JACK HADEN

REMEDIAL INVESTIGATION

AT THE

LOCKPORT CITY LANDFILL

LOCKPORT (C), NIAGARA (C), NEW YORK

NYSDEC SITE NO. 9-32-010

CITY OF LOCKPORT, NEW YORK

DRAFT FINAL REPORT
APPENDICES A - L

JULY 1991

PREPARED BY

URS Consultants, Inc.
282 Delaware Avenue
Buffalo, New York 14202

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APPENDIX A

PREVIOUS ANALYTICAL DATA

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 892922 SAMPLE RECEIVED: 89/06/29/ CHARGE: 31.50
PROGRAM: 110: STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: 03 GAZETTEER CODE: 3153
POLITICAL SUBDIVISION: LOCKPORT COUNTY: NIAGARA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: TOWN OF LOCKPORT GROUNDWATER SAMPLE
DESCRIPTION: 998 NIAGARA ST M GEORGE DEEP WELL
REPORTING LAB: TOX: LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: PPEP-2: PESTICIDES, PCBs, PURGEABLES, PRIORITY POLLUTANTS
SAMPLE TYPE: 120: PRIVATE WATER SUPPLY - DRILLED WELL
TIME OF SAMPLING: 89/06/28 10:30 DATE PRINTED: 89/07/14

ANALYSIS: XPEST-PCB ORGANOCHLORINE PESTICIDES & PCB's (DES310-2)
DATE REPORTED: 89/07/11 REPORT MAILED OUT

PARAMETER	RESULT
HCH, ALPHA	< 0.04 MCG/L
HCH, BETA	< 0.04 MCG/L
HCH, GAMMA (LINDANE)	< 0.04 MCG/L
HCH, DELTA	< 0.04 MCG/L
HEPTACHLOR	< 0.05 MCG/L
ALDRIN	< 0.02 MCG/L
HEPTACHLOR EPOXIDE	< 0.05 MCG/L
ENDOSULFAN I	< 0.05 MCG/L
4,4'-DDE	< 0.05 MCG/L
DIELDRIN	< 0.02 MCG/L
ENDRIN	< 0.02 MCG/L
4,4'-DDD	< 0.05 MCG/L
ENDOSULFAN II	< 0.05 MCG/L
ENDRIN ALDEHYDE	< 0.02 MCG/L
ENDOSULFAN SULFATE	< 0.05 MCG/L
4,4'-DDT	< 0.05 MCG/L
METHOXYCHLOR	< 1.0 MCG/L
TOXAPHENE	< 1.0 MCG/L
CHLORDANE	< 0.1 MCG/L
MIREX	< 0.05 MCG/L
PCB, AROCLOR 1221	< 0.05 MCG/L
PCB, AROCLOR 1016/1242	< 0.05 MCG/L
PCB, AROCLOR 1248	< 0.05 MCG/L
PCB, AROCLOR 1254	< 0.05 MCG/L
PCB, AROCLOR 1260	< 0.05 MCG/L

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TENTH AND EAST FALLS ST.
NIAGARA FALLS, N.Y. 14302

SUBMITTED BY: DICKY

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 892922 SAMPLE RECEIVED: 89/06/29/ CHARGE: 31.50
POLITICAL SUBDIVISION: LOCKPORT COUNTY: NIAGARA
LOCATION: TOWN OF LOCKPORT GROUNDWATER SAMPLE
TIME OF SAMPLING: 89/06/28 10:30 DATE PRINTED: 89/07/14

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE REPORTED: 89/07/10 REPORT MAILED OUT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CHLOROFORM	< 0.5 MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	< 0.5 MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
2,3-DICHLOROPROPENE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	< 0.5 MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
2-CHLOROETHYLVINYL ETHER	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	< 0.5 MCG/L
PENTACHLOROETHANE	< 0.5 MCG/L
1-CHLOROCYCLOHEXENE-1	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BIS(2-CHLOROETHYL)ETHER	< 0.5 MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L

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WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 892922 SAMPLE RECEIVED: 89/06/29/ CHARGE: 31.50
POLITICAL SUBDIVISION: LOCKPORT COUNTY: NIAGARA
LOCATION: TOWN OF LOCKPORT GROUNDWATER SAMPLE
TIME OF SAMPLING: 89/06/28 10:30 DATE PRINTED: 89/07/14

ANALYSIS: 5031 AROMATIC PURGEABLES, EPA METHOD 503.1 (DES 310-22)
DATE REPORTED: 89/07/10 REPORT MAILED OUT

PARAMETER	RESULT
BENZENE	< 0.5 MCG/L
TOLUENE	< 0.5 MCG/L
ETHYLBENZENE	< 0.5 MCG/L
P-XYLENE	< 0.5 MCG/L
M-XYLENE	< 0.5 MCG/L
O-XYLENE	< 0.5 MCG/L
CUMENE	< 0.5 MCG/L
STYRENE	< 0.5 MCG/L
P-BROMOFLUOROBENZENE	< 0.5 MCG/L
N-PROPYLBENZENE	< 0.5 MCG/L
TERT-BUTYLBENZENE	< 0.5 MCG/L
O/P-CHLOROTOLUENE	< 0.5 MCG/L
M-CHLOROTOLUENE	< 0.5 MCG/L
1,3,5-TRIMETHYLBENZENE	< 0.5 MCG/L
1,2,4-TRIMETHYLBENZENE	< 0.5 MCG/L
P-CYMENE	< 0.5 MCG/L
CYCLOPROPYLBENZENE	< 0.5 MCG/L
SEC-BUTYLBENZENE	< 0.5 MCG/L
N-BUTYLBENZENE	< 0.5 MCG/L
2,3-BENZOFURAN	< 0.5 MCG/L
HEXACHLOROBUTADIENE (C-46)	< 0.5 MCG/L
1,2,4-TRICHLOROBENZENE	< 0.5 MCG/L
NAPHTHALENE	< 0.5 MCG/L
1,2,3-TRICHLOROBENZENE	< 0.5 MCG/L
pH of Aromatic Aliquot	4
pH WAS NOT AS LOW AS REQUIRED BY METHOD	YES

ANALYSIS: GC-FID-A PRIORITY POLLUTANTS*ACIDS*GC/FID RESULTS
DATE PRINTED: 89/07/14 FINAL REPORT

PARAMETER	RESULT
PHENOL	< 10. MCG/L
2-CHLOROPHENOL	< 10. MCG/L
2-NITROPHENOL	< 10. MCG/L
2,4-DIMETHYLPHENOL	< 10. MCG/L
2,4-DICHLOROPHENOL	< 10. MCG/L
4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
2,4,6-TRICHLOROPHENOL	< 10. MCG/L
2,4,5-TRICHLOROPHENOL	< 10. MCG/L
2,4-DINITROPHENOL	< 10. MCG/L
4-NITROPHENOL	< 10. MCG/L
2-METHYL-4,6-DINITROPHENOL	< 10. MCG/L
PENTACHLOROPHENOL	< 10. MCG/L

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PAGE 4 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 892922 SAMPLE RECEIVED: 89/06/29/ CHARGE: 31.50
POLITICAL SUBDIVISION: LOCKPORT COUNTY: NIAGARA
LOCATION: TOWN OF LOCKPORT GROUNDWATER SAMPLE
TIME OF SAMPLING: 89/06/28 10:30 DATE PRINTED: 89/07/14

ANALYSIS: GC-FID-BN PRIORITY POLLUTANTS*BASE/NEUTRALS*GC/FID RESULTS
DATE PRINTED: 89/07/14 FINAL REPORT

PARAMETER	RESULT
N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
HEXACHLOROETHANE	< 10. MCG/L
NITROBENZENE	< 10. MCG/L
ISOPHORONE	< 10. MCG/L
BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
2-CHLORONAPHTHALENE	< 10. MCG/L
2,6-DINITROTOLUENE	< 10. MCG/L
ACENAPHTHYLENE	< 10. MCG/L
DIMETHYLPHTHALATE	< 10. MCG/L
ACENAPHTHENE	< 10. MCG/L
2,4-DINITROTOLUENE	< 10. MCG/L
DIETHYLPHTHALATE	< 10. MCG/L
FLUORENE	< 10. MCG/L
N-NITROSODIPHENYLAMINE	< 10. MCG/L
1,2-DIPHENYLHYDRAZINE	< 10. MCG/L
4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L
HEXACHLOROBENZENE	< 10. MCG/L
PHENANTHRENE	< 10. MCG/L
ANTHRACENE	< 10. MCG/L
DI-N-BUTYL PHTHALATE	< 10. MCG/L
FLUORANTHENE	< 10. MCG/L
PYRENE	< 10. MCG/L
BENZIDINE	< 30. MCG/L
BUTYL BENZYL PHTHALATE	< 30. MCG/L
BENZO(a)ANTHRACENE	< 10. MCG/L
3,3'-DICHLOROBENZIDINE	< 10. MCG/L
CHRYSENE	< 10. MCG/L
BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L
DI-N-OCTYL PHTHALATE	< 30. MCG/L
BENZO(b)FLUORANTHENE	< 20. MCG/L
BENZO(k)FLUORANTHENE	< 20. MCG/L
BENZO(a)PYRENE	< 20. MCG/L
INDENO(1,2,3-cd)PYRENE	< 20. MCG/L
DIBENZO(ah)ANTHRACENE	< 20. MCG/L
BENZO(ghi)PERYLENE	< 20. MCG/L

**** END OF REPORT ****

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 891001216 SAMPLE RECEIVED:89/06/30/11 CHARGE: 5.40
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN:03
POLITICAL SUBDIVISION:LOCKPORT GAZETTEER CODE:3153
LATITUDE: LONGITUDE: COUNTY:NIAGARA
LOCATION: TOWN OF LOCKPORT GROUNDWATER SAMPLE Z DIRECTION:
DESCRIPTION:998 NIAGARA ST M GEORGE DEEP WELL
REPORTING LAB: 10:LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBAN
TEST PATTERN: 10-001:SAFE DRINKING WATER ACT - METALS ONLY
SAMPLE TYPE: 120:PRIVATE WATER SUPPLY - DRILLED WELL
TIME OF SAMPLING: 89/06/28 10:30
DATE PRINTED:89/07/25

ANALYSIS: ICP-1 ICP GROUPING 1

PARAMETER	RESULT
MERCURY	< 0.2 MCG/L
ARSENIC	< 10. MCG/L
SELENIUM	< 5. MCG/L
LEAD	< 10. MCG/L
BERYLLIUM	< 1. MCG/L
SILVER	< 10. MCG/L
BARIUM	17. MCG/L
CADMIUM	< 5. MCG/L
COBALT	< 5. MCG/L
CHROMIUM	< 5. MCG/L
COPPER	24. MCG/L
IRON	218. MCG/L
MANGANESE	< 5. MCG/L
NICKEL	< 5. MCG/L
STRONTIUM	229. MCG/L
TITANIUM	< 5. MCG/L
VANADIUM	< 5. MCG/L
ZINC	110. MCG/L
MOLYBDENUM	< 20. MCG/L
ANTIMONY	< 50. MCG/L
TIN	< 50. MCG/L
THALLIUM	< 30. MCG/L
ALUMINUM	< 100. MCG/L
CALCIUM	135. MG/L
POTASSIUM	2.0 MG/L
MAGNESIUM	20.2 MG/L
SODIUM	19.0 MG/L

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NIAGARA FALLS,N.Y. 14302

SUBMITTED BY:DICKY

ANTIMONY	< 50.	MCG/L
TIN	< 50.	MCG/L
THALLIUM	< 30.	MCG/L
ALUMINUM	< 100.	MCG/L
CALCIUM	135.	MG/L
POTASSIUM	2.0	MG/L
MAGNESIUM	20.2	MG/L
SODIUM	19.0	MG/L

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SUBMITTED BY:DICKY

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 891001216 SAMPLE RECEIVED:89/06/28

POLITICAL SUBDIVISION:LOCKPORT

LOCATION: TOWN OF LOCKPORT GROUNDWATER SUPPLY

TIME OF SAMPLING: 89/06/28 10:30

DATE PRINTED:89/07/25

FOLLOWING PARAMETERS NOT PRESENT IN THIS PATTERN OF TEST

PARAMETER	RESULT
NITROGEN, NITRATE (+NO2) AS N	2.41 MG/L

**** END OF REPORT ****

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

COMMENTS:

Comments pertain to data on one or all pages of this report.

The samples were collected by Recra personnel on the date specified below each sample identification.

Analyses were performed according to U.S. Environmental Protection Agency methodologies where applicable.

Total Organic Carbon results may not include volatile constituents since the sample was purged with an inert gas prior to analysis.

The chromatograms of the samples for PCB analyses were qualitatively screened for the presence of nine PCB mixtures (Aroclors). These include Aroclor 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262 and 1268.

Halogenated Organic Scan (ECD) results are used for screening purposes only and are not designed for qualification or quantification of any specific organic compound. Results are calculated based upon the chlorine content and response factor of Lindane but do not imply either the presence or absence of Lindane itself. Halogenated Organic Scan results do not include volatile organic constituents.

Volatile Organic Scan (FID) results are used for screening purposes only and are not designed for qualification or quantification of specific organic compounds. Results are calculated based upon the carbon content and response factor of Benzene, but do not imply either the presence or absence of the compound itself.

Values reported as "less than" (<) indicate the working detection limit for the particular sample and/or parameter.

Results of the analysis of soils are corrected for moisture content and reported on a dry weight basis.

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Francis

DATE 8/9/84

KEY TO ANALYTICAL SAMPLES

LOCKPORT CITY LANDFILL 2EM84001

WSS 1	-	Surface water with sediment (water portion mg/l) (sediment portion ug/l)
WSS 3		Surface water with sediment (water portion mg/l) (sediment portion ug/l)
WSS 4		Surface water with sediment (water portion mg/l) (sediment portion ug/l)
WSS 5		Surface water with sediment (water portion mg/l) (sediment portion ug/l)
WSS 6		Surface water with sediment (water portion mg/l) (sediment portion ug/l)
WSS7		Surface water with sediment (water portion mg/l) (sediment portion ug/l)
WSS 8		Surface water with sediment (water portion mg/l) (sediment portion ug/l)
WSS 9		Surface water with sediment (water portion mg/l) (sediment portion ug/l)
MW-1		Groundwater
MW-2		Groundwater
MW-3		Groundwater
MW-4		Groundwater
MW-5		Groundwater
MW-6		Groundwater
MW1 S#1 0-2'		Split spoon sample
MW2 S#1 0-2'		Split spoon sample
MW3 S#3 10-11.7'		Split spoon sample
MW4 S#2 4-6'		Split spoon sample
MW5 S#1 0-2'		Split spoon sample
MW6 S#1 0-2'		Split spoon sample

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-4, S-2 (6/28/84)	MW-5, S-1 (6/29/84)	MW-6, S-1 (7/2/84)
Total Cadmium	ug/g dry	<0.7	1.9	<0.6
Total Chromium	ug/g dry	39.1	51.9	26.1
Hexavalent Chromium	ug/g dry	<2	3.5	<2
Total Copper	ug/g dry	44.2	258	107
Total Iron	ug/g dry	18,500	70,500	30,100
Total Lead	ug/g dry	219	719	385
Total Mercury	ug/g dry	0.067	0.67	<0.06
Total Nickel	ug/g dry	19.4	48.3	13.5
Total Silver	ug/g dry	0.86	2.9	<0.6
Total Zinc	ug/g dry	267	644	138

FOR RECRA ENVIRONMENTAL LABORATORIES D.L.V. Finn

DATE 8/9/84

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-1, S-1 (6/21/84)	MW-2, S-1 (6/25/84)	MW-3, S-3 (-)
Total Cadmium	ug/g dry	<0.6	3.3	<0.3
Total Chromium	ug/g dry	15.8	67.2	4.8
Hexavalent Chromium	ug/g dry	<2	<2	<2
Total Copper	ug/g dry	20.8	630	10.4
Total Iron	ug/g dry	17,100	19,600	12,600
Total Lead	ug/g dry	18.7	1,880	35.8
Total Mercury	ug/g dry	0.061	0.17	0.068
Total Nickel	ug/g dry	1.7	80.1	7.1
Total Silver	ug/g dry	1.1	4.6	<0.4
Total Zinc	ug/g dry	55.5	6,270	30.2

FOR RECRA ENVIRONMENTAL LABORATORIES D. V. Zinn

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES
I.D. #84-708

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-1 (7/19/84)	MW-2 (7/19/84)	MW-3A (7/19/84)
Chloride	mg/l	64	366	406
Sulfate	mg/l	53	80	100
Total Cyanide	mg/l	<0.01	<0.01	<0.01
Total Organic Carbon	mg/l	6.1	4.0	6.7
Soluble Cadmium	mg/l	<0.005	<0.005	<0.005
Soluble Chromium	mg/l	<0.007	<0.007	0.009
Hexavalent Chromium	mg/l	<0.005	<0.005	<0.005
Soluble Copper	mg/l	<0.004	<0.004	<0.004
Soluble Iron	mg/l	1.42	0.656	1.94
Soluble Lead	mg/l	<0.005	<0.005	<0.005
Soluble Mercury	mg/l	<0.0008	<0.0008	<0.0008
Soluble Nickel	mg/l	<0.01	<0.01	<0.01
Soluble Silver	mg/l	<0.005	<0.005	<0.005
Soluble Zinc	mg/l	5.01	1.05	1.07

FOR RECRA ENVIRONMENTAL LABORATORIES D. V. Zinn

DATE 8/9/84

ENVIRONMENTAL LABORATORIES

I.D. #84-708

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-4 (7/19/84)	MW-5 (7/20/84)	MW-6 (7/19/84)
Chloride	mg/l	219	92	<1
Sulfate	mg/l	86	140	24
Total Cyanide	mg/l	<0.010	<0.010	<0.010
Total Organic Carbon	mg/l	14	8.8	1.5
Soluble Cadmium	mg/l	<0.005	<0.005	<0.005
Soluble Chromium	mg/l	0.017	0.007	<0.01
Hexavalent Chromium	mg/l	<0.005	<0.005	<0.005
Soluble Copper	mg/l	<0.004	<0.004	0.006
Soluble Iron	mg/l	2.46	4.06	<0.02
Soluble Lead	mg/l	<0.005	<0.005	<0.005
Soluble Mercury	mg/l	<0.0008	<0.0008	<0.0008
Soluble Nickel	mg/l	<0.01	<0.01	<0.01
Soluble Silver	mg/l	<0.005	<0.005	<0.005
Soluble Zinc	mg/l	2.29	0.874	2.83

FOR RECRA ENVIRONMENTAL LABORATORIES D. V. Zinn

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

I.D. #84-708

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)			
		WSS #1 (7/23/84)	WSS #3 (7/23/84)	WSS #4 (7/23/84)	WSS #5 (7/23/84)
Chloride	mg/l	59	219	533	336
Sulfate	mg/l	110	78	165	165
Total Cyanide	mg/l	<0.010	<0.010	0.016	0.022
Total Organic Carbon	mg/l	9.0	12	10	9.7
Total Cadmium	mg/l	<0.005	<0.005	<0.005	<0.005
Total Chromium	mg/l	0.007	0.007	0.007	0.054
Hexavalent Chromium	mg/l	<0.005	<0.005	<0.005	0.038
Total Copper	mg/l	0.006	0.005	0.023	0.042
Total Iron	mg/l	0.447	45	2.93	<0.02
Total Lead	mg/l	0.006	<0.005	0.040	0.026
Total Mercury	mg/l	<0.0008	0.001	<0.0008	<0.0008
Total Nickel	mg/l	<0.01	<0.01	<0.01	<0.005
Total Silver	mg/l	<0.005	<0.005	<0.005	<0.005
Total Zinc	mg/l	0.052	0.011	0.088	0.038

FOR RECRA ENVIRONMENTAL LABORATORIES D. V. Zinn

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		WSS #6 (7/23/84)	WSS #7 (7/23/84)	WSS #9 (7/23/84)
Chloride	mg/l	558	344	360
Sulfate	mg/l	176	170	122
Total Cyanide	mg/l	<0.010	0.012	0.012
Total Organic Carbon	mg/l	8.0	10	7.5
Total Cadmium	mg/l	<0.005	<0.005	<0.005
Total Chromium	mg/l	<0.005	0.043	0.030
Hexavalent Chromium	mg/l	<0.005	0.032	0.015
Total Copper	mg/l	<0.005	0.033	0.028
Total Iron	mg/l	0.249	<0.02	<0.02
Total Lead	mg/l	0.006	0.020	0.018
Total Mercury	mg/l	<0.0008	<0.0008	<0.0008
Total Nickel	mg/l	<0.005	<0.005	<0.005
Total Silver	mg/l	<0.005	<0.005	<0.005
Total Zinc	mg/l	<0.005	0.041	0.025

FOR RECRA ENVIRONMENTAL LABORATORIES D. U. Zinn

DATE 8/9/84

ENVIRONMENTAL LABORATORIES
I.D. #84-708

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE) WSS8 (7/24/84)
Chloride	mg/l	638
Sulfate	mg/l	40
Total Cyanide	mg/l	<0.010
Total Organic Carbon	mg/l	10
Total Cadmium	mg/l	<0.005
Total Chromium	mg/l	<0.005
Hexavalent Chromium	mg/l	<0.005
Total Copper	mg/l	<0.005
Total Iron	mg/l	0.108
Total Lead	mg/l	<0.005
Total Mercury	mg/l	0.267
Total Nickel	mg/l	<0.005
Total Silver	mg/l	<0.005
Total Zinc	mg/l	0.045

FOR RECRA ENVIRONMENTAL LABORATORIES D. V. Zinn

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)			
		WSS #1 (7/23/84)	WSS #3 (7/23/84)	WSS #4 (7/23/84)	WSS #5 (7/23/84)
Total Cadmium	ug/g dry	1.9	<0.5	<0.5	<0.5
Total Chromium	ug/g dry	17.9	15.2	20.4	39.8
Hexavalent Chromium	ug/g dry	<2	4.3	3.3	2.1
Total Copper	ug/g dry	22.2	32.9	109	123
Total Iron	ug/g dry	15,700	9,790	6,540	4,400
Total Lead	ug/g dry	82.4	97.0	652	511
Total Mercury	ug/g dry	0.21	0.24	0.38	<0.07
Total Nickel	ug/g dry	97.0	24.7	23.5	60.8
Total Silver	ug/g dry	<0.8	1.6	0.63	<0.6
Total Zinc	ug/g dry	142	180	403	578

FOR RECRA ENVIRONMENTAL LABORATORIES V. Zinn

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		WSS #6 (7/23/84)	WSS #7 (7/23/84)	WSS #9 (7/23/84)
Total Cadmium	ug/g dry	0.90	<0.7	0.76
Total Chromium	ug/g dry	28.0	101	114
Hexavalent Chromium	ug/g dry	<2	28.7	75.6
Total Copper	ug/g dry	76.1	237	230
Total Iron	ug/g dry	46,700	7,410	5,000
Total Lead	ug/g dry	134	895	618
Total Mercury	ug/g dry	<0.06	0.098	0.16
Total Nickel	ug/g dry	61.9	92.2	97.3
Total Silver	ug/g dry	<0.6	<0.5	<0.6
Total Zinc	ug/g dry	106	984	10,500

FOR RECRA ENVIRONMENTAL LABORATORIES D. V. Fiore

DATE 8/9/84

CRA ENVIRONMENTAL LABORATORIES
I.D. #84-703

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE) WSS8 (7/24/84)
Total Cadmium	ug/g dry	<1
Total Chromium	ug/g dry	62.2
Hexavalent Chromium	ug/g dry	8.7
Total Copper	ug/g dry	283
Total Iron	ug/g dry	7,520
Total Lead	ug/g dry	576
Total Mercury	ug/g dry	0.72
Total Nickel	ug/g dry	161
Total Silver	ug/g dry	1.4
Total Zinc	ug/g dry	838

FOR RECRA ENVIRONMENTAL LABORATORIES D. V. Finn

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-1 (7/19/84)	MW-2 (7/19/84)	MW-3A (7/19/84)
Total Polychlorinated Biphenyls	µg/l as Aroclor 1242	<0.1	<0.1	<0.1
Halogenated Organic Scan (ECD)	µg/l as Chlorine; Lindane Standard	<0.5	<0.5	<0.5
Volatile Organic Scan (FID)	µg/l as Carbon; Benzene Standard	3.2	7.7	3.4

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Praino

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-4 (7/19/84)	MW-5 (7/20/84)	MW-6 (7/19/84)
Total Polychlorinated Biphenyls	µg/l as Aroclor 1242	<0.1	<0.1	<0.2
Halogenated Organic Scan (ECD)	µg/l as Chlorine; Lindane Standard	<0.5	<0.5	<0.5
Volatile Organic Scan (FID)	µg/l as Carbon; Benzene Standard	4.3	<1	1.7

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Brown

DATE 8/9/84

CRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-1, S-1 (6/21/84)	MW-2, S-1 (6/25/84)	MW-3, S-3 (-)
Total Polychlorinated Biphenyls	µg/g dry as Aroclor 1254	<0.1	0.59	<0.1
Halogenated Organic Scan (ECD)	µg/g dry as Chlorine; Lindane Standard	<0.5	<0.5	<0.5
Volatile Organic Scan (FID)	µg/g dry as Carbon; Benzene Standard	<0.05	470	<0.05
Dry Weight (103°C)	%	90	74	85

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Travis

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		MW-4, S-2 (6/28/84)	MW-5, S-1 (6/29/84)	MW-6, S-1 (7/2/84)
Total Polychlorinated Biphenyls	ug/g dry as Aroclor 1242	<0.2	66	<0.1
Halogenated Organic Scan (ECD)	µg/g dry as Chlorine; Lindane Standard	<0.5	23	<0.5
Volatile Organic Scan (FID)	µg/g dry as Carbon; Benzene Standard	<0.05	<0.05	<0.05
Dry Weight (103°C)	%	78	77	87

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Prarie

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)			
		WSS #1 (7/23/84)	WSS #3 (7/23/84)	WSS #4 (7/23/84)	WSS #5 (7/23/84)
Total Polychlorinated Biphenyls	µg/l as Aroclor 1242	<0.1	<0.1	<0.1	<0.1
Halogenated Organic Scan (ECD)	µg/l as Chlorine; Lindane Standard	<0.5	<0.5	<0.5	<0.5
Volatile Organic Scan (FID)	µg/l as Carbon; Benzene Standard	<1	19	<1	2.4

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Barrios

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		WSS #6 (7/23/84)	WSS #7 (7/23/84)	WSS #9 (7/23/84)
Total Polychlorinated Biphenyls	µg/l as Aroclor 1242	<0.1	<0.2	<0.1
Halogenated Organic Scan (ECD)	µg/l as Chlorine; Lindane Standard	<0.5	<0.5	<0.5
Volatile Organic Scan (FID)	µg/l as Carbon; Benzene Standard	<1	1.4	1.5

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Travis

DATE 8/9/84

CRA ENVIRONMENTAL LABORATORIES
I.D. #84-708

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)
		WSS 8 (7/24/84)
Total Polychlorinated Biphenyls	µg/l as Aroclor 1242	<0.1
Halogenated Organic Scan (ECD)	µg/l as Chlorine; Lindane Standard	<0.5
Volatile Organic Scan (FID)	µg/l as Carbon; Benzene Standard	2.2

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah F. Marcia

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)			
		WSS #1 (7/23/84)	WSS #3 (7/23/84)	WSS #4 (7/23/84)	WSS #5 (7/23/84)
Total Polychlorinated Biphenyls	µg/g dry as Aroclor 1242	<0.1	<0.1	<0.1	<0.1
Halogenated Organic Scan (ECD)	µg/g dry as Chlorine; Lindane Standard	<0.5	1.1	<0.5	<0.5
Volatile Organic Scan (FID)	µg/g dry as Carbon; Benzene Standard	0.066	0.059	42	0.071
Dry Weight (103°C)	%	61	51	59	85

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Praris

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE)		
		WSS #6 (7/23/84)	WSS #7 (7/23/84)	WSS #9 (7/23/84)
Total Polychlorinated Biphenyls	µg/g dry as Aroclor 1242	<0.1	<0.5	<0.1
Halogenated Organic Scan (ECD)	µg/g dry as Chlorine; Lindane Standard	0.90	0.80	0.59
Volatile Organic Scan (FID)	µg/g dry as Carbon; Benzene Standard	<0.05	<0.05	<0.05
Dry Weight (103°C)	%	71	64	60

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Harris

DATE 8/9/84

CRA ENVIRONMENTAL LABORATORIES

ANALYTICAL RESULTS

LOCKPORT CITY LANDFILL

Report Date: 8/9/84

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION (DATE) WSS 8 (7/24/84)
Total Polychlorinated Biphenyls	µg/g dry as Aroclor 1242	<0.5
Halogenated Organic Scan (ECD)	µg/g dry as Chlorine; Lindane Standard	1.8
Volatile Organic Scan (FID)	µg/g dry as Carbon; Benzene Standard	0.086
Dry Weight (103°C)	%	37

FOR RECRA ENVIRONMENTAL LABORATORIES Deborah J. Praeus

DATE 8/9/84

RECRA ENVIRONMENTAL LABORATORIES

T.D. #84-708

NAME OF LANDFILL: Lockport City Landfill

LOCATION: Oakhurst Road, Lockport, New York

CURRENT OWNER: City of Lockport

HISTORY

This site was used as a sanitary landfill for the City of Lockport from the early 1970's until 1976. It was also used for disposal of industrial wastes from Harrison Radiator, Noury Chemicals and Lockport Felt. Materials disposed of here included steel barrels, plastics, glass, woodstarch contaminated with peroxide paste and keetox and oxylite waste, sewage sludge, cardboard and waste paper.

INVESTIGATION

An investigation was conducted at this site on December 14, 1981 by Messrs. Tygert, Wozniak and Christoffel of DEC Region 9. Water and silt samples were taken along a creek below the landfill. The first samples were taken from the Gulf creek at the north end of the landfill. The second set of samples were taken from a leachate breakout at the midway point of the landfill. The third set of samples were taken from a spring pipe and leachate discharge 20 yards downstream from the confluence of the discharge stream from Harrison Radiator and the Gulf creek.

SOIL AND GEOLOGICAL INFORMATION

This site is located on a Hilton-Ovid-Ontario soil association. The soils in this associate were formed in glacial till. The characteristics of the soil are deep, well drained to somewhat poorly drained soils having a medium textured or moderately fine textured subsoil.

The bedrock in this area consists of Lockport Dolomite, limestone and shale. The depth to this bedrock is approximately 10 feet.

DISCUSSION OF RESULTS

The analyses of the soil samples showed an extremely high concentration of iron and high concentrations of chromium, copper, lead, and zinc. There were also detectable concentrations of halogenated organics in all three samples.

The highest concentrations of the water samples were from Station #2. In this sample the concentration for arsenic, iron and lead were all in excess of the effluent standards for class GA waters in New York State. Moderate amounts of total organic carbon were contained in all three samples, indicating the presence of organic matter in the leachate.

On this survey a large number of barrels were observed along the creek in the "Gulf". These barrels had been discarded and in most cases the contents were unknown. There was an oil sheen visible at both leachate breakouts. At Station #3 the leachate was rust colored and was breaking out around a storm sewer outlet that had a concrete cap.

Water Analyses

COMPOUND	UNITS	SAMPLE IDENTIFICATION Station #1	Station #2	Station #3
Antimony	mg/l	< 0.2	<0.2	< 0.2
Arsenic	ug/l	33	52	37
Beryllium	mg/l	<0.01	< 0.01	< 0.01
Cadmium	mg/l	< 0.005	<0.005	< 0.005
Chromium	mg/l	<0.005	0.028	< 0.005
Copper	mg/l	0.026	0.298	0.014
Iron	mg/l	0.07	10	14
Lead	mg/l	< 0.04	0.2	< 0.04
Mercury	ug/l	< 3	< 3	< 3
Nickel	mg/l	0.09	< 0.02	< 0.02
Selenium	ug/l	< 5	< 5	7.3
Silver	mg/l	<0.01	< 0.01	<0.01
Thallium	mg/l	< 0.1	< 0.1	< 0.1
Zinc	mg/l	0.072	0.772	0.037
Total Organic Carbon	mg/l	13	78	52
Halogenated Organic Scan	ug/l as Cl_2, Lindane Standard	<0.1	0.69	2.0
PCB	ug/l as Aroclor 1242	<0.2	< 0.2	< 0.2

LOCKPORT CITY LANDFILL - Soil Analyses

COMPOUND	UNITS	SAMPLE IDENTIFICATION Station #1	Station #2	Station #3
Antimony	ug/g dry	<10	< 5	< 10
Arsenic	ug/g dry	7.5	5.6	21
Beryllium	ug/g dry	<0.6	<0.4	< 2
Cadmium	ug/g dry	2.1	1.3	1.2
Chromium	ug/g dry	150	83	1
Copper	ug/g dry	250	440	28
Iron	ug/g dry	50,000	34,000	110,000
Lead	ug/g dry	640	400	< 8
Mercury	ug/g dry	0.89	<0.4	1.9
Nickel	ug/g dry	54	74	< 5
Selenium	ug/g dry	1.1	1.3	5.4
Silver	ug/g dry	3.1	0.67	< 2
Thallium	ug/g dry	6.2	< 2	< 10
Zinc	ug/g dry	1,500	1,000	73
Dry Weight	%	37	52	12
Halogenated Organic Scan	ug/g dry as Cl_2, Lindane Standard	30	27	2.7
PCB	ug/g dry as Aroclor 1242	< 8	< 8	< 0.1

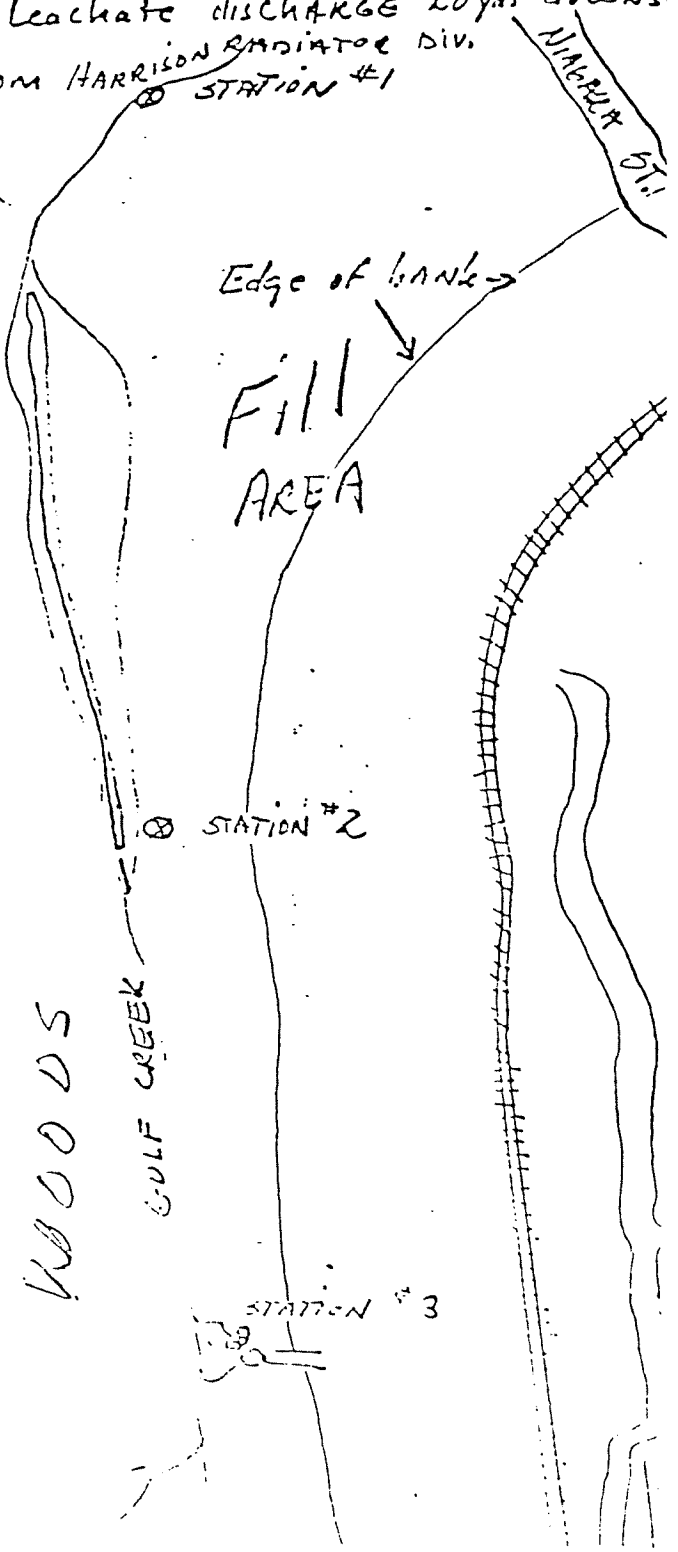
Lockport City Landfill

12/14/81

STATION #1 - WATER & Silt from Gulf Creek NORTH END of Landfill

STATION #2 - WATER & Silt from Leachate breakout midway point in Landfill

STATION #3 - WATER & Silt from Spring pipe & Leachate discharge 20 yds downs
from confluence of discharge from HARRISON RADIATOR DIV.



Advanced Environmental Systems, Inc.

Monitoring and Support Laboratory

LABORATORY REPORT

SCOPE OF WORK

As requested by Dr. Francis Clifford of the Niagara County Health Department, Advanced Environmental Systems (AES) has completed analysis of three water samples for total organic halide (TOX), total organic carbon (TOC), cadmium, copper, total chromium, iron, and zinc.

The samples were collected in prewashed bottles[1] by Niagara County Health personnel on April 2, 1981 and were delivered to AES in a chilled ice chest by Mr. Rick Abbott on the same day. Samples for metals were collected in separate glass bottles with teflon lined caps. The samples for TOX were filled to allow no headspace or air bubbles.

Upon receipt in the laboratory, chain of custody was transferred from Mr. Abbott to Mrs. Judy McDougall, SAmple Coordinator. The samples for metals were immediately preserved to pH <2 with nitric acid and samples for TOC were immediately preserved to pH <2 with sulfuric acid.

After the samples were preserved they were locked in a refrigerator until analysis was begun.

---

[1] Bottles were prepared by AES in accordance with EPA procedures described in "Handbook for Analytical Quality Control", EPA 600/4-79-020, March 1979.

Advanced Environmental Systems, Inc.

Monitoring and Support Laboratory

LABORATORY REPORT

RESULTS

Table 2. Results of Analysis
(Expressed as milligrams per liter or ppm)

Analysis	Date & Time of Analysis	Pipe	Upstream	Downstream
TOX	4-2-81 10:00 a.m.	0.041	0.059	0.076
TOC	4-2-81 1:00 p.m.	91.0	113.5	52.6
Cadmium	4-14-81 10:00 a.m.	<0.03[1]	<0.03	0.03
Chromium	4-9-81 10:00 a.m.	<0.075	0.13	0.83
Iron	4-14-81 1:00 p.m.	135.	2,000.	368.
Zinc	4-10-81 1:00 p.m.	0.12	4.00	27.5
Copper	4-10-81 10:00 a.m.	0.10	1.28	3.90

[1] (<) Less than equals limits of detection.

APPENDIX B

POSSIBLE RESPONSIBLE PARTIES

File Copy

MEMORANDUM

NIAGARA COUNTY HEALTH DEPARTMENT

To Francene Galeigo
NYSDEC-Div. of Environmental Enforcement

Date May 19, 1988

From P. Dicky

Subject CITY OF LOCKPORT LANDFILL

Enclosed is the information you requested, regarding the City of Lockport Landfill.

Please call us (284-3128), if we can be of any further assistance.

PD:dm
Enc.

NIAGARA COUNTY
ENVIRONMENTAL MANAGEMENT COUNCIL
59 PARK AVENUE
LOCKPORT, NEW YORK 14094
(716) 439-6170

May 11, 1988

Mike Hopkins
Niagara County Health Department
Community Resources Building
10th & East Falls Streets
Niagara Falls, New York 14303

Dear Mike:

Enclosed is the information you requested, regarding the list of companies located in or near the City of Lockport in the 1960's that utilized the Lockport Landfill. This information was obtained from the Niagara County Historian's City Directory and numerous newspaper clippings, in addition to various conversations.

If we can be of further assistance please do not hesitate to contact this office.

Sincerely,

Joanne Ellsworth

Joanne M. Ellsworth
Environmental Management Coordinator

JME:njc

LOCKPORT BASED BUSINESSES USING LOCKPORT LANDFILL
IN THE 1960'S

NILOK CHEMICALS, INC.; ss Mill 2W North Transit Rd. (Chemical Manufacturer)

COWLES CHEMICAL CO.; 555 West Jackson Street (Chemical, Analytical & Consulting)

DEWEY ALMY* [United Board and Box Co., 59 & 62 Mill Street]

NORTON LABORATORIES, INC.; 520 Mill Street (Plastic Products)

FLINTKOTE ROOFING; 198 Mill Street

ALUMINUM & BRASS CO., INC.; 120 Church Street (Foundries)

WARNER METAL PLATING* [Ray Warner, President of Aluminum & Brass; 120 Church Street]

LOCKPORT ENGINEERING WORKS, INC.; 237 Market Street (Boiler Manufacturer)

BEWLEY CANNING; Lake Avenue & Old Niagara Road (Cannery)

BICKFORD BOX; 29 Gooding Street

CROSE & LEARY, INC. 54 Market Street (Sheet Metal, Heating & Ventilating)

LOCKPORT COTTON BATTING changed to LOCKPORT MILLS, INC.; 304 Elmwood Avenue (Cotton Batting Manufacturer)

NIAGARA TEXTILE [Cotton Batting; 68 & 70 Market Street] (Manufacturer of Linen and Cotton Towels)

FEDERAL MILLS - INTERNATIONAL MILLING CO., INC.; Michigan Street

EURACA FINISHING; 310 Park Avenue (Platers)

LOCKPORT CASTINGS - DUSAULT FOUNDRY; 2 Washburn Street (Foundries)

GASPORT CHEMICAL [Gasport Chemical & Hose Co.; 8412 Telegraph Road, Gasport]

* Questionable Existance
[] Possible Name

APPENDIX C

COMMUNITY WELL SURVEY

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
?	60	BACON ST							Y	N	Y
?	274	MICHIGAN ST							Y	Y	Y
?	375	PROSPECT ST							Y	Y	Y
?	521	PROSPECT ST							Y	N	Y
?	279	TROWBRIDGE ST							Y	N	N
?	245	WEST AVE							Y	N	Y

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
N	16	BACON ST							Y	N	N
N	21	BACON ST							Y	N	N
N	27	BACON ST							Y	N	N
N	31	BACON ST							?	?	?
N	03	BRIGHT ST							Y	Y	Y
N	06	BRIGHT ST							Y	N	Y
N	10	BRIGHT ST							Y	N	N
N	11	BRIGHT ST							Y	Y	N
N	12	BRIGHT ST							Y	N	N
N	13	BRIGHT ST							Y	N	Y
N	18	BRIGHT ST							Y	N	N
N	22	BRIGHT ST							Y	N	N
N	55	BRIGHT ST							Y	Y	Y
N	56	BRIGHT ST							Y	Y	Y
N	62	BRIGHT ST							Y	Y	Y
N	276	CALEDONIA ST							Y	N	N
N	298	CALEDONIA ST							Y	N	N
N	307	CALEDONIA ST							Y	N	Y
N	318	CALEDONIA ST							Y	N	N
N	321	CALEDONIA ST							Y	Y	Y
N	331	CALEDONIA ST							Y	N	Y
N	335	CALEDONIA ST							N	N	Y
N	336	CALEDONIA ST							Y	N	N
N	370	CALEDONIA ST							?	?	?
N	375	CALEDONIA ST							Y	N	N
N	156	CORINTHIA ST							Y	N	Y
N	171	CORINTHIA ST							Y	N	Y
N	176	CORINTHIA ST							Y	N	Y
N	183	CORINTHIA ST							?	?	?
N	201	CORINTHIA ST							Y	Y	Y
N	11	CROSBY AVE							Y	N	N
N	12	CROSBY AVE							Y	N	Y
N	18	CROSBY AVE							?	?	?
N	22	CROSBY AVE							Y	Y	N
N	32	CROSBY AVE							?	?	N
N	40	CROSBY AVE							Y	N	N
N	46	CROSBY AVE							Y	N	?
N	60	CROSBY AVE							?	?	?
N	64	CROSBY AVE							Y	N	N
N	81	CROSBY ST							Y	Y	Y
N	21A	GABRIEL DR							N	N	N
N	25A	GABRIEL DR							Y	?	?
N	3B	GABRIEL DR							Y	N	N
N	59B	GABRIEL DR							Y	N	?
N	80	GABRIEL DR							Y	N	N

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
N	14	GLENWOOD AVE							Y	N	Y
N	325	GLENWOOD AVE							Y	N	N
N	4807	GOTHIC HILL RD							?	?	?
N	4838	GOTHIC HILL RD							?	?	?
N	4891	GOTHIC HILL RD							?	?	?
N	307	GREEN ST							Y	N	Y
N	315	GREEN ST							Y	Y	Y
N	321	GREEN ST							Y	N	Y
N	322	GREEN ST							Y	N	Y
N	327	GREEN ST							Y	N	Y
N	340	GREEN ST							Y	N	Y
N	109	HEATH ST							?	?	?
N	08	HIGHLAND AVE							Y	N	N
N	19	HIGHLAND AVE							Y	N	Y
N	31	HIGHLAND AVE							Y	N	N
N	38	HIGHLAND AVE							Y	N	N
N	57	HIGHLAND AVE							Y	N	N
N	08	HILLCREST DR							Y	Y	Y
N	10	HILLCREST DR							Y	N	N
N	15	HILLCREST DR							?	?	?
N	33	HILLCREST DR							Y	N	N
N	44	HILLCREST DR							Y	N	Y
N	50	HILLCREST DR							Y	N	N
N	56	HILLCREST DR							Y	N	N
N	62	HILLCREST DR							Y	N	N
N	63	HILLCREST DR							Y	Y	Y
N	69	HILLCREST DR							Y	N	Y
N	28	KING ST							Y	N	Y
N	114	MICHIGAN ST							?	?	?
N	151	MICHIGAN ST							?	?	?
N	166	MICHIGAN ST							Y	N	Y
N	20-24	MICHIGAN ST							?	?	?
N	240	MICHIGAN ST							Y	Y	Y
N	320	MICHIGAN ST							Y	Y	Y
N	394	MICHIGAN ST							?	?	?
N	416	MICHIGAN ST							Y	N	N
N	4891	MOUNT VIEW							?	?	?
N	222	NIAGARA ST							Y	N	Y
N	258	NIAGARA ST							Y	N	Y
N	260	NIAGARA ST							Y	N	N
N	537	NIAGARA ST							?	?	?
N	541	NIAGARA ST							?	?	?
N	544	NIAGARA ST							?	?	?
N	5462	NIAGARA ST							?	?	?
N	5464	NIAGARA ST							?	?	?
N	5482	NIAGARA ST							?	?	?

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
N	5592	NIAGARA ST							?	?	?
N	5623	NIAGARA ST							?	?	?
N	639	NIAGARA ST							?	?	?
N	699	NIAGARA ST							?	?	?
N	700	NIAGARA ST							?	?	?
N	701	NIAGARA ST							?	?	?
N	74	NIAGARA ST							Y	N	N
N	208	OAKHURST ST							Y	N	N
N	232	OHIO ST							Y	N	Y
N	241	OHIO ST							Y	N	N
N	329	OHIO ST							Y	Y	Y
N	330	OHIO ST							Y	N	Y
N	338	OHIO ST							?	?	?
N	351	OHIO ST							?	?	?
N	393	OHIO ST							Y	N	?
N	401	OHIO ST							?	?	?
N	409	OHIO ST							Y	?	?
N	425	OHIO ST							Y	N	?
N	430	OHIO ST							Y	Y	Y
N	500	OHIO ST							?	?	?
N	554	OHIO ST							Y	N	N
N	695	OHIO ST							Y	Y	Y
N	252	ONTARIO ST							Y	N	N
N	256	ONTARIO ST							Y	N	N
N	266	ONTARIO ST							Y	N	Y
N	289	ONTARIO ST							Y	N	Y
N	294	ONTARIO ST							Y	Y	Y
N	306	ONTARIO ST							Y	Y	?
N	326	ONTARIO ST							Y	Y	Y
N	328	ONTARIO ST							Y	N	N
N	329	ONTARIO ST							Y	Y	Y
N	397	ONTARIO ST							Y	Y	Y
N	337	ONTATIO ST							Y	Y	N
N	119	OUTWATER DR							?	?	?
N	125	OUTWATER DR							Y	N	Y
N	127	OUTWATER DR							?	?	?
N	135	OUTWATER DR							Y	N	Y
N	141	OUTWATER DR							Y	N	N
N	147	OUTWATER DR							Y	N	Y
N	20	OUTWATER DR							Y	N	Y
N	38	OUTWATER DR							Y	N	Y
N	82	OUTWATER DR							?	?	?
N	114	PARK AVE							Y	Y	N
N	118	PARK AVE							Y	N	N
N	124	PARK AVE							Y	N	N
N	141	PARK AVE							Y	N	Y

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
N	142	PARK AVE							Y	N	Y
N	154	PARK AVE							Y	N	Y
N	170	PARK AVE							?	?	?
N	173	PARK AVE							Y	Y	Y
N	186	PARK AVE							Y	N	Y
N	37	PARK AVE							Y	N	N
N	86	PARK AVE							Y	N	?
N	02	PASSIAC AVE							Y	Y	Y
N	17	PHELPS ST							Y	N	Y
N	24	PHELPS ST							Y	N	N
N	26	PHELPS ST							Y	N	N
N	30	PHELPS ST							Y	Y	N
N	52	PHELPS ST							Y	Y	Y
N	59	PHELPS ST							Y	N	N
N	150	PROSPECT ST							Y	N	N
N	183	PROSPECT ST							?	Y	Y
N	194	PROSPECT ST							Y	N	N
N	234	PROSPECT ST							Y	N	Y
N	235	PROSPECT ST							Y	N	N
N	241	PROSPECT ST							Y	N	Y
N	281	PROSPECT ST							Y	N	Y
N	315	PROSPECT ST							?	?	?
N	317	PROSPECT ST							Y	N	N
N	322	PROSPECT ST							Y	N	Y
N	353	PROSPECT ST							Y	N	Y
N	357	PROSPECT ST							Y	Y	N
N	360	PROSPECT ST							Y	Y	Y
N	361	PROSPECT ST							?	?	?
N	401	PROSPECT ST							Y	N	Y
N	402	PROSPECT ST							?	?	?
N	405	PROSPECT ST							Y	N	Y
N	418	PROSPECT ST							Y	N	Y
N	422	PROSPECT ST							Y	N	Y
N	427	PROSPECT ST							Y	N	Y
N	471	PROSPECT ST							Y	Y	Y
N	472	PROSPECT ST							Y	N	Y
N	486	PROSPECT ST							Y	N	N
N	513	PROSPECT ST							Y	N	N
N	517	PROSPECT ST							Y	Y	N
N	537	PROSPECT ST							Y	Y	Y
N	101	S. BRISTOL AVE							Y	N	Y
N	104	S. BRISTOL AVE							?	?	?
N	36	S. BRISTOL AVE							?	?	?
N	41	S. BRISTOL AVE							Y	N	N
N	55	S. BRISTOL AVE							?	?	?
N	78	S. BRISTOL AVE							?	?	?

