

Boring No. 10 Date 4/28/81

Type of Boring S. Stem

Casing used - Size - Drilling mud used

Boring begun 4-17-81 Boring completed 4-17-

Ground Elevation Grade referred to

Field Party: Doak & Misener

Location of Boring: As shown on plot plan	
Water Level	-12.5'
Time	Completion of boring
Date	4-17-81

Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
				Penetration Tests					Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths wash water lost, observed fluctuations in water level, notes on drilling ease, etc.
		0					0		
	1	1.5	33	2/6	13/6	20/6	1		Mixed Fill
							2		Clay, silt,
		3.0					3		
	2	4.5	15	6/5	8/6	7/6	4		broken rock
							5		-5.2'
		6.0					6		Mixed Fill
	3	7.5	15	6/6	9/6	6/6	7		
							8		Silt, sand, clay,
		9.0					9		
	4	10.5	14	8/6	8/6	6/6	10		bits of bricks, wood,
							11		black carbon waste.
		12.0					12		
	5	13.5	10	3/6	5/6	5/6	13		
							14		-14.1'
		15.0					15		Medium brown silty
	6	16.5	6	2/6	3/6	3/6	16		clay with brown and grey
							17		silt seams.
							18		(Damp to moist)
									-18.5'
							19		Very soft brown
							20		
							21		

SLC-807-S (REV.) 2/6/69

PITTSBURGH TESTING LABORATORY

LOG OF BORING

No. BF-9102

Client

Project

Location of Boring:	
Water Level	
Time	
Date	

Boring No. 10 Date Sheet 2 of

Type of Boring Rig

Casing used Size Drilling mud used

Boring begun Boring completed

Ground Elevation referred to

Da

Field Party:

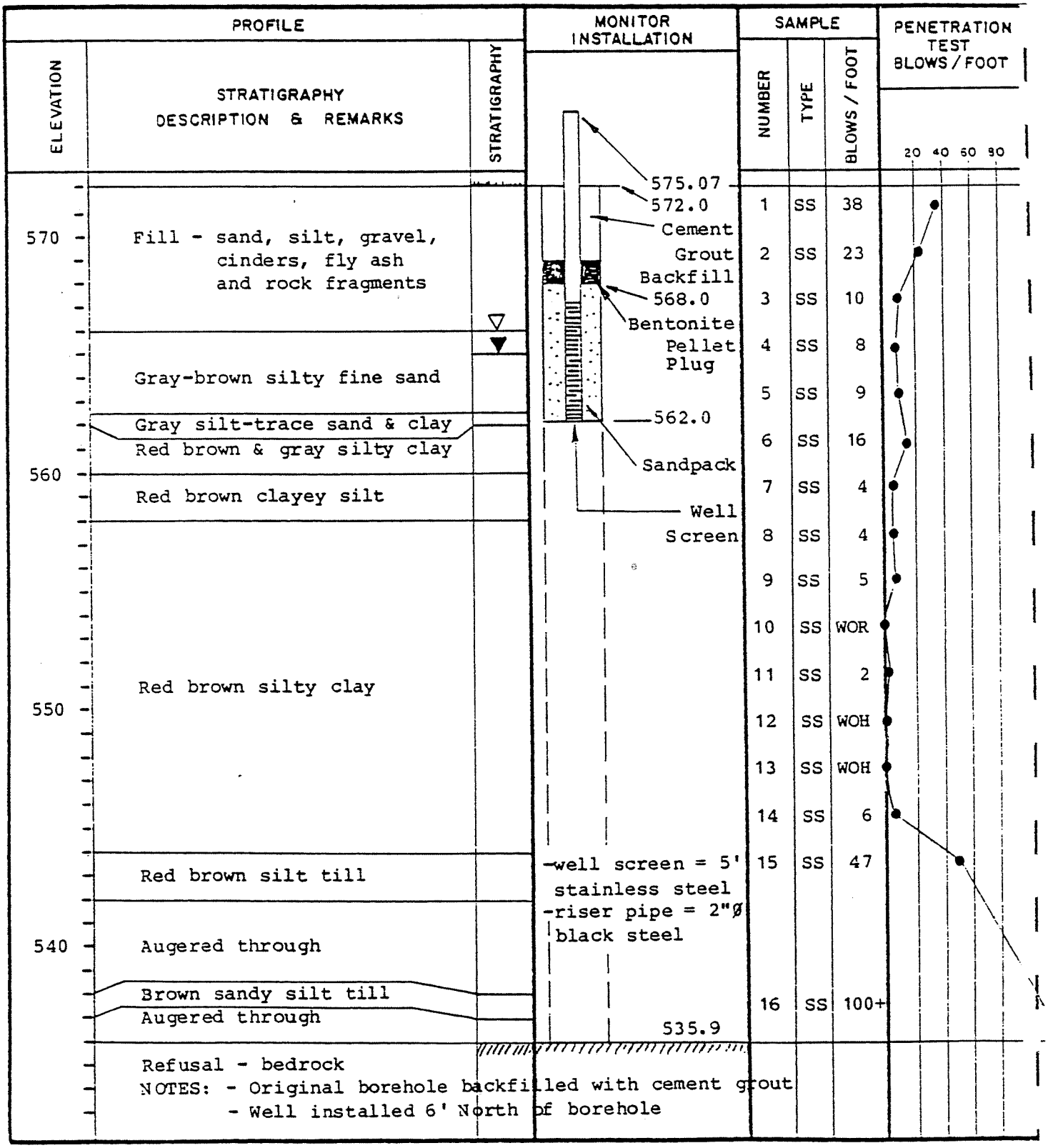
Depth of Casing, ft.	Sample No.	Sample depth from-to (in feet)	Blows/foot on Sampler	ID of Sampler (inches)	Tot. length of recov. sample	Length of Lab. sample	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
							20		
	7	20.0 21.5	2 18"	1 9	1 9		21		clay,
							22		traces of silt, some
							23		grey clay seams.
							24		(Moist)
									-23.9'
							25		Medium brown
	8	25.0 26.5	18	5 6	8 6	10 6	26		silt/sand,
							27		little gravel.
									(Wet)
									-27.4'
							28		Very dense brown
							29		
							30		
	9	30.0 31.5	106	24 6	45 6	61 6	31		sandy silt,
							32		
							33		some gravel.
							34		
							35		
	10	35.0 36.4	137 .9	51 6	65 6	72 .4	36		
									-36.4'
							37		Spoon Refusal - Boring Terminated
							38		
							39		
							40		
							41		

Engineer

A.1-5

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: Property East of City of N.F.-W.T.P.
HOLE Nº: OW1-82
JOB Nº: 9-0621
DATE COMPLETED: June 14, 1982
CLIENT: Occidental Chemical Corporation
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE: 8" Ø Hollow Stem Auger
GROUND ELEVATION: 572.0
LOCATION: Northwest Well
TOP OF PIPE ELEVATION: 575.07



NOTES: - Original borehole backfilled with cement grout
- Well installed 6' North of borehole

◯ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: Property East of City of N.F.-W.T.P.
HOLE Nº: OW2-82
JOB Nº: 9-0621
DATE COMPLETED: June 15, 1982
CLIENT: Occidental Chemical Corporation
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE: 8" Ø Hollow Stem Auger
GROUND ELEVATION: 570.2
LOCATION: Southwest Well
TOP OF PIPE ELEVATION: 573.37

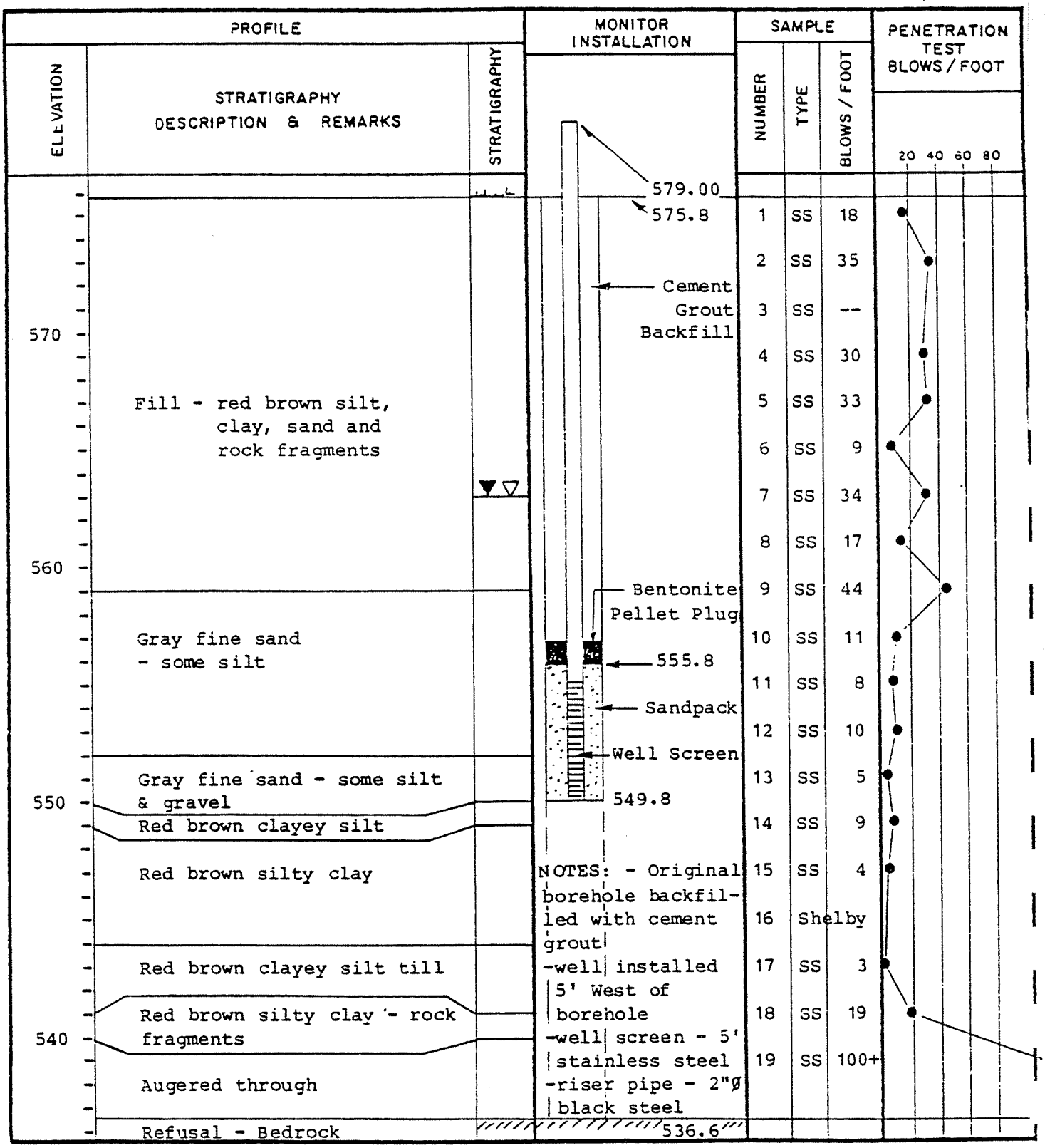
PROFILE			MONITOR INSTALLATION	SAMPLE			PENETRATION TEST BLOWS / FOOT
ELEVATION	STRATIGRAPHY DESCRIPTION & REMARKS	STRATIGRAPHY		NUMBER	TYPE	BLOWS / FOOT	20 40 60 80
			573.37				
570			570.2				
	Fill - red brown clayey silt, sand, rock fragments			1	SS	21	
				2	SS	11	
				3	SS	3	
				4	SS	100+	
				5	SS	19	
560			Cement Grout Backfill	6	SS	60	
	Gray fine sand - some silt			7	SS	17	
				8	SS	3	
				9	SS	3	
			552.2				
			Bentonite Pellet Plug	10	SS	4	
550	Gray fine sand - some shells & stone			11	SS	6	
				12	SS	7	
			546.2				
	Red brown silty clay		Sandpack	13	SS	2	
			Well Screen	14	SS	2	
	Red brown silty clay - silt lenses			15	SS	3	
540			riser pipe = 2"Ø black steel well screen = 5' stainless steel	16	SS	77	
	Red brown silt till			17	SS	58	
			536.2				
	Refusal - Bedrock						

NOTES: - Original borehole backfilled with cement grout
- Well installed 5' North of borehole

◯ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

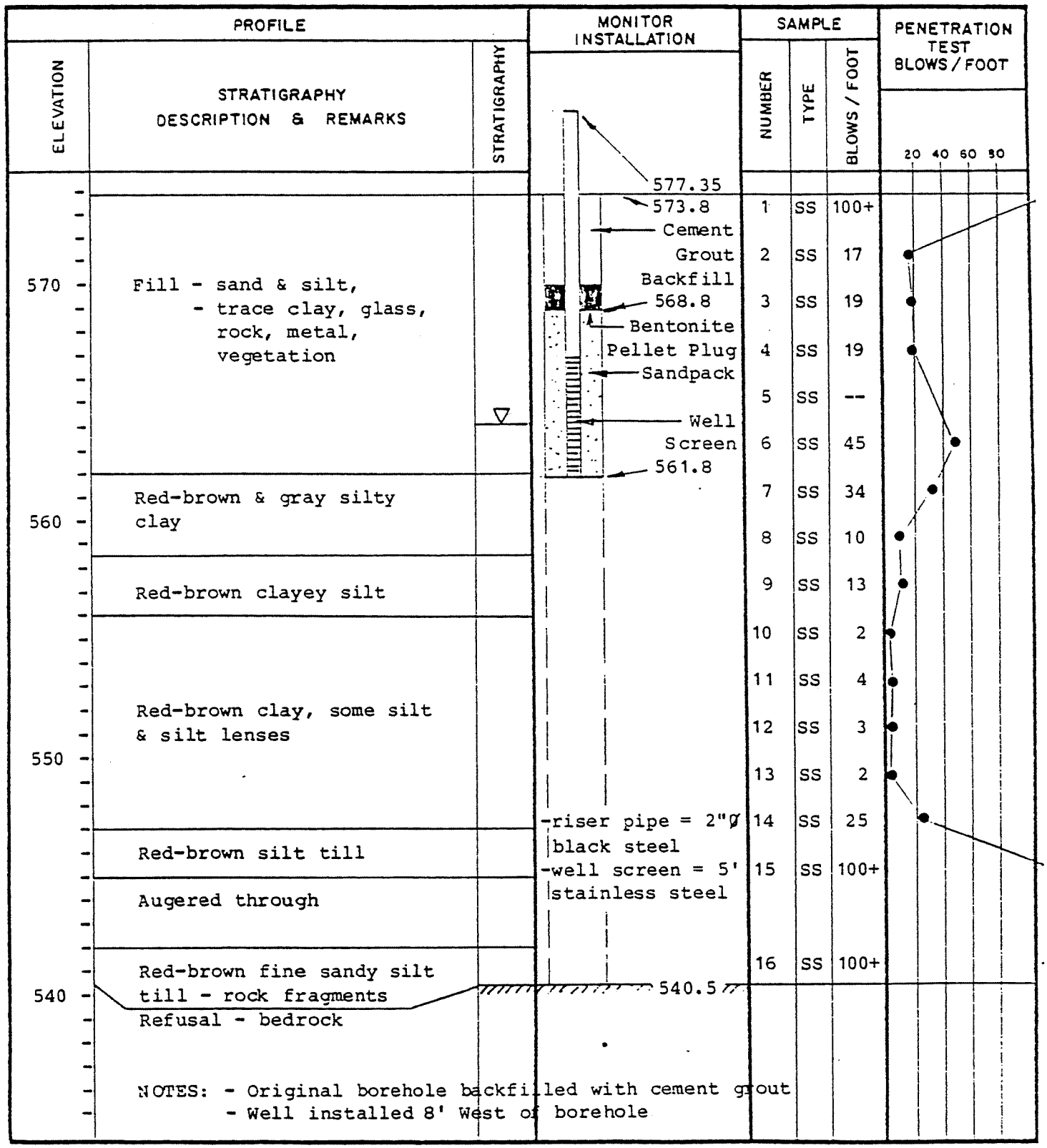
PROJECT NAME : Property East of City of N.F.-W.T.P.
HOLE Nº: OW3-82
JOB Nº : 9-0621
DATE COMPLETED: June 17, 1982
CLIENT : Occidental Chemical Corporation
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE : 8" Ø Hollow Stem Auger
GROUND ELEVATION: 575.8
LOCATION : Center Well
TOP OF PIPE ELEVATION: 579.00



◯ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

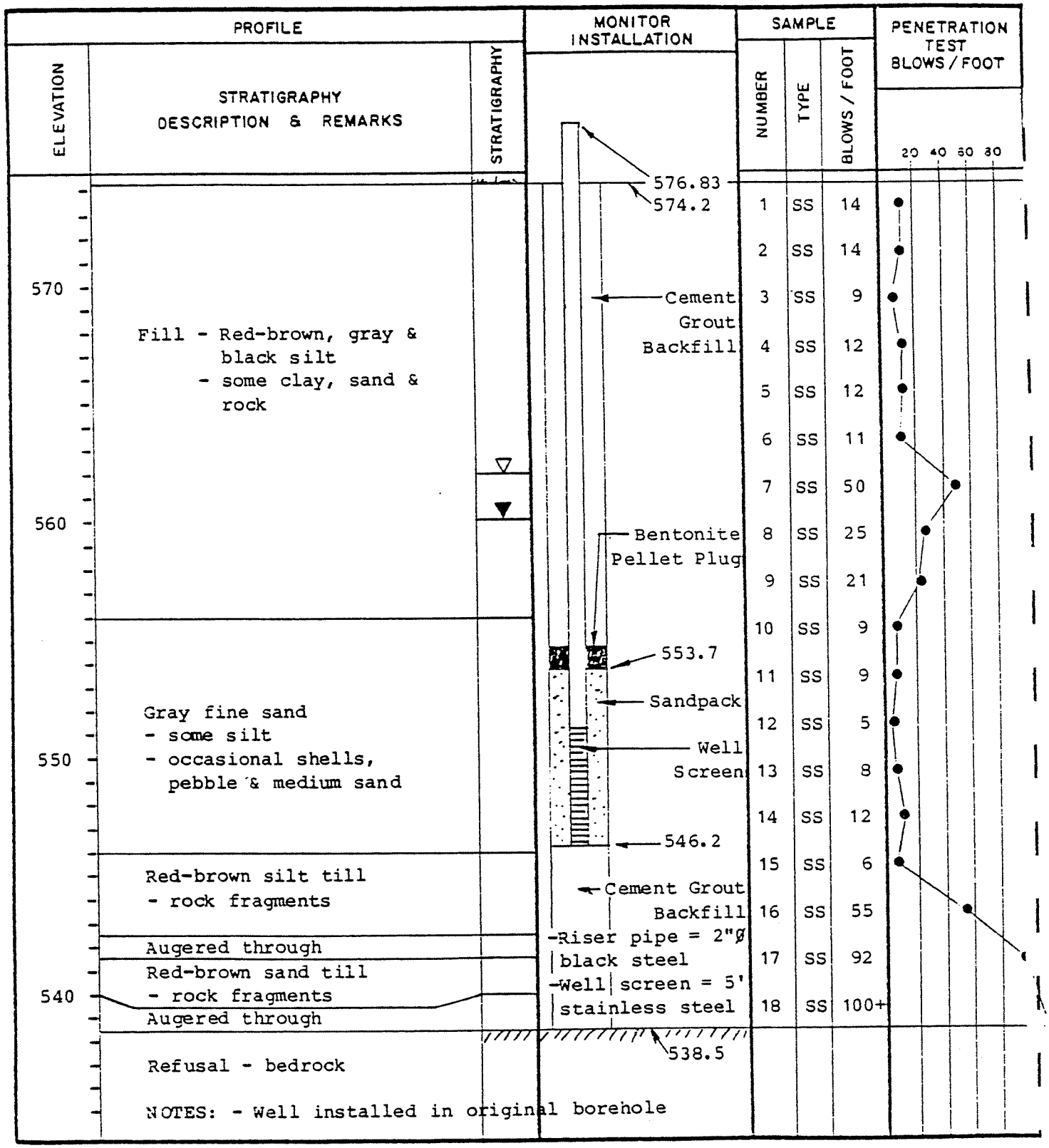
PROJECT NAME : Property East of City of N.F.-W.T.P.
HOLE Nº: OW4-82
JOB Nº : 9-0621
DATE COMPLETED: June 15, 1982
CLIENT : Occidental Chemical Corporation
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE : 8" ∅ Hollow Stem Auger
GROUND ELEVATION: 573.8
LOCATION : Northeast Well
TOP OF PIPE ELEVATION: 577.35



◯ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME : Property East of City of N.F.-W.T.P.
HOLE Nº: OW5-82
JOB Nº : 9-0621
DATE COMPLETED: June 17, 1982
CLIENT : Occidental Chemical Corporation
GEOLOGIST/ENGINEER: J. Kay
HOLE TYPE : 8" Ø Hollow Stem Auger
GROUND ELEVATION: 574.2
LOCATION : Southeast Well
TOP OF PIPE ELEVATION: 576.83



◯ GRAIN SIZE ANALYSIS ▼ WATER FOUND ▽ STATIC WATER LEVEL

Boring no.	Depth (ft)	Description
1	0 - 11.5	Fill material, boulders.
	11.5 - 26.5	Clay, dark gray, sandy, wet.
		SOIL SAMPLE: 26.5 ft.
2	0 - 2	Topsoil.
	2	Fill.
		SOIL SAMPLE: 2 ft.
3	0 - 2.5	Topsoil.
	2.5	Fill.
		SOIL SAMPLE: 2.5 ft.
4	0 - 1.5	Topsoil.
	1.5 - 4.0	Clay, brown, boulder fragments.
	4.0 - 6.5	Clay, reddish, still some rock fragments, sandy.
	6.5 - 6.7	Same, above 6 in of water in hole.
		SOIL SAMPLE: 6.7 ft.
5	0 - 4	Clay, reddish, brown, sandy.
		SOIL SAMPLE: 4 ft.
6	0 - 4	Clay, brown, some black material.
	4 - 8	Clay, tan, sandy, damp, gray sandy clay on bit.
	8 - 10	Clay, pink.
	10 - 15	Clay, dark brown, black material.
		SOIL SAMPLE: 7 - 8 ft.
7	0 - 3.5	Topsoil, organic, black.
	3.5 - 5	Clay, sandy, tan.
	5 - 6.5	Clay, sandy, light tan, wet.
	6.5 - 9.0	Same, wetter.
	9.0	Clay, pink.
		SOIL SAMPLE: 5 - 6.5
8	0 - 4	Topsoil and brown, wet, sandy clay.
		SOIL SAMPLE: 4.0 ft.
9	0 - 4	Clay, tan.
	4 - 7	Clay, gray.
		SOIL SAMPLE: 4.0 ft.

Chemical information.--The U.S. Geological Survey collected nine soil samples for iron, mercury, and organic-compound analyses; results are given in table C-22. The samples contained 12 organic priority pollutants and 10 organic nonpriority pollutants. Most organic priority pollutants in sample 1 were in concentrations above 1,500 µg/kg.

CLIENT: NYPA, BUFFALO AVE - JOB # 13796

BORING MW-1D

SURFACE ELEVATION (FT) 574.12

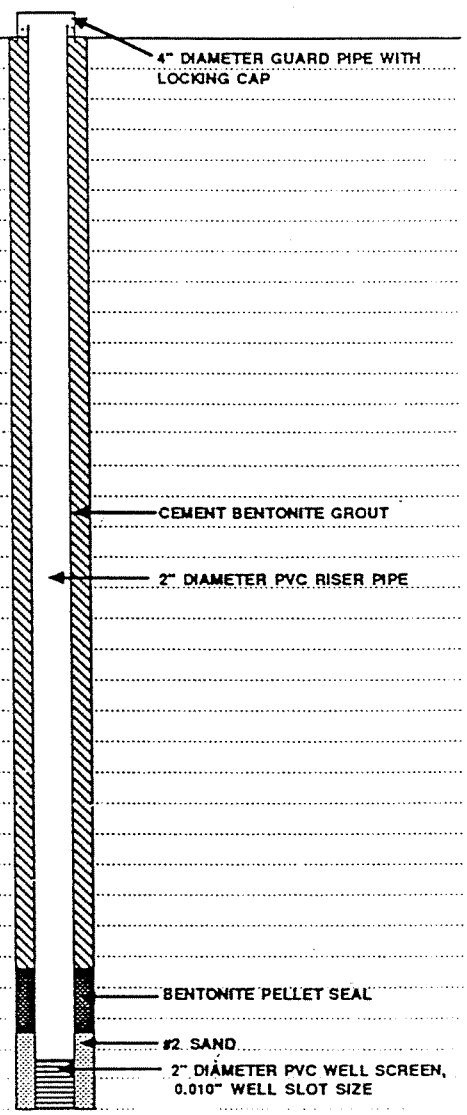
TOP OF CASING ELEVATION (FT) 576.20

DATE STARTED: 10/14/87
DATE FINISHED: 10/14/87

DEPTH TO WATER (FT)	18.40	14.44	14.25
DATE	10/14/87	12/8/87	12/9/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	6/14	9.5		BR. TOPSOIL, LITTLE ROCK FGMT, TRACE ORG. MATTER
		54/22		GM-GC (FILL)	FILL, LIGHT BR. GRAVEL, LITTLE SILT, TRACE
	2	50/5"	5		CLAY, TRACE ORGANIC MATTER.
	3	23/9	18		SILT, LITTLE GRAVEL
5		5/5			
	4	7/4	15		SILT, LITTLE CINDER
		5/4			
	5	2/3	6		CLAY, LITTLE CINDER, TRACE SILT, TRACE ROCK FRAGMENT
		3/3			
10	6	7/25	7		SILT, TRACE GRAVEL
		8/4			
	7	4/3	12	CL	RED BROWN CLAY, LITTLE SILT (LAKE BED CLAYS)
		5/6			
15	8	1/4	15		
		3/4			
	9	2/1	16		
		2/2			
	10	WH/WH	24		LITTLE SILT LENSES
		1/2			
20	11	WH/WH	4		
		2/4			
	12	17/22	9		TILL, LT BROWN DRY COMPACT SILT, TRACE (+) ROCK FRAGMENT
		23/25			
25	13	21/42	9	ML	LITTLE ROCK FRAGMENT
		91/99			
	14	26/47	14		
		46/58			
	15	15/29	14		
		63/60			
30	16	7/14	18		TRACE ROCK FRAGMENT
		22/35			
	17	24/88	14		TRACE FINE SAND
		84/95			
	18	100/3	NR		AUGER REFUSAL AT 34.5 FEET
35					LIGHT - DARK GRAY LOCKPORT DOLOMITE

AS BUILT DIAGRAM



BORING MW-1D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS	AS BUILT DIAGRAM
					VUGGY ZONE	2" DIAMETER PVC WELL SCREEN, 0.010" WELL SLOT SIZE
					VUGGY ZONE SOLUTION PITS	#2 SAND
40					THIN SHALE LAYERS, ABUNDANT FRACTURES, MINERALIZATION (GYPSUM)	
					BORING TERMINATED AT 44.50 FEET	
45						
50						
55						
60						
65						

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. - JOB # 13796

BORING MW-1S

SURFACE ELEVATION (FT) 574.14

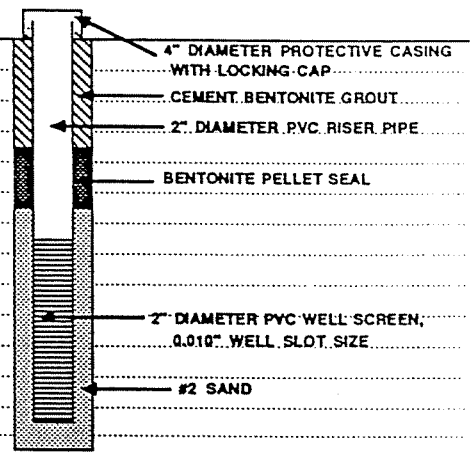
TOP OF CASING ELEVATION (FT) 576.56

DATE STARTED: 10/16/87
DATE FINISHED: 10/16/87

DEPTH TO WATER (FT)	13.3	11.75	11.79
DATE	10/16/87	12/8/87	12/9/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	4/12	14"		BR. TOPSOIL, LITTLE ORG. MATTER, TR. ROCK FGMT. FILL; LIGHT BROWN, SILT, LITTLE GRAVEL; TRACE ORGANIC MATTER, TRACE BLACK CINDER.
		20/29			
	2	10/16	7"	GM (FILL)	NO ORGANIC MATTER
		13/17			
5	3	9/9	4"		RED BROWN BRICK, LITTLE ROCK FRAGMENT, LITTLE BLACK CINDER, TRACE CLAY, TRACE SILT.
		9/8			
	4	5/6	7"	CIN. (FILL)	BLACK CINDER, SOME CLAY, TRACE SILT, TRACE ROCK FRAGMENT.
		9/10			
	5	3/4	12"	CL-ML (FILL)	DARK GREY-BROWN CLAY, TRACE SILT, TRACE ORGANIC MATTER
10		6/9			
	6	3/9	8"		GRAVELLY SAND, LITTLE BRICK, TRACE ORGANIC MATTER
		4/10			
	7	5/7	13"	CIN. (FILL)	BLACK CINDER, TRACE SILT
		11/12		CL	RED BROWN CLAY, LITTLE SILT (LAKE BED CLAYS)
15					(BORING TERMINATED AT 14.0 FEET)
20					
25					
30					
35					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

BORING MW-2D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS	AS BUILT DIAGRAM
40					VUGGY ZONE INTERBEDDED SHALE LAYERS ABUNDANT VUGS MINERALIZATION ABUNDANT (GYPSUM) SHALE LAYERS COMMON MINOR FRACTURES MINOR FRACTURES BORING TERMINATED AT 44.50 FEET	2" DIAMETER PVC WELL SCREEN, 0.010" WELL SLOT SIZE #2 SAND
45						
50						
55						
60						
65						

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE JOB # 13796

BORING MW-3D

SURFACE ELEVATION (FT) 576.17

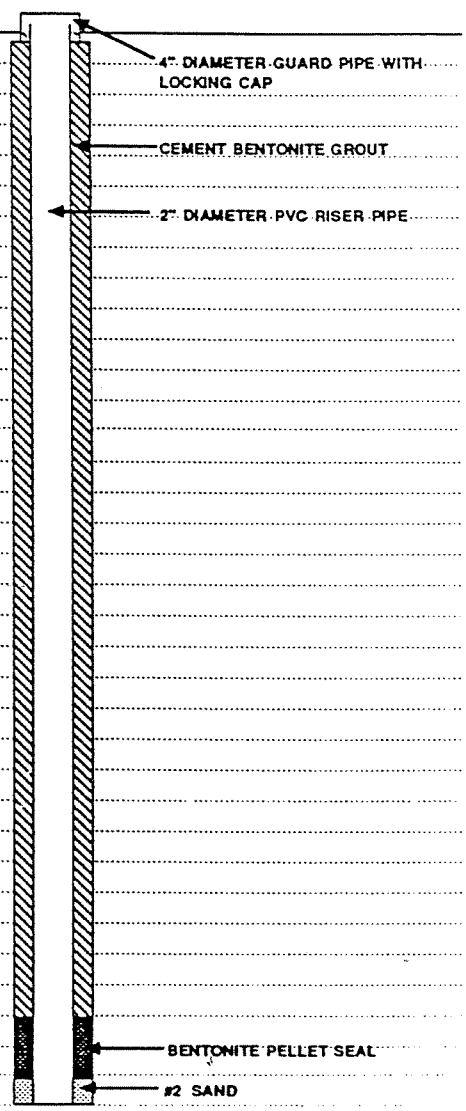
TOP OF CASING ELEVATION (FT) 578.08

DATE STARTED: 10/22/87
DATE FINISHED: 10/26/87

DEPTH TO WATER (FT)	16.75	16.61	
DATE	12/8/87	12/9/87	

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	3/25 50-4"	13	GM-GC	TOPSOIL DK. BR., LITTLE ORG. MATTER, TR. ROCK FRAGMENT FILL RED-BR, GRAVELLY-SILT, TR. ORG. MATTER
	2	21/32 11/14	12		
	3	7/20 22/17	NR	FILL	BLACK CLAYEY-GRAVEL, LITTLE SILT
5	4	3/3 7/7	15		BLACK SILT, TR ORG. MATTER, TRACE CLAY
	5	3/6 15/20	15	CL	LT. BR. CLAY, SOME SILT, TR. ORG. MATTER (LAKE BED CLAYS)
10	6	3/6 13/12	13		LITTLE MED. SAND LENSES (1/2")
	7	2/5 5/7	17		LITTLE SILT
15	8	2/3 5/6	18		
	9	2/1 2/3	23		TRACE SILT LENSES
	10	1/1 1/2	21		TRACE SILT LENSES
20	11	1-12" WH/1	24		
	12	WH/1 2/2	22		SILTY CLAY, SOME GRAVEL, LITTLE SAND
25	13	7/ 50-2"	1		TILL, RED-BROWN, LITTLE GRAVELLY-SILT
	14	32/46 70/30	12	CL-ML	
	15	18/44 57/60	18		SILTY GRAVEL
30	16	24/51 47/50	16		1/2" CS SAND LAYER
	17	12/ 50-3"	2		
35					AUGER REFUSAL AT 34.0 FEET LIGHT-DARK GRAY LOCKPORT DOLOMITE

AS BUILT DIAGRAM



DAMES & MOORE

BORING MW-3D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS	AS BUILT DIAGRAM
					FRACTURES (VERTICAL & HORIZONTAL) FRACTURES ALONG SHALE LAYERS (FEW) VOID	2" DIAMETER PVC WELL SCREEN, 0.010" WELL SLOT SIZE #2 SAND
					ABUNDANT SHALE LAYERS	
40					MINOR SHALE LAYERS, HOR. FRACT. ALONG SHALE LAYERS MINERALIZATION (GYPSUM) VUGGY ZONE MINERALIZED (GYPSUM) HEALED FRACTURES WITH GYPSUM NUMEROUS MECHANICAL FRACTURES	
45					BORING TERMINATED AT 43.0 FEET	
50						
55						
60						
65						

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

CLIENT: NYPA, BUFFALO AVE JOB # 13796

BORING MW-3S

SURFACE ELEVATION (FT) 576.44

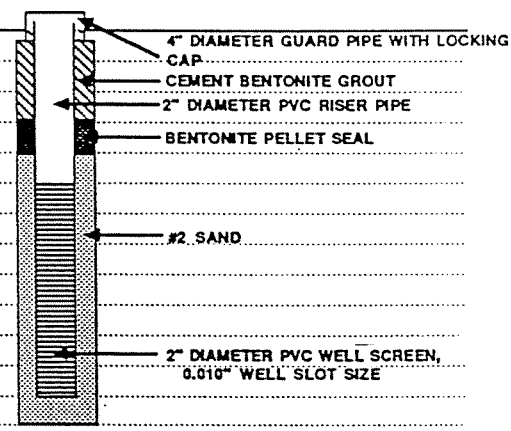
TOP OF CASING ELEVATION (FT) 578.43

DATE STARTED: 10/27/87
DATE FINISHED: 10/27/87

DEPTH TO WATER (FT)	11.0	8.60	8.49
DATE	10/27/87	12/8/87	12/9/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	3/4 10/20	13	GM	DK BR. TOPSOIL, LITTLE ORG. MATTER, TRACE CINDER, TRACE ROCK FRAGMENT
	2	24/ 75-5"		(FILL)	FILL, LT. BR., SILTY-GRAVEL, LITTLE PEBBLE TRACE CINDER, TR. ORG. MATTER
5	3	16/45 54/23	7	CIN. (FILL)	BLK-GRY CINDER, SOME RK FGMT, LITTLE SIL
	4	4/12 8/11	6	GM	FILL, LT. BR, SILTY-GRAVEL, LITTLE PEBBLE TR. CINDER,
	5	3/3 5/9	18	(FILL)	OLIVE GR. SILT, LITTLE CLAY, TRACE ORG. MATTER (BURNT), TR. SHELL FRAGMENT
10	6	37 75-3"	8		GRADING INTO CLAYEY-SILT (LT. BROWN) AT BASE
	7	3/8 13/17	18	CL	LIGHT BROWN CLAY, TR. SILT (LAKE BED CLAYS)
15					BORING TERMINATED AT 14.0 FEET
20					
25					
30					
35					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. JOB # 13796-002

BORING MW-4D

SURFACE ELEVATION (FT) 580.15

TOP OF CASING ELEVATION (FT) 582.94

DATE STARTED: 10/28/87
DATE FINISHED: 10/29/87

DEPTH TO WATER (FT)	20.8	21.57	21.30
DATE	10/29/87	12/8/87	12/9/87

AS BUILT DIAGRAM

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	5/13 25/21	7	GM-GC (FILL)	TOP 5" BR TOPSOIL, LITTLE ROCK FGMT, TR ORGANIC MATTER FILL, RED-BR SILT, SOME GRAVEL, TR ORG MATTER
	2	4/4 4/4	11		RED-BR SILTY-CLAY, LITTLE GRAVEL, TR SHELL FRAGMENT
5	3	2/4 4/8	10	GC (FILL)	RED-BR SANDY CLAY, FINE-MED, LITTLE RK FGMT, TR ORGANIC MATTER RED-BR CLAYEY-SILT, LITTLE FINE SAND, LITTLE ROCK FGMT, TR ORGANIC MATTER
	4	2/5 6/18	5		
	5	2/5 11/13	12		TRACE CINDER
10	6	5/11 10/10	4		
	7	2 50-3"	2		
15	8	2/3 7/21	11		
	9	27/35 17/15	7	GM (FILL)	GRAY SILTY GRAVEL AND ROCK FRAGMENT, TRACE FINE SAND
	10	6/9 7/12	8		
20	11	1/12 3/6	5	SM	GRAY FINE SAND, TRACE ORG MATTER, TR SHELL FRAGMENTS
	12	WR/3 4/5	16		
25	13	WR/3 4/6	24		
	14	WR/WR 2/1	11	CL	RED-BR CLAY, LITTLE SILT, (LAKE BED CLAY)
	15	WH/1 1/3	17		
30	16	WH/2 2/7	17		TILL, RED-BR SILT, SOME GRAVEL, TR FINE SAND, TR CLAY
	17	3/30 33/68	12	ML	
35	18	41 100-5"	7		

4" DIAMETER GUARD PIPE WITH LOCKING CAP

CEMENT BENTONITE GROUT

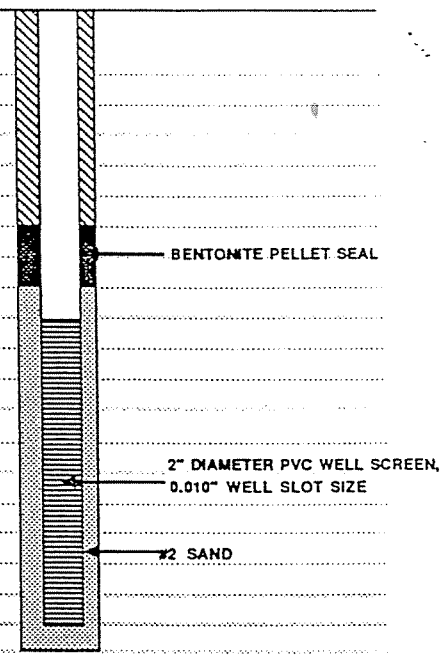
2" DIAMETER PVC RISER PIPE

(CONT'D)

BORING MW-4D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
35	19	77/92 80 100-5"			
	20	50/93 136-6"			DARK GRAY
40	21	15/12 18/26	7		
	22	5/33 46/26	16	ML	
	23	13/24 60 100-3"	13		GRAY DOLOMITE, (FRAGMENTS-GRAVEL SIZE)
45		50/0	0		AUGER REFUSAL AT 45.0 FEET LIGHT-DARK GRAY LOCKPORT DOLOMITE PITTED ZONE FILLED W/GYPSUM, HEALED FRACTURES (GYPSUM) ABUNDANT SHALE LAYERS
50					MINOR VUGS FILLED W/GYPSUM FRACT. ALONG SHALE LAYERS
					ABUNDANT VUGS FILLED W/GYPSUM HIGHLY FRACTURED (VERTICAL & HORIZONTAL)
55					BORING TERMINATED AT 56.0 FEET
65					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. JOB # 13796

BORING MW-4S

SURFACE ELEVATION (FT) 579.95

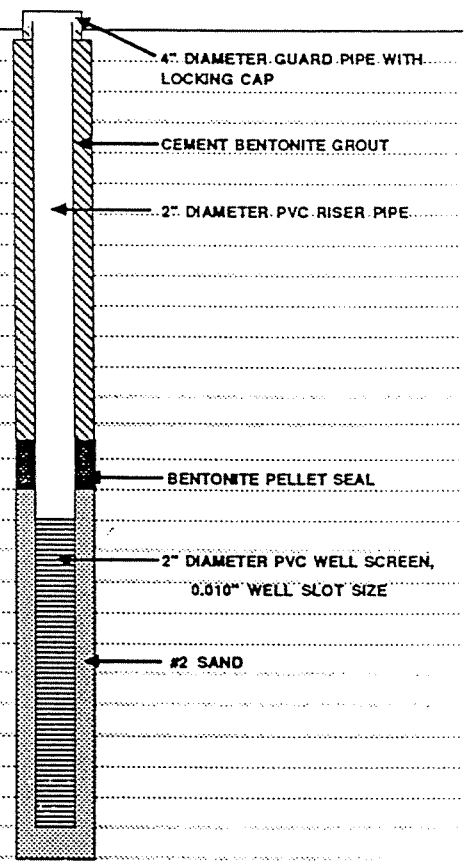
TOP OF CASING ELEVATION (FT) 582.48

DATE STARTED: 11/13/87
DATE FINISHED: 11/17/87

DEPTH TO WATER (FT)	20.0	19.8	
DATE	12/8/87	12/10/87	

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	10/19 9/11	12		TOPSOIL DK BR-BLK, LITTLE ORG. MATTER FILL RED-BR SILT, SOME GRAVEL, LITTLE SAND, TRACE ORG. MATTER
	2	6/16 26/13	7	GM-GC	LITTLE GRAVEL, NO SAND
5	3	3/3 4/5	13	(FILL)	RED-BR SILTY-CLAY, TR SAND, TR GRAVEL GRAY SANDY-SILT, TR GRAVEL, TR CLAY, TR ORG. MATTER, TR SHELL FRAGMENTS
	4	2/2 3/12	11		GRAY SAND, TR SILT, TR CLAY RED-BR SILTY-CLAY, LITTLE SAND, TRACE GRAVEL, TRACE CINDER
	5	3/3 5/11	NR		
10	6	3/3 6/7	11		TRACE ORG. MATTER, NO CINDER
	7	3/3 4/4	12		TRACE SAND, NO CINDER
15	8	1/2 5/8	9		TRACE ORG. MATTER, NO CINDER
	9	62/ 100-2"	5	GM	GRAY SILTY-GRAVEL, SOME ROCK FRAGMENT, TRACE SAND
	10	61/ 100-4"	5	(FILL)	
20	11	2/5 9/11	15	SM	GRAY FINE SAND TR SILT TR ORGANIC MATTER
	12	4/9 18/12	19		TRACE CLAY TRACE PEBBLE
25	13	4/5 7/12	15		TRACE SHELL FRAGMENT
	14	2/2 2/3	22	CL	RED BR CLAY TR SILT (LAKE BED CLAYS)
					BORING TERMINATED AT 28.0 FEET
30					
35					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. JOB # 13796-002

BORING MW-5D

SURFACE ELEVATION (FT) 574.52

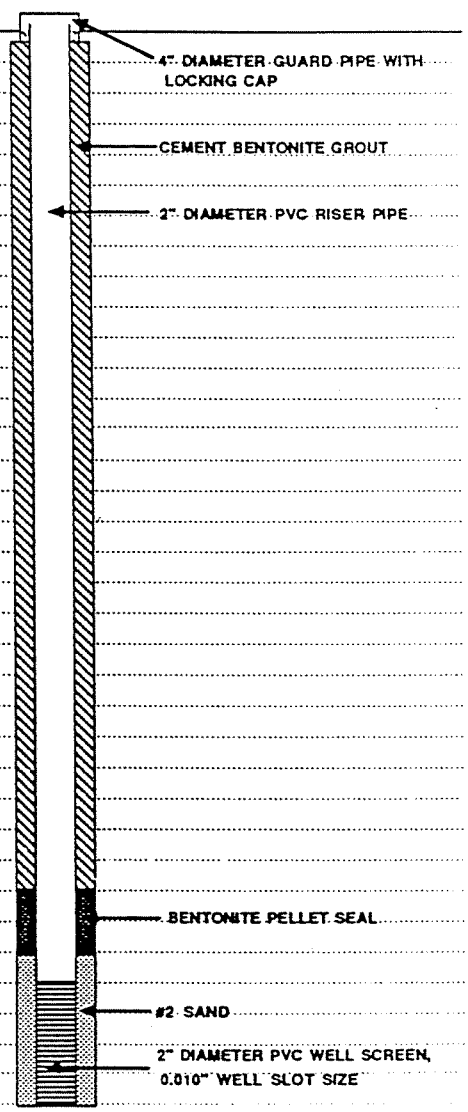
TOP OF CASING ELEVATION (FT) 576.90

DATE STARTED: 11/25/87
DATE FINISHED: 11/30/87

DEPTH TO WATER (FT)	6.5	15.5	15.51
DATE	12/1/87	12/8/87	12/10/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	2/4 6/10	15		DK BR TOPSOIL, LITTLE ROCK FGMT, TR ORG MATTER
	2	5/9 9/9	17	SM-SC	YELLOW-BR SANDY-SILT, TR CINDER/SLAG, TR ORG MATTER, TR BRICK FGMT, TR RK FGMT
					SILTY-SAND, NO BRICK
	3	3/3 4/5	19		GRADING INTO A CLAY-SILT, TR SHELL FGMT
5	4	3/5 4/7	14		
	5	2/7 12/17	15		SILTY-CLAY (LAKE BED CLAYS)
10	6	5/8 12/22	14		
	7	5/8 7/6	19	CL	
15	8	2/1 2/2	24		RED-LIGHT GRAY
	9	WH/WH WH/1	24		
	10	WH/WH WH/1	24		TRACE ROCK FRAGMENT
20	11	WR/WH 2/1	20		TRACE ROCK FRAGMENT
	12	WH/3 6/4	19		TILL, RED-BROWN GRAVELLY-SILT
25	13	3/7 9/7	19	ML	
	14	8/12 37/54	17		
	15	18/40 41/41	10		
30	16	32 100-4"	9		GRAVEL (DOLOMITE), TR SILT (WET)
	17	100-2"	0		
	18	100-2"	0		
35					
40					

AS BUILT DIAGRAM



DAMES & MOORE

BORING MW-5D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS	AS BUILT DIAGRAM
35					AUGER REFUSAL @ 36.0 FT/ LT-DRK GREY LOCKPORT DOLOMITE MINOR FRACTURES ALONG SHALE LAYERS VOID VUGGY ZONE HIGHLY WEATHERED SOME FILLED W/GYPSUM FRACTURES (HORIZONTAL) COMMON GRY CLAY LAYER SOME RK FGMT MINOR SHALE LAYERS BORING TERMINATED AT 42.0 FEET	2" DIAMETER PVC WELL SCREEN, 0.010" WELL SLOT SIZE #2 SAND
40						
45						
50						
55						
60						
65						

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. 13796

BORING MW-5S

SURFACE ELEVATION (FT) 574.76

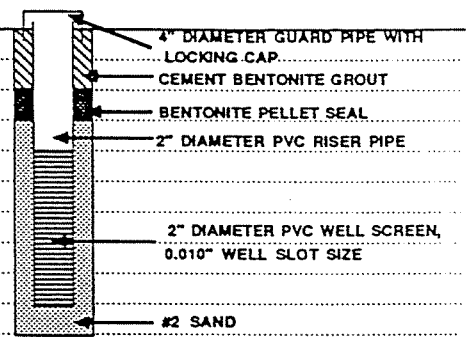
TOP OF CASING ELEVATION (FT) 577.55

DATE STARTED: 11/24/87
DATE FINISHED: 11/24/87

DEPTH TO WATER (FT)	7.0	7.52	
DATE	12/1/87	12/8/87	

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	5/6 7/9	12	GM-GC	12" OF TOPSOIL DK BRN SILTY CLAY W/PELLETS, MOIST LOOSE
	2	8/9 13/12	18	SM	DK YELLOW SILTY SAND MOIST LOOSE
5	3	4/4 5/5	20	SC ML CL	DK YELLOW SILT SOME CLAY DK YELLOW CLAY TO SILTY CLAY DK YELLOW CLAY
	4	5/5 6/6	20	SM	6" OF YELLOW SILT 12" OF YELLOW GREY 2" OF GREY SILT
	5	4/7 12/14	20	CL	PINK TO DARK TAN CLAY
10					BORING TERMINATED AT 10 FEET
15					
20					
25					
30					
35					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. JOB # 13796-002