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

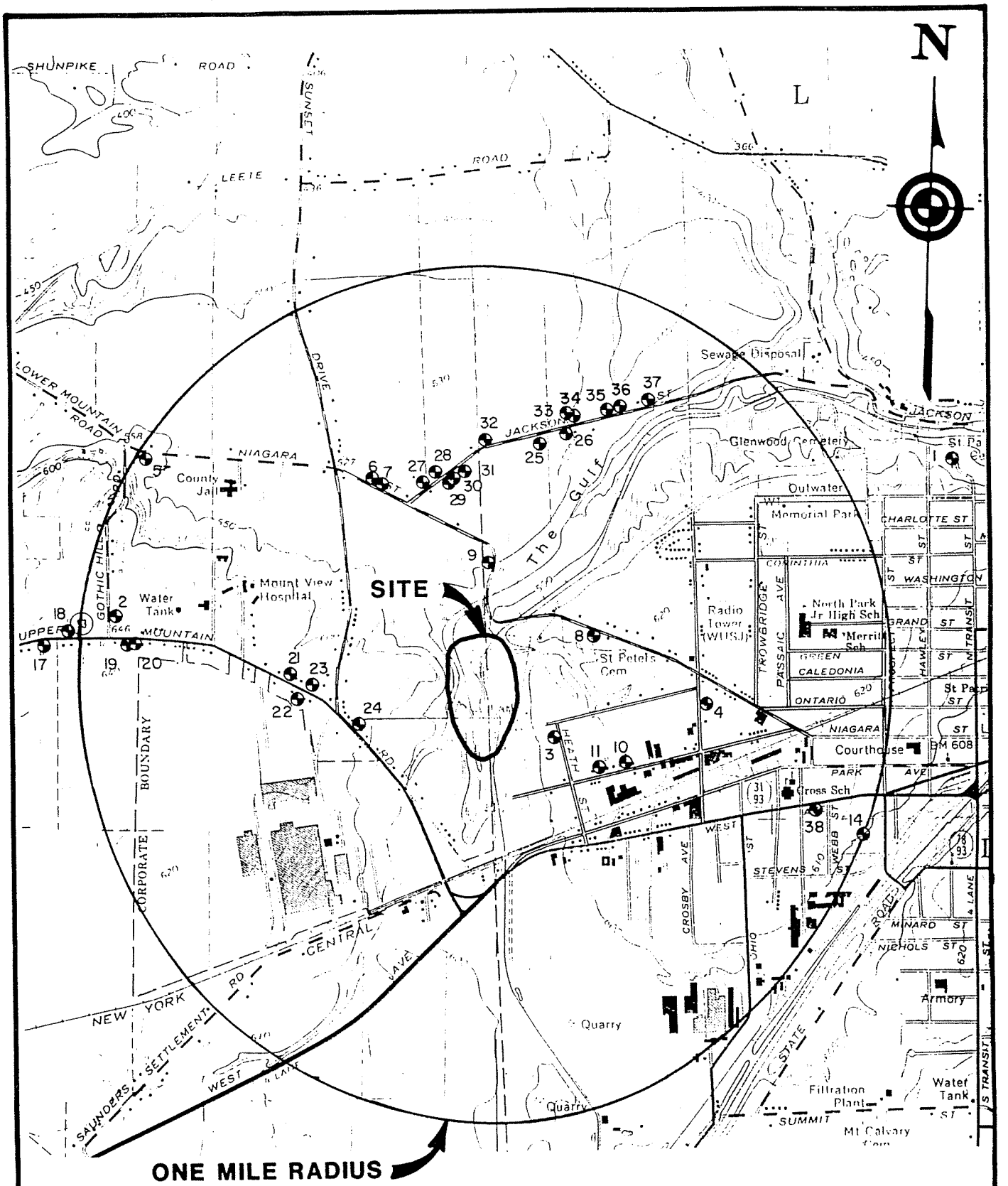
WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
N	79	S. BRISTOL AVE							Y	N	Y
N	81	S. BRISTOL AVE							Y	N	N
N	91	S. BRISTOL AVE							Y	N	Y
N	96	S. BRISTOL AVE							Y	N	N
N	09	S. NEW YORK ST							Y	N	N
N	128	S. NEW YORK ST							Y	N	Y
N	136	S. NEW YORK ST							Y	N	N
N	148	S. NEW YORK ST							Y	N	N
N	18	S. NEW YORK ST							Y	N	N
N	21	S. NEW YORK ST							Y	N	Y
N	25	S. NEW YORK ST							Y	Y	Y
N	33	S. NEW YORK ST							Y	N	Y
N	41	S. NEW YORK ST							Y	N	Y
N	44	S. NEW YORK ST							Y	N	Y
N	56	S. NEW YORK ST							Y	N	Y
N	60	S. NEW YORK ST							Y	N	Y
N	65	S. NEW YORK ST							?	?	?
N	241	S. NIAGARA ST							?	?	?
N	269	S. NIAGARA ST							?	?	?
N	311	S. NIAGARA ST							?	?	?
N	5302	SAUNDERS SETTLEMENT RD							Y	Y	Y
N	30	SIMONDS ST							Y	N	N
N	31	SIMONDS ST							?	?	?
N	50	SIMONDS ST							?	?	?
N	10	STEVENS ST							Y	Y	N
N	104	STEVENS ST							Y	N	Y
N	114	STEVENS ST							Y	N	Y
N	120	STEVENS ST							Y	N	N
N	146	STEVENS ST							Y	N	Y
N	169	STEVENS ST							Y	N	Y
N	55	STEVENS ST							?	?	?
N	92	STEVENS ST							Y	N	N
N	01	SUNNYSIDE ST							Y	N	Y
N	31	SUNNYSIDE ST							Y	N	N
N	36	SUNNYSIDE ST							Y	Y	N
N	4721	SUNSET DR							?	?	?
N	4815	SUNSET DR							Y	N	N
N	4873	SUNSET DR							?	?	?
N	4895	SUNSET DR							Y	N	N
N	4896	SUNSET DR							?	?	?
N	4897	SUNSET DR							?	?	?
N	4898	SUNSET DR							?	?	?
N	4903	SUNSET DR							?	?	?
N	4907	SUNSET DR							?	?	?
N	4910	SUNSET DR							?	?	?
N	4917	SUNSET DR							?	?	?

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
N	4918	SUNSET DR							?	?	?
N	4919	SUNSET DR							?	?	?
N	4923	SUNSET DR							?	?	?
N	4926	SUNSET DR							?	?	?
N	4930	SUNSET DR							?	?	?
N	4931	SUNSET DR							Y	?	?
N	4942	SUNSET DR							?	?	?
N	4963	SUNSET DR							?	?	?
N	121	TROWBRIDGE ST							Y	N	Y
N	164	TROWBRIDGE ST							?	?	?
N	170	TROWBRIDGE ST							Y	N	N
N	267	TROWBRIDGE ST							N	N	N
N	273	TROWBRIDGE ST							Y	N	Y
N	62	TROWBRIDGE ST							Y	Y	N
N	91	TROWBRIDGE ST							Y	Y	Y
N	99	TROWBRIDGE ST							Y	Y	N
N	5298	UPPER MT RD							Y	Y	N
N	5302	UPPER MT RD							Y	Y	Y
N	5328	UPPER MT RD							Y	Y	Y
N	5420	UPPER MT RD							?	?	?
N	5442	UPPER MT RD							?	?	?
N	5443	UPPER MT RD							?	?	?
N	5447	UPPER MT RD							?	?	?
N	5452	UPPER MT RD							?	?	?
N	5453	UPPER MT RD							Y	Y	N
N	5454	UPPER MT RD							?	?	?
N	5468	UPPER MT RD							?	?	?
N	5478	UPPER MT RD							?	?	?
N	5485	UPPER MT RD							Y	N	N
N	5498	UPPER MT RD							Y	Y	N
N	5507	UPPER MT RD							Y	Y	N
N	5511	UPPER MT RD							Y	Y	Y
N	5512	UPPER MT RD							?	?	?
N	5518	UPPER MT RD							Y	N	?
N	5525	UPPER MT RD							Y	Y	N
N	5541	UPPER MT RD							?	?	?
N	5605	UPPER MT RD							Y	Y	N
N	5611	UPPER MT RD							?	?	?
N	5613	UPPER MT RD							?	?	?
N	5621	UPPER MT RD							?	?	?
N	5625	UPPER MT RD							?	?	?
N	5659	UPPER MT RD							Y	Y	Y
N	5669	UPPER MT RD							?	?	?
N	5677	UPPER MT RD							Y	N	Y
N	5719	UPPER MT RD							?	?	?
N	5723	UPPER MT RD							?	?	?

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
N	279	W. CALEDONIA ST							Y	N	Y
N	285	W. CALEDONIA ST							Y	N	N
N	289	W. CALEDONIA ST							?	?	?
N	290	W. CALEDONIA ST							Y	N	Y
N	306	W. CALEDONIA ST							Y	Y	?
N	367	W. CALEDONIA ST							Y	N	N
N	369	W. CALEDONIA ST							Y	N	N
N	410	W. CALEDONIA ST							Y	Y	N
N	420	W. CALEDONIA ST							Y	Y	N
N	5811	W. JACKSON ST							?	?	?
N	279	W. ONTARIO ST							?	?	?
N	193	WEST AVE							Y	N	N
N	250	WEST AVE							Y	N	Y
N	260	WEST AVE							?	?	?
N	263	WEST AVE							?	?	?
N	267	WEST AVE							Y	N	N
N	279	WEST AVE							Y	N	N
N	312	WEST AVE							Y	N	N
N	320	WEST AVE							Y	N	Y
N	326	WEST AVE							Y	N	N
N	330	WEST AVE							Y	N	?
N	360	WEST AVE							Y	N	N
N	366	WEST AVE							Y	N	Y
N	368	WEST AVE							Y	N	Y
N	482	WEST AVE							Y	N	N
N	493	WEST AVE							Y	N	Y
N	494	WEST AVE							Y	N	N
N	500	WEST AVE							Y	N	N
N	503	WEST AVE							Y	N	Y
N	530	WEST AVE							?	?	?
N	553	WEST AVE							?	?	?
N	598	WEST AVE							?	?	?
N	621	WEST AVE							Y	N	N
N	16	WINDSOR ST							?	?	?
N	20	WINDSOR ST							Y	Y	Y



SOURCE:
LOCKPORT 1965
15 MINUTE QUADRANGLE

● RESIDENTIAL WELLS

A-4179

URS CONSULTANTS, INC.	COMMUNITY WELL SURVEY - KNOWN WELL LOCATIONS LOCKPORT CITY LANDFILL	FIGURE C-1

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6/21/91)
RESPONDENTS WITH WELLS

Location Number	Address
1	162 Glenwood Avenue
2	4895 Gothic Hill Road
3	38 Heath Street
4	166 Michigan Street
5	5463 Niagara Street
6	5631 Niagara Street
7	5633 Niagara Street
8	646 Niagara Street
9	998 Niagara Street
10	249 S. Niagara Street
11	285 S. Niagara Street
12*	5291 Saunders Settlement Road
13*	5324 Saunders Settlement Road
14	27 Sunnyside Street
15*	5285 Upper Mt Road
16*	5317 Upper Mt Road
17	5360 Upper Mt Road
18	5377 Upper Mt Road
19	5428 Upper Mt Road
20	5434 Upper Mt Road
21	5515 Upper Mt Road
22	5526 Upper Mt Road
23	5533 Upper Mt Road
24	5621 Upper Mt Road
25	1101 W. Jackson Street
26	1201 W. Jackson Street
27	5733 W. Jackson Street
28	5745 W. Jackson Street
29	5750 W. Jackson Street
30	5762 W. Jackson Street
31	5766 W. Jackson Street
32	5785 W. Jackson Street
33	5853 W. Jackson Street
34	5861 W. Jackson Street
35	5871 W. Jackson Street
36	5873 W. Jackson Street
37	5903 W. Jackson Street
38	280 West Avenue

* Off the map shown in Figure C-1

LOCKPORT LANDFILL RI/FS
COMMUNITY WELL SURVEY
(6-21-91)

WELL PRESENT (Y/N)		ADDRESS	GROUNDWATER USES	WELL ABANDONED CAPPED,OPEN, PLUGGED	YEAR DRILLED	METHOD	DEPTH OF WELL	LITHOLOGIC UNIT	USING CITY WATER (Y/N)	SUMPPUMP PRESENT (Y/N)	WATER IN BASEMENT (Y/N)
Y	162	GLENWOOD AVE	NONE	O	1933	DRILLED	60	BEDROCK	Y	Y	Y
Y	4895	GOTHIC HILL RD	2 WELLS - NOT USED	?	?	DUG	56	?	?	?	?
Y	38	HEATH ST	NOT USED	?	1949	?	40	?	?	?	?
Y	166	MICHIGAN ST	ABANDONED	Y	?	?	?	?	?	?	?
Y	5463	NIAGARA ST	NOT USED	?	?	?	?	?	?	?	?
Y	5463	NIAGARA ST	NONE	C	?	DRILLED	20'	BEDROCK	Y	N	Y
Y	5631	NIAGARA ST	NOT USED	?	?	?	?	?	?	?	?
Y	5633	NIAGARA ST	NOT USED	O	?	DRILLED	?	?	Y	N	?
Y	646	NIAGARA ST	NOT USED	?	1960	?	23	BEDROCK	?	?	?
Y	998	NIAGARA ST	DOMESTIC, LIVESTOCK, AGRICULTURE	?	?	?	500	?	?	?	?
Y	249	S. NIAGARA ST	?	?	?	?	?	?	?	?	?
Y	285	S. NIAGARA ST	NOT USED	O	?	?	?	?	Y	Y	Y
Y	5291	SAUNDERS SETTLEMENT RD	NONE	C	1946	?	?	?	Y	Y	N
Y	5324	SAUNDERS SETTLEMENT RD	LIVESTOCK, AGRICULTURE, DRINKING	?	1930	DRILLED	56	BEDROCK	Y	Y	Y
Y	27	SUNNYSIDE ST	?	P	?	DUG	?	?	Y	N	Y
Y	5285	UPPER MT RD	?	C	1900	DUG	40	?	Y	N	Y
Y	5317	UPPER MT RD	WASHING CARS	O	?	DUG	?	?	Y	N	Y
Y	5360	UPPER MT RD	WATERING PLANTS	?	1930	DUG	50	BEDROCK	Y	N	Y
Y	5377	UPPER MT RD	LAWN WATERING, DRIVEWAY WASHING	O	1900	BOTH	30	?	Y	N	Y
Y	5428	UPPER MT RD	WATERING LAWN AND GARDEN	?	1959	?	25+	?	Y	Y	Y
Y	5434	UPPER MT RD	NONE	C	1955	DRILLED	?	?	Y	Y	Y
Y	5515	UPPER MT RD	NOT USED	?	?	?	?	?	?	?	?
Y	5526	UPPER MT RD	NOT USED	?	?	?	?	?	?	?	?
Y	5533	UPPER MT RD	NOT USED	?	?	?	30?	?	?	?	?
Y	5621	UPPER MT RD	NOT USED	?	?	?	?	?	?	?	?
Y	1101	W. JACKSON ST	DOMESTIC, LIVESTOCK,LAWN	?	?	?	36	BEDROCK	?	?	?
Y	1201	W. JACKSON ST	DOMESTIC, LIVESTOCK, LAWN	?	1970?	?	40	BEDROCK	?	?	?
Y	5733	W. JACKSON ST	2 WELLS - ?IN USE?	?	?	?	?	?	?	?	?
Y	5745	W. JACKSON ST	DOMESTIC, LIVESTOCK, LAWN	?	?	BOTH	125	BEDROCK	?	?	?
Y	5750	W. JACKSON ST	DOMESTIC, LIVESTOCK, LAWN	?	1978?	?	?	?	?	?	?
Y	5762	W. JACKSON ST	DOMESTIC, LIVESTOCK	?	?	?	?	?	?	?	?
Y	5766	W. JACKSON ST	NOT USED	?	?	?	?	?	?	?	?
Y	5785	W. JACKSON ST	LAWN WATERING	?	?	?	?	?	?	?	?
Y	5853	W. JACKSON ST	DOMESTIC, LIVESTOCK, LAWN	?	1960?	?	?	?	?	?	?
Y	5861	W. JACKSON ST	DOMESTIC, LIVESTOCK, LAWN	?	1972	DRILLED	35	BEDROCK	?	?	?
Y	5871	W. JACKSON ST	NOT USED	?	?	DRILLED	30?	?	?	?	?
Y	5873	W. JACKSON ST	?IN USE?	?	?	?	?	?	?	?	?
Y	5903	W. JACKSON ST	LIVESTOCK	?	?	DUG	?	?	?	?	?
Y	280	WEST AVE	DORMANT	O	1800	BOTH	?	?	N	N	Y

APPENDIX D

AIR/SOIL GAS SURVEY

APPENDIX D

FIELD REPORT OF

THE

AIR AND SOIL ORGANIC VAPOR SCREENING

AT

LOCKPORT CITY LANDFILL

LOCKPORT (C),NIAGARA COUNTY, NEW YORK

NYSDEC SITE NO. 9-32-010

JANUARY 25, 1989

PREPARED BY:

URS CONSULTANTS, INC.

570 DELAWARE AVENUE

BUFFALO, NEW YORK 14202

LIST OF TABLES

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Plate 1 - Organic Vapor Concentration Isopach

INTRODUCTION

Prior to drilling of test borings and installation of groundwater monitoring wells at the Lockport City Landfill site, air and soil gas screening procedures was performed. This section summarizes all field and instrumentation methodologies employed in the air and soil gas screening performed at the site from October 15 to December 15, 1989.

AIR AND SOIL ORGANIC VAPOR SCREENING METHODOLOGIES

Field Methodologies - Prior to air/soil screening, field surveying was performed at the site to establish a grid system for locational control. This grid system was used to identify sampling locations at 20 foot and 50 foot intervals throughout the site. Air and soil gas screening was performed at each of the grid points using a Hnu photoionization organic vapor detector and an OVA flame ionization organic detector. The instruments were calibrated daily using a benzene (surrogate) standard of 52.6 ppm.

The following procedure which is an adaptation of Method IV-10: Monitoring Gas and Vapors from Test Holes, found in "Characterization of Hazardous Waste Sites: A Methods Manual, Second Edition, December 1984, was followed for air/soil gas screening.

1) The instruments Hnu and OVA were calibrated to a benzene surrogate standard and zeroed at a location upwind from the site.

2) At each sampling point, the test hole was advanced (Figure 1), using a 36" steel rod (Figure 1) to a depth of 18". The resulting hole was 1/2-inch in diameter and 18 inches deep.

3) Before withdrawal of the steel rod at each point, an instrument reading was taken in the breathing zone (4-5 feet above the ground surface).

4) The steel rod was then withdrawn and the teflon intake probe connected to the instrument was inserted into the hole to a depth of about 17 inches (not to the bottom). The top of the hole was plugged with a stopper attached to the intake probe to prevent the escape of soil gases (Figure 2). The highest instrument reading was then recorded.

5) The intake probe was removed from the hole and returned to the breathing zone and the instrument was flushed until the reading returned to zero.

6) The steel rod was then cleaned using a wire brush until visually free of subsurface material.

7) Finally, the hole opening was closed by pressing the soil with the heel of the foot.

Reference: "Characterization of Hazardous Waste Sites: A Methods Manual: Volume 2, Available Sampling Methods", USEPA, Second Edition, December 1984.

DISCUSSION

Air/Soil gas screening began at the Lockport City Landfill site on October 15, 1989 and was completed substantially on December 15, 1989.

A total of 476 test holes were advanced and monitored for organic vapor concentrations. At grid locations, the test hole was advanced to the required depth wherever penetration was possible, as long as the location of the test hole was within approximately five (5) feet of the actual grid point. If it was not possible to advance a test hole within ten (10) feet of the grid point, soil gas readings were not taken and the word "impenetrable" was recorded for that grid point. At various locations throughout the site, it was not possible to advance the test hole to the

required 24 inches. In such cases, further attempts were made at various locations within a foot of the point. As long as it was possible to advance the test hole to a depth greater than 20 inches, no special notations were made.

AIR/SOIL ORGANIC VAPOR SCREENING RESULTS

The air/soil gas screening data (organic vapor concentrations expressed in ppm) is presented on Plate 1, (Organic Vapor Isopach Map). Several organic vapor "hot spots" were identified. The locations of the hot spots are presented in Table 1 and Table 2.

GRADED FILL, EAST OF RAILROAD TRACKS

Several organic vapor "hot spots" were detected in this area. The highest organic vapor reading occurs at N18380 E12180 at 26.0 ppm. This organic vapor anomaly also coincides with a magnetic anomaly which detected buried metallic objects. A shallow soil sample (#SPS-1) was collected from this graded fill area and analyzed for analytes on the Target Compound List. Results are pending. At this point in the RI, no further sampling will be undertaken. Additional sampling will be recommended for the Phase II RI Field Investigation.

LANDFILL AREA, WEST OF RAILROAD TRACKS

A total of eleven distinct organic vapor "hot spots" were detected in this area. The geophysical survey indicates buried metallic objects over the entire area. Each organic vapor "hot spot" will be investigated with a soil boring and a composite sample will be sent for chemical analysis.

TABLE 1

ORGANIC VAPOR CONCENTRATIONS, EAST OF RAILROAD TRACKS

Location		Organic Vapor Concentration
Northing	Easting	(ppm)
18120	12140	5.0
18120	12160	5.0
18120	12200	0.6
18180	12100	1.4
18200	12100	7.0
18200	12150	3.0
18200	12200	2.0
18240	12150	3.0
18260	12150	3.0
18280	12100	6.8
18260	12200	2.0
18280	12200	4.2
18300	12200	4.4
18300	12220	1.8
18300	12150	3.5
18300	12100	0.8
18340	12200	1.2
18360	12200	6.0
18380	12180	26.0
18400	12200	1.0
18400	12180	3.0
18400	12160	4.8
18400	12100	2.3
18300	12050	2.2
18450	12000	4.5

Northing	Easting	(ppm)
18450	11950	1.8
18500	12000	1.0
18550	11950	1.2
18650	11950	1.0
18700	11950	2.8
18700	12000	1.4

TABLE 2

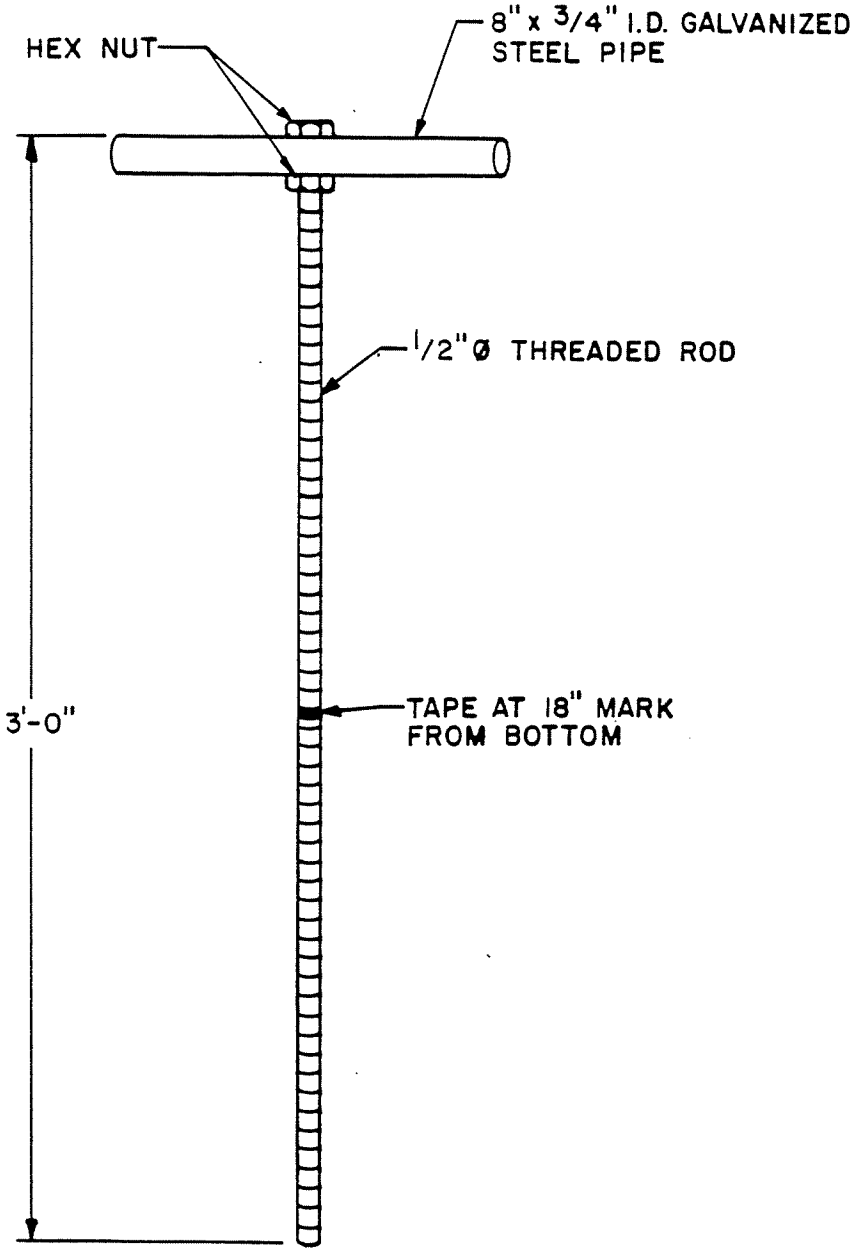
ORGANIC VAPOR CONCENTRATION WEST OF RAILROAD TRACKS

Location		Organic Vapor Concentration
Northing	Easting	(ppm)
18120	11700	2.0
18120	11750	2.0
18200	11800	6.0
18180	11800	18.0
18250	11650	1.6
18250	11700	120.0
18250	11750	350.0
18300	11650	0.6
18300	11700	1.0
18350	11600	1.2
18400	11850	-0.5*
18400	11900	-0.5*
18450	11750	400.0
18500	11650	0.2
18450	11700	0.2
18600	11550	2.0
18550	11650	0.8
18600	11650	5.0
18650	11500	1.8
18650	11550	0.5
18650	11600	600.0
18650	11650	5.0
18700	11550	0.5
18700	11600	<1000.0
18700	11650	0.4
18750	11550	0.4

Northing	Easting	(ppm)
18750	11600	0.2
18800	11650	<1000.00
18900	11650	0.2
18900	11700	1.0
18900	11750	2.0
18950	11600	0.2
18950	11650	<1000.0
19100	11650	<1000.0
19100	11750	2.0
19150	11500	7.5
19150	11800	1.4
19150	11850	1.8
19200	11800	1.0
19200	11850	7.0
19300	11400	0.6
19300	11500	0.2
19350	11700	2.0
19350	11750	2.0
19350	11800	1.0
19400	11350	<1000
19400	11400	0.1
19450	11350	0.3
19450	11400	0.2
19450	11450	0.5
19450	11500	0.1
19450	11600	1.0
19500	11750	4.0
19500	11900	0.4
19500	11900	0.4

Northing	Easting	(ppm)
19500	11950	0.2
19500	12000	1.7
19750	11650	22.0
19750	11700	3.0
19750	11750	3.4
19750	11800	3.2
19750	11850	6.8
19750	11900	2.0
19750	11950	2.2
19800	11900	10.0
19800	11950	1.7
19900	11650	3.8
19900	11700	14.0
19900	11750	53.0
19900	11800	3.8

* Negative deflection with Hnu, possible methane.

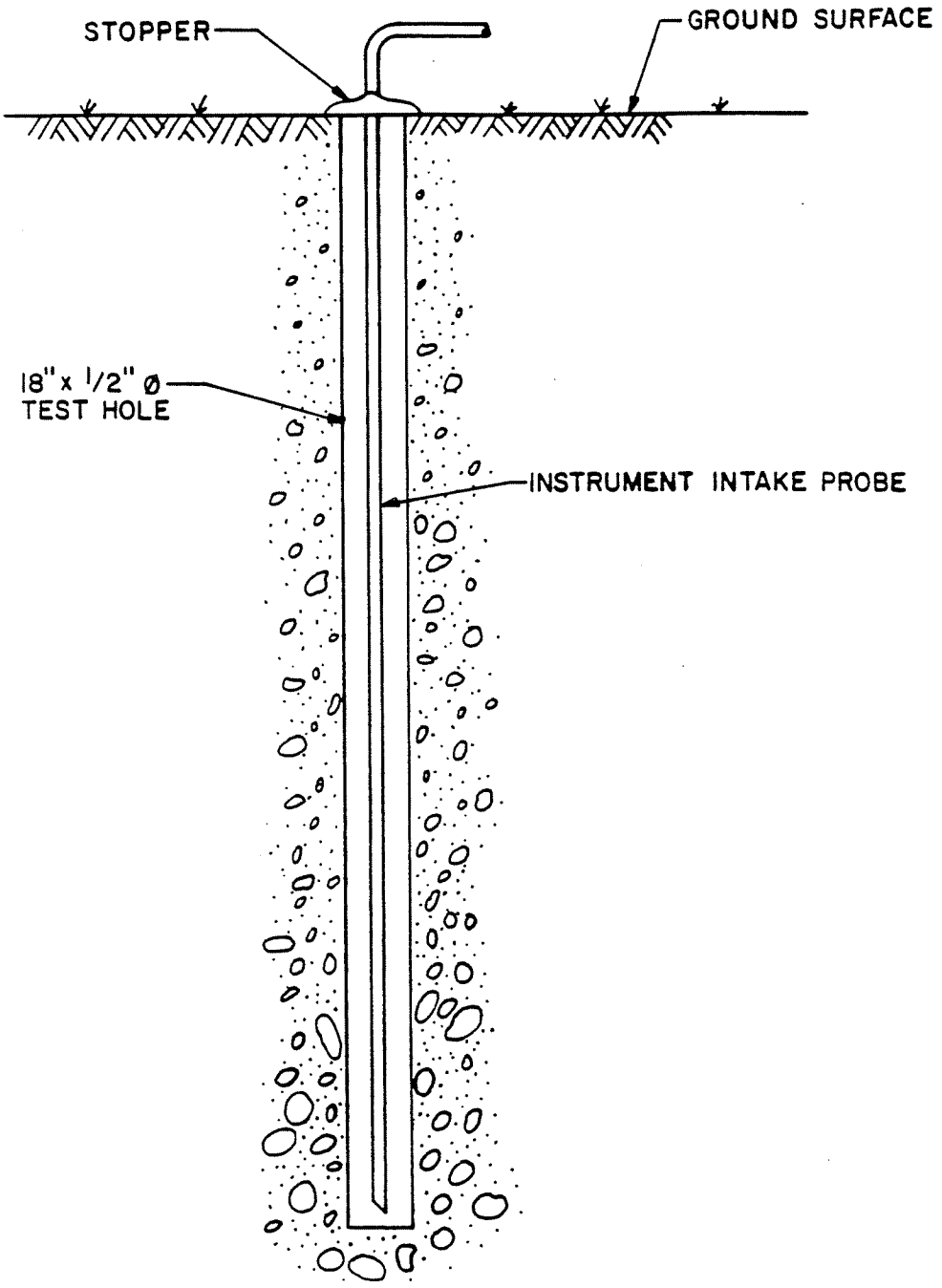


URS CONSULTANTS, INC.

STEEL ROD FOR TEST HOLES

FIGURE 1

A-2470



URS CONSULTANTS, INC.	TEST HOLE AND INSTRUMENT INTAKE PROBE	FIGURE 2

A-2471

N

HEATH STREET

OAKHURST STREET

RUIN

PILES

E 12500

N. 20500

E12500

N17500

NIAGARA STREET

PILE

PILE

PILES

SOIL PILE

PILE

SOIL PILES

WATER

E11500

N. 20500

E11500

N17500

WATER

LIMITS OF INVESTIGATION

HARRISON RADIATOR WASTE WATER TREATMENT PLANT

SCALE

0 100 200 FEET

NO.	DATE	DESCRIPTION	NO.	DATE	DESCRIPTION

REVISIONS

DESIGNED BY:
DRAWN BY: A.S.A.
CHECKED BY:
PROJ. ENGR.

URS Company, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY

JOB No. 35180

FIRST PHASE
REMEDIAL INVESTIGATION
AIR/SOIL GAS SURVEY

LOCKPORT CITY LANDFILL

CITY OF LOCKPORT NIAGARA COUNTY NEW YORK

AIR / SOIL ORGANIC VAPOR CONCENTRATION ISOPACH

Scale: 1"=100' Date: 1/25/90

PLATE 1

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APPENDIX E

GEOPHYSICAL SURVEY

HAGER-RICHTER
GEOSCIENCE, INC.

SURFACE GEOPHYSICAL SURVEYS
LOCKPORT CITY LANDFILL
LOCKPORT, NEW YORK

Prepared for:

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Prepared by:

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File 89D34
October, 1989

Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
October, 1989 File 89D34

0. EXECUTIVE SUMMARY

Hager-Richter Geoscience, Inc. conducted surface geophysical surveys at the Lockport City Landfill Site, Lockport, Niagara County, New York in October, 1989 for URS Consultants, Inc. of Buffalo, New York. The geophysical surveys are a part of a larger RI/FS undertaken on behalf of the City of Lockport.

Two geophysical techniques were used at the Site: (1) terrain conductivity, and (2) magnetics. The purpose of the terrain conductivity survey was to delineate the fill boundary over a portion of the Site. The purpose of the magnetics survey was to locate areas of buried metal over a 20 acre portion of the Site in order to aid in the selection of drilling sites.

Several areas of anomalously high terrain conductivity were identified in the terrain conductivity survey. These areas should be avoided when selecting drilling sites. Areas where the terrain conductivity values are lower than 30 mmhos/meter are interpreted to be beyond the boundary of the fill material.

The magnetic data for the Lockport City Landfill indicate that buried metallic objects, some of which could be drums, are widely present in the landfill. Most of the total field magnetic anomalies correlate with vertical magnetic gradient anomalies, indicating that most of the objects causing the anomalies are likely located at or near the surface. All areas with total magnetic field anomalies or vertical magnetic gradient anomalies should be avoided when selecting drilling sites.

Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
October, 1989 File 89D34

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LIST OF FIGURES AND PLATES

Figure 1. General Location of the Lockport City Landfill.

Figure 2. Terrain Conductivity Survey

*****

Plate 1. Magnetic Station Map

Plate 2. Total Magnetic Field

Plate 3. Vertical Magnetic Gradient

APPENDICES

Appendix 1. Total Magnetic Field Profiles

Appendix 2. Magnetic Field Recorded at the Base Station

HAGER-RICHTER
GEOSCIENCE, INC.

Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
October, 1989 File 89D34

1. INTRODUCTION

Hager-Richter Geoscience, Inc. conducted surface geophysical surveys at the Lockport City Landfill Site, Lockport, New York in October, 1989 for URS Consultants of Buffalo, New York as a part of a larger RI/FS undertaken on behalf of the City of Lockport. The general location of the Site is shown in Figure 1.

The purpose of the terrain conductivity survey was to delineate the fill boundary over a portion of the Site. The purpose of the magnetic survey was to locate areas of buried metal over a 20-acre portion of the Site to aid in order to aid in the selection of drilling sites.

The Site, located within the City of Lockport, is in a partially wooded, semi-rural area and consists of about 25 acres. The Site is bounded by Gulf Creek and its associated tributaries on the west and north, by the railroad tracks and Railroad Street on the east, and by the active transfer station to the south. The area east of the railroad tracks gently slopes to the west and is covered by tall grass. The central part of the Site is level and clear of most vegetation, although there are several large piles of wood and leaves in this area. The remainder of the Site is covered with dense vegetation. The topography is very steep in the areas around Gulf Creek.

Hager-Richter personnel were on Site October 26-29, 1989. Jeffrey Reid and David Petroy conducted the surveys. The field operations were coordinated with and observed in part by Mr. Ronald Tramposch of URS Consultants. All field work was conducted under Level D personnel protection. Data analysis and interpretation were completed at the Hager-Richter offices. Original data and field notes reside in the Hager-Richter files and will be retained for a minimum of five years.

URS Consultants established a survey grid at the Site. Locations on the Site referred to in this document are based on the conventions established by URS.

2. EQUIPMENT AND PROCEDURES

2.1 Terrain Conductivity Survey

Terrain conductivity was measured using a Geonics EM31 terrain conductivity meter. The EM31 is an induction type unit that measures terrain conductivity without ground electrodes or contact. The EM31 is calibrated to read ground conductivity directly in millimhos per meter with a resolution of 2% of full scale and an accuracy of 1 mmhos/meter. The nominal depth of earth sampled by the EM31 is about 18 feet.

The quadrature-phase component of terrain conductivity was recorded at this Site. The quadrature-phase component is a measure of the average conductivity of the soil and subsurface materials located between the receiver and transmitter of the EM31. The instrument is more affected by near surface material than by deeper material. It is not affected significantly by subsurface metallic objects unless the dimensions of the object approach the length of the receiver-transmitter boom, 12 feet.

Figure 2 shows the locations of the terrain conductivity survey stations as well as the contour map of the data. A total of 408 stations was occupied. Terrain conductivity data were collected at 10 foot intervals along lines 20 feet apart in the area east of the railroad tracks.

"Background" conductivity data were measured off-site in both the orchard to the east of the Site and in the park adjacent to the Site. The "background" conductivity values were between 10 and 15 mmhos/meter in the orchard and between 20 and 25 mmhos/meter in the park.

2.2 Magnetic Survey

The magnetic survey was conducted using an EG&G Model G856 Proton Precession Portable Magnetometer with a gradiometer option. The G856 is a microprocessor controlled instrument with a resolution of 0.1 gamma, an accuracy of 1 gamma, and a memory capable of storing the data for over 2000 stations. With the gradiometer option, two sensors are mounted on a staff. One sensor is mounted at 4′ 5 3/4" and the other at 9′ 3/4" above the surface. The magnetometer records data from both sensors sequentially.

Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
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Magnetic data were collected at 1180 stations. A second G856 magnetometer was used as a recording base station. The base station was located east of the grid. The magnetic field at the base station was recorded at one-minute intervals. These data are necessary to correct for the temporal variation of the earth's magnetic field and to check for sudden fluctuations due to magnetic "storms" that may affect the quality of the field data. All magnetic data were corrected for diurnal variation. Graphs of the daily fluctuation of the magnetic field recorded at the base station are shown in Appendix 2.

Total magnetic field data were contoured using the top sensor magnetic values. Vertical magnetic gradient data were processed by subtracting the top sensor value from the bottom sensor value and dividing by the distance between the sensors.

3. RESULTS AND DISCUSSION

3.1 Terrain Conductivity Survey

Terrain conductivity values are a composite of the effects of soil, rock, contaminants and buried metallic objects. The value is more strongly influenced by shallow material than by deep material. In most cases, the conductivity at a location is controlled by the fluid occupying the pore space of the soil or rock. Because of these complex relationships, a unique model of the subsurface conditions is not possible.

Figure 2 shows the contour map and station map for the terrain conductivity survey. Four prominent anomalies are evident; they are located at (12040E , 18525N), (12180E , 18375N), (12145E , 18245N), and (12190E , 18115N). The high conductivity values at these locations indicate the presence of conductive material, fill. There do not appear to be conductive plumes emanating from any of these locations although the data is limited. These locations should be avoided when selecting boring locations.

The terrain conductivity values trend from relatively high values in the west toward lower values in the east. The values along the eastern edge of the Site approach the "background" values measured in the park adjacent to the Site. The edge of the fill material is interpreted to approximate the 30 mmhos/meter contour line with the lower side of the line being natural material.

3.2 Magnetic Survey

The magnetic data for the Lockport Landfill Site were separated into two sets: the east and west sides of the railroad tracks. The data sets were contoured separately and then combined for presentation.

Plate 1 shows the locations of the magnetic stations. A total of 1180 magnetic stations was occupied. Magnetic stations were occupied on a 20-foot grid in open areas of the Site. In the northern and western portions of the Site that were covered by dense vegetation, magnetic stations were occupied at 20-foot intervals along staked lines 100 feet apart. Those data are included in Appendix 1 as profiles because the data along these lines are too far apart to contour.

Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
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Plate 2 is a contour map of the total magnetic field and Plate 3 is a contour map of the vertical magnetic gradient for the open parts of the Site. The total magnetic field data are presented as total intensity relative to 56,000 gammas, an arbitrary value near the "normal" total magnetic field for the area. The contour interval of the total magnetic field map is 400 gammas. The magnetic gradient map is plotted with a contour interval of 100 gammas/foot. These intervals were selected because of the large range in the magnetic field measured across the Site.

The magnetic technique is limited to detecting ferrous metal objects. Neither the particular type of metallic object causing a magnetic disturbance nor its contents can be determined from the magnetic data alone. Magnetic data are strongly affected by surface features such as power lines, chain link fences, and automobiles.

In interpreting total magnetic field data, several factors should be considered. The width, gradient, and amplitude of a magnetic disturbance are useful in estimating the mass and depth of the metal object(s). Total magnetic field disturbances, or anomalies, with steep horizontal gradients are caused by objects at or near the surface.

Anomalies in the vertical magnetic gradient data are produced by objects at or near the surface. Magnetic bodies of small vertical extent (i.e., flat) located on or near the surface produce large vertical magnetic gradients for those stations located near them. The contour plot commonly displays a diagnostic pattern of lows surrounding a high, or highs around a low, provided stations are sufficiently closely spaced. On the other hand, magnetic bodies of "large" vertical extent above the ground, such as buildings, trailers, and steel fencing, are likely to produce small vertical gradients because those objects may be equally close to both magnetic sensors. Since such bodies can be observed, their magnetic effects cause no interpretation problem. For example, in the vicinity of a fence near (12200E, 18020N), both sensors recorded similar magnetic anomalies of about 4000 gammas, but a vertical magnetic gradient of zero.

By comparing the contour maps of the total magnetic field and the vertical magnetic gradient, one can distinguish the anomalies due to objects that are at or near the surface from anomalies that are produced by more deeply buried objects.

Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
October, 1989 File 89D34

The total magnetic field contour map of the Site is quite complex (Plate 2). Magnetic anomalies of one to two thousand gammas occur over most of the area, indicating the widespread presence of metal objects at the Site, as one might expect at a landfill. Most of the disturbances, however, correlate with anomalies in the vertical gradient map (Plate 3), indicating that the objects causing those magnetic disturbances are located either at or near the ground surface. Since few magnetic objects were visible on the surface, apart from the railroad tracks, we infer that the objects causing most of the anomalies are not more than a few feet from the surface.

We interpret those magnetic disturbances that do not correlate with either observed surface objects or anomalies in the vertical magnetic gradient data to be caused by the presence of buried metallic objects. For example, the magnetic anomaly between (11705E , 18550N) and (11800E , 18550N) has broad lateral extent, and an amplitude of about 2000 gammas; we infer that the anomaly is caused by one or more buried metallic bodies, possibly drums. Similar broad total field anomalies that do not correlate with vertical gradient anomalies occur at approximately (12080E , 18300N) and at (11720E , 18400N).

Several markedly linear anomalies are visible on contour maps, e.g. (11800E , 18440N) on Plate 2 and (11160E , 18200N) on Plate 3. These are two possible explanations for the linear nature of the anomalies: 1.) the features may be caused by trenches filled with metallic objects, or 2.) the features may be artifacts of the contouring and the relatively wide station spacing. Metal is present in the vicinity of these anomalies, although it may not be continuous as the contouring makes it appear. Conducting a survey on a tighter grid spacing should delineate better the anomalies.

The data collected along the profiles (Appendix 2) in the far western portion of the Site are similar to those collected on the rest of the Site. They exhibit large fluctuations in the total magnetic field indicating the widespread presence of metal. There is, however, much more surface metal, including many drums, in this area, which may account for much of the variation.

Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
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The data collected along the profiles in the northern portion of the Site show less fluctuation than the rest of the Site. The amount of metal in the subsurface and on the surface considerably decreases north of 19500N. The profiles show little fluctuation in the total magnetic field indicating that natural conditions are likely present in this area. However, the profiles show an increase in the fluctuation in the total magnetic field in the area of Gulf Creek, and therefore, indicate an increase in metal in this area.

By comparing the magnetic data acquired east of the railroad tracks and the terrain conductivity data acquired in the same area, we can determine whether the source of the terrain conductivity anomaly is metallic or non metallic. The anomalies at (12040E , 18525N) and (12190E , 18115N) are likely caused metallic objects at fairly shallow depths. The anomaly at (12180E , 18375N) is likely caused by a metallic object buried more deeply. The anomaly at (12145E , 18245N) does not correlate with either a vertical magnetic gradient anomaly or a total field magnetic anomaly. This anomaly, is probably caused by a very conductive non-metallic material.

4. CONCLUSIONS

On the basis of the geophysical surveys conducted at the Lockport City Landfill Site, we conclude that:

1.) The edge of the landfill material is interpreted to be at, or near 30 mmhos/meter contour on Figure 2.

2.) Buried metallic objects, some of which could be drums, are widely present in the landfill.

3.) Most of the objects causing the anomalies are located at or near the surface.

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Lockport City Landfill
Lockport, New York
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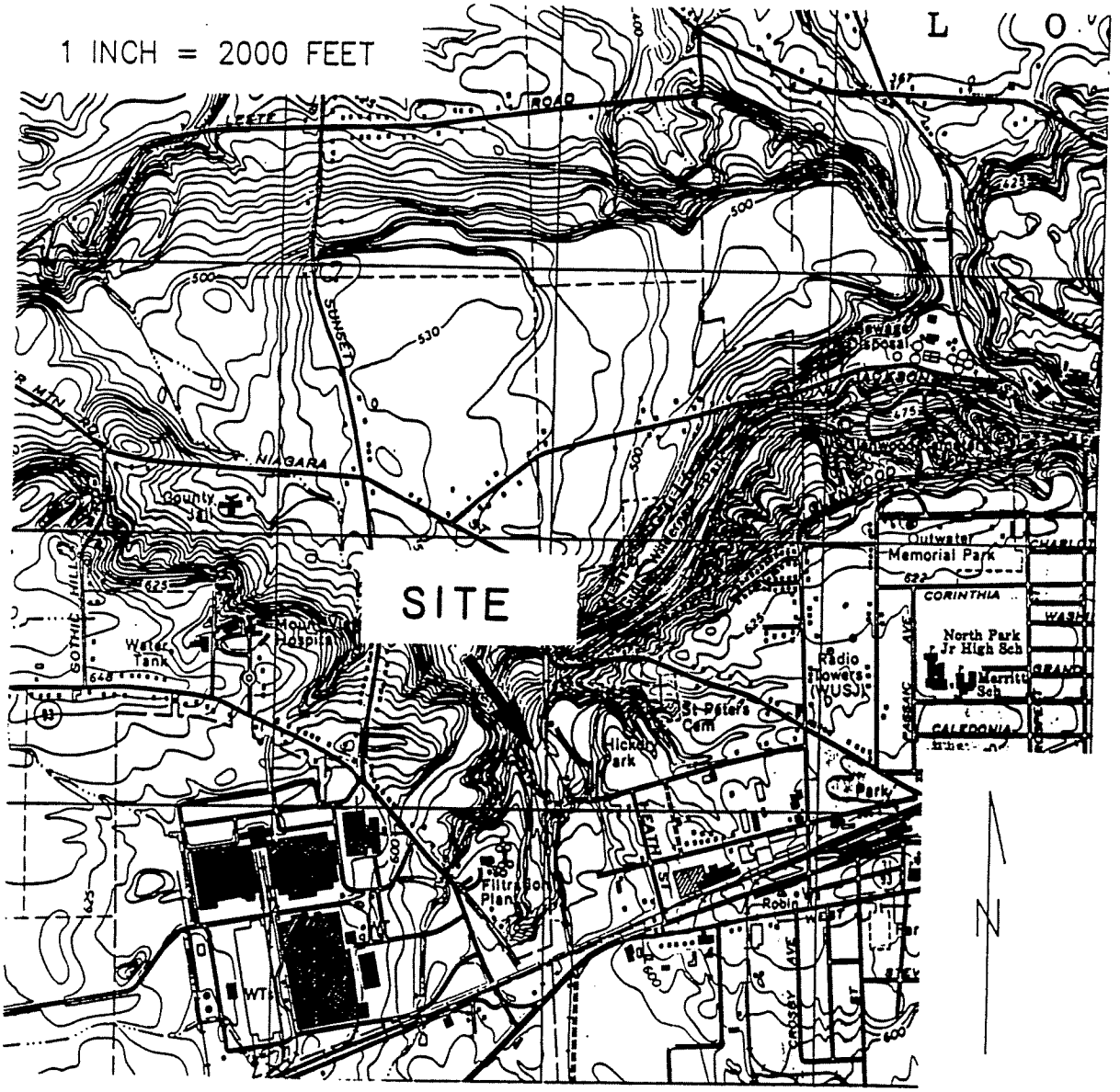
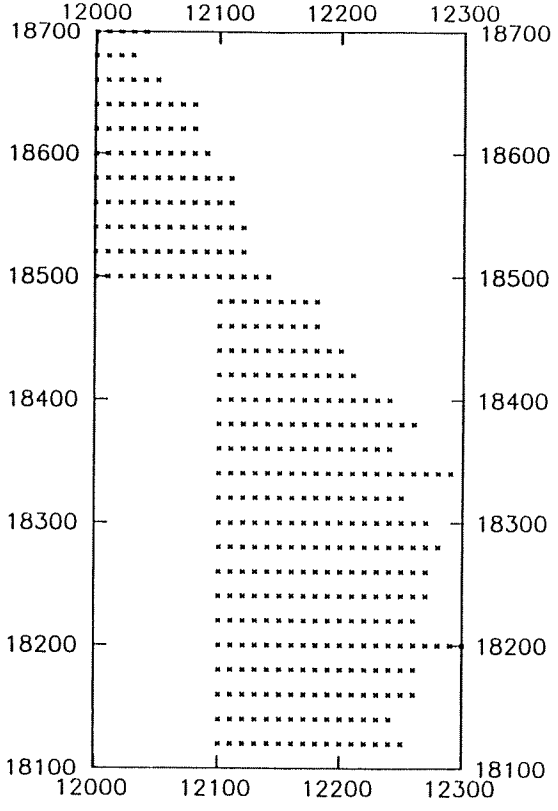
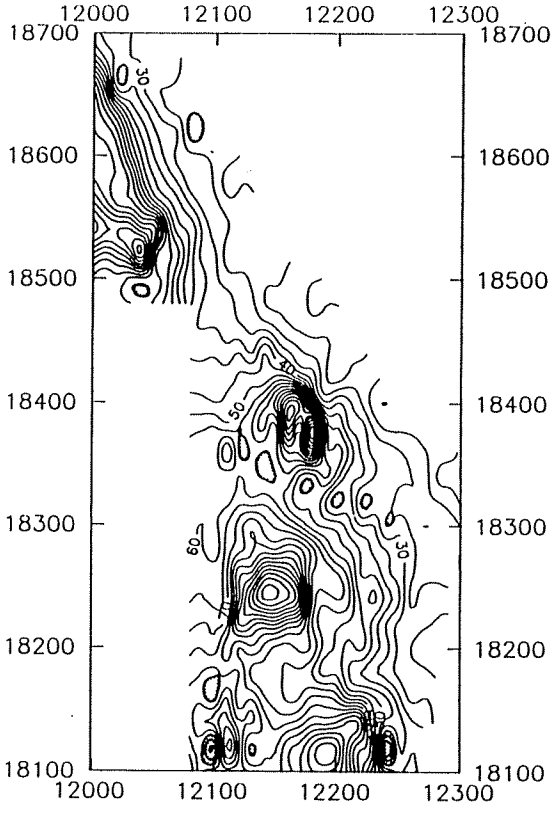


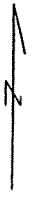
Figure 1. General location of the Lockport City Landfill.



STATION MAP

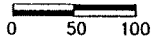


TERRAIN CONDUCTIVITY MAP



* STATION LOCATION

CONTOUR INTERVAL = 5 mmhos/meter



Scale (Feet)

FIGURE 2.
TERRAIN CONDUCTIVITY SURVEY
LOCKPORT CITY LANDFILL
LOCKPORT, NEW YORK

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8 Industrial Way - D10
Salem, NH 03079

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APPENDIX 1
TOTAL MAGNETIC FIELD PROFILES

HAGER-RICHTER
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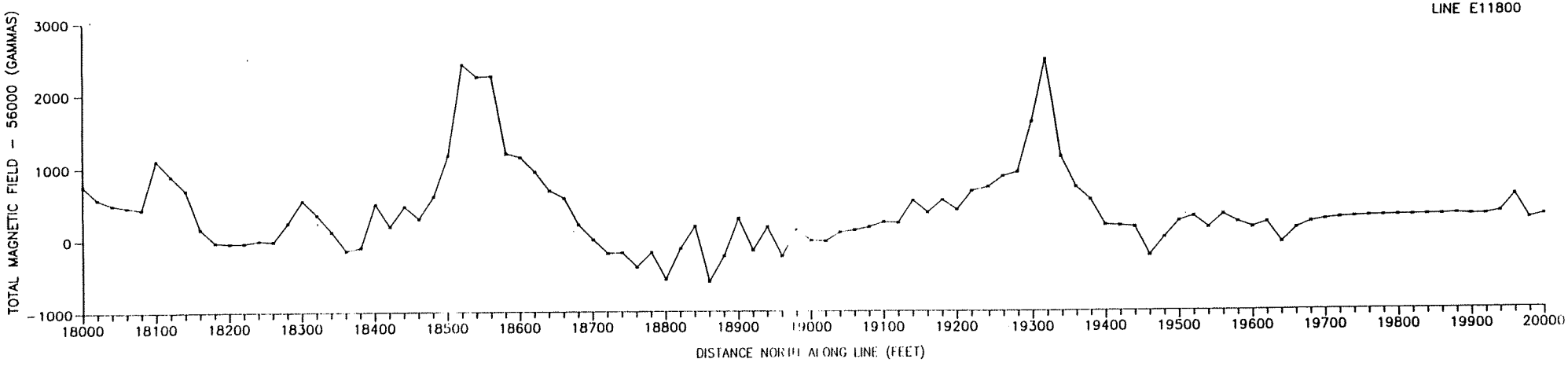
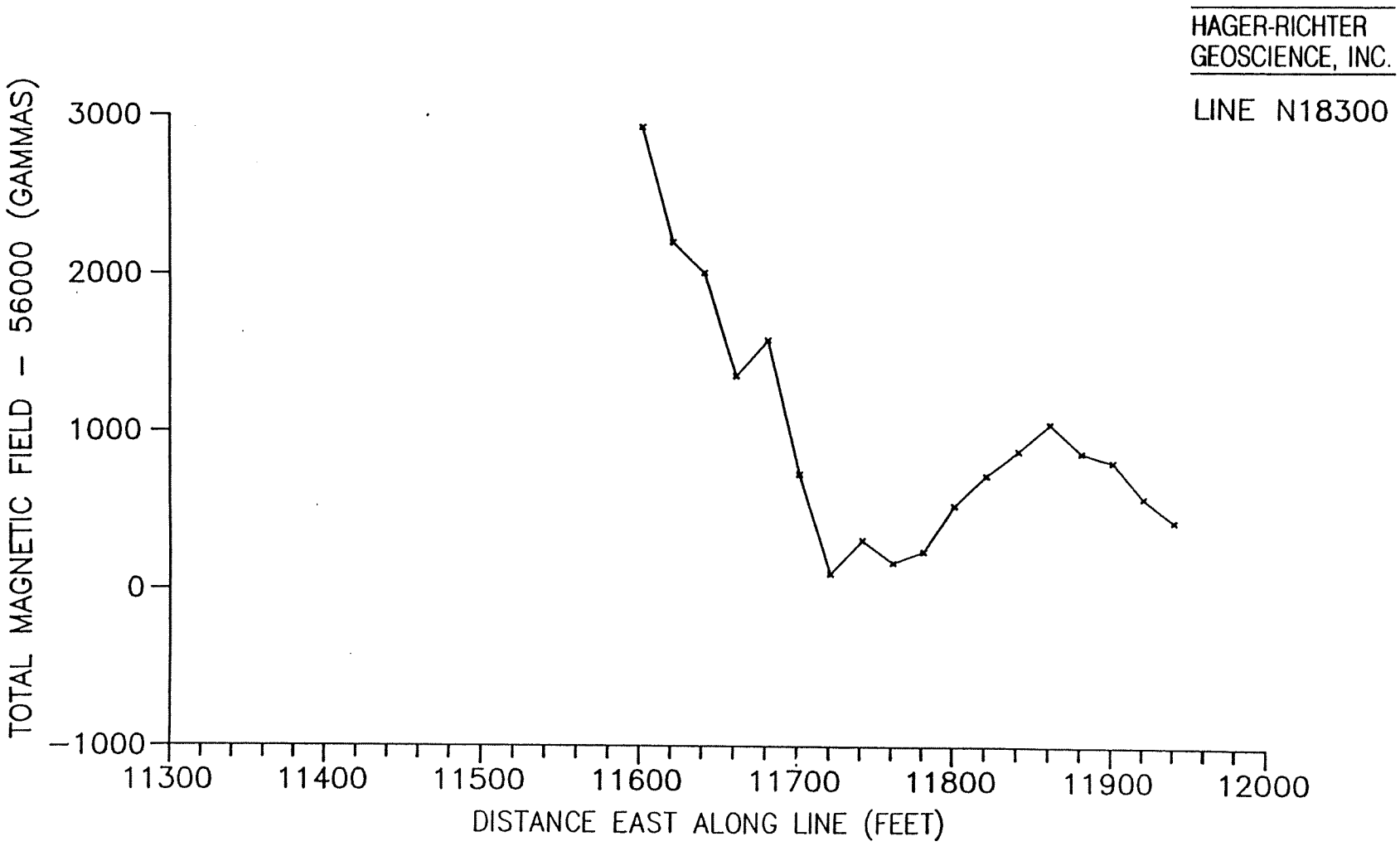
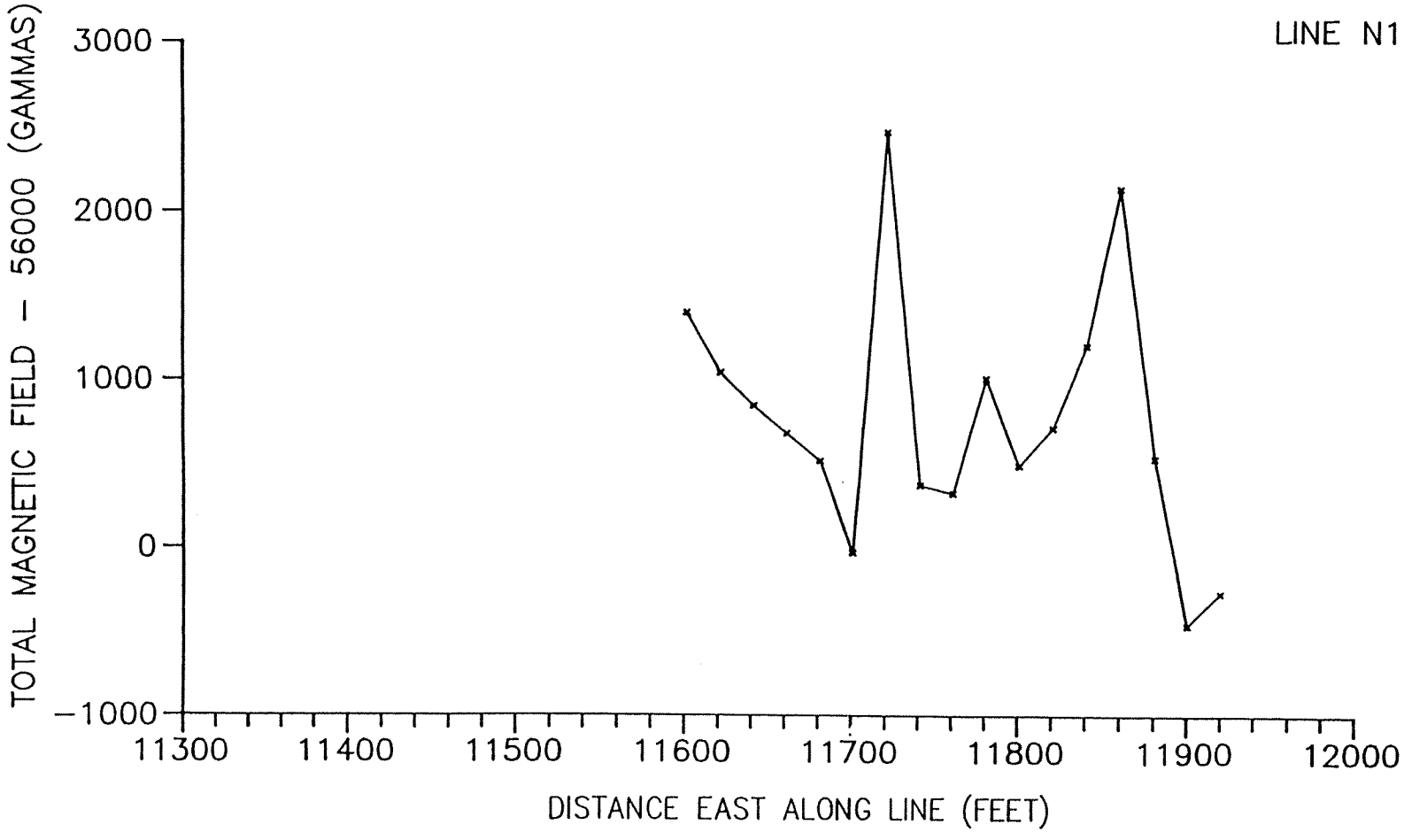
LINE E11800




HAGER-RICHTER
GEOSCIENCE, INC.
LINE N18300
TOTAL MAGNETIC FIELD - 56000 (GAMMAS)
3000
2000
1000
0
-1000
11300
11400
11500
11600
11700
11800
11900
12000
DISTANCE EAST ALONG LINE (FEET)

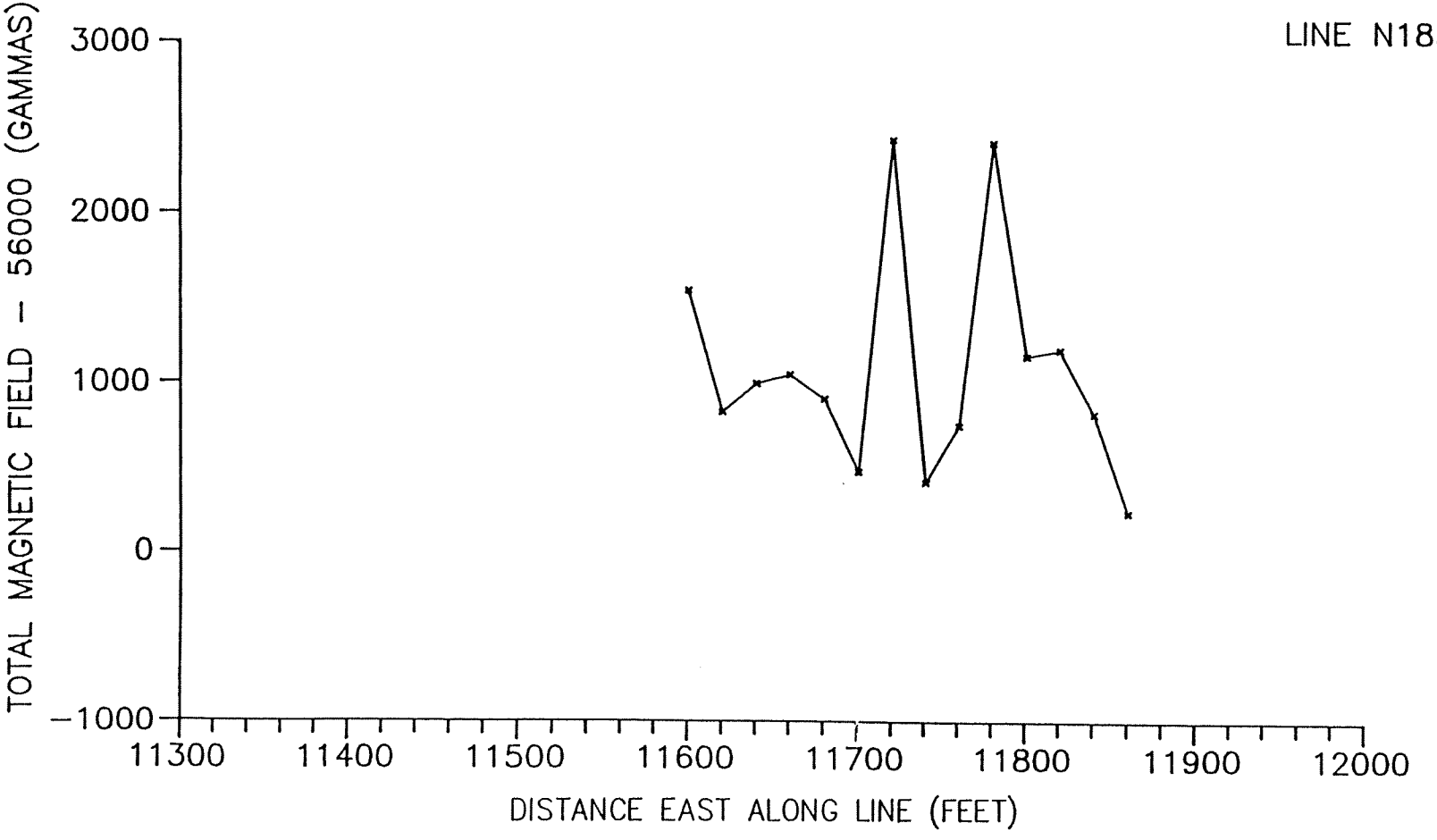
HAGER-RICHTER
GEOSCIENCE, INC.

LINE N18400



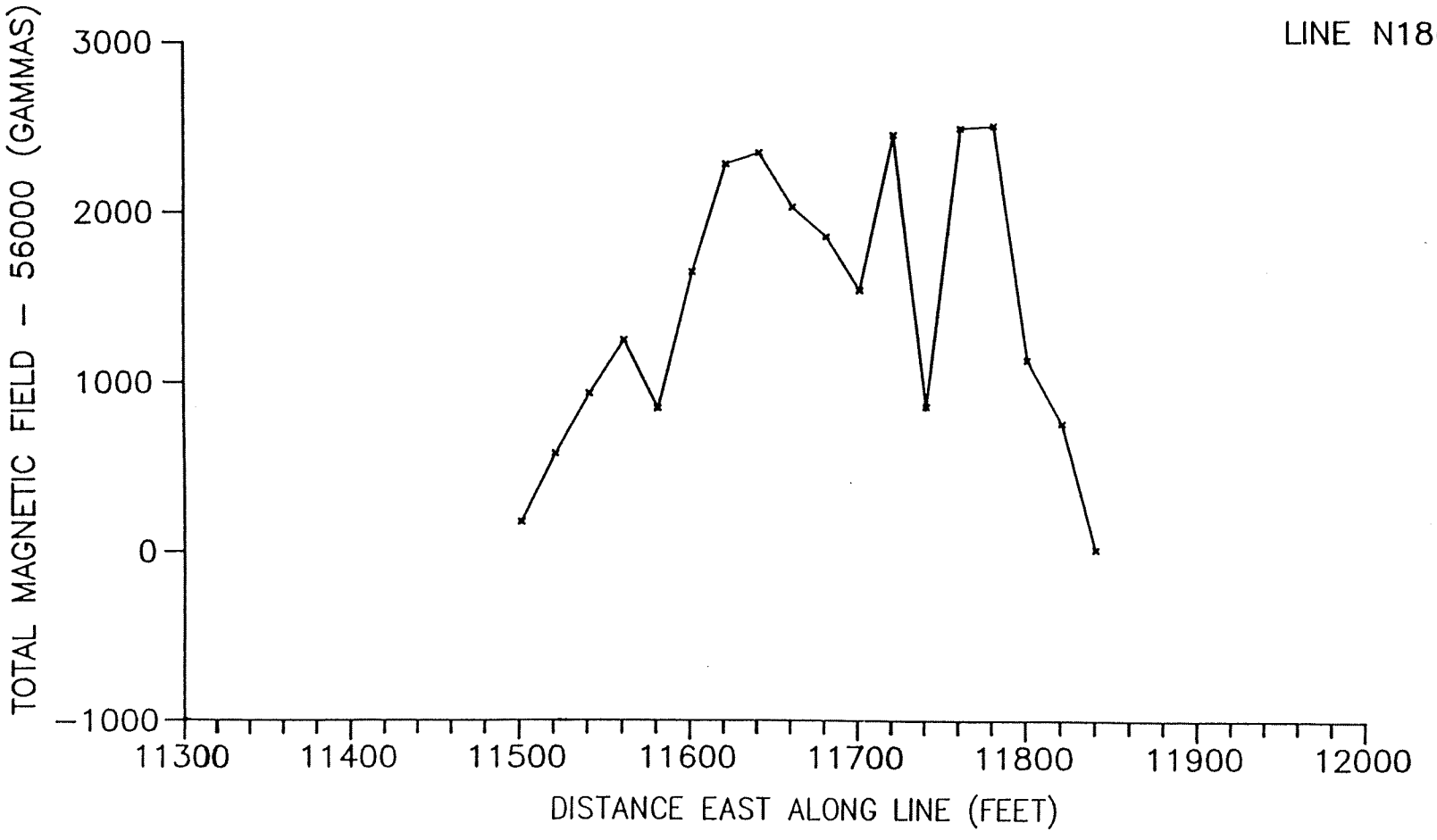
HAGER-RICHTER
GEOSCIENCE, INC.

LINE N18500



HAGER-RICHTER
GEOSCIENCE, INC.

LINE N18600



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GEOSCIENCE, INC.

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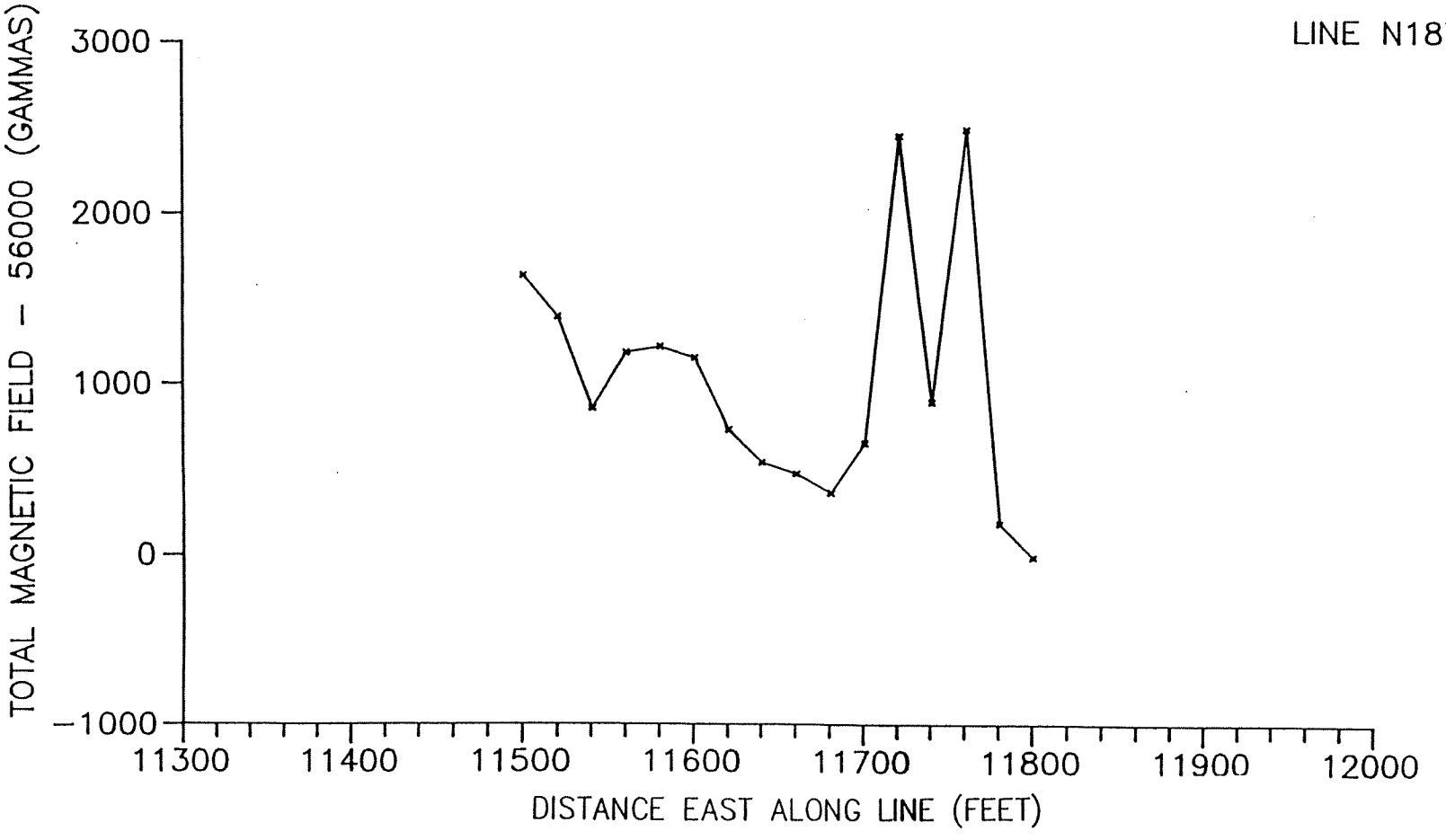

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GEOSCIENCE, INC.

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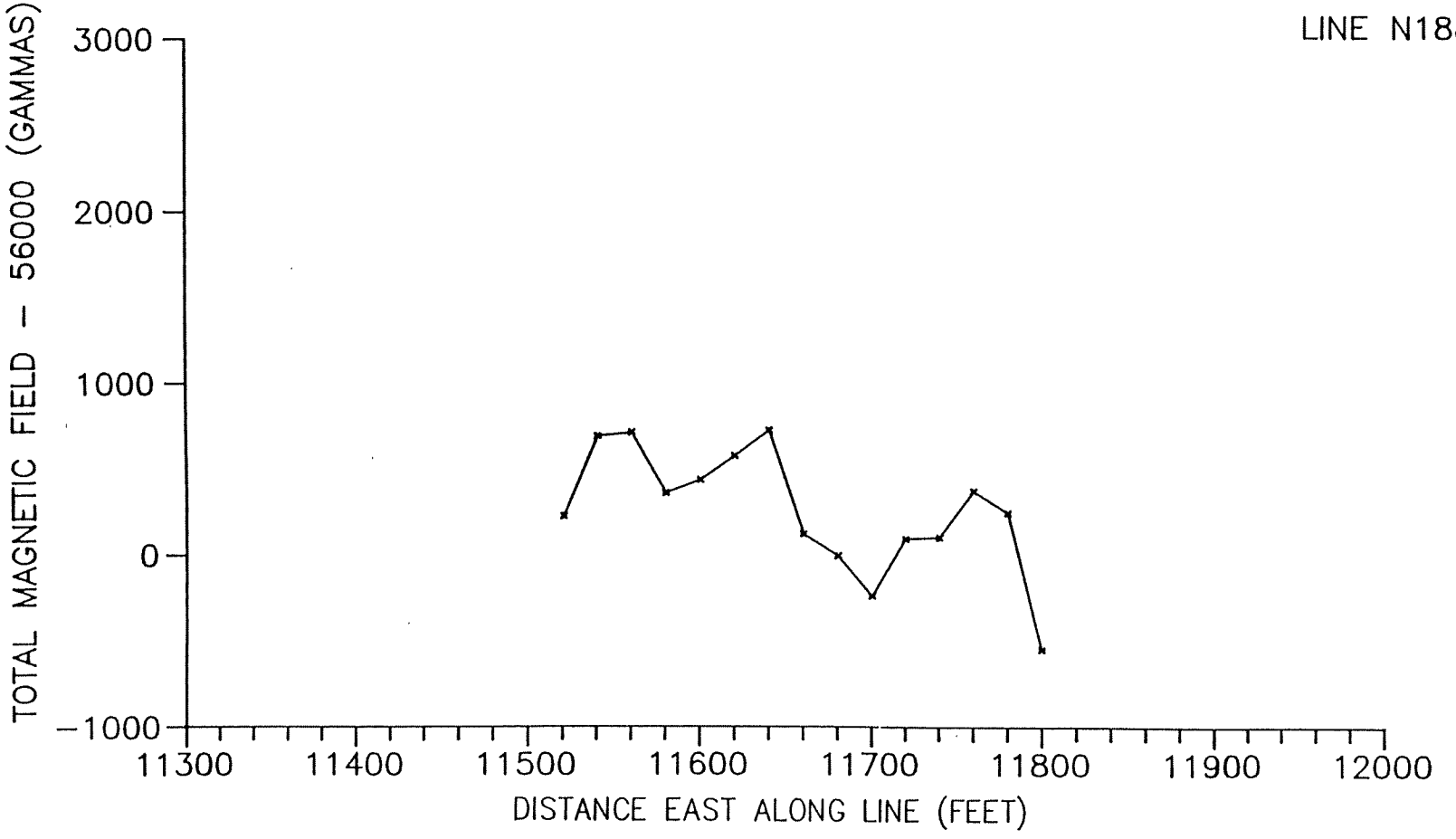

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GEOSCIENCE, INC.

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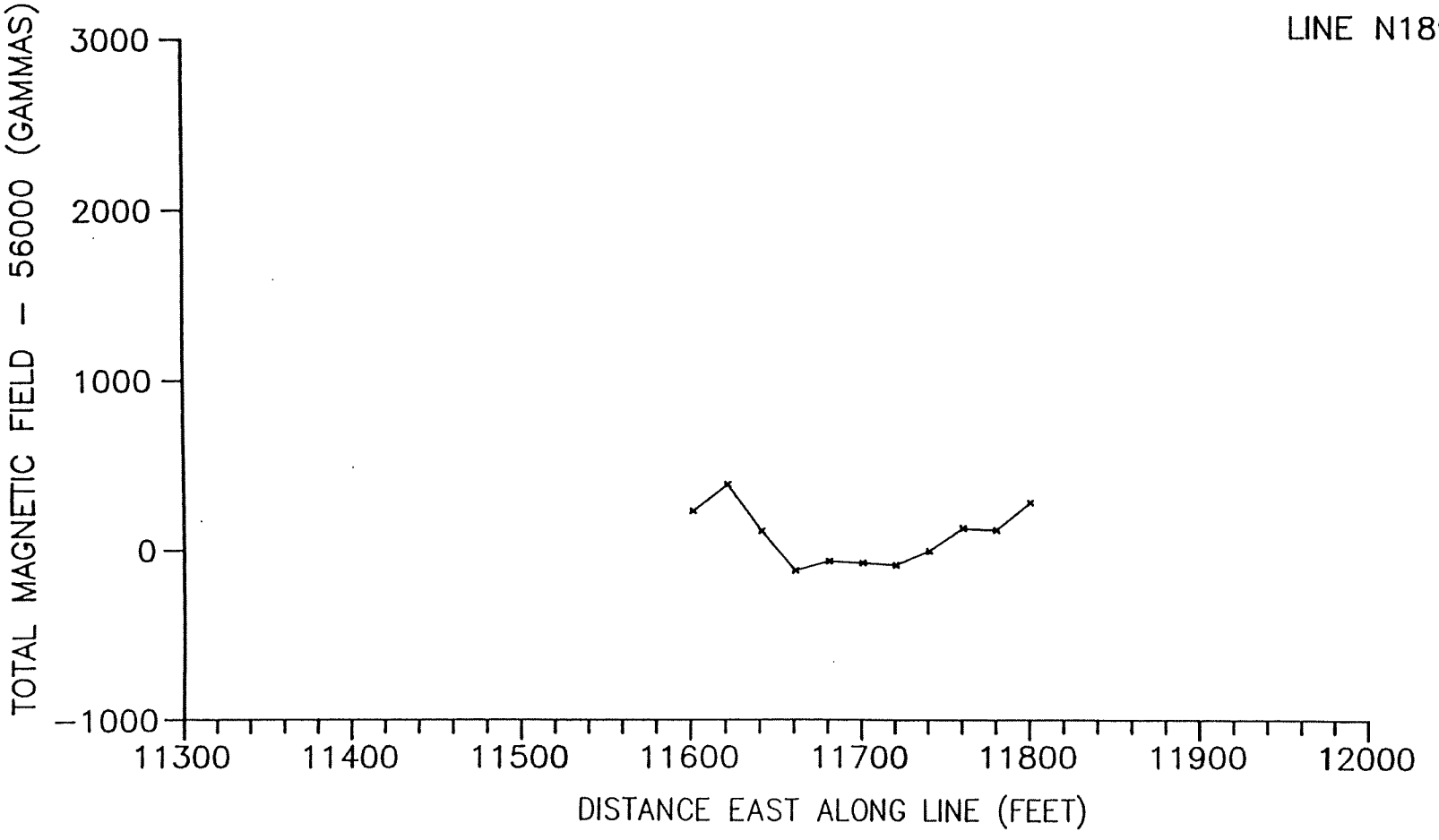

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GEOSCIENCE, INC.

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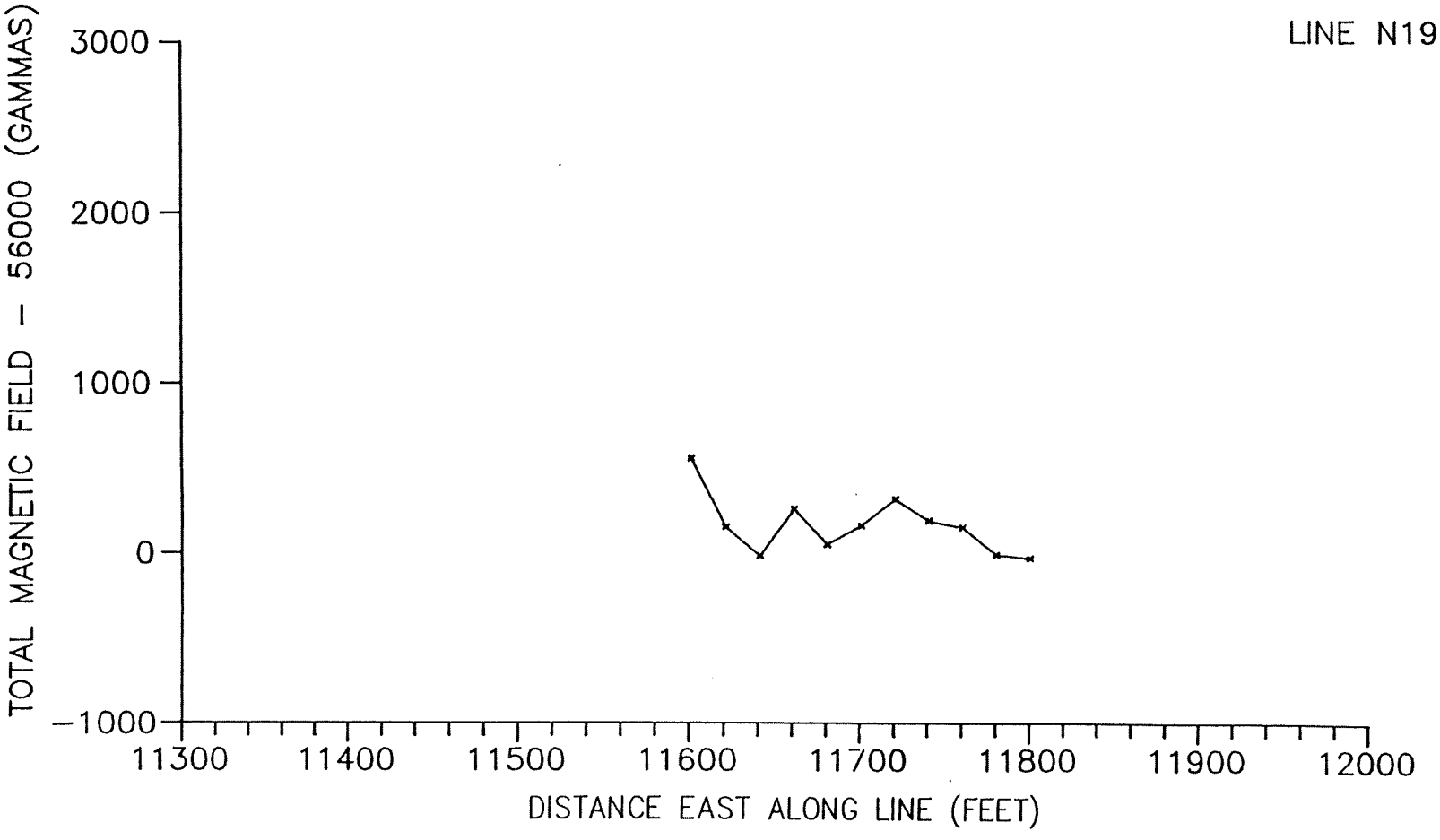

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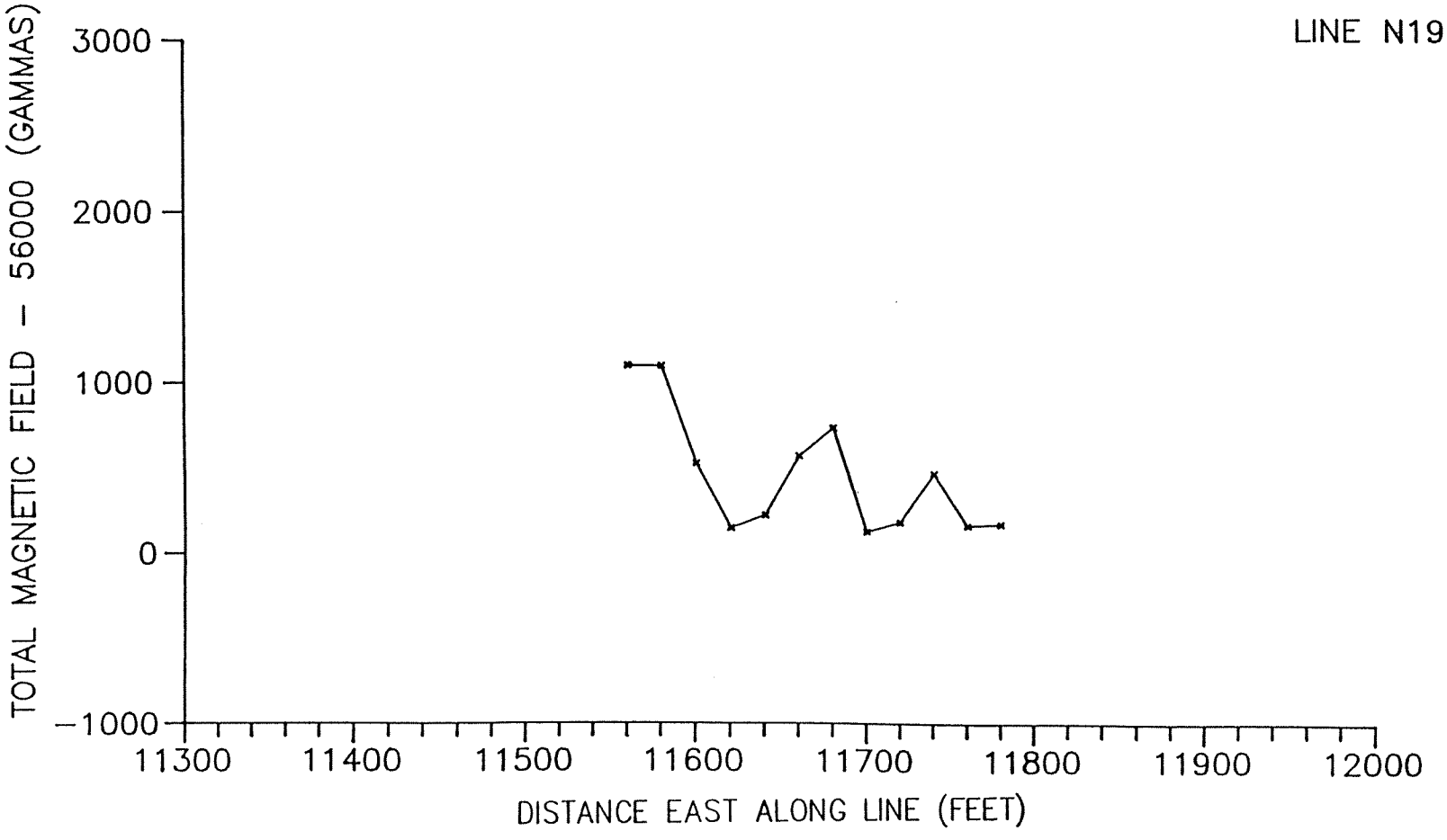

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GEOSCIENCE, INC.

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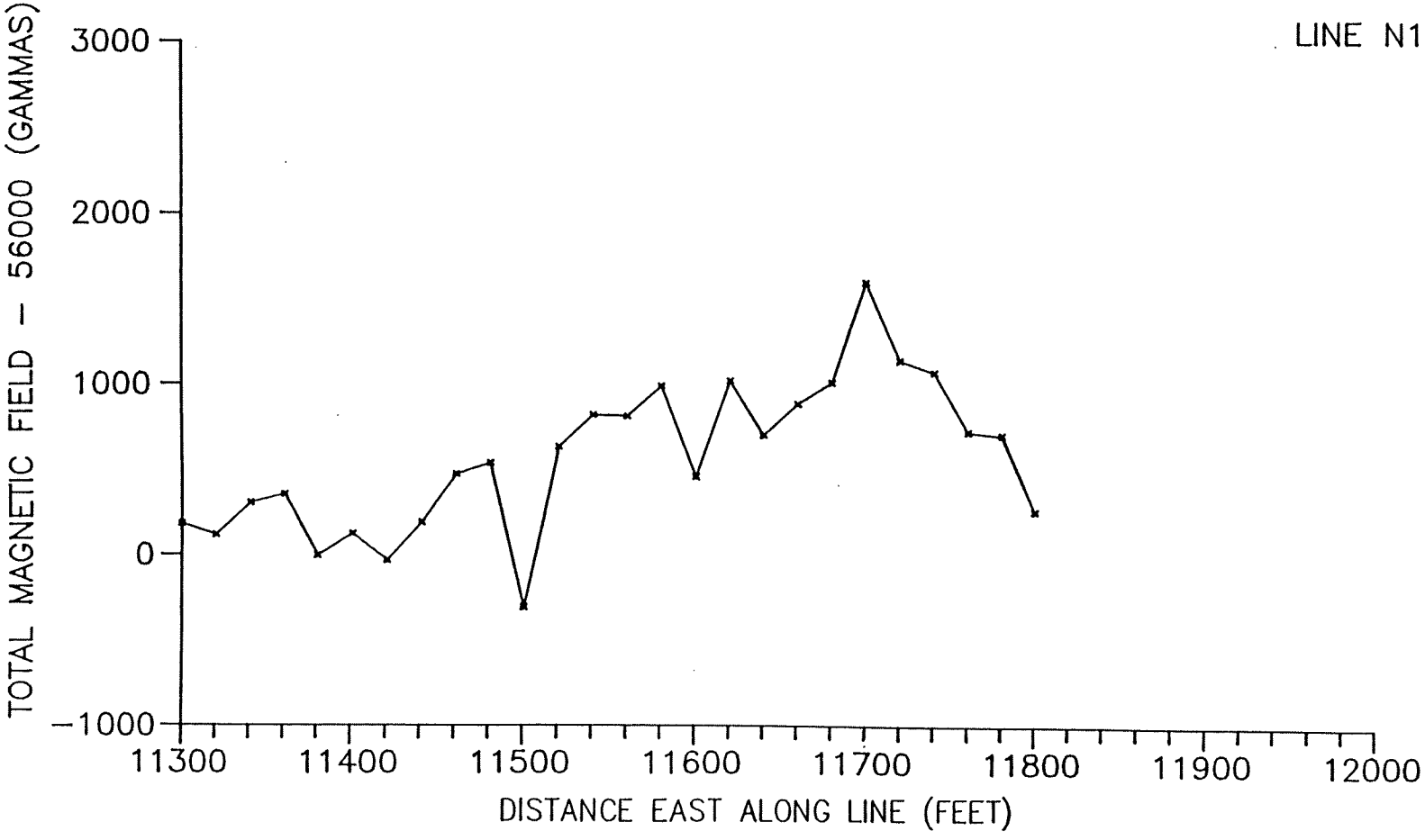

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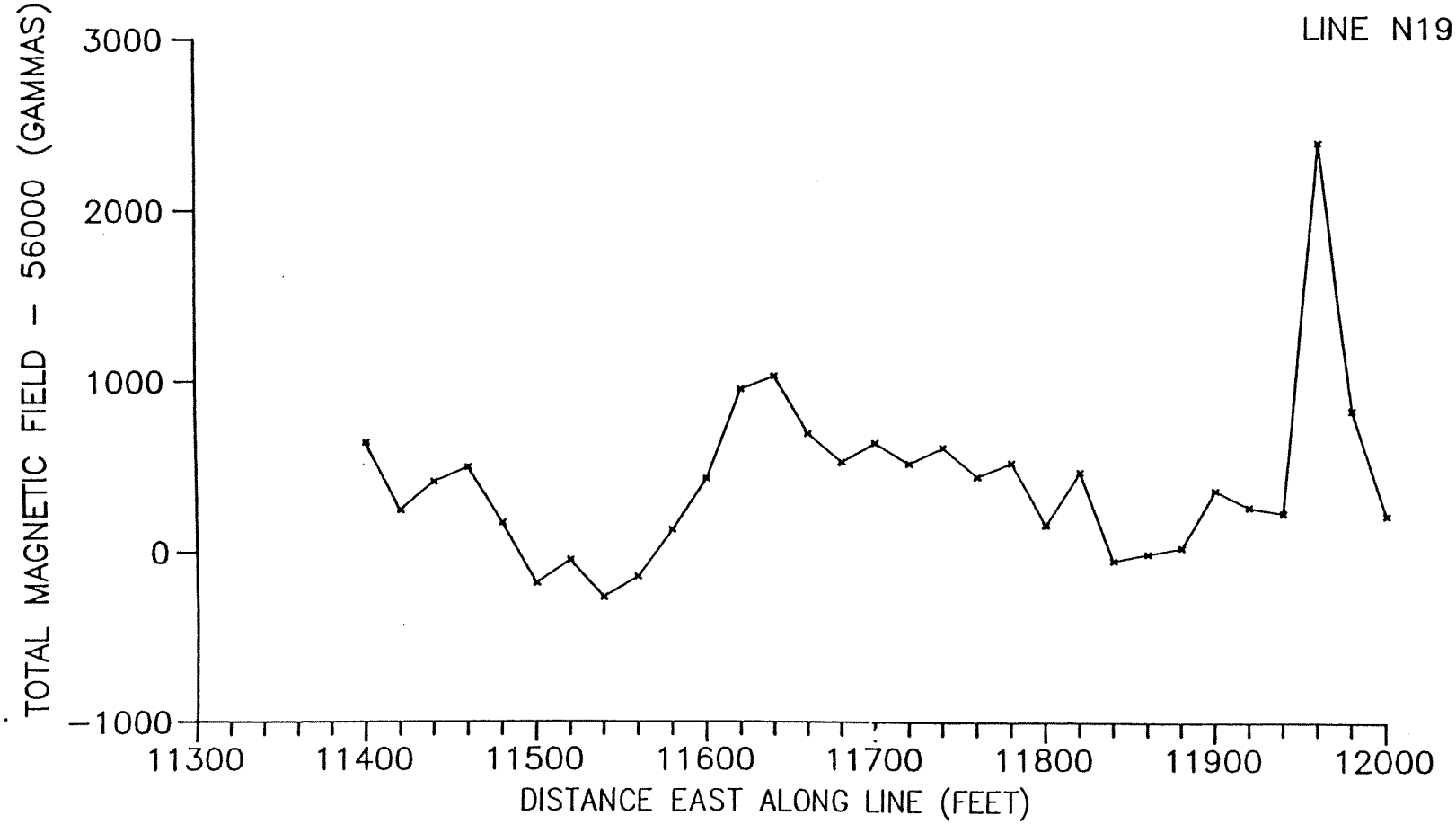

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GEOSCIENCE, INC.

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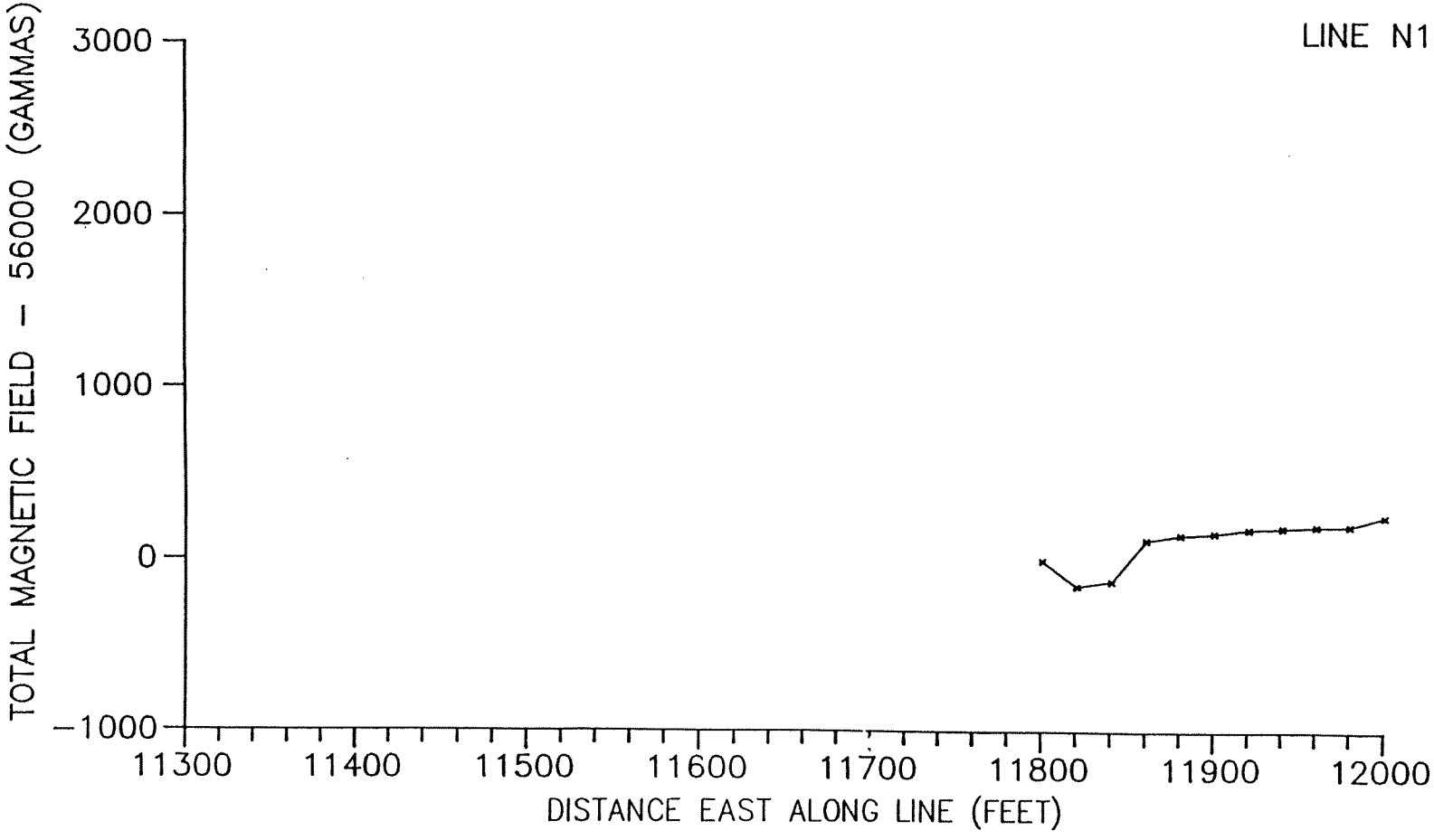

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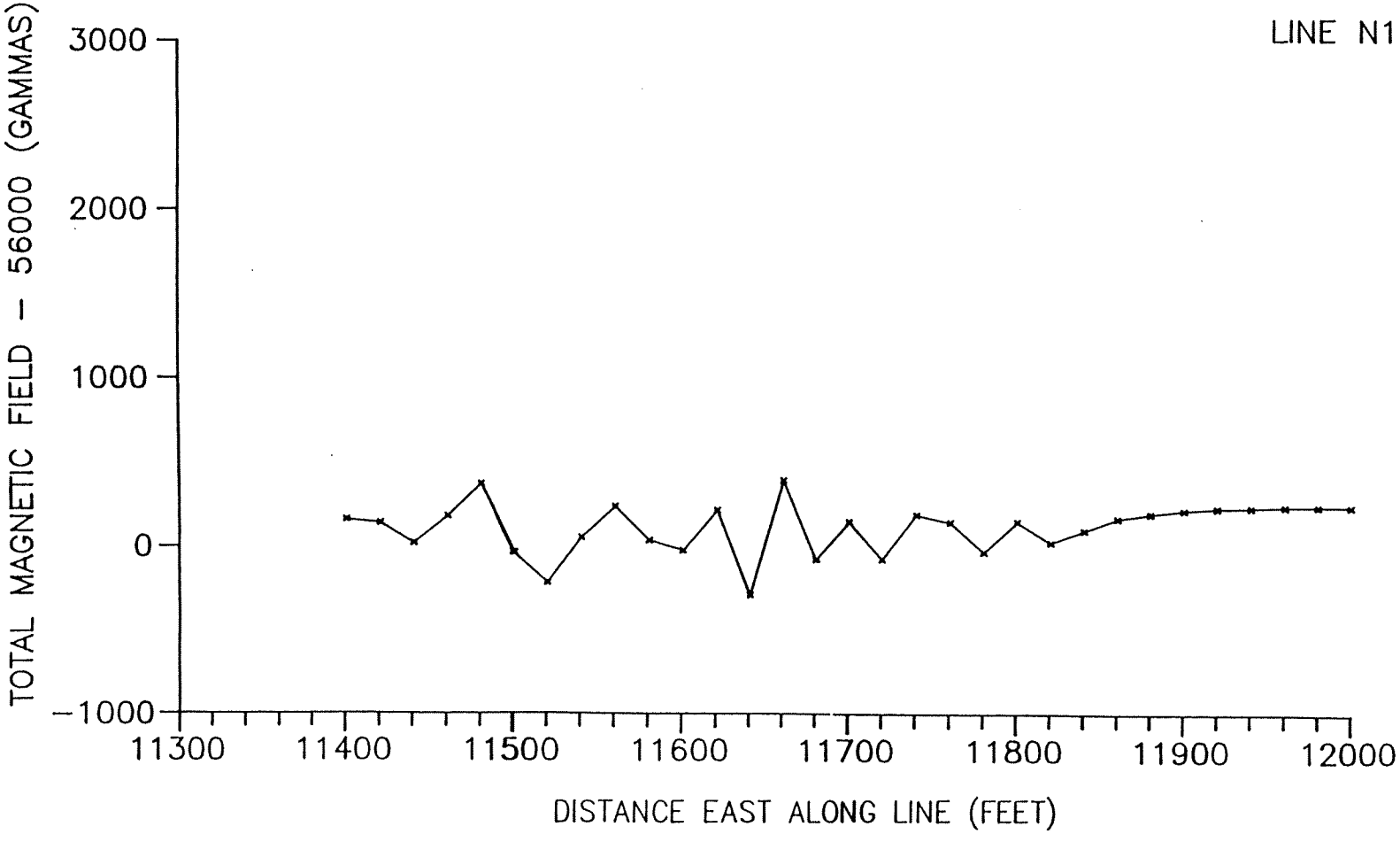
GEOSCIENCE, INC.

LINE N19600



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GEOSCIENCE, INC.

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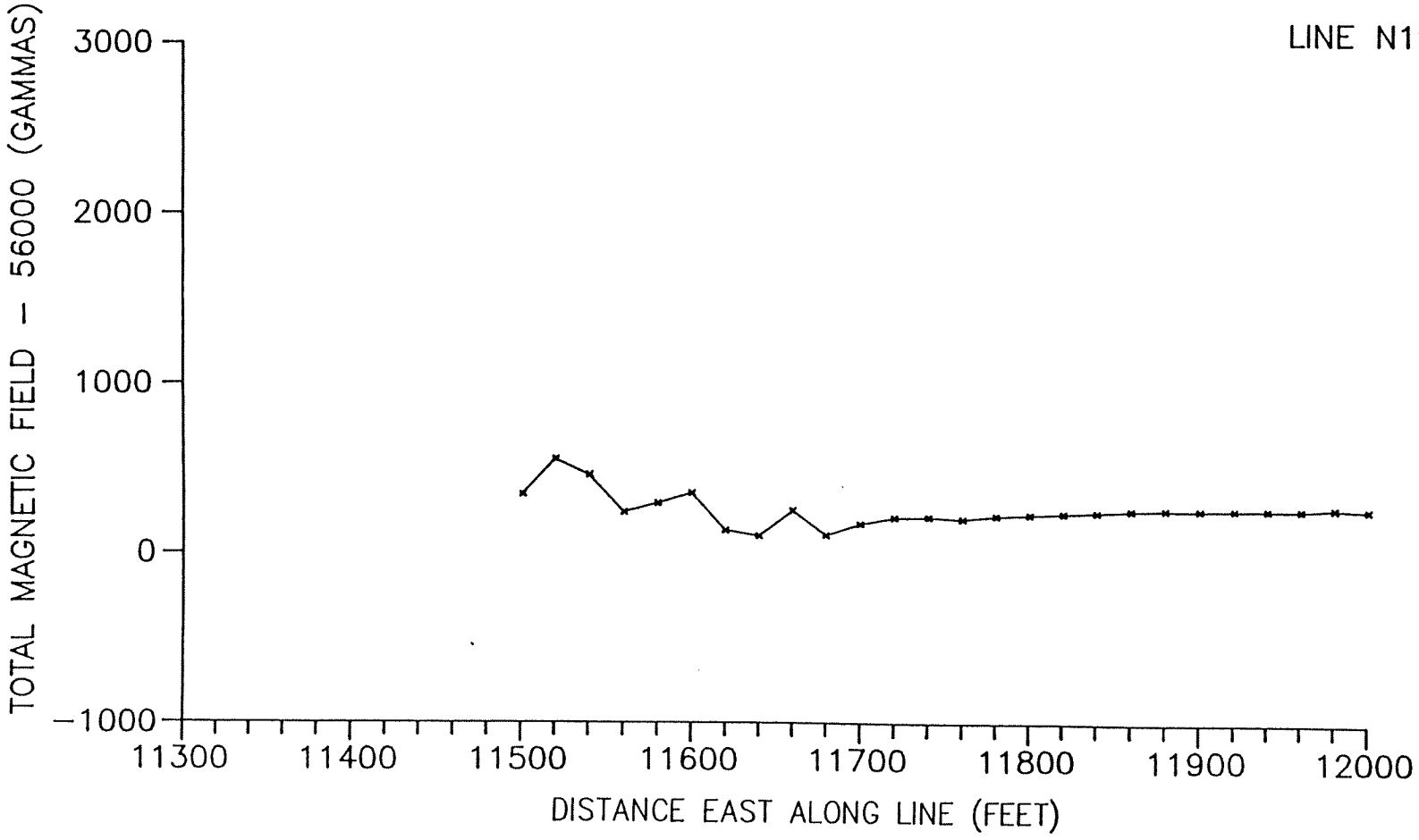

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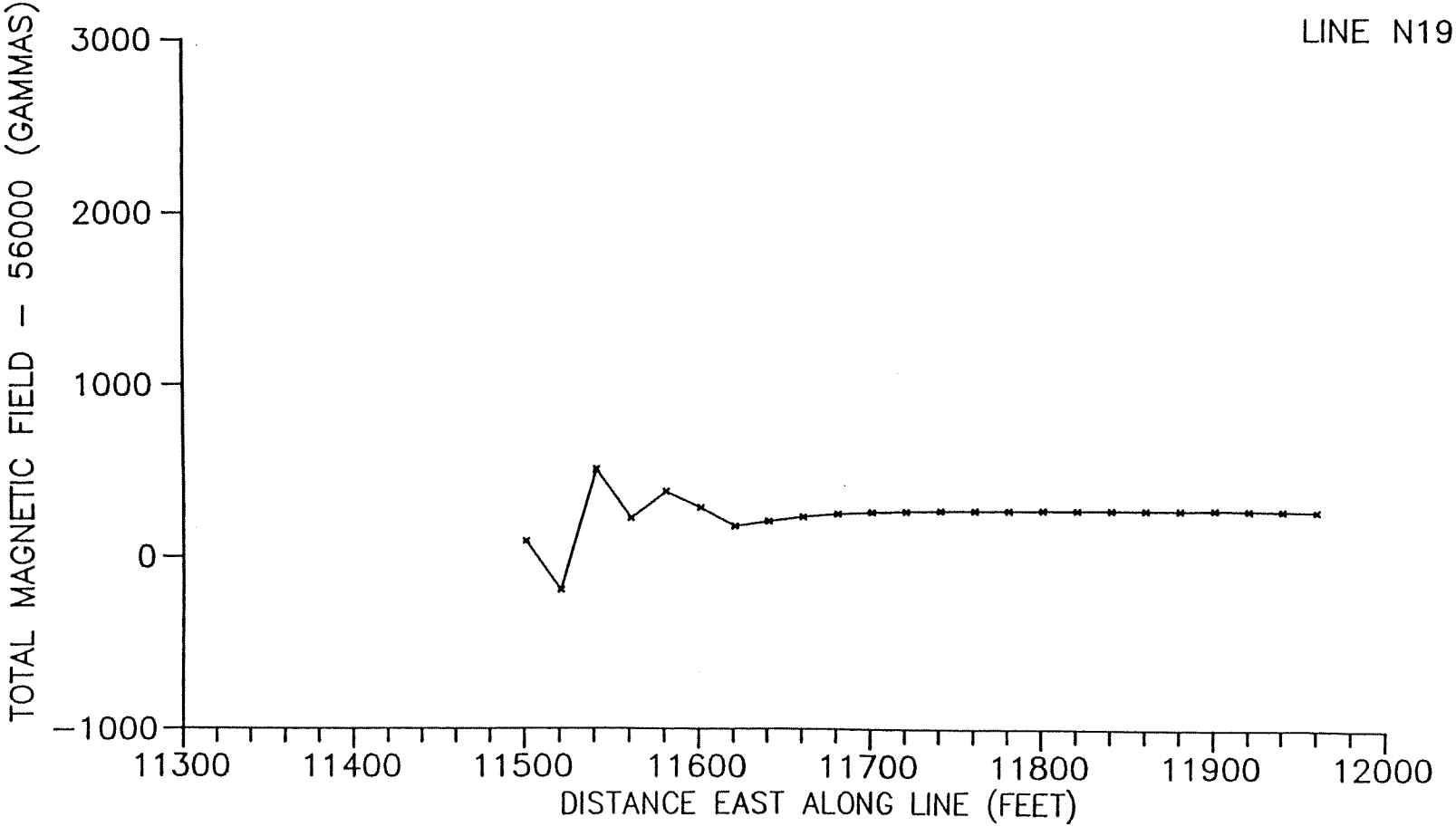
GEOSCIENCE, INC.