BORING MW-6D

SURFACE ELEVATION (FT) 573.76

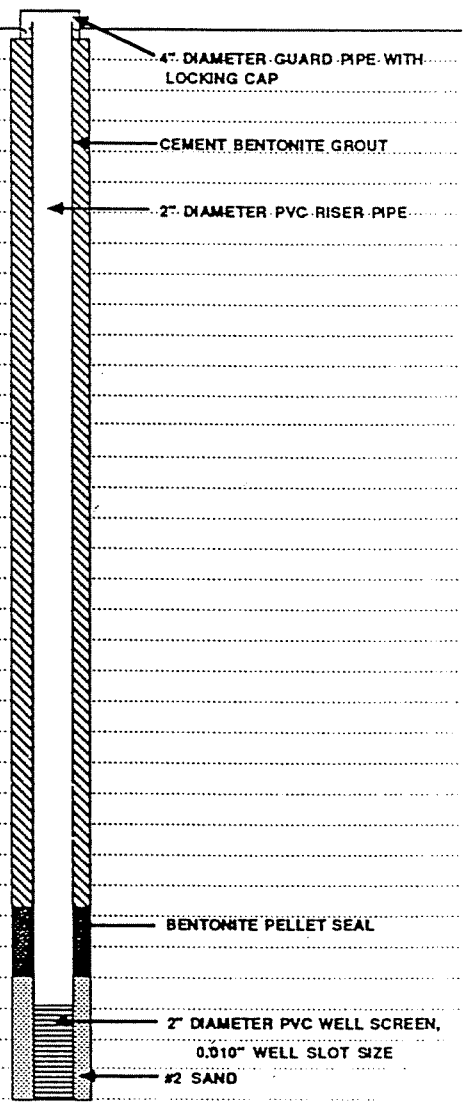
TOP OF CASING ELEVATION (FT) 575.74

DATE STARTED: 11/20/87
DATE FINISHED: 11/24/87

DEPTH TO WATER (FT)	13.8	14.81	14.9
DATE	12/1/87	12/8/87	12/10/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	8/5	14		DK BR TOPSOIL, LITTLE RK FGMT, TR ORG MATTER
		10/11		SM-SC	BR-TAN/ORANGE FINE, SAND, LITTLE SILT,
	2	6/15	18		TRACE ORGANIC MATTER
		15/7			TRACE CLAY
	3	2/3	19		GRADING INTO GRAY-LT TAN CLAYEY-SILT,
5		4/6			TR SAND, TR SHELL FGMT, TR ORG MATTER
	4	1/3	20		GRAY-LT BR SAND, LITTLE SILT, TR ORG
		4/5			MATTER
	5	3/6	24		GRAY-RED BR CLAY, LITTLE SILT LENSES, TR
		9/12			ROCK FRAGMENT (LAKE BED CLAYS)
10	6	5/9	20		
		13/14			
	7	2/3	20	CL	
		4/5			
15	8	2-18"	24		TRACE SILT, NO ROCK FRAGMENTS
		2			
	9	WR	24		NO ROCK FGMT, NO SILT
		1-12"			
	10	WR/WR	24		
		WH/WH			
20	11	WRWR	24		NO ROCK FRAGMENT
		WH/WH			
	12	WR/WR	24		TRACE ROCK FRAGMENT
		WH/WH			
25	13	WR/WR	24		
		WH/WH			
	14	WR/WH	20		
		2/2			
	15	31/70	14		TILL, RED-BR GRAVELLY-SILT, LITTLE CLAY
		87/50		ML	
30	16	8/26	12		
		100-6"			
	17	23/38	15		GRAY GRAVEL (DOLOMITE), LITTLE SILT,
		37/43			TRACE SAND
	18	100-6"	3		
35		100-1"			AUGER REFUSAL AT 35.1 FEET
					LIGHT-DARK GRAY LOCKPORT DOLOMITE

AS BUILT DIAGRAM



DAMES & MOORE

BORING MW-6D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS	AS BUILT DIAGRAM
					DOLOMITE CHIPS	
					MINOR FRACT. (HORIZONTAL-MECHANICAL) VUGGY ZONE MINERALIZATION (GYPSUM) VERTICAL & HORIZONTAL FRACT. ALONG SHALE LAYERS	2" DIAMETER PVC WELL SCREEN, 0.010" WELL SLOT SIZE
					MINOR MINERALIZATION (GYPSUM) FRACT. (HORIZONTAL) ALONG SHALE LAYERS	#2 SAND
40					MINOR VUGS, SOME MINERALIZED (GYPSUM) FRACT. COMMON ALONG SHALE LAYERS	
					VUGGY MINOR MINERALIZATION	
45					BORING TERMINATED AT 43.5 FEET	
50						
55						
60						
65						

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE JOB # 13796-002

BORING MW-6S

SURFACE ELEVATION (FT) 573.41

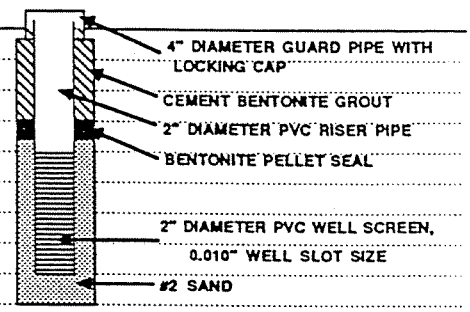
TOP OF CASING ELEVATION (FT) 575.79

DATE STARTED: 11/20/87
DATE FINISHED: 11/20/87

DEPTH TO WATER (FT)	7.50	4.73	4.17
DATE	11/20/87	12/8/87	12/10/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	9/8 9/10	12		DK BR TOPSOIL, SOME GRAVEL, LITTLE SAND, TR ORG. MATTER
	2	7/8 11/6	18	SM-SC	ORANGE-TAN FINE SAND, LITTLE SILT, TR ROCK FGMT ORANGE-TAN SILT, TR SHELL FGMT
5	3	2/3 6/7	17		GRADING INTO SILTY-CLAY. LITTLE ROCK FGMT ORANGE-TAN FINE SAND, TR SILT
	4	4/5 7/6	19		
	5	5/7 14/13	20	CL	RED-BR CLAY, TR ROCK FGMT, TR SILT (LAKE BED CLAYS)
10	6	2/1 8/9	9		GRADING TO GRAY
					BORING TERMINATED AT 12.0 FEET
15					
20					
25					
30					
35					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. JOB # 13796-002

BORING MW-7D

SURFACE ELEVATION (FT) 573.03

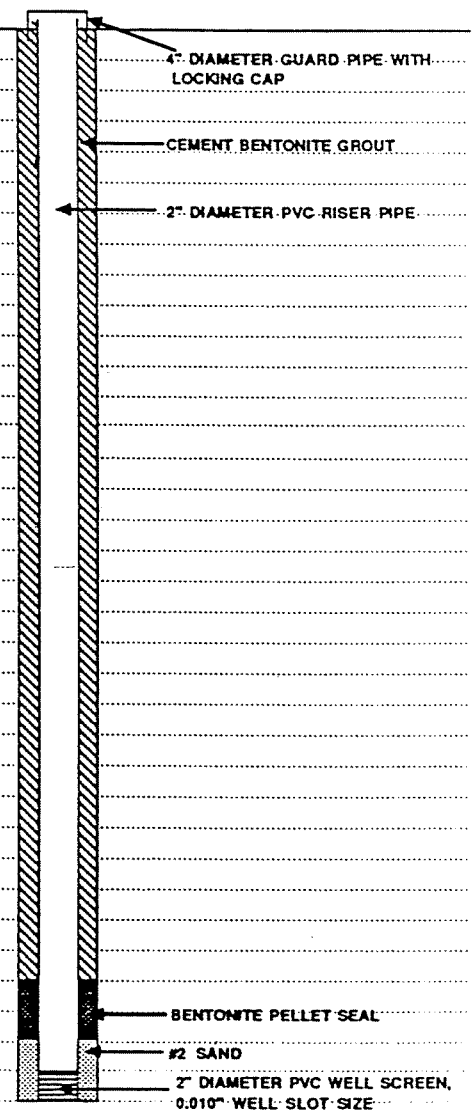
TOP OF CASING ELEVATION (FT) 575.18

DATE STARTED: 11/17/87
DATE FINISHED: 11/19/87

DEPTH TO WATER (FT)	14.0	14.2	14.15
DATE	12/2/87	12/8/87	12/10/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	3/11	17	GM (FILL)	DK BR-GRAY TOPSOIL, LITTLE ORG MATTER TRACE PEBBLE
		14/16			FILL, LT BR-BR RED SILTY-GRAVEL, LITTLE ROCK FGMT, TR CLAY, TR ORG MATTER
	2	7/5	11		
		7/8			LITTLE CLAY
	3	6/7	13		
5		17/16			DK BLK-GRAY CINDER, TRACE ASH
	4	23/9	13		LITTLE GRAVEL, TRACE SLAG
		5/3			
	5	3/4	14	CINDER	
		54/6			
10	6	3/3	19	ML	GRN-GRY SILT, TR ORG MATTER, TR ROCK FGMT, TRACE CLAY
		4/6		CINDER	DK BLK CINDER, LITTLE ORG MATTER, TRACE SLAG
				SM	GRY FINE SAND, TRACE SILT
	7	3/7	16		
		8/12			RED-BR CLAY, TR ORG MATTER (LAKE BED CLAY)
15	8	2/4	24		
		6/6		CL	
	9	WR	24		
		WR			
	10	WR/WH	24		
		WH/1			
20	11	WR/WR	24		
		WH/WH			
	12	WR/WR	24		
		WH/WH			
	13	WR/WR	24		
25		WH/WH			
	14	WR/WR	24		
		WH/WH			
	15	1/18	12		TILL, RED-BR SILTY-GRAVEL, LITTLE ROCK FRAGMENT
30		19/37			
	16	16/26	12	ML	
		32/46			
	17	7/40	12		
		42/66			
	18	31/55	9		
35		100-5"			GRY GRAVEL (DOLOMITE), SOME SILT, TRACE CLAY

AS BUILT DIAGRAM



BORING MW-7D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS	AS BUILT DIAGRAM
	19	4 100-4"	2		AUGER REFUSAL AT 37.0 FEET LIGHT-DARK GRAY LOCKPORT DOLOMITE ABUNDANT VUGS MINERALIZATION (GYPSUM)	2" DIAMETER PVC WELL SCREEN, 0.010" WELL SLOT SIZE #2 SAND
40					FRACTURES (HORIZONTAL) ALONG SHALE LAYERS FRACTURES (HORIZONTAL) ALONG SHALE LAYERS MINERALIZED VUGS (GYPSUM)	
45					BORING TERMINATED AT 45.0 FEET	
50						
55						
60						
65						

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA, BUFFALO AVE. 13796-002

BORING MW-7S

SURFACE ELEVATION (FT) 573.52

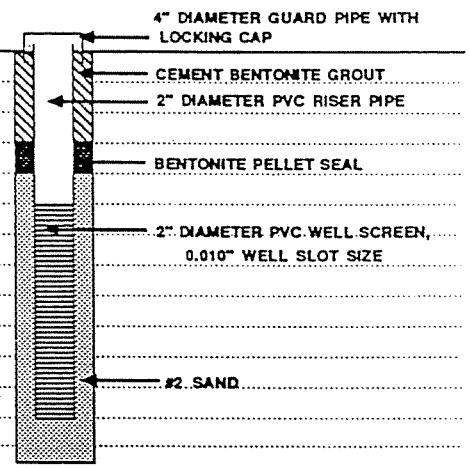
TOP OF CASING ELEVATION (FT) 575.86

DATE STARTED: 11/18/87
DATE FINISHED: 11/18/87

DEPTH TO WATER (FT)	10.5	10.63	10.8
DATE	12/2/87	12/8/87	12/10/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	17/19 16/8	16		DK BR-BLK TOPSOIL, LITTLE ORG MATTER, TRACE FINE SAND, TRACE ROCK FGMT
	2	6/17 28 75-3"	13	GM (FILL)	FILL, RED-BR GRAVELLY SILT, LITTLE ROCK FGMT, TR ORG MATTER, TR CLAY
5	3	12/5 7/11	13		LIGHT BROWN
	4	5/22 27/21	2	CINDER	BLK CINDER, TR GRAPHITE RODS, TR SLAG
	5	3/3 9/9	12		RED BR-BR SLAG, TR WHITE FUSED PEBBLES, TR GLASS, ORANGE RESIDUE (INCINERATOR WASTE)
10	6	4/6 4/4	14		BLK CINDER, LITTLE SILT, TR PAPER
				ML	DK GRY SILT, LITTLE CLAY, TR CINDER
	7	3/6 9/12	24	CL	CLAY, BLK-BR, LITTLE SILT, (LAKE BED CLAY)
15					BORING TERMINATED AT 14.0 FEET
20					
25					
30					
35					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA BUFFALO AVE-JOB #13796

BORING MW-8D

SURFACE ELEVATION (FT) 570.21

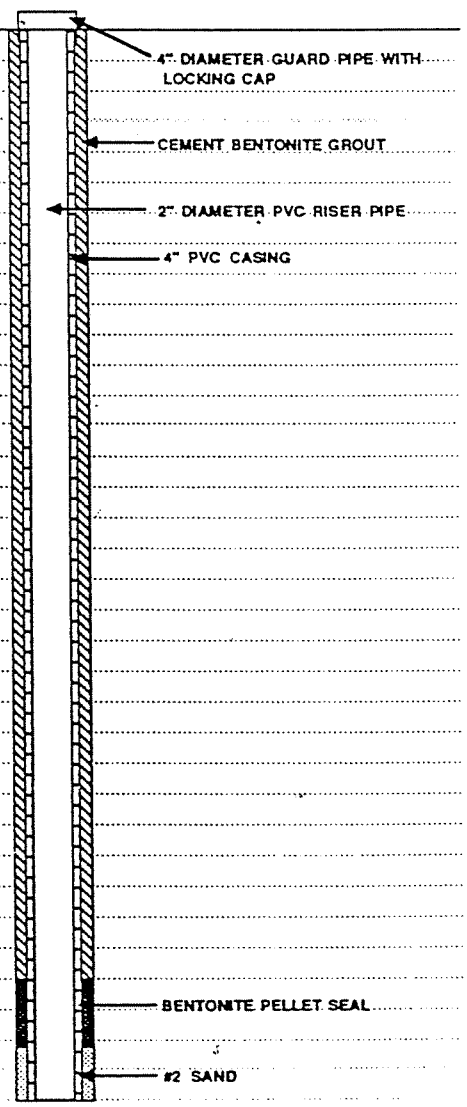
TOP OF CASING ELEVATION (FT) 572.45

DATE STARTED: 11/16/87
DATE FINISHED: 11/23/87

DEPTH TO WATER (FT)	9.0	10.8	11.17	11.0
DATE	11/16/87	12/2/87	12/10/87	12/10/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	12/13 20/7	12	GM (FILL)	GRAY SILTY SAND WITH RK FGMT
	2	8/10 7/7	14		LT RED TO BRN SILTY CLAY WITH RK FGMT
5	3	4/6 4/4	14	GM-GC	REDISH GRAY TILL TYPE CLAY
	4	11/13 15/35	16	(FILL)	DK BRN TO DK GRAY SILTY CLAY W/RK FGMT
	5	13/36 9/4			DK BLK SILTY CLAY TO SILT, SWAMP SMELL
10	6	4/4 9/10	8		DK BLACK SILT, STRONG SWAMP ODOR
	7	3/5 8/9	8		
15	8	3/5 7/8	14	SM	NO ODOR
	9	2/3 4/6	18		
	10	1/2 2/4	18		
20	11	2/5 7/2	12		
	12	0/0 1/2	24	CL	TAN TO DK TAN TO REDISH CLAY (LAKE BED CLAY)
25	13	0/1 2/2	24		
	14	0/2 2/9	24	GC	CLAY, LITTLE ROCK FGMT
	15	0/2 29/24	14		TILL, DK GRAY SILTY GRAVEL, LITTLE RK FGMT, TRACE CLAY
30	16	44/54 43/35	14	ML	
	17	22/87 100-2"	8		GASOLINE SMELL
35					AUGER REFUSAL AT 33.0 FEET LIGHT-DARK GRAY LOCKPORT DOLOMITE

AS BUILT DIAGRAM



DAMES & MOORE

BORING MW-8D CONT'D

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS	AS BUILT DIAGRAM
40						2" DIAMETER PVC WELL SCREEN, 0.010" WELL SLOT SIZE; #2 SAND
45						
50						
55						
60						
65						

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA BUFFALO AVE, JOB # 13796

BORING MW-8S

SURFACE ELEVATION (FT) 570.16

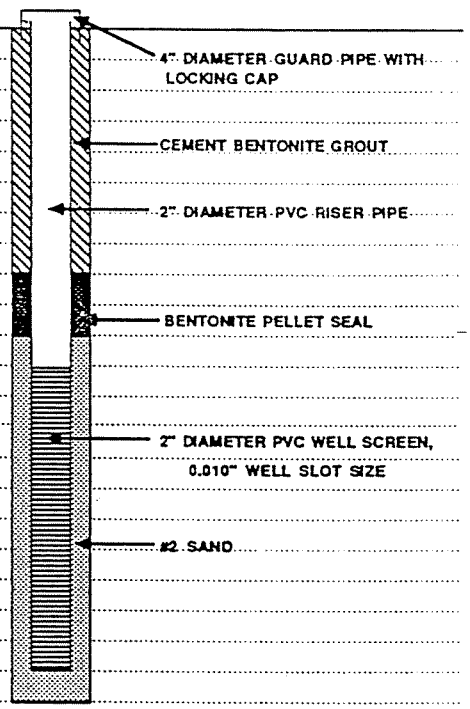
TOP OF CASING ELEVATION (FT) 572.23

DATE STARTED: 11/23/87
DATE FINISHED: 11/24/87

DEPTH TO WATER (FT)	6.0	8.86	8.81
DATE	12/2/87	12/8/87	12/9/87

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	15/15 12/7	12		FILL DK BRN SILTY CLAY W/RK FRAGMENTS, ORGANIC MATTER
	2	6/9 8/3	6	GM	
	3	6/5 4/3	6		
5	4	5-100" 3			
	5	14/15 5/6	6		DK GRAY SILT TO FINE SAND, RK FGMT
10	6	2/8 14/9	18		SILT TO FINE SAND, SWAMP SMELL
	7	4/8 5/7	18	SM	
15	8	3/3 3/2	24		
	9	2/1 2/3	24		
	10	6/1 2/3	24		
20	11	1/1 1/2	24		
				CL	DARK TAN TO BROWN CLAY (LAKE BED CLAY)
25					BORING TERMINATED AT 22 FEET
30					
35					

AS BUILT DIAGRAM



THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA BUFFALO AVE-JOB # 13796

BORING B-1

SURFACE ELEVATION (FT) 579.06

TOP OF CASING ELEVATION (FT) _____

DATE STARTED: 12/1/87
DATE FINISHED: 12/1/87

DEPTH TO WATER (FT)				
DATE				

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	6/19 16/24	13		DK BR-BLK TOPSOIL, LITTLE ORG MATTER, TRACE ROCK FRAGMENT
	2	8/19 24/14	10	GM-GC	FILL RED-BR GRAVELLY SILT, TR ORGANIC MATTER, TRACE PEBBLE TRACE CLAY, TRACE BRICK FRAGMENT, NO ORGANIC MATTER
5	3	5/12 26/1	7	(FILL)	LITTLE CLAY, NO ORGANIC MATTER
	4	8/8 8/9	NR		NO RECOVERY
	5	3/6 8/13	12		DK GRAY-BR CLAYEY-SILT, TR GRAVEL, TRACE CINDER, TRACE PEBBLE
10					AUGER REFUSAL AT 11.5 FEET
15					
20					
25					
30					
35					

AS BUILT DIAGRAM

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA BUFFALO AVE- JOB #13796

BORING B-2

SURFACE ELEVATION (FT) 578.82

TOP OF CASING ELEVATION (FT)

DATE STARTED: 12/1/87
DATE FINISHED: 12/1/87

DEPTH TO WATER (FT)				
DATE				

AS BUILT DIAGRAM

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0					NO SAMPLES TAKEN FOR THE FIRST 4 FT.
					ASSUMED LITHOLOGY THE SAME AS B-1
5	1	9/5 6/8	0	GC-GM	
	2	6/6 12/9	11	(FILL)	FILL DK BR-RED SILTY CLAY, LITTLE GRAVEL, TRACE SLAG, TRACE CINDER
	3	11/13 11/10	0		NO RECOVERY
10	4	2/8 7/14	15		GRAY-GREEN-RED BROWN
	5	8/8 35/33	11		RED-BROWN-GRAY, CLAY, LITTLE SILT, TRACE ROCK FGMT, TRACE CINDER GRAVEL, LITTLE SILT, TR BRICK FGMT
15	6	21/20 30/17	11		TRACE CINDER
	7	15/12 7/12	18	CL	LIGHT BR-RED BROWN CLAY, TRACE ORGANIC MATTER, TRACE FINE SAND, TRACE SHELL FRAGMENT (LAKE BED CLAY)
20					BORING TERMINATED AT 18.0 FEET
25					
30					
35					

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

CLIENT: NYPA BUFFALO AVE.-JOB # 13796

BORING B-3

SURFACE ELEVATION (FT) 579.90

TOP OF CASING ELEVATION (FT) _____

DATE STARTED: 12/1/87
DATE FINISHED: 12/1/87

DEPTH TO WATER (FT)				
DATE				

DEPTH (FT)	SAMPLE NUMBER	BLOW COUNT (PER 6")	RECOVERY (INCHES)	SOIL CLASSIFICATION	DESCRIPTIONS
0	1	2/4 8/12	7		BR. TOPSOIL, LITTLE ORG MATTER TRACE ROCK FGMT
	2	9/13 18/8	8	GM	FILL, RED-BR SILT, LITTLE GRAVEL TRACE ORG. MATTER, TR CLAY
					TRACE FINE SAND, NO ORGANIC MATTER
5	3	3/4 6/8	10	(FILL)	LITTLE FINE SAND, TRACE GRAVEL, NO ORGANIC MATTER
	4	3/3 4/3	15		TRACE FINE SAND, TRACE GRAVEL, NO ORG MATTER
	5	2/3 5/6	15	CINDER	BLACK CINDER, LITTLE CLAY, TR SILT, TR SHELL FGMT, TR GRAPHITE ROD
10	6	4/7 8/8	15	ML (FILL) CIN.	BLK CINDER-CLAY, TR BRICK FGMT, TR ROCK FGMT, TR SILT RED-BR SILTY-CLAY, TR CINDER, TR ROCK FGMT (PETROLEUM ODOR)
	7	5/7 13/10	16		BLK CINDER, TR RK FGMT, TR WHITE INDUSTRIAL WASTE
15	8	2/6 5/12	12	ML (FILL)	RED-BR CLAYEY-SILT, LITTLE BRICK, LITTLE CINDER, TRACE SLAG
	9	8/18 100-5"	8		TRACE BRICK, NO CINDER, TRACE GREEN INDUSTRIAL WASTE (H2S ODOR)
	10	WR/3 6/5	12	SM	SOME CINDER, LITTLE GRAVEL, TRACE CONCRETE CHIPS, NO BRICK, NO SLAG, NO CINDER
20					GRAY FINE-MED SAND, TR ORG. MATTER
					BORING TERMINATED AT 20.0 FEET
25					
30					
35					

AS BUILT DIAGRAM

THE BORING LOG SHOWN REPRESENTS THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

DAMES & MOORE

DS-4

DATE
STARTED 10/24/77
FINISHED 10/24/77
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-1
SURF. ELEV
G. W. DEPTH

PROJECT Niagara Falls Water Treatment Plant
LOCATION Niagara Falls, New York

DEPTH IN FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6 6/12 12/18 N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0					4" BLACKTOP	NOTE:
					Brown SLAG, SAND, GRAVEL (Moist - Firm)	
		1	6 8 3 11		2.0'	At completion driller indicates no freewater
					Brown SILT, little fine sand and fine gravel, trace clay, wood, brick, glass (fill) (Moist - Firm)	
5		2	4 4 4 8		(Moist - Loose)	
					9.0'	
					Brown-black SILT, fine SAND, CINDERS, BRICK, SLAG (FILL) (Moist - Loose)	
10		3	2 1 1 2			
					(Moist - Firm)	
15		4	8 7 6 13		17.0'	
					Brown SILT and CLAY (Wet - Soft)	
20		5	1 1 1 2			
25		6	1 1 1 2			
30		7	1 1 1 2		-grades brown SILT, some Clay, fine Sand and Rock Fragments (Wet - Loose)	
35		8	1 3 3 6			
		9	50/.00		Bottom of Hole @ 37.0'	

DATE
STARTED 10/24/77
FINISHED 10/24/77
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-2
SURF. ELEV
G. W. DEPTH

PROJECT Niagara Falls Water Treatment Plant
LOCATION Niagara Falls, New York

DEPTH FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								Brown SILT, little fine sand and fine gravel (Moist - Firm) 2.0'	NOTE:
		1	6	8	12	20		Brown-black CINDERS, ASHES, GLASS (FILL) (Moist - Firm)	At completion driller indicates no freewater
5		2	3	2	2	4		(Moist - Loose) 9.0'	
10		3	1	1	5	6		Black organic SILT, ROOTS (Moist - Loose).	
								-grades grey organic SILT and fine SAND	
15		4	1	1	1	2		(Wet - Loose) 17.5'	
								Brown SILT and CLAY	
		5	1	1	1	2		(Wet - Very Soft)	
20								Bottom of Hole @ 20.0'	
25									

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling. ____ "per blow.
METHOD OF INVESTIGATION Cased Boring; Casing Drilled In Place

CLASSIFICATION Visual By:
Soils Technician

DATE
STARTED 10/21/77
FINISHED 10/21/77
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-3
SURF. ELEV
G. W DEPTH

PROJECT Niagara Falls Water Treatment Plant
LOCATION Niagara Falls, New York

DEPTH IN FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18 IN.	N	BLOWS ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								Brown SAND, CINDERS, fine GRAVEL, trace glass, brick (Moist - Firm) 3.5'	NOTE: At completion driller indicates no freewater
		1	8	12		26			
			14	12					
5		2	1	1		2		Black organic SILT, some Roots, fine Sand (Moist - Loose)	
			1	1					
		3	1	1		3		-grades grey SILT and fine SAND, little organic (roots) (Wet - Loose) 9.5'	
			2	2					
10		4	1	1		2		Brown SILT and CLAY (Moist - Soft)	
			1	1					
15		5	Wt. of Hammer						
20		6	Wt. of Hammer					-same (Moist - Soft)	
25		7	1	1	1	2			
30		8	50	50	100	150		-grades brown SILT and fine SAND, some fine Gravel and Rock fragments (Moist - Very Compact)	
		9	50/.0						
35								Bottom of Hole @ 33.0'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow
C = No. blows to drive ___ "casing ___ "with ___ lb. weight falling ___ "per blow.

CLASSIFICATION Visual By Soils Technician

METHOD OF INVESTIGATION Cased Boring; Casing Drilled In Place

DATE
STARTED 10/21/77
FINISHED 10/21/77
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-4
SURF. ELEV
G. W. DEPTH

PROJECT Niagara Falls Water Treatment Plant
LOCATION Niagara Falls, New York

DEPTH FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6 6/12 12/18 N	BELOW TOP OF CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0						
		1	6 8 8 16		Brown-black SAND, CINDERS, GRAVEL, GLASS (FILL) (Moist - Firm)	NOTE: At completion driller indicates freewater at 29.5'
5		2	8 7 2 9		-grades black FLYASH, INDUSTRIAL WASTE (FILL) (Moist - Loose)	
		3	8 8 2 10		7.0' Grey SILT and fine SAND, some organic Roots (Moist - Loose) 7.5'	
10		4	1 1 1 2		Brown SILT and CLAY (Moist - Soft)	
15		5	Wt. of Hammer		PUSHED	
20		6	Wt. of Hammer		-grades brown SILT and CLAY, trace silt layers (Moist - Soft)	Shelby Tube 17.0-'19.0' Recovery 2.0'
25		7	1 1 1 2		29.0'	
30		8	12 36 65 101		Brown SILT and fine SAND, some fine Gravel and Rock fragments (Moist - Very Compact)	
		9	50/1.0			
35					Bottom of Hole @ 33.5'	
40						

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ___ "casing ___ "with ___ lb. weight falling ___ "per blow.

CLASSIFICATION Visual By Soils Technician

METHOD OF INVESTIGATION Cased Boring: Casing Drilled In Place

DS-4

DATE
STARTED 10/21/77
FINISHED 10/21/77
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-5
SURF ELEV
G W DEPTH

PROJECT Niagara Falls Water Treatment Plant
LOCATION Niagara Falls, New York

DEPTH FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER (0 / 6 / 12 / 18 / N)	BLOWS ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0					Brown-black SAND, CINDERS, GLASS, fine GRAVEL (FILL) (Moist - Loose)	NOTE: At completion driller indicates no freewater
		1	1 1 1 2			
5		2	1 4 2 6		-same (Wet - Loose) 6.5'	
		3	9 3 2 5		Grey SILT and fine SAND, trace organic (roots) (Wet - Loose) 8.5'	
10		4	1 3 2 5		Grey SILT and CLAY (Moist - Soft)	
15		5	2/18			
20		6	Wt. of Hammer		-grades brown SILT and CLAY (Moist - Very Soft)	
25		7	Wt. of Hammer		29.0'	
30		8	18 65 150 215		Brown SILT and fine SAND, some fine embedded Gravel and Rock fragments (Moist - Very Compact)	
		9	50/.0			
35					Bottom of Hole @ 34.0'	
40						

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ___ "casing ___ "with ___ lb. weight falling ___ "per blow

CLASSIFICATION Visual By Soils Technician

METHOD OF INVESTIGATION Cased Boring; Casing Drilled In Place

DS-4

DATE
STARTED 10/24/77
FINISHED 10/24/77
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-6
SURF ELEV
G. W. DEPTH

PROJECT Niagara Falls Water Treatment Plant
LOCATION Niagara Falls, New York

DEPTH IN FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/4	6/12	12/18	N	BLOWS ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								Brown SILT, some fine Sand and fine Gravel, trace clay (Moist - Firm)	NOTE: At completion driller indicates freewater @ 27.0'
		1	5	8	8	16			
								4.0'	
5		2	12	9	5	14		Brown-black SAND, CINDERS, GLASS (FILL) (Moist - Firm)	
10		3	1	2	2	4		-same (Wet - Loose)	
15		4	1	2	12	14			
								16.0'	
								Grey SILT and fine SAND (Moist - Loose)	
20		5	3	4	4	8			
25		6	4	5	5	10		-grades grey SILT and fine SAND, trace fine gravel and shells (Moist - Firm)	
30		7	6	7	10	17			
								Bottom of Hole @ 30.0'	
35									
40									

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION Cased Boring; Casing Drilled In Place

CLASSIFICATION Visual By Soils Technician

DS-4

DATE
STARTED 10/21/77
FINISHED 10/21/77
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-7
SURF ELEV
G. W. DEPTH

PROJECT Niagara Falls Water Treatment Plant
LOCATION Niagara Falls, New York

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								5" TOPSOIL	NOTE:
		1	25	36	38	74		Brown SILT, fine SAND, GRAVEL and ROCK fragments (FILL) (Moist - Very Compact)	At completion driller indicates freewater @ 28.0'
5		2	85	50/1.0					
		3	15	20	30	50		-grades brown SAND, CINDERS, GLASS (FILL) (Moist - Compact)	
10		4	5	5	7	12		(Moist - Loose)	
								13.0'	
								Black CINDERS, WOOD, FLYASH, BRICK (FILL) (Wet - Firm)	
15		5	10	15	15	30			
								18.0'	
								Grey fine SAND, some Silt (Moist - Firm)	
20		6	10	10	12	22			
25		7	12	12	12	24		-same	
30		8	12	12	14	26		-grades fine SAND, some Silt, trace fine gravel and shells (Moist - Firm)	
								Brown SILT, some fine Sand and fine embedded Gravel (Moist - Very Compact)	
35		9	24	48	55	103		Bottom of Hole @ 35.0'	
40									

N = No blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION Cased Boring; Casing Drilled In Place

CLASSIFICATION Visual By Soils Technician

WELL LOG

LEGGETTE, BRASHEARS & GRAHAM, INC.

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

DESCRIPTION	THICKNESS (FEET)	DEPTH (FEET)
Topsoil, fill composed of silt, sand, clay, crushed stone, brown and gray	3.0	3.0
Fill, composed of clay (black) silt, cinders, ash, some fine sand, brick, brown	1.5	4.5
Brick and cobblestone	0.5	5.0
Fill, composed of clay, silt, cinders, ash and brick, brown	2.5	7.5
Fill, composed of clay, sand, silt and some medium gravel, brown	3.0	10.5
Fill, composed of clay, silt, fine; sand; gravel, fine to medium, brown (w[redacted])	3.5	13.5
Fill, composed of silt, clay, sand brown & black	1.5	15.0
Fill, calcareous stone for construction very soft, white, some sand, black	3.5	18.50
Sand, medium, some silt, black	4.5	22.5
Sand, silt, some clay, gray and black	3.0	25.50
Clay, red-brown and red-gray, some silt	9.0	34.5
Silt, reddish-brown; clay, red-brown; gravel, medium to coarse	1.0	35.5
Silt, reddish-brown, gray; sand, very fine to fine, gray; gravel, medium to coarse	0.5	36.0
Dolomite, gray	5.0	41.0

OWNER: Hooker Chemical and Plastics Corp. Niagara Falls Plant
LOCATION: City Filtration Plant
WELL NO.: [redacted] CW-11
DATE COMPLETED: MAY 31, 1979
DRILLING COMPANY: Rochester Drilling C
DRILLING METHOD: Hollow stem auger 1/
SAMPLING METHOD: Split spoon
SAMPLES EXAMINED BY: D. Buzea
REFERENCE POINT: Land Surface 2/
ELEVATION OF R. P.: 574.3 feet above MSL
CASING: 36 feet of 1¼ inch galvanized
SCREEN TYPE: Johnson Stainless-Stee wire-wound
DIAM.: 1¼-inch SLOT NO.: 10
SETTING: 36 feet - 41 feet
PUMPING TEST: DATE:
DURATION:
STATIC WATER LEVEL: 13.44 feet
PUMPING WATER LEVEL:
YIELD: 0.5 gpm suction pump

REMARKS:

1/ Augers to top of cl drive and wash to t to rock; tricone bi in dolomite.

2/ TOC = 574.23 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, fill composed of silt, sand, clay, crushed stone, brown to gray	3.0	3.0
Fill, composed of clay (black), silt, cinders, ash, some fine sand, brick	1.5	4.5
Brown brick and cobblestone	0.5	5.0
Fill, composed of clay, silt, cinders, ash and brick, brown	2.5	7.5
Fill, composed of clay, sand, silt, gravel, medium, brown	3.0	10.5
Fill, composed of clay, silt, fine sand, gravel, fine to medium, brown	3.0	13.5
Fill, composed of silt, clay, sand, brown and black	1.5	15.0
Fill, calcareous stone for construction, very soft, white, some sand, black	3.5	18.50
Sand, medium, some silt, black	4.5	22.50
Sand, silt, some clay, gray and black	3.0	25.50
Clay, red-brown, gray, some silt	9.0	34.5

OWNER: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

LOCATION: City Filtration Plant

WELL No.: CW-11a

DATE COMPLETED: May 24, 1979

DRILLING COMPANY: Rochester Drilling Co.

DRILLING METHOD: Hollow-stem auger

SAMPLING METHOD: No samples taken

SAMPLES EXAMINED BY: D. Buzea

REFERENCE POINT: Grade 1/

ELEVATION OF R. P.: 574.3 feet above MSL

CASING: 11 feet of 1½-inch galvanized

SCREEN TYPE: Johnson Stainless Steel

DIAM.: 1¼ inch SLOT No.: --

SETTING: 11 feet-26 feet

PUMPING TEST DATE:

DURATION:

STATIC WATER LEVEL: 10.83 / 10.45 feet below TOC, May 24, 1979 (574.1 / 549.1)

PUMPING WATER LEVEL:

YIELD: 7 gpm

REMARKS:

1/ TOC = 573.92 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, fill composed of silt, sand, fine to medium; some brick; ashes, cinders, gravel, fine to medium, brown black	4.5	4.5
Fill, composed of silt, sand, medium, brick, wood, some cinders, some gravel fine to medium, brown-black	1.5	6.0
Fill, composed of clay; sand; medium, silt; some gravel, wet, red-brown	4.5	10.5
Fill, composed of silt, some brick, some ash, white material, very soft; sand black	1.5	12.0
Fill, composed of silt (black) and white material, very soft, chemical odor?	1.5	13.5
Fill, composed of sand and some silt, black, chemical odor	1.5	15.0
Fill, composed of sand, fine to coarse; clay, red-brown, some gravel	1.5	16.5
Clay, red-brown, some gray, plastic	13.5	30.0
Silt, red-brown, clay, red-brown, some gravel, medium to coarse	3.0	33.0
Fill, composed of clay, silt, red-brown, some stone; gravel, medium	2.8	35.8
Refusal	0.2	36.0
Dolomite, gray	5.0	41.0

OWNER: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

LOCATION: City Filtration Plan.

WELL NO.: C[illegible]-13

DATE COMPLETED: June 6, 1979

DRILLING COMPANY: Rochester Drilling Co

DRILLING METHOD: Hollow-stem auger 1/

SAMPLING METHOD: Split spoon

SAMPLED/EXAMINED BY: Dan Buzea

REFERENCE POINT: Land surface 2/

ELEVATION OF R. P.: 573.4 feet above MSL

CASING: 35.5 feet of 1¼-inch

SCREEN TYPE: Johnson Stainless Ste

DIAM.: 1¼-inch SLOT NO.: 10

SETTING: 35.5-40.5 feet

PUMPING TEST-DATE:

DURATION:

STATIC WATER LEVEL: 11.35 feet below TOC, September 19, 1979

PUMPING WATER LEVEL:

YIELD: .25 gpm

REMARKS:

Fine sand and silt in discharge

1/ Augers to top of clay; drive and wash to top of rock; tricone bit in bedrock

2/ TOC = 572.97 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, fill composed of silt, sand, fine to medium; some brick, ashes, cinders, gravel, fine to medium, brown black	4.5	4.5
Fill, composed of silt, sand, medium, brick, wood, some cinders, some gravel, fine to medium, brown-black	1.5	5.2 568.5 6.0
Fill, composed of clay; sand, medium, silt, some gravel, wet , red-brown	4.5	10.5
Fill, composed of silt, some brick, some ash, white material, very soft; sand, black	1.5	12.0
Fill, composed of silt (black) and white material, very soft, [redacted] odor	1.5	13.5
Fill, composed of sand and some silt, black, [redacted] odor	1.5	15.0
Fill, composed of sand, fine to coarse; clay, red-brown, some gravel	1.5	557.2 16.5

Owner: Hooker Chemicals and Plastics Corp. Niagara Falls Plant

Location: City Filtration Plant

Well No.: CW-13a

Date Completed: June 7, 1979

Drilling Company: Rochester DrillingCo.

Drilling Method: Hollow-stem auger

Sampling Method: none

Samples Examined By: D. Buzea

Reference Point: Grade 1/

Elevation of R. P.: 573.4 feet above MSL

Casing: 1.5 feet of 1½ inch galvanized

Screen Type: Johnson Stainless Steel

Diameter: 1½-inch Slot No. 10

Setting: 1.5 feet - 16.5 feet

Pumping Test Date:

Duration:

Static Water Level: 10.60 9.93 feet below TOC, June 25, 1979

Pumping Water Level:

Yield: .25 gpm

Remarks:

1/ TOC =572.73 feet above MSL

DB-3

A-1-10

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME	ESI FIELD LOG	HOLE NO. R-1
	12-2-82						GRD. ELEV.
							G.W. DEPTH

SHEET 1 OF 1 PROJECT NIAG. FALLS

LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
									FILL	
5-7	1		20				WET			
10-12	2		9				WET		ORG. SAND & SILT	(STRONG ODOR)
15-17	3		10				WET		SILT & SAND SOME ORG.	
20-22	4		8							
25-27	5		9							
30-32	6		17							
35-37	7		125						35.5 TOP OF TILL	
38.5	REFUSAL								TILL	

NOTATION: SIZE CORE

SIZE SHELBY TUBE

SIZE AUGER

N — No. blows to drive "spoon "with lb. pin wt. falling "per blow.

C — No. blows to drive "casing "with lb. weight falling "per blow.

SOIL CLASSIFICATIONS BY:

IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE:

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DB-3

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME
	12-3-04				

ESI FIELD LOG

HOLE NO. B-2
GRD. ELEV.
G.W. DEPTH

SHEET 1 OF 1

PROJECT NIAG FALLS
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
5-7	1		8				M	BR	SILT & PLAC FILL	
10-12	2		4				W	BL WH	CINDERS & FILL	(MED. ODOR)
15-17.5	3		24				W	GY	SAND, SILT, ORG.	VIRGIN MAT.
20-22	4								AUGERED TO 24.0	
23-25	5								INSTALLED 2" U.P. @ 24.0'	

NOTATION: SIZE CORE
SIZE SHELBY TUBE
SIZE AUGER
N — No. blows to drive "spoon "with lb. pin wt. falling "per blow.
C — No. blows to drive "casing "with lb. weight falling "per blow.

SOIL CLASSIFICATIONS BY:
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE:

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DB-3

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME

ESI FIELD LOG

HOLE NO. B-3

GRD. ELEV.

G.W. DEPTH

SHEET 1 OF 1

PROJECT

LOCATION NIKE HILLS

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
5-7	1		5						FILL	
10-12	2		9				M	GL	CLAY	
15-17	3		5				M	GL	CLAY	
20-24	4	WOH								
25-25	5	WOH							CLAY	2" W. PT TO 31.5'/2.5 HR.
									29.5 TILL	
30-36	6	WOH								
									32.6 HARD REFUSAL	

NOTATION: SIZE CORE

SIZE SHELBY TUBE

SIZE AUGER

N — No. blows to drive "spoon "with lb. pin wt. falling "per blow.

C — No. blows to drive "casing "with lb. weight falling "per blow.

SOIL CLASSIFICATIONS BY:

IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE:

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME	ESI FIELD LOG	HOLE NO. B-14
							GRD. ELEV.
							G.W. DEPTH

SHEET 1 OF

PROJECT
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
										3.15 ft S.U.
										Ground level
										Cement Grout
										Bent. Seal
									TILL	
									345 BORING REFUSAL AUGER & SPOON	5 FT S.S. Johnson screen
										Bentonite plug

NOTATION: SIZE CORE
SIZE SHELBY TUBE
SIZE AUGER
N — No. blows to drive "spoon "with lb. pin wt. falling "per blow.
C — No. blows to drive "casing "with lb. weight falling "per blow.

SOIL CLASSIFICATIONS BY:
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE:

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME
12/16/82					
12/17/82					

ESI FIELD LOG

HOLE NO. B-5
GRD. ELEV.
G.W. DEPTH

SHEET ____ OF ____

PROJECT City of Niagara Falls
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
5-7	1	5	5	7	5		W	BR	Silty U.F. Sand	
10-12	2						Wet	GY	Clay	
									B.O.H. 12.0	

NOTATION: SIZE CORE ____
SIZE SHELBY TUBE ____
SIZE AUGER ____
N — No. blows to drive ____" spoon ____" with ____ lb. pin wt. falling ____" per blow.
C — No. blows to drive ____" casing ____" with ____ lb. weight falling ____" per blow.

SOIL CLASSIFICATIONS BY: ____
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE: ____

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DS-3

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME
12/9/61					

ESI FIELD LOG

HOLE NO. B-6
GRD. ELEV.
S.W. DEPTH

SHEET ____ OF ____

PROJECT City of Niagara Falls
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
5-7	1	5	7	6	16		m	Br	Crushed Stone Clay -	Fill
10-12	2	14	9	8	8		m	Br	Clay & Gravel -	Fill
15-17	3	5	4	-	-		w	Gr	f. Sand	
20-22	4	2	2	2	2		w	Gr	Silty f. Sand	
									B.O.H. 22.0	

NOTATION: SIZE CORE ____
SIZE SHELBY TUBE ____
SIZE AUGER ____
N — No. blows to drive ____" spoon ____" with ____ lb. pin wt. falling ____" per blow.
C — No. blows to drive ____" casing ____" with ____ lb. weight falling ____" per blow.

SOIL CLASSIFICATIONS BY: ____
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE: ____

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DB-3

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME

ESI FIELD LOG

HOLE NO. B-7
GRD. ELEV.
G.W. DEPTH

SHEET ___ OF ___

PROJECT
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
							M	BR	FILL	
									FILL STRONG ODOR	
								BL	SAND, SILT ORG.	
							W	RD	SOFT CLAY	2" W.P. TO 36.5
									33.5 TILL	
									39.5 REFUSAL	

NOTATION: SIZE CORE
SIZE SHELBY TUBE
SIZE AUGER
N — No. blows to drive "spoon "with lb. pin wt. falling "per blow.
C — No. blows to drive "casing "with lb. weight falling "per blow.

SOIL CLASSIFICATIONS BY:
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE:

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DS-3

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME
11/10/82					

ESI FIELD LOG

HOLE NO. B-27
GRD. ELEV.
G.W. DEPTH

SHEET ____ OF ____

PROJECT City of Niagara Falls
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
5-7	1	2	2	1	1		D	G	Ashes	
10-12	2	3	4	3	3		M	BR	CLAY & SILT	
15-17	3	2	1	2	2		M	BR BK	CLAY	
20-22	4	1	1	1	1		M	BR	CLAY	
25-27	5	1	1	1	4		M	BR	CLAY	
29-31	6	1	1	1	1		M	BR	CLAY & TILL @ 31.0	
35-37	7	11	26	39	65		M D	D	Silty Clay w/gravel & rock fragments B.O.H 37.0	

NOTATION: SIZE CORE
SIZE SHELBY TUBE
SIZE AUGER
N — No. blows to drive ____" spoon ____" with ____ lb. pin wt. falling ____" per blow.
C — No. blows to drive ____" casing ____" with ____ lb. weight falling ____" per blow.

SOIL CLASSIFICATIONS BY:
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE:

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DB-3

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME
12/11/82					

ESI FIELD LOG

HOLE NO. B-9
GRD. ELEV.
S.W. DEPTH

SHEET ____ OF ____

PROJECT City of Niagara Falls
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
S-1	1	2	2	5	5		W	BR	FILL	
10-R	2	4	4	5	6		M	BR	CLAY	
									B.O.H. 12.0	

NOTATION: SIZE CORE ____
SIZE SHELBY TUBE ____
SIZE AUGER ____
N = No. blows to drive ____" spoon ____" with ____ lb. pin wt. falling ____" per blow,
C = No. blows to drive ____" casing ____" with ____ lb. weight falling ____" per blow,

SOIL CLASSIFICATIONS BY: ____
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE: ____

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DS-3

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME
4/11/92					

ESI FIELD LOG

HOLE NO. B-12
GRD. ELEV.
G.W. DEPTH

SHEET ____ OF ____

PROJECT City of Niagara
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
5-7	1	2	4	7	9		W	BR	Silt Clay	
10-12	2	7	8	11	13		m	Be	Clay	
15-17	3	1	2	2	2		m	Be	Clay	
20-22	4	1	1	1	1		m	Be	Clay	
25-27	5	50/4"	50/2"	1	1		m	Be	Clay	
30-32	6	15	21	50/5"			d	Be	Silty Clay w/Gravel - Till	
34.6	7	100/1"							No Rec.	
									B.O.H. 34.0	

NOTATION: SIZE CORE
SIZE SHELBY TUBE
SIZE AUGER
N — No. blows to drive ___" spoon ___" with ___ lb. pin wt. falling ___" per blow.
C — No. blows to drive ___" casing ___" with ___ lb. weight falling ___" per blow.

SOIL CLASSIFICATIONS BY:
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE:

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DS-5

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME
12/14/82					

ESI
FIELD LOG

HOLE NO. 15-11
GRD. ELEV.
G.W. DEPTH

SHEET ____ OF ____

PROJECT City of Niagara Falls
LOCATION

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
5-7	1	5	6	7	8		W	Br	S. Ltly F. Sand	
10-12	2	7	9	14	16		Dry	Gr	Clay	
									B.O.H 12.0	

NOTATION: SIZE CORE ____
SIZE SHELBY TUBE ____
SIZE AUGER ____
N = No. blows to drive ____" spoon ____" with ____ lb. pin wt. falling ____" per blow.
C = No. blows to drive ____" casing ____" with ____ lb. weight falling ____" per blow.