LINE N19800



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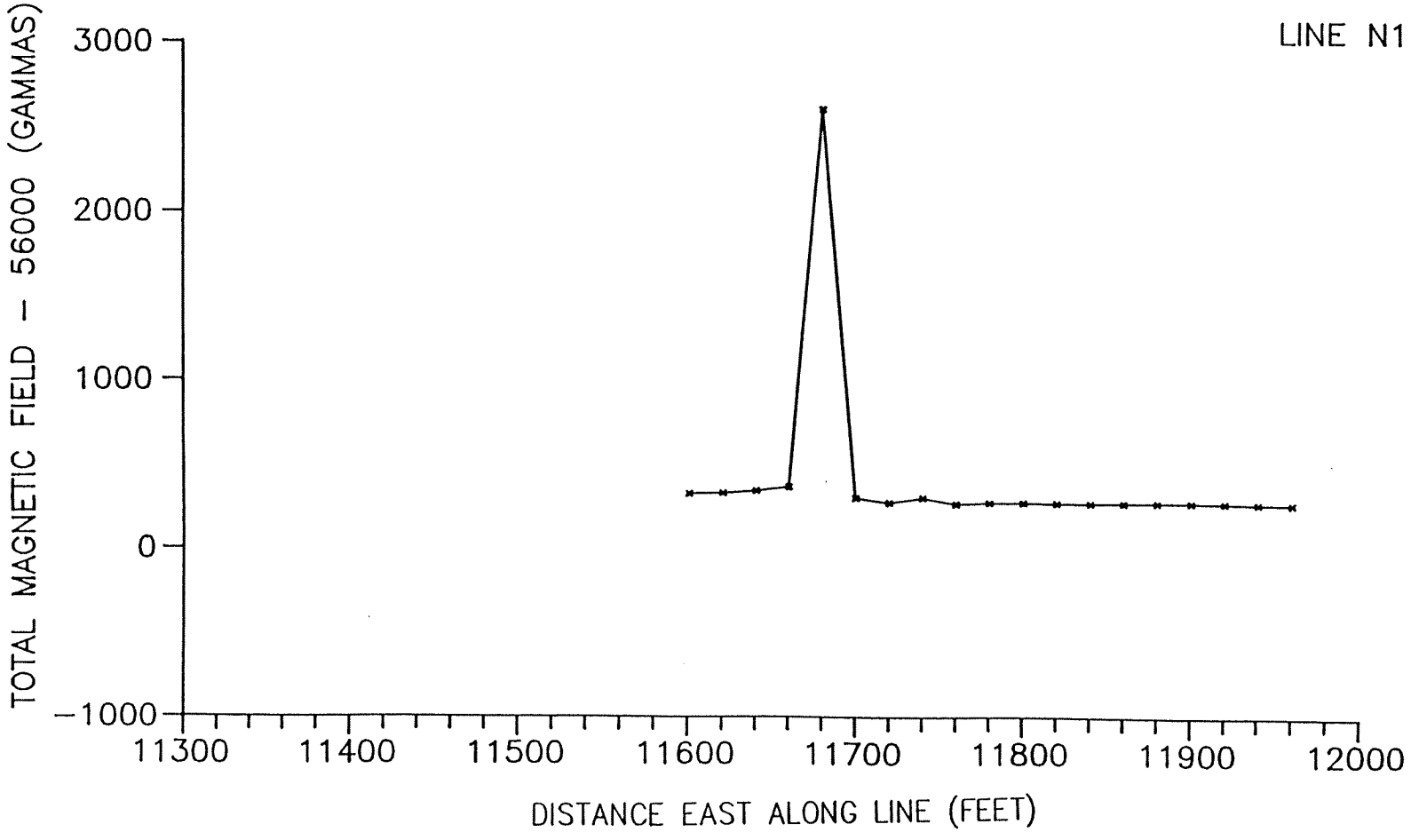
GEOSCIENCE, INC.

LINE N19900



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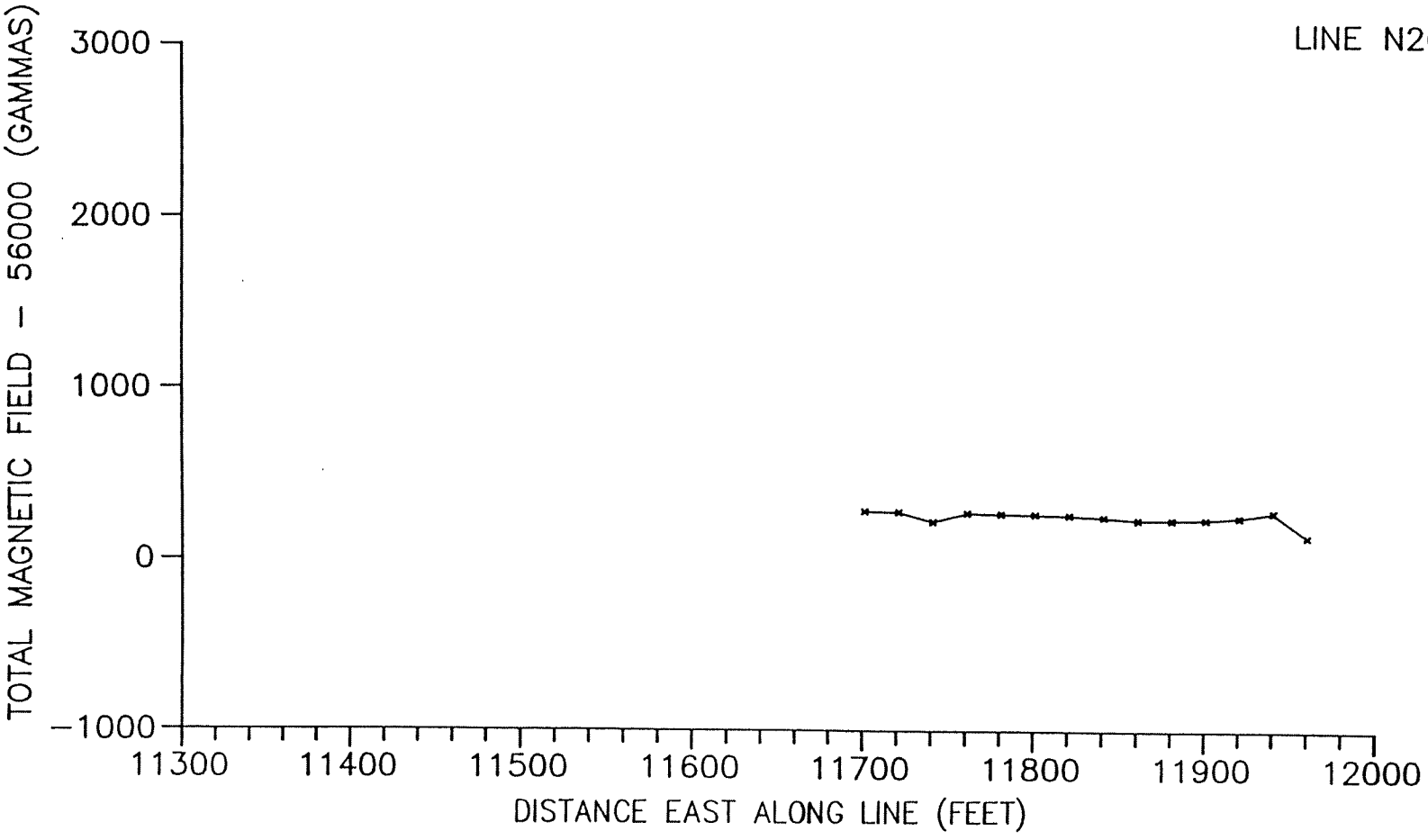
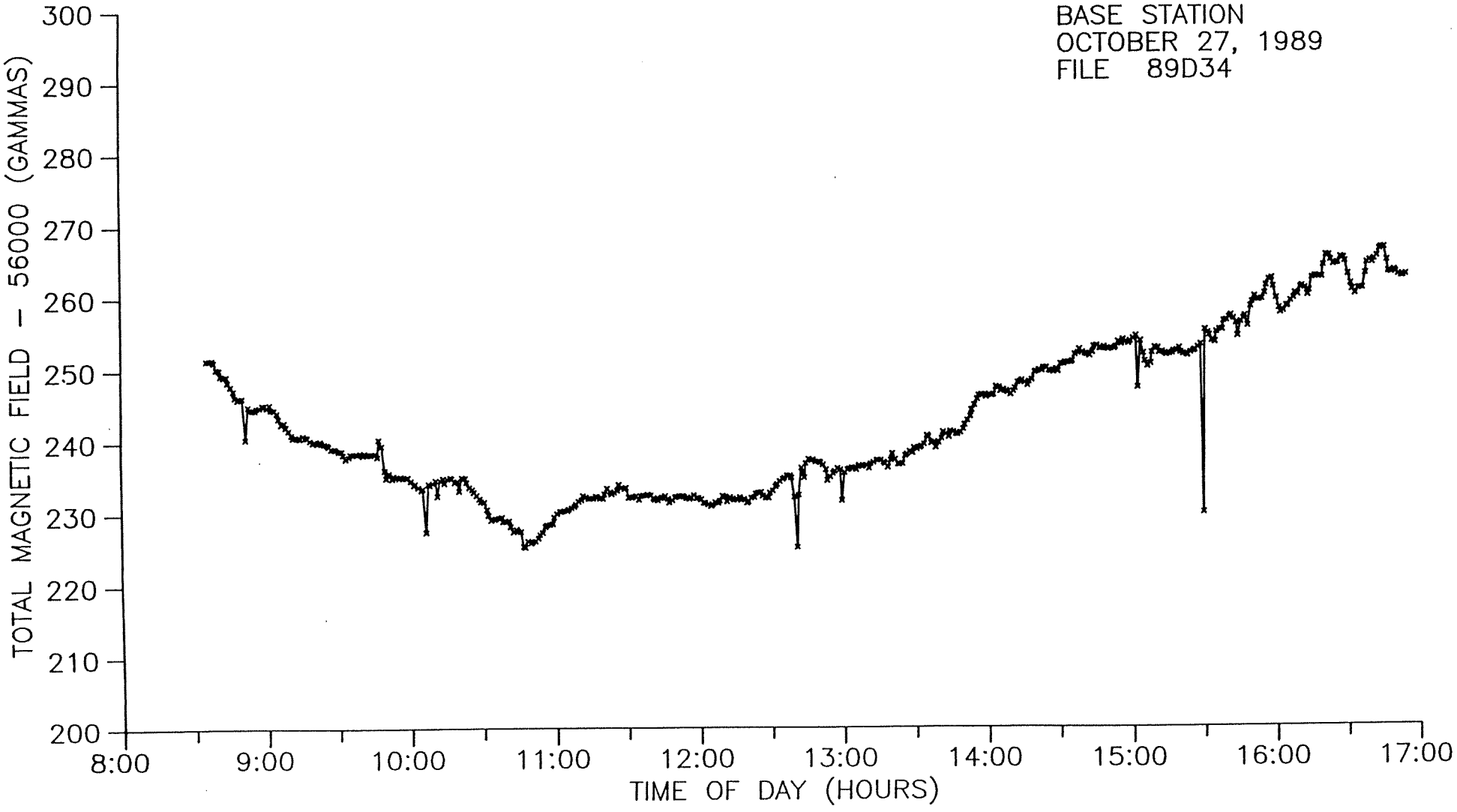
GEOSCIENCE, INC.

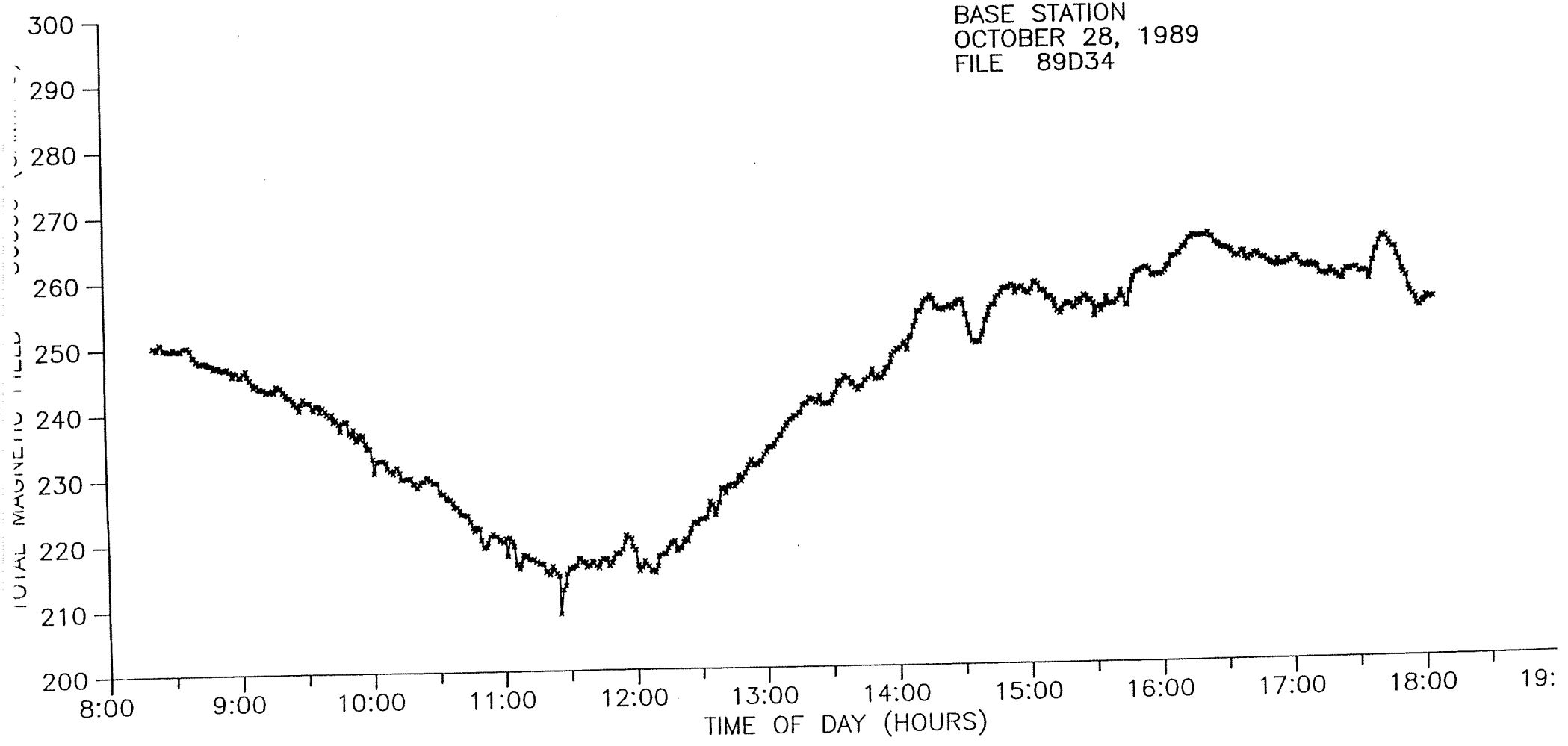
LINE N20000

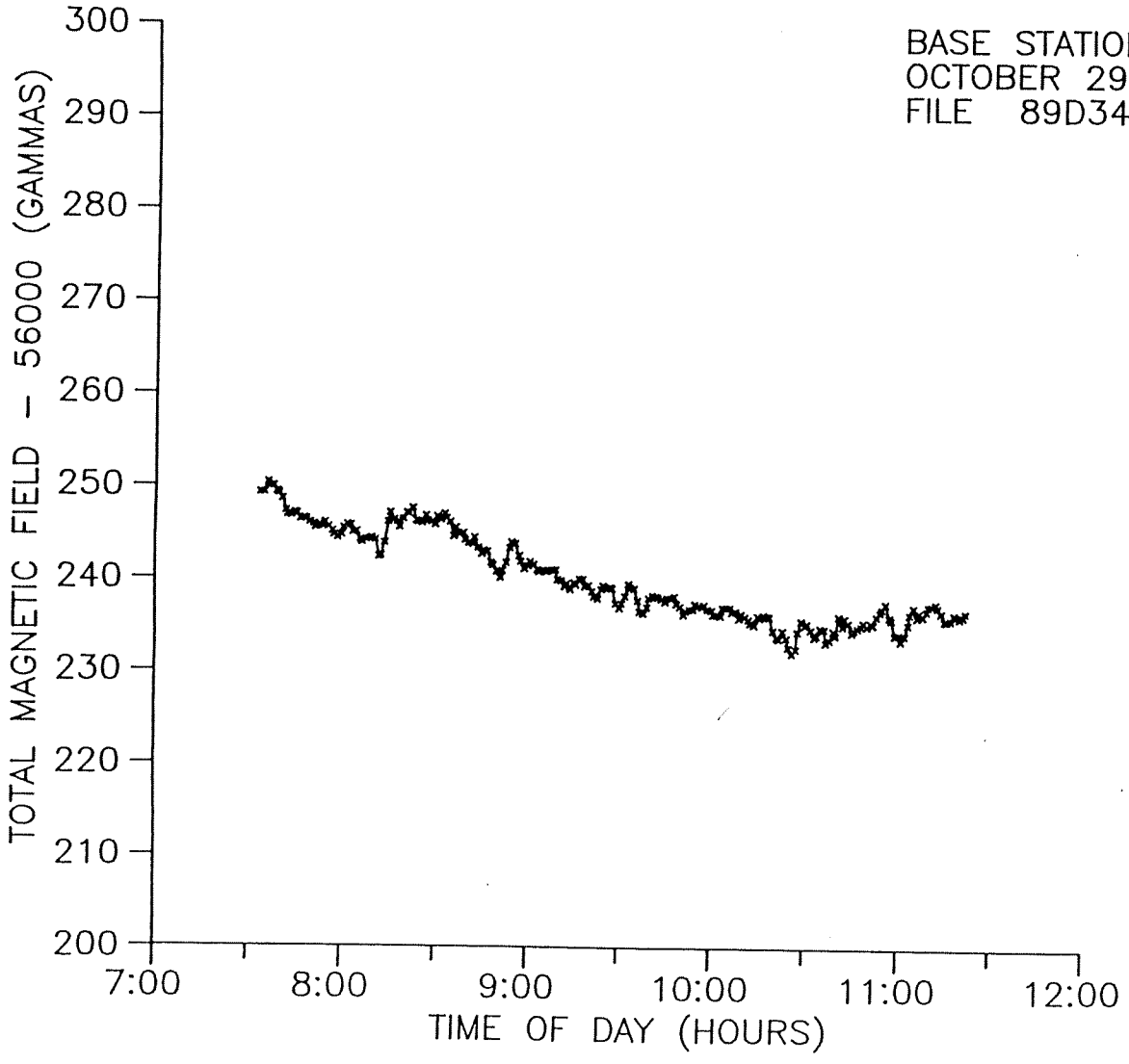


Surface Geophysical Surveys
Lockport City Landfill
Lockport, New York
October, 1989 File 89D34

APPENDIX 2
MAGNETIC FIELD RECORDED AT THE BASE STATION


BASE STATION
OCTOBER 27, 1989
FILE 89D34
TOTAL MAGNETIC FIELD – 56000 (GAMMAS)
300
290
280
270
260
250
240
230
220
210
200
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
TIME OF DAY (HOURS)


BASE STATION
OCTOBER 28, 1989
FILE 89D34
300
290
280
270
260
250
240
230
220
210
200
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
TIME OF DAY (HOURS)


BASE STATION
OCTOBER 29, 1989
FILE 89D34
TOTAL MAGNETIC FIELD - 56000 (GAMMAS)
300
290
280
270
260
250
240
230
220
210
200
7:00
8:00
9:00
10:00
11:00
12:00
TIME OF DAY (HOURS)

APPENDIX F

SOIL BORING LOGS

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-1

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER: DRY HOLE

DATE	TIME	LEV	TYPE (0hr.)

	CAS.	SAMP	CORE	TUBE
TYPE		SS		ST
DIA.		2"		3"
WT.		140lb		NA
FALL		30"		NA

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO.: 35180
ELEVATION: 503.0
DATE STARTED: 1/30/90
DATE FINISHED: 1/30/90
DRILLER: M. GERSTUNG
DRILL RIG: MOBILE B 34 S
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	2 2 / R	10	BRN GREY		FILL MATERIAL	Fill	trash, some
		S-2	SS	7 3 / 12 2	5					SAME AS ABOVE
4.4		S-3	SS	2 4 / 8 8	15	TAN GREY	MED STIFF	SILTY CLAY, SL. PLASTIC	CL	Bottom of Fill At 4.4'
		S-4	SS	6 11 / 18 29	65					MOTTLED, SL. PLASTIC
8.0	BOH									SL. MOIST

COMMENTS SHELBY TUBE TAKEN ON 10-12' INTERVAL. WASTE SAMPLE LCL-SB-1 TAKEN.

PROJECT NO. 35180
BORING NO. B-1

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-2

PROJECT: LOCKPORT LANDFILL
CLIENT: City of LOCKPORT
BORING CONTRACTOR: BUFFALO Drilling
SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 514.6
DATE STARTED: 1/31/90
DATE FINISHED: 1/31/90
DRILLER: M. Gerstung
DRILL RIG: MOBILE B 34S
GEOLOGIST: D. SHELDON

GROUND WATER:

DATE	TIME	LEV	TYPE
1/31/90	0 hr.	6.7'	BH Completion

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140lb		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	4 9 / 11 12	15	GREY	MED STIFF ↓ V. STIFF	FILL MATERIAL	Fill	Moist
		S-2	SS	27 6 / 41 7	20		↓ STIFF			Wood, tr. clay HNU = 2 PPM
		S-3	SS	4 4 / 7 18	10					WET, some gray Gravelly Clay
		S-4	SS	4 7 / 4 26	10					Tr. SAND
		S-5	SS	8 7 / 7 10	15					SATURATED
10.3		S-6	SS	5 7 / 11 18	95	GREY BRN ↓ TAN		SILTY CLAY	CL	Bottom of Fill 10.3' Mottled, 10-15% rounded Gravel Sl. Plastic
		S-7	SS	3 14 / 34 50/3	65					Tr. ORGANICS
14.0	BOH									

COMMENTS LEL READINGS OF 10% for 2-10'

PROJECT NO. 35180
BORING NO. B-2

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-3

PROJECT: LOCKPORT LAND FILL	SHEET NO. 1 OF 1
CLIENT: CITY OF LOCKPORT	JOB NO. : 35180
BORING CONTRACTOR: BUFFALO DRILLING	ELEVATION: 538.3
GROUND WATER: DRY HOLE (ohr.)	DATE STARTED: 2/1/90
	DATE FINISHED: 2/1/90
	DRILLER: M. GERSTUNG
	DRILL RIG: MOBILE B345
	GEOLOGIST: D. SHELDON

DATE	TIME	LEV	TYPE		CAS.	SAMP	CORE	TUBE
				TYPE				
				DIA.		2"		
				WT.		140lb		
				FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	3 9 / 30 23	20	TAN GRAY	MED STIFF	SILTY CLAY	CL	Topsoil 0-6" HNu = 1ppm
		S-2	SS	4 10 / 10 12	35					MOTTLED, SL. plastic Tr. small gravel
6.0		S-3	SS	3 4 / 6 12	60					organics
	BOH									

COMMENTS No Fill Encountered At this location.

PROJECT NO. 35180
BORING NO. B-3

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-4

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER: DRY HOLE (0hr.)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 540.3
DATE STARTED: 2/1/90
DATE FINISHED: 2/1/90
DRILLER: M. GERSTUNG
DRILL RIG: MOBILE B-34S
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	4 6 / 9 6	20	BRN/TAN	SOFT	SILTY CLAY / TOPSOIL	PT / CL	ORGANICS, LOOSE
2.0										
		S-2	SS	3 2 / 1 4	20	GREY	MED STIFF	FILL MATERIAL	Fill	STRATIFIED GRAY CLAY, WOOD + COAL
		S-3	SS	2 3 / 5 4	25					GRAY CLAY AND TRASH
		S-4	SS	6 2 / 4 8	0					NO SAMPLE
		S-5	SS	2 5 / 8 8	10					WET, GRAY CLAY AND TRASH
10.0										
		S-6	SS	4 6 / 8 10	40	TAN/GREY	MED STIFF	SILTY CLAY	CL	MOTTLED, tr. ORGANICS
12.0										
	BOH									

COMMENTS Bottom of Fill at 10.0'

PROJECT NO. 35180
BORING NO. B-4

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-5

PROJECT: LOCKPORT LANDFILL	SHEET NO. 1 OF 1
CLIENT: CITY OF LOCKPORT	JOB NO. : 35180
BORING CONTRACTOR: BUFFALO DRILLING	ELEVATION: 533.7
GROUND WATER: DRY HOLE	DATE STARTED: 2/1/90
DATE / TIME / LEV / TYPE (0 hr.)	DATE FINISHED: 2/2/90
	DRILLER: M. GERSTUNG
	DRILL RIG: MOBILE RIG B 34 S
	GEOLOGIST: D. SHELDON

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	2 5 / 3 4	25	GREY	MED STIFF	FILL MATERIAL	FILL	TRASH, silty clay mix
		S-2	SS	3 3 / 4 10	15					Unconsolidated, root material
		S-3	SS	9 7 / 9 16	50					TRASH / brick frags reworked clay
		S-4	SS	4 4 / 7 11	50					WET, brn/blk cinders
		S-5	SS	3 3 / 3 4	40					9.5-10.0': soft grey clay
		S-6	SS	2 3 / 16 10	10					
		S-7	SS	4 7 / 21 14	10		STIFF			
		S-8	SS	8 8 / 12 14	10					
		S-9	SS	8 8 / 16 24	20		V. STIFF			WOOD CHIPS
		S-10	SS	8 20 / 16 15	20					HAND AUGERING
		S-11	SS	6 4 / 10 15	25		STIFF			
		S-12	SS	8 10 / 12 16	25					Some red silty clay + wood. WET CINDERS
		S-13	SS	5 6 / 15 14	25					SAME AS ABOVE
		S-14	SS	3 11 / 11 24	15		V. STIFF			Same, moist
		S-15	SS	7 20 / 21 22	20					Blackened wood + tr. clay
30.0										Bottom of Fill 30.2'
		S-16	SS	5 27 / 50/3	30	TAN / GREY	MED STIFF / STIFF		CL	DENSE, MOTTLED ORGANICS
32.0										
32.1		S-17	SS	75/1	5	GREY	HARD	GLACIAL TILL	GW	Tr. clay, Erratics
	BOH									Possible top of Rock

COMMENTS WASTE SAMPLE LCL-SB-2 taken. Bottom of Fill at 30.2'

PROJECT NO. 35180
BORING NO. B-5

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-6

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER: DRY HOLE

DATE	TIME	LEV	TYPE (0 hr.)

	CAS.	SAMP	CORE	TUBE
TYPE		SS		ST
DIA.		2"		3"
WT.		140 lb		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 558.4
DATE STARTED: 2/5/90
DATE FINISHED: 2/5/90
DRILLER: K. HUEBERT
DRILL RIG: MOBILE B34S
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"		RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	4	24	40	D.BRN	STIFF ↓ MED STIFF ↓	FILL MATERIAL	Fill	0-.5': Decomposed wood. .5-2.0': Concrete Debris
				12	7						
		S-2	SS	2	3	15					Decomposed wood clayey silt
				2	9						
		S-3	SS	4	10	35	RED BRN	DENSE			Concrete, red-brn. SAND
				10	34						
		S-4	SS	18	34	45					Concrete, moist
				14	10						
		S-5	SS	22	15	40	GREY				Concrete, clay
				10	10						
		S-6	SS	3	R	20					Yellow silty material 10.5-10.8 Plastics
		S-7	SS	11	11	50		STIFF			Gray clay + paper waste
				5	6						
		S-8	SS	4	7	40					Moist, wood, glass and plastics
				11	8						Blk. Fiberous wood 16-17.5'
		S-9	SS	9	11	60					Bottom of Fill 17.5'
17.5				10	13						
		S-10	SS	10	13	60	TAN/GRAY	MED STIFF	SILTY CLAY	CL	Sl. moist, mottled Becomes DRY at 19.8'.
20.0				18	25						
	BOH										

COMMENTS SHELBY TUBE TAKEN ON 20-22' INTERVAL

PROJECT NO. 35180
BORING NO. B-6

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-7

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER: DRY HOLE

DATE	TIME	LEV	TYPE (0 hr.)

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 557.3
DATE STARTED: 2/6/90
DATE FINISHED: 2/6/90
DRILLER: M. GERSTUNG
DRILL RIG: MOBILE B345
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	WH	8	25	TAN / LT. BRN	HARD	FILL MATERIAL	FILL	Decomposed wood, concrete debris
				6 1/3							
		S-2	SS	8	25	30					Concrete debris
				25	24						
		S-3	SS	3	4	50					Moist, gravelly concrete, brick frags
6.0				5	4						
		S-4	SS	5	9	70	TAN / GREY	STIFF ↓ HARD	SILTY CLAY	CL	Moist 6-7', Dry 7-8'
				8 1/3							
		S-5	SS	100/1		5					Limestone frags, DRY
10.0											
10.1		S-6	SS	60/1		5	GREY	HARD	TILL / WEATHER BEDROCK	GW	Limestone FRAGS
	BOH								Auger refusal at 10'		

COMMENTS Bottom of Fill at 60'

PROJECT NO. 35180
BORING NO. B-7

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-8

PROJECT: LockPort LANDFill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER: Dry Hole

DATE	TIME	LEV	TYPE (0 hr.)

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140lb		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 559.6
DATE STARTED: 2/6/90
DATE FINISHED: 2/6/90
DRILLER: M. Gerstung
DRILL RIG: MoBILE B345
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	4 19 / 11 7	50	D.BRN to BRN	HARD	Fill MATERIAL	Fill	Wood Debris, concrete
		S-2	SS	5 7 / 9 8	40					gravel, silty brn. Clay sulfur-like material 3-4'
		S-3	SS	5 1 / 4 8	5					
6.0										Bottom of Fill AT 5.8'
		S-4	SS	20 15 / 21 33	75	TAN GREY	MED STIFF	Silty CLAY	CL	Moist 6-7' Dry 7-8'
		S-5	SS	21 31 / 33 61	90					Dry, Dense. Fossils.
10.0										
	BOH									

COMMENTS Bottom of Fill at 5.8!

PROJECT NO. 35180
BORING NO. B-8

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-9

PROJECT: Lockport LANDFill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 558.7
DATE STARTED: 2/7/90
DATE FINISHED: 2/7/90
DRILLER: M. Gerstung
DRILL RIG: Diedrich D-50
GEOLOGIST: D. Sheldon

GROUND WATER:

DATE	TIME	LEV	TYPE
2/7/90		14.0'	BH Completion

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140 lb		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	5 7 / 6 31	70	BRN RED GREEN	MED STIFF	SILTY CLAY w/ PEAT	CL	MOTTLED, topsoil
2.0		S-2	SS	18 13 / 14 11	25	RED BRN	MED DENSE	FILL MATERIAL	Fill	STONE, WET HNU = 1 ppm
		S-3	SS	1 9 / 17 11	30					CRUSHED STONE RED SILT
		S-4	SS	4 7 / 6 10	15					STONE, Fibrous wood
		S-5	SS	10 6 / 7 14	15					WOOD, SANDY BRN FILL - SOFT
		S-6	SS	6 5 / 7 4	25	BLK				BLACKENED WOOD, CLAY 11.8' - 12.0'
		S-7	SS	100/5	15		V. DENSE			BLK Fibrous WOOD WET. Tr. CLAY
14.0										
14.6		S-8	SS	100/7	15	GRAY	Very HARD	Till, Weathered Bedrock	GP	WET, some CLAY + Gravel

Bottom of Fill at 14.0'

Difficult Augering 2-4.
Auger refusal at 16.1'

COMMENTS Waste sample #LCL-SB-9 taken. Piezometer #B-1 installed in borehole.

PROJECT NO. 35180
BORING NO. B-9

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-10

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER: DRY HOLE (0 hr.)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 558.6
DATE STARTED: 2/7/90
DATE FINISHED: 2/7/90
DRILLER: M. GERSTUNG
DRILL RIG: DIEDRICH D-50
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	7 17 / 11 7	40	BRN TAN	MED DENSE	FILL MATERIAL	Fill	BRICK FRAGS, S. HY CLAY FILL. MOIST
40		S-2	SS	7 13 / 14 8	30					CONCRETE AND ASPHALT FRAGS.
		S-3	SS	3 5 / 13 21	50	TAN GRAY	MED STIFF	SILTY CLAY	CL	MOTTLED CLAY - SOME GRAVEL
		S-4	SS	13 25 / 38 61	80					MOTTLED. WET AT 7.5 LIMESTONE FRAGS
9.0		S-5	SS	100/1	10		HARD			WET AT 8.4', dry below
	BOH									Auger refusal At 9.0'

COMMENTS Bottom of Fill At 40'

PROJECT NO. 35180
BORING NO. B-10

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-11

PROJECT: LockPort Landfill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER: Dry Hole (Obs.)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 561.2
DATE STARTED: 2/8/90
DATE FINISHED: 2/8/90
DRILLER: K. HUEBERT
DRILL RIG: DIEDRICH D-50
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	2 5 / 7 9	40	TAN	MED STIFF	SILTY CLAY	CL	SL. Plastic, Root Mottled
		S-2	SS	10 21 / 27 38	60		STIFF			DRY, Fissile
		S-3	SS	21 27 / 29 38	70					Mottled, SL. Moist at 6.0'
		S-4	SS	19 21 / 32 38	70					Highly Fissile, Moist 6-6.7'; Dry 6.7-8.0'
		S-5	SS	20 98 / 100/2	50		VERY STIFF			Fissile, Dry
10.0										
10.4						GRAY	HARD	Till / WEATHERED Bedrock	GP	DRY, Gravelly
	BOH									Auger refusal at 10.0'

COMMENTS No Fill at this location. Installed Piezometer #B-2 in borehole.

PROJECT NO. 35180
BORING NO. B-11

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-12

PROJECT: LOCKPORT LANDFILL
CLIENT: City of LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER: DRY HOLE (0 hr.)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 556.4
DATE STARTED: 2/6/90
DATE FINISHED: 2/8/90
DRILLER: K. HUEBERT
DRILL RIG: DIEDRICH
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	8 6 / 8 9	70	RED BAN	MED DENSE	FILL MATERIAL	Fill	W:OD Debris, compost BAN. SILT - Moist
		S-2	SS	6 9 / 6 18	50	BAN BLK				BAN-BLK SANDY Fill. BRICKS
6.0		S-3	SS	8 30 / 40 100/2	70	GRAY	V. DENSE			BRICK, GRAVEL HNU = 1 ppm
										VOID
		S-4	SS	100/2	25					CONCRETE, BLK. FINE SAND. HNU = 2ppm
		S-5	SS	87 10 / 13 11	10		DENSE			CONCRETE
		S-6	SS	3 1 / 1 3	10		V. LOOSE			SOFT, PAPER-WET
14.8		S-7	SS	1 1 / 4 4	15					SAME AS ABOVE HNU = 2 ppm. / CLAY @ 14.8'.
		S-8	SS	1 1 / 5 4	25	TAN GRAY	SOFT	SILTY CLAY	CL	SOFT, MOTTLED Moist SL. Plastic
14.0		S-9	SS	3 8 / 14 18	100		STIFF			MOTTLED
	BOH									

COMMENTS Bottom of Fill at 14.8'

PROJECT NO. 35180
BORING NO. B-12

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-13

PROJECT: LaKPort LANDFill
CLIENT: City of LocKPort
BORING CONTRACTOR: BuFFalo DrilliNG
GROUND WATER: DRY HoLE (0 hr.)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 528.0
DATE STARTED: 2/9/90
DATE FINISHED: 2/9/90
DRILLER: M. Gerstung
DRILL RIG: DiEDRicH D-50
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	1 2 / 2 1	20		SOFT	Fill MATERIAL	Fill	SOFT, MIX OF CLAY AND TRASH
		S-2	SS	3 3 / 3 4	20		MED STIFF			SAME AS ABOVE
		S-3	SS	5 5 / 18 11	20					CLAY + Fill RED + BLK GRANULES
		S-4	SS	5 4 / 3 5	35					BRICK FRAGS BLK GRAVEL, RED CLAY
		S-5	SS	6 12 / 23 12	30		V. STIFF			GRANULAR, BLK, ORANGE WOOD FRAGS MOIST
		S-6	SS	5 3 / 11	10		V. LOOSE			PLASTICS, WOOD, BLK. GRANULAR MATERIAL
		S-7	SS	3 3 / 2 1	5					PLASTICS, BRN CLAY
		S-8	SS	3 5 / 2 2	10		LOOSE			WET, BRICK FRAGS
16.0										Bottom of Fill 16.1'
		S-9	SS	2 3 / 5 6	50	TAN GRAY	MED STIFF	Silty CLAY	CL	MOTTLED, SOFT CLAY
		S-10	SS	1 1 / 3 6	60					STRATIFIED GRAY AND TAN CLAY W/ ORGANICS (SEAMS)
		S-11	SS	3 5 / 100/3	60	GRAY	HARD			STRATIFIED, ORGANIC Rock FRAGS AT 21.1'
22.0	BOH									

COMMENTS Installed Piezometer # P-3 in borehole. Waste Sample # LCL-SB-13 taken.

PROJECT NO. 35180
BORING NO. B-13

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-14

PROJECT: Lakefront Landfill
CLIENT: City of Lakefront
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER: Dry Hole (0 hr.)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 553.9
DATE STARTED: 2/9/90
DATE FINISHED: 2/9/90
DRILLER: M. Gerstung
DRILL RIG: DiedRich D-50
GEOLOGIST: D. Sheldon

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	12 17 / 12 14	50	BRN. ↓ lt. BRN	MED DENSE ↓ LOOSE	Fill MATERIAL	Fill	WOOD Compost HNU = 3 ppm; Clayey Gravel
		S-2	SS	2 3 / 4 7	15					Gravelly clay, Wood. HNU = 3 ppm
		S-3	SS	2 1 / 2 8	75					BLK. Granular material
		S-4	SS	4 9 / 51 75	90		V. DENSE			Burnt wood, brick frags. HNU = 2 ppm
		S-5	SS	6 6 / 7 9	70		↓ MED DENSE			Paper, Fiberous wood. HNU = 3 ppm.
		S-6	SS	4 100/1	30	BLK. ↓ GRAY	↓ V. DENSE			BLK. Fiberous wood HNU = limestone frags 4 ppm
14.0		S-7	SS	100/4	10	↓	↓	↓	↓	Gray clay, some Fill. HNU = 2 ppm DRY
14.2	BOH	S-8	SS	75/3	5	TAN GRAY	HARD	Till / WEATHERED BEDROCK	GP	limestone frags HNU = 5-10 ppm

COMMENTS Sustained elevated organic vapor readings (HNU) during borehole advancement. Waste sample # LCL-SB-14 taken. Installed Piezometer # P-4 in borehole.

PROJECT NO. 35180
BORING NO. B-14

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-15

PROJECT: Lockport Landfill
CLIENT: City of Lockport
BORING CONTRACTOR:
GROUND WATER:

DATE	TIME	LEV	TYPE
2/12/90	—	6.7'	BH Completion

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 576.0
DATE STARTED: 2/12/90
DATE FINISHED: 2/12/90
DRILLER: M. Gerstung
DRILL RIG: Diedrich D-50
GEOLOGIST: D. Sheldon

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	5 14 / 10 30	40	BRN	MED DENSE	Fill Material	Fill	Topsoil, Gravel Brick Frags
		S-2	SS	6 6 / 6 5	60					Concrete, Glass
		S-3	SS	3 3 / 5 3	50					Mottled Clay and Concrete.
		S-4	SS	2 3 / 9 13	80		V. STIFF			Stratified Clay and Decomposed leaves.
		S-5	SS	16 14 / 21 11	25	GRAY				Stuff 8-9' Concrete, bricks 9-10'
		S-6	SS	3 3 / 5 4	50		MED STIFF			Saturated, Fill and Gravel.
		S-7	SS	4 6 / 8 15	60		V. STIFF			Saturated Some Clay 12-13.7'
16.3		S-8	SS	11 29 / 34 64	5		HARD			Clay + Trash
		S-9	SS	4 19 / 27 45	80	TAN GRAY	VERY STIFF	Silty Clay	CL	Dense, Mottled Fissile at 18' Dry
		S-10	SS	12 24 / 38 52	100					Trash Stuff 18-18.5' Dense Clay w/ Brk stain.
		S-11	SS	11 29 / 34 64	95					Stuff, Mottled Clay
24.0		S-12	SS	24 38 / 44 80	80		HARD			Dense, Fissile
	BOH									Difficult Augering 0-2'

COMMENTS Installed Piezometer # P-5 in borehole. Bottom of Fill at 16.3'

PROJECT NO. 35180
BORING NO. B-15

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-16

PROJECT: LockPort LandFill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER: Dry Hole (0 hr.)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 553.3
DATE STARTED: 2/13/90
DATE FINISHED: 2/13/90
DRILLER: M. Gerstung
DRILL RIG: Diedrich D-50
GEOLOGIST: D. Sheldon

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	12 12 / 15 4/3	60	BRN RED	MED DENSE ↓ DENSE	Fill MATERIAL	Fill	Wood Compost, Blk. Granular Fill. HNu = 2 ppm
		S-2	SS	19 29 / 9 14	40		↓ MED DENSE			RED Silty Clay + Concrete
		S-3	SS	1 3 / 20 40/2	75		↓ DENSE			Peat-like layer 4-4.3
		S-4	SS	37 9 / 5 7	20		↓ MED DENSE			Red Discoloration 5.5'
		S-5	SS	11 11 / 8 6	50					H. red sandy Gravel
		S-6	SS	7 9 / 5 7	50					Stuff, wood
12.0										Sl. Moist, wood, rusty Fill.
		S-7	SS	15 32 / 36 42	70	TAN GRAY	HARD	Silty Clay	CL	Dry, Fissile. Fossils at 13.3, 13.6. Limestone Frags - 13.9
14.0	BOH									

COMMENTS Bottom of Fill at 12.0'

PROJECT NO. 35180
BORING NO. B-16

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-17

PROJECT: Lockport Landfill
CLIENT: City of Lockport
BORING CONTRACTOR:
GROUND WATER: Dry Hole (0 hr.)

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 554.3
DATE STARTED: 2/13/90
DATE FINISHED: 2/13/90
DRILLER: M. Gerstung
DRILL RIG: Diedrich D-50
GEOLOGIST: D. Sheldon

DATE	TIME	LEV	TYPE		TYPE	CAS.	SAMP	CORE	TUBE
					DIA.		2"		
					WT.		140 lb.		
					FALL		30"		
					* POCKET PENETROMETER READING				

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	3	6	40	BRN	MED DENSE	Fill MATERIAL	Fill	Wood Compost Sand + Concrete
				9	19			↓			
		S-2	SS	76	51/3	0		V. DENSE			No Sample
								↓			
		S-3	SS	3	5	65	D.BRN	MED DENSE			Wood Compost Some Gravel tr. clay
6.0				10	17		@ 6.4	↓			
		S-4	SS	3	5	70	TAN GRAY	Very STIFF	SILTY CLAY	CL	Mottled, Dry. Fossils
				11	37			↓			
		S-5	SS	31	46	70		HARD			Mottled, Dry, Fissile Fossils. Limestone at 9.8'
10.0				76	5½						
	BOH										Hard Augering 7-8'

COMMENTS Bottom of Fill at 6.0'

PROJECT NO. 35180
BORING NO. B-17

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-18

PROJECT: LOCKPORT LANDFILL	SHEET NO. 1 OF 1
CLIENT: City of Lockport	JOB NO. : 35180
BORING CONTRACTOR: BUFFALO DRILLING	ELEVATION: 553.1
GROUND WATER: DRY Hole (08hr.)	DATE STARTED: 2/13/90
DATE / TIME / LEV / TYPE	DATE FINISHED: 2/13/90
	DRILLER: M. GERSTUNG
	DRILL RIG: DIEDRICH D-50
	GEOLOGIST: D. SHELDON

	CAS.	SAMP	CORE	TUBE
TYPE		SS		ST
DIA.		2"		3"
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	4 15 / 36 5	40	BRN ↓ H. GRAY	DENSE ↓ MED DENSE	FILL MATERIAL	Fill	WOOD COMPOST GRAVELLY SAND
		S-2	SS	9 3 / 11 3	20					CONCRETE. HAND AUGURING
		S-3	SS	2 6 / 5 7	10					STONE FILL, SAND HNU = 2.9 ppm.
		S-4	SS	3 8 / 7 10	50	BLK				BLK. FIBROUS WOOD 6-6.7'
		S-5	SS	3 6 / 3 6	50					BLK. ORGANIC MATERIAL + CLAY. WHITE X-STALS AT 9.9'
10.5		S-6	SS	2 5 / 6 5	35	TAN GRAY	MED STIFF	SILTY CLAY	CL	BOTTOM OF 10.5' MOTTLED, VUGGY SL. MOIST. TR. FOSSIL
12.0										
	BOH									

COMMENTS WASTE SAMPLE #LCL-SB-18 TAKEN. Shelby tube taken on 10-12' interval. Bottom of Fill at 10.5'

PROJECT NO. 35180
BORING NO. B-18

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. B-19

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER: DRY HOLE (0 hr)

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 554.5
DATE STARTED: 2/13/90
DATE FINISHED: 2/13/90
DRILLER: M. GERSTUNG
DRILL RIG: DIEDRICH D-50
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	8 14 / 17 16	10		MED DENSE	FILL MATERIAL	FILL	WOOD COMPOST, RED/BRN SANDY GRAVEL
		S-2	SS	8 7 / 20 18	80					RED/YELLOW GRANULAR FILL. STIFF, DRY
		S-3	SS	2 12 / 13 18	35					RED to WHITE GRANULAR FILL. CORRODED.
		S-4	SS	9 31 / 5 4	30					WHITE to BLK. GRANULAR FILL. GLASS DRY
		S-5	SS	4 4 / 4 5	40		LOOSE			WHITE FINE SAND GRN/WHT. X-STALS 9.7 – 10.0'
		S-6	SS	5 4 / 5 2	60					GRN/WHT. X-STALS 10-11' BLK SAND FINE 11-12.0'
		S-7	SS	3 3 / 3 4	50					RED SILT (LOOSE) 12-13.5' BLK SAND 13.5 → 14.0'
		S-8	SS	2 2 / 3 2	35					BLK. FINE SAND w/ RED SILTS.
		S-9	SS	3 4 / 8 6	70					16-17' BLK/GRAY SAND SHEEN, 17-18' CLAYEY SILT
		S 10	SS	2 2 / 2 5	35					OILY SAND, BRN. RED DISCOLORATION 19.9 WET.
		S-11	SS	3 5 / 3 2	20					BLK. SAND - OILY RESIDUE
		S-12	SS	8 10 / 11 11	10		MED DENSE			STUFF, OILY. SOFT GRAY CLAY AT 23.9
24.0										
		S-13	SS	4 6 / 17 20	30	TAN GRAY	MED DENSE / DENSE	SILTY CLAY	CL	MOTTLED SLIGHTLY PLASTIC
26.0	BOH									

COMMENTS WASTE SAMPLE #LCL-SB-19 taken. INSTALLED Piezometer #P-6 in borehole. Bottom of Fill at 24.0'

PROJECT NO. 35180
BORING NO. B-19

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW I

PROJECT: LockPort LANDFill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
2/21/90	8:00 AM	3.6'	CoreHole Completion (16 hr.)

	CAS.	SAMP	CORE	TUBE
TYPE	DIP		HX	
DIA.	6"		4"	
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO.: 35180
ELEVATION: 585.1
DATE STARTED: 2/16/90
DATE FINISHED: 2/21/90
DRILLER: K. KRIEGER
DRILL RIG: DIEDRICH D-50
GEOLOGIST: D. SHELDON

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
							SEE MW ID Boring Log For Overburden Description			
3.0										
4.0		RC-1	RC	◆	15/0	PINK	HARD	GASPORT LIMESTONE	BR.	Roller Bit Drilled 4-5' due to excessive core barrel wobble.
5.0						↓	↓	↓	↓	Vertical Fractures 5-7.5'.
		RC-2	RC		REC 80/36 RQD	lt. GRAY		DECEW D. dolostone		8.3-10.5': Gradation of limestone to dolostone.
10.5						D. GRAY	MED HARD			Well Fractured 11.2-11.7', horizontal and vertical.
		R-3	RC		REC 98/41 RQD			Rochester SHALE		Becomes more competent 13.0-19.1'. Top of SHALE at ~14.0'.
19.1										
		RC-4	RC		REC 98/54 RQD					Fractures at 21.2', 25.5' and 28.7'.
24.1	BOH									

COMMENTS Background boring.