SOIL CLASSIFICATIONS BY: ____
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE: ____

FILL OUT BACK OF LOG AND SIGN YOUR NAME

DATE	DRILLED FROM	DRILLED TO	WEATHER	TEMP.	TIME

ESI
FIELD LOG

HOLE NO. B-12
GRD. ELEV.
S.W. DEPTH

SHEET ____ OF ____ PROJECT LOCATION NIAG. FALLS

Depth of Sample	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOWS ON CASING C	MOISTURE	COLOR	CLASSIFICATION OF MATERIAL DRILLED	OTHER DATA
									FILL	
5-7	1	24								
10-12	2	4							← ODOR	
15-17	3	14								
							W	GY	SAND x ORG SILT	
20-22	4	3								
25-27	5	21								
										2" S.S.
30-32	6	14					M	BRN	CLAY	W.L. TO 36.0'
										36
35-37	7	7-3					M	BRN	TILL	
									REFUSAL 39'	

NOTATION: SIZE CORE ____
SIZE SHELBY TUBE ____
SIZE AUGER ____
N — No. blows to drive ____" spoon, ____" with ____ lb. pin wt. falling ____" per blow.
C — No. blows to drive ____" casing, ____" with ____ lb. weight falling ____" per blow.

SOIL CLASSIFICATIONS BY: ____
IF OTHER SPECIAL EQUIPMENT HAS BEEN EMPLOYED PLEASE NOTE: ____

FILL OUT BACK OF LOG AND SIGN YOUR NAME

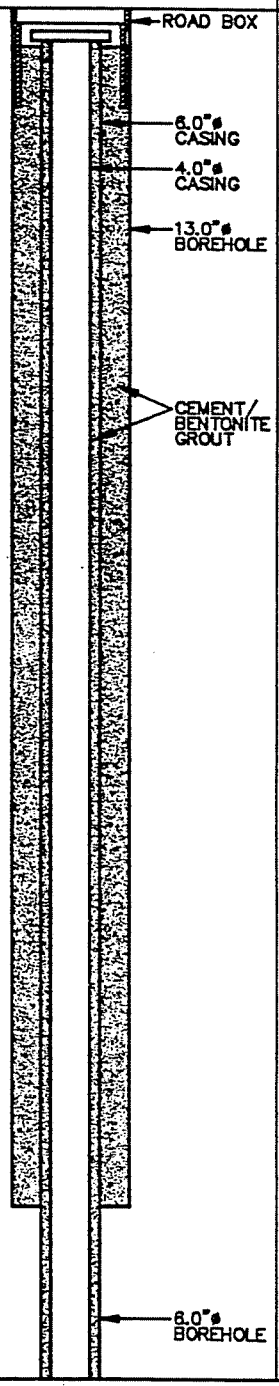
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF B-PLANT

HOLE DESIGNATION: OW200-87 (PAGE 1 OF 7)
DATE COMPLETED: 10/5/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: K.D. SCHMIDTKE

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION	572.61
	GROUND ELEVATION	572.8
2.5	Fill - dark Brown Silty fine Sand to Red Brown fine Silty Sand, some vegetation, moist	
	Gray Silty fine Sand, moist, native	569.3 / 568.8
5.0	Gray Clayey Silt to Gray Silty Clay, some vegetation, trace Brown inclusions, moist, native	
7.5	Gray and Brown Silty medium Sand, wet, native	565.8 / 564.8
	Red Brown, Gray, and Orange Brown laminated Silty Clay, moist, native	
10.0	Red Brown Silty Clay, moist, high plastic, native	562.8
12.5	same, except wet	560.8
15.0		
17.5		
20.0		
	no recovery	552.8
22.5	Red Brown Silty Clay, wet, high plastic, native	550.8
25.0		
	Red Brown Silty Clay, Sandy, wet, plastic, native, Till	547.0
27.5	same, except no Sand, some rounded Gravel	546.8
	no recovery	544.8 / 544.3
30.0	Bedrock - augered to 30.6 ft. BGS for casing notch	
32.5		

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	STATUS	'N' VALUE
1SS			7
2SS			7
3SS			6
4SS			13
5SS			18
6SS			18
7SS			15
8SS			2
9SS			2
10SS			WH
11SS			WR
12SS			WH
13SS			WH
14SS			2
15SS			>50

NOTES:
- SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- DEC/EPA SAMPLE
- DEC/EPA SPLIT
- WATER FOUND
- STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF B-PLANT

HOLE DESIGNATION: OW200-87

DATE COMPLETED: 10/5/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RUNNUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
27.5	Overburden							
	Dolostone (Oak Orchard Formation): bituminous; light to medium Gray; fine to medium grained; saccharoidal; very thin to medium bedded; carbonaceous partings	544.3	CEMENT/BENTONITE GROUT					
-30.0					1	33	0	100
-32.5	tri-coned (30.6-32.0 ft. BGS) carbonaceous partings, some gypsum lined partings	542.2						
	lost water return; weathered zone	540.8	4.0"ϕ CASING		2	87	41.5	100
-35.0		539.1	6.0"ϕ BOREHOLE					0
-37.5	carbonaceous partings, trace small gypsum filled vugs	536.1		A				
-40.0					3	104	71.4	0
	weathered zone (40.6-41.8 ft. BGS)	532.2						
	some carbonaceous partings, some small gypsum filled vugs, trace gypsum lined partings	531.2						
-42.5	slightly weathered zone	530.5						
-45.0					4	105	87.5	0
	water return; gypsum lined partings, gypsum filled veinlets, some carbonaceous partings, trace stromatolitic structures	526.4						
-47.5								
-50.0					5	84	59.2	100
	stylolites, gypsum lined partings, some carbonaceous partings	521.5						
-52.5				B				
-55.0					6	110	77.1	100
	stylolites, some carbonaceous partings, some gypsum lined partings, trace gypsum filled veinlets	516.7						
-57.5					7	100	86.7	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF B-PLANT

HOLE DESIGNATION: OW200-87

DATE COMPLETED: 10/5/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
57.5								
			CEMENT/BENTONITE GROUT	B	7	100	86.7	100
-60.0	medium Gray; stylolites, some carbonaceous partings	512.2						
					8	162	125.0	100
	oolitic zone (61.2-63.1 ft. BGS)	511.6						
-62.5	medium to dark Gray; stylolites, some carbonaceous partings	511.4	4.0"ø CASING					
			6.0"ø BOREHOLE		9	94	88.0	100
-65.0								
	dark Gray; thin to medium bedded; stylolites, small to medium gypsum filled vugs, some carbonaceous partings, some small sphalerite filled vugs, trace favosites coral	506.4						
-67.5				C	10	102	100.0	100
	slightly weathered zone	505.4						
-70.0	slightly weathered to weathered zone (69.9-72.0 ft. BGS)	502.9						
	stylolites, some carbonaceous partings	501.7						
-72.5					11	87	86.7	100
-75.0								
	stylolites, some carbonaceous partings, trace small gypsum and sphalerite filled vugs	497.2			12	200	162.5	100
-77.5	medium Gray; stylolites, some carbonaceous partings, slightly weathered	496.4		D				
-80.0					13	93	92.8	100
-82.5								
-85.0	stylolites, some carbonaceous partings	488.1						
-87.5					14	113	103.0	100
	slightly weathered zone	482.9						

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF B-PLANT

HOLE DESIGNATION: OW200-87

DATE COMPLETED: 10/5/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RNUUNMBER	CORRECOVERY	RQD	WRAETIEURRN
ft BG		ft. AMSL				%	%	%
87.5								
90.0	slightly weathered zone	482.9			14	113	103.0	100
	stylolites, some carbonaceous partings	481.4						
92.5	medium to dark Gray Brown; stylolites, some carbonaceous partings, trace carbon partings, trace small galena and sphalerite filled vugs	480.4	4.0"ø CASING		15	90	0	100
95.0			6.0"ø BOREHOLE					
97.5					16	103	73.3	100
100.0				E				
102.5	some carbonaceous partings, some small selenite filled vugs	471.4						
105.0					17	108	100.0	100
107.5	lost water return; carbonaceous partings, trace small gypsum filled vugs	466.4						0
	water return	465.9						100
	slightly weathered zone	465.5						
	lost water return; stylolites,	461.4			18	104	76.0	0
110.0	carbonaceous partings, small to medium gypsum filled vugs, trace small sphalerite filled vugs							
112.5								
115.0				F				
	slightly weathered zone (116.0-117.7 ft. BGS)	456.8			19	98	86.0	0
117.5		455.2	CEMENT/ BENTONITE GROUT					

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF B-PLANT

HOLE DESIGNATION: OW200-87 (PAGE 5 of 7)
DATE COMPLETED: 10/5/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE/KAL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
117.5								
120.0			CEMENT/BENTONITE GROUT	F	19	98	86.0	0
122.5	tri-coned (121.4-122.0 ft. BGS) water return; medium grained; stylolites, carbonaceous partings, trace gypsum and sphalerite lined partings, trace gypsum filled vugs and lined veins	451.4 450.8	4.0"ø CASING					
125.0	Dolostone (Eramosa Formation): bituminous; light to medium Gray; fine grained; thin to medium bedded; some carbonaceous partings, trace stylolites, trace small gypsum and sphalerite filled vugs	448.0	6.0"ø BOREHOLE	G	20	95	52.0	100
127.5								
130.0								
132.5	some carbonaceous partings, some small to medium gypsum and sphalerite filled vugs, trace stylolites, trace carbon partings	441.4			21	100	58.0	100
135.0								
137.5	some carbonaceous partings, small to medium gypsum filled vugs, trace stylolites, trace small sphalerite filled vugs, trace favosites coral, cherty	436.4		H				
140.0					22	93	87.5	100
142.5								
145.0	Dolostone (Goat Island Formation): bituminous; Brown Gray; medium grained; saccharoidal; very thin to thick bedded; trace carbonaceous partings, trace carbon partings, trace small calcite filled vugs, cherty	428.4						
147.5					23	111	111.4	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF B-PLANT

HOLE DESIGNATION: OW200-87 (PAGE 6 of 7)
DATE COMPLETED: 10/5/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RUNNUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
147.5								
150.0			CEMENT/BENTONITE GROUT	H	23	111	111.4	100
	medium Gray; thin to medium bedded; some carbon partings, some small to medium gypsum filled vugs, trace carbonaceous partings, cherty	421.4	4.0"ø CASING					
152.5								
155.0			6.0"ø BOREHOLE					
					24	91	81.6	100
157.5								
160.0				I				
	some carbon partings, trace carbonaceous partings, laminar flow structures	411.6						
162.5								
					25	115	111.5	100
165.0								
	trace carbonaceous partings, trace carbon partings.	406.4						
167.5								
	Dolostone (Gasport Formation): dark Gray; fine grained; thin to medium bedded; shaly partings, some medium gypsum filled vugs, trace carbonaceous partings	404.5						
170.0					26	89	88.8	100
	gypsum mass	402.2						
172.5								
	shaly partings, trace carbonaceous partings, weathered crinoid fragments	398.4		J				
175.0								
177.5					27	110	110.0	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF B-PLANT

HOLE DESIGNATION: OW200-87 (PAGE 7 of 7)
DATE COMPLETED: 10/5/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RNUUNMBBEER	CRECOREOVERY	RQD	WPAETTEURRN
ft BG		ft. AMSL				%	%	%
177.5								
180.0			CEMENT/BENTONITE GROUT	J	27	110	110.0	100
	coarse grained; stylolites, trace carbonaceous partings, trace small dolomite filled vugs, weathered crinoid fragments	391.4	4.0"ø CASING					
182.5			6.0"ø BOREHOLE					
185.0					28	111	78.9	100
	stylolites, some shaly partings, trace carbonaceous partings	386.6						
187.5								
190.0				K*				
	Dolostone (Decew Formation): bituminous; medium to dark Gray; massive; fine grained; shaly partings	382.5			29	100	85.1	100
192.5			3.0"ø NX BOREHOLE					
195.0								
	shaly partings, small gypsum and pyrite filled vugs	376.5						
197.5								
	Shale (Rochester Formation): dark Gray; fine grained; platy to fissile bedded	374.3						
200.0				L	30	95	82.8	100
202.5								
	END OF HOLE AT 204.3 FT. BGS	368.5						
205.0								
	NOTE: OW 200-87 was grouted into the 4.0" casing							
207.5	* - Start of NX core							

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF RESERVIOR

HOLE DESIGNATION: OW201-87

DATE COMPLETED: 10/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: D.C. MILLARD
C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
	GROUND ELEVATION	568.9					
	Fill - Brown Sand and Silt, trace Gravel and brick, trace vegetation, moist	566.9	WELDED COVER PLATE	1SS			16
2.5	Fill - Gray angular Gravel, some Silt and Sand, moist to dry	564.9	6.0"ø CASING	2SS			10
5.0	Fill - Gravel lodged in tip of split spoon	562.9	4.0"ø CASING	3SS			2
	Fill - Black, Brown and dark Gray Sand and Silt, some wood, trace vegetation, wet	561.9	13.0"ø BOREHOLE	4SS			5
7.5	Brown and Gray Brown Clay, some Silt lenses, moist, native	560.9		5SS			6
10.0	Brown Silty Clay, trace Silt nodules, moist to wet, native		CEMENT/ BENTONITE GROUT	6SS		●	2
	same, except mottled Brown and Red, no Silt nodules, moist	558.9		7SS		●	1
12.5	same, except wet	556.9		8SS		●	1
15.0				9SS		●	1
17.5	Red Brown and Gray laminated Silty Clay, wet, native	550.9		10SS		●	WH
20.0	same, with trace Gravel	548.9		11SS		●	WH
	same, except no Gravel	546.9		12SS		●	1
22.5				13SS		●	1
25.0	same, with trace Sand	542.9		14SS		●	2
27.5				15SS		●	6
	Red Brown Gravelly Sand, Clayey, wet, native Till	540.1					
30.0	Bedrock - augered to 31.5 ft. BGS for casing notch	539.4	6.0"ø BOREHOLE				
32.5							

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF RESERVOIR

HOLE DESIGNATION: OW201-87

DATE COMPLETED: 10/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.N. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
27.5								
	Overburden		CEMENT/BENTONITE GROUT					
-30.0	Dolostone (Oak Orchard Formation): bituminous; light to medium Gray; fine to medium grained; saccharoidal; very thin to medium bedded; carbonaceous partings	539.4						
-32.5	weathered zone (31.5–33.0 ft. BGS)	537.4	4.0"ø CASING		1	80	0	100
	carbonaceous partings	536.9			2	61	0	100
	lost water return	535.3	6.0"ø BOREHOLE					0
-35.0	carbonaceous partings, trace gypsum lined partings, trace gypsum lined veins, trace medium gypsum filled vugs	535.1						
-37.5					3	107	72.3	0
	slightly weathered zone	529.4		A				
-40.0	gypsum mass (40.6–40.9 ft. BGS)	528.3						
	carbonaceous partings, gypsum lined partings, trace gypsum lined veins,	527.6						
-42.5	trace small to medium gypsum filled vugs							
-45.0					4	100	53.0	0
	water return; carbonaceous partings, trace gypsum lined partings	522.6						
-47.5								
-50.0					5	97	60.0	100
-52.5				B				
-55.0	stylolites, some carbonaceous partings	513.6						
	gypsum mass	512.4						
-57.5					6	90	83.3	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF RESERVOIR

HOLE DESIGNATION: OW201-87 (PAGE 3 of 7)
DATE COMPLETED: 10/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT OR CORE BARREL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
57.5								
60.0			CEMENT/BENTONITE GROUT	B	6	90	83.3	100
	medium to Brown Gray; medium to coarse grained; some carbonaceous partings, trace small gypsum, selenite, and sphalerite filled vugs, trace favosites coral	507.6						
62.5			4.0"ø CASING					
65.0			6.0"ø BOREHOLE		7	117	112.3	100
	slightly weathered zone	502.3						
	weathered zone (67.0-68.2 ft. BGS)	501.9						
67.5	stylolites, some carbonaceous partings, trace small sphalerite filled vugs, trace medium dolomite filled vugs	501.1						
	weathered zone (68.9-69.2 ft. BGS)	500.0		C				
70.0	weathered zone (69.9-70.6 ft. BGS)	499.0						
	slightly weathered zone	497.4						
72.5					8	101	97.6	100
75.0	slightly weathered zone (74.5-76.6 ft. BGS)	494.4						
	stylolites, some carbonaceous partings, trace medium gypsum filled vugs, trace favosites coral	492.6						
77.5	weathered zone (77.4-78.5 ft. BGS)	491.5						
	slightly weathered zone	489.8						
80.0	slightly weathered zone (80.1-81.0 ft. BGS)	488.8			9	100	88.8	100
82.5	slightly weathered zone with fossils (81.7-84.3 ft. BGS)	487.2		D				
	dark Gray; stylolites, some carbonaceous partings, trace favosites coral	484.6						
85.0	slightly weathered zone	484.2						
	slightly weathered zone	483.5						
	slightly weathered zone	482.6						
87.5					10	90	90.0	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF RESERVOIR

HOLE DESIGNATION: OW201-87

DATE COMPLETED: 10/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE/KAL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
87.5								
90.0				D	10	90	90.0	100
	stylolites, some carbonaceous partings	477.6						
92.5			4.0"ø CASING					
95.0			6.0"ø BOREHOLE		11	94	92.5	100
97.5								
	some stylolites, some carbonaceous partings,	469.6		E				
100.0								
102.5					12	122	104.3	100
105.0								
		465.4						
	lost water return; stylolites, some carbonaceous partings, some small gypsum filled vugs, trace gypsum lined veins	462.6	CEMENT/ BENTONITE GROUT					
107.5	mechanical fracture zone (106.5–106.8 ft. BGS)	462.4						
	slightly weathered zone (108.1–109.0 ft. BGS)	460.8						
110.0					13	97	87.1	0
112.5								
	water return; stylolites, some carbonaceous partings, some small gypsum filled vugs, trace gypsum lined veinlets	455.6		F				
115.0								
	slightly weathered zone (116.0–116.2 ft. BGS)	452.9						
117.5					14	108	103.8	100
	weathered to slightly weathered zone (118.0–119.5 ft. BGS)	450.9						

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF RESERVOIR

HOLE DESIGNATION: OW201-87

DATE COMPLETED: 10/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RUNNUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
117.5								
	weathered to slightly weathered zone (118.0–119.5 ft. BGS)	450.9	CEMENT/BENTONITE GROUT		14	108	103.8	100
120.0	stylolites, some carbonaceous partings, trace small gypsum filled vugs	447.6						
122.5	mechanical fracture zone (123.0–123.5 ft. BGS)	445.9	4.0" ϕ CASING					
125.0			6.0" ϕ BOREHOLE		15	96	81.6	100
127.5	Dolostone (Eramosa Formation): bituminous; light to medium Gray; fine grained; saccharoidal; thin to medium bedded; stylolites, some carbonaceous partings	442.2						
130.0	stylolites, carbonaceous partings, shaly partings, small to medium gypsum and calcite filled vugs	440.6						
132.5					16	100	78.9	100
135.0				G				
137.5	stylolites, some carbonaceous partings, some shaly partings, some small gypsum filled vugs, trace small sphalerite filled vugs, trace favosites coral	432.6						
140.0	Dolostone (Goat Island Formation): bituminous; Brown Gray to medium Gray; fine to medium grained; thin to medium bedded; stylolites, some carbonaceous partings, cherty	429.0			17	97	93.8	100
142.5	gypsum, selenite, and calcite mass	427.6						
	slightly weathered zone (143.1–145.8 ft. BGS)	425.8						
145.0	stylolites, some carbonaceous partings, cherty	424.6						
147.5					18	113	110.0	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF RESERVOIR

HOLE DESIGNATION: OW201-87 (PAGE 6 of 7)
DATE COMPLETED: 10/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RUNNUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
147.5								
150.0	stylolites, trace shaly partings, trace small sphalerite filled vugs, small to large chert nodules	418.4	CEMENT/BENTONITE GROUT; 4.0"ø CASING; 6.0"ø BOREHOLE	H	18	113	110.0	100
152.5	medium Gray; trace shaly partings, small to large chert nodules	417.6						
155.0					19	100	89.1	100
157.5	shaly partings, trace favosites coral	412.1	3.0"ø NX BOREHOLE					
	Dolostone (Gasport Formation): bituminous; medium to dark Gray; fine to medium grained; very thin to medium bedded; stylolites, shaly partings, trace small to medium chert nodules	410.6		I*				
160.0								
162.5	gypsum and selenite mass	405.8			20	100	85.0	100
165.0								
167.5	stylolites, shaly partings, some small to medium gypsum filled vugs, weathered crinoid fragment zone (166.8-170.2 ft. BGS)	402.1						
170.0					21	99	72.9	100
172.5	stylolites, shaly partings	395.1		J				
175.0								
177.5					22	95	86.3	100
	gypsum and calcite mass (179.5-179.9 ft. BGS)	389.4						

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF RESERVOIR

HOLE DESIGNATION: OW201-87 (PAGE 7 of 7)
DATE COMPLETED: 10/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RNUUNMBER	CRCOREERCOVERY	RQD	WRATTEURRN
ft BG		ft. AMSL				%	%	%
177.5								
180.0	gypsum and calcite mass (179.5–179.9 ft. BGS)	389.4	CEMENT/BENTONITE GROUT	J	22	95	86.3	100
182.5	stylolites, shaly partings, some gypsum lined partings	387.1	3.0"ø NX BOREHOLE					
185.0					23	104	98.9	100
187.5								
190.0								
	stylolites, shaly partings	377.7						
192.5								
	Dolostone (Decew Formation): bituminous; dark Gray; fine grained; thin to thick bedded; shaly partings	375.5		K				
195.0								
197.5					24	104	99.0	100
	gypsum mass (199.3–199.4 ft. BGS)	369.6						
200.0	gypsum mass (200.5–200.7 ft. BGS)	368.4						
	shaly partings	368.1						
	Shale (Rochester Formation): dark Gray; fine grained; platy to fissile bedded	367.7						
202.5								
205.0					25	112	104.0	100
	END OF HOLE AT 205.8 FT. BGS	363.1						
207.5	NOTE: At completion well was grouted into the 4.0" casing							
	* – Start of NX core							

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87 (PAGE 1 of 8)
DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	571.42 571.5					
	augered through "shot rock" to 18.0 ft. BGS		ROAD BOX				
2.5			8.0"ø CASING				
5.0			13.0"ø BOREHOLE				
7.5			4.0"ø CASING				
10.0			CEMENT/ BENTONITE GROUT				
12.5							
15.0							
17.5	Fill – Black Gray Silty fine to medium Sand, wet	553.5					
	same, with trace wood	552.0		1SS			5
20.0	Black Gray Silty fine Sand, wet, native	551.5					
	Black Gray Silty fine to medium laminated Sand, trace White shell fragments, wet, native	550.0 549.5		2SS			4
22.5	Gray Black Silty medium to coarse Sand, wet, native			3SS			12
	same, with fine Gravel	548.0					
	same, except rounded fine to medium Gravel	545.7					
25.0	same, except coarse Sand, trace layers of fine Gravel	545.5		4SS			
	Red Brown Silty Clay, some coarse Sand, angular to subangular coarse Gravel, moist, petroleum odor, native, Till	545.0		5SS			53
27.5	augered to 30.0 ft. BGS, no sample	543.5					
	same, except fine to medium angular to subrounded Gravel, trace Sand, no petroleum odor	541.5		6SS			
30.0	Red Brown Silty Sand, fine Gravel, dry to moist, native, Till	539.6		7SS			56
32.5	Red Brown Silty Clay, medium to coarse subangular Gravel, dry to moist, native, Till	539.5		8SS			70
	same, except fine Gravel with some coarse Gray Gravel, trace Sand, dry	537.5		9SS			55

NOTES:
- ⊗ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87 (PAGE 2 of 8)
DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
32.5							
35.0	Red Brown Silty Clay, medium to coarse subangular Gravel, dry to moist, native, Till	537.5	CEMENT/BENTONITE GROUT	8SS	X		70
	same, except fine Gravel with some coarse Gray Gravel, trace Sand, dry	536.0	6.0"ø CASING	9SS	X		55
	same, except coarse Gravel same, with some fine Gravel	535.5					
37.5	Gray to Red Brown Silty fine Sand, coarse Gravel layers, native, Till	535.0	13.0"ø BOREHOLE	10SS	X		>100
	Gray Brown Silty Clay, Gravelly, dry, native, Till	534.7	4.0"ø CASING				
40.0	Bedrock – augered to 37.6 ft. BGS for casing notch	534.5	6.0"ø BOREHOLE				
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES:
- ⊗ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87 (PAGE 3 of 8)
DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE BARREL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
35.0								
	Overburden		CEMENT/BENTONITE GROUT					
		534.5						
-37.5	Dolostone (Oak Orchard Formation): bituminous; light to medium Gray; fine to medium grained; saccharoidal; very thin to medium bedded; carbonaceous partings, weathered zone (37.0-38.2 ft. BGS)		4.0"ø CASING		1	76	42.0	100
-40.0	mechanical fracture zone (38.2-38.4 ft. BGS)	533.3	6.0"ø BOREHOLE					
	carbonaceous partings, gypsum lined partings, some small gypsum filled vugs	529.5						
-42.5	mechanical fracture zone (43.2-43.4 ft. BGS)	528.3						
	slightly weathered zone	528.1		A	2	104	42.0	100
-45.0								
	slightly weathered zone (46.7-46.9 ft. BGS)	524.8						
-47.5	carbonaceous partings, some gypsum lined partings, trace small gypsum filled vugs, trace gypsum lined veins	524.5						
-50.0					3	118	50.0	100
	carbonaceous partings, some gypsum lined partings, trace medium gypsum filled vugs	519.5						
-52.5	weathered zone	519.2						
	mechanical fracture zone	517.7						
-55.0	stromatolite (55.7-56.1 ft. BGS)	515.8						
-57.5					4	86	77.0	100
-60.0				B				
	carbonaceous partings, trace gypsum lined partings, trace gypsum lined veinlets	509.5						
-62.5								
-65.0					5	110	110.0	100
	medium Gray to Brown Gray; carbonaceous partings, favosites coral	504.5		C	6	100	100.0	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87 (PAGE 4 of 8)
DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE BARREL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
65.0								
			CEMENT/BENTONITE GROUT	B	5	110	110.0	100
-67.5	medium Gray to Brown Gray; carbonaceous partings, favosites coral	504.5						
-70.0	weathered zone (70.0-70.5 ft. BGS)	501.5	4.0"ø CASING		6	100	100.0	100
-72.5			6.0"ø BOREHOLE					
	weathered zone	498.3						
	carbonaceous partings, favosites coral, weathered zone with sphalerite (74.0-74.5 ft. BGS)	497.5		C				
-75.0	slightly weathered zone (74.5-76.5 ft. BGS)	497.0						
-77.5					7	89	88.8	100
-80.0	weathered favosites coral	491.6						
-82.5	carbonaceous partings, some gypsum replaced favosites coral	489.5			8	105	90.0	100
	carbonaceous partings, trace stylolites	487.5						
-85.0								
-87.5	mechanical fracture zone (87.9-89.4 ft. BGS)	483.6			9	96	96.3	100
-90.0				D				
-92.5	carbonaceous partings, trace stylolites	479.5						
					10	134	134.0	100
-95.0								
	some carbonaceous partings	474.5		E	11	100	100.0	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87

DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RUNUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
95.0								
97.5	some carbonaceous partings	474.5	CEMENT/BENTONITE GROUT	D	10	134	134.0	100
100.0			4.0"ø CASING					
102.5			6.0"ø BOREHOLE		11	100	100.0	100
105.0	some carbonaceous partings	466.5		E				
107.5								
110.0	lost water return	462.2			12	84	82.9	100 0
112.5	water return; trace stylolites, trace carbonaceous partings	459.5						
115.0								
117.5					13	–	–	100
120.0	some carbonaceous partings, trace medium gypsum filled vugs, trace small sphalerite filled vugs	451.2		F				
122.5	slightly weathered zone with dolomite lined vugs (121.8–122.8 ft. BGS)	449.7			14	85	85.1	100
125.0								
	carbonaceous partings, some medium gypsum filled vugs	444.5	3.0"ø NX BOREHOLE	G*	15	118	27.5	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87

DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RNUUNMBER	CRORECOVERY	RQD	WRAETTURRN
ft BG		ft. AMSL				%	%	%
125.0								
127.5	carbonaceous partings, some medium gypsum filled vugs	444.5	4.0"ø CASING; 6.0"ø BOREHOLE	F	14	85	85.1	100
130.0	Dolostone (Eramosa Formation): bituminous; medium to dark Gray; fine grained; saccharoidal; thin to medium bedded; carbonaceous partings, gypsum lined partings, some small to medium gypsum filled vugs	442.3		G*	15	118	27.5	100
132.5	carbonaceous partings, some stylolites, some shaly partings, trace small to medium gypsum filled vugs, trace small calcite filled vugs, trace small spalerite filled vugs	440.5						
135.0	gypsum mass	439.5			16	98	85.0	100
137.5								
140.0	carbonaceous partings, some shaly partings, trace small sphalerite filled vugs	430.5						
142.5	Dolostone (Goat Island Formation): bituminous; dark Gray; fine to medium grained; saccharoidal; thin to medium bedded; trace stylolites, trace carbonaceous partings, trace chert	430.1		H	17	106	90.5	100
145.0	selenite and calcite mass	428.9						
	chert mass (144.5-144.6 ft. BGS)	427.0						
147.5	trace carbonaceous partings, trace favosites coral replaced by calcite	424.2						
150.0			3.0"ø NX BOREHOLE					
152.5	light to medium Gray; fine grained; some carbonaceous partings, trace stylolites, cherty	420.2			18	101	94.0	100
155.0								
	trace carbonaceous partings, cherty	414.2		I	19	101	89.2	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87 (PAGE 7 of 8)
DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RNUUNMBER	CRORECOVERY	RQD	WRAETTURRN
ft BG		ft. AMSL				%	%	%
155.0								
				H	18	101	94.0	100
157.5	trace carbonaceous partings, cherty	414.2	3.0"ø NX BOREHOLE					
	Dolostone (Gasport Formation): bituminous; medium to dark Gray; fine grained; thin to medium bedded; some carbonaceous partings, shaly partings, trace gypsum lined partings and veinlets, trace small gypsum filled vugs	413.6						
160.0								
					19	101	89.2	100
162.5				I				
165.0								
	carbonaceous partings, some shaly partings, trace small sphalerite filled vugs gypsum mass	404.9						
167.5		403.8						
					20	97	59.6	100
170.0								
172.5	carbonaceous partings, trace shaly partings	399.2						
	weathered crinoid fragments, some stylolites (173.4-192.2 ft. BGS)	398.1						
175.0								
					21	93	76.3	100
177.5								
180.0	weathered crinoid fragments, some stylolites, carbonaceous partings	391.2		J				
182.5								
					22	111	111.4	100
185.0								
	weathered crinoid fragments, some stylolites, some carbonaceous partings	384.2		K	23	95	95.0	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTH OF WATER TREATMENT PLANT, EAST OF PUBLIC DOCK

HOLE DESIGNATION: OW202-87 (PAGE 8 of 8)
DATE COMPLETED: 11/11/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT ENTRY CORE VAL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
185.0								
				J	22	111	111.4	100
187.5	weathered crinoid fragments, some stylolites, some carbonaceous partings	*384.2*	3.0"ø NX BOREHOLE					
190.0								
192.5	trace stylolites, trace small gypsum filled vugs	*379.3*			23	95	95.0	100
195.0								
197.5	some small gypsum filled vugs	*374.2*		K				
	Dolostone (Decew Formation): bituminous; medium Gray; fine grained; thick to massive bedded; shaly partings	*373.8*						
200.0								
					24	105	105.0	100
202.5	lost water return	*369.2*						0
	water return	*369.1*						100
	gypsum mass (202.8-203.0 ft. BGS)	*368.7*						
	gypsum mass	*366.9*						
205.0	Shale (Rochester Formation): dark Gray; fine grained; platy to fissile bedded	*366.7*						
		364.7						
207.5	END OF HOLE AT 206.8 FT. BGS							
	NOTE : OW202-87 is a lower monitoring well							
210.0	* - Start of NX core							
212.5								
215.0								

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING 'A'

HOLE DESIGNATION: OW215-87 (PAGE 1 of 8)
DATE COMPLETED: 12/22/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	*574.68* *575.1*					
	augered through asphalt to 1.0 ft. BGS	*574.1*	ROAD BOX				
2.5	Fill – Gray angular Gravel and Brown Silty Sand, trace brick, wood and asphalt, moist	*572.1*	6.0"ø CASING	1SS			31
	Fill – Gray Gravelly Sand, trace brick, glass and wood, moist		4.0"ø CASING	2SS			56
5.0	Fill – Red to Black and Brown Silty Clay, Sandy, moist	*570.1*	13.0"ø BOREHOLE	3SS			19
7.5	Fill – Red Brown Silty Clay, trace Gravel, glass, slag and rusted metal, moist	*568.1*	2.0"ø CASING	4SS			31
10.0	Fill – Gray Black Sand, trace wood, paper and rusted metal, wet	*566.1*	CEMENT/ BENTONITE GROUT	5SS			7
12.5				6SS			8
	no recovery	*562.1*		7SS			32
15.0	Fill – Gray Silty fine Sand, trace wood, wet	*560.1*		8SS			8
17.5	Gray Silty fine Sand, Silt seams, wet, native	*558.1*		9SS			15
20.0	Red Clay, trace Brown Silt, wet, native	*556.1*		10SS			WH
22.5				11SS			WH
25.0				12SS			WH
	Red Brown Clay with thin Silt seams, wet, native	*550.1*		13SS			WH
27.5				14SS			1
30.0				15SS			WH
	Red Brown Silty to Sandy Clay, trace fine Gravel, wet, native, Till	*544.4*		16SS			WH
32.5	same, with fine to medium Gravel	*544.1*		17SS			4

NOTES:
① SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
■ DEC/EPA SAMPLE
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING 'A'

HOLE DESIGNATION: OW215-87 (PAGE 2 of 8)
DATE COMPLETED: 12/21/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: N.W. THOMPSON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
32.5							
35.0	same, except trace fine to coarse Gravel	540.1	CEMENT/BENTONITE GROUT; 13.0"ø BOREHOLE; 6.0"ø CASING; 4.0"ø CASING; 2.0"ø CASING	16SS			WH
				17SS			4
	same, except coarse Gravel	538.1		18SS			20
37.5	Bedrock – augered to 37.7 ft. BGS for casing notch	538.0		19SS			>100
40.0							
42.5							
45.0							
47.5							
50.0							
52.5			6.0"ø BOREHOLE				
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES:
- SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- DEC/EPA SAMPLE
- DEC/EPA SPLIT
- WATER FOUND
- STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING

HOLE DESIGNATION: OW215-87

DATE COMPLETED: 12/21/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RUNNUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
35.0								
	Overburden		CEMENT/BENTONITE GROUT					
-37.5	Dolostone (Oak Orchard Formation): bituminous; light to medium Gray; fine to medium grained; saccharoidal; thin to medium bedded; carbonaceous	538.0						
-40.0	partings, trace small gypsum filled vugs, trace gypsum lined veinlets		4.0" CASING					
	weathered zone (37.7-38.9 ft. BGS)	537.4						
-42.5	slightly weathered zone (42.0-42.9 ft. BGS)	533.1	6.0" BOREHOLE		1	93	36.0	100
	weathered zone (43.7-45.8 ft. BGS)	531.4						
-45.0			2.0" CASING					
-47.5	carbonaceous partings, some stylolites, some gypsum lined veinlets, trace small gypsum filled vugs	527.4		A				
-50.0								
-52.5					2	111	64.5	100
-55.0								
	carbonaceous partings	519.1						
	carbonaceous partings, trace stylolites	518.1			3	55	0	100
-57.5	some carbonaceous partings, trace small gypsum filled vugs, trace gypsum lined veinlets	517.6			4	120	0	100
-60.0								
	weathered oolites (60.7-61.5 ft. BGS)	514.4						
-62.5					5	100	90.5	100
-65.0				B				

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING

HOLE DESIGNATION: OW215-87

DATE COMPLETED: 12/21/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE/RUN	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
65.0								
			CEMENT/BENTONITE GROUT		5	100	90.5	100
67.5	trace carbonaceous partings, trace small gypsum filled vugs, trace stylolites, weathered zone (67.5–68.6 ft. BGS)	*507.6*		B				
			2.0" ϕ CASING		6	109	73.7	100
70.0	carbonaceous partings, some dolomite filled vugs, trace small gypsum and sphalerite filled vugs	*504.1*	4.0" ϕ CASING					
			6.0" ϕ BOREHOLE					
72.5	dolomite filled vug (73.4–73.5 ft. BGS)	*501.7*		C				
75.0	dolomite filled vug (75.3–75.4 ft. BGS)	*499.8*						
	weathered zone (77.0–78.0 ft. BGS)	*498.1*			7	100	90.0	100
77.5								
80.0	some favosites coral, trace carbonaceous partings, trace small gypsum filled vugs	*494.1*						
82.5					8	110	76.4	100
85.0	favosites coral (84.9–86.0 ft. BGS)	*490.2*						
	trace carbonaceous partings, trace favosites coral, trace stylolites	*489.1*						
87.5								
90.0	high angle mechanical fracture (89.3–89.9 ft. BGS)	*485.8*						
	slightly weathered zone (91.2–91.4 ft. BGS)	*483.9*			9	104	80.4	100
92.5								
95.0				D				
	trace carbonaceous partings, trace small sphalerite filled vugs, trace stylolites	*479.3*			10	98.1	45.2	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING

HOLE DESIGNATION: OW215-87 (PAGE 5 of 8)
DATE COMPLETED: 12/21/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RNUUNMBER	CRORECOVERY	RQD	WRAETTEURRN
ft BG 95.0		ft. AMSL				%	%	%
	trace carbonaceous partings, trace small sphalerite filled vugs, trace stylolites	479.3	CEMENT/BENTONITE GROUT	D	9	104	80.4	100
-97.5	slightly weathered zone (97.1-98.5 ft. BGS)	478.0						
	small galena filled vug (98.4-98.5 ft. BGS)	476.7	4.0"ø CASING		10	98.1	45.2	100
-100.0			6.0"ø BOREHOLE					
	trace carbonaceous partings, trace small gypsum filled vugs, trace gypsum lined veinlets	474.1						
-102.5								
-105.0					11	103	76.3	100
-107.5								
	trace carbonaceous partings, trace small gypsum filled vugs	466.1	3.875"ø REAM					
-110.0	small galena lined veinlets (110.5-110.6 ft. BGS)	464.6		E*				
-112.5			2.0"ø CASING					
					12	97	93.5	100
-115.0								
	slightly weathered zone (116.6-116.7 ft. BGS)	458.5						
-117.5								
	some small gypsum filled vugs, trace carbonaceous partings, trace stylolites	456.1						
-120.0	slightly weathered zone (119.7-119.9 ft. BGS)	455.4						
-122.5								
-125.0				F	13	100	83.0	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING

HOLE DESIGNATION: OW215-87

DATE COMPLETED: 12/21/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RNUUNMBER	CRORECOVERY	RQD	WRAETTURRN
ft BG		ft. AMSL				%	%	%
125.0								
127.5			CEMENT/BENTONITE GROUT	F	13	100	83.0	100
		446.6						
130.0	Dolostone (Eramosa Formation): bituminous; light to medium Gray; fine grained; thin to medium bedded; trace carbonaceous partings, trace small gypsum and sphalerite filled vugs		2.0"ø CASING					
132.5	carbonaceous partings, some small gypsum filled vugs, trace small sphalerite filled vugs, trace shaly partings	445.2			14	100	69.0	100
135.0	slightly weathered zone and gypsum mass (132.9–133.1 ft. BGS)	442.2						
137.5	carbonaceous partings, trace stylolites, trace small gypsum filled vugs, trace shaly partings	437.6	3.875"ø REAM					
140.0								
142.5					15	103	94.0	100
	chert mass (144.0–144.2 ft. BGS)	431.1						
145.0				G				
147.5	trace carbonaceous partings, trace stylolites, trace small gypsum filled vugs	427.6						
150.0					16	100	96.9	100
		423.3						
152.5	Dolostone (Goat Island Formation): bituminous; light to medium Gray; fine grained; thin to medium bedded; trace carbonaceous partings, trace shaly partings, trace stylolites, cherty	421.1	INFLATIBLE PACKER GROUTED INTO PLACE					
155.0	trace carbonaceous partings, trace shaly partings, cherty	421.1		H	17	100	92.4	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING

HOLE DESIGNATION: OW215-87 (PAGE 7 of 8)
DATE COMPLETED: 12/21/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
155.0								
157.5								
160.0				H	17	100	92.4	100
162.5								
	some shaly partings, trace carbonaceous partings, some chert nodules	411.2						
165.0								
	slightly weathered zone (166.6–166.9 ft. BGS)	408.5	3.875" ø REAM		18	101	68.6	100
167.5	gypsum mass (167.1–167.2 ft. BGS)	408.0						
	gypsum mass (167.4–167.5 ft. BGS)	407.7						
		406.1						
170.0	Dolostone (Gasport Formation): bituminous; medium to dark Gray; fine to medium grained; very thin to medium bedded; shaly partings, trace gypsum lined veinlets	404.1	CEMENT/ BENTONITE GROUT					
172.5								
175.0	slightly weathered zone and gypsum mass (174.2–174.4 ft. BGS)	400.9			19	101	69.0	100
177.5	weathered crinoid fragments (177.1–179.0 ft. BGS)	398.0	3.0" ø NX BOREHOLE	I				
	weathered crinoid fragments, some stylolites, trace shaly partings	396.1						
180.0								
182.5					20	98	93.6	100
185.0								
	weathered crinoid fragments, some stylolites, trace shaly partings	389.1		J	21	102	92.9	100

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, FILTER BUILDING

HOLE DESIGNATION: OW215-87 (PAGE 8 of 8)
DATE COMPLETED: 12/21/87
DRILLING METHOD: HSA 13.0" OD/WR
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT/CORE/KAL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
185.0								
	weathered crinoid fragments, some stylolites, trace shaly partings	389.1		I	20	98	93.6	100
187.5			3.0"ø NX BOREHOLE					
190.0								
					21	102	92.9	100
192.5			CEMENT/BENTONITE GROUT					
195.0								
	Dolostone (Decew Formation): bituminous; medium to dark Gray; fine grained; very thin to medium bedded; shaly partings, trace gypsum lined veinlets	379.3		J				
197.5								
	shaly partings	379.2						
200.0					22	100	89.1	100
202.5								
	water return lost and gained; slightly weathered zone (203.5-204.0 ft. BGS)	371.6						
205.0	Shale (Rochester Formation): dark Gray; fine grained; platy to fissile bedded	370.3 369.6						0
	lost water return	369.1						
207.5	END OF HOLE AT 206.0 FT. BGS							
210.0	NOTE : OW215-87 is a lower monitoring well.							
	* - Start of NX core							
212.5								
215.0								

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

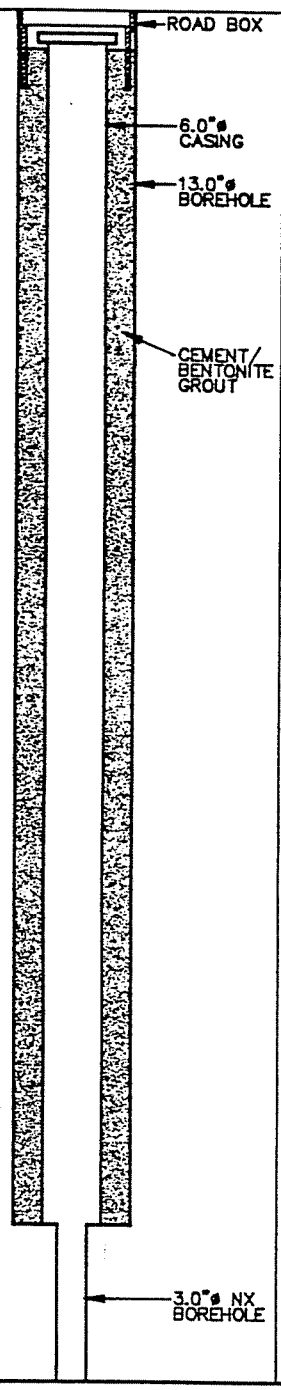
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: NORTHEAST CORNER OF WATER TREATMENT PLANT

HOLE DESIGNATION: OW220-87 (PAGE 1 of 2)
DATE COMPLETED: 11/23/87
DRILLING METHOD: HSA 13.0" OD/ WR-NX
CRA SUPERVISOR: K.D. SCHMIDTKE P.H. SMITH

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION	572.39
	GROUND ELEVATION	572.4
	Fill – Black and dark Brown Silty Clay, some vegetation, moist	571.9
2.5	Brown Silty fine Sand, some Clay, moist, native	570.4
	Gray and Green Silty fine Sand, some Clay, iron staining, grading to a Silty Clay with some Sand, moist, native	568.4
5.0	Gray Brown Silty fine Sand, trace Clay, iron staining, moist, native	
	same, except wet	565.4
7.5	Red Brown Silty Clay, some fine Sand, moist, native	564.5 564.4
	same, except trace fine Sand, laminated, Gray and Green inclusions, Silty partings	562.4
10.0	Red Brown, Olive Green, and Gray laminated Silty Clay, mottled, trace thin Silt seams, moist, high plastic, native	562.0 560.4
12.5	same, except no laminations, no Silt seams	
	Red to Gray Silty Clay, moist, high plastic, native	
15.0	same, except Red Brown, wet	559.4
17.5		
20.0		
22.5		
25.0		
27.5		
	Gray Brown Silty Clay, trace fine Sand and rounded Gravel, wet, native	544.6
30.0	Gray Silty Clay, some fine Sand, trace coarse subangular Gravel, wet, native	542.6 542.4
	Brown Clayey Sand, Silty, fine to medium angular Gravel, moist, native, Till	542.3
32.5	Bedrock – augered to 31.0 ft. BGS for casing notch	541.4

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	STATUS	'N' VALUE
1SS			7
2SS			19
3SS			20
4SS			23
5SS			18
6SS			20
7SS			19
8SS			4
9SS			4
10SS			1
11SS			2
12SS			WH
13SS			2
14SS			WH
15SS			9
16SS			>100

NOTES:
- SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- DEC/EPA SAMPLE
- DEC/EPA SPLIT
- WATER FOUND
- STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: NORTHEAST CORNER OF WATER TREATMENT PLANT

HOLE DESIGNATION: OW220-87 (PAGE 2 of 2)
DATE COMPLETED: 11/23/87
DRILLING METHOD: HSA 13.0" OD/ WR-NX
CRA SUPERVISOR: P.H. SMITH

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BENDIT REORCVKA E	RUNNUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BG		ft. AMSL				%	%	%
30.0								
	Overburden	542.3						
	Dolostone (Oak Orchard Formation): bituminous; medium Gray; fine				1	150	0	100
-32.5	to medium grained; saccharoidal; very thin to thinly bedded; carbonaceous partings				2	26	0	100
	carbonaceous partings	541.2						
-35.0	vertical fracture (31.4–35.3 ft. BGS)	541.0	3.0"ø NX BOREHOLE					0
	lost water return	538.4			3	100	0	0
	mechanical fractures	536.9						
	some carbonaceous partings, some	536.8						
-37.5	shaly partings				4	97	59.5	0
	slightly weathered to weathered zone (35.8–37.0 ft. BGS)	536.6						
	water return; some carbonaceous	533.3						
-40.0	partings, some shaly partings, mechanical fracture zone (39.1–39.4 ft. BGS)				5			100
	lost water return; thin to medium	530.7						
-42.5	bedded; carbonaceous partings, some shaly partings				6	100	0	0
	slightly weathered zone (42.7–44.1 ft. BGS)	529.7						
	carbonaceous partings, shaly partings	528.3			7	29	0	0
-45.0	some carbonaceous partings, trace shaly partings, trace small gypsum filled vugs	527.6						
	weathered to slightly weathered zone (45.2–45.6 ft. BGS)	527.2						
-47.5					8	76	27.6	0
-50.0	dark Gray; carbonaceous partings, some shaly partings	521.8						
-52.5					9	62	8.9	0
-55.0	same carbonaceous partings, trace shaly partings	517.3						
-57.5					10	75	8.3	0
-60.0								
	END OF HOLE AT 61.1 FT. BGS	511.3						

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

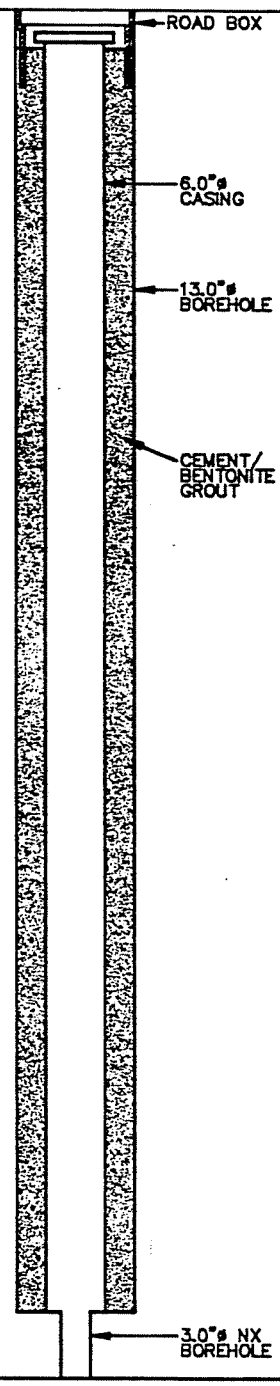
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: EAST OF WATER TREATMENT PLANT, SOUTH OF PARKWAY

HOLE DESIGNATION: OW221-87 (PAGE 1 of 3)
DATE COMPLETED: 7/21/87
DRILLING METHOD: HSA 13.0" OD/ WR-NX
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION	570.11
	GROUND ELEVATION	570.4
	augered to 1.0 ft. BGS	
	Fill - Brown Silt, some vegetation, trace Gravel, dry	569.4
2.5	Fill - Gray angular Gravel, dry	568.8
	augered through "shot rock" to 20.0 ft. BGS	568.5
5.0		
7.5		
10.0		
12.5		
15.0		
17.5		
20.0	Gray Silty fine Sand, wet, native	550.4
22.5		
25.0	same, with some Gravel	544.8
27.5	Red Brown Silty Clay, trace Gravel, moist, low plastic, native, Till	542.6
30.0	Red Brown and Gray Gravelly Sand, Silty, wet, nonplastic, native, Till	540.4
32.5	Bedrock - augered to 33.3 ft. BGS for casing notch	538.9
	Note: Stratigraphy for 0.0-31.5 ft. taken from OW261-87	537.1

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	STATUS	'N' VALUE

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: EAST OF WATER TREATMENT PLANT, SOUTH OF PARKWAY

HOLE DESIGNATION: OW221-87 (PAGE 2 of 3)
DATE COMPLETED: 8/17/87
DRILLING METHOD: HSA 13.0" OD / NR-NX
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RNUUNMBER	CORECOVERY	RQD	WRAETTURRN
ft BG		ft. AMSL				%	%	%
30.0								
	Overburden							
		538.9						
-32.5	Dolostone (Oak Orchard Formation): bituminous; light to medium Gray; fine to medium grained; saccharoidal; very thinly bedded; carbonaceous partings							
-35.0	carbonaceous partings, mechanical fractures, slightly weathered partings (33.3-36.1 ft. BGS)	537.1						
-37.5					1	87	21.7	100
	lost water return; gypsum lined veinlets and partings	531.9						0
-40.0	very thin to thinly bedded	530.2						
-42.5					2	119	32.7	0
	medium Gray	526.6						
-45.0					3	71	0	0
		524.9			4	100	0	0
	stromatolitic structures, some gypsum lined veinlets	524.2						
-47.5	large gypsum filled vug (46.5-46.8 ft. BGS)	523.9						
	gypsum lined parting	522.9						
	small gypsum filled vugs	522.0						
-50.0					5	108	33.5	0
-52.5			3.0"ø NX BOREHOLE					
		516.6						
-55.0	mechanical fracture zone (54.0-54.4 ft. BGS)	516.4			6	106	0	0
	vertical fracture (55.2-55.5 ft. BGS)	515.2						
	stylolites	514.9						
-57.5	inclined bedding (56.1-57.9 ft. BGS)	514.3						
					7	89	39.7	0
	gypsum lined parting	511.1						
-60.0								
	small gypsum filled vugs	508.1						

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: EAST OF WATER TREATMENT PLANT, SOUTH OF PARKWAY

HOLE DESIGNATION: OW221-87 (PAGE 3 of 3)
DATE COMPLETED: 8/17/87
DRILLING METHOD: HSA 13.0" OD / MR-NX
CRA SUPERVISOR: N.W. THOMPSON

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RUNNUMBER	CORECOVERY	RQD	WRAETTURRN
ft BG		ft. AMSL				%	%	%
60.0								
62.5	small gypsum filled vugs gypsum lined parting oolitic zone (62.7–63.2 ft. BGS)	508.1 507.8 507.7	3.0"ø NX BOREHOLE		7	89	39.7	0
	END OF HOLE AT 63.3 FT. BGS	507.1						
65.0								
67.5								
70.0								
72.5								
75.0								
77.5								
80.0								
82.5								
85.0								
87.5								
90.0								

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

▽ WATER FOUND ▼ STATIC WATER LEVEL NM – NOT MEASURED

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTHEAST OF WATER TREATMENT PLANT

HOLE DESIGNATION: OW261-87
DATE COMPLETED: 6/15/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	*569.10* *569.6*					
	augered to 1.0 ft. BGS, no sample	*568.6*	ROAD BOX				
	Fill – Brown Silt, some vegetation, trace Gravel, dry	*568.1*		1SS	☒		>100
2.5	Fill – Gray angular Gravel, dry	*567.7*	CEMENT/ BENTONITE GROUT				
	augered through "shot rock" to 20.0 ft. BGS						
5.0			BENTONITE SEAL				
7.5			8.0"ø BOREHOLE				
10.0							
12.5			2.0" ø B.I. PIPE				
15.0							
17.5							
20.0	Gray Silty fine Sand, wet, native	*549.6*	SAND PACK Q ROC #1	2SS	☒		8
22.5				3SS	☒		16
25.0				4SS	☒		25
	same, with some Gravel	*544.0*	WELL SCREEN				
27.5				5SS	☒		12
	Red Brown Silty Clay, trace Gravel, moist, low plastic, native, Till	*541.8*	SCREEN DETAILS:	6SS	☒		38
30.0	Red Brown and Gray Gravelly Sand, Silty, wet, nonplastic, native, Till	*539.6*	Screened Interval: 546.8 to 541.8				
	augered to 31.5 ft. BGS, no sample	*539.2*	Length – 5 FT.	7SS	☒		>100
	END OF BOREHOLE AT 31.5 FT. BGS	*538.1*	Diameter – 2.0" ID				
32.5	NOTE : At completion the initial borehole was grouted to ground surface. In an adjacent borehole (5.0 ft. west) a 2.0" ID observation well was installed to 28.5 ft. BGS		Slot # 6 Material–STAINLESS STEEL Sand Pack Interval: 563.3 to 541.1				

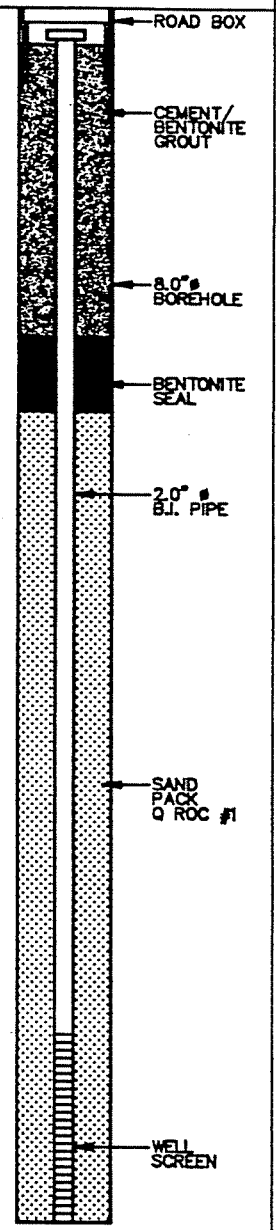
NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: NORTH OF PARKWAY, SOUTH OF WATERTOWER

HOLE DESIGNATION: OW262-87 (PAGE 1 of 2)
DATE COMPLETED: 6/12/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE N VALUE
	REFERENCE ELEVATION GROUND ELEVATION	574.32 574.5				
	augered to 1.0 ft. BGS, no sample					
	Fill – Brown and Gray Gravelly Silt, dry	573.5				
2.5			1SS			55
	Fill – Brown Silt, some Gravel and brick, trace Clay and Sand, moist	571.5	2SS			17
5.0						
	Fill – Black and Gray Silt and flyash, trace Sand, broken glass, moist	569.5	3SS			27
	same, with Gravel and brick	567.5				
7.5			4SS			39
	Fill – mottled Brown and Red Brown Silty Clay, moist, plastic	565.6 564.9				
10.0	Fill – Black cinder, moist	564.6 564.4	5SS			29
	Fill – Black tar-like material	563.5				
12.5	Fill – light Brown Silty Sand, trace concrete, moist		6SS			15
	Fill – Brown, Black, White, and Red Silt, slag, cinder, some Gravel, concrete, wet		7SS			2
15.0	Fill – Black Silt, slag, cinders, wet, trace iridescent sheen, sewage odor	559.5	8SS			2
17.5	Brown Gray fine Sandy Silt, trace thin Sand seams, wet, native	557.0	9SS			5
	Gray Silty fine Sand, wet, native	555.5				
20.0			10SS			8
22.5			11SS			6
			12SS			13
25.0						
	same, except fine to medium Sand, shell fragments	547.5	13SS			1
27.5			14SS			9
	same, except trace Gravel	545.5				
30.0			15SS			15
	Red Brown Clayey Silt, wet, slightly dilatent, native, Till					
32.5	Red Brown Sandy Silt, trace Clay and Gravel, wet, native, Till	542.1 541.5	16SS			18
	augered to 34.2 ft. BGS, no sample	540.5 540.3	17SS			100
	END OF BOREHOLE AT 34.2 FT. BGS					



NOTES:
- SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- DEC/EPA SAMPLE
- DEC/EPA SPLIT
- WATER FOUND
- STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: NORTH OF PARKWAY, SOUTH OF WATERTOWER

HOLE DESIGNATION: OW262-87 (PAGE 2 of 2)
DATE COMPLETED: 6/12/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
32.5							
35.0	NOTE : At completion the initial borehole wa grouted to ground surface. In an adjacent borehole (5.0 ft. east) a 2.0" ID observation well was installed to 32.4 ft. BGS		SCREEN DETAILS: Screened Interval: 547.1 tp 542.1 Length -5.0 FT. Diameter -2.0" ID Slot # 6 Material- STAINLESS STEEL Sand Pack Interval: 563.7 to 542.1				
37.5							
40.0							
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

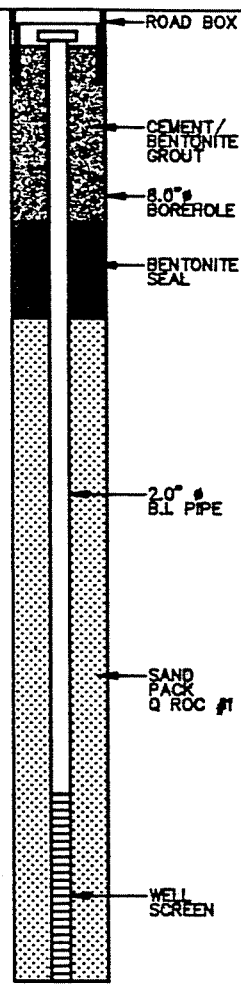
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: SOUTHWEST OF PARKWAY, ADJACENT TO OW202

HOLE DESIGNATION: OW263-87
DATE COMPLETED: 6/17/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION GROUND ELEVATION	570.54 571.0
	augered through "shot rock" to 18.0 ft. BGS	
17.5	Fill – Black Gray Silty fine to medium Sand, wet	553.0
	same, with trace wood	551.5
20.0	Black Gray Silty fine Sand, wet, native	551.0
	Black Gray Silty fine to medium laminated Sand, trace White shell fragments, wet, native	549.5
22.5	Gray Black Silty medium to coarse Sand, wet, native	549.0
	same, with fine Gravel	547.5
	same, except rounded fine to medium Gravel	545.2
25.0	same, except coarse Sand, trace layers of fine Gravel	545.0
	END OF BOREHOLE AT 26.0 FT. BGS	545.0
27.5	At completion a 2.0" ID observation well was installed	
30.0	Note: Stratigraphy for 0.0–26.0 ft. taken from OW202-87	
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
545.0' to 540.0'
Length –5 FT.
Diameter –2.0" ID
Slot # 6
Material–STAINLESS STEEL
Sand Pack Interval:
562.7' to 545.0'

SAMPLE NUMBER	STATE	STATUS	'N' VALUE

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ● DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S–AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF B–PLANT

HOLE DESIGNATION: OW280–87

DATE COMPLETED: 5/13/87
DRILLING METHOD: HSA 7.5" OD
CRA SUPERVISOR: C.H. PADGINTON
B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	*569.78* *569.9*					
	Fill – Brown Sandy Silt, trace Gravel and Clay, moist		ROAD BOX CEMENT/ BENTONITE GROUT	1SS			10
2.5	Brown, Gray, and Red mottled Clayey Silt, some Gravel, trace Sand, moist, native	*567.9*	BENTONITE SEAL 2.0" ø B.L. PIPE	2SS			11
5.0	same, moist to wet	*563.9*	7.25"ø BOREHOLE	3SS		⊕	11
7.5			WELL SCREEN	4SS		⊕	13
	Brown and Red Brown laminated Silty Clay, trace Silt seams, moist, native	*561.9*	SAND PACK Q ROC #1	5SS			14
10.0			SCREEN DETAILS: Screened Interval: 565.8 to 560.8 Length –5 FT. Diameter –2.0" ID Slot # 6 Material–STAINLESS STEEL Sand Pack Interval: 566.9 to 560.4	6SS			9
12.5				7SS			13
	Brown Silty Clay, wet, soft, native	*555.9*		8SS			3
15.0				9SS			3
17.5							
	Red Brown and Green Gray laminated Silty Clay, trace Silt seams, wet, soft, native	*551.9*		10SS			WH
20.0				11SS			WH
22.5				12SS			
	same, except Brown to Red Brown, no laminations	*545.9*		13SS			WH
25.0				14SS			2
27.5							
	augered to 28.5 ft. BGS, no sample	*541.9* *541.4*		15SS			>50
	Red Brown Sandy Gravelly Silt, moist to wet, native, Till	*540.6*					
30.0	augered to 29.9 ft. BGS, no sample	*540.0*					
	END OF BOREHOLE AT 29.9 FT. BGS						
32.5	NOTE : At completion the initial borehole was grouted to ground surface. In an adjacent borehole (6.0 ft. west) a 2.0" ID observation well was installed to 9.5 ft. BGS						

NOTES:
- ⊕ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF B-PLANT

HOLE DESIGNATION: OW280-87 (PAGE 2 of 2)
DATE COMPLETED: 5/13/87
DRILLING METHOD: HSA 7.5" OD
CRA SUPERVISOR: C.H. PADGINTON, B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
2.5	NOTE : Due to inadequate amount of sample, OW280-87 was resampled (BHR 280-87) from 4.0 - 8.0 ft. BGS. These samples were submitted for chemical analysis, split with EPA/DEC, and analyzed.						
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

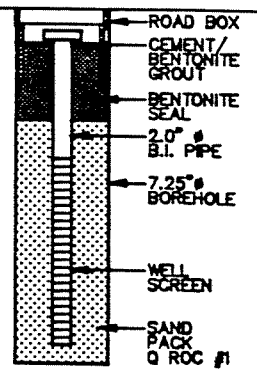
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTHEAST OF B-PLANT

HOLE DESIGNATION: OW281-87
DATE COMPLETED: 5/7/87
DRILLING METHOD: HSA 7.25" OD
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION GROUND ELEVATION	570.06 570.3
2.5	Brown, Red, and Gray mottled Clayey Silt, some Gravel, trace Sand, dry, native	
	Red Brown and Green Gray Clayey Silt, trace Sand and Gravel, moist, native	568.3
5.0	Brown Gray and Red Brown mottled Silty Clay, moist, native	566.3
	same, with dark Gray and Green Silty fine Sand seams, wet	565.8
7.5	Red Brown laminated Silty Clay, Silt seams, moist, native	563.3
	same, except trace Silt seams	562.3
10.0	same, except plastic	560.3
12.5	same, except mottled	558.3
15.0		
17.5		
20.0		
22.5		
25.0		
	Red Brown Clayey Silt, Sand and Gravel, wet, native, Till	544.5
27.5	augered to 28.9 ft. BGS, no sample	542.6
	END OF BOREHOLE AT 28.9 FT. BGS	541.4
30.0		
32.5	NOTE : At completion the initial borehole was grouted to ground surface. In an adjacent borehole (5.0 ft. north) a 2.0" ID observation well was installed to 9.5 ft. BGS	

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval: 566.3 to 561.3
Length -5 FT.
Diameter -2.0" ID
Slot # 6
Material-STAINLESS STEEL
Sand Pack Interval: 567.3 to 560.8

SAMPLE NUMBER	STATE	STATUS	'N' VALUE
1SS			13
2SS			18
3SS		◐	7
4SS		◐	11
5SS			14
6SS			6
7SS			12
8SS			2
9SS			2
10SS			WH
11SS			WH
12SS			1
13SS			1
14SS			9

NOTES:
◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
■ DEC/EPA SAMPLE
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

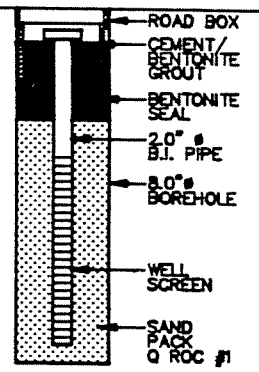
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF B-PLANT

HOLE DESIGNATION: OW284-87 (PAGE 1 of 2)
DATE COMPLETED: 6/1/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION	569.47
	GROUND ELEVATION	569.6
	Fill – Brown and Gray Gravel, vegetation, dr	
2.5	Fill – Brown Gray Silty Clay, Gravel, trace Sand, moist	567.6
5.0	Fill – Brown and Gray mottled Clayey Silt, moist	565.6
	Fill – Brown Silt, decayed vegetation, moist	563.6
	Fill – Gray Silty Sand, wet	563.5
7.5	Green, Brown, Gray, Red Gray Silty Clay, Silt seams, native	563.4
10.0		
12.5	Brown and Red Brown laminated Silty Clay, trace Silt seams, moist, soft, native	557.6
15.0	Brown Silty Clay, wet, soft, native	555.6
17.5		
	Gray and Red Brown laminated Silty Clay, wet, soft, native	551.6
20.0	same, except trace Silt seams	549.6
22.5		
25.0		
27.5		
	Red Brown Sandy Silty Clay, Gravel, wet, native, Till	540.6
30.0	augered to 29.9 ft. BGS, no sample	540.3
	END OF BOREHOLE AT 29.9 FT. BGS	539.7
32.5	NOTE : At completion the initial borehole was grouted to ground surface. In an adjacent borehole (5.0 ft. south) a 2.0" ID observation well was installed to 9.5 ft. BGS	

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval: 565.6 to 560.6
Length – 5.0 FT.
Diameter – 2.0" ID
Slot # 6
Material – STAINLESS STEEL
Sand Pack Interval: 566.6 to 560.1

SAMPLE NUMBER	STATE	STATUS	'N' VALUE
1SS			6
2SS			14
3SS			15
4SS		◐	21
5SS			16
6SS			14
7SS			4
8SS			1
9SS			2
10SS			WR
11SS			WH
12SS			1
13SS			WR
14SS			1
15SS			>50

NOTES:
◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
■ DEC/EPA SAMPLE
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF B-PLANT

HOLE DESIGNATION: OW284-87 (PAGE 2 of 2)
DATE COMPLETED: 6/1/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: C.H. PADGINTON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
32.5							
35.0	NOTE : Due to inadequate amount of sample, OW284-87 was resampled (OWR 284-87) from 6.0 - 8.0 ft. BGS. These samples were submitted for chemical analysis, split with EPA/DEC, and analyzed.						
37.5							
40.0							
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, NORTHEAST CORNER OF FILTERED WATER RESERVOIR

HOLE DESIGNATION: OW285-87
DATE COMPLETED: 5/12/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	STATE	STATUS	'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	569.52 569.8					
	Fill – Brown Gray Clayey Silt, vegetation, slag, ash, trace coarse Gravel, dry		ROAD BOX CEMENT/ BENTONITE GROUT	1SS			4
2.5	Fill – Brown to Red Brown and Gray Silt, angular Gravel, cinders, trace Clay, moist	567.8	BENTONITE SEAL	2SS			16
5.0	Fill – Red Brown and Green Black Silty Clay, Gravelly, wet	565.8	8.0" ø BOREHOLE 2.0" ø B.I. PIPE	3SS		⊙	7
	same, except Gray Black	563.8					
7.5	Red Brown Silty Clay, Silt lenses, wet, native	562.8	WELL SCREEN	4SS		⊙	15
	same, except no Silt lenses, moist to wet	561.8		5SS			17
10.0	same, except wet	559.8	SAND PACK Q ROC #1				
			SCREEN DETAILS:	6SS			8
12.5	same, except mottled Red Brown, Gray, Orange Brown mottling	557.8	Screened Interval: 564.5 to 559.5 Length -5 FT. Diameter -2.0" ID Slot # 6 Material-STAINLESS STEEL Sand Pack Interval: 565.8 to 559.3	7SS			5
15.0				8SS			7
	same, except trace fine Gravel, soft	553.8					
17.5				9SS			5
	Red Brown and Gray Silty Clay, wet, soft, native	551.8		10SS			WH
20.0							
				11SS			WR
22.5				12SS			<3
25.0				13SS			WH
27.5				14SS			1
	Sandy Clay, Silty, wet, native, Till	542.0 541.8		15SS			>50
	no split spoon advancement AUGERED TO REFUSAL	541.3					
30.0	END OF BOREHOLE AT 28.5 ft. BGS						
	NOTE: At completion the initial borehole was grouted to ground surface. In an adjacent borehole (4.0 ft. southwest) a 2.0" ID observation well was installed to 10.5 ft. BGS						
32.5							

NOTES:
- ⊙ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

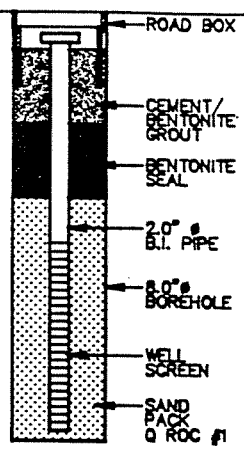
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, EAST OF FILTERED WATER RESERVOIR

HOLE DESIGNATION: OW286-87
DATE COMPLETED: 5/14/87
DRILLING METHOD: HSA 8.0" OD
CRA SUPERVISOR: S. CROSSMAN

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION	570.39
	GROUND ELEVATION	570.7
2.5	Fill – Gray Brown and Red Brown Silty Clay, some Sand, trace fine Gravel, moist same, with slag, Sand pockets	568.7
5.0		
7.5	Black organic Silt, some Sand, trace Clay, wet, native	564.9
		563.8
	Red Brown Silty Clay, moist, plastic, native same, except trace lamination of Green and Gray	562.7
10.0	same, with trace Silt seams, wet	560.7
12.5	Red Brown laminated Silty Clay, wet, native	558.7
15.0		
17.5		
20.0		
22.5	same, with Silt seams, trace medium Sand	548.7
25.0		
27.5	same, except trace Gravel	544.7
30.0	Red Brown Sandy Silty Clay, Gravel, wet, native, Till	542.5
	Gray Brown Sandy Silt, angular and rounded Gravel, trace Clay, moist, native, Till	541.2
32.5	END OF BOREHOLE AT 31.0 FT. BGS NOTE : At completion the initial borehole was grouted to ground surface. In an adjacent borehole (5.0 ft. northwest) a 2.0" ID observation well was installed to 11.5 ft. BGS	539.7

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval: 564.5 to 559.5
Length -5 FT.
Diameter -2.0" ID
Slot # 6
Material-STAINLESS STEEL
Sand Pack Interval: 565.7 to 559.2

SAMPLE NUMBER	STATE	STATUS	'N' VALUE
1SS			18
2SS			18
3SS		①	14
4SS		①	10
5SS			13
6SS			5
7SS			5
8SS			2
9SS			2
10SS			WH
11SS			WH
12SS			<3
13SS			WH
14SS			2
15SS			15
16SS			>50

NOTES:
① SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
■ DEC/EPA SAMPLE
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

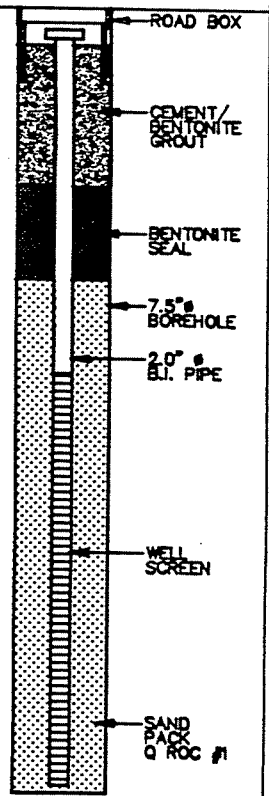
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF FILTERED WATER RESERVOIR

HOLE DESIGNATION: OW287-87 (PAGE 1 of 2)
DATE COMPLETED: 2/19/88
DRILLING METHOD: HSA 7.5" OD
CRA SUPERVISOR: C.H. PADGINTON, N.W. THOMPSON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE ELEVATION	574.19
	GROUND ELEVATION	574.2
	Fill – Brown and Green Silt, vegetation, trace coarse Gravel, dry	
2.5	Fill – Brown and Black Gravelly Silt, slag, dry to moist	572.2
	same, except Brown, Red, Black, and Red Brown, moist	570.2
5.0	same, except moist to wet	568.2
7.5	same, with trace Clay	566.2
10.0	Fill – Brown Silty Clay, thin Silt seams, wet	564.2
	Fill – Brown and Black Silt, trace Clay and Gravel, wet	562.5
12.5	same, with flyash	562.2
	Fill – White Silt, wet, nonplastic	560.7
15.0	same, with trace slag	560.2
17.5	Brown Gray Silty fine Sand, wet, native	556.4
	same, except Black and Gray	556.2
20.0	Brown and Gray Silty Clay, wet, plastic, native	553.4
22.5	same, except Red Brown	551.6
25.0	same, with trace Silt seams	548.7
	same, except Brown and Gray, no Silt seams	548.2
27.5	Red Brown and Gray laminated Silty Clay, some thin Silt seams, wet, plastic, native	546.2
30.0	same, except Brown and Gray, trace Silt seam	542.2
32.5	Red Brown Silty Sand, trace Clay and Gravel, wet, native, Till	540.2

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval: 564.2 to 553.2
Length – 11.0 FT.
Diameter – 2.0" ID
Slot # 6
Material – STAINLESS STEEL
Sand Pack Interval: 565.2 to 553.2

SAMPLE NUMBER	STATE	STATUS	N VALUE
1SS			55
2SS			10
3SS			18
4SS		◐	14
5SS		◐	4
6SS		◐	1
7SS		◐	2
8SS		◐	6
9SS		◐	25
10SS		◐	5
11SS		◐	2
12SS			2
13SS			2
14SS			5
15SS			1
16SS			WR
17SS			2
18SS			>50

NOTES:
◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
■ DEC/EPA SAMPLE
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF FILTERED WATER RESERVOIR

HOLE DESIGNATION: OW287-87 (PAGE 2 of 2)
DATE COMPLETED: 2/19/88
DRILLING METHOD: HSA 7.5" OD
CRA SUPERVISOR: C.H. PADGINTON, N.W. THOMPSON

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
32.5							
				17SS	X		2
	Red Brown Silty Sand, trace Clay and Gravel, wet, native, Till	540.2					
35.0		538.9		18SS	X		>50
	AUGERED TO REFUSAL	538.1					
	END OF BOREHOLE AT 36.1 ft. BGS						
37.5	NOTE: At completion the initial borehole was grouted to ground surface. In an adjacent borehole (6.0 ft. south) a 2.0" ID observation well was installed to 21.0 ft. BGS						
40.0							
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, NORTH OF A-PLANT

HOLE DESIGNATION: OW291-87 (PAGE 1 of 2)
DATE COMPLETED: 6/23/87
DRILLING METHOD: HSA 7.25" OD
CRA SUPERVISOR: B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	573.82 574.4					
	augered through asphalt to 2.0 ft. BGS, no sample		ROAD BOX				
1.5	Fill - Brown Black mottled fine Gravelly Silt, glass, cinders, slag, dry to moist	572.4					
3.0	same, with trace wood, ash, and metal fragments, moist to wet	571.9	CEMENT/ BENTONITE GROUT	1SS		◐	17
	Fill - Brown Gray Silty Sand, Gravelly, glass, moist	570.4	7.25" ø BOREHOLE				
4.5	same, with metal and copper wire, moist to wet	570.1 569.9					
	Fill - Red Brown Silty Clay, fine Gravel, Sand lenses, slag, moist		BENTONITE SEAL	2SS		◐	30
6.0	Fill - Gray fine to coarse Gravel, moist	568.4					
	Fill - Brown Silty Clay, Gravelly, some slag and cinders, dry to moist	567.9		3SS		◐	31
7.5	same, except Black	567.1	2.0" ø B.L. PIPE				
	Fill - Black Gray fine Gravelly Silt, some wood, moist to wet	566.4 565.9					
9.0	Fill - Black, Yellow, Tan, and Orange cinders, ash, brick, tar paper, moist			4SS		◐	8
		564.4					
10.5	Fill - Black, Brown, and Red Brown mottled fine Gravelly Silt, slag, moist to wet	563.9					
	Fill - Tan and Brown White filter cake, fine to coarse Gravel, wet			5SS		◐	3
12.0	same, except Brown Gray to Black, no Gravel	562.4	SAND PACK Q ROC #1				
				6SS		◐	31
13.5	Fill - Black metal wire	560.8					
	augered to 14.0 ft. BGS, no sample	560.6 560.4					
15.0	Gray and Olive Green laminated fine to medium Sand, wet, native			7SS		◐	9
	same, except no laminations	558.4	WELL SCREEN				
16.5				8SS		◐	5
18.0	same, with vegetation and shell fragments	556.4					
				9SS		◐	
19.5							
	Red Brown Silty Clay, moist, native	554.6		10SS			WH

NOTES:
- ◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, NORTH OF A-PLANT

HOLE DESIGNATION: OW291-87 (PAGE 2 of 2)
DATE COMPLETED: 6/23/87
DRILLING METHOD: HSA 7.25" OD
CRA SUPERVISOR: B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
19.5							
	Red Brown Silty Clay, moist, native		WELL SCREEN 8.0" ø BOREHOLE SAND PACK Q ROC #1	9SS		◑	
21.0				10SS			WH
	same, with fine Sand	552.4					
22.5			SCREEN DETAILS: Screened Interval: 566.1 to 553.9 Length -12.2 FT. Diameter -2.0" ID Slot # 6 Material- STAINLESS STEEL Sand Pack Interval: 567.4 to 553.9	11SS			1
24.0	same, with laminated dark Red and Gray Silt lenses, no Sand	550.4					
25.5				12SS			WH
27.0				13SS			WH
28.5							
				14SS			WH
30.0							
31.5				15SS			WH
33.0				16SS			1
	Red Brown fine Gravelly Clay, Silt seams, native, Till	540.5					
		540.4					
34.5	Red Brown Clayey Silt, Sandy, Gravelly, dry to moist, native, Till			17SS			>50
	augered to 36.3 ft. BGS, no sample	539.2					
36.0	END OF BOREHOLE AT 36.3 FT. BGS	538.1					
	NOTE : At completion the initial borehole was grouted to ground surface. In an adjacent borehole (6.0 ft. west) a 2.0" ID observation well was installed to 20.5 ft. BGS						
37.5	NOTE : Due to the need for quality assurance and quality control, OW291-87 was resampled (BH-291 and BH-391) from 2.0 - 18.4 ft. BGS. These samples were submitted for chemical analysis, split with EPA/DEC, and analyzed.						
39.0	2SS to 9SS - A 3.0" split spoon was used						

NOTES:
◑ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
■ DEC/EPA SAMPLE
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF A-PLANT

HOLE DESIGNATION: OW294-87 (PAGE 1 of 2)
DATE COMPLETED: 5/29/87
DRILLING METHOD: HSA 7.5" OD
CRA SUPERVISOR: B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	STATE	STATUS	'N' VALUE
	REFERENCE ELEVATION GROUND ELEVATION	574.06 574.6					
	augered to 1.0 ft. BGS, no sample	573.6	ROAD BOX				
2.5	Fill - Brown Gray Clayey Silt, trace Gravel, dry	571.4	CEMENT/ BENTONITE GROUT	1SS			10
	Fill - Red Brown Gray Clay, dry	571.3		2SS			8
5.0	Fill - Black cinders, ash, slag, dry	569.6					
	Fill - Brown and White mottled Clayey Silt, dry	569.0	7.5" ø BOREHOLE	3SS			5
7.5	Fill - Brown Gray Clayey Silt, Gravel, dry to moist	567.6 567.0		4SS			11
	Fill - Brown Gray Sandy Silt, Clay, Gravel, slag, cinders, dry to moist	565.6	BENTONITE SEAL				
10.0	Fill - Gray Black Red Brown Clayey Silt, Tan brick, cinders, White ash, dry			5SS			6
	no recovery	562.6					
12.5	Fill - Black Gravel, glass, cinders, ash, Gray slag, wet	561.6	2.0" ø B.I. PIPE	6SS		◐	17
	Fill - Black Silty Sand, Gravel, cinders, slag, ash, wet	559.6					
15.0	Fill - Black Sand, cinders, ash, wet, oily sheen, slight chemical odor	559.0		7SS		◐	50
17.5	Fill - Black Gravelly Sand, tar, rubber, wet						
	Fill - Black Sand, cinders, ash, wet	556.6		8SS		◐	35
20.0	Black Gray fine to medium Sand, wet, native	554.6	SAND PACK Q ROC #1	9SS		◐	4
		552.6					
22.5	Black Gray Silty fine to medium Sand, wet, native			10SS		◐	4
25.0				11SS		◐	8
27.5				12SS		◐	13
			WELL SCREEN				
	Black Gray laminated Gravelly Sand, wet, native	545.6		13SS		◐	23
30.0	Gray fine to medium Sand, Gravel, White shell fragments, wet, native	544.6		14SS		◐	1
		542.6					
32.5	Red Brown Sandy Silt, Gravel, dry to moist, native, Till			15SS			115
	augered to 36.2 ft. BGS, no sample	541.0					

NOTES:
◐ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
■ DEC/EPA SAMPLE
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF A-PLANT

HOLE DESIGNATION: OW294-87 (PAGE 2 of 2)
DATE COMPLETED: 5/29/87
DRILLING METHOD: HSA 7.5" OD
CRA SUPERVISOR: B. BURKETT

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
32.5							
	Red Brown Sandy Silt, Gravel, dry to moist, native, Till	*541.0*	SCREEN DETAILS:				115
35.0	augered to 36.2 ft. BGS, no sample		Screened Interval: 549.6 to 544.6				
		538.4	Length -5.0 FT.				
37.5	END OF BOREHOLE AT 36.2 FT. BGS		Diameter -2.0" ID				
	NOTE : At completion the initial borehole was grouted to ground surface. In an adjacent borehole (5.0 ft. west) a 2.0" ID observation well was installed to 30.0 ft. BGS		Slot # 6				
40.0			Material- STAINLESS STEEL				
			Sand Pack Interval: 564.7 to 544.6				
42.5	5SS to 7SS - A 3.0" split spoon was used, 3.0 ft. long						
	14SS - sample was analyzed seperately						
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES:
- ◑ SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS & DEC/EPA SPLIT
- ○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
- ◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
- ■ DEC/EPA SAMPLE
- ● DEC/EPA SPLIT
- ▽ WATER FOUND
- ▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S–AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF A–PLANT

HOLE DESIGNATION: BH222–88
DATE COMPLETED: 3/31/88
DRILLING METHOD: HSA 6.0" OD
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE "N" VALUE
	GROUND ELEVATION	575.2					
	Fill – Brown Silt, vegetation, moist	574.7	8.0"ø BOREHOLE	1SS			90
	Fill – Gray Brown Silt, fine Gray Gravel, dry						
2.5	same, with fine to coarse angular Gravel	573.2		2SS			113
	same, with trace medium Sand, dry to moist	571.2	CEMENT/ BENTONITE GROUT				
5.0				3SS			96
	Fill – Gray Black Clayey Silt, Gravelly, wood, brick, ash, slag, moist to wet	569.2		4SS			38
7.5	Fill – Red Brown Silty Clay, Gravelly, moist	567.2					
	Fill – Black Gravelly Silt, slag, ash,	566.4		5SS			33
10.0	cinders, dry to moist	565.2					
	Fill – Red Brown Silty Clay, Gravelly, moist	564.9		6SS			30
	Fill – Gray Silt and fine Sand, Gravelly, dry						
12.5	Fill – Orange Brown to Black Gravelly Silt, brick, cinders, wet	563.2		7SS			5
		561.2					
15.0	Fill – Black Gravelly Silt, cinders, trace Brown Silty Clay, piece of rubber			8SS			16
	no recovery	559.2		9SS			14
17.5							
	Gray Silty fine to medium Sand, vegetation, wet, native	557.2		10SS			18
20.0	END OF BOREHOLE AT 20.0 FT. BGS	555.2					
	At completion borehole was grouted to ground surface						
22.5							
25.0							
27.5							
30.0							
32.5							

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

○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: S-AREA
PROJECT NO.: 1769
CLIENT: OCCIDENTAL
LOCATION: WATER TREATMENT PLANT, SOUTH OF A-PLANT

HOLE DESIGNATION: BH223-88
DATE COMPLETED: 3/31/88
DRILLING METHOD: HSA 6.0" OD
CRA SUPERVISOR: D.L. TARNOWSKI

DEPTH ft BG	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE STATUS	SAMPLE 'N' VALUE
	GROUND ELEVATION	574.8					
	Fill - Brown Clayey Silt, Gravelly, vegetation, moist to dry		6.0" ø BOREHOLE	1SS			20
2.5	same, except no vegetation	572.8	CEMENT/ BENTONITE GROUT	2SS			33
	Fill - Brown to Black Clayey Silt, Gravelly, trace brick and cinders, dry to moist	570.8		3SS			48
5.0		568.8					
	Fill - Brown Silt, trace Clay, cinders, slag, brick, moist	567.8		4SS			42
7.5	Fill - Red Brown Silty Clay, slag, moist	566.8					
	Fill - White, Red Brown, and Brown Silt, cinders, ash, slag, dry to moist			5SS			10
10.0	same, except Gray Black, moist	564.8					
	Fill - Orange Brown Gravelly Silt, slag, wet	564.0		6SS			6
12.5	no recovery	562.8		7SS			5
	Fill - Red Brown Silt and coarse Sand, Gravel, slag, cinders, wet	560.8 / 560.5		8SS			31
15.0	Fill - Black Silt, cinders, wood, wet, iridescent sheen	558.8		9SS			5
	Fill - Black Silt, trace Clay, Gravel, cinders, wet	556.8		10SS			21
17.5	Gray Silty fine to medium Sand, trace rounded Gravel and vegetation, wet, native	554.8					
20.0	END OF BOREHOLE AT 20.0 FT. BGS						
22.5	At completion borehole was grouted to ground surface						
25.0							
27.5							
30.0							
32.5							

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

○ GRAIN SIZE DIST. & ATT. LIMITS FOR OCC
◑ GRAIN SIZE DIST. & ATT. FOR OCC & DEC/EPA SPLIT
● DEC/EPA SPLIT
▽ WATER FOUND
▼ STATIC WATER LEVEL

APPENDIX A.2

ANALYTICAL RESULTS

LIST OF EXHIBITS

Exhibit No.	Description
	59th Street Site Analytical Data:
A.2-1	- NUS Soil Sample Descriptions
A.2-2	- NUS Soil Sample Results
	LaSalle Area Analytical Data:
A.2-3	- NUS Soil Sample Results
A.2-4	- NUS Ground Water Sample Results (1986)
A.2-5	- NUS Ground Water Sample Results (1987)
	64th Street Dump-South Analytical Data:
A.2-6	- NUS Soil Sample Descriptions
A.2-7	- NUS Soil Sample Results
	Buffalo Avenue Site Analytical Data:
A.2-8	- AES Soil Sample Results
A.2-9	- USGS Soil Sample Results
A.2-10	- Dames & Moore Soil Sample Results
A.2-11	- Dames & Moore Soil Ground Water Sample Results

LIST OF EXHIBITS (Continued)

Exhibit No.	Description
	East Area Analytical Data:
A.2-12	- CRA/OCC Soil and Ground Water Parameters
A.2-15	- CEC Soil Sample Results (1983)
A.2-14	- CRA/OCC Soil Sample Results (1987)
A.2-15	- CEC (1982/1983), EPA (1983), and ADL (1983) Ground Water Parameters
A.2-16	- CEC, EPA, and ADL Ground Water Sample Results
A.2-17	- CRA/OCC Ground Water Sample Results (1987)

TABLE 1

SAMPLE DESCRIPTIONS
59TH STREET SITE
NIAGARA FALLS, NEW YORK

Sample Number	Sample Type	Organic Traffic Report #	Inorganic Traffic Report #	Time	Sample Location
NYA9-S1	Soil	BC246	MBD501	1010	14 feet north of curb, 3 feet east of western property line.
NYA9-S2	Soil	BC247	MBD502	1026	13.5 feet north of curb, 5 feet west of eastern property line.
NYA9-S3	Soil	BC248	MBD503	1035	At base of drum, 102 feet north of curb, 11 feet east of western property line.
NYA9-S4	Soil	BC249	MBD504	1055	80 feet north of curb, 8 feet west of eastern property line.
NYA9-S5	Soil	BC250	MBD505	1115	18 feet from northern property line, 3 feet east of western property line.
NYA9-S6	Soil	BC251	MBD506	1135	110 feet north of curb on eastern property line.
NYA9-S7	2 VOA Soil Blanks	BC252	N/A	N/A	U.S. EPA, Region II, Edison, New Jersey.