PROJECT NO. 35180
BORING NO. MW I

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 1D

PROJECT: LOCKPORT LANDFILL
CLIENT: City of LOCKPORT
BORING CONTRACTOR: BUFFALO Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE	DIP	SS	HX	
DIA.	6"	2"	4"	
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 4
JOB NO. : 35180
ELEVATION: 584.6
DATE STARTED: 12/7/89
DATE FINISHED: 12/19/90
DRILLER: M. GERSTUNG
DRILL RIG: MOBILE B 345
GEOLOGIST: RON TRAMBOSCH

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY ROD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	2 6 / 16 12	25	BRN / D. BRN	VERY STIFF	SILTY CLAY, limestone Cobbles	CL	2" Organic Topsoil
		S-2	SS	4 27 / 50/0	15		HARD			Limestone cobble - Fossiliferous WET AT 3.0'
4.5		S-3	SS	50/0	0	Lt. GRAY		GASPORT Limestone	BR	Auger Refusal 4.5'
		RC-1	RC		REC 80 / RQD 80	D. GRAY				GASPORT Limestone 4.5-7.5'
7.5								DECEW Dolostone		DECEW Dolostone 7.5-17.0'
14.5		RC-2	RC		REC 90 / RQD 90		MED HARD	ROCHESTER SHALE		17.0' Top of Shale
24.5		RC-3	RC		REC 80 / RQD 67					Gypsum Vug at 27.3' MASSIVE limestone layer at 28.0'
33.5								CONTINUED ON NEXT PAGE		

COMMENTS: BACKGROUND BORING

PROJECT NO. 35180
BORING NO. MW 1D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 1D

PROJECT: LockPort LANDFill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
SHEET NO. 2 OF 4
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
33.5		RC-4	RC		REC 100/100 RQD	D. GRAY	MED HARD	ROCHESTER SHALE	BR.	
42.0		RC-5	RC		REC 94/100 RQD	LT. GRAY				BIOHERMS 46-51.5' CORALS, BRACHIOPODS AND TRILOBITES.
51.5		RC-6	RC		REC 100/72 RQD	D. GRAY				FOSSILIFEROUS LAYER 58.0-61.0'
61.5										

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COMMENTS

PROJECT NO. 35180
BORING NO. MW 1D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 1D

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 3 OF 4
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY / RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
61.5		RC-7	RC		REC 95/84 RQD	H. GRAY	MED HARD	ROCHESTER SHALE	BR.	BIOHERMS 69.0–71.0'
71.5		RC-8	RC		REC 100/100 RQD					
76.5										
77.5		RC-9	RC		REC 80/35 RQD	D. GRAY	HARD	IRONDEQUOIT LIMESTONE		IRON STAINING, 82'
86.5		RC-10	RC		REC 70/82 RQD					
96.5										

COMMENTS CONTINUED ON NEXT PAGE

PROJECT NO. 35180
BORING NO. MW 1D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 1D

PROJECT: LockPort LANDFill
CLIENT: City OF LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 4 OF 4
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
96.5		RC-1	RC		REC 95/100 RQD	D.GRAY / D.Green	HARD	IRONDEQUOIT LIMESTONE	BR.	
103.5						D.GRAY	MED HARD	ROCKAWAY Dolostone		
106.5		RC-2	RC		REC 100/80 RQD		HARD	HICKORY CORNERS LIMESTONE		Numerous Shale Partings 106.5 - 111.5'
111.5										
116.5	BOH									

COMMENTS

PROJECT NO. 35180
BORING NO. MW1D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 2I

PROJECT: Lock Port Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
1/24/90	8:30Am	3.8	Core Hole Completion

	CAS.	SAMP	CORE	TUBE
TYPE	DIP	SS		
DIA.	6"	2"		
WT.		140 lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 2
JOB NO.: 35180
ELEVATION: 507.0
DATE STARTED: 1/22/90
DATE FINISHED: 1/29/90
DRILLER: M. GERSTUNG
DRILL RIG: MOBILE RIG B345
GEOLOGIST: D. SHELDON / R. TRAMBOSCH

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
2.0		S-1	SS	4 7 / 8 3	10	BLK	MED STIFF	Fill / Organic Rich Soil	Fill	Moist, glass + plastics
		S-2	SS	2 3 / 6 8	40	TAN / BRN	MED STIFF	Loose Silty Clay, some Fill (6-8')	CL / Fill	Tr. sand, some silt. moist
		S-3	SS	WH 8 / 8 5	0					No Sample
		S-4	SS	10 100/1	10	BRN / BLK	HARD			Silty Clay + Fill
8.6		RC-1	RC		REC 98/16 RQD	LT. GRAY / PINK	HARD	IRONDEQUOIT Limestone	BR.	Well fractured 8.6-10.6' and 12.6-13.6'. Tr. Fossils at 12.0'
13.6		RC-2	RC		REC 98/55 RQD					Shale seams (1/4-1/2" typ.) 13.8' and 16.9'
18.6		RC-3	RC		REC 98/26 RQD	D. GREEN / BL. GRAY	MED HARD	ROCKAWAY Dolostone		Vertical Fractures 17.3-18.6' - weathered. Bottom of limestone at 18.8'
18.8										
21.6		RC-4	RC		REC 90/40 RQD					Shale partings 24.4-24.8'
26.6		RC-5	RC		REC 86/23 RQD	D. BLUE / GRAY				Vugs, Fractures 25.3-26.6'
31.6										Shale seams, less competent 28.3-31.6'

CONTINUED ON NEXT PAGE

COMMENTS: Environmental Sample taken on 2-4' interval. Auger Refusal at 8.6'.

PROJECT NO. 35180
BORING NO. MW 2I

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 2I

PROJECT: LockPort LANDFill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
SHEET NO. 2 OF 2
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
31.6		RC-6	RC		REC 96/37 RQD	D. GRAY ↓ GREEN ↓ GREEN/RED	MED HARD ↓	HICKORY CORNERS LIMESTONE ↓ NEAHGA ↓ GRIMSBY SANDSTONE	BR. ↓	BOTTOM OF ROCK-AWAY DOLOSTONE AT 31.6' DARK BLUE NODULES 33.3 - 33.6' GRIMSBY SAND-STONE 36.1 - 36.6'
32.6										
36.6										
	BOH							Drilling Note: Total water loss while coring 13.6 - 36.6'.		NEAHGA SHALE: 33.6 - 36.1'

COMMENTS

PROJECT NO. 35180
BORING NO. MW 2I

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 5I

PROJECT: LockPort LandFill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE	DIP	SS	NX	
DIA.	6"	2"	3"	
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 476.7
DATE STARTED: 1/12/90
DATE FINISHED: 1/18/90
DRILLER: M. GERSTUNG
DRILL RIG: Mobile Rig B34S
GEOLOGIST: R. TramposcH

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	3 3 / 4 2	30	BLK. ↓ BRN.	MED STIFF	Decomposed organics / Fill material ↓ Silty sandy clay	Fill ↓ CL	Brick Frags.
		S-2	SS	5 3 / 1 1	35					same sand
		S-3	SS	WH 50/0"	25		HARD			
5.5		RC-1	RC		REC 90 / 80 RQD	GRN. / RED	MED HARD	Grimsby Sandstone	BR.	Auger Refusal at 5.5'
10.5		RC-2	RC		REC 80 / 70 RQD					
15.5		RC-3	RC		REC 84 / 67 RQD					
20.5		RC-4	RC		REC 80 / 67 RQD					
25.5		RC-5	RC		REC 90 / 67 RQD					
30.5	BOH									

COMMENTS

PROJECT NO. 35180
BORING NO. MW 5I

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 6D

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING
SHEET NO. 1 OF 3
JOB NO.: 35180
ELEVATION: 578.8
DATE STARTED: 1/17/90
DATE FINISHED: 2/14/90
DRILLER: K. KRIEGER
DRILL RIG: DIEDRICH D-50
GEOLOGIST: D. SHELDON / R. WEST

GROUND WATER:

DATE	TIME	LEV	TYPE
2/14/90	2:00 PM	568.10	Core hole Completion

	CAS.	SAMP	CORE	TUBE
TYPE	DIP	SS	HX	
DIA.	6"	2"	4"	
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	3 3 / 3 5	40	RED BRN ↓ TAN GRAY	MED STIFF ↓ HARD	SILTY CLAY, MOTTLED DRY AND FISSILE	CL	Tr. SAND, ORGANICS SL. MOIST
		S-2	SS	5 20 / 32 50	45					
		S-3	SS	47 100/3	20					SOME ANGULAR GRAVEL 5-14.0'
		S-4	SS	36 65 / 100/4	35					
		S-5	SS	44 100/4	15	LT. GRN				
		S-6	SS	44 100/4	10					
14.0		S-7	SS	31 100/5	15					
		S-8	SS	100/3	25	GRAY	MED SOFT	WEATHERED SHALE, SOME CLAY	V. Br.	WET
18.0		S-9	SS	100/1	25					WET
		RC-1	RC		REC 96 / 20 RQD	D. GRAY	MED HARD	ROCHESTER SHALE	V. Br.	Auger Refusal at 18' WELL FRACTURED 18.0-22.0' BECOMES MORE COMPETENT
		RC-2	RC		REC 100 / 80 RQD					WEATHERED FRACTURES at 24.4' AND 25.3' BIOHERMS 28.3-29.0'
29.0										

CONTINUED ON NEXT PAGE

Drilling NOTE: HARD AUGERING DIFFICULT pulling AUGERS.

COMMENTS BACKGROUND BORING

PROJECT NO. 35180
BORING NO. MW 6D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 6D

PROJECT: LockPort LANDFILL
CLIENT: City of LockPort
BORING CONTRACTOR:
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 2 OF 3
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
29.0		RC-3	RC		REC ↓ 95 / 35 ↑ RQD	D. GRAY	MED HARD	ROCHESTER SHALE	BR	WELL FRACTURED 29-34.0' PREDOMINANT BIOHERMS 29-33.7' VERY FOSSILIFEROUS 33-39' TRILOBITES AND MOLLUSKS.
39.0		RC-4	RC		REC ↓ 97 / 43 ↑ RQD					WELL FRACTURE
49.0		RC-5	RC		REC ↓ 87 / 34 ↑ RQD					BIOHERMS 47.6-49.0' BIOHERMS 50.7-53.2'
59.0										

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COMMENTS

PROJECT NO. 35180
BORING NO. MW 6D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 6D

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR:
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 3 OF 3
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
59.0		RC-6	RC		REC 93 / 52 RQD	O. GRAY	MED HARD	ROCHESTER SHALE	BR	More Competent Interval. Minor Fractures 60', 62' and 65.5'
										Bioherms 67-69'
69.0										Highly Fossiliferous 69-71.8'
71.8		RC-7	RC		REC 94 / 45 RQD	TAN GRAY	HARD	IRONDEQUOIT LIMESTONE		Top of Limestone 71.8'
										Total loss of Coring water 72.4 - End of Hole
77.3		RC-8	RC		REC 56 / 36 RQD					Well Fractured at 80.5'
										Shale seam and Fractures 84.9-85.1'
86.6	BOH									

COMMENTS

PROJECT NO. 35180
BORING NO. MW6D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 7S

PROJECT: Lock Port LANDFill
CLIENT: City of Lock Port
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE	DIP	SS	NX	
DIA.	4"	2"	3"	
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO.: 35180
ELEVATION: 501.6
DATE STARTED: 1/15/90
DATE FINISHED: 1/16/90
DRILLER: M. Gerstung
DRILL RIG: Mobile B-57
GEOLOGIST: R. Trampos CH

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	7 11 / 60/5	55	BLK. / TAN / BRN.	STIFF / HARD	CLAY, SOME SILT	CL	2" BLK. ORGANIC SOIL Boulders (Limestone) NEAR SURFACE Moist, roots, leaves
		S-2	SS	3 14 / 56 50/0	50					SPOON WET
		S-3	SS	75/3	30					WELL ROUNDED AND ANGULAR GRAVEL IN CUTTINGS - SHALE
		S-4	SS	50/0	0					
		S-5	SS	100/5	15			WEATHERED BEDROCK		WEATHERED BEDROCK 9.0 - 9.3.
9.3		RC-1	RC		REC 88/0 RQD	D. GRAY / L. GRAY	MED HARD / HARD	ROCKAWAY DOLOSTONE / HICKORY CORNERS LIMESTONE	V. Br.	SHALE PARTINGS 9.3 - 11.3. WELL FRACTURED. 11.3 - 14.3' VUGS, SUGARY TEXTURE TO WEATHERED SURFACES.
14.3		BOH								Extensively broken 14 - 14.3'

COMMENTS

PROJECT NO. 35180
BORING NO. MW 7S

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW BI

PROJECT: LOCKPORT LANDFILL
CLIENT: CITY OF LOCKPORT
BORING CONTRACTOR: BUFFALO DRILLING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 574.4
DATE STARTED: 1/19/90
DATE FINISHED: 2/8/90
DRILLER: K. KRIEGER
DRILL RIG: DIEDRICH D-50
GEOLOGIST: RON TRAMPOSCH

GROUND WATER:

DATE	TIME	LEV	TYPE
1/22/90	9:45 AM	17.7	B.H. (62 hr.)
2/7/90	1:30 PM	17.5'	CORE HOLE
			Completion (0 hr.)

	CAS.	SAMP	CORE	TUBE
TYPE	DIP	SS	HX	
DIA.	6"	3"	4"	
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
								SEE MW 8D BORING LOG FOR OVERBURDEN DESCRIPTION		
19.0										
		RC-1	RC		REC 88/0 RQD	D.GRAY	MED HARD	ROCHESTER SHALE	V.Br.	FOSSILIFEROUS VERTICAL FRACTURE AT 23.5'
23.5		RC-2	RC		REC 100/0 RQD					
27.5		RC-3	RC		REC 75/25 RQD					
31.5		RC-4	RC		REC 100/60 RQD				BR.	
34.5	BOH									

COMMENTS BACKGRAND BORING. ENVIRONMENTAL SAMPLE TAKEN ON THE 2-4' INTERVAL.

PROJECT NO. 35180
BORING NO. MW BI

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 8D

PROJECT: LockPort Landfill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
2/6		64.5'	Core Hole completion

	CAS.	SAMP	CORE	TUBE
TYPE	DIP	SS	NX/HX	
DIA.	6"	2"	3"/4"	
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 4
JOB NO.: 35180
ELEVATION: 574.3
DATE STARTED: 1/18/90
DATE FINISHED: 1/30/90
DRILLER: K. Krieger
DRILL RIG: Diedrich D-50
GEOLOGIST: D. Sheldon / R. West

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	3 6 / 17 44	90	TAN GRAY	HARD	Silty Clay, Dense. Fissured	CL	Mottled, trace Gravel, organics.
		S-2	SS	16 41 / 60 75	80					Dry
		S-3	SS	23 43 / 49 75	80					Tr. Gravel, Dry Mottled
		S-4	SS	24 48 / 66 100/5	85					Dry tr. root material
		S-5	SS	28 53 / 100/5	90	LT. BRN				Dry
		S-6	SS	20 36 / 35 56	85					Mottled, Sl. moist D. Brn. Organics
		S-7	SS	19 37 / 65 81	95					Sl. Moist. Fossils at 13' Tr. Organics
		S-8	SS	24 100 / 50/3	95					Dense, Sl. moist
		S-9	SS	14 33 / 100/4	90	BRN				Wet, some rock Frags - Shale
17.5		S-10	SS	100/3	5	GRAY	MED SOFT	Weathered Shale Tr. Clay	UBR	Shale Frags, silt.
18.6		RC-1	RC		REC 59 / 0 RQD	D GRAY	MED HARD	Rochester SHALE	U. BR.	
27.0										

CONTINUED ON NEXT PAGE

Drilling Notes: Run #1 cored very easily; excessive barrel wobble.

COMMENTS: Background Boring.

PROJECT NO. 35180
BORING NO. MW 8D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 8D

PROJECT: LOCKPORT LANDFILL
CLIENT: City of Lockport
BORING CONTRACTOR:
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 2 OF 4
JOB NO.: 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
27.0		RC-2	RC		REC 100/50 RQD	D.GRAY	MED HARD	ROCHESTER SHALE	BR.	BIOHERMS 27-28', 29-30.5' WEATHERED FRACTURES 27-28', 29.9' AND 35.3'
37.0		RC-3	RC		REC 95/36 RQD					BIOHERMS THROUGHOUT RUN #3. FRACTURES 38.3-39.2'
47.0		RC-4	RC		REC 100/40 RQD					BIOHERMS THROUGHOUT RUN #4. WEATHERED FRACTURE AT 54.2'
57.0										DRILLING NOTES: RETURN WATER FROM RUN #4 THICK WITH FINES. CORING WATER HAD TO BE CHANGED AT 53.8'

CONTINUED ON NEXT PAGE

COMMENTS

PROJECT NO. 35180
BORING NO. MW 8D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 8D

PROJECT: Lockport Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

* POCKET PENETROMETER READING

SHEET NO. 3 OF 4
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY ROD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
57										
		RC-5	RC		REC 86/8 RQD	R GRAY ↓ H. GRAY / TAN	MED. HARD ↓ HARD	ROCHESTER SHALE ↓ IRONDEQUOIT LIMESTONE	BR	EXTENSIVE BIO-HERMS + WEATHERED FRACTURES 58.5-59.1'
59.5										TOP OF LIMESTONE AT 59.5'
										VERTICAL FRACTURES 59.8-61.2'
65.5										WELL FRACTURED 66-67.4'
		RC-6	RC		REC 63/52 RQD					COMPETENT 67.4-75.5'
75.5										
77.0						D. GRAY / BL-GRAY	MED HARD	ROCKAWAY DOLOSTONE		77.0' TOP OF DOLOSTONE SHALE PARTINGS AND VUGS TYPICAL IN ROCKAWAY DOLOSTONE. SUGARY TEXTURE TO WEATHERED SURFACE
		RC-7	RC		REC 97/88 RQD					
85.5										DRILLING NOTES: CHANGED TO A 3" CORE BIT AT START ON RUN #6. RUN #6 CORED VERY EASILY.
							CONTINUED ON NEXT PAGE			

COMMENTS

PROJECT NO. 35180
BORING NO. MW 8D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 8D

PROJECT: LaKeport LANDFill
CLIENT: City of LaKeport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE				
DIA.				
WT.				
FALL				

• POCKET PENETROMETER READING

SHEET NO. 4 OF 4
JOB NO. : 35180
ELEVATION:
DATE STARTED:
DATE FINISHED:
DRILLER:
DRILL RIG:
GEOLOGIST:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
85.5						BLUE GRAY	MED HARD	ROCKAWAY DOLOSTONE	BR.	
					REC 96/54 RQD	D. GRAY D BLUE		LIMESTONE (MERRITTON OR HILTORY CORNERS)		TOP OF LIMESTONE 89.6' FRACTURES at 90.0'
94.6		RC-8	RC							
95.5										
96.2										
					REC 90/53 RQD	Lt. GREEN GREEN RED		NEAHGA SHALE GRIMSBY SANDSTONE		NEAHGA SHALE 96.5-98.2' TOP OF SANDSTONE at 98.2'
98.2		RC-9	RC							
										FRACTURES at 104.0-104.2'
105.5										
					REC 100/31 RQD					RUN #10 WELL FRACTURED. FINE SAND ON FRACTURED SURFACES.
		RC-10	RC							
113.0										
	BOH									

COMMENTS

PROJECT NO. 35180
BORING NO. MW 8D

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 9S

PROJECT: Lockport Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
1/11/90		5.0'	B.H. Completion (0 hr.)

	CAS.	SAMP	CORE	TUBE
TYPE		SS		ST
DIA.		3"		3"
WT.		140lb.		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
ELEVATION: 484.'
DATE STARTED: 1/11/90
DATE FINISHED: 1/11/90
DRILLER: M. GERSTUNG
DRILL RIG: MOBILE B-35
GEOLOGIST: R. TRAMPOSCH

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
4.0		S-1	SS	2 3 / 9 10	35	BLK.	MED STIFF	SANDY, GRAVELLY CLAY. SUB-ANGULAR GRAVEL, SOME COBBLES	CL	ENVIRONMENTAL SAMPLE
6.0										
9.0	BOH							SEE MW 9I BORING LOG FOR FULL OVERBURDEN DESCRIPTION.		

COMMENTS Shelby tube taken on 6-8' interval. Environmental sample taken from 4-6' interval. Oil odor and sheen to sample.

PROJECT NO. 35180
BORING NO. MW 9S

URS CONSULTANTS, Inc.
MAKING TECHNOLOGY WORK

TEST BORING LOG
BORING NO. MW 9I

PROJECT: LockPort LANDFill
CLIENT: City of LockPort
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
1/11/90		4.5'	Core Hole Completion (14 hr.)

	CAS.	SAMP	CORE	TUBE
TYPE	DEP	SS	NX	
DIA.	6"	2"	3"	
WT.		140lb.		
FALL		30"		

• POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO.: 35180
ELEVATION: 484.1
DATE STARTED: 1/4/90
DATE FINISHED: 1/10/90
DRILLER: M. GERSTUNG
DRILL RIG: MOBILE B 34S
GEOLOGIST: R. TRAMPOSCH

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION: COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	4 4 / 3 7	50	TAN / BRN ↓ BLK.	MED STIFF ↓ SOFT ↓ STIFF	Silty Clay, some Sand ↓ Black Organic Layer, wood chips. some silt + sand	CL ↓ Pt	Water at 30'
		S-2	SS	WH 3 / 2 2	65					
		S-3	SS	2 11 / 17 15	40			↓ Sandy silt, some Gravel	GM	
		S-4	SS	5 6 / 9 8	50	BLK. / BRN		↓ Clayey silt, some sand and gravel		
9.5		S-5	SS	15 / 95/3 116	35	↓ BRN	↓ HARD		↓	
		RC-1	RC		REC 65/30 RQD	LT GRAY / D. GRAY ↓ BRN	MED HARD ↓	MED. GRAINED Limestone grading down to APHINITIC Dolostone Numerous Fractures. Sand, Gravel + Clay in lower Portion	U. BR ↓	9.5-10.5's White Colored return water 10.5'-14.5': Brown return water.
12.8		RC-2	RC		REC 0/0 RQD		HARD ↓	Sand, Gravel - Coarse Grained, Sub Angular ↓	GW ↓	
14.5		S-6	SS	100/5	12					
16.5		S-7	SS	50	10/12	0				
		RC-3	RC		REC 80/80 RQD	D. GRAY / D. GRN. ↓	MED HARD ↓	Rockaway Dolostone ↓	U. BR ↓	Gravel 18.0-18.5'
19.5		RC-4	RC		36/0					
20.9		RC-5	RC		REC 77/20 RQD	↓ LT. GRN. ↓	↓ SOFT ↓ MED HARD	↓ Neahga Shale ↓ Grimsby Sandstone	↓	
24.5		BOH								

COMMENTS

PROJECT NO. 35180
BORING NO. MW 9I

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-20

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER: Dry Hole

DATE	TIME	LEV	TYPE
4/2/91		Dry	B.H. Completion

	CAS.	SAMP	CORE	TUBE
TYPE		SS (split spoon)		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
BORING LOCATION: N18776 E11752
GROUND ELEVATION: 545.8
DATE STARTED: 4/2/91
DATE FINISHED: 4/2/91
DRILLER: C. Nicometi
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY ROD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	PID (ppm)	CLASS USCS	REMARKS
0.5		S-1	SS	3 5 / 9 17	35	Brn	Loose	City Silt w/ Sm. Gravel		Fill	
		S-2	SS	3 7 / 6 3	50	Brn-Gray	Med. Dense to V. Dense	Fill; Predominantly waste paper and lumber but also includes glass, metal and plastic	0.0		
5		S-3	SS	11 15 / 33 10	25				0.0		• Hand Augering 6-8'
		S-4	SS	Sampler Refusal	0				0.0		
		S-5	SS	57 19 / 21 19	5				4.0		
10		S-6	SS	10 20 / 50/1	20				2.0		
12											
		S-7	SS	7 5 / 6 12	60	Lt. Gray w/ Brn Mottles	Stiff	Clayey Silt	0.0	ML-CL	• Sl. Moist
15		S-8	SS	7 13 / 22 33	80		Hard		0.0		• Dry & Tight
16								Boring Completed at 16.0 Feet. Hole caved-in to 12.5 Feet			
20											
25											
30											
35											

A-3205

COMMENTS Hole advanced with a Diedrich D-50 drill rig equipped with 4 1/4" Augers. Bottom of fill at 12.0 Feet. PID reading from split spoon samples.

PROJECT NO. 35180
BORING NO. B-20

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-21 / 9-7

PROJECT: Lockport City LANDFILL
CLIENT: City OF Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
4/3	5:00 P	37.2'	1/2 hour AFTER piezometer installation
From	G.S.		

	CAS.	SAMP	CORE	TUBE
TYPE		SS (split spoon)		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 2
JOB NO. : 35180
BORING LOCATION: N 18665 E 11705
GROUND ELEVATION: 547.9
DATE STARTED: 4/3/91
DATE FINISHED: 4/3/91
DRILLER: C. Nicometi / K. Hoebeat
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	7 13 / 7 15	50	RED-BRN	STIFF ↓ MED STIFF	Clayey Silt intermixed with Gravel (Fill)	Fill	• Moist
4		S-2	SS	4 8 / 6 6	60					
5		S-3	SS	5 5 / 6 8	60	GRAY-BRN	LOOSE to DENSE	Fill; glass, bricks AND cinders stratified with loose gray clayey silt		• Moist
		S-4	SS	3 6 / 11 17	25					
		S-5	SS	4 5 / 6 9	10					
10		S-6	SS	9 11 / REFUSAL	20	BLK-BRN		Fill; black stained wood AND lumber		• WET
		S-7	SS	7 12 / 17 29	35					• 2 ppm PID 14-16' Sample
15		S-8	SS	4 27 / 24 40	15					• HARD Augering 15-16' • 100% LEL @ 16'
		S-9	SS	56 20/1	10					• 2% LEL
		S-10	SS	19 24 / 20 26	10					• 3% LEL
20		S-11	SS	7 12 / 8 8	5					• 30% LEL
		S-12	SS	5 7 / 12 10	5					
25		S-13	SS	6 7 / 8 10	60					• Black oily CINDERS 25-26' • WET at 26.5'
		S-14	SS	12 / REFUSAL	10					
		S-15	SS	4 9 / 11 22	55					• wet cuttings 30-32'
30		S-16	SS	22 45/1	0					
		SAMPLER AUGERED		REFUSAL, to 33 Feet						
		S-17	SS	13 60 / 63 45	90					
35										

Log CONTINUED ON FOLLOWING PAGE

COMMENTS Hole advanced with a Diedrich D-50 drill rig equipped with 4 1/4" Augers. LEL levels of 100% encountered at 16' level. Hole allowed to vent for two hours before drilling was resumed. PID readings taken from split spoon samples.

PROJECT NO. 35180
BORING NO. B-21 / 9-7

A-3205

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-21/P-7

PROJECT: LockPort City Landfill
SHEET NO. 2 OF 2
CLIENT: City of LockPort
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	REMARKS
35										
		S-18	SS	13 15 / 64 41	60	BLACK	DENSE to LOOSE	Fill; wood, glass, bricks, slag, concrete AND black cinders	Fill	• SL. MOIST • WET
37										
		S-19	SS	3 3 / 6 11	50					
40		S-20	SS	17 37 / 22 21	60					
40.5						GRAY	V. STIFF	CLAYEY SILT, ROOT MATERIAL	CL-ML	• SL. MOIST • TRACE GRAVEL, 42.5-43
		S-21	SS	6 14 / 18 19	60					
43										
								Boring Completed AT 43.0 Feet No CAVE-IN OF BOREHOLE		

A-3205A

COMMENTS Piezometer P-7 installed in borehole.* Bottom of fill at 40.5'

Piezometer P-7: * Piezometer installation diagram included in Appendix B
Screened Interval: 35.5 - 40.5'
Seal Placed : 27.5 - 30.0'

PROJECT NO. 35180
BORING NO. B-21/P-7

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-22

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER: Dry Hole

DATE	TIME	LEV	TYPE
4/4		DRY	B.H. Completion

	CAS.	SAMP	CORE	TUBE
TYPE		SS (Split Spoon)		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
BORING LOCATION: N 18633 E 12018
GROUND ELEVATION: 566.5
DATE STARTED: 4/4/91
DATE FINISHED: 4/4/91
DRILLER: K. Huebert
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY ROD %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	3 3 / 4 2	20	BRN	Loose ↓ Med Dense	Fill; bricks, concrete and gravel intermixed with a clayey silt	Fill	
		S-2	SS	4 7 / 11 8	40					
5		S-3	SS	7 12 / 7 3	40					• Sl. Moist
		S-4	SS	6 7 / 8 8	5					
10		S-5	SS	2 5 / 5 9	15					
		S-6	SS	6 6 / 6 7	25					
		S-7	SS	16 13 / 18 5	70					
15		S-8	SS	4 11 / 12 8	35					• Dry • 5% LEL *
		S-9	SS	3 7 / 13 12	40	Black		Fill; consisting of burnt wood, concrete, paper and a fine black sand		• Blk. Sand 19-22' • 20% LEL *
20		S-10	SS	6 6 / 4 3	30		Loose			• Moist • 30% LEL *
22		S-11	SS	7 3 / 3 4	30					
	4/4/91	S-12	SS	3 6 / 9 14	45	Gray w/ Lt. Brn Mottles	Stiff	Clayey Silt, mottled	CL-ML	• Sl. Moist
25	4/4/91	S-14	SS	6 10 / 11 18	90					• Trace Fine gravel 25'-26'
26								Boring Completed At 26.0 Feet		
30										
35										* Quickly Dissipated

COMMENTS Hole advanced with a Diedrich D-50 drill rig equipped with 3 3/4" Augers. Bottom of fill at 22 Feet. PID readings taken from split spoon samples, No elevated readings.

PROJECT NO. 35180
BORING NO. B-22

A-3205

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-23 / B-8

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
4/4	12:45P	29.5' Below Grade	Borehole Completion
4/4	3:30P	22.6' Below Grade	Piezometer Completion

	CAS.	SAMP	CORE	TUBE
TYPE		SS (Split Spoon)		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 2
JOB NO. : 35180
BORING LOCATION: N 18544 E 11999
GROUND ELEVATION: 563.8
DATE STARTED: 4/4/91
DATE FINISHED: 4/4/91
DRILLER: K. Huebert
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	3 5 / 13 18	15	BRN-D. BRN	MED DENSE	Intermixed Gravel and Silty Clay (Fill)	Fill	
		S-2	SS	16 5 / 2 4	15					• Sample Saturated
5		S-3	SS	8 2 / 2 5	10					
8		S-4	SS	7 8 / 6 8	50					
		S-5	SS	10 16 / 18 15	40	BRN/D. BRN	MEDium DENSE To DENSE	Fill; Cinders, glass, burnt wood, paper, plastic. Trace to some clayey silt		
10		S-6	SS	5 21 / 25 10	90					
		S-7	SS	7 9 / 9 14	40					
15		S-8	SS	14 9 / 5 7	45	BLACK				• BLACK SAND 16-18'
		S-9	SS	30 42 / 20 12	40					
		S-10	SS	14 38 / 15 19	30					• 25% LEL *
20		S-11	SS	13 13 / 12 3	10					• 10% LEL *
		S-12	SS	2 1 / 1 1	0		LOOSE			• 60% LEL *
25		S-13	SS	2 1 / 7 4	5					• SATURATED
		S-14	SS	3 2 / 2 5	20					
30		S-15	SS	4 4 / 1 6	0					
32		S-16	SS	5 6 / 10 11	5		MED DENSE			• SATURATED
		S-17	SS	5 7 / 13 17	70	GRAY W/ LT BRN Mottles	STIFF to V. STIFF	Silty Clay with organic (root) material	CL	
35		S-18	SS	9 10 / 13 32	10					

COMMENTS Hole Advanced with a DIEDRICH D-50 drill rig equipped with 3 3/4 Augers. Bottom of Fill at 32 feet. PID readings taken from split spoon samples. No readings above background.
* Quickly dissipated.

PROJECT NO. 35180
BORING NO. B-23 / B-8

A-3205

URS CONSULTANTS, Inc.	TEST BORING LOG BORING NO.
PROJECT: LockPort City Landfill	SHEET NO. 2 OF 2
CLIENT: City of LockPort	JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY / RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
38		S-19	SS	16 25 31 33	10	GRAY lt.Green	HARD ↓	Silty Clay w/ organics ↓	CL ↓	
40		S-20	SS	11 15 16 13	60	GRAY RUST	V. STIFF ↓	Clayey Silt, some Angular Coarse Gravel. Mottled	CL-ML	• Shale Gravel • Moist
								Boring Completed At 40.0 Feet		

A-3205A

COMMENTS Piezometer P-8 installed in borehole. Screened from 22.3 - 32.3'. Seal placed from 16.0 - 20.0'. Well installation diagram included in Appendix B.

PROJECT NO. 35180

BORING NO. B-23 / P-8

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-24

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER: Levels From G.S.

DATE	TIME	LEV	TYPE
4/4	4:30P	7.0'	Bore Hole at
			x14 Ft.
4/4	5:30P	4.5	Bore Hole
			Completion

	CAS.	SAMP	CORE	TUBE
TYPE		SS (Split Spoon)		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
BORING LOCATION: N 18458 E 11991
GROUND ELEVATION: 562.5
DATE STARTED: 4/4/91
DATE FINISHED: 4/4/91
DRILLER: K. Huebert
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
0		S-1	SS	2 5 / 5 4	65	BRN	Loose to Med Dense	Coarse Angular Gravel In Clayey Silt Matrix (Fill)	Fill	
		S-2	SS	2 5 / 10 12	30					
5		S-3	SS	7 9 / 14 5	45					
		S-4	SS	16 22 / 2 1	35					
8										
		S-5	SS	6 16 / 31/1	45	BRN	Med Dense to Dense	Fill; glass, paper, wood plastic and cloth		• Sample Saturated
10		S-6	SS	10 20 / 16 2	40					
		S-7	SS	40 6 / 8 5	5					
15		S-8	SS	6 9 / 12 2	5					
16										
		S-9	SS	8 21 / 20 10	60	GRAY / YELLOW ↓ GRAY / BRN	V. Stiff	Clayey Silt, trace to some Angular Gravel and Shale Fragments	CL-ML	• Dry
20		S-10	SS	6 18 / 28 30	70					• Trace Fossil
								Boring Completed at 20.0 Feet		
25										
30										
35										

A-3205

COMMENTS Hole advanced with a Diedrich D-50 drill rig equipped with 3 3/4" Augers. Bottom of Fill at 16 Feet. PID readings taken split spoon samples, No PID readings

PROJECT NO. 35180
BORING NO. B-24

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-25

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
SHEET NO. 1 OF 1
JOB NO. : 35180
BORING LOCATION: N 18361 E 12017
GROUND ELEVATION: 563.4
DATE STARTED: 4/5/91
DATE FINISHED: 4/5/91
DRILLER: K. Huebert
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

GROUND WATER:				CAS.	SAMP	CORE	TUBE
DATE	TIME	LEV	TYPE	TYPE	SS (Split Spoon)		
4/5	8:50A	8.0'	Bore Hole at	DIA.	2"		
Below	Grade		10'	WT.	140#		
				FALL	30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY ROD %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	PID (ppm)	REMARKS
		S-1	SS	6 17 / 8 6	40	BRN-lt.BRN	MED DENSE	GRAVEL AND CONCRETE pieces in A Clayey Silt	Fill	0.0	
4		S-2	SS	25 9 / 11 15	20					0.0	
5		S-3	SS	12 30 / 25/2	55	BLACK	V. DENSE ↓ LOOSE to DENSE	Fill; burnt wood AND GRAVEL (4-6') ↓ WASTE; Black oily material with tar inclusions (6-12')		0.0	• HARD Augering 4-5'
		S-4	SS	3 10 / 11 1	35					60.0	• Petroleum ODOR
10		S-5	SS	4 4 / 4 5	55					6.0	
12		S-6	SS	5 6 / 14 9	30					60.0	
		S-7	SS	7 11 / 16 25	75	H.GRAY	STIFF	Silty Clay, trace to some Angular Gravel	CL-ML	0.0	
15		S-8	SS	11 14 / 36 25	5		Very STIFF			0.0	
16								Boring Completed At 16.0 Feet			
20											
25											
30											
35											

A-3205

COMMENTS Hole advanced with a Diedrich D-50 drill rig equipped with 3¼" Augers. PID readings from split spoon samples. Collected waste sample LCL-SB-25 from 6-12' interval.

PROJECT NO. 35180
BORING NO. B-25

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-26

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
SHEET NO. 1 OF 1
JOB NO. : 35180
BORING LOCATION: N18296 E12097
GROUND ELEVATION: 572.6
DATE STARTED: 4/5/91
DATE FINISHED: 4/5/91
DRILLER: C. Nicometi
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

GROUND WATER:				CAS.	SAMP	CORE	TUBE
DATE	TIME	LEV	TYPE	TYPE	SS (Split Spoon)		
4/5	11:50A	9.0'	Borehole	DIA.	2"		
Below	Grade		Completion	WT.	140#		
				FALL	30"		

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	1 1 / 2 1	25	BRN	V. Loose to DENSE	Fill; Coarse Gravel and some slag in a clayey silt matrix	Fill	
		S-2	SS	2 2 / 2 4	40					• Sl. Moist
5		S-3	SS	5 32 / 12 7	50					
6										
		S-4	SS	9 11 / 9 9	90	GRAY	Loose to DENSE	Fill; Decomposed leaves and wood. Some silt (6-10')		
		S-5	SS	3 5 / 11 9	70					
10						H. BRN				
		S-6	SS	6 9 / 18 20	80			Fill; Burnt wood, glass, bricks and slag (10-18')		
		S-7	SS	16 19 / 21 10	45	BLACK				
15		S-8	SS	4 1 / 2 7	10					• Saturated
		S-9	SS	8 4 / 3 5	10					
18										
		S-10	SS	8 16 / 23 31	70	GRAY w/ Yellow Mottles	V. Stiff	Clayey Silt, mottled, trace organic material	CL-ML	Sl. Moist
20								Boring Completed at 20.0 Feet		
25										
30										
35										

A-3205

COMMENTS Hole advanced with a Diedrich D-50 drill rig equipped with 3 3/4" Augers. Bottom of Fill at 18 Feet.

PROJECT NO. 35180
BORING NO. B-26

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. B-27

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	TYPE	CAS.	SAMP	CORE	TUBE
	SS (Split Spoon)				
DIA.	2"				
WT.	140#				
FALL	30"				

* POCKET PENETROMETER READING

SHEET NO. 1 OF 1
JOB NO. : 35180
BORING LOCATION: N18255 E12042
GROUND ELEVATION: 567.4
DATE STARTED: 4/5/91
DATE FINISHED: 4/5/91
DRILLER: C. Nicometi
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY ROD %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	5 10 / 18 26	25	BRN	MED DENSE	Fill; COARSE GRAVEL IN A CLAYEY SILT MATRIX	Fill	• Sl. Moist
		S-2	SS	3 10 / 4 5	40					• Sl. Moist
5		S-3	SS	4 5 / 10 14	25					
7.5		S-4	SS	5 5 / 5 5	55					
		S-5	SS	3 3 / 10 23	20	BRN	MED DENSE	Fill; Decomposed leaves, peat and plastic bags		• Sl. Moist
10		S-6	SS	4 9 / 21 26	60	lt. BRN w/ Dusty Yellow Mottles	U. STIFF	Clayey Silt, Mottled, Trace organic (roots)	CL-ML	• Dry
		S-7	SS	18 23 / 26 31	65					• Wet at 14'
15								Boring Completed At 14.0 Feet		
20										
25										
30										
35										

A-3205

COMMENTS Hole advanced with Diedrich D-50 drill rig equipped with 3 3/4" Augers. Bottom of Fill at 10.0 Feet.

PROJECT NO. 35180
BORING NO. B-27

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-10D

PROJECT: LockPort Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
2/19	11:20A	7.9'	Overburden/ borehole A-T 9.6'

	CAS.	SAMP	CORE	TUBE
TYPE		SS	NX	
DIA.		2"	3"	
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

SHEET NO. 1 OF 3
JOB NO. : 35180
BORING LOCATION: N18882 E12299
GROUND ELEVATION: 577.3
DATE STARTED: 2/19/91
DATE FINISHED: 3/19/91
DRILLER: C. Nicometi
GEOLOGIST: Daniel M. Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	1 2 / 3 3	40	BRN ↓ Lt. BRN	SOFT ↓ STIFF ↓ V. STIFF ↓ HARD	Silty Clay with Angular Gravel Seams (1"TYP)	CL	• HARD Augering 2-8'. • Yellow Mottling 4-8'
		S-2	SS	13 11 / 12 10	6/10					
5		S-3	SS	14 34 / 50/4	95					
		S-4	SS	68 50/1	40					
		S-5	SS	60/1	6/10					
10		Roller Bit Drilled 9.6-11.2'			NA	GRAY	SOFT	WEATHERED SHALE	V.BR	• Auger Refusal at 9.6'
11.2		RC-1	HX	6.3' 6.8'	REC 93/0 RQD					
15										
18						D.GRAY	MED. HARD	Rochester SHALE; Aphantic Shale with Fossiliferous layers (bioherms)	BR	• Silted Fractures at 20.0, 22.6, 25.4 and 26.5'
20		RC-2	NX	9.0 10.0	REC 90/30 RQD					
25										• Bioherms 26-33' Clay Seams and Vugs 26-33'
28										
30		RC-3	NX	10.4 10.4	REC 100/90 RQD					
35										

A-3205

COMMENTS Drilled with DieDrich D-50 rig. Rock hole reamed to a 6" diameter. 6 1/4" Augers used (overburden) and NX core (bedrock). See Appendix B for well construction details.

PROJECT NO. 35180
BORING NO. MW-10D

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-10D

PROJECT: Lockport City Landfill
CLIENT: City of Lockport

SHEET NO. 2 OF 3
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		RC-3				D. GRAY	MED. HARD	Rochester SHALE	BR.	
38.4										
40		RC-4	NX	7.5' 7.5'	REC 100/98 RQD					• Bioherms 42-70.5'
45										
45.4										• Some water loss during Run #5
50		RC-5	NX	9.1' 10.9'	88/67					
55										
56.8										
60		RC-6	NX	8.4 8.9	100/50					
65										
65.7										
70		RC-7	NX	9.8 10.0	98/78					
70.7						Lt. GRAY - TAN	HARD	Fossiliferous Limestone; Fine to medium Grained Crystalline Limestone	BR.	• Clay seam 70.5 - 70.7'
75										• Pale green SHALE partings (1/2" THK) 70.1 - 79.0'
75.7		RC-8	NX	6.6 7.0	97/79					

COMMENTS Vertical Fracture 72.4-72.7'. Silted open Fractures along shale partings At 76.1', 76.6-77.2 and 77.7 Feet.

PROJECT NO. 35180
BORING NO. MW-10D

A-3205A

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-10D

PROJECT: Lockport City Landfill
SHEET NO. 3 OF 3
CLIENT: City of Lockport
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY ROD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
80		RC8				H.GRAY -TAN	HARD	Iron Dequoit Limestone	BR.	* Competent, Very few shale partings 78.9 - 82.7 Feet
82.7										
85		*								
88								Boring Completed at 88.0'		

COMMENTS * Roller bit drilled 82.7 - 88.0'

PROJECT NO. 35180
BORING NO. MW-10D

A-3205A

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-10I

PROJECT: Lockport City Landfill	SHEET NO. 1 OF 1
CLIENT: City of Lockport	JOB NO. : 35180
BORING CONTRACTOR: Buffalo Drilling	BORING LOCATION: N 18891 E 12296
GROUND WATER:	GROUND ELEVATION: 577.4
DATE: TIME: LEV: TYPE:	DATE STARTED: 2/15/91
	DATE FINISHED: 3/1/91
	DRILLER: C. Nicometi
	GEOLOGIST: Daniel Sheldon
	REVIEWED BY:

	CAS.	SAMP	CORE	TUBE
TYPE			NX	
DIA.			3"	
WT.			—	
FALL			—	

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY ROD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
0								See Boring Log MW-10D For Overburden Description		
5										
10										
11.3										• Auger Refusal at 11.3'
		RC-1	NX	1.0 3.9	REC 25/0 RQD	D.GRAY	SOFT	WEATHERED SHALE with CLAY LAYERS	V.BR.	• Roller Bit Drilled to 12' to start Run #1
15										• Difficult Coring 12-20'
15.2		RC-2	NX	0.0 4.6	0/0					
20										
		RC-3	NX	4.6 5.0	93/15	D.GRAY	MED HARD	Rochester SHALE; Aphanitic SHALE with Fossiliferous Layers (bioherms)	V.BR.	• Some water Loss 23.5-25.0'
25										• Oblique Weathered Fracture at 26.1'
		RC-4	NX	8.6 9.4	92/54					
30										
34.6										
35								Boring Completed at 34.6 Feet		

A-3205

COMMENTS: Drilled with a Diedrich D-50 rig. Rock hole reamed to a 6" diameter.

PROJECT NO. 35180
BORING NO. MW-10I

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-11D

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE

	CAS.	SAMP	CORE	TUBE
TYPE		SS	NX	
DIA.		2"	3"	
WT.		140#	—	
FALL		30"	—	

* POCKET PENETROMETER READING

SHEET NO. 1 OF 4
JOB NO.: 35180
BORING LOCATION: N17990 E12922
GROUND ELEVATION: 612.5
DATE STARTED: 3/20/91
DATE FINISHED: 4/1/91
DRILLER: C. Nicometi
GEOLOGIST: D. Sheldon / M. Gutmann
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		S-1	SS	2 2 / 4 7	75	O. BAN - BIK ↓ RED/BAN	MED STIFF	CLAYEY Silt, TRACE SAND AND GRAVEL	ML-CL	
		S-2	SS	5 10 / 11 11	80					
5		S-3	SS	4 5 / 7 7	60					
		S-4	SS	5 28 / 18 18	75		U. STIFF			• HARD, Augering 6-17.
		S-5	SS	25 25 / 17 23	90					
10		S-6	SS	5 23 / 45 50/3	100					
		S-7	SS	19 50/2	60		DENSE to V. DENSE	SILTY GRAVEL, trace to some CLAY AND SAND	GM	• Dionite gravel
12.5		S-8	SS	15 19 / 20 23	80					
		S-9	SS	4 11 / 18 18	100		U. STIFF	CLAYEY Silt, TRACE to some GRAVEL AND SAND	ML-CL	
16.5										
17.0		S-10	SS	7 12 / 16 26	90		HARD	— MORE GRAVEL		• WET AT 19'
20		S-11	SS	13 57 / 50/1	70					• Auger AND Sampler Refusal at 20.5'. Top of bedrock.
20.5						GRAY	HARD	COARSE GRAINED Dolomitic Limestone (GASPORT)	BL.	
		RC-1	NX	6.7	REC 67 / 100 / 95 RQD	Lt. GRAY		FINE Crystalline Dolostone (DECEW)		
25										
30										
30.5		RC-2	NX	4.8 5.0	REC 97 / 98 RQD					
35										
35.5		RC-3	NX	5.3 9.5	56/72	D. GRAY	MED HARD	ROCHESTER SHALE	BL.	Top of Rochester Shale at 35.5'

A-3205

COMMENTS Drilled with at Diedrich D-50 drill rig. Rock hole reamed to a 6" diameter. Overburden drilled with 6 1/4" Augers, rock coring with NX core. See Appendix B for well construction details.

PROJECT NO. 35180
BORING NO. MW-11D

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-11D

PROJECT: Lockport City Landfill
SHEET NO. 2 OF 4
CLIENT: City of Lockport
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
40		RC-3	NX			D. GRAY	MED HARD	Rochester SHALE; Aghantic Shale with Fossiliferous layers (biohems) AND CLAY LAYERS	BR.	
45		RC-4	NX	4.4 5.0	88/36					
50		RC-5	NX	5.0 10.0	50/11				V. GR.	
55		RC-6	NX	5.0 5.0	100/0					
60		RC-7	NX	3.3 6.0	56/10					
65		RC-8	NX	4.7 7.0	68/7					• SOME WATER TAKE AT 74' • 16" Clay layer AT 75'
70										
71										
75										

A-3205A

COMMENTS Changed from wire-line rock coring method to conventional methods at 71 feet. Reamed core hole to a 6" diameter to 71 feet prior to change.

PROJECT NO. 35180
BORING NO. MW-11D

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-11D

PROJECT: LockPort City Landfill
CLIENT: City of LockPort

SHEET NO. 3 OF 4
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
78										
					REC	D. GRAY	MED HARD	ROCHESTER SHALE	BR.	
80					96/80					
		RC-9	NX	9.6 10.0						
85					RQD					
88										
90					83/60					
		RC-10	NX	8.3 10.0						
95										
98										• Few Calcite X-stals AND Fossils IN RUN #1
100					96/80					
		RC-11	NX	9.6 10.0						
105										
108										
110					100/95					• Bioherms 110-114'
		RC-12	NX	5.5 5.5						
113.5										
115					99/75	lt. GRAY-TAN	HARD	IRONDEQUOIT LIMESTONE; FINE to MEDIUM GRAINED CRYSTALLINE LIMESTONE, GREEN SHALE PARTINGS	BR.	
		RC-13	NX	9.9 10.0						

COMMENTS

PROJECT NO. 35180
BORING NO. MW-11D

A-32DBA

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-11D

PROJECT: Lockport City Landfill
SHEET NO. 4 OF 4
CLIENT: City of Lockport
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
120		RC-13	NX		REC 99/75 RQD	lt. GRAY-TAN	HARD	Iron OOLICIT Limestone	BR.	
123.5										
125		RC-14	NX		REC 96/80 RQD					• Some water loss During Run #14
130										
132.5								Boring Completed at 132.5 Feet		• Blue-Green Dolostone 132.0-132.5'

COMMENTS Probable Rockway Dolostone at 132.0 Feet

PROJECT NO. 35180
BORING NO. MW-11D

A-32084

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-12D

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
GROUND WATER:

DATE	TIME	LEV	TYPE
3/5	10:00A	15.6	Borehole @ 22'
"	12:30P	16.0	" " 34'

	CAS.	SAMP	CORE	TUBE
TYPE		SS	NX	
DIA.		2"	3"	
WT.		140#	—	
FALL		30"	—	

* POCKET PENETROMETER READING

SHEET NO. 1 OF 3
JOB NO.: 35180
BORING LOCATION: N 17751 E 11957
GROUND ELEVATION: 578.3
DATE STARTED: 3/1/91
DATE FINISHED: 3/12/91
DRILLER: C. Nicometi
GEOLOGIST: Daniel Sheldon
REVIEWED BY:

DEPTH FT	STRATA	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	PID (ppm)	CLASS USCS	REMARKS
		S-1	SS	10 50/4	15	BRN	DENSE	Fill; concrete, brick, glass in a clayey silt matrix	0.0	Fill	
		S-2	SS	24 21 / 16 17	20				0.0		
5		S-3	SS	5 6 / 10 60/1	40				0.0		• limestone fragments • Auger Refusal at 6.5 *
		S-4	SS	50/1	5			CONCRETE AND Rock DEBRIS	0.0		• Limestone, sandstone and concrete pieces in RC-0 sample.
		RC-0		3.2 4.0	REC 80 / 0 RQD				—		
10											
11		Roller Bit Drilling 11.0 - 17.0'			0				—		
									—		
15									—		
		S-5	SS	23 13 / 11 11	30			Fill; gravel and concrete in a clayey silt matrix	0.0		
19											
20		NO SAMPLE				Lt. BRN	V. STIFF	Silt, trace to some clay. Some coarse angular gravel in seams (1" typ)	—	ML	• Pulled casing, reset
		S-6	SS	8 16 / 16 15	50				5.0		• Petroleum odor from samples 20-34' • 20-22' sample wet
		S-7	SS	9 17 / 12 19	45				5.0		
25		S-8	SS	9 15 / 12 9	60	Lt. GRAY			2.0		
26											
		S-9	SS	15 7 / 9 14	65	Lt. BRN Yellow	STIFF	CLAY, plastic. Trace to some organic material	8.0	CL	• Moist
28.6											
30		S-10	SS	6 25 / 46 47	80	Lt. GRAY	HARD	CLAYEY SILT, TRACE to some SHALE FRAGMENTS	3.0	CL-ML	• DRY
		S-11	SS	32 100/5	50				1.0		
31.5						D. GRAY	SOFT	WEATHERED AND FRACTURED SHALE (Rochester)		V. BR.	
		S-12	SS	100/4	15				0.0		
34											
35		RC-1	NX	8.0 9.7	REC 83/14 RQD				0.0		• Auger and sampler refusal at 34.0'

COMMENTS * Set 6" casing on assumed bedrock, pulled and reset on actual bedrock surface at 34 Feet. PID readings from split spoon samples. No elevated readings above the borehole. Drilled with a Diedrich D-50 drill rig.

PROJECT NO. 35180
BORING NO. MW-12D

A-3205

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-12D

PROJECT: Lockport City Landfill
SHEET NO. 2 OF 3
CLIENT: City of Lockport
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY / RQD %	COLOR	CONSISTENCY / HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
37.4					REC 83 / RQD 19	D. GRAY	SOFT ↓ MED HARD	WEATHERED SHALE (ROCHESTER) ↓ ROCHESTER SHALE; Aphantic Shale with Fossiliferous layers (bioherms)	V. BR. ↓ BR.	• WEATHERED SHALE 34.0 - 37.4 • Bioherms 34.0 - 41.0'
40		RC-1	NX							
43.7										
45					98 / 80					
		RC-2	NX	9.2 9.4						
50										
53.1										
55					94 / 67					
		RC-3	NX	10.1 10.7						
60										
63.8										
65					97 / 80					• BioHerm layers 63.8 - 76.8
		RC-4	NX	9.7 10.0						
70										
73.8										
75					90 / 80					
		RC-5	NX	9.0 10.0						

A-3205A

COMMENTS

PROJECT NO. 35180
BORING NO. MW-12D

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-12D

PROJECT: Lockport City Landfill
CLIENT: City of Lockport

SHEET NO. 3 OF 3
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY / RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
78.8					REC	D. GRAY	MED HARD	ROCHESTER SHALE.	BR.	• Top of Irondequoit Limestone at 78.8'
80		RC-5	NX		40/80	LT. GRAY-TAN	HARD	IRONDEQUOIT LIMESTONE; Fine to medium grained crystalline limestone		• Pale Green Shale Partings 78.8 - 85.2', one at 91.8'
83.8					RQD					
85		RC-6	NX		100/80					• Weathered, stained fracture at 88.4'
90										
93.2								Bottom of Boring at 93.2 Feet		

COMMENTS Rock hole reamed to a 6" diameter.