Table 2
ANALYTICAL DATA
59TH STREET SITE
SAMPLING DATE: 7/17/85
CASE: 4695

VOLATILES							
SAMPLE NUMBER	NYA9-S1	NYA9-S2	NYA9-S3	NYA9-S4	NYA9-S5	NYA9-S6	NYA9-S7
TRAFFIC REPORT NUMBER	BC246	BC247	BC248	BC249	BC250	BC251	BC252
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Chloromethane							
Bromomethane							
Vinyl Chloride							
Chloroethane							
Methylene Chloride							
Acetone	E	E	E	1000D	E	E	E
Carbon Disulfide							
1,1-Dichloroethene							
1,1-Dichloroethane							
Trans-1,2-Dichloroethene							
Chloroform							
1,2-Dichloroethane							
2-Butanone	E	E	E	E	E	E	E
1,1,1-Trichloroethane							
Carbon Tetrachloride							
Vinyl Acetate							
Bromodichloromethane							
1,1,2,2-Tetrachloroethane							
1,2-Dichloropropane							
Trans-1,3-Dichloropropene							
Trichloroethene							
Dibromochloromethane							
1,1,2-Trichloroethane							
Benzene							
Cis-1,3-Dichloropropene							
2-Chloroethylvinylether							
Bromoform							
2-Hexanone							
4-Methyl-2-Pentanone							
Tetrachloroethene							
Toluene							
Chlorobenzene							
Ethylbenzene							
Styrene							
Total Xylenes							

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
D - compound found in blank as well as the sample,
indicates presence of compound in the blank

A.2-2

Table 2 (Cont'd)
ANALYTICAL DATA
59TH STREET SITE
SAMPLING DATE: 7/17/85
CASE: 4625

SEMI-VOLATILES

SAMPLE NUMBER	NYA9-S1	NYA9-S2	NYA9-S3	NYA9-S4	NYA9-S5	NYA9-S6
TRAFFIC REPORT NUMBER	BC246	BC247	BC248	BC249	BC250	BC251
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
N-Nitrosodimethylamine	E	F			E	
Phenol	E	E	J		E	
Aniline	E	E			E	
Bis(2-Chloroethyl)Ether	E	E			E	
2-Chlorophenol	E	E			E	
1,3-Dichlorobenzene	E	E			E	
1,4-Dichlorobenzene	E	E			E	
Benzyl Alcohol	E	E			E	
1,2-Dichlorobenzene	E	E			E	
2-Methylphenol	E	E			E	
Bis(2-Chloroisopropyl)Ether	E	E			E	
4-Methylphenol	E	E	J		E	
N-Nitroso-Di-n-Propylamine	E	E			E	
Hexachloroethane	E	E			E	
Nitrobenzene	E	E			E	
Isophorone	E	E			E	
2-Nitrophenol	E	E			E	
2,4-Dimethylphenol	E	E			E	
Benzoic Acid	E	E			E	
Bis(2-Chloroethoxy)Methane	E	E			E	
2,4-Dichlorophenol	E	E			E	
1,2,4-Trichlorobenzene	E	E			E	
Naphthalene	E	E	900	J	E	J
4-Chloroaniline	E	E			E	
Hexachlorobutadiene	E	E			E	
4-Chloro-3-Methylphenol	E	E			E	
2-Methylnaphthalene	E	E	510		E	J
Hexachlorocyclopentadiene	E	E			E	
2,4,6-Trichlorophenol	E	E			E	
2,4,5-Trichlorophenol	E	E			E	
2-Chloronaphthalene	E	E			E	
2-Nitroaniline	E	E			E	
Dimethyl Phthalate	E	E			E	
Acenaphthylene	E	F			E	
3-Nitroaniline	E	E			E	
Acenaphthene	E	E			E	J
2,4-Dinitrophenol	E	E			E	
4-Nitrophenol	E	E			E	
Dibenzofuran	E	E	J		E	
2,4-Dinitrotoluene	E	E			E	
2,6-Dinitrotoluene	E	E			E	
Diethylphthalate	E	E			E	
4-Chlorophenylphenyl ether	E	E			E	
Fluorene	E	E			E	
4-Nitroaniline	E	E			E	

Table 2 (Cont'd)
ANALYTICAL DATA
59TH STREET SITE
SAMPLING DATE: 7/17/85
CASE: 4695

SEMI-VOLATILES						
SAMPLE NUMBER	NYA9-S1	NYA9-S2	NYA9-S3	NYA9-S4	NYA9-S5	NYA9-S6
TRAFFIC REPORT NUMBER	BC246	BC247	BC248	BC249	BC250	BC251
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
4,6-Dinitro-2-Methylphenol	E	E			E	
N-Nitrosodiphenylamine	E	E		J	E	J
4-Bromophenylphenyl ether	E	E			E	
Hexachlorobenzene	E	E	J		E	
Pentachlorophenol	E	E			E	
Phenanthrene	E	E	1400	J	E	360
Anthracene	E	E	J		E	J
Di-n-Butylphthalate	E	E	E	E	E	E
Fluoranthene	E	E	930	J	E	410
Benzidine	E	E			E	
Pyrene	E	E	1300	770	E	590
Butylbenzylphthalate	E	E	7500		E	
3,3'-Dichlorobenzidine	E	E			E	
Benzo(a)Anthracene	E	E	610	J	E	J
Bis(2-Ethylhexyl)Phthalate	E	E	1900	J	E	850
Chrysene	E	E	900	J	E	380
Di-n-Oct/l Phthalate	E	E			E	
Benzo(b)Fluoranthene	E	E	1100	J	E	
Benzo(K)Fluoranthene	E	E		J	E	J
Benzo(a)Pyrene	E	E	620		E	330
Indeno(1,2,3-cd)Pyrene	E	E			E	350
Dibenzo(a,h)Anthracene	E	E			E	
Benzo(ghi)Perylene	E	E			E	420
1,2-Diphenyl hydrazine			560		E	

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not poss QA/QC requirements
J - compound present below the specified detection limit
B - compound found in blank as well as the sample, indicates possible/probable blank contamination

Table 2 (Cont'd)
ANALYTICAL DATA
57TH STREET SITE
SAMPLING DATE: 7/17/05
CASE: 4695

INORGANICS						
SAMPLE NUMBER:	NYA9-S1	NYA9-S2	NYA9-S3	NYA9-S4	NYA9-S5	NYA9-S6
TRAFFIC REPORT NUMBER	MBD501	MBD502	MBD503	MBD504	MBD505	MBD506
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aluminum	11000	10286	13274	8326	16711	12542
Antimony						
Arsenic	J	J	J	J	J	J
Barium	J	J	750	J	J	148
Beryllium						
Cadmium		6.1	32	11	3.5	
Calcium	E	E	E	E	E	E
Chromium	E	77	124	96	29	69
Cobalt			J		J	J
Copper	33	118	135	55	29	44
Iron	18492	22269	53960	20578	26153	26458
Lead	156	159	5990	282	428	243
Magnesium	E	12611	8095	47661	4131	6459
Manganese	444	870	2125	937	261	855
Mercury	0.39	4.3	1.1	0.6	0.16	0.5
Nickel	23	31	74	46	31	47
Potassium		J	J	J	J	J
Selenium						
Silver						
Sodium						
Thallium						
Tin	J		108	J	J	
Vanadium	J	32	53	J	30	39
Zinc	512	481	4035	964	114	641

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

Table 2 (Cont'd)
ANALYTICAL DATA
59TH STREET SITE
SAMPLING DATE: 7/17/85
CASE: 4695

PESTICIDES/PCBs						
SAMPLE NUMBER	NYA9-S1	NYA9-S2	NYA9-S3	NYA9-S4	NYA9-S5	NYA9-S6
TRAFFIC REPORT NUMBER	BC246	BC247	BC248	BC249	BC250	BC251
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Alpha-BHC						
Beta-BHC						
Delta-BHC						
Gamma-BHC (Lindane)						
Heptachlor						
Aldrin						
Heptachlor Epoxide						
Endosulfan I						
Dieldrin						
4,4'-DDE						
Endrin						
Endosulfan II						
4,4'-DDD						
Endosulfan sulfate						
Endrin Aldehyde						
4,4'-DDT						
Methoxychlor						
Endrin Ketone						
Chlordane						
Toxaphene						
Aroclor-1016						
Aroclor-1221						
Aroclor-1232						
Aroclor-1242						
Aroclor-1248						
Aroclor-1254	400	380	2700	720		520
Aroclor-1260						

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in blank as well as the sample, indicates possible/probable blank contamination

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
CASE: 5230/20460

TABLE A-1
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

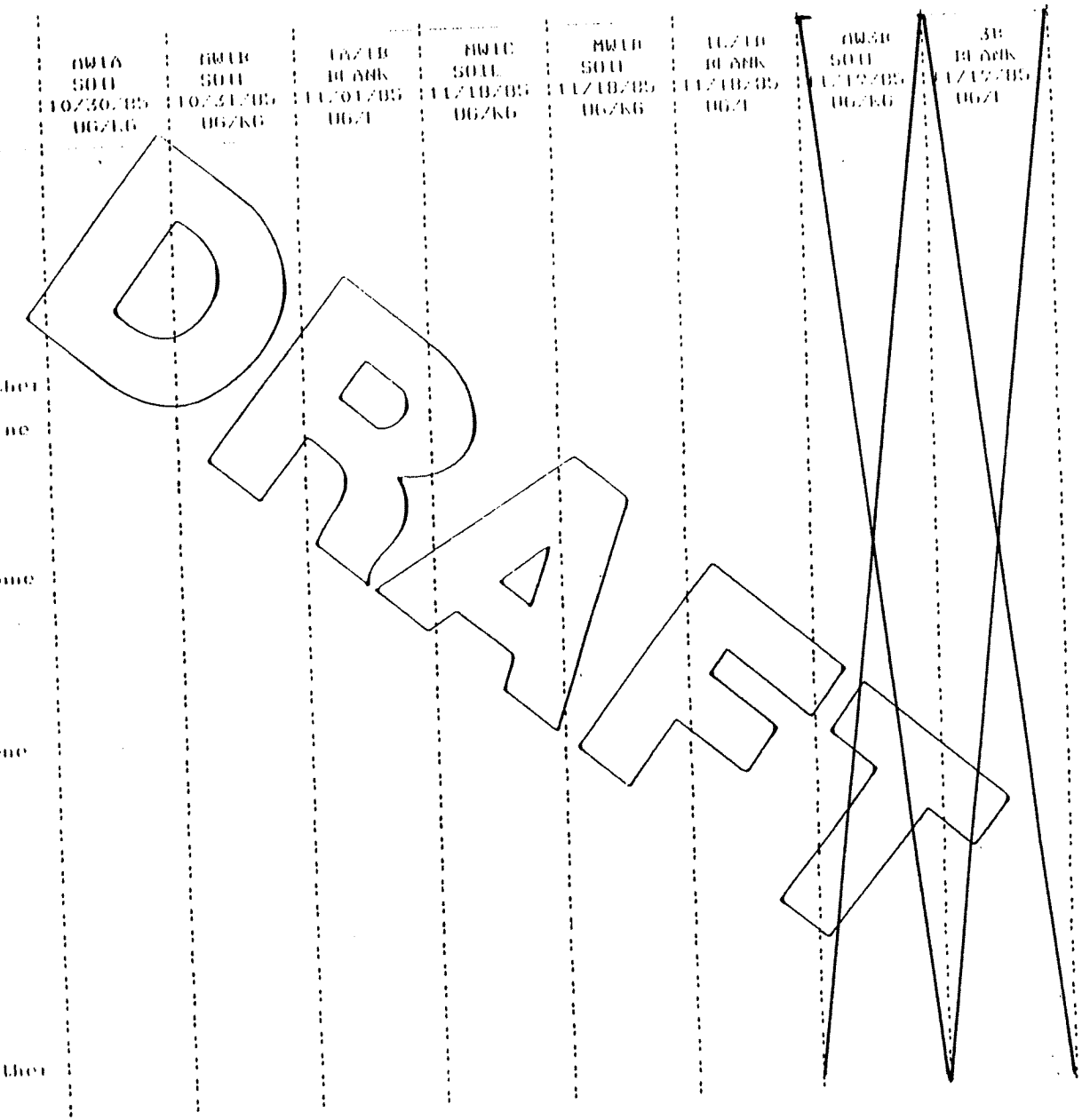
VOLATILES

SAMPLE LOCATION	MW1A	MW1B	1A/1B	MW1C	MW1D	1C/1D	MW3B	3B
MATRIX	SOIL	SOIL	BLANK	SOIL	SOIL	BLANK	SOIL	BLANK
DATE SAMPLED	10/30/85	10/31/85	11/01/85	11/10/85	11/10/85	11/10/85	1/19/85	1/19/85
UNITS	UG/KG	UG/KG	UG/L	UG/KG	UG/KG	UG/L	UG/KG	UG/L
Chloromethane								
Bromomethane								
Vinyl Chloride								
Chloroethane								
Methylene Chloride	E	E		E	E	J	E	E
Acetone	E	30	J	E	E		E	E
Carbon Disulfide								
1,1-Dichloroethene								
1,1 Dichloroethane								
trans-1,2 Dichloroethene								
Chloroform	E		16			J	J	
1,2 Dichloroethane								
2 Butanone		E	12			25		730
1,1,1-Trichloroethane								
Carbon Tetrachloride								
Vinyl Acetate								
Bromodichloromethane								
1,1,2,2-Tetrachloroethane								
1,2-Dichloropropane								
trans-1,3 Dichloropropene								
Trichloroethene								
Dibromochloromethane								
1,1,2-Trichloroethane								
Benzene								
Cis 1,3 Dichloropropene								
2 Chloroethylvinylether								
Bromoform								E
2-Hexanone								
4 Methyl-2 Pentanone								
Tetrachloroethene								
Toluene	20	J		7.5	11		13	
Chlorobenzene								
Ethylbenzene								
Styrene								
Total Xylenes								

DRAFT

NOTES:
Blank space = compound analyzed for but not detected
E = analysis did not pass QA/QC requirements
J = compound present below the specified detection limit
B = compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986



DRAFT

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

GHAT CHEMICAL DATA
Hinsdale LANDFILL GROUNDWATER MONITORING PROGRAM
CASE : 5230/2043R

SAMPLE LOCATION	MWIA	MW1B	TA/1B	MW1C	MW1D	TC/1D	MW3B	3B
MATRIX	SOIL	SOIL	BLANK	SOIL	SOIL	BLANK	SOIL	BLANK
DATE SAMPLED	10/30/85	10/31/85	11/01/85	11/18/85	11/18/85	11/18/85	1/19/85	1/19/85
UNITS	UG/KG	UG/KG	UG/L	UG/KG	UG/KG	UG/L	UG/KG	UG/L
4,6 Dinitro 2 methylphenol								
N Nitrosodiphenylamine								
4 Bromophenylphenyl ether								
Hexachlorobenzene								
Pentachlorophenol								
Phenanthrene								
Anthracene								
Di n Butylphthalate								
Fluoranthene								
Benzidine								
Pyrene								
Butylbenzylphthalate								
3,3' Dichlorobenzidine								
Benzo(a)Anthracene								
Bis(2 Ethylhexyl)Phthalate	E	E		F	J E			
Chrysene								
Di n Octyl Phthalate								
Benzo(b)Fluoranthene								
Benzo(K)Fluoranthene								
Benzo(a)Pyrene								
Indeno(1,2,3 cd)Pyrene								
Dibenzo(a,h)Anthracene								
Benzo(ghi)Perylene								

NOTES:
Blank Space = Compound analyzed for but not detected
U = analysis did not pass QA/QC requirements
J = compound present below the specified detection limit
B = compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

DRAFT

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

CASE FILE# Data
NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
CASE # 82-30-2046R

PEST/HERB/PCBs	MW1A SOIL 10/30/85 UG/KG	MW1B SOIL 10/31/85 UG/KG	TA/TB BLANK 11/01/85 UG/L	MW1C SOIL 11/18/85 UG/KG	MW1D SOIL 11/18/85 UG/KG	TC/TD BLANK 11/18/85 UG/L	MW3D SOIL 11/19/85 UG/KG	3D BLANK 11/19/85 UG/L
SAMPLE LOCATION								
MATRIX								
DATE SAMPLED								
UNITS								
Alpha BHC								
Beta BHC								
Delta BHC								
Gamma BHC (Lindane)								
Heptachlor								
Aldrin								
Heptachlor Epoxide								
Endosulfan I								
Dieldrin								
4,4' DDE								
Endrin								
Endosulfan II								
4,4' DDD								
Endosulfan sulfate								
Endrin Aldehyde								
4,4' DDT								
Methoxychlor								
Endrin Ketone								
Chlordane								
Toxaphene								
Aroclor 1016								
Aroclor 1221								
Aroclor 1232								
Aroclor 1242								
Aroclor 1248								
Aroclor 1254								
Aroclor 1260								

NOTES:
Blank space — Compound analyzed for but not detected
U — analysis did not pass QA/QC requirements
J — compound present below the specified detection limit
B — compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

DRAFT

Table 4.11.d Data
CHEMICAL WASTE GROUNDWATER MONITORING PROGRAM
CASE # 50250.20458

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

PARAMETERS	SAMPLE LOCATION	MW1A	MW1B	TA/TB	MW1C	MW1D	TC/TD	MW3B	3B
	MATRIX	SOIL	SOIL	BLANK	SOIL	SOIL	BLANK	SOIL	BLANK
	DATE SAMPLED	10/30/85	10/31/85	11/01/85	11/18/85	11/18/85	11/18/85	12/19/85	12/19/85
	UNITS	MG/KG	MG/KG	UG/l	MG/KG	MG/KG	UG/l	MG/KG	UG/l
Aluminum		20900	23000		14600	19700		23600	
					J	J		J	
Antimony									
Arsenic		13	12					12.5	
Barium		126	157		J	171		J	
Beryllium		J	J						
Cadmium		J	J					1600	
Calcium		36600	60300		57000	66100		40	
Carbon		23	26		25	35			
Chromium		J	J		J	J		J	
Cobalt					25	27		33	
Copper		32	40		30000	33000		19200	
Iron		29500	31300		7.3	10		12	
Lead		8.6	14		11700	14400		17900	
Magnesium		14600	15100		685	778		577	
Manganese		619	594						
Mercury								4.2	
Nickel		36	46		36	45		5330	
Potassium		J	J		J	4390			
Selenium		4320	5140						
Silver									
Sodium		J	J		J	J		J	
Thallium									
Tin									
Vanadium		36	39		33	44		53	
Zinc		74	85		59	69		90	

NOTES:
Blank space — Compound analyzed for but not detected
I — analysis did not pass QA/QC requirements
J — compound present below the specified detection limit
B — compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

DRAFT

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

Other Soil Pollutants								
Sample Location	MW1A	MW1B	EA/EB	MW1C	MW1D	EC/ED	MW3B	SB
Matrix	SOIL	SOIL	BLANK	SOIL	SOIL	BLANK	SOIL	BLANK
Well Sampled	10/30/85	10/31/85	11/01/85	11/18/85	11/18/85	11/18/85	11/12/85	11/12/85
Units	UG/KG	UG/KG	UG/L	UG/KG	UG/KG	UG/L	UG/KG	UG/L
Ammonia detected	NA	NA	NA	J	J	NA	J	NA
Total Inorganic Carbon	NA	NA	NA	12900	10900	NA	15500	NA
Total Organic Carbon	NA	NA	NA	2820	4330	NA	10300	NA
Total Organic Halogens	NA	NA	NA	J	J	NA	J	NA
Specific Gravity	NA	NA	NA	2.2	1.9	NA	2.0	NA
Hexavalent Chromium	NA	NA	NA			NA		NA
Total Recoverable Phenolics	NA	NA	NA	NG	NG	NA	NG	NA
Cyanide	NA	NA	NA	J	J	NA	J	NA

NOTES:
Blank space - compound analyzed for but not detected
I - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination
NG - sample results not valid
NA - not applicable

DRAFT

ANALYTICAL DATA
NAME: NIAGARA FALLS SPLIT SPOON SAMPLING
SAMPLING DATE: 3/31, 4/1, 4/3, 4/8, 4/15, 4/17, 4/24/86
CASE: 5754/21658

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

VOLATILES

SAMPLE NUMBER	NYD2-4A	NYD2-4B	NYD2-4C	NYD2-4D	MW5A-S	MW5B-S	MW5C-S	MW5D	MW6A-S	MW6B-S	MW6C-S	MW6D-S	4A/C-BLK	4B-BLK	4D-BLK	B1	B2	B4	MW6-BLKS	MW6BKIN S	MW6BKIN B
DATE SAMPLED	4/3	4/1	4/3	3/31	4/17	4/17	4/15	4/8	4/24	4/24	4/24	4/15	4/3	4/1	3/31	4/8	4/15	4/17	4/24	4/24	4/24
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	RINSATE	BLANK
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Chloroethane																					
Bromomethane																					
Vinyl Chloride																					
Chloroethane																					
Methylene Chloride	E	E	E	E	E	E	E	50B		E	E	E	E	E	E	E			E	69B	210B
Acetone	94B	E	E	E	E	E	E	E	E	E	430B	E	E	E	E	E	E		E	E	E
Carbon Disulfide																					
1,1 Dichloroethene																					
1,1-Dichloroethane																					
Trans-1,2-Dichloroethene																					
Chloroform														J						13	11
1,2-Dichloroethane																					
2-Butanone	78B	E	19B	E	E	E	E	31B		E	E	E	E	E	E	59B	E		5B	E	E
1,1,1-Trichloroethane					J	J						J									
Carbon Tetrachloride																					
Vinyl Acetate																					
Bromodichloroethane																				J	
1,1,2,2-Tetrachloroethane																					
1,2-Dichloropropane																					
Trans-1,3-Dichloropropene																					
Trichloroethene																					
Dibromochloromethane																					
1,1,2-Trichloroethane																					
Benzene					J																
Cis-1,3-Dichloropropene																					
2 Chloroethylvinylether																					
Bromoform																					
2-Hexanone																					
4-Methyl-2-Pentanone					J																
Tetrachloroethene																					
Toluene	85	210	21	44	33	13	18	20	E	E	E	6	J	J		J			J	E	E
Chlorobenzene				J			J														
Ethylbenzene																					
Styrene																					
Total Xylenes																					

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contaminat

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS SPLIT SPOON SAMPLING
SAMPLING DATE: 3/31, 4/1, 4/3, 4/8, 4/15, 4/17, 4/24/86
CASE: 5754/21858

SEMI-VOLATILES

SAMPLE NUMBER	NYD2 4A	NYD2-4B	NYD2-4C	NYD2-4D	MW5A-S	MW5B-S	MW5C-S	MW5D	MW6A-S	MW6B-S	MW6C-S	MW6D-S	4A/C-BLK	4B-BLK	4D-BLK	B1	B2	B4	MW5 ELFS	MW5BRIN-S	MW5BRIN D
DATE SAMPLED	4/3	4/1	4/3	3/31	4/17	4/17	4/15	4/8	4/24	4/24	4/24	4/15	4/3	4/1	3/31	4/8	4/15	4/17	4/24	4/24	4/24
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	RINSATE	BLANK
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Phenol				J				J													
Aniline																					
Bis(2 Chloroethyl)Ether																					
2-Chlorophenol				J																	
1,3-Dichlorobenzene																					
1,4 Dichlorobenzene				J																	
Benzyl Alcohol																					
1,2-Dichlorobenzene																					
2-Methylphenol																					
Bis(2-Chloroisopropyl)Ether																					
4-Methylphenol																					
N-Nitroso-Di-n-Propylamine				J																	
Hexachloroethane																					
Nitrobenzene																					
Isophorone																					
2-Nitrophenol																					
2,4-Dimethylphenol																					
Benzoic Acid																					
Bis(2-Chloroethoxy)Methane																					
2,4-Dichlorophenol																					
1,2,4-Trichlorobenzene				J																	
Naphthalene																					
4-Chloroaniline																					
Hexachlorobutadiene																					
4-Chloro-3-Methylphenol																					
2-Methylnaphthalene																					
Hexachlorocyclopentadiene																					
2,4,6-Trichlorophenol																					
2,4,5-Trichlorophenol																					
2-Chloronaphthalene																					
2-Nitroaniline																					
Dimethyl Phthalate									J												
Acenaphthylene																					
3-Nitroaniline																					
Acenaphthene				J					J												
2,4 Dinitrophenol																					
4 Nitrophenol																					
Dibenzofuran																					
2,4-Dinitrotoluene																					

DRAFT

ANALYTICAL DATA
NAME: NIAGARA FALLS SPLIT SPOON SAMPLING
SAMPLING DATE: 3/31, 4/1, 4/3, 4/8, 4/15, 4/17, 4/24/86
CASE: 5754/21856

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

SEMI-VOLATILES																							
SAMPLE NUMBER	NYD2-4A	NYD2-4B	NYD2-4C	NYD2-4D	MW5A-S	MW5B-S	MW5C-S	MW5D	MW6A-S	MW6B-S	MW6C-S	MW6D-S	MW/C-BLK	MB-BLK	MD-BLK	B1	B2	B4	MW6-BLK	MW6BKGN S	MW6BKGN B
DATE SAMPLED	4/3	4/1	4/3	3/31	4/17	4/17	4/15	4/8	4/24	4/24	4/24	4/15	4/3	4/1	3/31	4/8	4/15	4/17	4/24	4/24	4/24
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	RINSATE	BLANK
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
2,6-Dinitrotoluene																					
Diethylphthalate									J												
4-Chlorophenylphenyl ether																					
Fluorene									J												
4-Nitroaniline																					
4,6-Dinitro-2-Methylphenol																					
N-Nitrosodiphenylamine																					
4-Bromophenylphenyl ether																					
Hexachlorobenzene																					
Pentachlorophenol									J												
Phenanthrene																					
Anthracene									J												
Di-n-Butylphthalate						E	E		E								J			E	
Fluoranthene																					
Benzidine																					J
Pyrene																					
Butylbenzylphthalate									J												
3,3'-Dichlorobenzidine																					
Benzo(a)Anthracene																					
Bis(2-Ethylhexyl)Phthalate					J				J			J								E	
Chrysene																					
Di-n-Octyl Phthalate									J												
Benzo(b)Fluoranthene									J												
Benzo(k)Fluoranthene									J												
Benzo(a)Pyrene									J												
Indeno(1,2,3-cd)Pyrene																					
Dibenzo(a,h)Anthracene																					
Benzo(ghi)Perylene																					

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS SPLIT SPOON SAMPLING
SAMPLING DATE: 3/31, 4/1, 4/3, 4/8, 4/15, 4/17, 4/24/86
CASE: 5754/2185B

PESTICIDES/PCBs																					
SAMPLE NUMBER	NYD2-4A	NYD2-4B	NYD2-4C	NYD2-4D	MW5A-S	MW5B-S	MW5C-S	MW5D	MW6A-S	MW6B-S	MW6C-S	MW6D-S	4A/C-BLK	4B BLK	4D BLK	B1	B2	B4	MW6 BLK	MW6ERIN S	MW6ERIN B
DATE SAMPLED	4/3	4/1	4/3	3/31	4/17	4/17	4/15	4/8	4/24	4/24	4/24	4/15	4/3	4/1	3/31	4/8	4/15	4/17	4/24	4/24	4/24
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	RINSATE	BLANK
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Alpha-BHC																					
Beta-BHC																					
Delta-BHC																					
Gamma-BHC (Lindane)																					
Heptachlor																					
Aldrin																					
Heptachlor Epoxide																					
Endosulfan I																					
Dieldrin																					
4,4'-DDE																					
Endrin																					
Endosulfan II																					
4,4'-DDD																					
Endosulfan sulfate																					
Endrin Aldehyde																					
4,4'-DDT																					
Methoxychlor																					
Endrin Ketone																					
Chlordane																					
Toxaphene																					
Aroclor-1016																					
Aroclor-1221																					
Aroclor-1232																					
Aroclor-1242																					
Aroclor-1248																					
Aroclor-1254																					
Aroclor-1260																					

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

TABLE A-1 (CONT'D)
SOIL SAMPLING RESULTS
OCTOBER 30, 1985 - MAY 8, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS SPLIT SPOON SAMPLING
SAMPLING DATE: 3/31, 4/1, 4/3, 4/8, 4/15, 4/17, 4/24/86
CASE: 5/54/21858

PARAMETERS																							
SAMPLE NUMBER	NYD2-4A	NYD2-4B	NYD2-4C	NYD2-4D	MW5A-S	MW5B-S	MW5C-S	MW5D	MW6A-S	MW6B-S	MW6C-S	MW6D-S	4A/C BLK	4B-BLK	4D-BLK	B1	B2	B4	MW6-BLKS	MW6BRIN S	MW6BRIN-B
DATE SAMPLED	4/3	4/1	4/3	3/31	4/17	4/17	4/15	4/8	4/24	4/24	4/24	4/15	4/3	4/1	3/31	4/8	4/15	4/17	4/24	4/24	4/24
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	RINSATE	BLANK
UNITS	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	mg/kg	mg/kg	mg/kg	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Aluminum	3960	4760	5900	4330	8830	7450	5640	6480	3940	10500	4350	5570								J	
Antimony									J	J	J										
Arsenic		5.7		6.5	J	J	J	J	J		J	J									
Barium					J	J	J			190											
Beryllium																					
Cadmium												J									
Calcium	35100	13900	4800	16700	4420	4200	52000	14900	25000	11600	41300										
Chromium	7.2	7.8	10	J	12	10	8.8	9.1	6.5	26	7.7	7.7									
Cobalt																					
Copper	J		16		18	16	J	67	J	32	J	J								E	E
Iron	14300	10400	13800	7960	20500	14100	E	13900	12400	21400	10000	E							J		
Lead	8.3	6.8	6.1	4.7	13	15	9.1	11	J	J	J	12									
Magnesium	10900	7600	12500	9510	3330	J	12700	7260	9800	5990	12200	J							E		
Manganese	269	428	499	93	722	732	861	174	J	J	J	108									
Mercury					0.22	0.07					0.3										
Nickel		J	J	J	J	J	J	J		J											
Potassium		J	J		J	J	J	J	J	J	J								E		
Selenium																				E	E
Silver								J											E		
Sodium																					
Thallium										82											
Tin																					
Vanadium	J	J	27		J	J	J	J	J	J	J	J							J	J	
Zinc	35	37	39	28	55	48	44	51	27	95	27	45									
Cyanide																					

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample; indicates possible/probable blank contamination

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21656

TABLE A-2
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

VOLATILES																	
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1-DA	MW2A	MW2B	MW2C	MW2D	MW2-DA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3-DA
SAMPLING DATE	5/14/86	5/14/86	5/14/86	5/14/86	5/14/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/12/86	5/12/86	5/12/86	5/12/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Chloroethane																
Bromoethane														J	J	
Vinyl Chloride		J					110	160								
Chloroethane																
Methylene Chloride	E		E	E	E	E	E	E	E	E	E	E	E	E	E	E
Acetone			E	E	E	E			E	E	E	E	E	E	E	E
Carbon Disulfide			J				J	5								
1,1-Dichloroethene							5	J					J			
1,1-Dichloroethane							J	J						J		
Trans-1,2-Dichloroethene							34	33								
Chloroform							E	E								
1,2 Dichloroethane																E
2-Butanone			E	E	E	E	E	E		E		E	E	E		
1,1,1-Trichloroethane																
Carbon Tetrachloride																
Vinyl Acetate																
Bromodichloromethane																
1,1,2,2-Tetrachloroethane																
1,2-Dichloropropane																
Trans-1,3-Dichloropropene																
Trichloroethene							12	J								
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene							14	7			J		J			
Cis-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform								J								
2-Hexanone																
4-Methyl-2-Pentanone																
Tetrachloroethene																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Total Xylenes																

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - d found orator as we he sam

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21858

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

SEMI-VOLATILES

SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1-OA	MW2A	MW2B	MW2C	MW2D	MW2-OA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3-OA
SAMPLING DATE	5/14/86	5/14/86	5/14/86	5/14/86	5/14/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/12/86	5/12/86	5/12/86	5/12/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Phenol	NOT								E							
Bis(2-Chloroethyl)Ether	ENOUGH								E							
2-Chlorophenol	SAMPLE															
1,3-Dichlorobenzene	VOLUME															
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene									E							
2-Methylphenol							J									
Bis(2-Chloroisopropyl)Ether									E							
4-Methylphenol																
N-Nitroso-Di-n-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone									E							
2-Nitrophenol							J		E							
2,4-Dimethylphenol									E							
Benzoic Acid																
Bis(2-Chloroethoxy)Methane									E							
2,4-Dichlorophenol																
1,2,4-Trichlorobenzene													J			
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene									E							
4-Chloro-3-Methylphenol																
2-Methylnaphthalene																
Hexachlorocyclopentadiene									E							
2,4,6-Trichlorophenol									E							
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethyl Phthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene									E							
2,4-Dinitrophenol									E							
4 Nitrophenol																
Dibenzofuran																
2,4-Dinitrotoluene																
2,6-Dinitrotoluene																

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21858

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

SEMI-VOLATILES																
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1-DA	MW2A	MW2B	MW2C	MW2D	MW2-DA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3-DA
SAMPLING DATE	5/14/86	5/14/86	5/14/86	5/14/86	5/14/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/12/86	5/12/86	5/12/86	5/12/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Diethylphthalate																
4 Chlorophenylphenyl ether																
Fluorene																
4 Nitroaniline									E							
4,6-Dinitro-2-Methylphenol									J							J
N Nitrosodiphenylamine																
4-Bromophenylphenyl ether																
[illegible] chlorobenzene									E							
Pentachlorophenol																
Phenanthrene																
Anthracene																E
Di-n-Butylphthalate																
Fluoranthene																
Benzidine																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)Anthracene																
Bis(2-Ethylhexyl)Phthalate																
Chrysene																
Di-n-Octyl Phthalate																
Benzo(b)Fluoranthene																
Benzo(k)Fluoranthene																
Benzo(a)Pyrene																
Indeno(1,2,3-cd)Pyrene																
Dibenzo(a,h)Anthracene																
Benzo(ghi)Perylene																

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

DRAFT

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21858

PESTICIDES/PCBs																
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1-DA	MW2A	MW2B	MW2C	MW2D	MW2-DA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3-DA
SAMPLING DATE	5/14/86	5/14/86	5/14/86	5/14/86	5/14/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/12/86	5/12/86	5/12/86	5/12/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Alpha-BHC																
Beta-BHC																
Delta-BHC																
Gamma-BHC (Lindane)																
Heptachlor																
Aldrin																
Heptachlor Epoxide																
Endosulfan I																
Dieldrin																
4,4'-DDE																
Endrin																
Endosulfan II																
4,4'-DDD																
Endosulfan sulfate																
Endrin Aldehyde																
4,4'-DDT																
Methoxychlor																
Endrin Ketone																
Chlordane																
Toxaphene																
Aroclor-1016																
Aroclor-1221																
Aroclor-1232																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																

DRAFT

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21858

INORGANICS																	
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1-DA	MW2A	MW2B	MW2C	MW2D	MW2-DA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3-DA
SAMPLING DATE	5/14/86	5/14/86	5/14/86	5/14/86	5/14/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/12/86	5/12/86	5/12/86	5/12/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Aluminum	17100	22800		1470	1690	23600	988				6800	80000	4620	513 J		1020
Antimony																
Arsenic	J	J				18	J	J	J		J	54	J			
Barium	J		725		J	J					J	403	J			
Beryllium																
Cadmium		40									11					
Calcium	140000	542000	732000	510000	520000	201000	520000	686000	640000	662000	432000	394000	193000	269000	561000	572000
Chromium	94	62			17	72	140	330			30	240	138			
Cobalt												62				
Copper	59	68			J	52					53	149	26	J		
Iron	29500	35600	532	2730	3250	31400	4580	1900	398	192	9850	126000	9240	631	950	1360
Lead	E	E			B	E	E	E	E	E	E	E	35	J		30
Magnesium	49800	165000	69100	59200	59600	72500	76300	58400	10300	10600	126000	156000	44800	28100	59200	60200
Manganese	859	912	56	93	117	1140	152				1000	2870	371	24	76	87
Mercury																J
Nickel	230					54					64	456	96			
Potassium	5860	11000	9480	9580	10500	J	8840	10200	13900	15900	0	7420	12600	13300	9960	10400
Selenium																
Silver	E	E				E	E	E	E	E	E	E	E	E	E	E
Sodium	49600	690000	272000	95200	106000	18400	444000	508000	135000	139000	79700	46800	148000	190000	296000	288000
Thallium	E	E				E	E	E	E	E	E	E	E	E	E	E
Tin	E	E				E	E	E	E	E	E	E				
Vanadium	J					J					J	175	J			
Zinc	131	154			60	249	168	46	54		139	447	118	36		54
Cyanide		20														

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21858

SAS PARAMETERS																	
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1 DA	MW2A	MW2B	MW2C	MW2D	MW2 DA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3 DA
SAMPLING DATE	5/14/86	5/14/86	5/14/86	5/14/86	5/14/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/12/86	5/12/86	5/12/86	5/12/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Total Organic Halogens(ug/l)	NOT	J	J	J	J	J	J	J	J	J	NOT	J	J	J	J	J
Ammonia Nitrogen (mg/l)	ENOUGH	10	8	3	3		24	32	4	5	ENOUGH		7	12	7	8
Chloride (mg/l)	SAMPLE	1510	810	390	380	52	1030	1430	490	480	SAMPLE	150	340	430	440	450
Phenolics (mg/l)	VOLUME						0.051	0.017			VOLUME		0.017	0.006		
Specific Gravity		1.0005	1.0002	0.9994	0.9994	0.9984	0.9997	1.0004	0.9997	1.0005		1.0000	0.9986	0.9991	0.9995	1.0005
Sulfate (mg/l)		660	1710	1210	1140	104	1700	1400	3580	1360		340	220	430	1400	1430
Total Organic Carbon (mg/l)		6		8	9	1	28	33	6	6		2	6	8	8	7
Total Inorganic Carbon (mg/l)		51	60	55	58	60	132	18	1	1		65	30	24	43	49
Hexavalent Chromium (mg/l)													0.002			

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

DRAFT

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/2185-B

VOLATILES

SAMPLE NUMBER	MW4A	MW4B	MW4C	MW4D	MW4-DA	MW5A	MW5B	MW5C	MW5D	MW5-DA	MW6A	MW6B	MW6C	MW6D	MW6-DA	NFB9	NFB10
SAMPLING DATE	5/12/86	5/12/86	5/12/86	5/12/86	5/12/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/14/86	5/14/86	5/13/86	5/14/86	5/14/86	5/13/86	5/13/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Chloroethane																	
Bromoethane																	
Vinyl Chloride							J			J		J			J	24	J
Chloroethane																	
Methylene Chloride	E	E	E	E	E	E	E	E	E	E		E	E		E	E	E
Acetone	E	E	E	E	E		E	E	E			E	E	E	E	E	E
Carbon Disulfide							J			J		J				J	J
1,1-Dichloroethene																	
1,1-Dichloroethane												J			J	5	J
Trans-1,2-Dichloroethene			J				J									J	
Chloroform																	
1,2-Dichloroethane																	E
2-Butanone	E	E	E	E			E	E	E	E		E					
1,1,1-Trichloroethane																	
Carbon Tetrachloride																	
Vinyl Acetate																	
Bromodichloromethane																	
1,1,2,2-Tetrachloroethane																	
1,2-Dichloropropane																	
Trans-1,3-Dichloropropene																	
Trichloroethene																	
Dibromochloromethane																	
1,1,2-Trichloroethane																	
Benzene								J									
Cis-1,3-Dichloropropene																	
2-Chloroethylvinylether																	
Bromoform																	
2-Hexanone			E														
4-Methyl-2-Pentanone																	
Tetrachloroethene																	
Toluene								J	J								
Chlorobenzene																	
Ethylbenzene																	
Styrene																	
Total Xylenes																	

DRAFT

NOTES:
Blank space - compound analyzed for but not detected
E - analyses did not pass QA/QC requirements
J - co[illegible] presen[illegible] the sp[illegible] detec[illegible] att[illegible]

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5/54/21855

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

SEMI-VOLATILES																	
SAMPLE NUMBER	MW4A	MW4B	MW4C	MW4D	MW4 DA	MW5A	MW5B	MW5C	MW5D	MW5 DA	MW6A	MW6B	MW6C	MW6D	MW6 DA	NF69	NF610
SAMPLING DATE	5/12/86	5/12/86	5/12/86	5/12/86	5/12/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/14/86	5/14/86	5/13/86	5/14/86	5/14/86	5/13/86	5/13/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Phenol																	
Bis(2-Chloroethyl)Ether																	
2-Chlorophenol																	
1,3 Dichlorobenzene																	
1,4-Dichlorobenzene																	
Benzyl Alcohol																	
1,2-Dichlorobenzene																	
2-Methylphenol																	
Bis(2-Chloroisopropyl)Ether																	
4 Methylphenol																	
N-Nitroso-Di-n-Propylamine																	
Hexachloroethane																	
Nitrobenzene																	
Isophorone																	
2-Nitrophenol																	
2,4-Dimethylphenol																	
Benzoic Acid																	
Bis(2-Chloroethoxy)Methane																	
2,4-Dichlorophenol																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
4 Chloroaniline																	
Hexachlorobutadiene																	
4-Chloro-3-Methylphenol																	
2-Methylnaphthalene																	
Hexachlorocyclopentadiene																	
2,4,6-Trichlorophenol																	
2,4,5-Trichlorophenol																	
2-Chloronaphthalene																	
2-Nitroaniline																	
Dimethyl Phthalate																	
Acenaphthylene																	
3-Nitroaniline																	
Acenaphthene																	
2,4-Dinitrophenol																	
4-Nitrophenol																	
Dibenzofuran																	
2,4-Dinitrotoluene																	

DRAFT

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5/54/21858

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

SEMI-VOLATILES																		
SAMPLE NUMBER	MW4A	MW4B	MW4C	MW4D	MW4 DA	MW5A	MW5B	MW5C	MW5D	MW5-DA	MW6A	MW6B	MW6C	MW6D	MW5-DA	MW9	MW10
SAMPLING DATE	5/12/86	5/12/86	5/12/86	5/12/86	5/12/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/14/86	5/14/86	5/13/86	5/14/86	5/14/86	5/13/86	5/13/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
2,6-Dinitrotoluene																	
Diethylphthalate																	
4-Chlorophenylphenyl ether																	
Fluorene																	
4-Nitroaniline																	
4,6-Dinitro-2-Methylphenol																	
N-Nitrosodiphenylamine																	
4-Bromophenylphenyl ether																	
Hexachlorobenzene																	
Pentachlorophenol																	
Phenanthrene																	
Anthracene																	
Di-n-Butylphthalate	E		E	E		E	E	E			E		E		E		E
Fluoranthene																	
Benzidine																	
Pyrene																	
Butylbenzylphthalate																	
3,3'-Dichlorobenzidine																	
Benzo(a)Anthracene														E		E	E
Bis(2-Ethylhexyl)Phthalate						E	E										
Chrysene																	
Di-n-Octyl Phthalate																	
Benzo(b)Fluoranthene																	
Benzo(k)Fluoranthene																	
Benzo(a)Pyrene																	
Indeno(1,2,3-cd)Pyrene																	
Dibenzo(a,h)Anthracene																	
Benzo(ghi)Perylene																	

DRAFT

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21858

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

PESTICIDES/PCBs																	
SAMPLE NUMBER	MW4A	MW4B	MW4C	MW4D	MW4-DA	MW5A	MW5B	MW5C	MW5D	MW5-DA	MW6A	MW6B	MW6C	MW6D	MW6-DA	MW9	MW10
SAMPLING DATE	5/12/86	5/12/86	5/12/86	5/12/86	5/12/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/14/86	5/14/86	5/13/86	5/14/86	5/14/86	5/13/86	5/13/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Alpha-BHC																	
Beta-BHC																	
Delta-BHC																	
Gamma-BHC (Lindane)																	
Heptachlor																	
Aldrin																	
Heptachlor Epoxide																	
Endosulfan I																	
Dieldrin																	
4,4'-DDE																	
Endrin																	
Endosulfan II																	
4,4'-DDD																	
Endosulfan sulfate																	
Endrin Aldehyde																	
4,4'-DDT																	
Methoxychlor																	
Endrin Ketone																	
Chlordane																	
Toxaphene																	
Aroclor-1016																	
Aroclor-1221																	
Aroclor-1232																	
Aroclor-1242																	
Aroclor-1248																	
Aroclor-1254																	
Aroclor-1260																	

DRAFT

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5754/21858

INORGANICS

SAMPLE NUMBER	MW4A	MW4B	MW4C	MW4D	MW4-DA	MW5A	MW5B	MW5C	MW5D	MW5-DA	MW6A	MW6B	MW6C	MW6D	MW6-DA	MF69	MF610
SAMPLING DATE	5/12/86	5/12/86	5/12/86	5/12/86	5/12/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/14/86	5/14/86	5/13/86	5/14/86	5/14/86	5/13/86	5/13/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Aluminum	16500	47100	15000	888	808	2810	4320		1760	4440	29200	9770	1980	139000	8660	9620	2860
Antimony																	
Arsenic	J	14	10				J			J	22			120			
Barium	J	J	938					398			201	J		1170	J		
Beryllium																	
Cadmium																	
Calcium	207000	557000	1270000	702000	731000	122000	670000	892000	672000	668000	160000	486000	760000	4490000	451000	1180000	618000
Chromium	90	185	58			45	130			150	96	72		403	62		
Cobalt											J						
Copper	49	190				J	71		136	94	49	37		490	27	76	
Iron	37000	75500	12800	682	735	4670	9590	629	1540	9800	42700	16200	2200	135000	12800	44100	99300
Lead	15	29		30	30	E	E	E	E	E	18		E			E	E
Magnesium	48700	18400	66800	34300	22080	26000	172000	5410	21300	161000	47400	115000	126000	837000	105000	155000	122000
Manganese	715	2100	402			216	580		61	544	1150	488	68	4460	320	892	428
Mercury																	110
Nickel	73	J				50				162	92	70					
Potassium	J	14200	16100	18400	17700		9070	188000	272000	8820	6010	8500	61000	9380	8530	15000	10000
Selenium																E	E
Silver	E	E	E	E	E	E	E	E	E	E			E				
Sodium	15600	64700	205000	146000	143000	18000	258000	216000	142000	604000	12200	214000	253000	134000	253000	864000	249000
Thallium	E	E	E	E	E	E	E	E	E	E			E			E	E
Tin	1580					E	E	E	E	E			E			E	E
Vanadium	64	J	102								76	J				106	129
Zinc	208	438	191		54	89	168	68	86	142	153	115	47	2210	79	102	121
Cyanide										44	18						

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

TABLE A-2 (CONT'D)
GROUNDWATER SAMPLING RESULTS
MAY 12-14, 1986

ANALYTICAL DATA
NAME: NIAGARA FALLS GROUNDWATER MONITORING PROGRAM
SAMPLING DATE: 5/12 - 5/14/86
CASE: 5/54/21658

GAS PARAMETERS																		
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1-DA	MW2A	MW2B	MW2C	MW2D	MW2-DA	MW3A	MW3B	MW3C	MW3D	MW3-DA	DUP	MW10
SAMPLING DATE	5/12/86	5/12/86	5/12/86	5/12/86	5/12/86	5/13/86	5/13/86	5/13/86	5/13/86	5/13/86	5/14/86	5/14/86	5/13/86	5/14/86	5/14/86	5/13/86	5/13/86
MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Total Organic Halogens(ug/l)	J	J	J	J	J	B	J	J	J	J	J	E	J	J	E	J	J
Ammonia Nitrogen (mg/l)			2	4	6		9	3	2	9	2	15	3		10		15
Chloride (mg/l)	40	180	520	380	390	37	1650	510	170	1010	25	720	510	420	810		1030
Phenolics (mg/l)								0.008	0.020				0.017				0.011
Specific Gravity	0.9968	0.9992	1.0008	0.9999	1.0006	1.0001	0.9998	0.9996	1.0001	0.9995	0.9976	0.9995	1.0003	1.0126	0.9998	0.9985	1.0013
Sulfate (mg/l)	119	660	470	1190	1380	55	1040	770	1010	990	78	860	1640	1540	900		1.60
Total Organic Carbon (mg/l)	4	3	7	3	3	4	4	8	7	4	8	4	2	4	4	2	5
Total Inorganic Carbon (mg/l)	74	56	2	3	2	80	42	2	1	42	64	12	14	3	44	1	43
Hexavalent Chromium (mg/l)																	

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

DRAFT

APPENDIX A
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

VOLATILES

SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW10A	MW2A	MW2B	MW2C	MW2D	MW20A	MW3AA	MW3A	MW3B	MW3C	MW3D	MW30A	MW4A	MW4B	MW4C	MW4D	MW40A
TRAFFIC REPORT #	BI411	BI412	BI413	BI414	BI415	BI416	BI417	BI418	BI450	BI420	BI421	BI422/451	BI423	BI424	BI425	BI426	BI427	BI428	BI457	BI430	BI431
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	ul/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Chloromethane																					
Bromomethane																					
Vinyl Chloride		J					J		J												
Chloroethane																					
Methylene Chloride	Q	Q		JB	JB	JB	JB	JB	Q		Q						Q		Q	Q	
Acetone	580	Q	340	3200	3200	3300	560	37008	1300	2300		Q	Q	Q	12000B	Q	Q	Q	Q	Q	Q
Carbon Disulfide		J	J				J						9								
1,1-Dichloroethene																					
1,1-Dichloroethane													J								
Trans-1,2-Dichloroethene							J														
Chloroform																					
1,2-Dichloroethane													J								
2-Butanone																					
1,1,1-Trichloroethane																					
Carbon Tetrachloride																					
Vinyl Acetate																					
Bromodichloromethane																					
1,1,2,2-Tetrachloroethane																					
1,2-Dichloropropane																					
Trans-1,3-Dichloropropene																					
Trichloroethene		J																			
Dibromochloromethane		J																			
1,1,2-Trichloroethane																					
Benzene													J								
Cis-1,3-Dichloropropene																					
2-Chloroethylvinylether																					
Bromoform		J																			
2-Hexanone		J																			
4-Methyl-2-Pentanone		J																			
Tetrachloroethene																					
Toluene			J										J								
Chlorobenzene																					
Ethylbenzene	J																				
Styrene																					
Total Xylenes	J																				

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination

NOTE: SHADING INDICATES SAMPLE DILUTION PRIOR TO ANALYSIS OF THE ENTIRE VOLATILE FRACTION

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/2621B

VOLATILES																					
SAMPLE NUMBER	MW5A	MW5B	MW5DA	MW5C	MW5D	MW6A	MW6B	MW6C	MW6D	MW6DA	NFB9	NFB10	RIN1	RIN2	RIN3	b1	b2	b3	b4	RINBLK
TRAFFIC REPORT #	BI419	BI432	BI435	BI433/4521	BI434	BI436	BI437	BI438	BI439/4531	BI440/4541	BI441	BI442	BI444	BI446	BI448	BI443	BI445	BI447	BI450	BI449
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Chloromethane	U																			
Bromomethane	U																			
Vinyl Chloride	U	J	J				J													
Chloroethane	U																			
Methylene Chloride	U							U	U	U	J	J	J	6900	J		U	U		J
Acetone	U	U	U	U	14000000B	U		U	630000	600000	58000	7900	U	18000	4500	U	U			
Carbon Disulfide	U	7	26				22													
1,1-Dichloroethene	U																			
1,1-Dichloroethane	U																			
Trans-1,2-Dichloroethene	U																			
Chloroform	U												J							J
1,2-Dichloroethane	U																			
2-Butanone	U																			
1,1,1-Trichloroethane	U																			
Carbon Tetrachloride	U																			
Vinyl Acetate	U																			
Bromodichloromethane	U																			
1,1,2,2-Tetrachloroethane	U							J												
1,2-Dichloropropane	U																			
Trans-1,3-Dichloropropene	U																			
Trichloroethene	U																			
Dibromochloromethane	U																			
1,1,2-Trichloroethane	U																			
Benzene	U																			
Cis-1,3-Dichloropropene	U																			
2-Chloroethylvinylether	U																			
Bromoform	U																			
2-Hexanone	U																			
4-Methyl-2-Pentanone	U																			
Tetrachloroethene	U																			
Toluene	U																J	J		
Chlorobenzene	U																			
Ethylbenzene	U																			
Styrene	U																			
Total Xylenes	U																			

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination

NOTE: SHADING INDICATES SAMPLE DILUTION PRIOR TO ANALYSIS OF THE ENTIRE VOLATILE FRACTION

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6683/2621B

SEMI-VOLATILE																										
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1DA	MW2A	MW2B	MW2C	MW2D	MW2DA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3DA	MW4A	MW4B	MW4C	MW4C	MW4DA					
TRAFFIC REPORT #	ND	B1412	B1413	B1414	B1415	B1416	B1417	B1418	B1450	B1420	B1421	B1422/4511	B1423	B1424	B1425	B1426	B1427	B1428	B1457	B1430	B1431					
MATRIX	SAMPLE	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water					
UNITS	TAKEN	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l					
Phenol	NA																									
Bis(2-Chloroethyl)Ether	NA																									
2-Chlorophenol	NA																									
1,3-Dichlorobenzene	NA																									
1,4-Dichlorobenzene	NA																									
Benzyl Alcohol	NA																									
1,2-Dichlorobenzene	NA																									
2-Methylphenol	NA																									
Bis(2-Chloroisopropyl)Ether	NA																									
4-Methylphenol	NA																									
N-Nitroso-Di-n-Propylamine	NA																									
Hexachloroethane	NA																									
Nitrobenzene	NA																									
Isophorone	NA																									
2-Nitrophenol	NA																									
2,4-Dimethylphenol	NA																									
Benzoic Acid	NA																									
Bis(2-Chloroethoxy)Methane	NA																									
2,4-Dichlorophenol	NA																									
1,2,4-Trichlorobenzene	NA																									
Naphthalene	NA																									
4-Chloroaniline	NA																									
Hexachlorobutadiene	NA																									
4-Chloro-3-Methylphenol	NA																									
2-Methylnaphthalene	NA																									
Hexachlorocyclopentadiene	NA																									
2,4,6-Trichlorophenol	NA																									
2,4,5-Trichlorophenol	NA																									
2-Chloronaphthalene	NA																									
2-Nitroaniline	NA																									
Dimethyl Phthalate	NA																									
Acenaphthylene	NA																									
3-Nitroaniline	NA																									
Acenaphthene	NA																									
2,4-Dinitrophenol	NA																									
4-Nitrophenol	NA																									
Dibenzofuran	NA																									
2,4-Dinitrotoluene	NA																									
2,6-Dinitrotoluene	NA																									
Diethylphthalate	NA																									
4-Chlorophenylphenyl ether	NA																									
Fluorene	NA																									
4-Nitroaniline	NA																									
4,6-Dinitro-2-Methylphenol	NA																									
N-Nitrosodiphenylamine	NA																									
4-Bromophenylphenyl ether	NA																									

J

Q

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

SEMI-VOLATILE

SAMPLE NUMBER	MW5A	MW5B	MW5DA	MW5C	MW5D	MW6A	MW6B	MW6C	MW6D	MW6DA	NFB9	NFB10	RIN1	RIN2	RIN3	B1	B2	B3	B4	TRINBLK
TRAFFIC REPORT #	BI419	BI432	BI435	BI433/4521	BI434	BI436	BI437	BI438	BI439/4531	BI440/4541	BI441	BI442	BI444	BI446	BI448	BI443	BI445	BI447	BI456	BI449
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Phenol	J																			
Bis(2-Chloroethyl)Ether																				
2-Chlorophenol	15																			
1,3-Dichlorobenzene																				
1,4-Dichlorobenzene																				
Benzyl Alcohol																				
1,2-Dichlorobenzene																				
2-Methylphenol																				
Bis(2-Chloroisopropyl)Ether																				
4-Methylphenol																				
N-Nitroso-Di-n-Propylamine																				
Hexachloroethane																				
Nitrobenzene																				
Isophorone																				
2-Nitrophenol																				
2,4-Dimethylphenol																				
Benzoic Acid																				
Bis(2-Chloroethoxy)Methane																				
2,4-Dichlorophenol																				
1,2,4-Trichlorobenzene																				
Naphthalene																				
4-Chloroaniline																				
Hexachlorobutadiene																				
4-Chloro-3-Methylphenol																				
2-Methylnaphthalene																				
Hexachlorocyclopentadiene																				
2,4,6-Trichlorophenol																				
2,4,5-Trichlorophenol																				
2-Chloronaphthalene																				
2-Nitroaniline																				
Dimethyl Phthalate																				
Acenaphthylene																				
3-Nitroaniline																				
Acenaphthene																				
2,4-Dinitrophenol																				
4-Nitrophenol																				
Dibenzofuran																				
2,4-Dinitrotoluene																				
2,6-Dinitrotoluene																				
Diethylphthalate																				
4-Chlorophenylphenyl ether																				
Fluorene																				
4-Nitroaniline																				
4,6-Dinitro-2-Methylphenol																				
N-Nitrosodiphenylamine																				
4-Bromophenylphenyl ether																				