PROJECT NO. 35180
BORING NO. MW-12D

A-35034

/T872

DATE STARTED 6/21/84
DATE FINISHED 6/21/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-1
SURFACE ELEV. 580.6
G.W. DEPTH 577.12

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
130' Southeast of intersection of
Oakhurst and Railroad Streets

DEPTH (ft)	LOG	SAMPLE TYPE	SAMP #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
				6 / 8 / 12 / 28	Mottled Brown/black silty sandy CLAY, dry, organic at top	Boring advanced with 3 3/4 inch hollow stem auger trailer mounted CME 45-C drill rig
5					Coarse gravelly CLAY, saturated	SS-1 retained for chemical analysis
10					Top of bedrock 6.2 ft. Dark grey, aphanitic, limestone, bedding planes approximately 90° to core axis	NX Coring 6.2 -11.2 ft Recovery = 4.5 ft. = 90% RQD = 37%
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D - 2488-69)
METHOD OF INVESTIGATION Trailer mounted CME-45C Rig (ASTM D-1586, D-2113-70)

'T872

DATE STARTED 6/25/84
DATE FINISHED 6/25/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-2
SURFACE ELEV. 503.04
G.W. DEPTH 499.67

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfil
Lockport, New York
680' due west of MW-1

DEPTH (ft)	LOG	SAMPLE TYPE	SAMPLE #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
		SS	1	3 / 5 / 4 / 2	Dark brown Silty CLAY, roots present, containing some plastic foil, and brick fragments, moist	Boring advanced with 3 3/4 inch hollow stem auger trailer mounted CME-45C drill rig
5		SS	2	7 / 7 / 9 / 12	Orange brown CLAY, trace silt, moist, plastic	SS-1 retained for chemical analysis
					Top of Bedrock 8.0 ft.	NX Coring 8.0-12.5 ft. Recovery = 4.4 ft. - 98% RQD = 7%
10					Light grey medium to coarse crystalline limestone, coarse sand and trace clay at most breaks	
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION Trailer Mounted CME-45C Rig.
HSA (ASTM D-1586, D-2113 ?)

DATE STARTED 7/17/84
DATE FINISHED 7/18/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-3A
SURFACE ELEV. 486.32
G.W. DEPTH 486.69

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
10' North of MW-3

DEPTH (ft)	LOG	SAMPLE TYPE	SAMPLE #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
0					No samples taken, see description for MW-3	
					WL .37' Above GS	
10					Top of BEDROCK 11.5 ft. grey limestone, clay seams at 13.5 ft., broken	NX Coring 11.5-16.5 ft Recovery - 3 ft = 60% RQD = 8%
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV mounted rig CME-45C
(ASTM D-1586, D-2113-70)

/T872

DATE STARTED 6/27/84
DATE FINISHED 6/28/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-3
SURFACE ELEV. ____
G.W. DEPTH ____

PROJECT NYS DEC SUPERFUND Phase II
Project #EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
900' North of MW-2 along
Gulf Creek

DEPTH (ft)	LOG	SAMPLE TYPE	SAMP #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
				1 / 2	Orange brown silty CLAY, angular gravel and pebbles throughout, moist	Boring advanced with 3 3/4 inch hollow stem auger all terrian vehicle CME-45C drill rig
		SS	1	4 / 5		
5						
		SS	2	7 / 12 / 10 / 7	Brown grey Silty CLAY, abundant angular gravel throughout sample moist	
10						
		SS	3	12 / 48 / 17 / 100/.3	Brown grey Silty CLAY, gravel throughout. saturated	SS-3 retained for chemical analysis
15					Top of BEDROCK 12.5 ft. Dark grey aphanitic limestone, bedding planes approximately 70° to core axis	NX Coring 12.5-17.0 ft Run 1 12.5-13.5 ft. Recovery = .9 ft = 90% RQD = 0 Run 2 12.5-17.0 ft. Recovery = 2.1 ft. 60% RQD - 42%
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV mounted CME-45C Rig,
HSA (ASTM D-1586, D-2113 7

T872

DATE STARTED 6/21/84
DATE FINISHED 6/21/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-4
SURFACE ELEV. 474.53
G.W. DEPTH 473.3
1.23

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
450' North of MW-3A along
Gulf Creek

DEPTH (ft)	LOG	SAMPLE TYPE	SAMPLE #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
		SS	1	2 / 2 / 5 / 13	Dark brown silty CLAY, organic matter, coarse (up to 2 inch) subangular gravel, slightly moist	Boring advanced with 3 3/4 inch hollow stem auger, all terrain vehicle CME-45C drill rig
5					Orange brown silty CLAY, abundant gravel throughout, moist, plastic	SS-2 retained for chemical analysis
					Top of BEDROCK 6.0 ft.	NX Coring 6.0-10.0 ft.
					6.0-6.7 ft. light grey coarse crystalline limestone	Recovery = 3.8 ft. 95%
10					6.7-7.5 red siltstone	RQD = 36%
					7.5-9.7 light grey siltstone	
					9.7-10.0 red siltstone	
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV Mounted CME-45C Rig, HSA (ASTM D-1586, D-2113 ?)

T872

DATE STARTED 6/29/84
DATE FINISHED 6/29/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-5
SURFACE ELEV. 472.12
G.W. DEPTH 466.72 ±.48

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
430' North of MW-4
along Gulf Creek

DEPTH (ft)	LOG	SAMPLE TYPE	SAMP #	BLOWS ON SAMPLER 0-6	BLOWS ON SAMPLER 6-12	DESCRIPTION	NOTES
				5	6		
		SS	1	100/0		Dark brown silty sandy CLAY glass throughout, moist	Boring advanced with 3 3/4 inch hollow stem auger ATV, CME-45C Drill rig
5							SS-1 retained for chemical analysis
				7	10	Tan, grey-brown sandy silty CLAY	
		SS	2	10	13	coarse 1 1/2 in.) subangular gravel throughout, plastic saturated	
10						Top of Bedrock 9.2 ft.	NX coring 9.2-14.2 ft.
						9.2-10.0 ft. grey dolostone	Recovery = 4.3 ft.=86%
						10.0-13.0 ft. red siltstone, massive	RQD = 32%
15						13.0-14.2 ft. red claystone, soft, broken	
20							
25							
30							

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV Mounted CME-45C Rig, HSA (ASTM D-1586, D-2113 70)

/T872

DATE STARTED 7/1/84
DATE FINISHED 7/3/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-6
SURFACE ELEV. 574.73
G.W. DEPTH 554.31

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
670 ft. east of MW-3A in Park

DEPTH (ft)	LOG	SAMPLE TYPE	SAMP #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
		SS	1	6 / 11 / 7 / 10	Red brown silty CLAY, roots, fine cinders, probably fill dry	Boring advanced with 3-3/4 inch hollow stem auger ATV, CME-45C drill rig SS-1 retained for chemical analysis
5		SS	2	100/.4	Grey weathered limestone, some brown silty clay. Very dry.	
10		SS	3	80 / 100/.5	Grey brown weathered limestone.	3 inch roller-bit 10.0-20.0 ft.
15		SS	4	100/.5	Grey brown weathered limestone.	
					Top of BEDROCK 15.5' Dark grey aphanitic LIMESTONE, bedding planes approximately 90° to core axis	
20						NX coring 20.0-25.0 ft Recovery = 100% RQD - 23%
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV Mounted CME-45C Rig,
HSA (ASTM D-1586, D-2113 [illegible]

URS CONSULTANTS, Inc.

TEST BORING LOG REDrill of MW-11D
BORING NO. MW-11D (R)

PROJECT: Lockport City Landfill
CLIENT: City of Lockport
BORING CONTRACTOR: Buffalo Drilling
SHEET NO. 1 OF 2
JOB NO. : 35180-00-320
BORING LOCATION: N17969, E12909
GROUND ELEVATION: 612.6
DATE STARTED: 5/10/91
DATE FINISHED: 5/18/91
DRILLER: L. Schroeder / M. Saeli
GEOLOGIST: Dan Sheldon
REVIEWED BY:

GROUND WATER:					CAS.	SAMP	CORE	TUBE
DATE	TIME	LEV	TYPE	TYPE			NX	
5/17	11:45	114.5	Below Grade	DIA.			3"	
5/17	12:35	112.7	Below Grade	WT.			—	
Water Levels taken After Well was bailed to dryness				FALL			—	

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
10								See Boring MW-11D For Detailed Drilling Log		
20										Auger Refusal at 21.1 ft.
21.1							HARD	Coarse Grained Oolomitic Limestone (Gasport)		8" Roller Bit Drilling 21.1 - 23.4' to Seat 6" Permenant Casing into bedrock
30							HARD	Fine Grained Crystalline Dolostone (Decew)		Roller Bit drilling to 133'
36										
40							MED HARD	Rochester Shale		
50										
60										
70										

A-3205

COMMENTS Replacement boring/well. Drilled with a Diedrich D-50 drill rig equiped with 8 ¼" augers Roller bit drilled 21.1 - 133'. NX Core 132.3 - 139.5. New boring located 21' South and 13' WEST of old well

PROJECT NO. 35180
BORING NO. MW-11D(R)

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO. MW-11D (R)

PROJECT: Lockport City Landfill
SHEET NO. 2 OF 2
CLIENT: City of Lockport
JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6"	SAMPLE RECOVERY RQD %	DESCRIPTION COLOR	DESCRIPTION CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	DESCRIPTION CLASS USCS	REMARKS
74							MED HARD	Rochester Shale		
80										
90										
100										• 97.3'-101.0' Drilled easily
110										
113.3							HARD	Irondequoit Limestone		• Slower Drilling Rate For Limestone
120										
130										
132.3		RC-1	NX	4.7' 6.2'	REC 90 / 33 RQD	GRAY-BLUE TO DARK GREEN	HARD	ROCKWAY DOLOSTONE; APHANITIC DOLOSTONE, WITH SHALE PARTINGS	BR	• IRONDEQUOIT LIMESTONE 132.3-132.7' CEMENTED FRACTURE ZONE BETWEEN IRONDEQUOIT AND ROCKWAY 1/4" WIDE, PERPENDICULAR TO BORING.
137.5										
140								Boring Completed at 137.5 feet		

A-3205A

COMMENTS Roller bit drilling (6") with no sampling from 23.4 to 132.3
NX CORE from 132.3 to 137.5. Well screen and sand pack set from 132.5 to 114.5.

PROJECT NO. 35180
BORING NO. MW-11D (R)

APPENDIX G

MONITORING WELL INSTALLATION REPORTS

DRILLING SUMMARY

Supervising Geologist : DAN SHELDON

Drilling Company: BUFFALO DRILLING

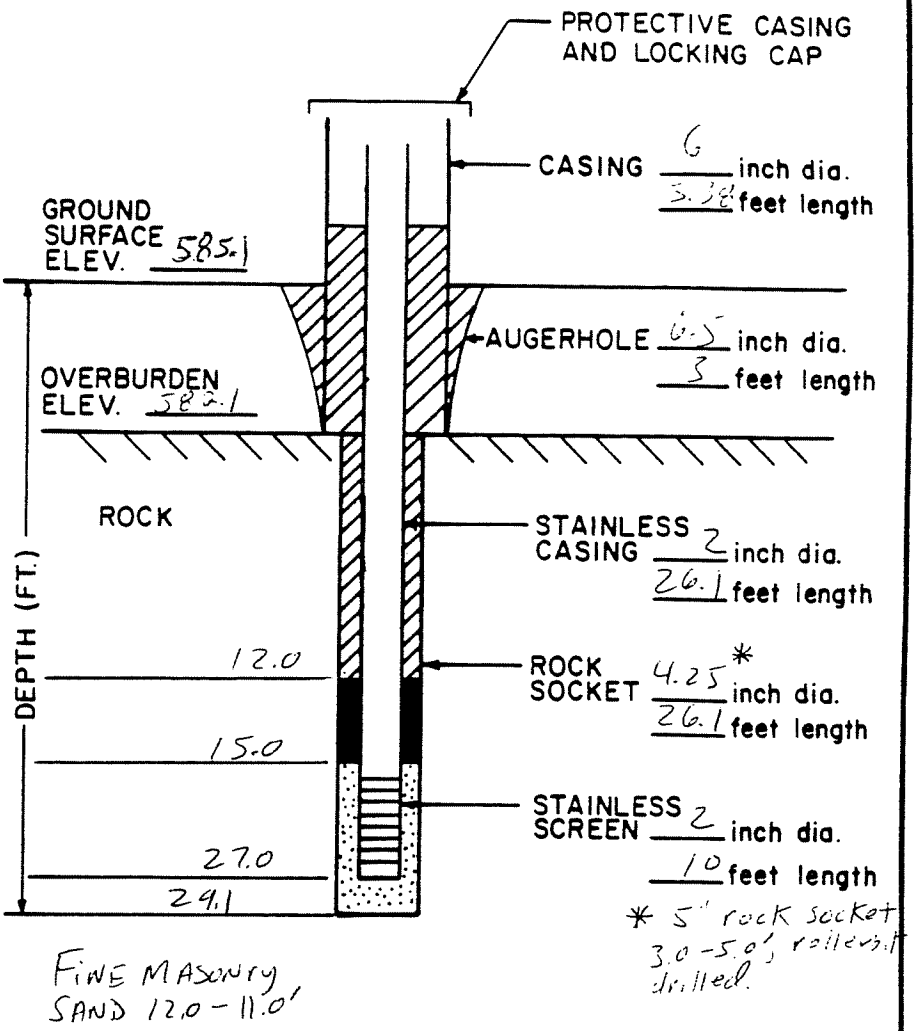
Drillers : K. KRIEGER
S. PEARY

Rig make / model : DIEDRICH D-50

Date : 2/21/90

GEOLOGIC LOG

depth (ft.)	lithology
SEE BORING LOG	



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : STEEL	Type : STAINLESS STEEL	Type : #2 SAND Setting : 29.1-15.0'
Monitor : STAINLESS STEEL	Slot Size : .020	SEAL MATERIAL Type : BENTONITE PELLETS Setting : 15.0-12.0'

COMMENTS :

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW 1 I

A-3203

DRILLING SUMMARY

Supervising Geologist: Ron Trampusch

Drilling Company: Buffalo Drilling

Drillers: M. Coerstung, C. Nicometi

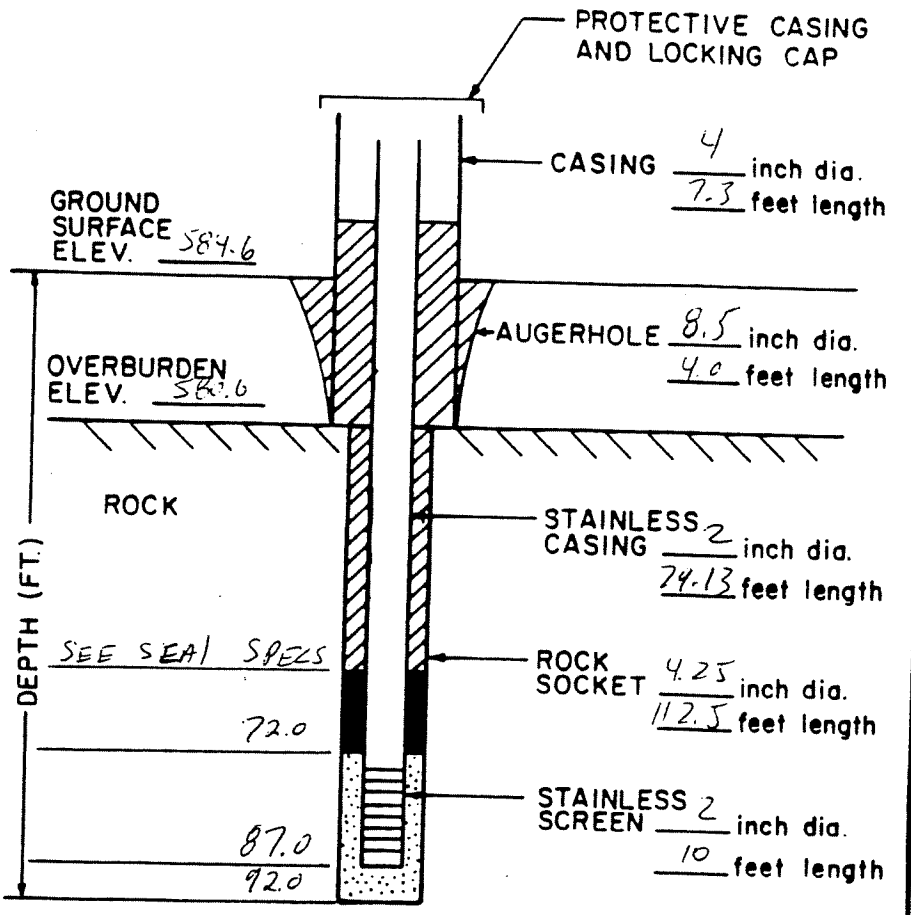
Rig make / model: Mobile B 34 S

Date: 12/27/90

GEOLOGIC LOG

depth (ft.) | lithology

See Boring Log



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel	Type: Stainless Steel	Type: #2 Sand; Setting: 116.0 - 95.0', 92.0 - 72.0'
Monitor: Stainl	Slot Size: .020	SEAL MATERIAL Type: Bentonite Slurry; Setting: 95.0 - 92.0', 72.0 - Surface

COMMENTS:

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client: City of Lockport	Location: Lockport Landfill	Project No.: 35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL No.: MW 1D

A-3203

DRILLING SUMMARY

Supervising Geologist : DAN SHELDON

Drilling Company: BUFFALO DRILLING

Drillers : M. GERSTUNG
K. HUEBERT

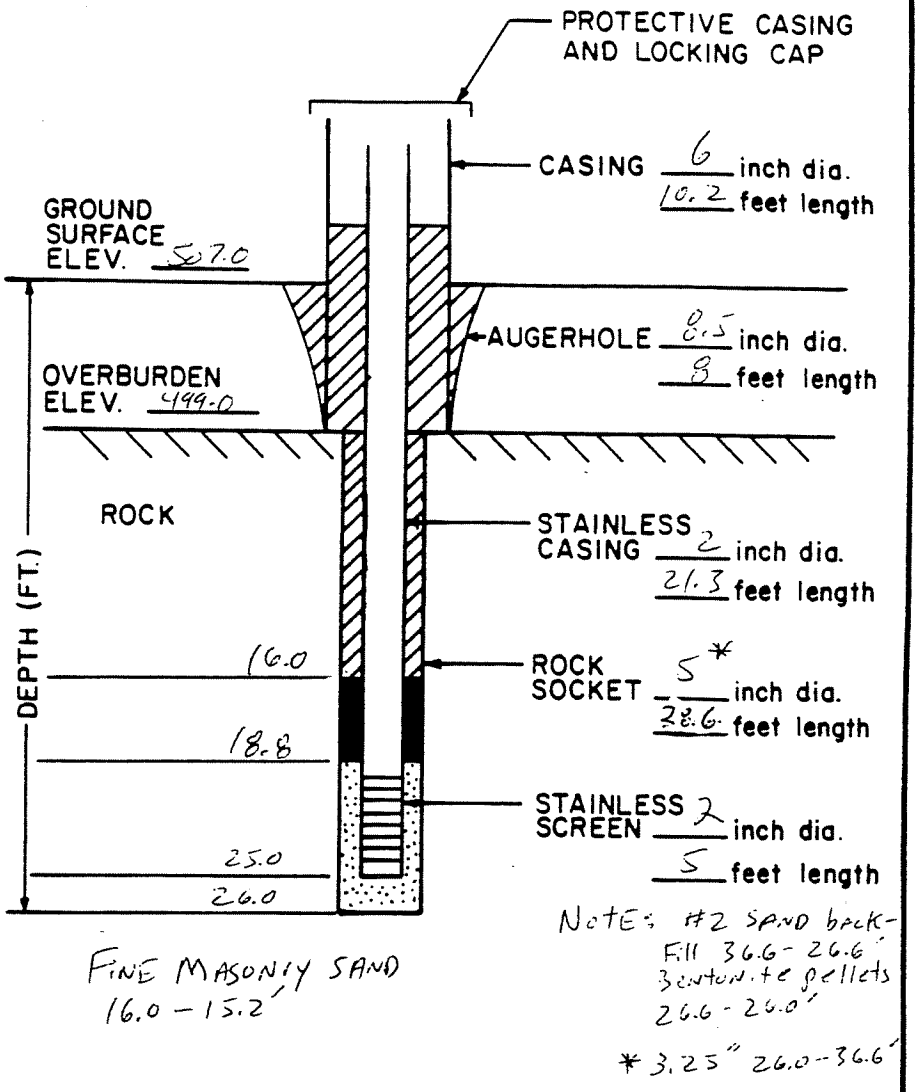
Rig make / model : MOBILE B345

Date : 11/29/90

GEOLOGIC LOG

depth (ft.) | lithology

SEE BORING LOG



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : STEEL	Type : Stainless Steel	Type : #2 SAND Setting : 26.0 - 18.8'
Monitor : Stainless Steel	Slot Size : .020	SEAL MATERIAL Type : BENTONITE PELLETS Setting : 18.8 - 16.0'

COMMENTS :

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Land Fill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW2I

A-3203

DRILLING SUMMARY

Supervising Geologist : RON TRAMPOSCH

Drilling Company: BUFFALO DRILLING

Drillers : M. GERSTUNG, M. VOGL

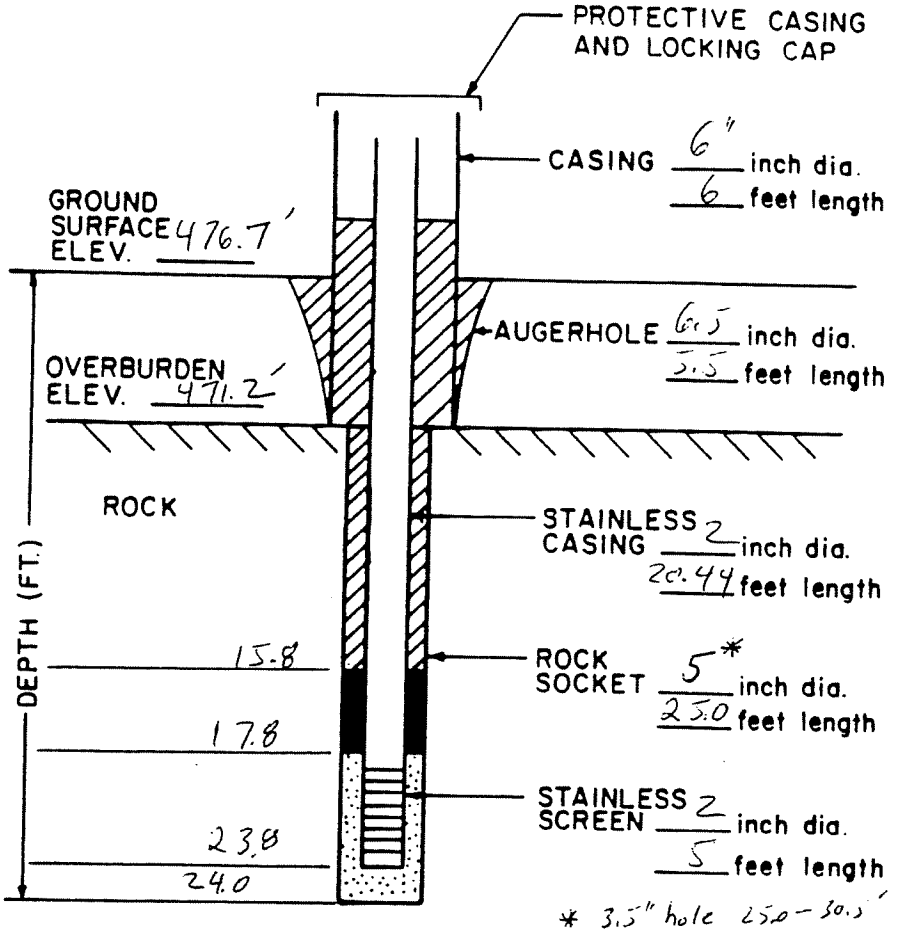
Rig make / model : MOBILE B 34 S

Date : 1/19/90

GEOLOGIC LOG

depth (ft.) | lithology

SEE BORING LOG



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : STEEL	Type : STAINLESS STEEL	Type : #2 SAND Setting : 24.0 - 17.8'
Monitor : STAINLESS STEEL	Slot Size : .020	SEAL MATERIAL Type : BENTONITE PELLETS Setting : 17.8 - 15.8'

COMMENTS :

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW 5 I

A-3203

DRILLING SUMMARY

Supervising Geologist : DAN SHELDON

Drilling Company: BUFFalo Drilling

Drillers : K. KRIEGER
C. GOULD

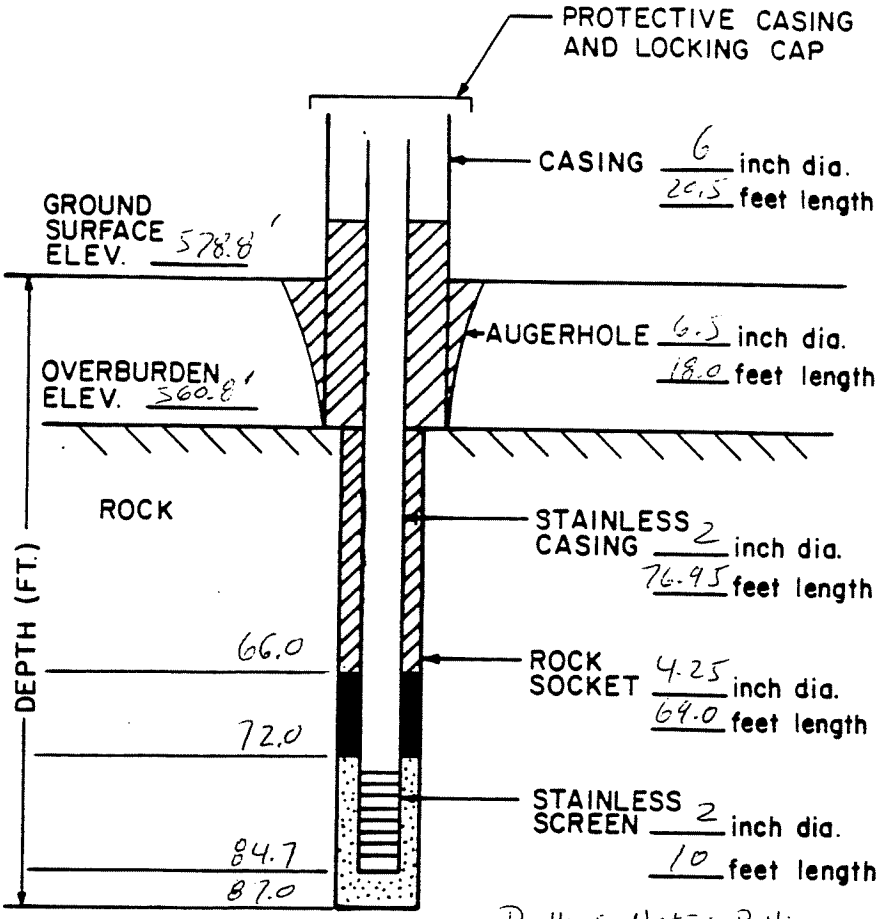
Rig make / model : DIEDRICH D-50

Date : 2/16/90

GEOLOGIC LOG

depth (ft.) | lithology

SEE Boring Log



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : STEEL	Type : Stainless STEEL	Type : #2 SAND Setting : 87.0 - 72.0'
Monitor : Stainless STEEL	Slot Size : .020	SEAL MATERIAL Type : BENTONITE PELLET Setting : 72.0 - 66.0'

COMMENTS:

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Landfill	3518o
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW 6D

A-3203

DRILLING SUMMARY

Supervising Geologist : Ron Tramposch

Drilling Company: Buffalo Drilling

Drillers : M. Gerstung
C. Nicometi

Rig make / model : Mobile B 34 S

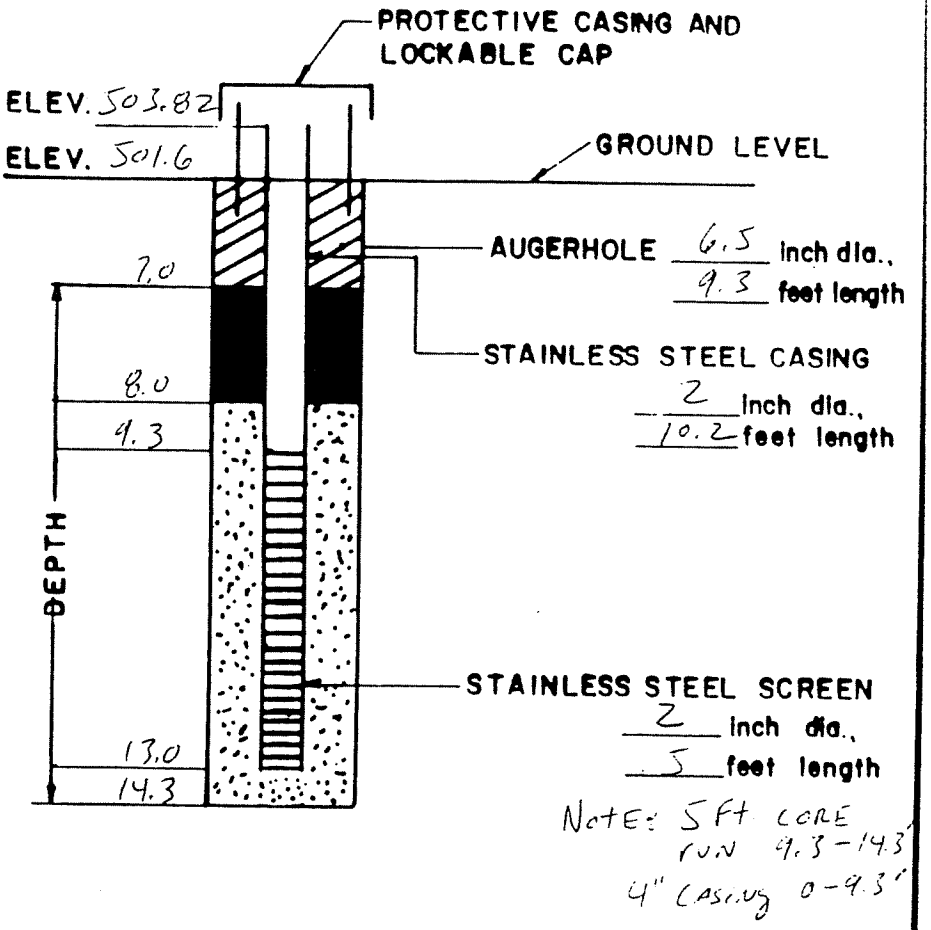
Date : 1/16/90

GEOLOGIC LOG

depth (ft.) | lithology

See Boring Log

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : STEEL	Type : Stainless STEEL	Type : #2 SAND Setting : 14.3 - 7.0'
Monitor : Stainless STEEL	Slot Size : .020	SEAL MATERIAL Type : Bentonite Pellet Setting : 7.0 - 5.0'

COMMENTS:

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	SHALLOW MONITORING WELL CONSTRUCTION DETAILS	WELL Nº : MW 7S

A-3072

DRILLING SUMMARY

Supervising Geologist : Ron Trampsch

Drilling Company: Buffalo Drilling

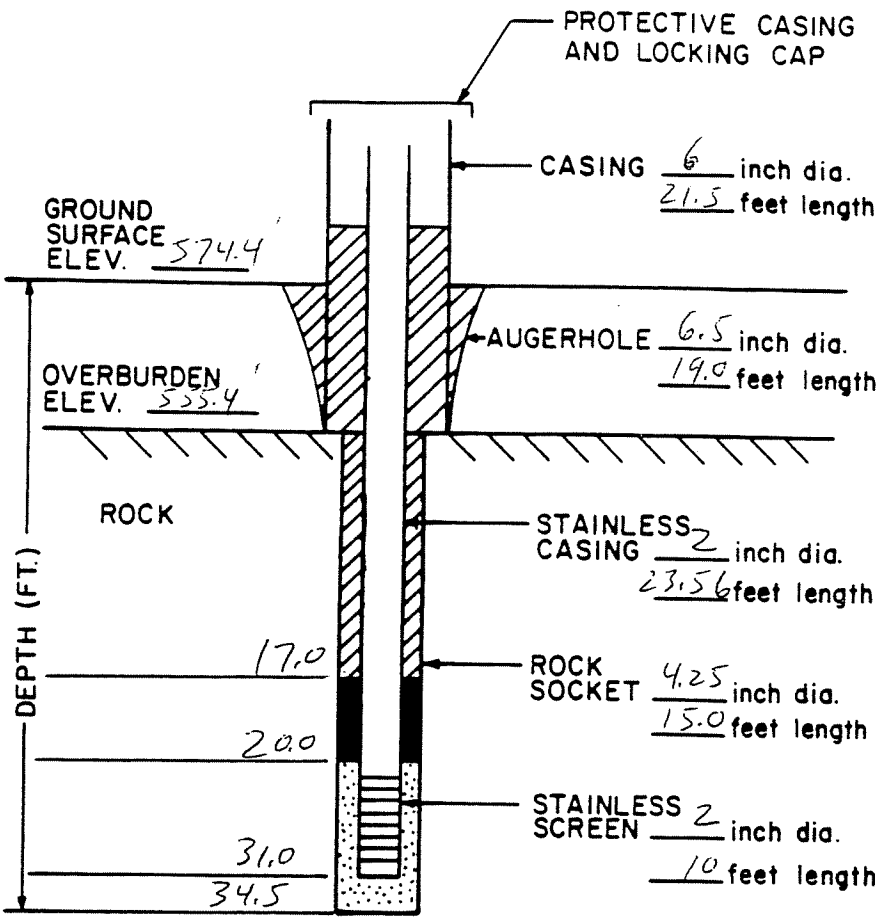
Drillers : K. Krieger
J. Warren

Rig make / model : Diedrich D-50

Date : 2/8/90

GEOLOGIC LOG

depth (ft.)	lithology
See Boring Log	



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : Steel	Type : Stainless Steel	Type : #2 Sand Setting : 34.5 - 20.0'
Monitor : Stainless Steel	Slot Size : .020	SEAL MATERIAL Type : Bentonite Pellet Setting : 20.0 - 17.0'

COMMENTS :

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW 8I

A-3203

DRILLING SUMMARY

Supervising Geologist : RON TRAMPOSCH

Drilling Company: BUFFALO DRILLING

Drillers : K. KRIEGER
J. WARREN

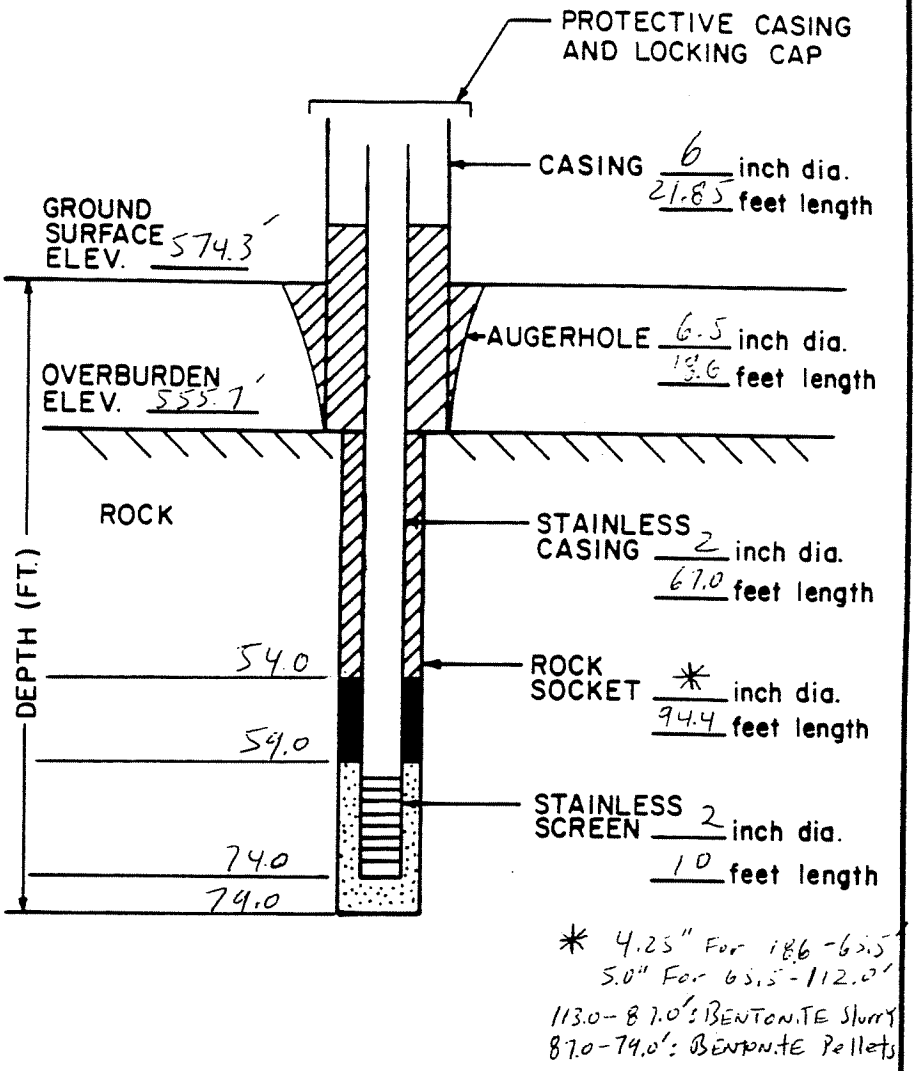
Rig make / model : DIEDRICH D-50

Date : 2/8/90

GEOLOGIC LOG

depth (ft.) | lithology

SEE BORING LOG



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: STEEL	Type: STAINLESS STEEL	Type: #2 SAND Setting: 79.0 - 59.0'
Monitor: STAINLESS STEEL	Slot Size: .020	SEAL MATERIAL Type: BENTONITE PELLET Setting: 59.0 - 54.0

COMMENTS:

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:	Location:	Project Nº:
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº: MW 8D

A-3203

DRILLING SUMMARY

Supervising Geologist : RON TRAMPOSCH

Drilling Company: BUFFALO DRILLING

Drillers : M. GERSTUNG, C. NICOMETI

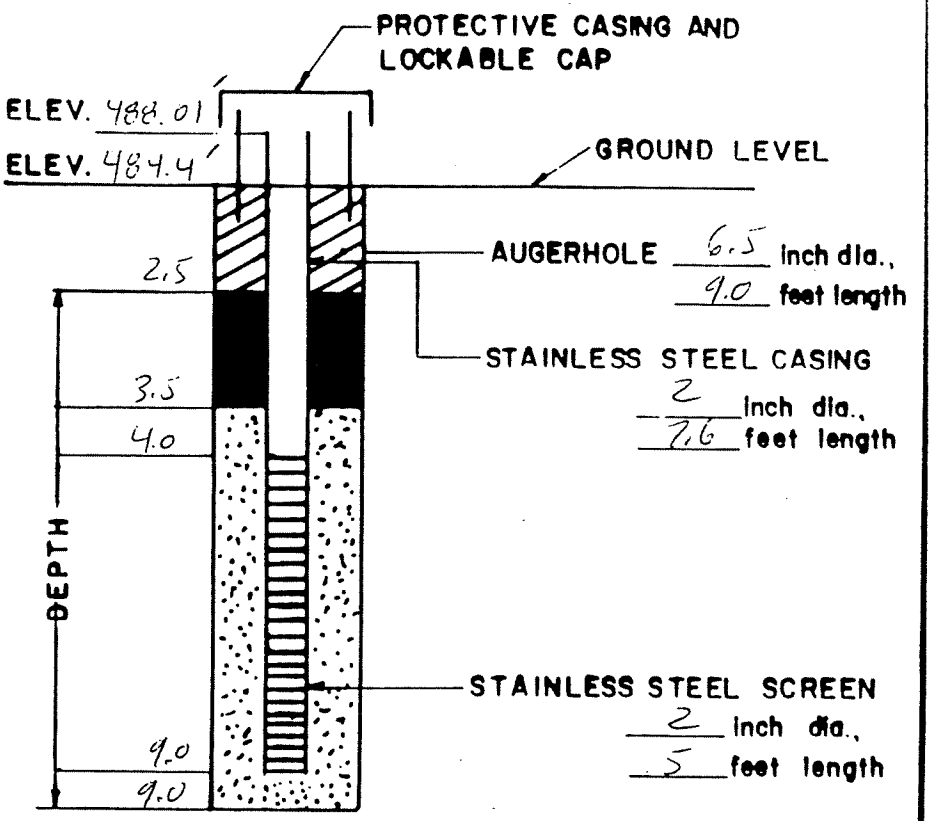
Rig make / model : MOBILE B 54 S

Date : 1/11/90

GEOLOGIC LOG

depth (ft.)	lithology
SEE BORING LOG	

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: STEEL	Type: STAINLESS STEEL	Type: #2 SAND Setting: 9.0 - 3.5'
Monitor: STAINLESS STEEL	Slot Size: .020	SEAL MATERIAL Type: BENTONITE PELLETS Setting: 3.5 - 2.5'

COMMENTS:

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:	Location:	Project Nº:
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	SHALLOW MONITORING WELL CONSTRUCTION DETAILS	WELL Nº: MW 9S

A-3072

DRILLING SUMMARY

Supervising Geologist : RON TRAMPOSCH

Drilling Company: BUFFALO DRILLING

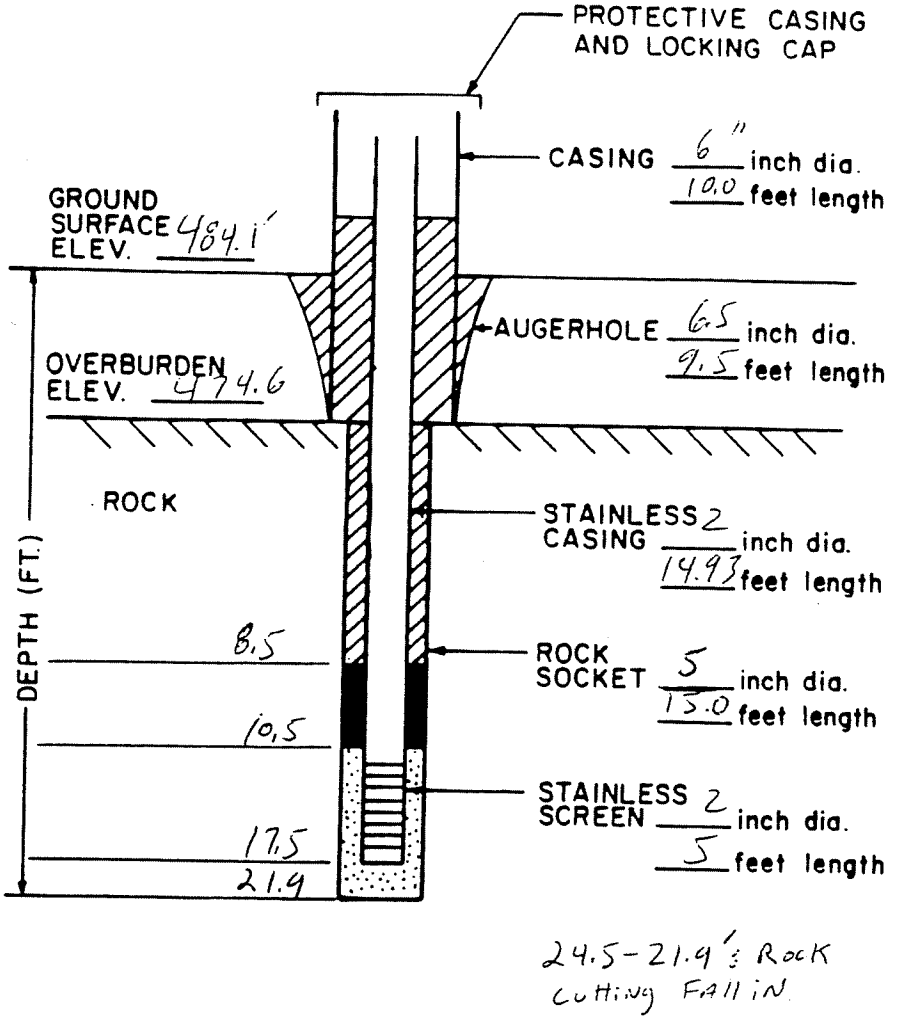
Drillers : M GERSTUNG
C. NICOMETI

Rig make / model : MOBILE B34S

Date : 1/11/90

GEOLOGIC LOG

depth (ft.)	lithology
SEE Boring Log	



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : STEEL	Type : STAINLESS STEEL	Type : #2 SAND Setting :
Monitor : STAINLESS STEEL	Slot Size : .020	SEAL MATERIAL Type : BENTONITE PELLETS Setting : 10.5-8.5'

COMMENTS :

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW 9I

A-3203

DRILLING SUMMARY

Supervising Geologist : DANIEL SHELDON

Drilling Company: BUFFALO Drilling

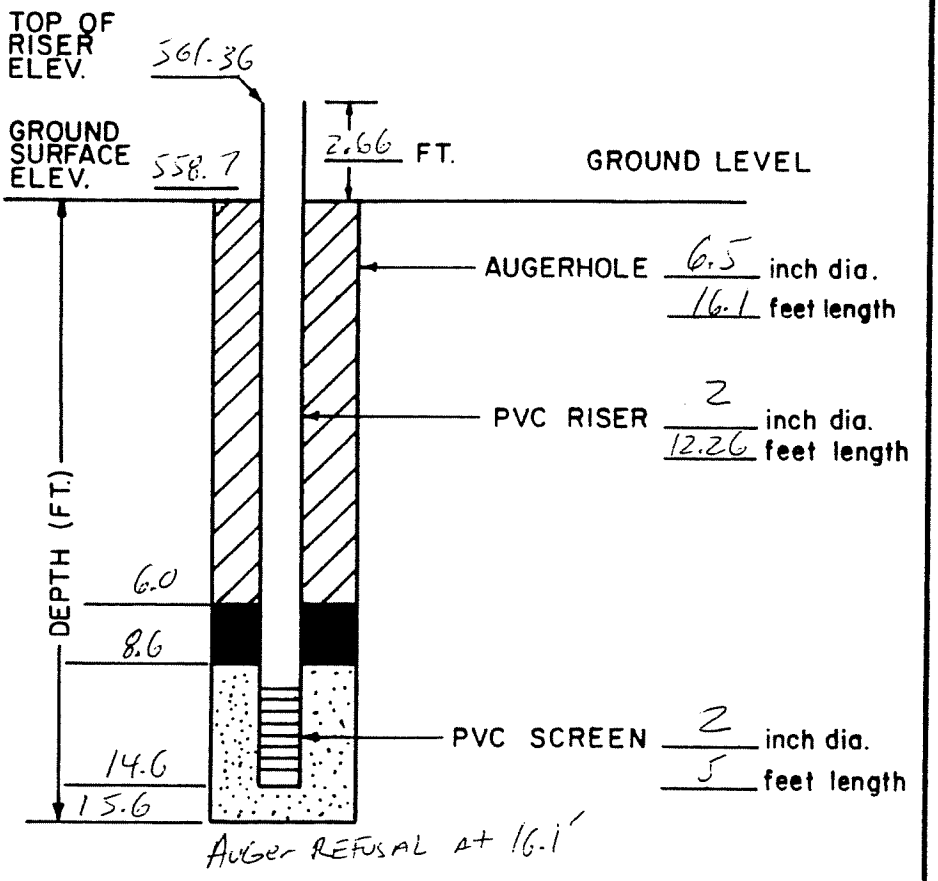
Drillers : M. GERSTUNG
K. HUEBERT

Rig make / model : DIEDRICH D-50

Date : 2/7/90

GEOLOGIC LOG

depth (ft.)	lithology
SEE # B-9 Boring Log	



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: PVC	Type: PVC	Type: #2 SAND Setting: 15.6 - 8.6'
Monitor: PVC	Slot Size: .020	SEAL MATERIAL Type: BENTONITE PELLETS Setting: 8.6 - 6.0'

COMMENTS:
INSTALLED IN boring # B-9

LEGEND
- CEMENT. BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:	Location:	Project Nº:
City of Lockport	Lockport LANDFILL	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº: P-1

A-3202

DRILLING SUMMARY

Supervising Geologist : DANIEL SHELDON

Drilling Company: BUFFALO DRILLING

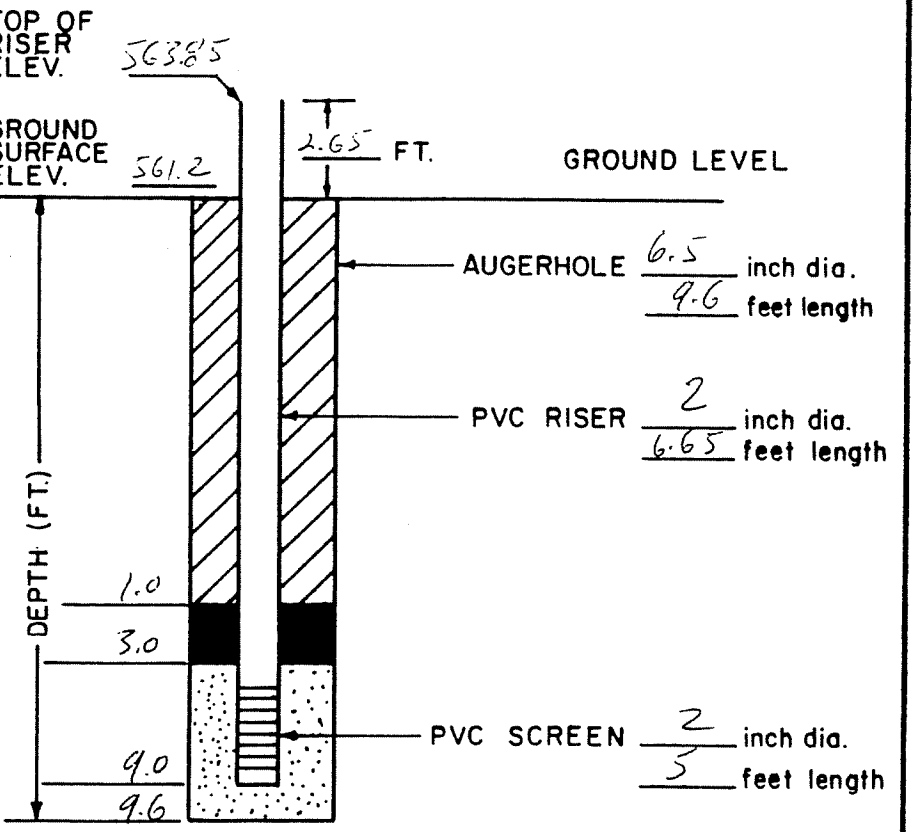
Drillers : M. GERSTUNG
K. HUEBERT

Rig make / model : DIEDRICH D-50

Date : 2/8/90

GEOLOGIC LOG

depth (ft.)	lithology
SEE Boring #B-11 LOG	



AUGER REFUSAL AT 9.6'

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: PVC	Type: PVC	Type: #2 SAND Setting: 9.6 - 3.0'
Monitor: PVC	Slot Size: .020	SEAL MATERIAL Type: BENTONITE PELLET Setting: 3.0 - 1.0'

COMMENTS:
INSTALLED IN borehole #B-11. NO FILL MATERIAL AT this location

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:	Location:	Project Nº:
CITY OF LOCKPORT	LOCKPORT LAND FILL	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº: P-2

A-3202

DRILLING SUMMARY

Supervising Geologist : DANIEL SHELDON

Drilling Company: BUFFALO DRILLING

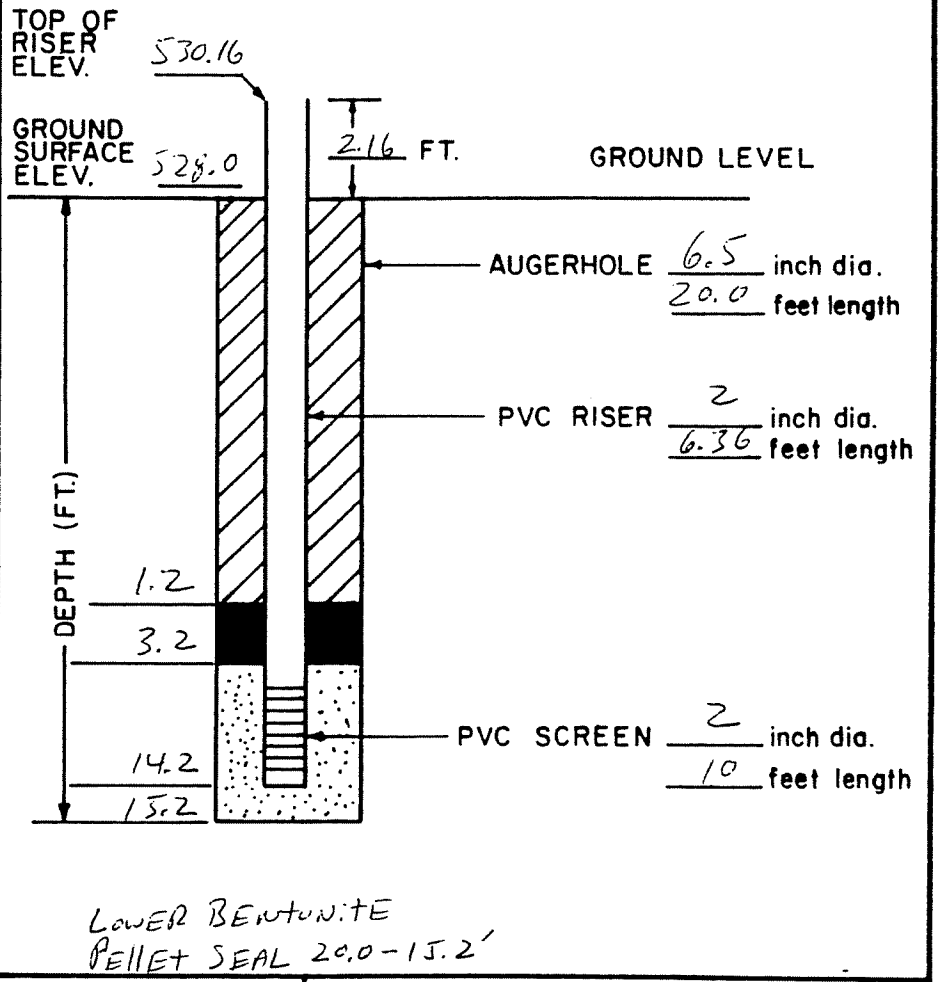
Drillers : M. GERSTUNG
K. HUEBERT

Rig make / model : DIEDRICH D-50

Date : 2/9/90

GEOLOGIC LOG

depth (ft.)	lithology
SEE #B-13 BORING LOG	



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: PVC	Type: PVC	Type: #2 SAND Setting: 15.2 - 3.2'
Monitor: PVC	Slot Size: .020	SEAL MATERIAL Type: BENTONITE PELLET Setting: 3.2 - 1.2'

COMMENTS:

INSTALLED IN BOREHOLE #B-13

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Land Fill	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº : P-3

A-3202

DRILLING SUMMARY

Supervising Geologist : DANIEL SHELDON

Drilling Company: BUFFALO DRILLING

Drillers : M. GERSTUNG, K. HUEBERT

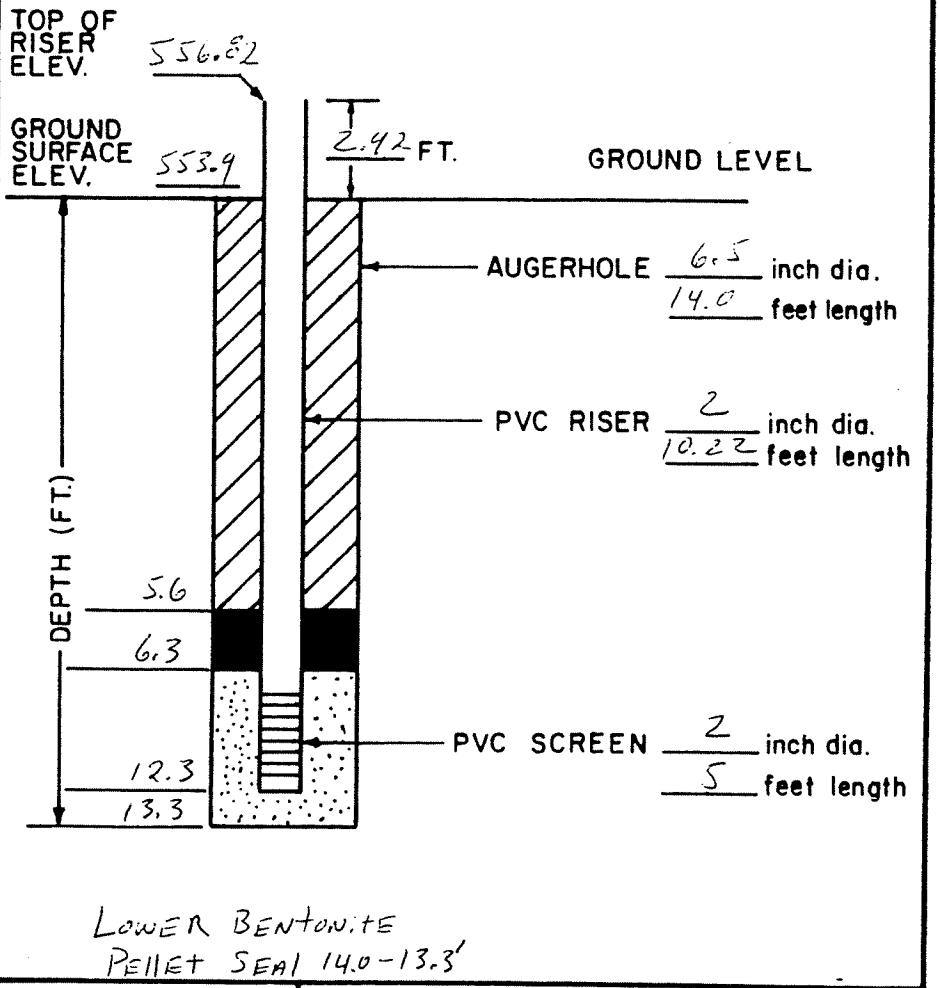
Rig make / model : DIEDRICH D-50

Date : 2/4/90

GEOLOGIC LOG

depth (ft.) | lithology

SEE # B-14 BORING LOG



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : PVC	Type : PVC	Type : #2 SAND Setting : 13.3 - 6.3'
Monitor : PVC	Slot Size : .020	SEAL MATERIAL Type : BENTONITE PELLET Setting : 6.3 - 5.6'

COMMENTS :

INSTALLED IN borehole # B-14.

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº : P-4

A-3202

DRILLING SUMMARY

Supervising Geologist : DANIEL SHELDON

Drilling Company: BUFFALO DRILLING

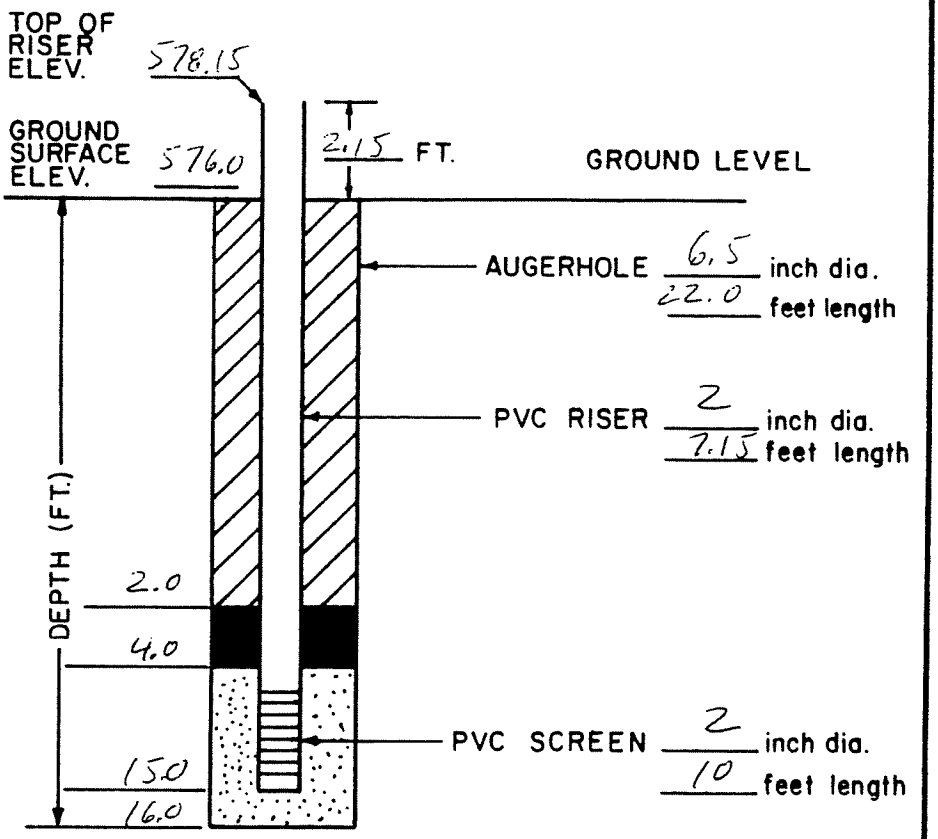
Drillers : M. GERSTUNG
K. HUEBERT

Rig make / model : DIEDRICH D-50

Date : 2/12/90

GEOLOGIC LOG

depth (ft.)	lithology
SEE # B-15 BORING LOG	



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: PVC	Type: PVC	Type: #2 SAND Setting: 16.0-4.0'
Monitor: PVC	Slot Size: .020	SEAL MATERIAL Type: BENTONITE PELLETS Setting: 4.0-2.0'

COMMENTS:

INSTALLED IN borehole # B-15

LEGEND
- CEMENT. BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:	Location:	Project Nº:
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº: P-5

A-3202

DRILLING SUMMARY

Supervising Geologist : DANIEL SHELDON

Drilling Company: BUFFALO DRILLING

Drillers : M. GERSTUNG
K. HUEBERT

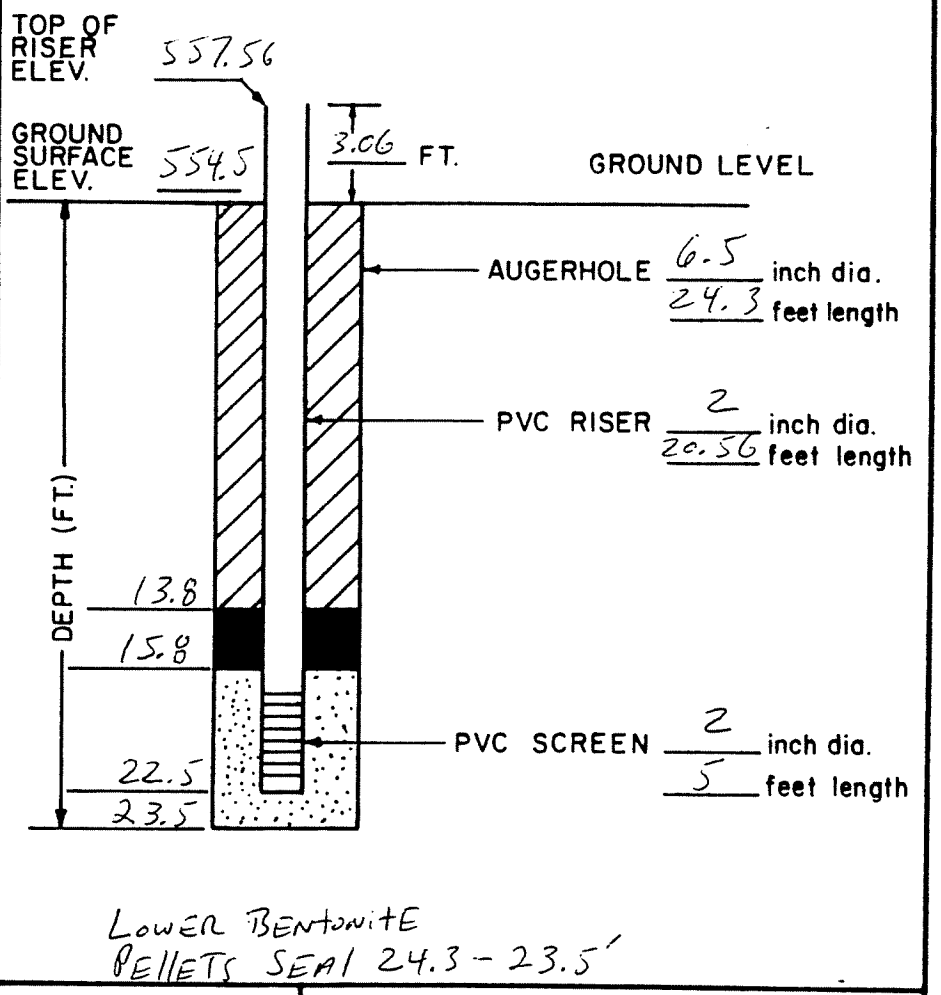
Rig make / model : DIEDRICH D-50

Date : 2/14/90

GEOLOGIC LOG

depth (ft.) | lithology

SEE # B-19 BORING LOG



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: PVC	Type: PVC	Type: #2 SAND Setting: 23.5 - 15.8'
Monitor: PVC	Slot Size: .020	SEAL MATERIAL Type: BENTONITE PELLETS Setting: 15.8 - 13.8'

COMMENTS:

INSTALLED IN BOREHOLE # B-19

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:	Location:	Project Nº:
City of Lockport	Lockport Landfill	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº: P-6

A-3202

DRILLING SUMMARY

Supervising Geologist : Daniel Sheldon

Drilling Company: Buffalo Drilling

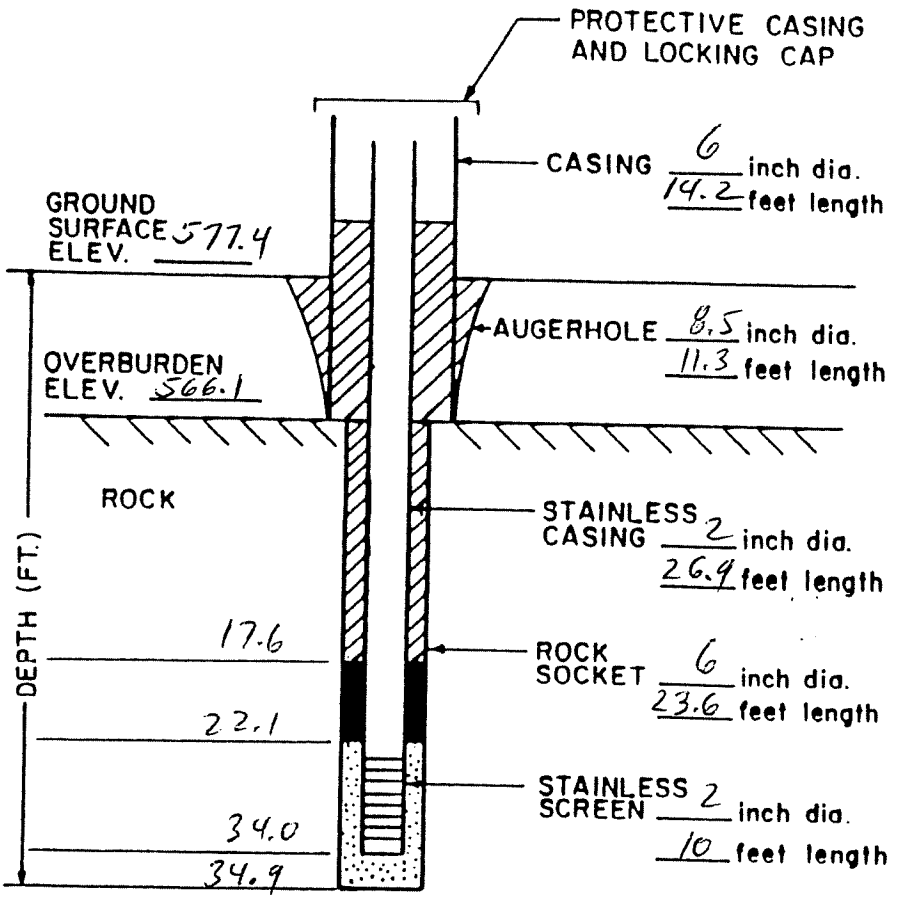
Drillers : C. Nicometi
J. Warren

Rig make / model : Diedrich D-50

Date : 3/1/91

GEOLOGIC LOG

depth (ft.)	lithology
0-11.3	Clayey Silt
11.3-20.0	Weathered Shale (Rochester)
20.0-34.6	Rochester SHALE



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : Steel	Type : Stainless Steel Schedule 304	Type : #4 Q-Rok Setting : 22.1 - 34.9'
Monitor : Stainless Steel Schedule 304	Slot Size : .010"	SEAL MATERIAL Type : Bentonite Pellets Setting : 17.6 - 22.1'

COMMENTS :

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport City Landfill.	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW-10I

4-3203

DRILLING SUMMARY

Supervising Geologist: D. Sheldon / R. Trambosch

Drilling Company: Buffalo Drilling

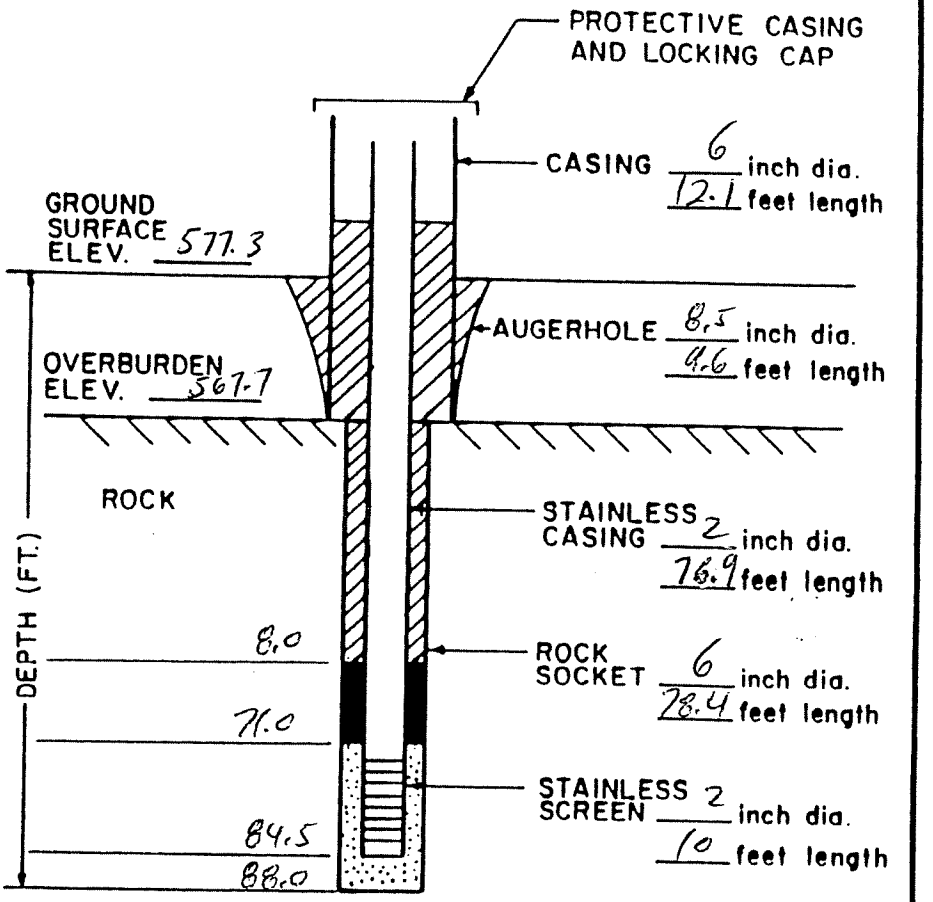
Drillers: C. Nicometi, J. Warren

Rig make / model: Diedricht D-50

Date: 3/19/91

GEOLOGIC LOG

depth (ft.)	lithology
0-9.6	Clayey Silt
9.6-70.7	Rochester Shale
70.7-88.0	Irondequoit Limestone



CASING MATERIAL

Surface: Steel

Monitor: Stainless Steel Schedule 304

SCREEN MATERIAL

Type: Stainless Steel

Slot Size: .010"

FILTER MATERIAL

Type: #4 Q-Rok Setting: 71.0 - 88.0'

SEAL MATERIAL

Type: Bentonite Pellets Setting: 66.0 - 71.0'

Bentonite Slurry 8.0 - 66.0'

COMMENTS:

LEGEND

- CEMENT. BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:	Location:	Project Nº:
City of Lockport	Lockport City Landfill,	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº: MW-10D

4-3203

DRILLING SUMMARY

Supervising Geologist : DANIEL Sheldon

Drilling Company: Buffalo Drilling Co

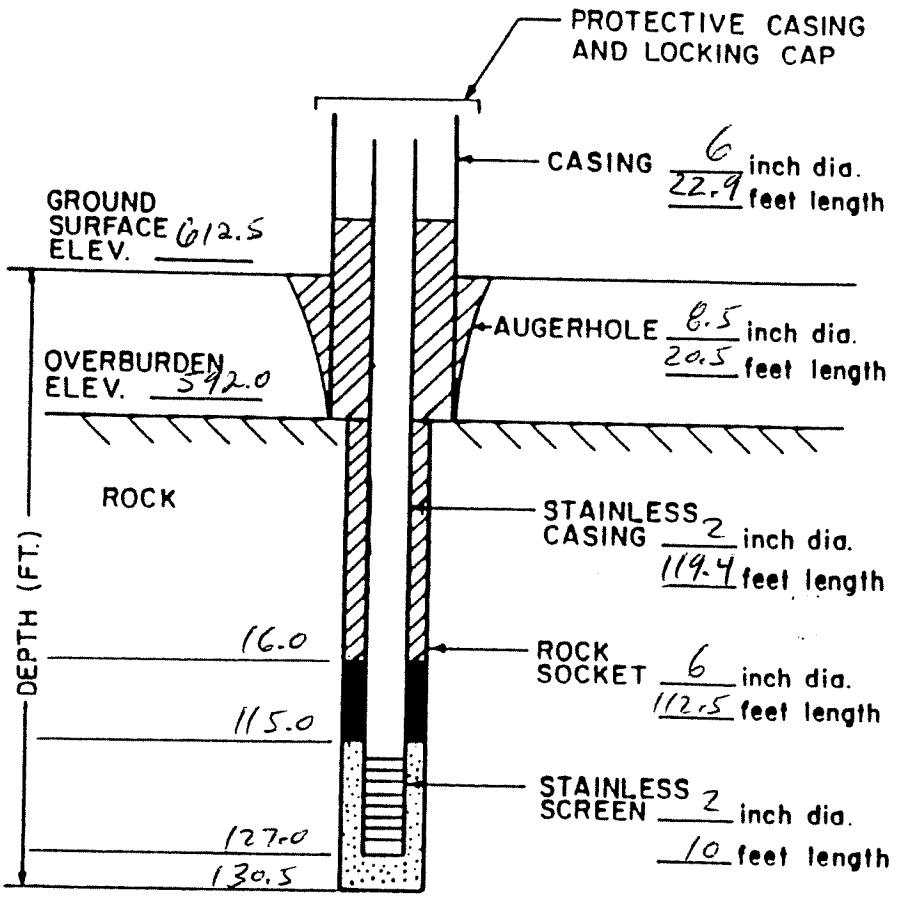
Drillers : C. Nizometi
K. HUEBERT

Rig make / model : Diedrich D-50

Date : 4/1/91

GEOLOGIC LOG

depth (ft.)	lithology
0-6.0	Silty Clay
6.0-14.5	Gravel, some silt and clay
14.5-20.5	Clayey Silt, some Gravel
20.5-114.0	Rochester SHALE
114.0-132.5*	Irondequoit Limestone



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : Steel	Type : Stainless Steel	Type : #4 Q-Rok Setting : 115.0-130.5
Monitor : Stainless Steel Schedule 304	Slot Size : .010" Schedule 304	SEAL MATERIAL Type : Bentonite pellets / Bentonite Slurry Setting : 111.0-115.0' / 16.0-111.0'

COMMENTS :

* Possible Rock Dolostone 132.0-132.5

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client : City of Lockport	Location : Lockport City Landfill	Project Nº : 35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW-11D

A-3203

DRILLING SUMMARY

Supervising Geologist : Daniel Sheldon

Drilling Company: Buffalo Drilling

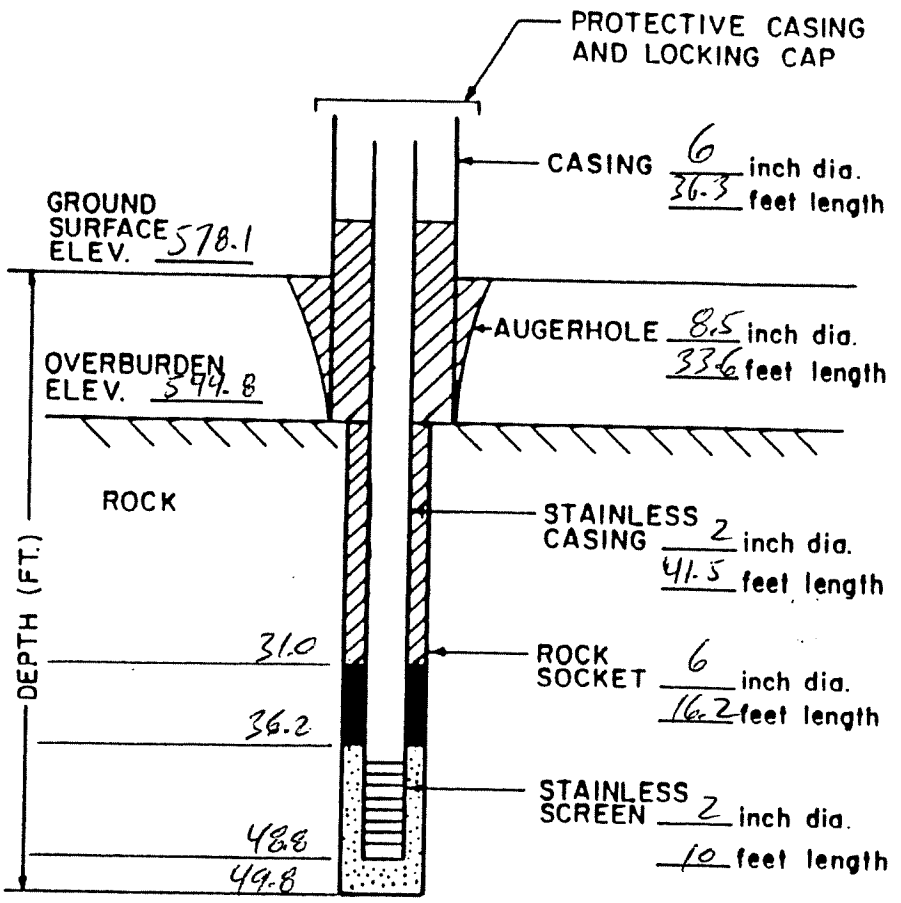
Drillers : C. Nicometi
J. Warren

Rig make / model : Diedrich D-50

Date : 3/15/91

GEOLOGIC LOG

depth (ft.)	lithology
SEE Boring Log For MW-12D	



CASING MATERIAL

Surface : Steel

Monitor : Stainless Steel Schedule 304

SCREEN MATERIAL

Type : Stainless Steel Schedule 304

Slot Size : .010"

FILTER MATERIAL

Type : #4 Q-Rok Setting : 36.2 - 49.8'

SEAL MATERIAL

Type : Bentonite Pellets Setting : 31.0 - 36.2'

COMMENTS :

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport City Landfill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW-12I

A-3203

DRILLING SUMMARY

Supervising Geologist : Daniel Sheldon

Drilling Company: Buffalo Drilling

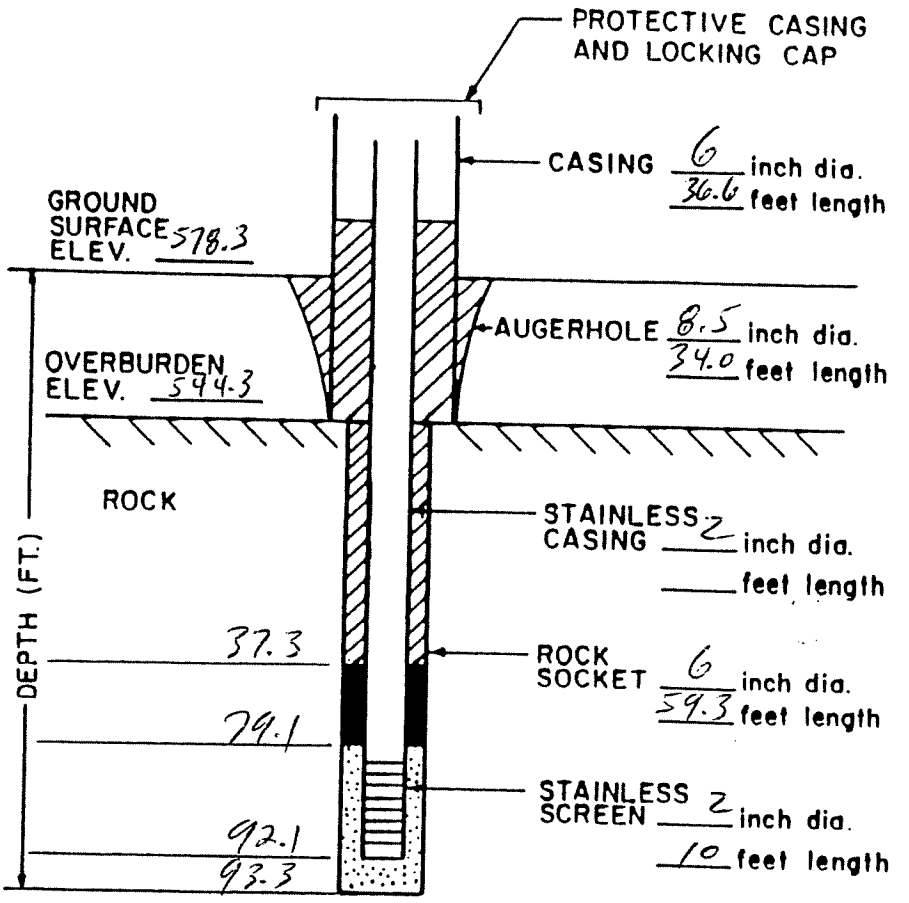
Drillers : C. Nicometi
J. Warren

Rig make / model : Diedrich D-50

Date : 3/12/91

GEOLOGIC LOG

depth (ft.)	lithology
0 - 19.0	Fill
19.0 - 26.0	Clayey Silt, Some Gravel
26.0 - 28.6	Mottled Clay
28.6 - 31.5	Clayey Silt
31.5 - 34.0	Weathered Shale
34.0 - 78.8	Rochester Shale
78.8 - 93.3	Irondequoit Limestone



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : Steel	Type : Stainless Steel	Type : #4 Q-Rok Setting : 79.1 - 93.0'
Monitor : Stainless Steel Schedule 304	Slot Size : .010" Schedule 304	SEAL MATERIAL Type : Bentonite pellets Bentonite Slurry Setting : 73.5 - 79.1' 37.3 - 73.5'

COMMENTS :

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº .
City of Lockport	Lockport City Ling Fill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW - 12 D

4 - 3203

DRILLING SUMMARY

Supervising Geologist : DANIEL SHELDON

Drilling Company: Buffalo Drilling

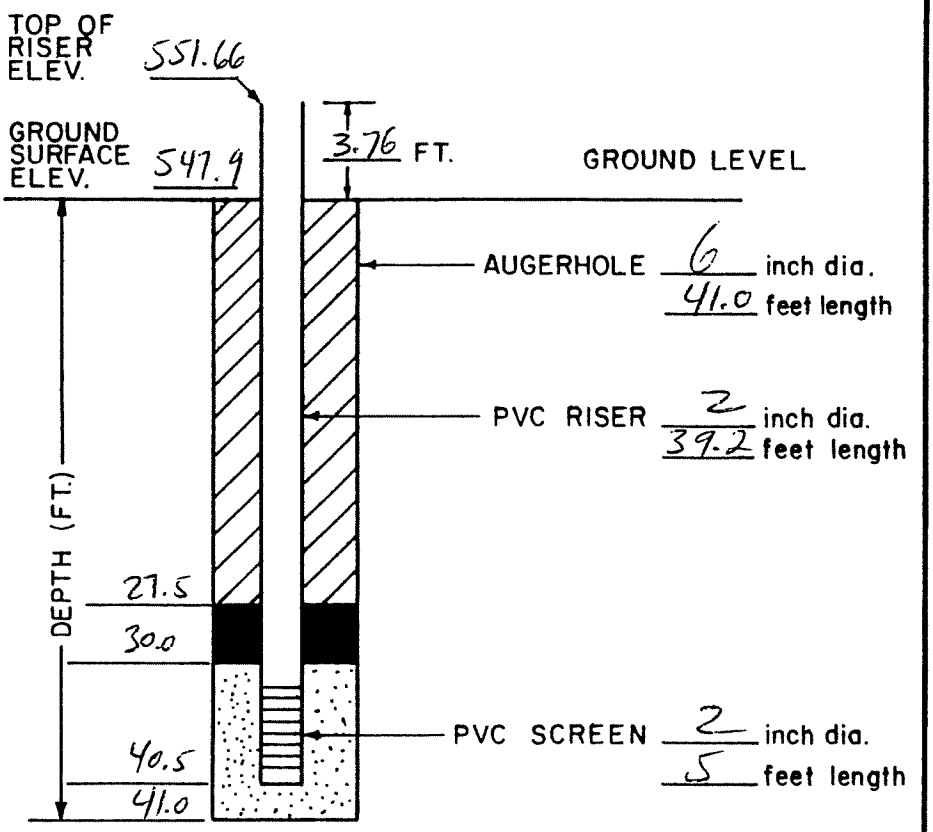
Drillers : C. Nicometi
K. Huebert

Rig make / model : DIEDRICH D-50

Date : 4/3/91

GEOLOGIC LOG

depth (ft.)	lithology
0 - 40.5	Fill
40.5 - 43.0	Clayey Silt



CASING MATERIAL

Surface : PVC

Monitor : PVC Schedule 40

SCREEN MATERIAL

Type : PVC Schedule

Slot Size : .020"

FILTER MATERIAL

Type : #4 Q-Rok Setting : 30.0 - 41.0'

SEAL MATERIAL

Type : Bentonite Pellets Setting : 27.5 - 30.0'

COMMENTS:

Installed in boring B-21

LEGEND

- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport City Landfill	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº : P-7

A-3202

DRILLING SUMMARY

Supervising Geologist : Daniel Sheldon

Drilling Company: Buffalo Drilling

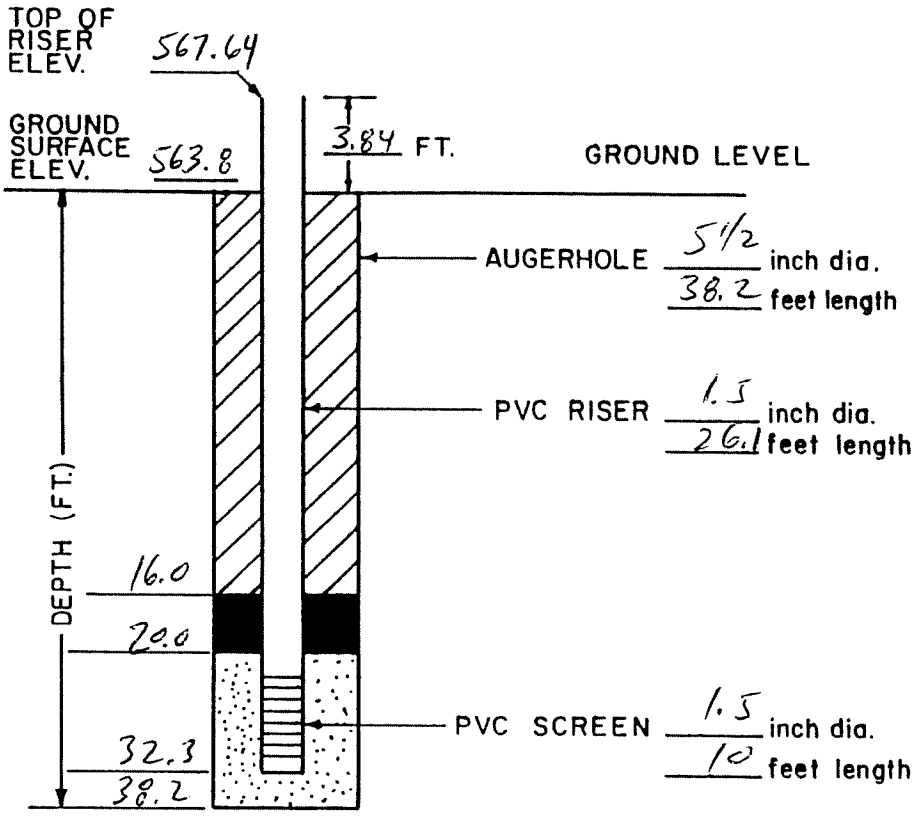
Drillers : C. Nicometi, K. Hoebert

Rig make / model : Diedricht D-50

Date : 4/4/91

GEOLOGIC LOG

depth (ft.)	lithology
0 - 32.0	Fill
32.0 - 38.0	Silty Clay, root material
38.0 - 40.0	Clayey Silt, some gravel



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : PVC	Type : PVC	Type : #4 Q-Rok Setting : 20.0-38.2'
Monitor : PVC Schedule 40	Slot Size : .010"	SEAL MATERIAL Type : Bentonite Pellets Setting : 16.0-20.0'

COMMENTS : Installed in boring B-23

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport City Landfill	35180
URS CONSULTANTS	PIEZOMETER CONSTRUCTION DETAILS	Piezometer Nº : P-8

A-3202

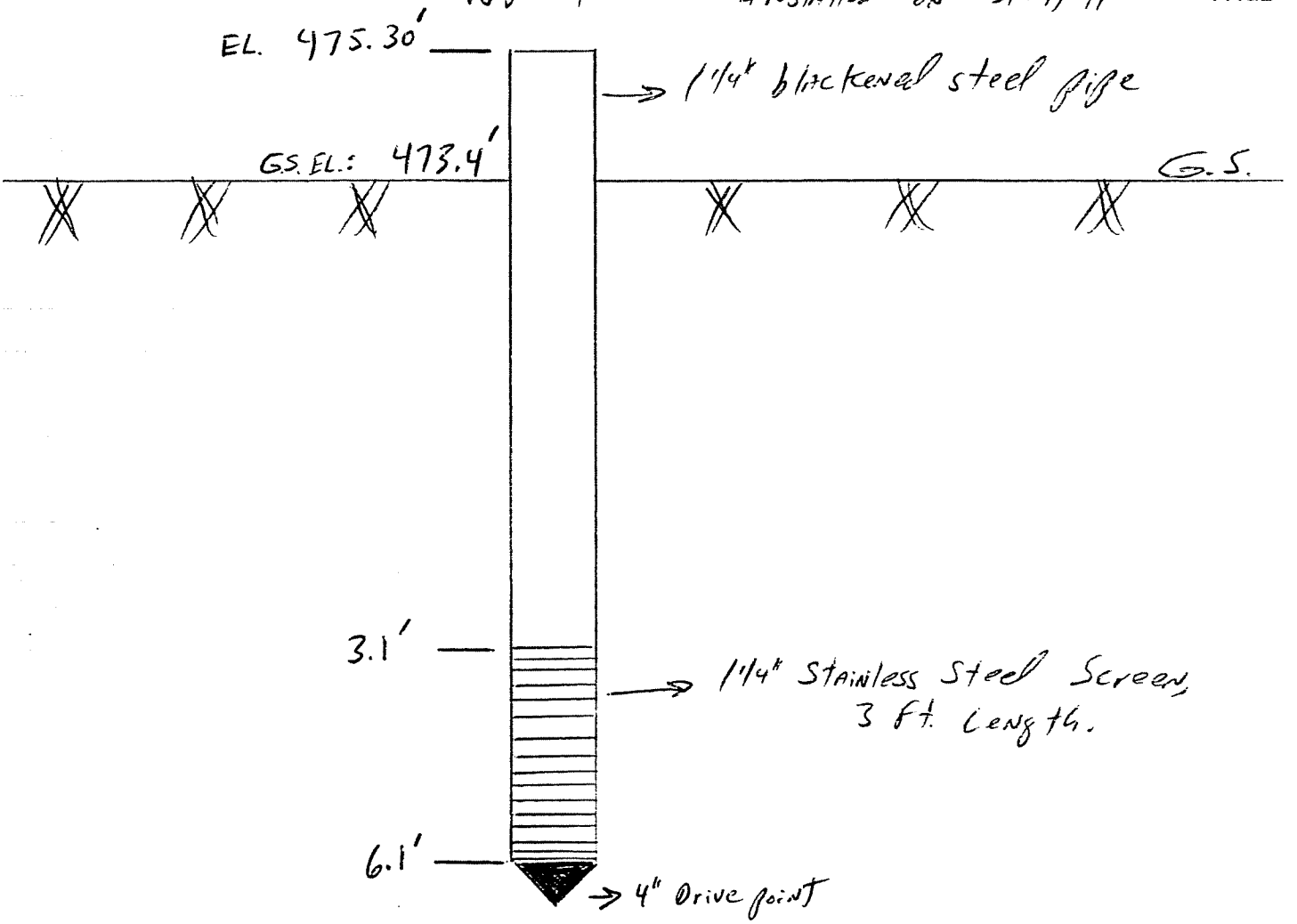
URS CONSULTANTS, INC.

PROJECT Lockport City Landfill
SUBJECT Well Point Installation : WP-4

PAGE 1 OF 1
SHEET NO. 1 OF 1
JOB NO. 35180
MADE BY DMS DATE 4/22/91
CHKD. BY ..... DATE .....

REF. PAGE

WP-4 Installed on 3/29/91



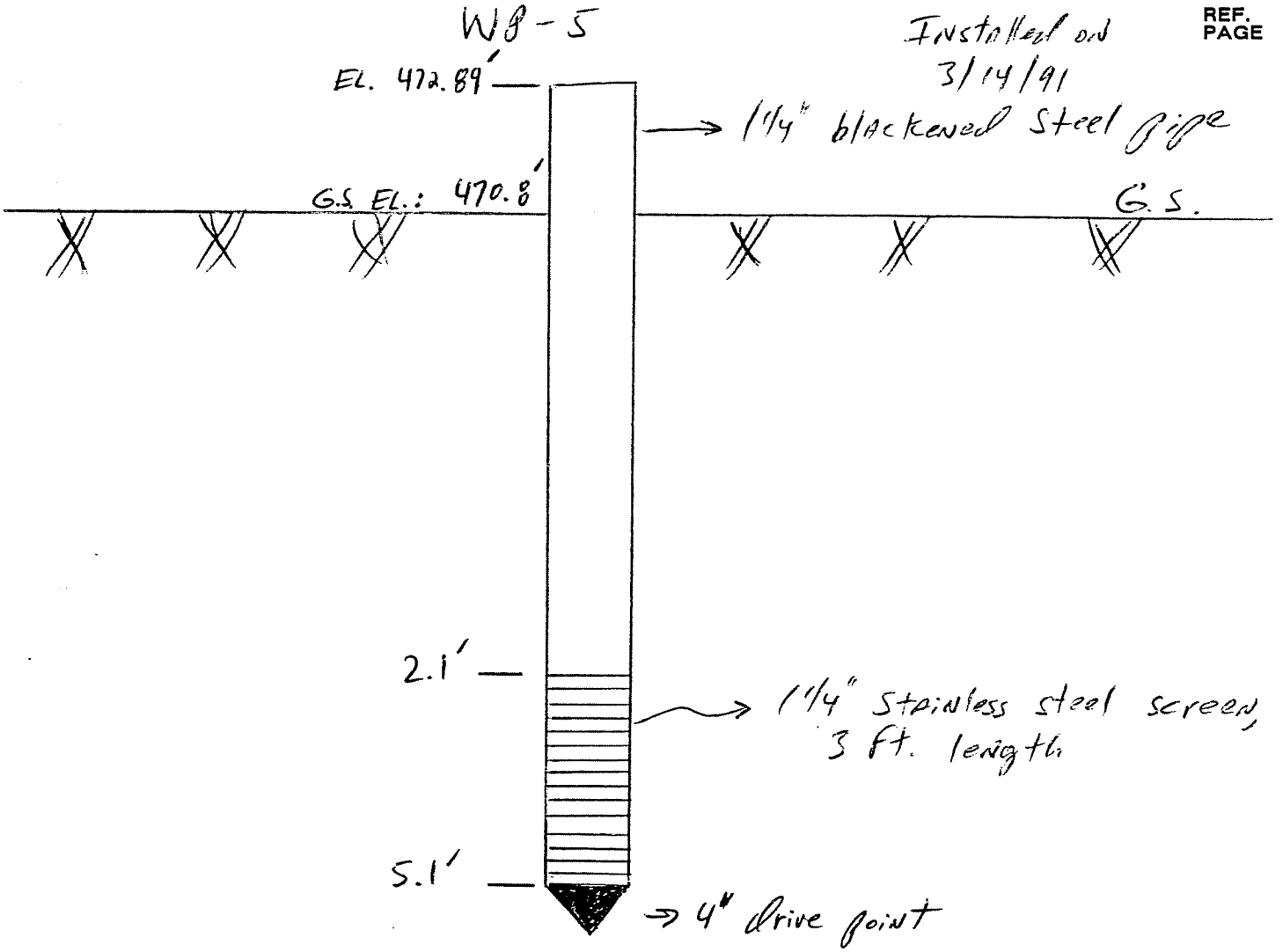
All well points were installed by hand with a 10 pound sledge hammer or a 80 pound drive hammer

URS CONSULTANTS, INC.

PROJECT Lockport City Landfill
SUBJECT Well Joint Installation : WB-5

PAGE 1 OF 1
SHEET NO. 1 OF 1
JOB NO. 35180
MADE BY DMS DATE 4/22/91
CHKD. BY ..... DATE .....

REF. PAGE

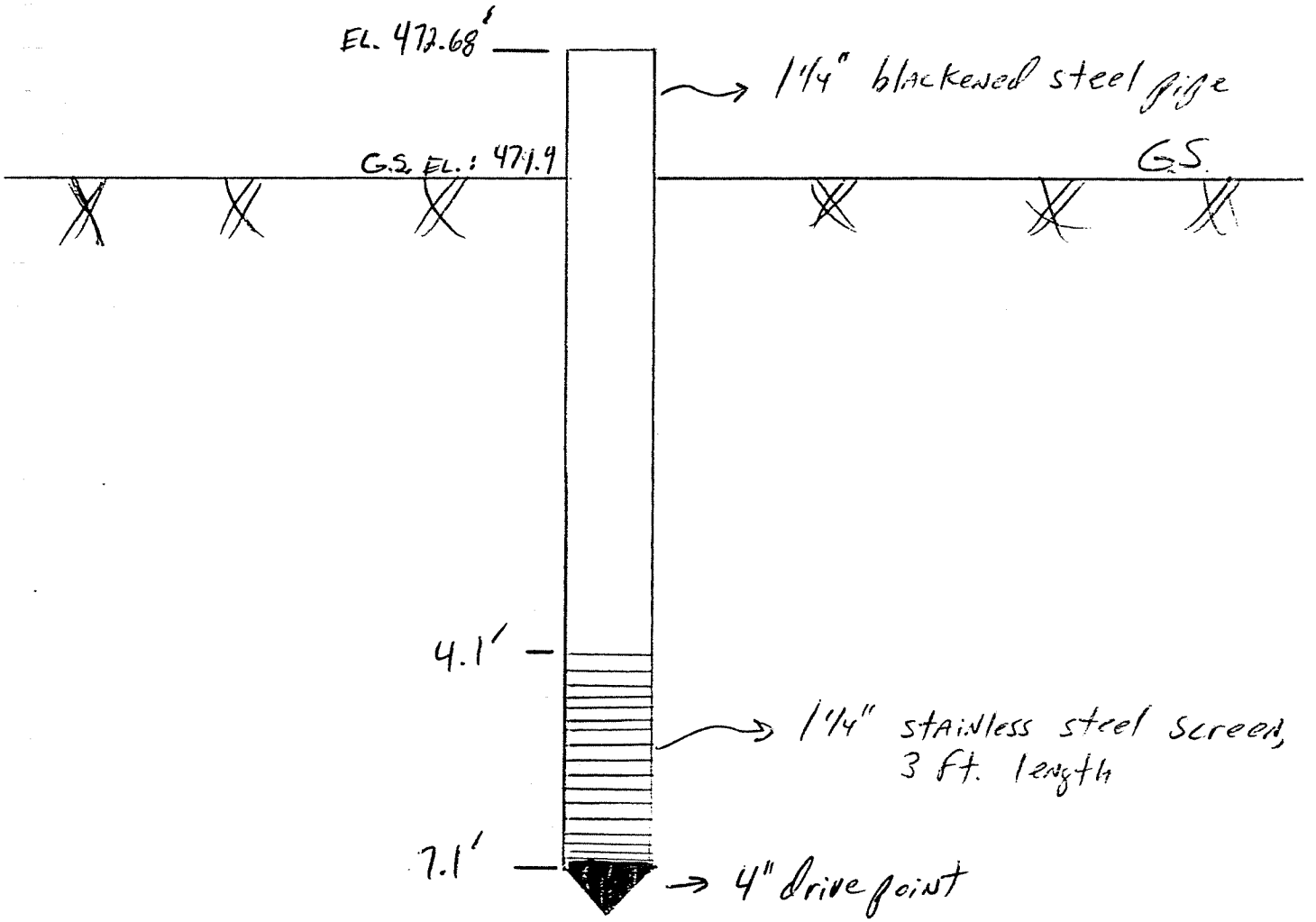


URS CONSULTANTS, INC.

PROJECT Lockport City Landfill
SUBJECT Well Point Installation - WP-6

PAGE 1 OF 1
SHEET NO. 1 OF 1
JOB NO. 35180
MADE BY DHS DATE 4/22/91
CHKD. BY ..... DATE .....

WP-6 Installed on 3/8/91 REF. PAGE



/T872

DATE STARTED 6/21/84
DATE FINISHED 6/21/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-1
SURFACE ELEV. 580.6
G.W. DEPTH 577.12

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
130' Southeast of intersection of
Oakhurst and Railroad Streets

DEPTH (ft)	LOG	SAMPLE TYPE	SAMPLE #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
				6 / 8	Mottled Brown/black silty sandy CLAY, dry, organic at top	Boring advanced with 3 3/4 inch hollow stem auger trailer mounted CME 45-C drill rig
5				12 / 28	Coarse gravelly CLAY, saturated	SS-1 retained for chemical analysis
10					Top of bedrock 6.2 ft. Dark grey, aphanitic, limestone, bedding planes approximately 90° to core axis	NX Coring 6.2 -11.2 ft Recovery = 4.5 ft. = 90% RQD = 37%
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D - 2488-69)
METHOD OF INVESTIGATION Trailer mounted CME-45C Rig -SA
(ASTM D-1586, D-2113-70)

'T872

DATE STARTED 6/25/84 DATE FINISHED 6/25/84 SHEET 1 OF 1	RECRA RESEARCH, INC. SUBSURFACE LOG	HOLE NO. MW-2 SURFACE ELEV. 503.04 G.W. DEPTH 499.67

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfil
Lockport, New York
680' due west of MW-1

DEPTH (ft)	LOG	SAMPLE TYPE	SAMPLE #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
		SS	1	3 / 5 / 4 / 2	Dark brown Silty CLAY, roots present, containing some plastic foil, and brick fragments, moist	Boring advanced with 3 3/4 inch hollow stem auger trailer mounted CME-45C drill rig
5		SS	2	7 / 7 / 9 / 12	Orange brown CLAY, trace silt, moist, plastic	SS-1 retained for chemical analysis
10					Top of Bedrock 8.0 ft. Light grey medium to coarse crystalline limestone, coarse sand and trace clay at most breaks	NX Coring 8.0-12.5 ft. Recovery = 4.4 ft. - 98% RQD = 7%
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION Trailer Mounted CME-45C Rig.
HSA (ASTM D-1586, D-2113 [illegible]

/T872

DATE STARTED 6/27/84
DATE FINISHED 6/28/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-3
SURFACE ELEV. _____
G.W. DEPTH _____

PROJECT NYS DEC SUPERFUND Phase II
Project #EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
900' North of MW-2 along
Gulf Creek

DEPTH (ft)	LOG	SAMPLE TYPE	SAMPLE #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
				1 / 2	Orange brown silty CLAY, angular gravel and pebbles throughout, moist	Boring advanced with 3 3/4 inch hollow stem auger all terrian vehicle CME-45C drill rig
		SS	1	4 / 5		
5						
				7 / 10	Brown grey Silty CLAY, abundant angular gravel throughout sample moist	
		SS	2	12 / 7		
10						
				12 / 17		
		SS	3	48 / 100/.3	Brown grey Silty CLAY, gravel throughout, saturated	SS-3 retained for chemical analysis
15					Top of BEDROCK 12.5 ft. Dark grey aphanitic limestone, bedding planes approximately 70° to core axis	NX Coring 12.5-17.0 ft Run 1 12.5-13.5 ft. Recovery = .9 ft = 90% RQD = 0 Run 2 12.5-17.0 ft. Recovery = 2.1 ft. 60% RQD - 42%
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV mounted CME-45C Rig, HSA (ASTM D-1586, D-2113 [illegible]

'T872

DATE STARTED 6/21/84
DATE FINISHED 6/21/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-4
SURFACE ELEV. 474.53
G.W. DEPTH 473.3
1.23

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
450' North of MW-3A along
Gulf Creek

DEPTH (ft)	LOG	SAMPLE TYPE	SAMPLE #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
		SS	1	2 / 2 / 5 / 13	Dark brown silty CLAY, organic matter, coarse (up to 2 inch) subangular gravel, slightly moist	Boring advanced with 3 3/4 inch hollow stem auger, all terrain vehicle CME-45C drill rig
5					Orange brown silty CLAY, abundant gravel throughout, moist, plastic	SS-2 retained for chemical analysis
					Top of BEDROCK 6.0 ft.	NX Coring 6.0-10.0 ft.
					6.0-6.7 ft. light grey coarse crystalline limestone	Recovery = 3.8 ft. 95%
10					6.7-7.5 red siltstone	RQD = 36%
					7.5-9.7 light grey siltstone	
					9.7-10.0 red siltstone	
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV Mounted CME-45C Rig, HSA (ASTM D-1586, D-2113 ?