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

SEMI-VOLATILE																				
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1DA	MW2A	MW2B	MW2C	MW2D	MW2DA	MW3AA	MW3A	MW3B	MW3C	MW3D	MW3DA	MW4A	MW4B	MW4C	MW4D	MW4DA
TRAFFIC REPORT #	ND	BI412	BI413	BI414	BI415	BI416	BI417	BI418	BI450	BI420	BI421	BI422/451	BI423	BI424	BI425	BI426	BI427	BI428	BI457	BI430	BI431
MATRIX	SAMPLE	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	TAKEN	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Hexachlorobenzene	NA																				
Pentachlorophenol	NA																				
Phenanthrene	NA																				
Anthracene	NA																				
Di-n-Butylphthalate	NA																				
Fluoranthene	NA																				
Pyrene	NA																				
Butylbenzylphthalate	NA																				
3,3'-Dichlorobenzidine	NA																				
Benzo(a)Anthracene	NA																				
Bis(2-Ethylhexyl)Phthalate	NA		J				J				109										
Chrysene	NA																				
Di-n-Octyl Phthalate	NA																				
Benzo(b)Fluoranthene	NA																				
Benzo(k)Fluoranthene	NA																				
Benzo(a)Pyrene	NA																				
Indeno(1,2,3-cd)Pyrene	NA																				
Dibenzo(a,h)Anthracene	NA																				
Benzo(ghi)Perrylene	NA																				

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
NA - not analyzed for

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

SEMI-VOLATILE																					
SAMPLE NUMBER	MW5A	MW5B	MW5BA	MW5C	MW5D	MW6A	MW6B	MW6C	MW6D	MW6DA	NFB9	NFB10	RIN1	RIN2	RIN3	B1	B2	B3	B4	TRINBLK	
TRAFFIC REPORT #	BI419	BI432	BI435	BI433/4521	BI434	BI436	BI437	BI438	BI439/4531	BI440/454	BI441	BI442	BI444	BI446	BI448	BI443	BI445	BI447	BI456	BI449	
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Hexachlorobenzene																					
Pentachlorophenol																					
Phenanthrene																					
Anthracene																					
Di-n-Butylphthalate																					
Fluoranthene																					
Pyrene																					
Butylbenzylphthalate																					
3,3'-Dichlorobenzidine																					
Benzo(a)Anthracene																					
Bis(2-Ethylhexyl)Phthalate	65	15										J		18	52						
Chrysene																					
Di-n-Octyl Phthalate																					
Benzo(b)Fluoranthene																					
Benzo(k)Fluoranthene																					
Benzo(a)Pyrene																					
Indeno(1,2,3-cd)Pyrene																					
Dibenzo(a,h)Anthracene																					
Benzo(ghi)Perylene																					

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
NA - not analyzed for

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26-10

PESTICIDES/PCBs																				
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW1QA	MW2A	MW2B	MW2C	MW2D	MW3QA	MW3WA	MW3A	MW3B	MW3C	MW3D	MW3QA	MW4A	MW4B	MW4C	MW4D	MW4QA
TRAFFIC REPORT #	NO	BI412	BI413	BI414	BI415	BI416	BI417	BI418	BI450	BI420	BI421	BI422/451	BI423	BI424	BI425	BI426	BI427	BI428	BI457	BI430	BI431
MATRIX	SAMPLE	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	TAKEN	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Alpha-BHC	NA																				
Beta-BHC	NA																				
Delta-BHC	NA																				
Gamma-BHC (Lindane)	NA																				
Heptachlor	NA																				
Aldrin	NA																				
Heptachlor Epoxide	NA																				
Endosulfan I	NA																				
Dieldrin	NA																				
4,4'-DDE	NA																				
Endrin	NA																				
Endosulfan II	NA																				
4,4'-DDD	NA																				
Endosulfan sulfate	NA		0.12					0.14	0.13												
Endrin Aldehyde	NA																				
4,4'-DDT	NA																				
Methoxychlor	NA																				
Endrin Ketone	NA																				
Chlordane	NA																				
Toxaphene	NA																				
Aroclor-1016	NA																				
Aroclor-1221	NA																				
Aroclor-1232	NA																				
Aroclor-1242	NA																				
Aroclor-1248	NA																				
Aroclor-1254	NA																				
Aroclor-1260	NA																				

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
NA - not analyzed for

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

PESTICIDES/PCBs																				
SAMPLE NUMBER	MW5A	MW5B	MW5QA	MW5C	MW5D	MW6A	MW6B	MW6C	MW6D	MW6QA	MFB9	MFB10	RIN1	RIN2	RIN3	B1	B2	B3	B4	RINBLK
TRAFFIC REPORT #	BI419	BI432	BI435	MBI433/451	BI434	BI436	BI437	BI438	BI439/4531	BI440/4541	BI441	BI442	BI444	BI446	BI448	BI443	BI445	BI447	BI456	BI449
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Alpha-BHC																				
Beta-BHC																				
Delta-BHC																				
Gamma-BHC (Lindane)																				
Heptachlor																				
Aldrin																				
Heptachlor Epoxide																				
Endosulfan I																				
Dieldrin																				
4,4'-DDE																				
Endrin																				
Endosulfan II																				
4,4'-DDD																				
Endosulfan sulfate																				
Endrin Aldehyde																				
4,4'-DDT																				
Methoxychlor																				
Endrin Ketone																				
Chlordane																				
Toxaphene																				
Aroclor-1016																				
Aroclor-1221																				
Aroclor-1232																				
Aroclor-1242																				
Aroclor-1248																				
Aroclor-1254																				
Aroclor-1260																				

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
NA - not analyzed for

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

INORGANICS																					
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW10A	MW2A	MW2B	MW2C	MW2D	MW20A	MW3AA	MW3A	MW3B	MW3C	MW3D	MW30A	MW4A	MW4B	MW4C	MW4D	MW40A
TRAFFIC REPORT #	MBI889	MBI890	MBI891	MBI892	MBI893	MBI894	MBI895	MBI896	MBI897	MBI898	MBI899	MBI900	MBI901	MBI902	MBI903	MBI904	MBI905	MBI906	MBI907	MBI908	MBI909
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Aluminum	Q	9900	Q	Q	Q	31600	Q	Q	Q	Q	19300	70600	255	505	313	382	16900	25600	22600	Q	Q
Antimony																					
Arsenic	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	14	145					Q	112	19	Q	Q
Barium	[72]	[65]	Q	[63]	[74]	221	[98]	Q	Q	Q	[183]	384	[53]	Q			[120]	[176]	670	[56]	[50]
Beryllium						[1.7]		[2.8]			[1.5]	[4.4]						[2.1]	[2]		
Cadmium						32															
Calcium	Q	463000	866000	588000	594000	269000	568000	786000	658000	647000	516000	411000	165000	300000	551000	574000	232000	445000	1460000	600000	617000
Chromium	81	28	36	18	24	1320	1970	1460	[9.3]	[5.1]	110	630	14	82	39	42	229	100	65	10	11
Cobalt		[10]		[9.4]	[9.4]	[43]	[13]	[13]			[28]	59					[17]	[21]	[12]		
Copper		[16]	[15]	29	39	86	[19]	78	[6.2]	[4]	82	151	[7.4]	[12]	[21]	34	51	115	102	[18]	[13]
Iron	Q	15300	Q	4780	5610	62290	14300	7450	Q	Q	33100	116000	1550	1520	1070	1210	37000	48200	17400	Q	Q
Lead		17	5.5	28	28	64	9.9	9.3			Q	Q					29	Q	82	27	22
Magnesium	148800E	149000E	92100E	68900E	69800E	89700E	79000E	77400E	Q	Q	Q	Q	Q	Q	Q	Q	55700E	Q	212000	Q	Q
Manganese	336	399	Q	153	179	1850	171	Q	Q	Q	1440	2620	18	39	56	62	652	1340	570	Q	Q
Mercury				0.3	0.3	0.2					1.7	0.3						0.3			
Nickel	62	[21]	61	[23]	[27]	378	286	137			84	449	[7.1]	[26]	[15]	[12]	125	86	[54]	[7.5]	
Potassium	[3420]	17700	25500	11400	11900	8810	23400	27200	35200	34800	Q	Q	Q	Q	Q	Q	[3960]	Q	156000	104000	97400
Selenium																					
Silver		[4.8]		[5.3]		[5.3]		[8.9]	[4.2]	[4.1]							[4.7]			[5.9]	[5.8]
Sodium	132700E	482000E	558000E	119000E	119000E	17400E	498000E	607000E	156000E	152000E	81100	51100	242000	283000	285000	296000	15500E	64000	235000	152000E	155000E
Thallium																					
Tin																					
Vanadium	[5.4]	[23]	[6.1]	[5.2]	[6.6]	72	[9.8]	[11]			88	138					[47]	53	[77]	[7.2]	[6.6]
Zinc	Q	Q	Q	Q	Q	311	Q	Q	Q	Q	259	461	Q	Q	Q	Q	Q	317	210	Q	Q
Cyanide	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q			Q		Q	Q			Q	Q

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
[ ] - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
E - estimated value due to the presence of interference
NA - analysis not required

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

INORGANICS																				
SAMPLE NUMBER	MW5A	MW5B	MW5QA	MW5C	MW5D	MW6A	MW6B	MW6C	MW6D	MW6QA	NFB9	NFB10	RIN1	RIN2	RIN3	B1	B2	B3	B4	RINBLK
TRAFFIC REPORT #	MBI910	MBI911	MBI914	MBI912	MBI913	MBI915	MBI916	MBI917	MBI918	MBI919	MBI920	MBI921	MBI923	MBI925	MBI927	MBI922	MBI924	MBI926	MBI932	MBI928
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Aluminum	57700	Q	Q	Q	1310	Q	8580	Q	Q	Q	140000	1300	[44]	[32]	Q	[42]		Q		
Antimony	[38]										[73]									
Arsenic	55	17		Q		Q		Q	Q	Q	75				Q			Q		
Barium	323	[124]	[110]	[128]	1340	[48]	[59]		[79]	[87]	815	[11]			[4.3]	[5.3]				
Beryllium	[4.1]	[1]	[2.1]						[2]		[7]		[1.3]							
Cadmium																				
Calcium	1236000	533000	540000	723000	625000	110000	510000	708000	589000	613000	1490000	630000	Q	Q	Q	[4180]		Q		Q
Chromium	383	52	38	13	16	1600	57	17	19	22	228	[9.7]			[5.3]					
Cobalt	55				[12]	[6.9]	[6.1]				116									
Copper	223	29	25	[12]	[15]	38	[19]		[7.6]	[6.2]	331	[18]	[6.8]			[7.5]				[4.7]
Iron	119000	10100	6310	Q	1490	5530	12800	Q	Q	Q	585000	57500	Q	Q	Q	Q		Q		Q
Lead	Q	Q		18	Q	14	Q			60	430		Q	Q			Q			Q
Magnesium	Q	Q	Q	228000E	Q	34500E	Q	156000E	26300E	26000E	470000	142000			[2130]	Q		Q		
Manganese	3320	203	218	Q	128	186	316	Q	Q	Q	9360	302			[13]			Q		
Mercury	0.9	0.9									1.8									
Nickel	452	49	[36]	[11]	[29]	308	41		[9.3]	[9.8]	267									
Potassium	Q	Q	Q	61800	Q	[2760]	Q	37300	44600	48100	40100	21800	Q		Q	Q		[268]		
Selenium																				
Silver								[4.1]	[4.7]						[4.2]			[4.3]		
Sodium	21000	256000	251000	208000E	282000	11900E	274000	309000E	166000E	172000E	477000	329000				[2470]		[2190]		
Thallium																				
Tin																				
Vanadium	142	[14]	[11]	[7.5]		[11]	[18]				279	[7.8]								
Zinc	696	Q	Q	Q	121	Q	139	Q	Q	Q	1690	Q	Q	Q	Q	Q		Q		Q
Cyanide		Q	Q	Q	Q	Q		Q	Q	Q			32		Q			Q		

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
[ ] - compound present above the instrument detection limit, but below the contract-specified detection limit
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
E - estimated value due to the presence of interference
NA - analysis not required

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

SAS PARAMETERS																					
SAMPLE NUMBER	MW1A	MW1B	MW1C	MW1D	MW10A	MW2A	MW2B	MW2C	MW2D	MW20A	MW30A	MW3A	MW3B	MW3C	MW3D	MW30A	MW4A	MW4b	MW4C	MW4D	MW40A
TRAFFIC REPORT #	SAS#1	SAS#2	SAS#3	SAS#4	SAS#5	SAS#6	SAS#7	SAS#8	SAS#9	SAS#10	SAS#11	SAS#12	SAS#13	SAS#14	SAS#15	SAS#16	SAS#17	SAS#18	NO	SAS#20	SAS#21
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	SAMPLE	water	water
Total Organic Halogens (ug/l)		23E	124	8.9	5.4	17	268	247	24		49E		203E	134E	65E	81E	40		NA	1.	1.
Ammonia Nitrogen (mg/l)	0.16	10E	12	2.5	2.5	0.11	26	32	3.1	3			5.9E	8.1E	5.5E	5.5E		0.65E	NA	..	..
Chloride (mg/l)	99	1350	1630	418	428	35	1230	1380	534	547	475	173	486	566	461	614	40	73	NA	576	577
Phenolics (mg/l)			0.010		0.012		0.044	0.021					0.015						NA		0.016
Specific Gravity (g/ml)	1.0022	1.0026E	1.0042	1.0020	1.0028	1.0025	1.0035	1.0041	1.0028	1.0023	1.0068E	1.0029E	1.0016E	1.0012E	1.0033E	1.0033E	1.0005	1.0079E	NA	1.0027	1.0031
Sulfate (mg/l)	119	[624]	1400	1160	1160	62	911	1380	1230	1240	[966]	[366]	[284]	[648]	[1460]	[1450]	108	[615]	NA	835	825
Total Organic Carbon (mg/l)	4.7	3.9E	7.6	6.7	5.8	2.1	35	38	5.5	5.6	6.4E	2.8E	12E	9.2E	13E	15E	3.6	0	NA	4.4	4.3
Total Inorganic Carbon (mg/l)	70	63E	57	69	66	76	109	115			67E	78E	56E	29E	60E	58E	135	80L	NA	2.5	1.7
Hexavalent Chromium (mg/l)	[0.01]		[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]							[0.01]		NA	[0.01]	[0.01]

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
E - estimated value due to the presence of interference
NA - not analyzed for
[] - inorganic compound present above the instrument detection limit, but below the contract specified detection limit

APPENDIX A (CONT'D)
GROUNDWATER SAMPLING RESULTS
JANUARY 5-8, 1987

ANALYTICAL DATA
NIAGARA FALLS GROUNDWATER MONITORING
SAMPLING DATE: 1/5-8/87
CASE: 6689/26218

SAS PARAMETERS																				
SAMPLE NUMBER	MW5A	MW5B	MW50A	MW5C	MW5D	MW6A	MW6B	MW6C	MW6D	MW60A	NFB9	NFB10	RIN1	RIN2	RIN3	B1	B2	B3	B4	RINBLK
TRAFFIC REPORT #	SAS#22	SAS#23	SAS#26	SAS#24	SAS#25	SAS#27	SAS#28	SAS#29	SAS#30	SAS#31	SAS#32	SAS#33	SAS#35	SAS#37	SAS#39	SAS#34	SAS#36	SAS#38	SAS#41	SAS#40
MATRIX	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water	water
Total Organic Halogens (ug/l)		80E	80E	52E	15E		107E	9.2	20		54	239	1.1E	2890E	430E					
Ammonia Nitrogen (mg/l)		7.3E	8.2E	1.7E	1.4E		8.9E	1.5	0.45	0.43	8.8	14								
Chloride (mg/l)	31	776	839	641	67	23	729	1090	338	406	1760	1240							3	
Phenolics (mg/l)																				
Specific Gravity (g/ml)	1.0043E	1.0019E	1.0033E	1.0027E	1.0035E	0.9999	1.0019E	1.0031	1.0038	1.0025	1.0045	1.0029	0.9997E	0.9995E	0.9996E	0.9996	0.9996E	1.0003	0.9995	0.9997E
Sulfate (mg/l)	[62]	[888]	[825]	[1260]	[57]	71	[832]	1510	1330	1280	333	1050								
Total Organic Carbon (mg/l)	6.5E	5.8E	4.6E	6.1E	44E	3.2	4.1E	2.8	4.5	5.4	6.8	6.1	Q	11E	21E	0.27	0.38E	0.32	0.21	
Total Inorganic Carbon (mg/l)	72E	47E	60E	2.2E		90	56E	48	3	0.7	28	56	16E	1.0E	3.0E	0.18	0.23E	0.27		1.1E
Hexavalent Chromium (mg/l)						[0.01]		[0.01]	[0.01]	[0.5]	[0.01]	[0.01]						[0.01]	[0.01]	

NOTES:
Blank space - compound analyzed for
Q - analysis did not pass QA/QC requirements
E - estimated value due to the presence of interference
NA - not analyzed for
[] -inorganic compound present above the instrument detection limit, but below the contract specified detection limit

TABLE 1

SAMPLE DESCRIPTIONS
64th St. Dump-South
Niagara Falls, New York
CASE #4460/1730B

Sample Number	Sample Type	Traffic Report Number	Federal Express Airbill Number	Time Hours	Location
NYA1-S1A	Organic Soil Inorganic Soil	BD138 MBD131	487876395 487876410	1130	300 ft. west of Ch and 56 ft. south of realtor's sign.
NYA1-S1B	Organic Soil Inorganic Soil	BD139 MBD132	487876395 487876410	1145	2 ft. below surface a location of NYA1-S1
NYA1-S1C	Organic Soil Inorganic Soil	BD140 MBD133	487876395 487876410	1202	5 ft. below surface location of NYA1-S1 area of former swa
NYA1-S2A	Organic Soil Inorganic Soil	BD141 MBD134	487876395 487876410	1225	20 ft. west of swale, 206 ft. from Girard
NYA1-S2B	Organic Soil Inorganic Soil	BD142 MBD135	487876395 487876410	1231	2 ft. below surface location of NYA1-S2
NYA1-S2C	Organic Soil Inorganic Soil	BD143 MBD136	487876395 487876410	1238	5 ft. below surface location of NYA1-S2
NYA1-S3A	Organic Soil Inorganic Soil	BD144 MBD137	487876395 487876410	1315	South of Russo Che lot, 20 ft. east of t cluster.
NYA1-S3B	Organic Soil Inorganic Soil	BD145 MBD138	487876395 487876410	1332	1 ft. below surface south of tree cluster, ft. from Russo Chev
NYA1-S3C	Organic Soil Inorganic Soil	BD146 MBD139	487876395 487876410	1359	5 ft. below surface a location of NYA1-S3
NYA1-S4A	Organic Soil Inorganic Soil	BD147 MBD140	487876395 487876410	1432	120 ft. east of fence of 625 61st St., 156 south of John St.

TABLE 1

SAMPLE DESCRIPTIONS
64th St. Dump-South
Niagara Falls, New York
CASE #4460/1730B

Sample Number	Sample Type	Traffic Report Number	Federal Express Airbill Number	Time Hours	Location
NYA1-S4B	Organic Soil Inorganic Soil	BD148 MBD141	487876395 487876410	1437	2 ft. below surface location of NYA1-S
NYA1-S4C	Organic Soil Inorganic Soil	BD149 MBD142	487876395 487876410	1145	6½ ft. below surfac location of NYA1-S
NYA1-S5A	Organic Soil Inorganic Soil	BD150 MBD143	487876395 487876410	1509	110 ft. north of Joh 117 ft. west of Rus Chevrolet pavemen
NYA1-S5B	Organic Soil Inorganic Soil	BD151 MBD144	487876395 487876410	1515	2 ft. below surface location of NYA1-S
NYA1-S5C	Organic Soil Inorganic Soil	BD152 MBD145	487876395 487876410	1525	5 ft. below surface location of NYA1-S
NYA1-S6A	Organic Soil Inorganic Soil	BD153 MBD146	487876395 487876410	1640	In a shallow trench, feet north of Russo Chevrolet pavemen ft. east of alley bet Sunrise and Thruway Hotels.
NYA1-S6B	Organic Soil Inorganic Soil	BD154 MBD147	487876395 487876410	1645	2 ft. below surface a location NYA1-S6A.
NYA1-S6C	Organic Soil Inorganic Soil	BD155 MBD148	487876395 487876410	1651	5 ft. below surface a location NYA1-S6A
NYA1-S7A	Organic Soil Inorganic Soil	BD156 MBD149	487876395 487876410	1709	75 ft. east of locati NYA1-S6A in shallo trench.
NYA1-S7B	Organic Soil Inorganic Soil	BD157 BD150	487876395 487876410	1712	2 ft. below surface a location NYA1-S7A.

TABLE 1

SAMPLE DESCRIPTIONS
64th St. Dump-South
Niagara Falls, New York
CASE #4460/1730B

Sample Number	Sample Type	Traffic Report Number	Federal Express Airbill Number	Time Hours	Location
NYA1-S7C	Organic Soil Inorganic Soil	BD158 MBD151	487876395 487876410	1720	5 ft. below surfac location NYA1-S7
NYA1-S8	Organic Soil Inorganic Soil	BD159 MBD152	487876395 487876410	0956	Next to manhole John St.
NYA1-S9	Organic Soil Inorganic Soil	BD160 MBD153	487876395 487876410	1006	Collected from ba of swale, 15 ft. fr tree cluster.
NYA1-S10	Organic Soil Inorganic Soil	BD161 MBD154	487876395 487876410	1024	Shallow depressio NW portion of fie ft. from 61st St. cur
NYA1-S11	Organic Soil Inorganic Soil	BD162 MBD155	487876395 487876410	1013	Area of dense veg in swale route, 64 ft from Girard Ave.
NYA1-SB	Organic Blank(a)	BD163		N/A(b)	

NOTES:

(a) Organic blanks contained doubly-deionized, distilled water blanks obtained from U.S. EPA, Edison, New Jersey, on 6/7/85.

(b) N/A = Not applicable.

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/17308

VOLATILES

SAMPLE NUMBER	NYA1-S1A	NYA1-S1B	NYA1-S1C	NYA1-S2A	NYA1-S2B	NYA1-S2C	NYA1-S3A	NYA1-S3B	NYA1-S3C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Chloromethane									
Bromomethane									
Vinyl Chloride									
Chloroethane									
Methylene Chloride	50B	38B	29B	82B	32B	30B	40B	38B	69B
Acetone	E	E	E	30					
Carbondisulfide									
1,1-Dichloroethene									
1,2-Dichloroethane									
Trans-1,2-Dichloroethene									
Chloroform									
1,2-Dichloroethane									
2-Butanone									
1,1,1-Trichloroethane									
Carbon Tetrachloride									
Vinyl Acetate									
Bromodichloromethane									
1,1,2,2-Tetrachloroethane									
1,2-Dichloropropane									
Trans-1,3-Dichloropropene									
Trichloroethene									
Dibromochloromethane									
1,1,2-Trichloroethane									
Benzene									
Cis-1,3-Dichloropropene									
2-Chloroethylvinylether									
Bromoform									
2-Hexanone									
4-Methyl-2-Pentanone									
Tetrachloroethene									
Toluene									
Chlorobenzene									
Ethylbenzene									
Styrene									
Total Xylenes									

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in blank as well as the sample,
.. indicates possible/probable blank contamination

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/17308

SEMI-VOLATILES

SAMPLE NUMBER	NYA1-S1A	NYA1-S1B	NYA1-S1C	NYA1-S2A	NYA1-S2B	NYA1-S2C	NYA1-S3A	NYA1-S3B	NYA1-S3C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
N-Nitrosodimethylamine									
Phenol									
Aniline									
Bis(2-Chloroethyl)Ether									
2-Chlorophenol									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
Benzyl Alcohol									
1,2-Dichlorobenzene									
2-Methylphenol									
Bis(2-Chloroisopropyl)Ether									
4-Methylphenol									
N-Nitroso-Di-n-Propylamine									
Hexachloroethane									
Nitrobenzene									
Isophorone									
2-Nitrophenol									
2,4-Dimethylphenol									
Benzoic Acid									
Bis(2-Chloroethoxy)Methane									
2,4-Dichlorophenol									
1,2,4-Trichlorobenzene									
Naphthalene	J			J			J	J	
4-Chloroaniline									
Hexachlorobutadiene									
4-Chloro-3-Methylphenol									
2-Methylnaphthalene	J						J	J	
Hexachlorocyclopentadiene									
2,4,6-Trichlorophenol									
2,4,5-Trichlorophenol									
2-Chloronaphthalene									
2-Nitroaniline									
Dimethyl Phthalate									
Acenaphthylene									
3-Nitroaniline									
Acenaphthene	J			E			J	J	
2,4-Dinitrophenol									
4-Nitrophenol									
Dibenzofuran	J			J			J		
2,4-Dinitrotoluene									
2,6-Dinitrotoluene									
Diethyl Phthalate									
4-Chlorophenyl-phenylether									
Fluorene	J			J			J		
4-Nitroaniline									

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

SEMI-VOLATILES

SAMPLE NUMBER	NYA1-S1A	NYA1-S1B	NYA1-S1C	NYA1-S2A	NYA1-S2B	NYA1-S2C	NYA1-S3A	NYA1-S3B	NYA1-S3C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
4,6-Dinitro-2-Methylphenol									
N-Nitrosodiphenylamine									
4-Bromophenyl-Phenylether									
Hexachlorobenzene									
Pentachlorophenol									
Phenanthrene	1100	J		1200			1400	590	1400
Anthracene	J	J		J			J	J	410
Di-n-Butylphthalate									
Fluoranthene	1300	390		1700			1800	410	1800
Benzidine									
Pyrene	1300	410		1900			1600	760	1800
Butylbenzylphthalate									
3,3'-Dichlorobenzidine									
Benzo(a)Anthracene	850	J		910			1100	390	1100
Bis(2-Ethylhexyl)Phthalate	J			J			J		2500
Chrysene	980	J		1000			1200	450	1200
Di-n-Octyl Phthalate									
Benzo(b)Fluoranthene	1000	J		1400			1600	570	1500
Benzo(K)Fluoranthene	830	J		1000			1100	380	1400
Benzo(a)Pyrene	E	J		1200			1200	410	1300
Indeno(1,2,3-cd)Pyrene		J		840			810	J	910
Dibenzo(a,h)Anthracene							J		
Benzo(ghi)Perylene		J		740			E	E	

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

PESTICIDES/PCBs									
SAMPLE NUMBER	NYA1-S1A	NYA1-S1B	NYA1-S1C	NYA1-S2A	NYA1-S2B	NYA1-S2C	NYA1-S3A	NYA1-S3B	NYA1-S3C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Alpha-BHC	E							J	
Beta-BHC									
Delta-BHC									
Gamma-BHC (Lindane)									
Heptachlor									
Aldrin									
Heptachlor Epoxide									
Endosulfan I									
Dieldrin									
4,4'-DDE									
Endrin									
Endosulfan II									
4,4'-DDD									
Endrin Aldehyde									
Endosulfan sulfate									
4,4'-DDT									
Methoxychlor									
Endrin Ketone									
Chlordane									
Toxaphene									
Arochlor-1016									
Arochlor-1221									
Arochlor-1232									
Arochlor-1242									
Arochlor-1248									
Arochlor-1254									
Arochlor-1260									

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

INORGANICS									
SAMPLE NUMBER	NYA1-S1A	NYA1-S1B	NYA1-S1C	NYA1-S2A	NYA1-S2B	NYA1-S2C	NYA1-S3A	NYA1-S3B	NYA1-S3C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Aluminum	9160	9320	9290	7900	4780	8940	9730	12900	5390
Antimony									
Arsenic	8.2	10	9.6	7.4	J	6.7	12	15	20
Barium	119	J	J	J	J	J	J	J	436
Beryllium	J	J	J	J	J	J	J	J	J
Cadmium									4.4
Calcium	11800	20600	19100	J	21800	15600	25100	22900	12200
Chromium	63	34	20	18	9.1	15	53	47	52
Cobalt	J	J	J	J	J	J	J	J	J
Copper	25	26	24	18	15	21	48	43	74
Iron	16500	17800	18400	13700	12100	18600	29300	23000	47600
Lead	J	J	12	14	6.1	8.5	J	J	J
Magnesium	6530	8450	7220	J	8380	6840	8650	7890	3580
Manganese	685	425	245	185	249	291	702	597	487
Mercury	0.59	0.40		0.19			0.38	0.20	0.65
Nickel	30	J	J	J	J	J	37	28	45
Potassium	J	J	J	J	J	J	3000	3170	J
Selenium									
Silver		J	J	J			J	J	J
Sodium	E	E		E				E	E
Thallium									
Tin									62
Vanadium	31	J	J	J	J	J	36	34	J
Zinc	92	94	69	62	48	55	147	100	1180

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

VOLATILES

SAMPLE NUMBER	NYA1-S4A	NYA1-S4B	NYA1-S4C	NYA1-S5A	NYA1-S5B	NYA1-S5C	NYA1-S6A	NYA1-S6B	NYA1-S6C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Chloromethane									
Bromomethane									
Vinyl Chloride									
Chloroethane									
Methylene Chloride	48	36B	25	44	63	60B	60	35B	E
Acetone	E		29	17	E	E	E	E	100B
Carbondisulfide									
1,1-Dichloroethene									
1,2-Dichloroethane									
Trans-1,2-Dichloroethene									
Chloroform									
1,2-Dichloroethane									
2-Butanone									
1,1,1-Trichloroethane									
Carbon Tetrachloride									
Vinyl Acetate									
Bromodichloromethane									
1,1,2,2-Tetrachloroethane									
1,2-Dichloropropane									
Trans-1,3-Dichloropropene									
Trichloroethene									
Dibromochloromethane									
1,1,2-Trichloroethane									
Benzene									
Cis-1,3-Dichloropropene									
2-Chloroethylvinylether									
Bromoform									
2-Hexanone									
4-Methyl-2-Pentanone									
Tetrachloroethene									
Toluene									
Chlorobenzene									
Ethylbenzene									
Styrene									
Total Xylenes									

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in blank as well as the sample, indicates possible/probable blank contamination

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730D

SEMI-VOLATILES

SAMPLE NUMBER	NYA1-S4A	NYA1-S4B	NYA1-S4C	NYA1-S5A	NYA1-S5B	NYA1-S5C	NYA1-S6A	NYA1-S6B	NYA1-S6C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
N-Nitrosodimethylamine									
Phenol									
Aniline									
Bis(2-Chloroethyl)Ether									
2-Chlorophenol									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
Benzyl Alcohol									
1,2-Dichlorobenzene									
2-Methylphenol									
Bis(2-Chloroisopropyl)Ether									
4-Methylphenol									
N-Nitroso-Di-n-Propylamine									
Hexachloroethane									
Nitrobenzene									
Isophorone									
2-Nitrophenol									
2,4-Dimethylphenol									
Benzoic Acid									
Bis(2-Chloroethoxy)Methane									
2,4-Dichlorophenol									
1,2,4-Trichlorobenzene									
Naphthalene				400		J			
4-Chloroaniline									
Hexachlorobutadiene									
4-Chloro-3-Methylphenol									
2-Methylnaphthalene				J					
Hexachlorcyclopentadiene									
2,4,6-Trichlorophenol									
2,4,5-Trichlorophenol									
2-Chloronaphthalene									
2-Nitroaniline									
Dimethyl Phthalate									
Acenaphthylene									
3-Nitroaniline									
Acenaphthene	J			490					
2,4-Dinitrophenol									
4-Nitrophenol				J					
Dibenzofuran									
2,4-Dinitrotoluene									
2,6-Dinitrotoluene									
Diethyl Phthalate									
4-Chlorophenyl-phenylether									
Fluorene				J					
4-Nitroaniline									

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/17300

SEMI-VOLATILES

SAMPLE NUMBER MATRIX UNITS	NYA1-S4A SOIL UG/KG	NYA1-S4B SOIL UG/KG	NYA1-S4C SOIL UG/KG	NYA1-S5A SOIL UG/KG	NYA1-S5B SOIL UG/KG	NYA1-S5C SOIL UG/KG	NYA1-S6A SOIL UG/KG	NYA1-S6B SOIL UG/KG	NYA1-S6C SOIL UG/KG
4,6-Dinitro-2-Methylphenol									
N-Nitrosodiphenylamine									
4-Bromophenyl-Phenylether									
Hexachlorobenzene									
Pentachlorophenol									
Phenanthrene	1200			2600	2100	590	400		
Anthracene	J			660	490	J	J		
Di-n-Butylphthalate									
Fluoranthene	1900			3500	2400	570	670	J	
Benzidine									
Pyrene	1300			2800	2200	480	730	J	
Butylbenzylphthalate							J		
3,3'-Dichlorobenzidine									
Benzo(a)Anthracene	1000			2400		J	J		
Bis(2-Ethylhexyl)Phthalate				490	2300	510	J		
Chrysene	1100			2700	1600	J	410		
Di-n-Octyl Phthalate									
Benzo(b)Fluoranthene	970			3000	2300	510	E		
Benzo(K)Fluoranthene	790			2600	1600	J	550		
Benzo(a)Pyrene	990			2900	1900	J	460		
Indeno(1,2,3-cd)Pyrene	400			1200	830		400		
Dibenzo(a,h)Anthracene	J			400					
Benzo(ghi)Perylene	420			1200	E		J		

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 5/10/85
CASE: 4460/1730B

PESTICIDES/PCBs									
SAMPLE NUMBER	NYA1-S4A	NYA1-S4B	NYA1-S4C	NYA1-S5A	NYA1-S5B	NYA1-S5C	NYA1-S6A	NYA1-S6B	NYA1-S6C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Alpha-BHC				23			35	E	13
Beta-BHC				330			40	E	18
Delta-BHC									
Gamma-BHC (Lindane)									
Heptachlor									
Aldrin									
Heptachlor Epoxide									
Endosulfan I									
Dieldrin									
4,4'-DDE									
Endrin									
Endosulfan II									
4,4'-DDD									
Endrin Aldehyde									
Endosulfan sulfate									
4,4'-DDT									
Methoxychlor									
Endrin Ketone									
Chlordane									
Toxaphene									
Arochlor-1016									
Arochlor-1221									
Arochlor-1232									
Arochlor-1242									
Arochlor-1248									
Arochlor-1254									
Arochlor-1260									

NOTES:
Blank space = compound analyzed for but not detected
E = analysis did not pass QA/QC requirements
J = compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

INORGANICS										
SAMPLE NUMBER	NYA1-S4A	NYA1-S4B	NYA1-S4C	NYA1-S5A	NYA1-S5B	NYA1-S5C	NYA1-S6A	NYA1-S6B	NYA1-S6C
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Aluminum	13100	7400	8750	10100	8980	9610	7010	7230	6040
Antimony									
Arsenic	14	10	10	13	18	12	6.5	J	J
Barium	149	J	J	246	172	157	J	J	J
Beryllium	J	J	J	J	J	J	J	J	J
Cadmium				3.2	3.8				
Calcium	19200	J	9860	16500	22700	15200	4330	45800	43400
Chromium	27	13	17	41	43	39	12	13	11
Cobalt	J	J	J	J	J	J	J	J	J
Copper	34	21	20	34	93	63	J	16	J
Iron	22000	17900	18500	18800	25500	21500	14800	15200	14300
Lead	J	9	14	J	J	J	E	E	E
Magnesium	12400	J	5220	7550	6710	5460	3190	20900	9960
Manganese	738	267	261	972	620	384	365	346	317
Mercury	0.64		J	J	J	J			
Nickel	30	J	J	35	31	28	J	J	J
Potassium	J	J	J	J	J	J	J	J	J
Selenium									
Silver					J				
Sodium	E	E	E		J	J		J	J
Thallium									
Tin									
Vanadium	38	J	J	42	37	J	J	J	J
Zinc	252	67	74	501	337	296	57	74	53

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

VOLATILES								
SAMPLE NUMBER MATRIX UNITS	NYA1-S7A SOIL UG/KG	NYA1-S7B SOIL UG/KG	NYA1-S7C SOIL UG/KG	NYA1-S8 SOIL UG/KG	NYA1-S9 SOIL UG/KG	NYA1-S10 SOIL UG/KG	NYA1-S11 SOIL UG/KG	NYA1-SB SOIL UG/KG
Chloromethane								
Bromomethane								
Vinyl Chloride								
Chloroethane								
Methylene Chloride	67	37B	E	28B	E	34B	26B	9.3B
Acetone	12	E	E	290B	E	E	E	
Carbondisulfide								
1,1-Dichloroethene								
1,2-Dichloroethane								
Trans-1,2-Dichloroethene								
Chloroform								
1,2-Dichloroethane								
2-Butanone								
1,1,1-Trichloroethane								
Carbon Tetrachloride								
Vinyl Acetate								
Bromodichloromethane								
1,1,2,2-Tetrachloroethane								
1,2-Dichloropropane								
Trans-1,3-Dichloropropene								
Trichloroethene	E	6.9						
Dibromochloromethane								
1,1,2-Trichloroethane								
Benzene								
Cis-1,3-Dichloropropene								
2-Chloroethylvinylether								
Bromoform								
2-Hexanone								
4-Methyl-2-Pentanone								
Tetrachloroethene	J							
Toluene	J							
Chlorobenzene								
Ethylbenzene								
Styrene								
Total Xylenes								

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in blank as well as the sample, indicates possible/probable blank contamination

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/17308

SEMI-VOLATILES

SAMPLE NUMBER MATRIX UNITS	NYA1-S7A SOIL UG/KG	NYA1-S7B SOIL UG/KG	NYA1-S7C SOIL UG/KG	NYA1-S8 SOIL UG/KG	NYA1-S9 SOIL UG/KG	NYA1-S10 SOIL UG/KG	NYA1-S11 SOIL UG/KG
N-Nitrosodimethylamine							
Phenol							
Aniline							
Bis(2-Chloroethyl)Ether							
2-Chlorophenol							
1,3-Dichlorobenzene							
1,4-Dichlorobenzene							
Benzyl Alcohol							
1,2-Dichlorobenzene							
2-Methylphenol							
Bis(2-Chloroisopropyl)Ether							
4-Methylphenol							
N-Nitroso-Di-n-Propylamine							
Hexachloroethane							
Nitrobenzene							
Isophorone							
2-Nitrophenol							
2,4-Dimethylphenol							
Benzoic Acid							
Bis(2-Chloroethoxy)Methane							
2,4-Dichlorophenol							
1,2,4-Trichlorobenzene					J	450	
Naphthalene							
4-Chloroaniline							
Hexachlorobutadiene							
4-Chloro-3-Methylphenol							
2-Methylnaphthalene							
Hexachlorocyclopentadiene							
2,4,6-Trichlorophenol							
2,4,5-Trichlorophenol							
2-Chloronaphthalene							
2-Nitroaniline							
Dimethyl Phthalate							
Acenaphthylene							
3-Nitroaniline							
Acenaphthene		J		J	J	530	
2,4-Dinitrophenol							
4-Nitrophenol							
Dibenzofuran							
2,4-Dinitrotoluene							
2,6-Dinitrotoluene							
Diethyl Phthalate							
4-Chlorophenyl-phenylether							
Fluorene		J		J			
tro- ine							

ANALYTICAL DATA
64TH STREET DUMP--SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

SEMI-VOLATILES							
SAMPLE NUMBER	NYA1-S7A	NYA1-S7B	NYA1-S7C	NYA1-S8	NYA1-S9	NYA1-S10	NYA1-S11
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
4,6-Dinitro-2-Methylphenol							
N-Nitrosodiphenylamine							
4-Bromophenyl-Phenylether							
Hexachlorobenzene							
Pentachlorophenol							
Phenanthrene	36000	1300	410	920	550	3600	1300
Anthracene	J	J	J	J	J	820	410
Di-n-Butylphthalate		J	J				
Fluoranthene	50000	1900	480	1300	660	4600	2200
Benzidine							
Pyrene	61000	1700	J	1000	610	4300	3000
Butylbenzylphthalate							
3,3'-Dichlorobenzidine							
Benzo(a)Anthracene	J	670	J	680	460	2900	1400
Bis(2-Ethylhexyl)Phthalate		J			J	1800	1000
Chrysene	J	750	J	710	520	2900	1500
Di-n-Octyl Phthalate							
Benzo(b)Fluoranthene	J	860	J	670	570	3300	E
Benzo(K)Fluoranthene	26000	680	J	680	450	2800	E
Benzo(a)Pyrene	J	670	J	690	500	3200	1600
Indeno(1,2,3-cd)Pyrene		J		J	440	1600	
Dibenzo(a,h)Anthracene				J	400	560	
Benzo(ghi)Perylene		J		J		1700	

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

PESTICIDES/PCBs							
SAMPLE NUMBER	NYA1-S7A	NYA1-S7B	NYA1-S7C	NYA1-S8	NYA1-S9	NYA1-S10	NYA1-S11
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Alpha-BHC				110			J
Beta-BHC							
Delta-BHC							
Gamma-BHC (Lindane)							
Heptachlor							
Aldrin							
Heptachlor Epoxide							
Endosulfan I							
Dieldrin							
4,4'-DDE							
Endrin							
Endosulfan II						E	
4,4'-DDD							
Endrin Aldehyde							180
Endosulfan sulfate							
4,4'-DDT							
Methoxychlor							
Endrin Ketone							
Chlordane							
Toxaphene							
Arochlor-1016							
Arochlor-1221							
Arochlor-1232							
Arochlor-1242							
Arochlor-1248							
Arochlor-1254							
Arochlor-1260							

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

ANALYTICAL DATA
64TH STREET DUMP-SOUTH
SAMPLING DATE: 6/10/85
CASE: 4460/1730B

INORGANICS							
SAMPLE NUMBER	NYA1-S7A	NYA1-S7B	NYA1-S7C	NYA1-S8	NYA1-S9	NYA1-S10	NYA1-S11
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Aluminum	14200	7920	7300	14800	11600	6850	6980
Antimony							
Arsenic	14	9.6	J	16	15	12	11
Barium	457	228	J	J	125	189	115
Beryllium	J	J	J	J	J	J	J
Cadmium	5						
Calcium	28800	45200	15500	46600	21600	62900	14900
Chromium	33	16	12	36	160	67	37
Cobalt	J	J	J	J	J	J	J
Copper	47	24	J	30	29	79	29
Iron	24200	16300	15200	21800	19100	17500	13900
Lead	J	J	E	J	J	J	J
Magnesium	14700	10600	5180	26300	9380	21100	6740
Manganese	667	404	189	863	777	899	759
Mercury	J	J		J	J	J	J
Nickel	42	J	J	25	30	37	31
Potassium	J	J	J	2730	J	J	J
Selenium							
Silver	J				J		
Sodium	J	J	J	J	J	J	J
Thallium							
Tin							
Vanadium	52	J	J	36	34	J	44
Zinc	235	107	48	205	130	382	169

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit

Results from 1981 Sampling at NYPA Buffalo Avenue Site

	Sample No.	Trichlorobenzenes			C-46	C-56	Tetrachlorobenzene	
		1, 3, 5	1, 2, 4	1, 2, 3			1, 2, 3, 5, & 1, 2, 4, 5	1, 2, 3
Boring 1	1	ND	114.1	ND	69.5	ND	25.6	205.7
	3	181.1	216.7	ND	24.1	ND	32.0	75.6
	6	ND	18.8	ND	ND	ND	ND	13.9
Boring 2	1	ND	81.6	ND	26.2	ND	39.6	150.6
	3	ND	10.2	ND	ND	ND	ND	ND
	5	ND	ND	ND	ND	ND	ND	ND
Boring 3	1	ND	589.2	ND	18.9	ND	23.4	119.6
	4	48.6	22	ND	76.7	ND	ND	ND
	5	ND	ND	ND	ND	ND	ND	ND
Boring 4	1	ND	74.7	15.8	44.5	ND	45.3	198.6
	3	34.8	ND	ND	3.5	ND	ND	ND
Boring 6	1	ND	898.5	227.6	3.0	ND	253.0	1000
	3	ND	ND	ND	ND	ND	ND	ND
Boring 9	1	ND	13.4	ND	46.1	ND	ND	11.7
	4	ND	82.3	ND	8.7	ND	16.9	29.1
	6	168.9	320.3	ND	35.8	ND	62.2	233.9
Boring 10	1	9.3	32.5	1.7	2.5	--	6.4	24.8
	3	6.2	110	17.8	1.1	--	17.1	36.4
	6	ND	ND	ND	ND	--	ND	ND
	6 (Duplicate)	ND	ND	ND	ND	--	ND	ND
Detection Limit		<8.0	<8.0	<5.0	<2.0	<4.0	<8.0	<3.0

Results Reported ng/gm or ppb
ND - Not Detected
--Not analyzed

Table C-22.--Analyses of substrate samples from Buffalo Avenue, site 83, Niagara Falls, N.Y.
[Locations shown in fig. C-43. Concentrations are in µg/kg; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)				
	1	(Split)	2	3	4
First sampling (6-25-82)	(26.5)		(2.0)	(3.0)	(6.7)
Inorganic constituents					
Iron	3,800,000	(3,500,000)	1,400,000	4,800,000	9,900,000
Mercury	--	(--)	--	--	--
Organic compounds		***	***	***	***
Priority pollutants					
Phenanthrene	4,200	(5,300)	--	--	--
Flouranthene	3,800	(5,700)	--	--	--
Pyrene	3,500	(5,900)	--	--	--
Benzo(a)anthracene	1,600	(2,400)	--	--	--
Chrysene	2,600	(3,600)	--	--	--
Benzo(b)fluoranthene	750	(1,900)	--	--	--
Benzo(k)fluoranthene	LT	(2,200)	--	--	--
Benzo(a)pyrene	1,400	(4,000)	--	--	--
Nonpriority pollutants					
5-Methyl-3-hexen-2-one[1]	LT	(--)	--	--	--
2,6-Dimethyl-2,5-heptadien-4-one[1]	3,100	(12,000)	--	--	--
4,5,7-Trimethylindan[1]	360	(--)	--	--	--
(E)-4-(2-Butenyl)-1,2-dimethylbenzene[1]	--	(1,400)	--	--	--
Compounds potentially of natural origin					
2,3,8-Trimethyldecane[1]	--	(3,400)	--	--	--
2,7-Dimethylundecane[1]	--	(2,000)	--	--	--
Nonadecane[1]	--	(2,100)	--	--	--
7-Hexyldocosane[1]	--	(1,600)	--	--	--
Heptacosane[1]	--	(1,800)	--	--	--
2,4-Dimethyl-4-heptanol[1]	--	(1,800)	--	--	--

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

***Samples analyzed at detection limit above that required by this study.

Table C-22.--Analyses of substrate samples from Buffalo Avenue, site 83, Niagara Falls, N.Y. (continued)

[Locations shown in fig. C-43. Concentrations are in µg/kg; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)			
First sampling (6-30-82)	5 (4.0)	6 (6.0)	7 (6.5)	(Split)
Inorganic constituents				
Iron	1,100,000	11,000,000	6,700,000	(2,900,000)
Mercury	--	--	--	(--)
Organic compound			***	***
Priority pollutant				
Naphthalene	--	LT	--	(--)

	Sample number and depth below land surface (ft)		
First sampling (6-30-82)	8 (4.0)	(Split)	9 (4.0)
Inorganic constituents			
Iron	6,800,000	(1,300,000)	
Mercury	--	(--)	
Organic compounds	***	***	***

	Sample number and depth below land surface (ft)		
Second sampling (5-28-83)	2A (2.0)	3A (2.0)	4A (1.5)
Organic compounds			
Priority pollutants			
4,4-DDT	25	--	--
Hexachlorobenzene	LT	--	--
Hexachlorobutadiene	LT	--	--

	Sample number and depth below land surface (ft)		
Second sampling (5-28-83)	7A (5.0)	8A (4.0)	9A (5.0)
Organic compounds	--	--	--

DATA REPORTING QUALIFIERS

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

Value - If the result is a value greater than CR equal to the instrument detection limit but less than the contract-required detection limit, the value is reported in brackets (i.e., [10]. The analytical Method used is indicate with P (for ICP), A (for flame AA) or F (for furnace AA).

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

J
Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1 1 response is assumed or when the amass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J).

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

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

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

E - Indicates a value estimated or not reported due to the presence of interference.

S - Indicates a value determined by method of standard addition.

N - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

M - Indicates duplicate injection results exceeded control limits.

P - Indicates ICP analysis.

F - Indicates furnace analysis

[]- Indicates sample value is between IDL and ORDL

TABLE 10
INORGANIC RESULTS FOR SOIL SAMPLES

Results in µg/Kg

Parameter	MW-1D Value	S1-4 Flag	MW-1D Value	S7-8 Flag	MW-1D Value	S12-13 Flag	MW-2D Value	S1-4 Flag	MW-2D Value	S7-8 Flag
Aluminum	8704.2	P*	11380.5	P*	3348.9	P*	9255.3	P*	4871	P*
Antimony	108	PN*	64.2	PN*	12.3	UPN*	117	P	26.6	P
Arsenic	6.7	UFN	7	UFN	6.4	UFN	5.6	SF	4.9	F
Barium	146.9	P*	116.3	P*	29.4	P*	112.3	P*	18.8	P*
Beryllium	0.1	UP	0.3	P	0.1	UP	0.1	UP	0.1	UP
Cadmium	11.8	PN*	8.6	PN*	15.3	PN*	26.3	PN*	5.4	PN*
Calcium	86033.8	P*	51985.8	P*	281225.5	P*	84793.5	P	13188.8	P
Chromium	29.3	PN	27.2	PN*	23.6	PN*	24	P*	6.3	P*
Cobalt	21.6	P*	20	P*	18.5	P*	12.6	P	3.2	UP
Copper	20.9	PN	13.5	PN	11.9	PN	12.1	N	3.9	PN
Iron	16722.4	P*	24778.8	P*	8940.9	P*	16353	P*	10729.5	SP*
Lead	46.2	PN	5.2	SF	21.9	F	22.8	FN*	19.5	F*
Magnesium	23754.2	P	10786.3	P	145346.6	P	34651.6	P	6464.6	P
Maganese	529.1	PN*	724.4	PN*	728.7	PN*	513.7	P	169.3	P
Mercury	0.2	CVN	0.2	UCVN	0.2	UCVN	0.1	UCV	0.1	UCV
Nickel	10.4	P	15.1	P	2.6	UP	19.1	P	13.7	P
Potassium	1282.7	P	1931.6	P	876.4	P	1797.4	P	722.7	P
Selenium	6.7	UFN	0.7	UFN	6.4	UFN	7	UFN	0.7	UFN
Silver	2.2	UPN	2.3	UPN	2.1	UPN	2.3	UPN	2.4	UPN
Sodium	218	UP	228.1	UP	208.7	UP	228.1	UP	239.3	UP
Thallium	4.4	UFN	4.7	UFN	4.3	UFN	0.5	UF	0.5	UF
Tin	ND		ND		ND		ND		ND	
Vanadium	10.9	P	20.7	P	16.8	P	20	P	9.8	P
Zinc	230.2	PN*	143	PN*	194.7	PN*	159.8	P*	56.8	P*
Cyanide	NA		NA		NA		0.1	UN	0.1	UN
Phenol	NA		NA		NA		NA		NA	
%solids	90		86		94		86		82	
E.P. TOXICITY (Results in µg/L)										
Arsenic	0.786		1.253		1.132		5.341		1.043	
Barium	0.592		0.467		0.611		<0.2		0.488	
Cadmium	0.026		0.075		0.038		0.024		0.058	
Chromium	<0.010		<0.010		<0.010		0.034		0.348	
Lead	<0.065		0.146		0.128		0.111		0.899	
Mercury	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
Selenium	0.474		0.491		0.512		0.441		0.359	
Silver	<0.010		<0.010		<0.010		<0.010		<0.019	
Herbicides/ Pesticides	NR		NR		NR		ND		ND	

TABLE 10 (continued)
INORGANIC RESULTS FOR SOIL SAMPLES

Results in µg/Kg

Parameter	MW-2D S17 Value	Flag	MW-2D S11-14 Value	Flag	MW-3D S1-5&S4 Value	Flag	MW-3D S5 & S6 Value	Flag	MW-3D S5-S7 Value	Flag
Aluminum	2118	P*	2389.1	P*	6226.7	PE	17710.7	PE	15584.8	PE
Antimony	121.6	P	142.2	P	43.5	PN	69.5	PN	56.9	PN
Arsenic	2.9	SF	4	F	2.9	F	5.3	F	9.8	F
Barium	12.4	P*	13.5	P*	52.4	P	121	P	116.4	P
Beryllium	0.1	UP	0.1	UP	0.5	P	1	P	1	P
Cadmium	23.1	PN*	30.4	P*	2.6	P*	9.8	P*	9.3	P*
Calcium	107904.1	P	170908.7	P	34615.1	PE*	73469	PE*	65650	PE*
Chromium	13.3	P*	22.2	P*	14	P	34.4	P	31.7	P
Cobalt	12.4	P	15.9	P	7	P	18.8	P	21.2	P
Copper	3.7	PN	0.7	UPN	19.5	P	29.5	P	29	P
Iron	4655.5	P*	5022.6	P*	10189.5	PE	30894.4	PE	34795	PE
Lead	14.4	SF*	16.7	F*	68.8	PN	81.2	PN	73.3	PN
Magnesium	44681.8	P	79494.8	P	15307.2	PE*	13670.5	PE*	14159.8	PE*
Maganese	490.2	P	445.9	P	238.6	PEN	682.7	PEN	856.7	PEN
Mercury	0.1	UVC	0.1	UCV	0.2	UCV	0.2	UCV	0.2	UCV
Nickel	4.7	P	8.3	P	19.5	P	41.2	P	42.4	P
Potassium	335.1	P	368.3	P	1172.1	P	3541.2	P	3055.5	P
Selenium	6.1	UFN	0.7	UFN	0.7	UFN	3.7	UFN	3.6	UFN
Silver	2	UPN	2.2	UPN	2.3	UPN	2.4	UPN	2.4	UPN
Sodium	200.2	UP	213.3	UP	228.1	UP	239.3	UP	233.6	UP
Thallium	0.4	UF	0.4	UF	0.5	UF	0.5	UF	0.5	UF
Tin	ND		ND		ND		ND		ND	
Vanadium	4.7	P	7.8	P	22.6	P	43.2	P	41.7	P
Zinc	179.4	P*	155.7	P*	77.2	PE*	92.4	PE*	94	PE*
Cyanide	0.1	UN	0.1	UN	NA		NA		NA	
Phenol	NA		NA		NA		NA		NA	
%solids	98		92		86		82		84	
E.P. TOXICITY										
Arsenic	<0.050		6.284		2.444		1.043		2.964	
Barium	0.244		0.409		<0.200		0.488		<0.200	
Cadmium	0.021		0.035		0.013		0.058		0.019	
Chromium	0.034		0.044		<0.10		0.348		<0.010	
Lead	0.084		0.119		0.143		0.899		<0.065	
Mercury	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
Selenium	0.136		0.528		0.354		0.359		0.351	
Silver	<0.010		<0.010		<0.010		<0.010		<0.010	
Herbicides/ Pesticides	ND		ND		ND		ND		ND	

TABLE 10 (continued)
INORGANIC RESULTS FOR SOIL SAMPLES

Results in µg/Kg

Parameter	MW-3D S14-S16 Value	Flag	MW-4D S2-S4 Value	Flag	MW-4D S5-S8 Value	Flag	MW-4D S11-13 Value	Flag	MW-4D S14-S15 Value	Flag
Aluminum	2436.3	PE	7755.6	P*	5250	P*	2889.1	P*	20035.7	P*
Antimony	60.2	PN	11.1	UPN	10.9	UPN	10.9	UPN	17.9	UPN
Arsenic	1.3	SF	2.8	F	3.2	F	3.5	F	6	F
Barium	36.1	P	94	P	49.6	P	17.6	P	158.2	P
Beryllium	0.1	UP	0.4	UPN	0.4	UPN	0.4	UPN	0.7	UPN
Cadmium	9	P*	1.1	UPN	1.1	UPN	1.1	UPN	1.8	UPN
Calcium	97469	PE*	63288.9	P	103260.9	P	12304.3	P	66285.7	P
Chromium	14.1	P	6.9	PN	2.2	UPN	2.6	PN	12.1	P
Cobalt	9	P	10.9	PN	6.5	UPN	6.5	UPN	17.1	PN
Copper	18.4	P	18.9	P	12.4	P	8.9	P	29.3	P
Iron	5978.4	PE	19000	PE	12434.8	PE	7760.4	PE	44285.7	PE
Lead	70.2	PN	20.9	F*	23.7	F*	8.9	SF*	5.4	UF*
Magnesium	40323.3	PE*	16933.3	P	51956.5	P	5260.9	P	20000	P
Maganese	555.1	PEN	655.6	P	551.5	P	153	P	970	P
Mercury	0.2	UCV	0.1	UCV	0.1	UCV	0.1	UCV	0.2	UCV
Nickel	9.4	P	16	P	11.7	P	7.4	P	36.1	P
Potassium	488.4	P	1422.2	P	891.3	P	652.2	UP	4142.9	P
Selenium	3.1	UFN	3.3	UFN	3.3	UFN	0.7	UFN	1.1	UFN
Silver	2	UPN	2.2	UPN	2.2	UPN	2.2	UPN	3.6	UPN
Sodium	200.2	UP	200	P	217.4	P	108.7	UP	321.4	P
Thallium	0.4	UF	0.4	UF	0.4	UF	0.4	UF	0.7	UF
Tin	ND		ND		ND		ND		ND	
Vanadium	10.8	P	18.4	P	13	P	9.1	P	40	P
Zinc	112	PE*	65.3	P	87	P	28.7	P	71.8	P
Cyanide	NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA	
%solids	98		90		92		88		56	
E.P. TOXICITY										
Arsenic	2.92		3.208		1.727		2.781		3.025	
Barium	0.205		<0.2		<0.2		0.283		0.388	
Cadmium	0.015		0.021		<0.005		0.017		0.019	
Chromium	<0.010		0.014		<0.010		0.016		<0.010	
Lead	0.085		0.122		<0.065		<0.065		0.087	
Mercury	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
Selenium	0.361		0.459		0.2		0.36		0.449	
Silver	<0.010		<0.010		<0.010		<0.010		<0.010	
Herbicides/ Pesticides	ND		ND		ND		ND		ND	

TABLE 10 (continued)
INORGANIC RESULTS FOR SOIL SAMPLES

Results in µg/Kg

Parameter	MW-4D S16-S17 Value	Flag	MW-5D S1-3 Value	Flag	MW-5D S5-6 Value	Flag	MW-5D S12-13 Value	Flag	MW-6D S1-3 Value	Flag
Aluminum	42217.4	P*	6300	P	21500	P	5900	P	6000	P
Antimony	10.9	UPN	11.4	UP	13.2	UP	11.4	UP	11.4	UPN
Arsenic	2.5	F	5.6	SF	3.9	F	3.4	SF	4.3	SFN
Barium	48.9	P	20	UP	140	P	50	P	20	UP
Beryllium	0.4	UPN	0.2	P	0.8	P	0.2	P	0.1	UPN
Cadmium	1.1	UPN	0.9	UP	1.1	UP	2.3	P	0.9	UPN
Calcium	117173.9	P	14000	P	74100	P	116800	P	10200	PVM
Chromium	2.8	PN	0	UP	40	P	30	P	0	UP
Cobalt	6.5	UPN	7.3	P	20	P	10.7	P	6.8	P
Copper	15.7	P	10.5	P	24.5	P	9.3	P	10.9	PVM
Iron	8565.2	PE	15600	P	34600	P	11300	P	13900	P
Lead	51.7	SF*	20	SF	10	FE	40	F	10	FN*
Magnesium	49956.5	P	6000	P	14900	P	49000	P	3900	P
Maganese	570.2	P	290	P	840	P	630	P	210	PNE*
Mercury	0.1	UCV	0.1	UCV	0.1	UCV	0.1	UCV	0.1	UCV
Nickel	8	P	5	UP	22.9	P	5	UP	5	UP
Potassium	652.2	UP	1087.7	UP	4279.2	P	1603.2	P	1087.7	UP
Selenium	0.7	UFN	0.7	UF	3.9	UF	0.7	UF	0.7	UFN
Silver	12.6	PN	0	UP	10	P	40	P	0	PN
Sodium	173.9	P	131.6	UP	152.4	UP	131.6	UP	131.6	UP
Thallium	0.4	UF	0.5	UF	0.5	UF	0.5	UF	0.5	UF
Tin	ND		ND		ND		ND		ND	
Vanadium	8.3	P	3.2	UP	26.1	P	3.2	UP	3.2	UP
Zinc	148.3	P	50	P	80	P	180	P	70	P
Cyanide	NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA	
%solids	92		88		76		88		88	
E.P. TOXICITY										
Arsenic	2.205		<0.05		<0.05		<0.05		<0.05	
Barium	<0.2		<0.2		<0.2		0.477		0.477	
Cadmium	<0.005		<0.005		<0.005		<0.005		<0.005	
Chromium	<0.010		<0.01		<0.01		0.01		0.01	
Lead	<0.065		<0.065		<0.065		<0.065		<0.065	
Mercury	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
Selenium	0.332		<0.075		<0.075		<0.075		<0.075	
Silver	<0.010		<0.01		<0.01		<0.01		<0.01	
Herbicides/ Pesticides	ND		ND		ND		ND		ND	

TABLE 10 (continued)
INORGANIC RESULTS FOR SOIL SAMPLES

Results in µg/Kg

Parameter	MW-6D Value	S5-6 Flag	MW-6D Value	S15-16 Flag	MW-7 Value	S#5 Flag	MW-7 Value	S#6 Flag	MW-7D Value	S1-3 Flag
Aluminum	18100	P	4300	P	7500	P	39600	P	7800	P
Antimony	12.8	UPN	12.5	UPN	62.1	PN	13.5	UPN	10	UPN
Arsenic	4.4	PN	1.1	PN	191	+SFN	10.3	SFN	6	UFN
Barium	140	P	50	P	500	P	820	P	70	P
Beryllium	0.1	UPN	0.1	UPN	0.7	PN	10	PN	0.3	PN
Cadmium	2.1	PN	25.3	PN	1	UPN	4.6	PN	3.4	P
Calcium	55900	PVM	148800	PVM	18700	P*	75900	PVM	781000	P
Chromium	30	P	40	P	80	P	2900	P	670	PE
Cobalt	22.6	P	24	P	7.9	P	20.5	P	9.6	P
Copper	29.5	PVM	20.5	P	60	P	1741.6	PVM	30	P
Iron	33500	P	9200	P	21400	P	60500	P	14900	P
Lead	10	FSN*	50	FSN	2460	PN	630	PN	40	FN*
Magnesium	13500	P	68300	P	1100	P	2500	P	19300	P
Maganese	750	PNE*	720	PNE*	90	PNE*	180	PNE*	380	P
Mercury	0.1	UCV	0.1	UCV	8.8	C.V.	5.6	C.V.	2.4	CVN
Nickel	5.6	UP	5.5	UP	5.6	UP	5.9	UP	4.4	UP
Potassium	3500	P	1196.5	UP	1227.2	UP	1903.5	P	1000	P
Selenium	7.7	UFN	7.5	UFN	7.7	UFN	8.1	UFN	6	UFN
Silver	20	PN	70	PN	10	PN	20	PN	30	P
Sodium	148.5	UP	144.8	UP	3623.3	P	16658.6	P	115.8	UP
Thallium	0.5	UF	0.5	UF	0.5	UF	0.5	UF	0.4	UF
Tin	ND		ND		ND		ND		ND	
Vanadium	23.3	P	5	P	3.6	UP	10	P	2.8	UP
Zinc	100	P	210	P	720	P	640	P	860	P
Cyanide	NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA	
%solids	78		80		78		74		100	
E.P. TOXICITY										
Arsenic	<0.05		<0.05		<0.05		<0.05		<0.05	
Barium	2.02		0.518		0.411		0.467		<0.2	
Cadmium	<0.005		<0.005		0.023		0.022		<0.005	
Chromium	0.013		<0.01		<0.01		0.043		<0.01	
Lead	<0.065		<0.065		0.141		<0.065		<0.065	
Mercury	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
Selenium	<0.075		<0.075		<0.075		<0.075		<0.075	
Silver	<0.01		<0.01		<0.01		0.073		<0.01	
Herbicides/ Pesticides	ND		ND		ND		ND		ND	

S14

TABLE 10 (continued)
INORGANIC RESULTS FOR SOIL SAMPLES

Results in µg/Kg

Parameter	MW-7D S7-8 Value	Flag	MW-7D S15-17 Value	Flag	MW-8D#1 S0-6 Value	Flag	MW-8D#2 S9-16 Value	Flag	MW-8D#3 S22-26 Value	Flag
Aluminum	16300	P	4100	P	5100	P	3700	P	14700	P
Antimony	11.9	UPN	10.9	UPN	10	UPN	10.6	UPN	11.1	UPN
Arsenic	7.1	UFN	1.3	FN	3.5	SFN	3	SFN	6.7	UFN
Barium	100	P	40	P	40	P	21.3	UP	100	P
Beryllium	0.8	PN	0.1	PN	0.2	PN	0.1	UPN	0.6	PN
Cadmium	1	UP	10	P	5.6	P	0.9	UP	0.9	UP
Calcium	58200	P	126800	P	87500	P	21900	P	383000	P
Chromium	680	PE	890	PE	690	PE	230	PE	520	PE
Cobalt	20	P	10	P	11	P	6.2	UP	10	P
Copper	30	P	10	P	11	P	7.2	P	20	P
Iron	27700	P	8700	P	9000	P	9500	P	25800	P
Lead	8.7	SFN*	40	FN*	30	FN*	10	FN*	10	FN*
Magnesium	12300	P	587000	P	35700	P	7300	P	12700	P
Manganese	680	P	560	P	430	P	180	P	570	P
Mercury	0.1	U	0.1	U	0.1	U	0.6	CVN	0.1	U
Nickel	5.2	UP	4.8	UP	4.4	UP	4.7	UP	4.9	UP
Potassium	3200	P	1040.4	UP	957.2	UP	1018.3	UP	2900	P
Selenium	7.1	UFN	6.5	UFN	6	UFEN	0.6	UFN	6.7	UFN
Silver	10	P	50	P	30	P	6.8	P	7.8	P
Sodium	620	P	125.9	UP	115.8	UP	123.2	UP	128.7	UP
Thallium	0.5	UF	0.4	UF	0.4	UF	0.4	UF	0.4	UF
Tin	ND		ND		ND		ND		ND	
Vanadium	20	P	3	UP	2.8	UP	3	UP	10	P
Zinc	680	P	1300	P	970	P	160	P	430	P
Cyanide	NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA	
%solids	84		92		100		94		90	
E.P. TOXICITY										
Arsenic	<0.05		<0.05		<0.05		<0.05		0.053	
Barium	<0.2		<0.2		<0.2		<0.2		<0.2	
Cadmium	<0.005		<0.005		<0.005		<0.005		<0.005	
Chromium	<0.01		<0.01		0.115		<0.01		<0.01	
Lead	<0.065		<0.065		<0.065		<0.065		<0.065	
Mercury	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002	
Selenium	<0.075		<0.075		<0.075		<0.075		<0.075	
Silver	<0.01		<0.01		0.25		<0.01		<0.01	
Herbicides/ Pesticides	ND		ND		ND		ND		ND	

TABLE 10 (continued)
INORGANIC RESULTS FOR SOIL SAMPLES

Results in µg/Kg

Parameter	MW-8D#4 Value	S29-33 Flag	B-3 #6 Value	Flag	B-3 #8 Value	Flag
Aluminum	2400	P	7600	P	98800	P
Antimony	10.9	UPN	11.9	UP	11.6	UP
Arsenic	2.3	+SFN	4.2	F	6.6	SF
Barium	22	P	80	P	220	P
Beryllium	0.1	UPN	0.2	P	0.4	P
Cadmium	10	P	1	UP	8.1	UP
Calcium	123000	P	27500	P	66200	P
Chromium	830	PE	0	UP	40	P
Cobalt	10	P	11.4	P	21.6	P
Copper	10	P	16	P	55.6	P
Iron	5300	P	16300	P	20600	P
Lead	20	FN*	10	F	150	F
Magnesium	60600	P	9400	P	21500	P
Maganese	490	P	310	P	600	P
Mercury	0.1	U	0.1	UCV	1.6	CV
Nickel	4.8	UP	5.2	UP	5.1	UP
Potassium	1040.4	UP	1814.3	P	1826	P
Selenium	6.5	UFN	0.7	UF	0.7	UF
Silver	50	P	10	P	30	P
Sodium	125.9	UP	137.9	UP	156.3	P
Thallium	0.4	UF	4.8	UFEN	4.7	UFEN
Tin	ND		ND		ND	
Vanadium	3	UP	4.3	P	13	P
Zinc	1300	P	100	P	250	P
Cyanide	NA		NA		NA	
Phenol	NA		NA		NA	
%solids	92		84		86	
E.P. TOXICITY						
Arsenic	<0.05		<0.05		0.15	
Barium	0.281		2.02		0.961	
Cadmium	<0.005		<0.005		<0.005	
Chromium	<0.01		0.013		<0.01	
Lead	<0.065		<0.065		0.16	
Mercury	<0.0002		<0.0002		<0.0002	
Selenium	<0.075		<0.075		<0.075	
Silver	<0.01		<0.01		<0.01	
Herbicides/ Pesticides	ND		ND		ND	

TABLE 11

Organic Results in Soil Samples
Results in µg/kg

PARAMETER	MW-1D S1-4 Value	Flag	MW-1D S7-8 Value	Flag	MW-1D S12-13 Value	Flag	MW-2D S1-4 Value	Flag	MW-2D S7-8 Value	Flag	MW-2D S14 Value	Flag	MW-2D S11-14 Value	Flag
Percent Moisture	10		14		6		14		18		NA		8	
pH	7.9		6.5		8.1		7.9		7.8		NA		7	
Methylene Chloride	96	B	84	B	63	B			17				22	
Acetone	157	B	130	B	55	B	54	B	80				93	
Benzene	3	JB	7.2	B	1.4	JB								
2-Butanone	55	B	48	B	38	B								
Vinyl Acetate														
Phenanthrene	3800								3900					
Anthracene	580								1800					
Fluoranthene	18000								6800					
Pyrene	26000								5300					
Benzo(a)Anthracene	18000								2300					
Chrysene	41000								2400					
Benzo(b)Fluoranthene	38000								2000					
Benzo(k)Fluoranthene	44000								1300					
Benzo(a)Pyrene	19000				163	J			1700				890	
Indeno(1,2,3-cd)Pyrene	3000								870					
Dibenz(a,h)Anthracene	1800								260					
Benzo(g,h,i)Perylene	4000								820					
2-Methylnaphthalene									130					
Naphthalene	190	J							430					
Acenaphthene									590					
Dibenzofuran									280					
Fluorene									510					
Trichloroethene			4.2	J			1.3	J						
1,1,1-Trichloroethane	2.1	JB	4.7	JB										
Tetrachloroethene							2.8	J						
Toluene														
bis(2-Ethylhexyl)Phthalate														
Dieldrin														
Endrin														
4,4'-DDD														
Alpha-BHC														
Total Xylenes														
2-Hexanone														
Di-n-Butylphthalate														
Styrene														
Chloroform														
Carbon Disulfide														
Chlorobenzene														
Phenol														
1,4-Dichlorobenzene														
Di-n-Octyl Phthalate														
Aldrin														
4,4'-DDT														
Heptachlor														
Unknown Carboxylic Acid														
Unknown Alcohol														
Unknown Aldehyde														
Unknown Ester														
Unknown Alkane	1		1		4		3							
[redacted]														
Unknown Alkene	1													
Unknown Ketone			1											
Unknown Phthalate														
Unknown Cyclic Compound														
Unknown VOA	4		1				1		3				1	
Unknown BNA	6		1		6				12				4	
Tentatively ID BNA	1		1		11				1					
Tentatively ID VOA	1		2		1									

TABLE 11

Organic Results in Soil Samples
Results in µg/kg

PARAMETER	MW-2D S17 Value	Flag	MW-3D S1 Value	Flag	MW-3D S5 Value	Flag	MW-3D S14 Value	Flag	TRIP BLANK Value	Flag	MW3D S1-5 S4 Value	Flag	MW-3D S5-S6 Value	Flag	MW-3D S5-S7 Value	Flag
Percent Moisture	2		8		10		0		NA		14		18		16	
pH	8.1		NA		NA		NA		NA		NA		NA		NA	
Methylene Chloride	14		51.7	B	22.4	B	27.1	B	3.8	JB						
Acetone	124		28.8	B	42	B	60.1	B	7	JB						
Benzene			1.1													
2-Butanone																
Vinyl Acetate																
Phenanthrene																
Anthracene																
Fluoranthene																
Pyrene																
Benzo(a)Anthracene																
Chrysene																
Benzo(b)Fluoranthene																
Benzo(k)Fluoranthene																
Benzo(a)Pyrene																
Indeno(1,2,3-cd)Pyrene																
Dibenz(a,h)Anthracene																
Benzo(g,h,i)Perylene																
2-Methylnaphthalene																
Naphthalene																
Acenaphthene																
Dibenzofuran																
Fluorene																
Trichloroethene																
1,1,1-Trichloroethane																
Tetrachloroethene																
Toluene			1.2													
bis(2-Ethylhexyl)Phthalate													1200			
Dieldrin													1.7	J		
Endrin													2.1	J		
4,4'-DDD															0.61	J
Alpha-BHC																
Total Xylenes																
2-Hexanone																
Di-n-Butylphthalate																
Styrene																
Chloroform																
Carbon Disulfide																
Chlorobenzene																
Phenol																
1,4-Dichlorobenzene																
Di-n-Octyl Phthalate																
Aldrin																
4,4'-DDT																
Heptachlor																
Unknown Carboxylic Acid																
Unknown Alcohol																
Unknown Aldehyde																
Unknown Ester																
Unknown Alkane											1		1			
Unknown Aromatic																
Unknown Alkene																
Unknown Ketone																
Unknown Phthalate																
Unknown Cyclic Compound																
Unknown VOA	6															
Unknown BNA	18										2		15		18	
Tentatively ID BNA											2		4		2	
Tentatively ID VOA																

TABLE 11

Organic Results in Soil Samples
Results in µg/kg

PARAMETER	MW3DS14-16 Value	Flag	MW4D S1-S2 Value	Flag	MW4D S5 DpS1-2 Value	Flag	MW-4D S11 Value	Flag	MW-4D S14 Value	Flag	MW-4D S16 Value	Flag	MW-4D S2-4 Value	Flag	MW4D DpS2-4 Value	Flag
Percent Moisture	2		20		18		26		36		14		NA		NA	
pH	NA		8		8		8		8		8		NA		NA	
Methylene Chloride			39.6	B	32.9	B	21.7	B	47.2	B	18	B				
Acetone			60.3	B	131.3	B	69.4	B	40	B	63.7	B				
Benzene			2.1		1.7		2.8		1.1		1.8					
2-Butanone																
Vinyl Acetate					17.4	B	72.2		22.6		90.3					
Phenanthrene																
Anthracene																
Fluoranthene																
Pyrene																
Benzo(a)Anthracene																
Chrysene																
Benzo(b)Fluoranthene																
Benzo(k)Fluoranthene																
Benzo(a)Pyrene																
Indeno(1,2,3-cd)Pyrene																
Dibenz(a,h)Anthracene																
Benzo(g,h,i)Perylene																
2-Methylnaphthalene																
Naphthalene																
Acenaphthene																
Dibenzofuran																
Fluorene																
Trichloroethene			1.8													
1,1,1-Trichloroethane			1	J												
Tetrachloroethene																
Toluene																
bis(2-Ethylhexyl)Phthalate																
Dieldrin																
Endrin																
4,4'-DDD	0.61	J														
Alpha-BHC	8.6															
Total Xylenes					12.5		4									
2-Hexanone									8.4							
Di-n-Butylphthalate													1025			
Styrene																
Chloroform																
Carbon Disulfide																
Chlorobenzene																
Phenol																
1,4-Dichlorobenzene																
Di-n-Octyl Phthalate																
Aldrin																
4,4'-DDT																
Heptachlor																
Unknown Carboxylic Acid																
Unknown Alcohol																
Unknown Aldehyde																
Unknown Ester																
Unknown Alkane	1		1				1								1	
Unknown Aromatic																
Unknown Alkene					1											
Unknown Ketone																
Unknown Phthalate																
Unknown Cyclic Compound																
Unknown VOA			4		1						2					
Unknown BNA	16												2		15	
Tentatively ID BNA	3												1			
Tentatively ID VOA			1		3											

TABLE 11

Organic Results in Soil Samples
Results in µg/kg

PARAMETER	MW-4D S11-13 Value	Flag	MW-4D S14-15 Value	Flag	MW-4D S16-17 Value	Flag	TRIP BLANK Value	Flag	MW-5D S1 Value	Flag	MW-5D S5 Value	Flag	MW-5D S12 Value	Flag	MW-5D S1-3 Value	Flag
Percent Moisture	NA		NA		NA		NA		18		20		NA		12	
pH	NA		NA		NA		6.9		7.7		9		NA		8.3	
Methylene Chloride									160	B	9	B	14	B		
Acetone									380	B	28	B	22	B		
Benzene									9		1.4	J	5			
2-Butanone																
Vinyl Acetate																
Phenanthrene																
Anthracene																
Fluoranthene																
Pyrene																
Benzo(a)Anthracene																
Chrysene																
Benzo(b)Fluoranthene																
Benzo(k)Fluoranthene																
Benzo(a)Pyrene																
Indeno(1,2,3-cd)Pyrene																
Dibenz(a,h)Anthracene																
Benzo(g,h,i)Perylene																
2-Methylnaphthalene																
Naphthalene																
Acenaphthene																
Dibenzofuran																
Fluorene																
Trichloroethene																
1,1,1-Trichloroethane													5	J		
Tetrachloroethene									11				11			
Toluene																
bis(2-Ethylhexyl)Phthalate																
Dieldrin																
Endrin																
4,4'-DDD																
Alpha-BHC																
Total Xylenes																
2-Hexanone																
Di-n-Butylphthalate	1300															
Styrene																
Chloroform																
Carbon Disulfide																
Chlorobenzene																
Phenol																
1,4-Dichlorobenzene																
Di-n-Octyl Phthalate																
Aldrin																
4,4'-DDT																
Heptachlor																
Unknown Carboxylic Acid																
Unknown Alcohol																
Unknown Aldehyde																
Unknown Ester																
Unknown Alkane									2		1				1	
Unknown Aromatic																
Unknown Alkene	1															
Unknown Ketone																
Unknown Phthalate																
Unknown Cyclic Compound																
Unknown VOA											1					
Unknown BNA	3		11		8										6	
Tentatively ID BNA			1		2											
Tentatively ID VOA																

TABLE 11

Organic Results in Soil Samples
Results in µg/kg

PARAMETER	MW-5D S5-6 Value	MW-5D S5-6 Flag	MW-5D S12-13 Value	MW-5D S12-13 Flag	MW-6D S1 Value	MW-6D S1 Flag	MW-6D S5 Value	MW-6D S5 Flag	MW-6D S14-15 Value	MW-6D S14-15 Flag	MW-6D S1-3 Value	MW-6D S1-3 Flag	MW-6D S5-6 Value	MW-6D S5-6 Flag	MW-6D S15-16 Value	MW-6D S15-16 Flag
Percent Moisture	24		12		8		22		8		NA		NA		NA	
pH	8.4		8.6		7		8		8		NA		NA		NA	
Methylene Chloride					49	B			13	B						
Acetone					137	B			26	B						
Benzene					1.9	J										
2-Butanone					8.6	J			1.8	J						
Vinyl Acetate																
Phenanthrene																
Anthracene																
Fluoranthene																
Pyrene																
Benzo(a)Anthracene																
Chrysene																
Benzo(b)Fluoranthene																
Benzo(k)Fluoranthene																
Benzo(a)Pyrene																
Indeno(1,2,3-cd)Pyrene																
Dibenz(a,h)Anthracene																
Benzo(g,h,i)Perylene																
2-Methylnaphthalene																
Naphthalene																
Acenaphthene																
Dibenzofuran																
Fluorene																
Trichloroethene																
1,1,1-Trichloroethane																
Tetrachloroethene					8.6											
Toluene					5.9											
bis(2-Ethylhexyl)Phthalate											300	J				
Dieldrin																
Endrin																
4,4'-DDD																
Alpha-BHC																
Total Xylenes					3.3	J										
2-Hexanone																
Di-n-Butylphthalate																
Styrene					5.4											
Chloroform									4.8	J						
Carbon Disulfide																
Chlorobenzene																
Phenol																
1,4-Dichlorobenzene																
Di-n-Octyl Phthalate																
Aldrin																
4,4'-DDT																
Heptachlor																
Unknown Carboxylic Acid																
Unknown Alcohol	1															
Unknown Aldehyde																
Unknown Ester																
Unknown Alkane	6		2						1							
Unknown Aromatic																
Unknown Alkene																
Unknown Ketone																
Unknown Phthalate																
Unknown Cyclic Compound																
Unknown VOA							1		1							
Unknown BNA	5		4								1		18		13	
Tentatively ID BNA	3		1										1		2	
Tentatively ID VOA																

TABLE 11

Organic Results in Soil Samples
Results in µg/kg

PARAMETER	MW-7S #5 Value	Flag	MW-7S #6 Value	Flag	MW-7D S1 Value	Flag	MW-7D S7 Value	Flag	MW-7D S15 Value	Flag	MW-7D S1-3 Value	Flag	MW-7D S7-8 Value	Flag	MW-7D S15-17 Value	Flag
Percent Moisture	22		26		8		22		8		NA		NA		NA	
pH	7.3		7.8		7		8		6.5		NA		NA		NA	
Methylene Chloride	76	B	60	B	89	B	108	B	85	B						
Acetone	62	B			7.6	JB	31	B	23	B						
Benzene					1.3	J	1.6	J	1.4	J						
2-Butanone																
Vinyl Acetate									9.4	J						
Phenanthrene											9400		7800		390	J
Anthracene	3300	J									4200		2800			
Fluoranthene											6800		5400		280	J
Pyrene											7600		5600		310	J
Benzo(a)Anthracene											6100		3000			
Chrysene											5800		3100		138	J
Benzo(b)Fluoranthene											4300		2800		116	J
Benzo(k)Fluoranthene											2000		1200			
Benzo(a)Pyrene											4400	B	2400	B		
Indeno(1,2,3-cd)Pyrene											2800		1500			
Dibenz(a,h)Anthracene											1100		450	J		
Benzo(g,h,i)Perylene											2700		1600			
2-Methylnaphthalene											510	J	260	J		
Naphthalene											1800		690			
Acenaphthene											1600		980			
Dibenzofuran											1300		900			
Fluorene											1500		1200			
Trichloroethene																
1,1,1-Trichloroethane																
Tetrachloroethene																
Toluene	3.6	J							1.8	J						
bis(2-Ethylhexyl)Phthalate											350	J	800		900	
Dieldrin																
Endrin																
4,4'-DDD																
Alpha-BHC																
Total Xylenes																
2-Hexanone																
Di-n-Butylphthalate											870	B	110	JB		
Styrene																
Chloroform	1.4	J														
Carbon Disulfide	6.1	J														
Chlorobenzene	81															
Phenol											79	J				
1,4-Dichlorobenzene											101	J				
Di-n-Octyl Phthalate											100	J	270	J		
Aldrin																
4,4'-DDT																
Heptachlor																
Unknown Carboxylic Acid																
Unknown Alcohol													2		2	
Unknown Aldehyde																
Unknown Ester															1	
Unknown Alkane	3		1								10		7		3	
Unknown Aromatic																
Unknown Alkene	4															
Unknown Ketone																
Unknown Phthalate											1					
Unknown Cyclic Compound																
Unknown VOA																
Unknown BNA	11		1								1		5		4	
Tentatively ID BNA	2										9		6		6	
Tentatively ID VOA	3		2													

TABLE 11

Organic Results for Soil Samples
Results in µg/kg

PARAMETER	MW-8D S1 0-6 Value	Flag	MW-8D S2 9-16 Value	Flag	MW-8D S3 22-26 Value	Flag	MW-8D S4 29-33 Value	Flag	MW-8D #1 S0-6 Value	Flag	MW8D#2 S9-16 Value	Flag	MW8D 3 S22-26 Value	Flag	MW8D#4 S29-33 Value	Flag
Percent Moisture	8		20		8		8		NA		NA		NA		NA	
pH	7.2		7		8		7.5		NA		NA		NA		NA	
Methylene Chloride	126	B'	110	B	140	B	97	B								
Acetone	9.8	JB	13	B	29	B	18	B								
Benzene	1.4	J	2.4	J	1.7	J	1.4	J								
2-Butanone																
Vinyl Acetate					3.7	J	4.9	J								
Phenanthrene											170	J				
Anthracene																
Fluoranthene											320	J				
Pyrene											68	J				
Benzo(a)Anthracene											141	J				
Chrysene											180	J				
Benzo(b)Fluoranthene											140	J				
Benzo(k)Fluoranthene																
Benzo(a)Pyrene											91	JB				
Indeno(1,2,3-cd)Pyrene																
Dibenz(a,h)Anthracene																
Benzo(g,h,i)Perylene																
2-Methylnaphthalene																
Naphthalene																
Acenaphthene																
Dibenzofuran																
Fluorene																
Trichloroethene																
1,1,1-Trichloroethane																
Tetrachloroethene																
Toluene																
bis(2-Ethylhexyl)Phthalate									474.5	J	440	J	680		1000	
Dieldrin													9	J		
Endrin																
4,4'-DDD									292							
Alpha-BHC																
Total Xylenes																
2-Hexanone																
Di-n-Butylphthalate									1158.1	B	41000	B			140	JB
Styrene																
Chloroform																
Carbon Disulfide																
Chlorobenzene																
Phenol																
1,4-Dichlorobenzene																
Di-n-Octyl Phthalate																
Aldrin																
4,4'-DDT																
Heptachlor																
Unknown Carboxylic Acid											1				1	
Unknown Alcohol																
Unknown Aldehyde																
Unknown Ester																
Unknown Alkane									5		3				7	
Unknown Aromatic																
Unknown Alkene																
Unknown Ketone																
Unknown Phthalate																
Unknown Cyclic Compound																
Unknown VOA																
Unknown BNA									12		8		1		2	
Tentatively ID BNA									2		8				3	
Tentatively ID VOA																

TABLE 11

Organic Results for Soil Samples
Results in µg/kg

PARAMETER	B-3 #6 Value	Flag	B-3 #8 Value	Flag
Percent Moisture	16		14	
pH	5.7		5.9	
Methylene Chloride	14		11	
Acetone	42		25	
Benzene	2.7	J		
2-Butanone				
Vinyl Acetate				
Phenanthrene			130	J
Anthracene				
Fluoranthene			120	J
Pyrene			97	J
Benzo(a)Anthracene				
Chrysene				
Benzo(b)Fluoranthene				
Benzo(k)Fluoranthene				
Benzo(a)Pyrene				
Indeno(1,2,3-cd)Pyrene				
Dibenz(a,h)Anthracene				
Benzo(g,h,i)Perylene				
2-Methylnaphthalene				
Naphthalene				
Acenaphthene				
Dibenzofuran				
Fluorene				
Trichloroethene				
1,1,1-Trichloroethane				
Tetrachloroethene				
Toluene				
bis(2-Ethylhexyl)Phthalate				
Dieldrin			64	
Endrin			110	
4,4'-DDD				
Alpha-BHC				
Total Xylenes	8.8			
2-Hexanone				
Di-n-Butylphthalate				
Styrene				
Chloroform				
Carbon Disulfide				
Chlorobenzene				
Phenol				
1,4-Dichlorobenzene				
Di-n-Octyl Phthalate				
Aldrin	10	J		
4,4'-DDT			36	J
Heptachlor			68.8	
Unknown Carboxylic Acid				
Unknown Alcohol				
Unknown Aldehyde				
Unknown Ester				
Unknown Alkane			3	
Unknown Aromatic				
Unknown Alkene				
Unknown Ketone				
Unknown Phthalate				
Unknown Cyclic Compound				
Unknown VOA	3		1	
Unknown BNA			3	
Tentatively ID BNA				
Tentatively ID VOA				

Note: A Blank space indicates the parameter was tested for but not found.

TABLE 13

Ambient Water Quality Standards

Selected Inorganic Compounds

Element	Standard (ug/l)*
Aluminum	N/A
Antimony	3
Arsenic	25
Barium	1000
Beryllium	3
Cadmium	10
Calcium	N/A
Chromium	50
Cobalt	N/A
Copper	1000
Iron	300
Lead	25
Magnesium	35,000
Manganese	300
Mercury	2
Nickel	N/A
Potassium	N/A
Selenium	20
Silver	50
Sodium	N/A
Thallium	4
Tin	N/A
Vanadium	N/A
Zinc	5000

N/A Not Available
* Source is Reference 7

TABLE 14
Inorganic Results for Ground Water

Results in µg/kg

Parameter	MW-1S Value	Flag	MW-1D Value	Flag	MW-2S Value	Flag	MW-2D Value	Flag	MW-3S Value	Flag	MW-3D Value	Flag
Aluminum	45900	PE	5424	PE	44064	PE	25557	PE	229065	PE	3221	PE
Antimony	50	UPN	50	UPN	50	UPN	50	UPN	50	PN	50	UPN
Arsenic	32.6	SFN	3	UFN	42.7	SFN*	15	SFN	30	UPN	3	UFN
Barium	1492	P	110	P	383	P	272	P	2048	UF	100	UP
Beryllium	2.4	P	0.3	UP	2.2	P	1.1	P	12	UPN	0.6	PN
Cadmium	36	P	4	UP	9	P	36	P	6	P	16	P
Calcium	583789	PE	219721	PE	446292	PE	727995	PE	1166740	PE	277067	PE
Chromium	242	P	31	P	184	P	135	P	421	P	44	P
Cobalt	79	P	29	UP	87	P	71	P	287	P	37	P
Copper	395	P	86	P	144	P	104	P	477	P	50	P
Iron	130314	PE	9802	PE	107550	PE	40125	PE	566965	PE	4931	PE
Lead	2791	P	606	SF*	171	F*	173	SF*	369	F*	12.6	F*
Magnesium	120681	PE	95585	PE	146165	PE	270786	PE	238134	PE	113822	PE
Maganese	3024	PE	499	PE	2468	PE	2107	PE	11482	PE	155	PE
Mercury	5.3	CV	0.2	U	1	CV	0.2	UCV	1	CV	0.2	U
Nickel	146	P	22	UP	105	P	68	P	544	P	22	UP
Potassium	17130	P	145318	P	24202	P	13694	P	35485	P	6043	P
Selenium	30	UFN	30	UFN	30	UFMN	30	UFN	30	UFN	30	UFN
Silver	185	P	74	P	146	P	252	P	353	P	115	P
Sodium	14764	P	159215	P	23299	P	95547	P	44041	P	99120	P
Thallium	2	UFN	2	UFN	2	UFN	2	UFN	2	UFN	2	UFN
Tin	ND		ND		759		ND		ND		ND	
Vanadium	105	P	14	UP	59	P	31	P	431	P	14	UP
Zinc	8542	P	220	P	745	P	780	P	1415	P	116	P
Cyanide	NA		NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA		NA	
% solids	NA		NA		NA		NA		NA		NA	

TABLE 14 (continued)
Inorganic Results for Ground Water

Results in µg/kg

Parameter	MW-4S Value	Flag	MW-4D Value	Flag	MW-5S Value	Flag	MW-5D MS-MSD Value	Flag	MW-5D Dup Value	Flag	MW-6S Value	Flag
Aluminum	194092	PE	103845	PE	51018	PE	29852	PE	29852		93601	PE
Antimony	50	UPN	50	UPN	50	UPN	50	UPN	50	U	50	UPN
Arsenic	34	FN	15.5	FN	20.7	SFN	21.6	SFN	21.6		17.2	SFN
Barium	1518	P	1030	P	495	P	301	P	301		654	P
Beryllium	11	PN	0.6	PN	3.3	PN	1.9	PN	0.3	U	5	P
Cadmium	39	P	94	P	15	P	50	P	50		18	P
Calcium	1491400	PE	2421620	PE	442609	PE	875122	PE	8751220		675702	PE
Chromium	450	P	464	P	143	P	130	P	130		223	P
Cobalt	304	P	224	P	73	P	92	P	92		124	P
Copper	452	P	474	P	143	P	182	P	182		269	P
Iron	496590	PE	206504	PE	95126	PE	47642	PE	47462		183198	PE
Lead	388	SF*	678	SF*	30	UF*	271.6	SF*	271.6		102	SF*
Magnesium	395297	PE	972068	PE	110647	PE	388012	PE	388012		163686	PE
Maganese	10691	PE	7066	PE	1887	PE	1697	PE	1697		3767	PE
Mercury	0.8	CV	0.3	CV	0.2	U	0.2	CV	0.24		0.2	U
Nickel	620	P	384	P	122	P	119	P	119		253	P
Potassium	26212	P	29895	P	9796	P	16238	P	16238		16999	P
Selenium	30	UFN	30	UFN	30	UFN	30	UFN	30	U	30	UFN
Silver	429	P	345	P	149	P	308	P	308		207	P
Sodium	42449	P	174832	P	15302	P	81419	P	81419		24497	P
Thallium	2	UFN	2	UFN	20	UFN	2	UFN	2	U	2	UFN
Tin	ND		ND		ND		ND		NA		ND	
Vanadium	362	P	246	P	83	P	55	P	55		182	P
Zinc	3848	P	1950	P	448	P	522	P	522		755	P
Cyanide	NA		NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA		NA	
% solids	NA		NA		NA		NA		NA		NA	

TABLE 14 (continued)
Inorganic Results for Ground Water

Results in µg/kg

Parameter	MW-6D Value	Flag	MW-7S Value	Flag	MW-7D Value	Flag	MW-8S Value	Flag	MW-8D Value	Flag
Aluminum	17185	PE	57135	PE	23799	PE	34852	PE	12139	PE
Antimony	50	UPN	1141	PN	50	UPN	50	UPN	50	UPN
Arsenic	4	FN	28	FN	5.9	FN	33.8	SFN	262	SFN
Barium	470	P	5578	P	228	P	389	P	100	UP
Beryllium	1.5	PN	7	PN	1.9	PN	2.3	PN	0.4	UPN
Cadmium	25	P	16	P	42	P	4	UP	37	P
Calcium	415373	PE	376625	PE	726584	PE	302639	PE	854793	PE
Chromium	100	P	7060	P	109	P	131	P	69	P
Cobalt	61	P	82	P	70	P	66	P	57	P
Copper	138	P	838	P	110	P	563	P	68	P
Iron	31906	PE	123669	PE	37791	PE	107545	PE	17206	PE
Lead	68.5	SF*	8861	P	170	SF*	1359	SF*	1116	F*
Magnesium	75995	PE	47036	PE	263656	PE	147588	PE	174062	PE
Maganese	904	PE	1466	PE	1749	PE	2063	PE	680	PE
Mercury	0.2	U	50.6	CV	0.2	CV	2.1	CV	0.3	CV
Nickel	82	P	148	P	46	P	75	P	22	UP
Potassium	136749	P	10734	P	24883	P	13919	P	23027	P
Selenium	30	UFN	30	UFN	30	UFN	30	UFN	30	UFN
Silver	156	P	115	P	258	P	65	P	343	P
Sodium	160047	P	34053	P	210421	P	1877480	P	285645	P
Thallium	2	UFN	2	UFN	2	UFN	2.4	FN	2	UFN
Tin	630		ND		934		369		1124	
Vanadium	17	P	84	P	22	P	75	P	14	UP
Zinc	318	P	9246	P	529	P	516	P	246	P
Cyanide	NA		NA		NA		NA		NA	
Phenol	NA		NA		NA		NA		NA	
% solids	NA		NA		NA		NA		NA	

Notes:

NR=Not Reported
NA=Not Analyzed
ND=Not Detected

Table 15
Organic Results for Ground Water
Results in µg/l

Parameter	MW-1S Value	Flag	MW-1D Value	Flag	MW-2S Value	Flag	MW-2D Value	Flag	MW-3S Value	Flag	MW-3D Value	Flag
Percent Moisture	NA		NA		NA		NA		NA		NA	
pH	7.9		8.7		7.9		7.9		7.4		7.9	
Methylene Chloride	26		20	B	26				400	B	87	B
Acetone	12	B	11		15	B	21	B				
Benzene	1.1	JB	2.8	J			1.5	JB				
2-Butanone												
Vinyl Acetate												
Phenanthrene									14			
1,1,1-Trichloroethane							3.2	J				
Trichloroethene					1.4	J						
bis(2-Ethylhexyl) Phthalate	150	B			270	B	26	B	1300	B	16	B
Dj-n-Butylphthalate			16									
Di-n-Octyl Phthalate			20									
Naphthalene									29			
Aldrin									0.01	J		
Endosulfan I												
Endosulfan II												
Endosulfan Sulfate											0.05	J
Delta-BHC											0.03	J
Heptachlor Epoxide												
Toluene												
Benzoic Acid												
Unknown Benzene												
Unknown Aldehyde												
Unknown Ester												
Unknown Alkane	1		1									
[redacted]			1									
Unknown Alkene			2		2							
Unknown Ketone					1		1					
Unknown Phthalate												
Unknown Cyclic Compound									4		2	
Unknown VOA	1		1				1		5		5	
Unknown BNA	14		14		3		2		1			
Tentatively ID BNA			1				1					
Tentatively ID VOA							1					

Table 15 (continued)
Organic Results for Ground Water
Results in µg/l

Parameter	MW-4S Value	Flag	MW-4D Value	Flag	MW-5S Value	Flag	MW-5D Value	Flag	MW-6S Value	Flag	MW-6D Value	Flag
Percent Moisture	NA		NA		NA		NA		NA		NA	
pH	7.9		8		7.4		8		7.5		12	
Methylene Chloride	78	B	77	B	92	B	15		44	B		
Acetone	59				130						11	B
Benzene											1.5	BJ
2-Butanone												
Vinyl Acetate												
Phenanthrene												
1,1,1-Trichloroethane												
Trichloroethene												
bis(2-Ethylhexyl) Phthalate	29	B	54	B			15		2700	B	65	B
Di-n-Butylphthalate							33				25	
Di-n-Octyl Phthalate	33											
Naphthalene												
Aldrin												
Endosulfan I									0.01	J		
Endosulfan II												
Endosulfan Sulfate												
Delta-BHC												
Heptachlor Epoxide											1.8	J
Toluene												
Benzoic Acid												
Unknown Benzene												
Unknown Aldehyde												
Unknown Ester												
Unknown Alkane												
Unknown Aromatic												
Unknown Alkene					1							
Unknown Ketone			1		1							
Unknown Phthalate	8											
Unknown Cyclic Compound												
Unknown VOA	1								3			
Unknown BNA	5		8		11		7		2		6	
Tentatively ID BNA	1				1		1					
Tentatively ID VOA											1	

Table 15 (continued)
Organic Results for Ground Water
Results in µg/l

Parameter	MW-7S Value	Flag	MW-7D Value	Flag	MW-8S Value	Flag	MW-8D Value	Flag	TRIP BLANK Value	Flag
Percent Moisture	NA		NA		NA		NA		NA	
pH	7.9		8		7.7		8.8		7.9	
Methylene Chloride	13				22	B	25	B	16	
Acetone	9.3	JB	46		10		22			
Benzene	1.7	JB	1.5	J			1.2	J		
2-Butanone										
Vinyl Acetate										
Phenanthrene										
1,1,1-Trichloroethane										
Trichloroethene			1.2	J						
bis(2-Ethylhexyl) Phthalate	2200	B	95	B	410	B	74	B	20	B
Di-n-Butylphthalate									16	
Di-n-Octyl Phthalate										
Naphthalene										
Aldrin	1.67									
Endosulfan I	4.38									
Endosulfan II										
Endosulfan Sulfate										
Delta-BHC	2.76									
Heptachlor Epoxide	0.12									
Toluene										
Benzoic Acid	1200									
Unknown Benzene	2									
Unknown Aldehyde										
Unknown Ester										
Unknown Alkane							1			
Unknown Aromatic										
Unknown Alkene										
Unknown Ketone										
Unknown Phthalate			1							
Unknown Cyclic Compound			1							
Unknown VOA	2		2		1					
Unknown BNA	3		6		4		3		4	
Tentatively ID BNA			2							
Tentatively ID VOA			3							

TABLE 1

SOIL AND GROUNDWATER PARAMETERS

WTP SOIL SURVEY LEVELS

	Soil Survey Level
General Parameters	
Total Organic Carbon (TOC)	20 mg/kg
Total Organic Halogen (TOX)	0.1 mg/kg
Specific Parameters	
Monochlorobenzoic Acids (ClBOA)	1000 ug/kg
Monochlorobenzene (MCB)	10 ug/kg
Trichlorobenzenes (TCB)	100 ug/kg
Tetrachlorobenzenes (TECB)	100 ug/kg
Hexachlorobenzene (HCB)	100 ug/kg
Hexachlorobutadiene (C46)	100 ug/kg
Octachlorocyclopentene (C58)	100 ug/kg
Hexachlorocyclohexanes (BHC)	100 ug/kg
Perchloropentacyclodecane (Mirex)	100 ug/kg

WTP GROUNDWATER SURVEY LEVELS

	Groundwater Survey Level
General Parameters	
pH	Less than 4.5 or greater than 9.5 units
Conductivity (Cond.)	10 times background level (umhos/cm)
Total Organic Carbon (TOC)	20 mg/L
Total Organic Halogen (TOX)	0.1 mg/L
Specific Parameters	
Monochlorobenzoic Acids (ClBOA)	0.5 mg/L
Monochlorobenzene (MCB)	10 ug/L
Trichlorobenzenes (TCB)	10 ug/L
Tetrachlorobenzenes (TECB)	10 ug/L
Hexachlorobenzene (HCB)	10 ug/L
Hexachlorobutadiene (C46)	10 ug/L
Octachlorocyclopentene (C58)	10 ug/L
Hexachlorocyclohexanes (BHC)	10 ug/L
Perchloropentacyclodecane (Mirex)	10 ug/L

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-1, S-5, 25-27

CEC Job No. 16653-17
Lab Number: 255144

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-1, S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255144

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-1, S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255144

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<25	25
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-1, S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255144

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	<0.3	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-2 , S-3, 15-17

CEC Job No.: 16653-17
Lab Number: 255145

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-2, S-3, 15-17

CEC Job No. 16653-17
Lab Number: 255145

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-2 , S-3, 15-17

CEC Job No.: 16653-17
Lab Number: 255145

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D.(mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	0.6	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1.	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-2 , S-3, 15-17

CEC Job No.: 16653-17
Lab Number: 255145

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<25	25
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-3, S-3, 20-22

CEC Job No. 16653-17
Lab Number: 255146

VOLATILES	CONCENTRATION (ug/kg)	L.O.D.(ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-3 , S-3, 20-22

CEC Job No.: 16653-17
Lab Number: 255146

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-3 , S-3 , 20-22

CEC Job No.: 16653-17
Lab Number: 255146

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.3	0.3
benzidine	<0.7	0.7
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	<0.3	0.3
bis(2-chloroethyl)ether	0.5	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.3	0.3
di-n-butylphthalate	<0.7	0.7
1,3-dichlorobenzene	<1	1
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-3 , S-3, 20-22

CEC Job No.: 16653-17
Lab Number: 255146

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<26	26
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-4, S-5, 25-27

CEC Job No. 16653-17
Lab Number: 255147

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-4 , S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255147

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-4 , S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255147

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	<0.3	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-4 , S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255147

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<29	29
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-6, S-4, 20-22

CEC Job No. 16653-17
Lab Number: 255148

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-6 , S-4, 20-22

CEC Job No.: 16653-17
Lab Number: 255148

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-6 , S-4, 20-22

CEC Job No.: 16653-17
Lab Number: 255148

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	0.7	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-6, S-4, 20-22

CEC Job No.: 16653-17
Lab Number: 255148

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<25	25
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-7, S-6, 30-32

CEC Job No: 16653-17
Lab Numbers: 255149

VOLATILES	CONCENTRATION (ug/kg)	L.O.D.(ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B- 7 , S-6, 30-32

CEC Job No.: 16653-17
Lab Number: 255149

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.8	0.8
2-chlorophenol	< 0.8	0.8
2,4-dichlorophenol	< 0.8	0.8
2,4-dimethylphenol	< 0.8	0.8
2,4-dinitrophenol	< 0.8	0.8
2-Methyl-4,6-dinitrophenol	< 0.8	0.8
2-nitrophenol	< 0.8	0.8
4-nitrophenol	< 0.8	0.8
pentachlorophenol	< 0.8	0.8
phenol	< 0.8	0.8
2,4,6-trichlorophenol	< 0.8	0.8

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-7 , S-6, 30-32

CEC Job No.: 16653-17
Lab Number: 255149

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.3	0.3
benzidine	<0.8	0.8
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	<0.3	0.3
bis(2-chloroethyl)ether	0.9	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.3	0.3
di-n-butylphthalate	<0.8	0.8
1,3-dichlorobenzene	<1	1
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.3	0.3
isophorone	<0.8	0.8
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-7 , S-6, 30-32

CEC Job No.: 16653-17
Lab Number: 255149

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<3	3
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<30	30
PCB - 1016	<3	3
PCB - 1221	<3	3
PCB - 1232	<3	3
PCB - 1242	<3	3
PCB - 1248	<3	3
PCB - 1254	<6	6
PCB - 1260	<6	6

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-8, S-1, 5-7

CEC Job No: 16653-17
Lab Number: 255150

VOLATILES	CONCENTRATION (µg/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	72	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-8, S-1, 5-7

CEC Job No.: 16653-17
Lab Number: 255150

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	<7	7
2-chlorophenol	<7	7
2,4-dichlorophenol	<7	7
2,4-dimethylphenol	<7	7
2,4-dinitrophenol	<7	7
2-Methyl-4,6-dinitrophenol	<7	7
2-nitrophenol	<7	7
4-nitrophenol	<7	7
pentachlorophenol	<7	7
phenol	<7	7
2,4,6-trichlorophenol	<7	7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-8, S-1, 5-7

CEC Job No.: 16653-17
Lab Number: 255150

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	< 3	3
acenaphthylene	< 3	3
anthracene	< 3	3
benzo(a)anthracene	< 3	3
benzo(b)fluoranthene	< 3	3
benzo(k)fluoranthene	< 3	3
benzo(a)pyrene	< 3	3
benzo(ghi)perylene	< 7	7
benzidine	< 3	3
bis(2-chloroethoxy)methane	< 3	3
bis(2-ethylhexyl)phthalate	< 3	3
bis(2-chloroethyl)ether	< 3	3
bis(2-chloroisopropyl)ether	< 3	3
4-bromophenyl phenyl ether	< 3	3
butyl benzyl phthalate	< 3	3
2-chloronaphthalene	< 3	3
4-chlorophenyl phenyl ether	< 3	3
chrysene	< 3	3
dibenzo(a,h)anthracene	< 7	7
di-n-butylphthalate	< 13	13
1,3-dichlorobenzene	< 3	3
1,4-dichlorobenzene	< 3	3
1,2-dichlorobenzene	< 3	3
3,3'-dichlorobenzidine	< 3	3
diethylphthalate	< 3	3
dimethylphthalate	< 3	3
2,4-dinitrotoluene	< 3	3
2,6-dinitrotoluene	< 3	3
dioctylphthalate	< 3	3
1,2-diphenylhydrazine	< 3	3
fluoranthene	< 3	3
fluorene	< 3	3
hexachlorobenzene	< 3	3
hexachlorobutadiene	< 3	3
hexachloroethane	< 3	3
hexachlorocyclopentadiene	< 3	3
indeno(1,2,3-cd)pyrene	< 7	3
isophorone	< 3	3
naphthalene	< 3	3
nitrobenzene	< 3	3
N-nitrosodimethylamine	< 3	3
N-nitrosodi-n-propylamine	< 3	3
N-nitrosodiphenylamine	< 3	3
phenanthrene	< 3	3
pyrene	< 3	3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	< 3	3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Nigara Falls
Sample I.D.: B-8, S-1, 5-7

CEC Job No.: 16653-17
Lab Number: 255150

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<3	3
a-BHC	<3	3
b-BHC	<3	3
d-BHC	<3	3
g-BHC	<3	3
Chlordane	<26	26
4,4'-DDD	<3	3
4,4'-DDE	<3	3
4,4'-DDT	<3	3
Dieldrin	<3	3
Endosulfan I	<3	3
Endosulfan II	<3	3
Endosulfan Sulfate	<3	3
Endrin	<3	3
Endrin Aldehyde	<3	3
Heptachlor	<3	3
Heptachlor Epoxide	<3	3
Toxaphene	<260	260
PCB - 1016	<26	26
PCB - 1221	<26	26
PCB - 1232	<26	26
PCB - 1242	<26	26
PCB - 1248	<26	26
PCB - 1254	<52	52
PCB - 1260	<52	52

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-8, S-2, 10-12

CEC Job No: 16653-17
Lab Number: 255151

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-8 , S-2, 10-12

CEC Job No.: 16653-17
Lab Number: 255151

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-8, S-2, 10-12

CEC Job No.: 16653-17
Lab Number: 255151

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	1	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-8 , S-2, 10-12

CEC Job No.: 16653-17
Lab Number: 255151

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<25	25
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls — CEC Job No. 16653-17
Sample I.D.: B-9, S-2, 10-12 — Lab Number: 255152

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-9 , S-2, 10-12

CEC Job No.: 16653-17
Lab Number: 255152

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-9 , S-2, 10-12

CEC Job No.: 16653-17
Lab Number: 255152

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	1	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-9 , S-2, 10-12

CEC Job No.: 16653-17
Lab Number: 255152

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<26	26
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls — CEC Job No. 16653-17
Sample I.D.: B-10, S-5, 25-27 — Lab Number: 255153

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-10, S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255153

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	<0.7	0.7
2-chlorophenol	<0.7	0.7
2,4-dichlorophenol	<0.7	0.7
2,4-dimethylphenol	<0.7	0.7
2,4-dinitrophenol	<0.7	0.7
2-Methyl-4,6-dinitrophenol	<0.7	0.7
2-nitrophenol	<0.7	0.7
4-nitrophenol	<0.7	0.7
pentachlorophenol	<0.7	0.7
phenol	<0.7	0.7
2,4,6-trichlorophenol	<0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-10, S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255153

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	0.6	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-10, S-5, 25-27

CEC Job No.: 16653-17
Lab Number: 255153

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<27	27
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
VOLATILE ORGANIC ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-11, S-1, S-7

CEC Job No. 16653-17
Lab Number: 255154

VOLATILES	CONCENTRATION (ug/kg)	L.O.D. (ug/kg)
acrolein	<100	100
acrylonitrile	<100	100
benzene	<10	10
Bromomethane	<10	10
bromodichloromethane	<10	10
bromoform	<10	10
carbon tetrachloride	<10	10
chlorobenzene	<10	10
chloroethane	<10	10
2-chloroethylvinyl ether	<10	10
chloroform	<10	10
chloromethane	<10	10
dibromochloromethane	<10	10
1,1-dichloroethane	<10	10
1,2-dichloroethane	<10	10
1,1-dichloroethene	<10	10
trans-1,2-dichloroethene	<10	10
1,2-dichloropropane	<10	10
cis-1,3-dichloropropene	<10	10
trans-1,3-dichloropropene	<10	10
ethylbenzene	<10	10
methylene chloride	<50	50
1,1,2,2-tetrachloroethane	<10	10
tetrachloroethene	<10	10
1,1,1-trichloroethane	<10	10
1,1,2-trichloroethane	<10	10
trichloroethene	<10	10
trichlorofluoromethane	<10	10
toluene	<10	10
vinyl chloride	<10	10

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ACID COMPOUND ANALYSES

Client: City of Niagara Falls
Sample I.D.: B-11, S-1, 5-7

CEC Job No.: 16653-17
Lab Number: 255154

ACID COMPOUNDS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
4-chloro-3-methylphenol	< 0.7	0.7
2-chlorophenol	< 0.7	0.7
2,4-dichlorophenol	< 0.7	0.7
2,4-dimethylphenol	< 0.7	0.7
2,4-dinitrophenol	< 0.7	0.7
2-Methyl-4,6-dinitrophenol	< 0.7	0.7
2-nitrophenol	< 0.7	0.7
4-nitrophenol	< 0.7	0.7
pentachlorophenol	< 0.7	0.7
phenol	< 0.7	0.7
2,4,6-trichlorophenol	< 0.7	0.7

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-11, S-1, 5-7

CEC Job No.: 16653-17
Lab Number: 255154

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	1	0.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-11, S-1, 5-7

CEC Job No.: 16653-17
Lab Number: 255154

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<25	25
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
ORGANIC PRIORITY POLLUTANT ANALYSIS
(PESTICIDE EXTRACTABLES)

Client: City of Niagara Falls
Sample I.D.: B-12, S-6, 30-32

CEC Job No.: 16653-17
Lab Number: 255155

PESTICIDES	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
Aldrin	<0.3	0.3
a-BHC	<0.3	0.3
b-BHC	<0.3	0.3
d-BHC	<0.3	0.3
g-BHC	<0.3	0.3
Chlordane	<2	2
4,4'-DDD	<0.3	0.3
4,4'-DDE	<0.3	0.3
4,4'-DDT	<0.3	0.3
Dieldrin	<0.3	0.3
Endosulfan I	<0.3	0.3
Endosulfan II	<0.3	0.3
Endosulfan Sulfate	<0.3	0.3
Endrin	<0.3	0.3
Endrin Aldehyde	<0.3	0.3
Heptachlor	<0.3	0.3
Heptachlor Epoxide	<0.3	0.3
Toxaphene	<27	27
PCB - 1016	<2	2
PCB - 1221	<2	2
PCB - 1232	<2	2
PCB - 1242	<2	2
PCB - 1248	<2	2
PCB - 1254	<5	5
PCB - 1260	<5	5

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
BASE NEUTRAL PRIORITY POLLUTANT ANALYSIS
(BASE NEUTRAL EXTRACTABLES)

Client: City of Niagara Falls — CEC Job No.: 16653-17
Sample I.D.: B-12, S-6, 30-32 — Lab Number: 255155

BASE NEUTRALS	CONCENTRATION (mg/kg)	L.O.D. (mg/kg)
acenaphthene	<0.3	0.3
acenaphthylene	<0.3	0.3
anthracene	<0.3	0.3
benzo(a)anthracene	<0.3	0.3
benzo(b)fluoranthene	<0.3	0.3
benzo(k)fluoranthene	<0.3	0.3
benzo(a)pyrene	<0.3	0.3
benzo(ghi)perylene	<0.7	0.7
benzidine	<0.3	0.3
bis(2-chloroethoxy)methane	<0.3	0.3
bis(2-ethylhexyl)phthalate	0.9	.3
bis(2-chloroethyl)ether	<0.3	0.3
bis(2-chloroisopropyl)ether	<0.3	0.3
4-bromophenyl phenyl ether	<0.3	0.3
butyl benzyl phthalate	<0.3	0.3
2-chloronaphthalene	<0.3	0.3
4-chlorophenyl phenyl ether	<0.3	0.3
chrysene	<0.3	0.3
dibenzo(a,h)anthracene	<0.7	0.7
di-n-butylphthalate	<1	1
1,3-dichlorobenzene	<0.3	0.3
1,4-dichlorobenzene	<0.3	0.3
1,2-dichlorobenzene	<0.3	0.3
3,3'-dichlorobenzidine	<0.3	0.3
diethylphthalate	<0.3	0.3
dimethylphthalate	<0.3	0.3
2,4-dinitrotoluene	<0.3	0.3
2,6-dinitrotoluene	<0.3	0.3
dioctylphthalate	<0.3	0.3
1,2-diphenylhydrazine	<0.3	0.3
fluoranthene	<0.3	0.3
fluorene	<0.3	0.3
hexachlorobenzene	<0.3	0.3
hexachlorobutadiene	<0.3	0.3
hexachloroethane	<0.3	0.3
hexachlorocyclopentadiene	<0.3	0.3
indeno(1,2,3-cd)pyrene	<0.7	0.7
isophorone	<0.3	0.3
naphthalene	<0.3	0.3
nitrobenzene	<0.3	0.3
N-nitrosodimethylamine	<0.3	0.3
N-nitrosodi-n-propylamine	<0.3	0.3
N-nitrosodiphenylamine	<0.3	0.3
phenanthrene	<0.3	0.3
pyrene	<0.3	0.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ND	ND
1,2,4-trichlorobenzene	<0.3	0.3

ND -- TCDD was not detected.

Report Date: 05/27/88

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

S AREA
WATER TREATMENT PLANT SOIL ANALYSIS

ND - Not Detected above survey level

Special Codes: D - FIELD DUPLICATE

Sample Date:------			06/01/87	05/13/87	05/07/87	05/11/87
Sample Description			OW 284 6' -8'	BHR 280 4' -8'	BHW 281 4' -8'	BHW 285 RRUN
Special Code:-----						
Analytes:	Units:	Survey Levels:				
TOTAL ORGANIC CARBON (TOC)	mg/Kg	20	ND	ND	ND	
TOTAL ORGANIC HALIDES (TOX)	mg/Kg	0.1	ND	ND	ND	
CHLOROBENZOIC ACIDS, TOTAL	ug/Kg	1000	ND	ND	ND	
CHLOROBENZENE	ug/Kg	10	ND	ND	ND	ND
TRICHLOROBENZENE, TOTAL	ug/Kg	100	ND	ND	ND	ND
TETRACHLOROBENZENES, TOTAL	ug/Kg	100	ND	ND	ND	ND
HEXACHLOROBENZENE	ug/Kg	100	ND	410	ND	ND
HEXACHLOROBUTADIENE	ug/Kg	100	ND	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/Kg	100	ND	ND	ND	ND
HEXACHLOROCYCLOHEXANE (BHC) TOTAL	ug/Kg	100	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/Kg	100	ND	ND	ND	ND

Report Date: 05/27/88

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

| ND - Not Detected above survey level |

S AREA
WATER TREATMENT PLANT SOIL ANALYSIS

Special Codes: D - FIELD DUPLICATE

			Sample Date:-------->	05/11/87	06/05/87	06/18/87	05/27/87	05/28/87
			Sample Description:->	BHW 285 4' -8'	BHW 287 6'- 20.8	BHW 291 2'- 19.8	BHW 294 12' -30'	BHW 294 30' -32'
			Special Code:------->					
Analytes:	Units:	Survey Levels:						
TOTAL ORGANIC CARBON (TOC)	mg/Kg	20		ND	59	ND	46	ND
TOTAL ORGANIC HALIDES (TOX)	mg/Kg	0.1		ND	0.3	0.2	25	0.1
CHLOROBENZOIC ACIDS, TOTAL	ug/Kg	1000		ND	ND	ND	ND	ND
CHLOROBENZENE	ug/Kg	10		24	39	33	18	ND
TRICHLOROBENZENE, TOTAL	ug/Kg	100		ND	ND	1400	333	ND
TETRACHLOROBENZENES, TOTAL	ug/Kg	100		ND	ND	1190	5360	158
HEXACHLOROBENZENE	ug/Kg	100		128	1000	463	8450	267
HEXACHLOROBUTADIENE	ug/Kg	100		ND	ND	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/Kg	100		ND	ND	ND	971	ND
HEXACHLOROCYCLOHEXANE (BHC) TOTAL	ug/Kg	100		ND	ND	ND	13200	291
PERCHLOROPENTACYCLODECANE (MIREX)	ug/Kg	100		ND	ND	ND	633	ND

TABLE 1

ANALYTICAL PARAMETERS AND
DETECTION LIMITS
EASTERN AREA REVIEW

COMPOUND	Groundwater Detection Limits (ug/L) CEC	EPA	ADL
VOLATILES			
Acrolein	100	-	-
Acrylonitrile	300	-	-
Benzene	10	10	10
Bromodichloromethane	10	10	10
Bromoform	10	10	10
Bromomethane	10	20	10
Carbon Tetrachloride	10	10	10
Chlorobenzene	10	10	10
Chloroethane	10	20	10
Chloroethyl vinyl ether,2	10	-	10
Chloroform	10	10	10
Chloromethane	10	20	10
Dibromochloromethane	10	10	10
Dichloroethane,1,1	10	10	10
Dichloroethane,1,2	10	10	10
Dichloroethylene,1,1	10	10	10
Dichloroethylene,trans-1,2	10	10	10
Dichloropropane,1,2	10	10	10
Dichloropropylene,cis-1,3	10	-	10
Dichloropropylene,trans-1,3	10	-	10
Ethyl benzene	10	10	10
Hexane	-	10	-
Methylcyclopentane	-	NL	-
Methylene chloride	10	10	10
Methylpentane,2	-	10	-
Methylpentane,3	-	NL	-
Tetrachloroethane,1,1,2,2	10	10	10
Tetrachloroethylene,1,1,2,2	10	10	10
Toluene	10	10	10
Trichloroethane,1,1,1	10	10	10
Trichloroethane,1,1,2	10	10	10
Trichloroethylene	10	10	10
Trichlorofluoromethane	10	-	-
Vinyl chloride	10	20	10

Notes: See last page of this table.

TABLE 1
(Contd.)

COMPOUND	Groundwater Detection Limits (ug/L) CEC	EPA	ADL
BASE NEUTRALS			
Acenaphthene	10;20;40 *	10	10
Acenaphthylene	10;20;40	10	10
Anthracene	10;20;40	10	10
Azidocyclohexane	-	NL	-
Benzidine	10;20;40	80	10
Benzo(a)anthracene	10;20;40	40	10
Benzo(a)pyrene	10;20;40	100	10
Benzo(b)fluoranthene	10;20;40	-	10
Benzo(g,h,i)perylene	25;50;100	100	10
Benzo(k)fluoranthene	10;20;40	80	10
Bis(2-chloroethoxy)methane	10;20;40	10	10
Bis(2-chloroethyl)ether	10;20;40	40	10
Bis(2-chloroisopropyl)ether	10;20;40	20	10
Bis(2-ethylhexyl)phthalate	10;20;40	20	10
Bromophenyl phenyl ether,4	10;20;40	10	10
Butyl benzyl phthalate	10;20;40	20	10
Butylbenzene Sulfonamide, N-	-	NL	-
Caprolactam	-	20	-
Chloronaphthalene,2	10;20;40	10	10
Chlorophenyl phenyl ether,4	10;20;40	10	10
Chrysene	10;20;40	40	10
Cyclohexen-1-one,2	-	40	-
Decanoic Acid	-	100	-
Di-N-Butyl Phthalate	10;20;40	10	10
Di-N-Octyl Phthalate	10;20;40	40	10
Dibenzo(a,h)anthracene	25,50,100	100	10
Dichlorobenzene,1,2	10;20;40	20	10
Dichlorobenzene,1,3	10;20;40	20	10
Dichlorobenzene,1,4	10;20;40	20	10
Dichlorobenzidine,3,3'	10;20;40	60	10
Diethyl phthalate	10;20;40	10	10
Dimethyl phthalate	10;20;40	10	10
Dinitrotoluene,2,4	10;20;40	10	10
Dinitrotoluene,2,6	10;20;40	20	10
Diphenylhydrazine,1,2	10;20;40	10	10
Ethyl-1-Hexanol,2	-	NL	-
Ethylhexanoic Acid,2	-	100	-
Fluoranthene	10;20;40	10	10
Fluorene	10;20;40	10	10
Heptanoic Acid	-	60	-
Hexachlorobenzene	10;20;40	10	10
Hexachlorobutadiene	10;20;40	20	10
Hexachlorocyclopentadiene	10;20;40	20	10
Hexachloroethane	10;20;40	20	10
Hexanoic Acid	-	60	-
Hydrocarbons	-	NL	-
Hydroxy-4-Methyl-2-Pentanone,4	-	10	-
Indeno(1,2,3-c,d)pyrene	25,50,100	100	10

Notes: See last page of this table.

TABLE 1
(Contd.)

COMPOUND	Groundwater Detection Limits (ug/L) CEC	EPA	ADL
Isophorone	10;20;40	20	10
Naphthalene	10;20;40	10	10
Nitrobenzene	10;20;40	40	10
Nitroheptane,1	-	NL	-
Nitrosodi-n-propylamine,N	10;20;40	20	10
Nitrosodimethylamine,N	50;100	-	10
Nitrosodiphenylamine,N	10;20;40	10	10
Nonanoic Acid	-	100	-
Nonanol,5	-	NL	-
Octanoic Acid	-	100	-
Pentanoic Acid	-	60	-
Phenanthrene	10;20;40	10	10
Phthalate Isomer	-	NL	-
Pyrene	10;20;40	-	10
Sulfur, Molecular	-	NL	-
TCDD,2,3,7,8**	NL	-	10
Trichlorobenzene,1,2,4	10;20;40	20	10
Triethylene Glycol Monobutyl Ether	-	NL	-
Trimethyl-1-Hexanol,3,5,5	-	NL	-
ACID EXTRACTABLES			
Chloro-3-Cresol,4	-	20;40	10
Chloro-3-methlyphenol,4	50	-	-
Chlorophenol,2	50	40;80	10
Dichlorophenol,2,4	50	40;80	10
Dimethylphenol,2,4	50	40;80	10
Dinitro-2-cresol,4,6	-	40;80	10
Dinitrophenol,2,4	500	80;200	10
Methyl-4,6-dinitrophenol,2	500	-	-
Nitrophenol,2	50	40;80	10
Nitrophenol,4	50	60;100	10
Pentachlorophenol	50	40;80	10
Phenol	50	40;80	10
Trichlorophenol,2,4,5	-	-	10
Trichlorophenol,2,4,6	50	20;40	10
PESTICIDES			
Aldrin	0.05	0.05	10
Chlordane	0.10	0.10	100
DDD	0.05;0.07	0.10	10
DDE	0.05	0.05	10
DDT	0.05	0.10	10
Dieldrin	0.05	0.05	10

Notes: See last page of this table.

TABLE 1
(Contd.)

COMPOUND	Groundwater Detection Limits (ug/L) CEC	EPA	ADL
Endosulfan I	0.05	0.05	-
Endosulfan II	0.05;0.07;0.12	0.05	-
Endosulfan sulfate	0.10	0.50	10
Endrin	0.05	0.10	10
Endrin aldehyde	0.10	0.10	10
Heptachlor	0.05	0.10	10
Heptachlor epoxide	0.05	0.10	10
Hexachlorocyclohexane,alpha	0.05	0.05	10
Hexachlorocyclohexane,beta	0.05	0.05	10
Hexachlorocyclohexane,delta	0.05	0.05	10
Hexachlorocyclohexane,gamma	0.05	0.05	10
Octachloropentacyclodecane(Mirex)	-	-	10
PCB-1016	0.05	1.00	10
PCB-1221	0.05	1.00	10
PCB-1232	0.05	1.00	10
PCB-1242	0.05	1.00	10
PCB-1248	0.05	1.00	10
PCB-1254	0.05	1.00	10
PCB-1260	0.05	1.00	10
Toxaphene	0.01;0.10	1.00	100
METALS			
Aluminum	-	70	-
Antimony	0.5;10	-	3
Arsenic	NL	-	1
Barium	-	80	-
Beryllium	2;20	3	2
Boron	-	100	-
Cadmium	10	2	1
Calcium	-	20	-
Chromium	15	20	1
Cobalt	-	3	-
Copper	NL	2	3
Iron	-	20	-
Lanthanum	-	20	-
Lead	50;70	30	10
Magnesium	-	30	-
Manganese	-	2	-
Mercury	NL	-	1
Molybdenum	-	50	-
Nickel***	200	8	3
Potassium	-	40	-
Scandium	-	3	-
Selenium	0.4;10	-	1
Silicon	-	20	-
Silver	10;50	7	2
Sodium	-	80	-
Strontium	-	2	-
Thallium	10;500	300	2
Titanium	-	3	-

Notes: See last page of this table.

TABLE 1
(Contd.)

COMPOUND	Groundwater Detection Limits (µg/L) CEC	EPA	ADL
Tungsten	-	50	-
Vanadium	-	6	-
Yttrium	-	10	-
Zinc	NL	2	15
Zirconium	-	20	-
SETTLEMENT AGREEMENT PARAMETERS			
Chlorobenzene	10	10	10
Chlorobenzoic Acid,ortho****	-	-	500
Hexachlorobenzene	10;20;40	10	10
Hexachlorobutadiene	10;20;40	20	10
Hexachlorocyclohexanes	-	-	10
Octachlorocyclopentene	-	-	10
Octachloropentacyclodecane	-	-	10
Tetrachlorobenzenes	-	-	10
Trichlorobenzenes	-	-	10
Trichlorophenol,2,4,5	-	-	10
Total Organic Carbon (TOC)	NL	-	-
Total Organic Halogens (TOH)	NL	-	-
MISCELLANEOUS IONS			
Bromide	-	60	-
Chloride	-	50	-
Cyanide	200	-	-
Fluoride	-	10	-
Nitrate	-	700	-
Nitrite	-	300	-
Phosphate	-	90	-
Sulfate	-	600	-

Notes:

NL = Detection limit not listed in report
\- = Compound not analyzed
* = More than one detection limit listed
** = Listed as TCDD in ADL Report, specific isomer not mentioned
*** = Only one detection limit is listed for CEC, however in 11 of 12 wells sampled nickel was detected at levels lower than the stated detection limit. This implies that other detection limits were available but not listed.
**** = Only ortho isomer analyzed

TABLE 2

RESULTS OF GROUNDWATER ANALYSES FOR
ORGANIC PARAMETERS, pH AND CONDUCTIVITY
EASTERN AREA REVIEW

Constituent[1] (reported in mg/l except for pH and conductivity)	Well B-1			Well B-2			Well B-3			Well B-4		
	CEC	EPA	ADL	CEC	EPA	ADL	CEC	EPA	ADL	CEC	EPA	ADL
Benzene	ND	0.011	ND	0.011	PBL	ND	0.016	ND	ND	ND	ND	ND
Bis (2-Ethylhexyl) Phthalate	ND	0.030	ND	ND	ND	ND	0.100	0.060	ND	ND	0.300	ND
Di-N-Butyl Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	0.015	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	0.02	ND	ND	0.01	ND	ND	0.02	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
a-BHC	ND	ND	ND	0.00005	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	NA	0.076	NA	NA	0.068	NA	NA	ND	NA	NA	ND	NA
2-Methylpentane	NA	0.024	NA	NA	0.017	NA	NA	ND	NA	NA	ND	NA
4-Hydroxyl-4-Methyl-2-Pentanone	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA
Hexanoic Acid	NA	PBL	NA	NA	ND	NA	NA	PBL	NA	NA	ND	NA
Octanoic Acid	NA	PBL	NA	NA	ND	NA	NA	0.100	NA	NA	ND	NA
Caprolactam	NA	PBL	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA
pH (S.U.) (3)	10.9	11.7	6.8	6.7	7.83	6.5	11.7	12.11	7.9	NA	8.96	7.1
TOC	40.6	NA	NA	74.6	NA	NA	58.8	NA	NA	NA	NA	NA
TOH (4)	0.081	NA	NA	0.139	NA	NA	0.021	NA	NA	NA	NA	NA
Conductivity (umhos/cm) (3)	5550	5200	NA	4850	5600	NA	3450	1800	NA	NA	2200	NA

Notes:
NA - Not Analyzed
ND - Not Detected
PBL - Present below lower limit of detection for reliabile quantification
(1) - Constituent list only reflects those compounds which were detected in one or more groundwater samples.
(2) - The phenol concentrations reported by CEC are not consistent with the CEC detection limit.
(3) - Field measurements.
(4) - Week of 1/23/83 sampling time.

Sampling Times:
CEC - Week of 12/7/82 unless otherwise noted; (4) CEC sampling time - week of 1/23/83
EPA - 1/26/83
ADL - 7/21/83

TABLE 2
(Contd.)

Constituent[1] (reported in mg/l except for pH and conductivity)	Well B-5			Well B-6			Well B-7			Well B-8		
	CEC	EPA	ADL	CEC	EPA	ADL	CEC	EPA	ADL	CEC	EPA	ADL
Benzene	0.10	ND	N	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-Ethylhexyl) Phthalate	0.043	0.030	O	ND	PBL	ND	0.033	0.100	ND	0.310	0.200	ND
Di-N-Butyl Phthalate	ND	ND	T	ND	ND	0.012	ND	ND	0.011	ND	ND	0.015
Methylene Chloride	0.012	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	0.02	ND		0.01	ND	ND	0.01	ND	0.075	0.04	ND	ND
Vinyl Chloride	ND	ND	S	0.012	ND	0.018	ND	ND	ND	ND	ND	ND
Endosulfan	ND	ND	A	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	M	ND	ND	ND	0.00006	ND	ND	ND	ND	ND
Heptachlor Epoxide	0.00007	ND	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
a-BHC	0.00007	ND	L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	NA	ND	E	NA	ND	NA	NA	ND	NA	NA	ND	NA
2-Methylpentane	NA	ND	D	NA	ND	NA	NA	ND	NA	NA	ND	NA
4-Hydroxyl-4-Methyl-2-Pentanone	NA	ND		NA	ND	NA	NA	ND	NA	NA	0.200	NA
Hexanoic Acid	NA	ND		NA	ND	NA	NA	0.070	NA	NA	ND	NA
Octanoic Acid	NA	ND		NA	ND	NA	NA	0.400	NA	NA	PBL	NA
Caprolactam	NA	ND		NA	ND	NA	NA	0.800	NA	NA	ND	NA
pH (S.U.) (3)	7.4	8.88		7.0	7.3	9.1	12.3	13.04	11.9	12.2	12.77	12.77
TOC	110.0	NA		162.0	NA	NA	36.4	NA	NA	65.2	NA	NA
TOH (4)	0.038	NA		0.063	NA	NA	0.027	NA	NA	0.016	NA	NA
Conductivity (umhos/cm) (3)	710	700		1300	NA	1300	11,800	9800	NA	6300	8000	NA

Notes:
NA - Not Analyzed
ND - Not Detected
PBL - Present below lower limit of detection for reliabile quantification
(1) - Constituent list only reflects those compounds which were detected in one or more groundwater samples.
(2) - The phenol concentrations reported by CEC are not consistent with the CEC detection limit.
(3) - Field measurements.
(4) - Week of 1/23/83 sampling time.

Sampling Times:
CEC - Week of 12/7/82 unless otherwise noted; (4) CEC sampling time - week of 1/23/83
EPA - 1/26/83
ADL - 7/21/83

TABLE 2
(Contd.)

Constituent[1] (reported in mg/l except for pH and conductivity)	Well B-9			Well B-10			Well B-11			Well B-12		
	CEC	EPA	ADL	CEC	EPA	ADL	CEC	EPA	ADL	CEC	EPA	ADL
Benzene	0.029	ND	N	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-Ethylhexyl) Phthalate	ND	ND	O	ND	0.100	ND	0.070	0.030	ND	ND	PBL	ND
Di-N-Butyl Phthalate	ND	ND	T	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	0.04	ND		0.01	ND	ND	0.01	ND	ND	0.01	ND	ND
Vinyl Chloride	ND	ND	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan	0.00029	ND	A	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	M	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	ND	ND	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
a-BHC	0.00007	ND	L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	NA	ND	E	NA	ND	NA	NA	ND	NA	NA	ND	NA
2-Methylpentane	NA	ND	D	NA	ND	NA	NA	ND	NA	NA	ND	NA
4-Hydroxyl-4-Methyl-2-Pentanone	NA	ND		NA	ND	NA	NA	ND	NA	NA	ND	NA
Hexanoic Acid	NA	ND		NA	PBL	NA	NA	ND	NA	NA	ND	NA
Octanoic Acid	NA	ND		NA	PBL	NA	NA	ND	NA	NA	ND	NA
Caprolactam	NA	ND		NA	ND	NA	NA	ND	NA	NA	ND	NA
pH (S.U.) (3)	7.1	8.3		9.3	12.46	7.7	11.0	7.68	7.3	7.1	8.4	6.9
TOC	203.0	NA		10.3	NA	NA	41.8	NA	NA	106.0	NA	NA
TOH (4)	0.037	NA		0.025	NA	NA	0.030	NA	NA	0.493	NA	NA
Conductivity (umhos/cm) (3)	1600	1600		3950	2600	NA	1000	700	NA	5100	6000	NA

Notes:
NA - Not Analyzed
ND - Not Detected
PBL - Present below lower limit of detection for reliabile quantification
(1) - Constituent list only reflects those compounds which were detected in one or more groundwater samples.
(2) - The phenol concentrations reported by CEC are not consistent with the CEC detection limit.
(3) - Field measurements.
(4) - Week of 1/23/83 sampling time.

Sampling Times:
CEC - Week of 12/7/82 unless otherwise noted; (4) CEC sampling time - week of 1/23/83
EPA - 1/26/83
ADL - 7/21/83

TABLE 3

RESULTS OF GROUNDWATER ANALYSES FOR METALS
EASTERN AREA REVIEW

Metal	Well B-1		Well B-2		Well B-3		Well B-4	
	CEC	ADL	CEC	ADL	CEC	ADL	CEC	ADL
Antimony	<0.0005	<0.003	<0.0005	0.013	<0.0005	0.008	N	0.012
Arsenic	0.011	<0.001	0.078	<0.001	0.018	0.046	O	<0.001
Beryllium	<0.002	<0.002	0.003	<0.002	<0.002	0.008	T	<0.002
Cadmium	<0.010	<0.001	0.07	<0.001	<0.010	0.005		<0.001
Chromium	<0.015	0.020	0.26	0.030	<0.015	0.210		0.014
Copper	0.61	<0.003	1.7	<0.003	0.080	0.180	S	<0.003
Lead	<0.05	<0.010	0.4	<0.010	0.05	0.120	A	<0.010
Mercury	0.066	<0.001	0.14	<0.001	0.072	<0.001	M	<0.001
Nickel	0.20	0.018	0.85	0.029	0.070	0.210	P	0.051
Selenium	0.0008	<0.001	0.002	<0.001	<0.0004	<0.001	L	<0.001
Silver	<0.01	<0.002	<0.01	<0.002	<0.01	0.031	E	<0.002
Thallium	<0.01	0.002	<0.01	0.004	<0.01	0.025	D	0.012
Zinc	0.44	1.900	3.1	0.280	0.12	1.600		<0.015

Notes:
CEC - Samples were preserved on-site.
ADL - Samples were filtered and preserved on-site.

Sampling Times:
CEC - Samples collected during the week of December 7, 1982.
ADL - Samples collected on July 7, 1983.

TABLE 3
(Contd.)

Metal	Well B-5		Well B-6		Well B-7		Well B-8	
	CEC	ADL	CEC	ADL	CEC	ADL	CEC	ADL
Antimony	<0.0005	N	<0.0005	0.006	<0.0005	0.016	<0.0005	0.003
Arsenic	0.009	O	0.013	0.001	0.18	0.001	0.015	<0.001
Beryllium	<0.002	T	<0.002	<0.002	0.007	<0.002	<0.002	<0.002
Cadmium	<0.010		0.018	<0.001	0.086	<0.001	0.015	<0.001
Chromium	0.084		<0.015	0.012	0.50	0.025	<0.015	0.039
Copper	0.51	S	0.22	0.003	0.59	<0.003	0.38	<0.003
Lead	<0.05	A	<0.05	<0.010	<0.07	0.019	<0.05	<0.010
Mercury	0.51	M	0.053	<0.001	0.31	<0.001	0.12	<0.001
Nickel	0.26	P	0.015	0.007	0.47	0.027	0.081	0.018
Selenium	<0.0004	L	<0.0004	<0.001	<0.0004	<0.001	<0.0004	<0.001
Silver	<0.01	E	<0.01	<0.002	<0.01	0.004	<0.01	0.045
Thallium	<0.01	D	<0.01	<0.002	<0.01	0.004	<0.01	0.003
Zinc	0.34		0.24	0.070	1.8	0.110	0.34	<0.015

Notes:
CEC - Samples were preserved on-site.
ADL - Samples were filtered and preserved on-site.

Sampling Times:
CEC - Samples collected during the week of December 7, 1982.
ADL - Samples collected on July 7, 1983.

TABLE 3
(Contd.)

Metal	Well B-9		Well B-10		Well B-11		Well B-12	
	CEC	ADL	CEC	ADL	CEC	ADL	CEC	ADL
Antimony	<0.0005	N	<0.0005	0.008	<0.01	0.005	<0.0005	0.003
Arsenic	0.018	O	0.022	<0.001	0.022	<0.001	0.025	<0.001
Beryllium	<0.002	T	<0.002	<0.002	<0.02	<0.002	<0.002	<0.002
Cadmium	0.015		0.015	<0.001	<0.01	<0.001	0.016	<0.001
Chromium	<0.015		<0.015	0.026	<0.07	0.010	0.039	0.038
Copper	0.096	S	0.22	<0.003	0.6	<0.003	0.46	<0.003
Lead	<0.05	A	<0.05	<0.010	<0.05	<0.010	<0.05	<0.010
Mercury	0.22	M	0.10	<0.001	0.003	<0.001	0.056	<0.001
Nickel	0.39	P	0.12	0.011	<0.2	0.012	0.17	0.037
Selenium	<0.0004	L	<0.0004	<0.001	<0.01	<0.001	<0.0004	<0.001
Silver	<0.01	E	<0.01	0.019	<0.05	<0.002	<0.01	0.042
Thallium	<0.01	D	<0.01	0.006	<0.05	<0.002	<0.01	0.006
Zinc	0.49		0.23	<0.015	1.6	<0.015	0.68	0.270

Notes:
CEC - Samples were preserved on-site.
ADL - Samples were filtered and preserved on-site.

Sampling Times:
CEC - Samples collected during the week of December 7, 1982.
ADL - Samples collected on July 7, 1983.

Report Date: 05/27/88

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

| ND - Not Detected above survey level |

S AREA
OVERBURDEN SURVEY WELLS

Special Codes: D - FIELD DUPLICATE

Analytes:	Units:	Survey Levels:	Sample Date:------->	03/08/88	03/03/88	04/22/88	04/19/88	04/22/88	03/25/88
			Sample Description:->	CW 13	CW 11	OW 261	OW 262	OW 263	OW 280
			Special Code:------->	A	A				
PH				7.4	12	7.5	7.6	7.0	8.5
SPECIFIC CONDUCTANCE	umh/cm			1.2	3.5	0.9	1.2	8.0	1.3
TOTAL ORGANIC CARBON (TOC)	mg/L	20		ND	ND	ND	ND	ND	ND
TOTAL ORGANIC HALIDES (TOX)	mg/L	0.1		0.1	1.9	0.3	ND	0.6	0.1
CHLOROBENZOIC ACIDS, TOTAL	mg/L	0.5		ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ug/L	10		ND	ND	ND	ND	ND	ND
TRICHLOROBENZENE, TOTAL	ug/L	10		ND	ND	ND	ND	ND	ND
TETRACHLOROBENZENES, TOTAL	ug/L	10		ND	ND	ND	ND	ND	ND
HEXACHLOROBENZENE	ug/L	10		ND	ND	ND	ND	ND	ND
HEXACHLOROBUTADIENE	ug/L	10		ND	ND	ND	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/L	10		ND	ND	ND	ND	ND	ND
HEXACHLOROCYCLOHEXANE (BHC) TOTAL	ug/L	10		ND	ND	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	10		ND	ND	ND	ND	ND	ND

Report Date: 05/27/88

OCCIDENTAL CHEMICAL CORPORATION
ENVIRONMENTAL DATABASE SYSTEM

S AREA
OVERBURDEN SURVEY WELLS

| ND - Not Detected above survey level

Special Codes: D - FIELD DUPLICATE

Sample Date:------->		03/22/88	03/24/88	03/09/88	03/22/88	03/23/88	03/23/88	03/23/88	03/25/88
Sample Description:->		OW 281	OW 291	OW 294	OW 284	OW 285	OW 285	OW 286	OW 287
Special Code:------->						D			
Analytes:	Units:	Survey Levels:							
PH			7.3	12	8.3	7.1	9.1	8.9	8.2	12
SPECIFIC CONDUCTANCE	umh/cm		1.1	3.5	0.9	1.2	0.6	0.6	2.0	5.5
TOTAL ORGANIC CARBON (TOC)	mg/L	20	ND	ND	ND	24	ND	ND	ND	ND
TOTAL ORGANIC HALIDES (TOX)	mg/L	0.1	ND	0.7	ND	ND	ND	ND	0.3	0.1
CHLOROBENZOIC ACIDS, TOTAL	mg/L	0.5	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ug/L	10	ND	11	ND	ND	ND	ND	ND	ND
TRICHLOROBENZENE, TOTAL	ug/L	10	ND	180	ND	ND	ND	ND	ND	ND
TETRACHLOROBENZENES, TOTAL	ug/L	10	ND	47	ND	ND	ND	ND	34	ND
HEXACHLOROBENZENE	ug/L	10	ND	ND	ND	ND	ND	ND	ND	10
HEXACHLOROBUTADIENE	ug/L	10	ND	ND	ND	ND	ND	ND	ND	ND
OCTACHLOROCYCLOPENTENE	ug/L	10	ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROCYCLOHEXANE (BHC) TOTAL	ug/L	10	ND	ND	ND	ND	ND	ND	ND	ND
PERCHLOROPENTACYCLODECANE (MIREX)	ug/L	10	ND	ND	ND	ND	ND	ND	ND	ND