'T872

DATE STARTED 6/29/84
DATE FINISHED 6/29/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-5
SURFACE ELEV. 472.12
G.W. DEPTH 466.72
≤48

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
430' North of MW-4
along Gulf Creek

DEPTH (ft)	LOG	SAMPLE TYPE	SAMP #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
		SS	1	5 / 6 / 100/0	Dark brown silty sandy CLAY glass throughout, moist	Boring advanced with 3 3/4 inch hollow stem auger ATV, CME-45C Drill rig SS-1 retained for chemical analysis
5		SS	2	7 / 10 / 10 / 13	Tan, grey-brown sandy silty CLAY coarse 1 1/2 in.) subangular gravel throughout, plastic saturated	
10					Top of Bedrock 9.2 ft. 9.2-10.0 ft. grey dolostone 10.0-13.0 ft. red siltstone, massive 13.0-14.2 ft. red claystone, soft, broken	NX coring 9.2-14.2 ft. Recovery = 4.3 ft.=86% RQD = 32%
15						
20						
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV Mounted CME-45C Rig, HSA (ASTM D-1586, D-2113 70)

/T872

DATE STARTED 7/1/84
DATE FINISHED 7/3/84
SHEET 1 OF 1

RECRA RESEARCH, INC.
SUBSURFACE LOG

HOLE NO. MW-6
SURFACE ELEV. 574.73
G.W. DEPTH 554.31

PROJECT NYS DEC Superfund Phase II
Project #2EM84001.3000

LOCATION Lockport City Landfill
Lockport, New York
670 ft. east of MW-3A in Park

DEPTH (ft)	LOG	SAMPLE TYPE	SAMP #	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	DESCRIPTION	NOTES
		SS	1	6 / 11 / 7 / 10	Red brown silty CLAY, roots, fine cinders, probably fill dry	Boring advanced with 3-3/4 inch hollow stem auger ATV, CME-45C drill rig SS-1 retained for chemical analysis
5		SS	2	100/.4	Grey weathered limestone, some brown silty clay. Very dry.	
10		SS	3	80 / 100/.5	Grey brown weathered limestone.	3 inch roller-bit 10.0-20.0 ft.
15		SS	4	100/.5	Grey brown weathered limestone.	
					Top of BEDROCK 15.5' Dark grey aphanitic LIMESTONE, bedding planes approximately 90° to core axis	
20						NX coring 20.0-25.0 ft Recovery = 100% RQD - 23%
25						
30						

CLASSIFICATION Field Visual (ASTM D-2488-69)
METHOD OF INVESTIGATION ATV Mounted CME-45C Rig, HSA (ASTM D-1586, D-2113 [illegible])

DRILLING SUMMARY

Supervising Geologist : Thomas Fralick

Drilling Company: Buffalo Drilling

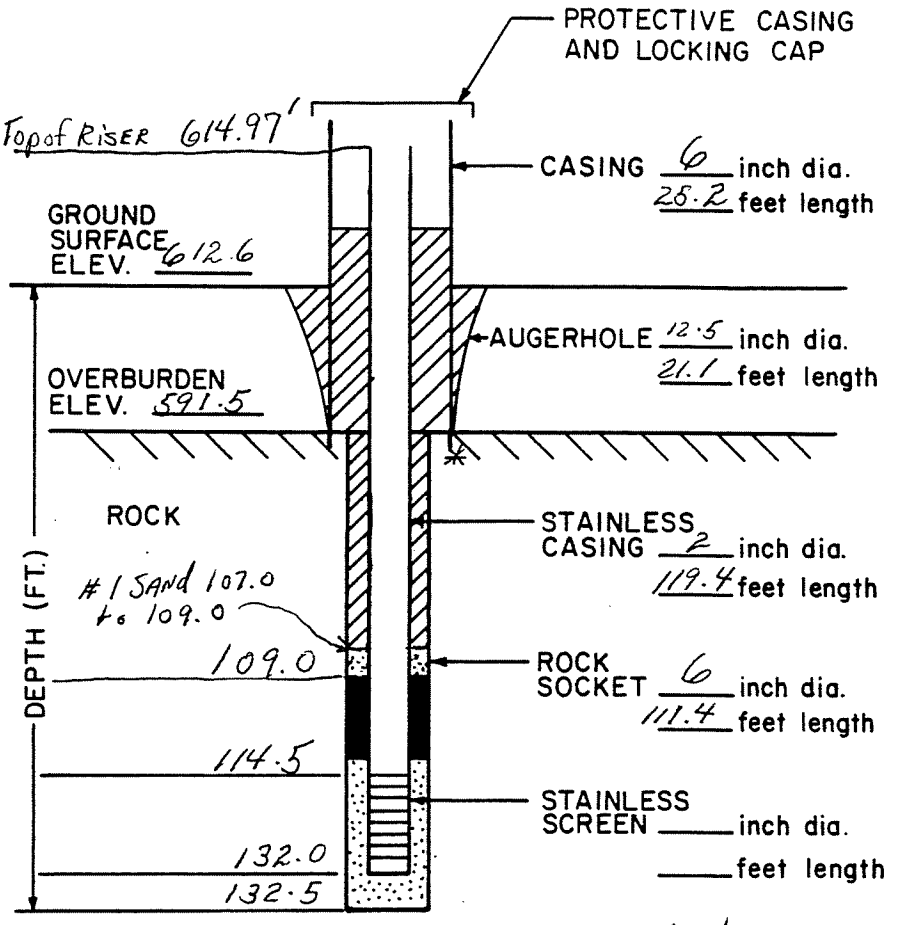
Drillers : M. Sael
M. Gerstang

Rig make / model : Diedrich D-50

Date : 5/17/91

GEOLOGIC LOG

depth (ft.)	lithology
0 - 21.1	Clayey Silt, sand Gravel
21.1-36.0	Limestone / Dolostone (Lockport Group)
36.0 - 113.3	Rochester Shale
113.3 - 133.0	Irondequoit Limestone
133.0 - 137.3	Rockway Dolostone



* 6" permenant casing seated 2.3' into bedrock in a 8" rock socket

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface : Steel	Type : #304 Stainless Steel	Type : 1/4" washed Pea Gravel Setting : 114.5'-132.5'
Monitor : #304 Stainless Steel	Slot Size : 0.030"	SEAL MATERIAL Type : Bentonite Pellets Setting : 109.0 - 114.5'

COMMENTS : Replacement well for MW-11D installed on 4/1/91
NEW WELL LOCATED 21' South and 13' West of Old well.

LEGEND
- CEMENT . BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :	Location :	Project Nº :
City of Lockport	Lockport City Landfill	35180
URS CONSULTANTS	MONITORING WELL CONSTRUCTION DETAILS BEDROCK FORMATION	WELL Nº : MW-11D(R)

A-3203

APPENDIX H

WELL DEVELOPMENT REPORTS
AND WELL SAMPLING REPORTS

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-20-21000

STAFF: R Trombley III, R West

DATE: 1-8-90 / 1-12-90

WELL NO.: MW-5

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	8.00	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2"	2"	0.17
		3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	2.62	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	0.88	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25					
Turbidity (NTU)	96	60	10	12	9.5	9.2					
Spec. Cond. (µmho)	960	1090	1100	1090	1090	1050					
pH	6.6	6.8	-	6.9	6.8	6.9					
Temp (°C)	4.0	5.5	4.6	2.5	3.3	3.9					
	1-3		1-12								

COMMENTS: Developed with An Isco Peristaltic Pump

28.5 Volume, Temps

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35120-00-21000

STAFF: S. Lamb, R Tempesch, E Buttinger

DATE: 2-26-90

WELL NO.: MW 1I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	29.11	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (In.):	2	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.42	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	3.71	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	1	3	5	10	15	18	19	24	29	34	39
Turbidity (NTU)	62	41	59	>100	>100	>100	46	96	>100	>100	>100
Spec Cond (µmho)	1180	1150	1560	1580	1570	1590	1490	1600	1600	1600	1600
pH	9.36	9.41	9.27	9.56	9.60	9.20	8.23	8.88	8.42	8.33	8.20
Temp (°C)	3.4	4.2	5.0	3.9	4.7	4.4	3.6	3.6	4.7	4.4	4.3

COMMENTS: Developed With An ISCO Peristaltic Pump

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35130-00-21000

STAFF: S. Lamb, E. Bitner

DATE: 2-26-90

WELL NO.: MW 1I

① TOTAL CASING AND SCREEN LENGTH (FT.):	28.16
② CASING INTERNAL DIAMETER (in.):	2"
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.42
④ VOLUME OF WATER IN CASING (GAL.)	3.54

V = 0.0408 (②)^2 X (① - ③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	44	49	54	59	64						
Turbidity (NTU)	>100	92	79	70	38						
Spec. Cond. (µmho)	1590	1630	1590	1580	1580						
pH	8.26	8.29	8.42	8.30	8.24						
Temp (°C)	4.1	4.0	3.7	3.6	2.4						

COMMENTS:

17 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT R/FS

PROJECT NO.: 35.90-00-2100

STAFF: KEVIN S. KEARNEY, E. BITTNER, S. LAMB

DATE: 1-26-90 / 1-29-90 / 1-31-90 / 2-9-90

WELL NO.: MW1D

① TOTAL CASING AND SCREEN LENGTH (FT.):	89.13
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	47.30
④ VOLUME OF WATER IN CASING (GAL.)	6.82

V = 0.0408 (②)^2 X (①-③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	12	12	21	21	25	25	26	27	33	34
Turbidity (NTU)	-	-	38	-	33	>100	25	27	65	64	>100
Spec. Cond. (µmhos)	-	7400	4740	-	4930	11,220	3700	3530	5080	5330	6290
pH	-	12.30	12.02	-	12.32	11.87	12.91	12.81	13.04	13.14	13.23
Temp (°C)	-	5.8	5.0	-	4.9	3.0	-	-	-	-	-
	1-26		1-29		1-31		2-9				→

COMMENTS:

- VERY SLOW RECHARGE RATE WELL, HAS SAND PARTICLES AT THE BOTTOM OF THE SCREEN.
- WELL DEVELOPED WITH A STAINLESS STEEL BAILER.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockheed R/FS

PROJECT NO.: 35130-00-3000

STAFF: S LAMB

DATE: 2-9-90 / 2-12-90 / 2-13-90 / 2-14-90

WELL NO.: MW1D

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	39.13	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	47.30	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	6.82	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	30	31	32	33	34	35	36	37	38	39	40
Turbidity (NTU)	>100	>100	>100	75	>100	97	76	>100	>100	>100	>100
Spec Cond (µmhos)	6770	7270	8230	5910	5510	5590	5900	6930	6660	7900	5360
pH	13.25	13.29	12.63	13.50	13.59	13.54	13.41	12.86	12.73	12.71	13.09
Temp (°C)	—	—	—	—	—	—	—	—	—	—	5.2
	2-9			2-12				2-13			2-14

COMMENTS:

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35.90-00-31000

STAFF: S. Lamb / F. Sheppard / D. Sheldon / B. Tramposch

DATE: 2-14-90 / 2-22-90 / 2-26-90 /

WELL NO.: MW1D

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	89.13	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	47.36	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	6.82	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	41	41	46	47	48	49	50	51	53		
Turbidity (NTU)	>100	16	>100	95	43	6.0	>100	>100	>100		
Spec. Cond (µmho)	9020	5110	3600	5700	4600	5300	5960	5930	5960		
pH	12.89	11.26	11.26	11.29	13.14	13.45	13.67	13.91	13.81		
Temp (°C)	5.9	5.8	6.8	6.9	5.9	6.1	5.5	5.8	5.3		
	2-14	2-22			2-26						

COMMENTS: 2-22 → Purge Water Had A Green Tint With Sediment Contained In The Bailer.

7.5 Volumes Removed Prior To Sample

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180.00 2100

STAFF: D. SHELDON

DATE: 3/6/90 / 3/8/90 / 3/9/90

WELL NO.: MW 1D

① TOTAL CASING AND SCREEN LENGTH (FT.):	89.13
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	47.30
④ VOLUME OF WATER IN CASING (GAL.)	6.82

V = 0.0408 (②)^2 X (① - ③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	57	58	62.5	65	69						
TURBIDITY (NTU)	>100	>100	>100	>100	74						
pH	14.00	13.76	13.72	13.28	13.20						
Temp (°C)	5.9	—	—	6.3	—						
	3-6		3-8		3-9						

COMMENTS: CONTINUED WELL development AFTER surge block methods.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: S LAMB

DATE: 2-8-90

WELL NO.: MW2S

① TOTAL CASING AND SCREEN LENGTH (FT.):	14.33
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	5.64
④ VOLUME OF WATER IN CASING (GAL.)	1.42

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35	40		
Turbidity (NTU)	>100	96	27	15	42	80	66	9	16		
Spec. Cond. (µmho)	1720	1730	1670	1710	1720	1720	1690	1710	1680		
pH	7.40	7.40	7.43	7.25	7.25	7.26	7.43	7.37	7.34		
Temp (°C)	6.5	6.6	7.0	6.8	6.8	6.7	6.5	6.6	6.3		

COMMENTS: Developed With An Old Peristaltic Pump

28 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT RI/FS

PROJECT NO.: 35180-00 21000

STAFF: S. LAND

DATE: 2-9-90

WELL NO.: MW 2 I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	26.29	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
		3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	5.16	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	3.44	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35			
TURBIDITY (NTU)	76	>100	89	11	>100	46	24	24			
SPEC. COND. (µmho)	1370	1440	1530	1620	1600	1670	1640	1720			
pH	7.85	7.52	7.67	7.51	7.51	7.49	7.48	7.57			
TEMP (°C)	8.4	8.4	8.1	7.9	7.9	7.6	7.7	7.6			

COMMENTS: DEVELOPED WITH AN ISCO PERISTALTIC PUMP.

10 VOLUMES REMOVED

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35.80 00 -21000

STAFF: R. West / S. Land

DATE: 2-6-90 / 2-7-90 / 2-8-90

WELL NO.: MW35

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	15.70	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	3.28	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	2.02	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35	40	45	
Turbidity (NTU)	>100	>100	>100	>100	>100	>100	>100	46	36	20	
Spec Cond (µmho)	1870	2100	2070	2120	2040	2070	2060	2030	1970	2040	
pH	7.11	6.90	7.28	7.38	7.24	7.18	7.28	7.22	7.14	7.45	
Temp (°C)	6.3	6.2	-	-	-	-	-	-	-	-	
	2-6			2-7					2-8		

COMMENTS: Developed with Stainless Steel Bailer. + Isco Peristaltic Pump.

22 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35130-00-21000

STAFF: S. Lamb R West

DATE: 2-5-90 / 2-6-90 / 2-7-90 /

WELL NO.: MW4S

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	11.89	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
		3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	3.14	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	1.43	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30				
Turbidity (NTU)	>100	>100	>100	>100	>100	43	18				
Spec. Cond. (µmho)	1640	1650	1620	1560	1650	1580	1610				
pH	6.96	6.73	6.95	7.18	7.20	6.94	7.30				
Temp. (°C)	5.4	7.0	5.9	5.3	6.5	5.9	5.4				
	2-5				2-6	2-7					

COMMENTS: - Developed With A Stainless Steel Bailer And An ISCO Peristaltic Pump.

- Turbidity Was Very High Over The Initial 10 Gallons. This Was Due To Sediment At The Bottom Of The Screen

2) Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: S. Lamb

DATE: 2-5-90 / 2-6-90 / 2-7-90

WELL NO.: MW5S

① TOTAL CASING AND SCREEN LENGTH (FT.): 15.52

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) 5.97

④ VOLUME OF WATER IN CASING (GAL.) 1.56

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	3	4	5	10	13	15	20	25	30	35
Turbidity (NTU)	>100	>100	99	76	>100	>100	95	98	86	>100	76
Spec. Cond. (µmho)	1640	1170	1370	1580	1510	1490	1430	1570	1470	1310	1510
pH	-	5.5	7.12	7.10	6.91	7.24	7.16	7.12	7.10	7.15	7.13
Temp (°C)	-	6.2	6.8	8.0	7.0	6.9	6.9	8.5	-	7.8	6.9
	2-5		2-6					2-7			

COMMENTS: Developed with a stainless steel Baiker.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35130.20-31000

STAFF: S. Lamb

DATE: 2-3-90

WELL NO.: MW5S

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	15.52	1"	0.04
② CASING INTERNAL DIAMETER (In.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	5.97	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	1.56	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	40	45									
Turbidity (NTU)	95	24									
Spec. Cond (µmho)	1510	1520									
pH	7.59	7.66									
Temp (°C)	7.6	8.3									

COMMENTS:

29 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180 00-21000

STAFF: K Kearney

DATE: 2-2-90

WELL NO.: MW5I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	26.44	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.77	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	3.21	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	22	27	32	37	42	47	52	57	62	
Turbidity (NTU)	>100	>100	>100	>100	>100	>100	>100	72	27	25	
Spec. Cond. (µmho)	1540	1800	1750	1690	1630	1650	1630	1650	1620	1590	
pH	7.14	6.68	6.70	6.70	6.65	6.82	6.91	6.97	6.83	6.89	
Temp (°C)	-	-	-	-	-	7.3	8.3	6.5	8.4	7.2	

COMMENTS: - Water Turned From Slightly Turbid @ 22 Gallons To A Red/Brown Silt @ 47 Gallons.

19.5 Volumes Removed

- Developed With An Isco Peristaltic Pump.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: Kevin S. Kearney / D. Sheppard / D. Sheldon / S. Lamb

DATE: 1-31-90 / 2-22-90 / 2-23-90 / 2-26-90 R. Trampusch

WELL NO.: MW6I

① TOTAL CASING AND SCREEN LENGTH (FT.):	27.15
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	17.40
④ VOLUME OF WATER IN CASING (GAL.)	1.59

V = 0.0408 (②)^2 x (① - ③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	8	8	12	12	17	23	28	31	31	33
Turbidity (NTU)	85	>100	>100	>100	18	>100	>100	>100	>100	31	>100
Spec. Cond. (µmho)	780	650	580	550	580	590	490	540	580	300	740
pH	6.57	6.74	7.70	7.65	6.82	8.06	8.10	7.84	7.62	8.39	8.19
Temp (°C)	2.4	6.8	8.8	8.8	5.7	4.6	4.9	5.3	5.8	6.1	5.5
	1-31		2-22		2-23					2-26 →	

COMMENTS: Developed With A Stainless Steel Bailer.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: S. Lane, R. Tramposch

DATE: 2-26-90

WELL NO.: MW6I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): _____

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	37										
Turbidity (NTU)	40										
Spec. Cond (µmho)	720										
pH	8.21										
Temp (°C)	5.6										

COMMENTS:

23 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: D Sheppard/D Sheldon/S Lamb/R Trampesch

DATE: 2-22-90 / 2-23-90 / 2-26-90

WELL NO.: MW6D

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	86.95	1"	0.04
② CASING INTERNAL DIAMETER (In.):	2	2"	0.17
		3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	71.94	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	2.45	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	IN	5	10	15	20	20	25	30	35	35	36.5
Turbidity (NTU)	>100	>100	>100	>100	>100	>100	>100	>100	>100	62	>100
Spec Cond (µmho)	8000	2430	680	540	540	4540	660	700	730	5240	5390
pH	11.20	10.66	9.10	8.44	8.20	12.78	10.35	8.95	8.69	13.74	13.86
Temp (°C)	8.8	9.1	8.9	8.5	9.0	5.7	5.1	6.0	6.0	5.3	5.6
	2-22					2-23					

COMMENTS: Developed With A Stainless Steel Bailer

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT RI/FS

PROJECT NO.: 35190-00-21000

STAFF: S. LAMB, D. SHELDON

DATE: 2-27-90

WELL NO.: MW6D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (In.): _____

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	36.5										
Turbidity (NTU)	25										
Spec. Cond. (μmho)	2450										
pH	12.37										
Temp (°C)	6.5										

COMMENTS:

15 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 55190 00 21000

STAFF: S. Lamb, R West

DATE: 1-2-90 / 2-2-90

WELL NO.: MW7S

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	15.22	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	12.87	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	0.38	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	2	3	4	5	6					
Turbidity (NTU)	>100	>100	90	24	34	33					
Spec. Cond (µmho)	1600	1680	1730	1660	1690	1790					
pH	7.08	7.53	6.36	7.16	6.80	7.03					
Temp (°C)	9.8	6.9	6.0	5.5	6.4	6.5					

COMMENTS: Developed With A Stainless Steel Bailer

15 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT RI/FS

PROJECT NO.: 35180-00-21000

STAFF: S. LAMB / G. BITTINGER / D. SHEPPARD / D. SLOAN

DATE: 2-12-90 / 2-13-90 / 2-14-90 / 2-20-90 / 2-22-90 / 2-23-90

WELL NO.: MW8I

① TOTAL CASING AND SCREEN LENGTH (FT.):	33.56
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	24.89
④ VOLUME OF WATER IN CASING (GAL.)	1.41

V = 0.0408 (②)^2 X (① - ③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	3	3	5	6	7	8.5	8.5	10.5	10.5	12
TURBIDITY (NTU)	>100	>100	>100	>100	65	87	>100	>100	56	>100	>100
SPEC COND (µmho)	480	670	570	580	530	720	680	640	680	420	440
pH	9.15	8.70	8.19	8.31	8.27	7.67	8.19	8.18	6.53	6.95	7.07
TEMP (°C)	7.8	4.0	6.9	6.0	5.6	6.5	-	-	6.8	6.3	6.2
	2-12		2-13		2-14		2-20	2-22		2-23	

COMMENTS: DEVELOPED WITH A STAINLESS STEEL BAILER

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 55180-00-21000

STAFF: S. Lamb, D. Sherman

DATE: 2-26-90 / 2-27-90 / 2-28-90

WELL NO.: MW 8I

① TOTAL CASING AND SCREEN LENGTH (FT.):	33.50
② CASING INTERNAL DIAMETER (In.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	24.89
④ VOLUME OF WATER IN CASING (GAL.)	1.40

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	13.5	15.5	15.5	17.0	20	20	21				
Turbidity (NTU)	24	>100	37	>100	>100	59	>100				
Spec. Cond. (µmho)	1690	880	870	850	330	380	850				
pH	8.51	8.55	7.77	7.63	7.68	7.65	7.60				
Temp (°C)	4.0	5.6	5.5	4.1	6.1	5.7	5.2				
	2-26		2-27			2-28					

COMMENTS:

15 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180 00. 2100

STAFF: D. SHELDON

DATE: 3-6-90 / 3-8-90

WELL NO.: MW 8I

① TOTAL CASING AND SCREEN LENGTH (FT.):	35.50
② CASING INTERNAL DIAMETER (In.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	24.89
④ VOLUME OF WATER IN CASING (GAL.)	1.40

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	25	28	31	38	40						
Turbidity (NTU)	>100	>100	>100	>100	48						
pH	8.15	8.70	8.43	8.64	8.66						
Temp. (C°)	5.3	6.3	5.4	6.0	6.0						
		3-6		3-8							

COMMENTS: Further development efforts after well was surge blocked

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT RI/FS

PROJECT NO.: 35180-00-21000

STAFF: S. LAMB

DATE: 2-12-90 / 2-13-90 / 2-14-90 / 2-20-90 / 2-22-90 / 2-23-90 / 2-27-90

WELL NO.: MW8D

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	77.00	1"	0.04
② CASING INTERNAL DIAMETER (In.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	63.88	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	2.14	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	2	4	5	6	7	7	7.5	9.5	11.0	13
TURBIDITY (NTU)	>100	>100	>100	76	>100	6.8	88	56	>100	44	>100
SPEC. COND. (µmho)	1460	1300	1310	1250	1240	1610	1440	940	1350	840	1700
pH	11.38	10.05	8.46	8.50	8.21	7.47	8.07	6.77	6.88	3.29	8.53
TEMP (°C)	6.4	6.3	17	3.6	5.9	5.8	-	6.2	5.5	3.9	4.4
	2-12		2-13		2-14	2-20	2-22		2-23		2-27 →

COMMENTS: DEVELOPED WITH A STAINLESS STEEL BAILER

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35190-00-21000

STAFF: S. Lamb D. Sheldon

DATE: 2-27-90 / 2-28-90

WELL NO.: MW9D

① TOTAL CASING AND SCREEN LENGTH (FT.):	77.00
② CASING INTERNAL DIAMETER (In.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	63.88
④ VOLUME OF WATER IN CASING (GAL.)	2.14

V = 0.0408 (②)^2 x (① - ③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	14	14	15	16	17.5						
Turbidity (NTU)	75	>100	>100	>100	>100						
Spec. Cond. (µmhos)	1670	1550	1510	1490	1600						
pH	7.54	7.42	7.42	7.41	7.52						
Temp (°C)	4.1	4.6	6.0	5.8	4.8						
	2-27				2-28						

COMMENTS:

8 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180.00.21000

STAFF: D. Sheidan

DATE: 3-6-90 / 3-8-90 / 3-9-90

WELL NO.: MW8D

① TOTAL CASING AND SCREEN LENGTH (FT.):	77.00
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	63.88
④ VOLUME OF WATER IN CASING (GAL.)	2 14

V = 0.0408 (②)^2 X (①-③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	21	26	31								
Turbidity (NTU)	>100	>100	>100								
pH	7.56	7.69	7.90								
Temp (C°)	5.3	6.0	6.5								
	3-6	3-8	3-9								

COMMENTS: Further development efforts after surge blocking.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35190-00-21000

STAFF: R West, S. Lamb

DATE: 2-5-90

WELL NO.: MW9S

① TOTAL CASING AND SCREEN LENGTH (FT.):	12.61
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.60
④ VOLUME OF WATER IN CASING (GAL.)	0.98

V = 0.0408 (②)^2 X (① - ③) = _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35	40	45	50
Turbidity (NTU)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
Spec. Cond (µmhos)	1800	1680	1690	1680	1680	1670	1690	1690	1670	1670	1590
pH	6.56	6.99	7.17	7.24	7.13	7.23	7.26	7.26	7.29	7.32	7.28
Temp (°C)	2.2	3.0	3.4	3.2	-	3.3	3.4	3.4	2.4	3.5	3.1

COMMENTS: Developed With An Isco Peristaltic Pump.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: S. Lamb / R. West

DATE: 2-6-93

WELL NO.: MW9S

① TOTAL CASING AND SCREEN LENGTH (FT.):	1
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.60
④ VOLUME OF WATER IN CASING (GAL.)	

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	55	60	65	70							
Turbidity (NTU)	>100	>100	24	15							
Spec. Cond. (µmho)	1730	1700	1690	1680							
pH	7.07	7.11	7.13	7.07							
Temp (°C)	3.4	3.6	3.7	3.3							

COMMENTS:

71.5 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: R West, S. Lamb

DATE: 2-5-90

WELL NO.: MW9I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	19.93	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	5.74	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	2.31	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	35	40	45	50
Turbidity (NTU)	>100	>100	>100	>100	>100	>100	>100	91	72	65	70
Spec Cond. (µmho)	1790	1720	1710	1720	1730	1730	1760	1770	1790	1770	1760
pH	6.93	6.95	6.96	6.98	6.99	7.14	6.94	6.84	6.95	693	7.00
Temp (°C)	5.7	6.3	6.8	6.9	5.9	-	6.4	6.6	5.6	6.6	6.5

COMMENTS: Developed With An Isco Peristaltic Pump.

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: R West, Scott Lamb

DATE: 7-5-90

WELL NO.: MW9I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	19.93	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	5.74	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	2.31	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	55	60	65	70	75	80	85	90	95	100	105
Turbidity (NTU)	>100	>100	>100	>100	>100	82	75	41	66	76	50
Spec. Cond. (µmho)	1780	1740	1780	1790	1790	1780	1780	1790	1770	1750	1760
pH	6.99	6.99	7.01	7.01	7.01	7.02	7.00	7.02	6.97	7.00	7.00
Temp (°C)	6.7	6.2	6.4	6.2	6.2	7.0	7.2	7.1	7.2	7.2	7.2

COMMENTS:

45.5 Volumes Removed

A-2347

URS CONSULTANTS

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35190-00-21000

STAFF: D. Sheppard / D. Sheldon / K. Kearney

DATE: 3-22-90 Start Purge 1100
End Purge 1110

WELL NO.: MW15

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	8.00	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	3.82	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	0.84	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	3									
Turbidity (NTU)	35	30									
Spec. Cond. (µmho)	890	910									
pH	7.39	7.34									
Temp (°C)	12	12									
PID (ppm)	0	0									

COMMENTS: Purged with an Isco Peristaltic Pump.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: D. Sheppard / D. Sheldon / K. Kearney

DATE: 3-22-90 START PURGE = 1130 END PURGE = 1145

WELL NO.: MW II

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	29.16	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2"	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.00	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	3.94	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	12									
Turbidity (NTU)	25	14									
Spec. Cond. (µmhos)	910	1350									
pH	8.01	7.22									
Temp (°C)	11°	12°									
HNU (ppm)	0	0									

COMMENTS: Well Evacuated with an Isco peristaltic pump.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: D. Sheppard / D. Sheldon / K. Kearney

DATE: 3-22-90 Start Purge = 1400

End Purge = 1600

WELL NO.: MW1D

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	89.13	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2"	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	57.60	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	5.36	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	10									
Turbidity (NTU)	4	<100									
Spec. Cond (µmho)	3100	6910									
PH	12.40	12.54									
Temp (°C)	11°	11°									
PID (ppm)	0	0									

COMMENTS: Bailed to dryness — 10 gallons.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180-00-21000

STAFF: D. Sheppard / S. Frank / K. Kearney

DATE: 3-19-90 time finished 1:15pm

Start Purge 1:15

WELL NO.: MW2S

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	14.33	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2"	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	4.05	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	1.68	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5.5									
Turbidity (NTU)	off scale >200 Ntu	off scale >200 Ntu									
Spec. Cond. (µmho)	1400	1400									
pH	7.27	7.28									
Temp (°C)	8.0°C	9.0°C									
HNU (ppm)	0.0	0.0									

COMMENTS: Small redish brown tiny flakes at start of purging. Turbidity was greater than 200 ntu on both samples.

Purged With A Stainless Steel Bailer.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Sheppard / S. Frank / K. Kearney

DATE: 3-19-90 time finished 1:15 pm
Start Purge 1215

WELL NO.: MW2I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	26.29	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2"	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.73	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	3.19	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	12									
Turbidity	4 Ntu	12 Ntu									
Spec. Cond (µmho)	1130	1500									
pH	10.16	7.23									
Temp (°C)	10.0°C	8.0°C									
HNU (ppm)	0.0	0.0									

COMMENTS: remained clear during purging of well.

- Well Purged With A Stainless Steel Bailer.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Sheppard / S. Frank / K. Kearney

DATE: 3-19-90 START PURGE 1400

END PURGE 1430

WELL NO.: MW35

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	15.70	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2"	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	4.65	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	1.30	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	4.75	DRY								
Turbidity (NTU)	188 NTU	>200 NTU									
Spec. Cond (µmho)	2030	2030									
pH	7.28	7.25									
Temp (°C)	10°C	10°C									
HNU (ppm)	0.0	0.0									

COMMENTS: Purged With A Stainless Steel Bailer.

A-2347

URS URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Sheppard / K. Kearney / S. Frank

DATE: 3-20-90 Start Purge = 1000

End Purge = 1030

WELL NO.: MW 4S

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	11.99	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2"	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	2.82	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	1.49	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5									
Turbidity (NTU)	>100	34									
Spec Cond (µmho)	1450	1900									
pH	7.60	7.24									
Temp (°C)	8.0	7.0									
HNU (ppm)	0.0	0.0									

COMMENTS: Purged With A Stainless Steel Bailer.

A-2347

URS URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Sheppard / K. Kearney / S. Frank

DATE: 3-30-90 Start Time 10:45 am

End Purge 11:00

WELL NO.: MW5S

① TOTAL CASING AND SCREEN LENGTH (FT.):	15.52
② CASING INTERNAL DIAMETER (in.):	2"
③ WATER LEVEL BELOW TOP OF CASING (FT.)	4.81
④ VOLUME OF WATER IN CASING (GAL.)	1.75

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	6									
Turbidity (NTU)	>100	>100									
Spec. Cond (μmho)	1225	1800									
pH	7.37	7.30									
Temp (°C)	7.0°C	7.0°C									
HNU (ppm)	0.0	0.0									

COMMENTS: orange color at start of purging became less turb'd after the three volumes were removed.

Purged With A Stainless Steel Bailer

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT RI/FS

PROJECT NO.: 35180

STAFF: D. SHEPPARD / K KEARNEY / S. FRANK

DATE: 3-20-90 START PURGE = 1120
END PURGE = 1130

WELL NO.: MW5I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	26.44	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2"	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.68	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	3.22	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	11									
TURBIDITY (NTU)	72	44									
SPEC. COND. (μmho)	1500	1200									
pH	7.00	7.15									
TEMP (°C)	5.0°C	6.0°C									
HNU (ppm)	0.0	0.0									

COMMENTS: had a slight orange tinge at start of purging became clearer after the three volumes were removed.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Sheppard / T. Knickerbocker / K Frank

DATE: 3-21-90 START PURGE = 1020

END PURGE = 1030

WELL NO.: MW6I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	27.15	1"	0.04
② CASING INTERNAL DIAMETER (in.):	2"	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.)	14.57	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.)	2.14	4"	0.66
		5"	1.04
		6"	1.50
		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	7.0									
Turbidity (NTU)	4.0	14.5									
Spec. Cond (µmho)	650	1120									
PH	7.43	7.93									
Temp (°C)	9	9									
PID (ppm)	0	0									

COMMENTS: Purged With A Stainless Steel Bailer.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT LANDFILL RI/FS

PROJECT NO.: 35180

STAFF: D SHEPPARD / T KNICKERBOCKER / S. FRANK

DATE: 3-21-90 START PURGE = 1000 END PURGE = 1400

WELL NO.: MW 6D

① TOTAL CASING AND SCREEN LENGTH (FT.):	86.95
② CASING INTERNAL DIAMETER (in.):	2"
③ WATER LEVEL BELOW TOP OF CASING (FT.)	72.15
④ VOLUME OF WATER IN CASING (GAL.)	2.52

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	7.7									
TURBIDITY (NTU)	4.5	10									
SPEC. COND. (µmho)	11,000	9000									
pH	13.03	8.48									
TEMP (°C)	9	9									
PID (ppm)	0	0									

COMMENTS: PURGED WITH A STAINLESS STEEL BAILER

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Shepard / D Sheldon / K. Kearney

DATE: 3-27-96 START PURGE = 0900

END PURGE = 0915

WELL NO.: MW7S

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	15.22	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	12.90	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	0.40	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	1 (D-Y)									
Turbidity (NTU)	3	>100									
Spec. Cond. (µmho)	1580	1805									
pH	7.02	7.09									
Temp (°C)	12	12									
HNU (ppm)	0	0									

COMMENTS: Purged with a stainless steel bailer

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D Sheppard / T. Knickerbocker / S. Franks

DATE: 3-21-90 Start Time = 1300

End Purge = 1330

WELL NO.: MW 8D

① TOTAL CASING AND SCREEN LENGTH (FT.):	33.56
② CASING INTERNAL DIAMETER (in.):	2"
③ WATER LEVEL BELOW TOP OF CASING (FT.)	26.10
④ VOLUME OF WATER IN CASING (GAL.)	1.19

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	4									
Turbidity (NTU)	6.5	50									
Spec. Cond (µmho)	760	825									
pH	7.13	7.94									
Temp (°C)	11	10									
PID (ppm)	0	0									

COMMENTS: Purged With A Stainless Steel Bailer

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Sheppard / T. Knickerbocker / S. Frank

DATE: 3-21-90 Start Purge = 1430

End Purge = 1530

WELL NO.: MW 8D

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	77.00	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2"	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	68.60	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	1.43	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	4.5									
Turbidity (NTU)	30	25									
Spec. Cond (μmho)	1750	1600									
pH	7.95	7.60									
Temp (°C)	8	8									
PID (ppm)	0	0									

COMMENTS: Purged with A Stainless Steel Bailer

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT RI/FS

PROJECT NO.: 35190

STAFF: D. SHEPPARD / K KEARNEY / S FRANK

DATE: 3-20-90 START PURGE: 1500

END PURGE: 1515

WELL NO.: MW9S

① TOTAL CASING AND SCREEN LENGTH (FT.):	12.61
② CASING INTERNAL DIAMETER (in.):	2"
③ WATER LEVEL BELOW TOP OF CASING (FT.)	6.42
④ VOLUME OF WATER IN CASING (GAL.)	0.88

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	3.0									
TURBIDITY (NTU)	43	68									
SPEC. COND. (μmho)	1650	1850									
pH	7.57	7.62									
TEMP (°C)	6.0	7.0									
HNU (ppm)	1.0	0.0									

COMMENTS: Well was sampled immediately following purging. Water level recovered 100%.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport RI/FS

PROJECT NO.: 35180

STAFF: D. Sheppard / K. Kearney / S. Franks

DATE: 3-20-90 Start Purge: 1515 End Purge: 1595

WELL NO.: MW9I

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):	19.93	1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2"	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)	5.40	5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)	2.37	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	7.5									
Turbidity (NTU)	6.7	>200									
Spec. Cond. (µmho)	1850	1750									
pH	7.93	7.00									
Temp (°C)	8.0	8.0									
HNU (ppm)	1.0	0.0									

COMMENTS: Purged with a Stainless Steel Bailer.

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard

DATE: 3-5-91 / 3-6-91

DEVELOPMENT

WELL NO.: MW10I

① TOTAL CASING AND SCREEN LENGTH (FT.):	
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	22.84
④ VOLUME OF WATER IN CASING (GAL.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	20	25	30	35	40	45
pH	8.74	9.28	8.34	8.45	5.54	12.05	10.12	9.55	8.82	8.46	7.87
Spec. Cond (µmhos)	540	480	660	600	720	770	770	840	860	840	900
Turbidity (NTU)	>100	>100	>100	>100	>100	54	>100	>100	>100	>100	>100
Temperature (°C)	8	9	7	7	8	10	10	10	10	9	10
	3-5					3-6					

COMMENTS:

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard / B. Helmich

DATE: 3-8-91 / 3-12-91 / 3-13-91 / 3-14-91

Development

WELL NO.: MW 10I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	45	50	55	55	60	65	70	72	75	80	80
PH	8.22	8.08	8.06	8.96	8.58	8.44	8.40	9.23	8.65	N/T	N/T
Spec. Cond. (μmho)	870	800	960	920	840	920	900	960	880	950	960
Turbidity (NTU)	13	>100	>100	14	>100	>100	>100	18	>100	>100	13
Temperature (°C)	9	9	10	8	8	8	9	9	9	9	9
	3-8			3-12				3-13			3-14

COMMENTS:

N/T - Not taken due to meter malfunction

A-2347

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: S. Lamb

DATE: 3-14-91

Development

WELL NO.: MW10I

	WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
	2"	0.17
② CASING INTERNAL DIAMETER (in.): 2	3"	0.38
	4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.) _____	5"	1.04
	6"	1.50
④ VOLUME OF WATER IN CASING (GAL.) _____	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	85	90									
pH	N/T	N/T									
Spec. Cond. (μmho)	1000	960									
Temperature (°C)	9	9									
Turbidity (NTU)	34	16									

COMMENTS:

N/T - Not taken due to meter malfunction.

A-2347

URS Company, Inc. CONSULTING ENGINEERS — NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard

DATE: 3-5-91 / 3-6-91

DEVELOPMENT

WELL NO.: MW10D

① TOTAL CASING AND SCREEN LENGTH (FT.):	
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	66.87
④ VOLUME OF WATER IN CASING (GAL.)	

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	5	6							
pH	11.04	10.36	10.47	N/T		REDRILLED (1)					
Spec. Cond. (µmho)	900	710	1080	N/T							
Turbidity (NTU)	>100	>100	>100	N/T							
Temperature (°C)	10	10	10	N/T							
	3-5		3-6								

COMMENTS:

N/T - Not taken - interval to dryness was only 1 gallon.

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney K. Nossavage

DATE: 3.26.91 / 3-28-91

Development

WELL NO.: MW 10 D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) 70.62

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	8	8	13	18	23	23	28	33	38
pH	8.56	8.93	8.22	8.62	8.98	7.78	7.33	7.95	8.07	7.73	7.01
Spec. Cond. (μmho)	350	400	2000	11000	9000	13000	15500	15000	14000	17000	>20000
Turbidity (NTU)	>100	>100	>100	64	>100	>100	>100	95	>100	>100	>100
Temperature (°C)	10	10	10	9.8	10.5	8.9	9.1	10	10	10	10
	3.26.91			3-28							

COMMENTS: Bailed to dryness on 3.26.91

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney + K. Nossavage

DATE: 3-28-91, 4-1, 4-2

WELL NO.: MW10D Development

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	43	48	53	53	58	63	68*	73	78	78
pH		7.35	6.96	6.99	9.17	7.85	7.24	6.94	7.14	6.78	8.01
Spec. Cond. (µmho)		17000	>20000	>20000	16000	17000	19600	>20000	>20000	>20000	>20000
Turbidity (NTU)		>100	>100	>100	>100	>100	>100	>100	>100	>100	82
Temperature (°C)		10	10	10	10	10	10	10	9.8	8.7	7.7
PID (ppm)								42			
		3-28			4-1						4-2

COMMENTS: After well was redrilled, the water produced a strong organic + sulfur odor. Intermittent PID readings were taken.

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney / K. Nossavage

DATE: 4-2-91

Development

WELL NO.: MW10D

	WELL I.D.	VOL. GAL./FT.
(1) TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
	2"	0.17
(2) CASING INTERNAL DIAMETER (in.): 2	3"	0.38
	4"	0.66
(3) WATER LEVEL BELOW TOP OF CASING (FT.) _____	5"	1.04
	6"	1.50
(4) VOLUME OF WATER IN CASING (GAL.) _____	8"	2.60

$V = 0.0408 ((2)^2 \times ((1)-(3)) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	83	88	93							
pH		7.42	6.78	6.65							
Spec. Cond. (µmho)		>20000	>20000	>20000							
Turbidity (NTU)		82	81	61							
Temperature (°C)		8.4	9.5	9.2							
		4-2									

COMMENTS:

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Hearney K. Nossavage S. LAMB

DATE: 3·20·91 / 3·25·91 / 3·26·91 4.1.91 / 4-3

DEVELOPMENT

WELL NO.: MW 12 I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) 28.33

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	8	8	11	11	12.5	INT. 13.5 ~~12.5~~	15.5	(INT) 15.5	16.0
pH	10.26	10.38	10.47	11.10	11.00	11.04	10.78	10.24	N/T	10.90	10.73
Spec. Cond. (µmho)	7000	4150	3100	4500	4500	4100	3700	8000	N/T	8700	9400
Turbidity (NTU)	14	>100	>100	>100	>100	>100	>100	38	N/T	10	>100
Temperature (°C)	10	10	10	10	10	10	10	9.5	N/T	10.4	10.6
	3-20			3·25		3·26		4.1		4·3	

COMMENTS: Bailed to dryness on 3·20·91 & 3·25·91 & 3·26·91, 4.1.91 4.3.91

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney

DATE: 4-8-91 / 4-9-91 / 4-12 / 4-15 / 4-22 / 4-23 / 4-24

WELL NO.: MW 12I

Development

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③)$ = _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	INT 16	17.5	Int 17.5	18.5	19	20	20	26	26	27.5	27.5
pH	10.32	10.22	11.08	11.08	10.70	10.30	9.54	10.20	9.16	9.77	9.51
Spec. Cond. (μmho)	11,500	11,000	11,300	11,200	12,000	13,500	3800	4100	3000	3700	3800
Turbidity (NTU)	>100	>100	>100	>100	>100	>100	>100	>100	34	>100	19
Temperature (°C)	11	11	12.3°C	12.1°C	10	12	9	9	11.8	11.7	12.6
	4.8.91		4.9.91		4-12	4.15	4-22		4-23		4-24

COMMENTS: Well was surge blocked on 4-19.

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D Sheppard / K. Kearney

DATE: 4-24-91

Development

WELL NO.: MW12I

	WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
	2"	0.17
② CASING INTERNAL DIAMETER (in.): 2	3"	0.38
	4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.) _____	5"	1.04
	6"	1.50
④ VOLUME OF WATER IN CASING (GAL.) _____	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	28									
pH		9.60									
Spec. Cond. (μmho)		4600									
Turbidity (NTU)		>100									
Temperature (°C)		11.6									
		4-24									

COMMENTS:

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill

PROJECT NO.: 35180-00

STAFF: K. Kearney K. Nossavage S. LAMB

DATE: 3·21·91 / 3·25·91 / 3·26·91 / 4.1.91 / 4-3 Development

WELL NO.: MW 12 D

① TOTAL CASING AND SCREEN LENGTH (FT.):	
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	76.75
④ VOLUME OF WATER IN CASING (GAL.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③)$ = _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	5	11	11	16	INT 18	21.5 ~~19.5~~	(INT) 21.5	23.5	
pH	9.48	N/T	8.50	8.36	8.23	8.18	7.28	7.10	7.27	7.05	
Spec. Cond. (µmho)	4550	N/T	7590	8100	8400	7600	15600	16000	16200	16800	
Turbidity (NTU)	25	N/T	>100	>100	>100	>100	>100	>100	35	100	
Temperature (°C)	10	N/T	16	10	10	10	10.2	9.6	11.0	10.8	
	3-21		3.25		3·26		4.1.		4.3		

COMMENTS: Isco Bladder pump malfunctioned at 5 gallons on 3·21·91
Bailed to dryness on 3·25·91 & 3·26·91 .4.1.91 & 4.3.91

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney

DATE: 4-8-91 / 4-9 / 4-11 / 4-12 / 4-15 / 4-22 / 4-23

Development

WELL NO.: MW 12 D

① TOTAL CASING AND SCREEN LENGTH (FT.):	
② CASING INTERNAL DIAMETER (in.):	2
③ WATER LEVEL BELOW TOP OF CASING (FT.)	
④ VOLUME OF WATER IN CASING (GAL.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③)$ = _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	INT 23.5	25.5	Int 25.5	28.5	Int 28.5	29.5	31	32.5	32.5	36	36
pH	7.53	7.44	7.81	7.57	7.27	7.70	7.54	7.52	7.35	7.93	6.90
Spec. Cond. (μmho)	16,000	17,050	17,000	17,200	18,000	18,000	17,500	18,000	2500	2700	3800
Turbidity (NTU)	65	>100	>100	>100	>100	>100	>100	>100	>100	>100	90
Temperature (°C)	12	12	11.6	12	9.6	9.8	10	12	12.3	10.4	10.6
	4-8-91		4.9.91		4.11.91		4.12	4.15	4-22		4-23

COMMENTS:

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney / D. Sheppard

DATE: 4-23-91 / 4-24

Development

WELL NO.: MW12D

	WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
	2"	0.17
② CASING INTERNAL DIAMETER (in.): 2	3"	0.38
	4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.) _____	5"	1.04
	6"	1.50
④ VOLUME OF WATER IN CASING (GAL.) _____	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	38	38	39							
pH		7.26	7.67	7.67							
Spec. Cond. (μmho)		4100	4600	5000							
Turbidity (NTU)		>100	55	>100							
Temperature (°C)		10.7	10	10							
		4-23		4-24							

COMMENTS:

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: LOCKPORT CITY LANDFILL

PROJECT NO.: 35180.00

STAFF: S.LAMB, K. KEARNEY

DATE: 4.4.91 / 4-5 / 4-8

DEVELOPMENT

WELL NO.: MW11D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (②)^2 \times (① - ③)$ = _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	33	37	42	45
pH	10.79	10.41	9.44	8.74	8.81	7.84	7.65	7.58	8.81	8.20	8.40
Spec. Cond. (μmho)	1500	1090	960	850	900	1450	2000	4000	2000	5400	2100
Turbidity (NTU)	100+	100+	100+	100+	100+	100+	100+	100+	100+	100+	100+
Temperature (°C)	14	14	14	14	14	14	14	12.4	12.0	12.1	15.6
	4.4.91							4/5/91		4/8/91	

COMMENTS:

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: S. Lamb, K. Kearney, K. Nossavage, D. Sheppard

DATE: 4.9.91 / 4-12 / 4-15 Development
4.22 / 4-23

WELL NO.: MW 11 D

		WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.):		1"	0.04
		2"	0.17
② CASING INTERNAL DIAMETER (in.):	2	3"	0.38
		4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.)		5"	1.04
		6"	1.50
④ VOLUME OF WATER IN CASING (GAL.)		8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Int 45	48	49.5	50	50	55	60	60	65	70	75
pH	8.19	8.16	7.69	7.57	7.76	7.53	7.68	7.00	7.00	7.33	7.28
Spec. Cond. (μmho)	2500	4100	8000	13,000	1300	1400	1200	1240	1240	1240	1240
Turbidity (NTU)	46	>100	>100	>100	40	>100	>100	37	>100	>100	>100
Temperature (°C)	13.4	12.3	10	11.5	10	10	8.3	10.9	10.8	10.8	10.8
	4-9-91		4-12	4-15	4-22			4-23			

COMMENTS: Well was surge blocked on 4-19.

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard

DATE: 4-24-91 / 4-25-91

Development

WELL NO.: MW11D

	WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
	2"	0.17
② CASING INTERNAL DIAMETER (in.): 2	3"	0.38
	4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.) _____	5"	1.04
	6"	1.50
④ VOLUME OF WATER IN CASING (GAL.) _____	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	75	80	85	90	95	95	100	105	110	115
pH		7.16	7.13	7.11	7.31	7.32	7.16	7.21	7.28	7.29	7.42
Spec. Cond. (μmho)		1250	1270	1170	1200	1246	1500	1240	1256	1240	1230
Turbidity (NTU)		66	15	28	32	>100	16	81	86	>100	>100
Temperature (°C)		10	10	10	10	10	11.8	12.5	12.7	11.4	12.6
	4-24						4-25				

COMMENTS:

A-2347

URS CONSULTANTS, INC.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard

DATE: 4-25-91

Development

WELL NO.: MW 11D

	WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
	2"	0.17
② CASING INTERNAL DIAMETER (in.): 2	3"	0.38
	4"	0.66
③ WATER LEVEL BELOW TOP OF CASING (FT.) _____	5"	1.04
	6"	1.50
④ VOLUME OF WATER IN CASING (GAL.) _____	8"	2.60

$V = 0.0408 (②)^2 \times (① - ③) =$ _____ GAL. (3 casings)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	120	127								
pH		7.44	7.40								
Spec. Cond. (μmho)		1250	1240								
Turbidity (NTU)		>100	>100								
Temperature (°C)		12.1	12.0								
		4-25									

COMMENTS:

A-2347

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW2S

Sample Location: Downgradient of landfill on east side of The Gulf.

Date: 3/28/91 Crew: K. Kearney / K. Nussavage / D. Sheppard

Weather: 40°F, winds SW @ 20-40mph, Overcast/Lt. Rain

Purging Device: ISCO peristaltic pump + dedicated HDPE tubing

Time Evacuated: 1300

Comments and Observations: Turbid/orange floc turning clear with no odor.

Collection

Date: 3/28/91 Crew: D. Sheppard, K. Kearney, K. Nussavage

Weather: See above

Time of Collection: 1330 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.09	1950	10

Identification: LCL-MW2S-GW

Physical Observations: Slightly turbid w/ some orange floc, no odor

Turbidity = 47 NTU

Laboratory: IEA Testing Co Monroe, CT

Comments: Sampled for Schedule A + B. Shipped Fed Ex Priority 1 for 3-29 arrival at lab

Reviewed by: _____ Date: 3/28/91
Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St Lockport, NY 14094

Contact: Jim Morris (NYSDEC Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MW2I

Sample Location: Downgradient of landfill on east side of The Gulf

Date: 3/28/91 Crew: K. Kearney/K. Nossavage/D. Sheppard

Weather: 40°F, Winds SW@ 20-40 mph, Overcast/Lt. Rain

Purging Device: ISCO peristaltic pump + dedicated HDPE tubing

Time Evacuated: 1315

Comments and Observations: Clear, no odor.

Collection

Date: 3/28/91 Crew: D. Sheppard/K Kearney/K. Nossavage

Weather: See above

Time of Collection: 1430 Sampling Device: ~~Dedicated HDPE bailer~~

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.05	2000	10

Identification: LCL-MW2I-GW

Physical Observations: Clear, no odor.

Laboratory: IEA testing Co. Monroe, CT

Comments: Sampled for Schedule A+B including 1MS + 1MSD.
Shipped Fed Ex Priority 1 for 3-29 arrival
at lab. Turbidity = 7 NTU

Reviewed by: _____ Date: 3/28/91
Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW3S

Sample Location: Downgradient of landfill on east side of The Gulf

Date: 4/1/91 Crew: S. Lamb / K. Nossavage / D. Sheppard

Weather: 40°F, Winds = Var e 3-5 mph, Overcast

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1245

Comments and Observations: Rusty orange, no odor

Water changed color upon exposure to air

Collection

Date: 4/1/91 Crew: D. Sheppard / K. Nossavage / S. Lamb

Weather: 40°F, Winds = Var e 3-5 mph, Overcast

Time of Collection: 1430 Sampling Device: Dedicated HDPE

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
6.88	2000	2.6

Identification: LCL-MW3S-GW

Physical Observations: Clear, no odor.

Turbidity = 16 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex. Priority 1 for 4-2 arrival at lab.

Reviewed by: _____ Date: 4/1/91
Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131 / 519-457-0315

Evacuation

Sample Point: MW9S

Sample Location: Downgradient of landfill on east side of The Gulf

Date: 4/1/91 Crew: D. Sheppard / S. Lamb / K. Nossavage

Weather: 40°F, Winds Var @ 3-5 mph, Overcast

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1300

Comments and Observations: Clear, no odor

Collection

Date: 4/1/91 Crew: D. Sheppard / S. Lamb / K. Nossavage

Weather: See above

Time of Collection: 1330 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.13	1750	8.8

Identification: LCL-MW9S-GW

Physical Observations: Clear, no odor

Turbidity = 30 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex. Priority 1 for 4-2 arrival at lab

Reviewed by: _____ Supervisor Date: 4/1/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-4131 / 518-457-0315

Evacuation

Sample Point: MW9I

Sample Location: Downgradient of landfill on east side of The Gulf

Date: 4/1/91 Crew: D. Sheppard / S. Lamb / K. Nossavage

Weather: 40°F, Winds Vare 3-5 mph, Overcast

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1315

Comments and Observations: Clear, no odor.

Collection

Date: 4/1/91 Crew: D. Sheppard / S. Lamb / K Nossavage

Weather: 40°F, Winds Vare 3-5 mph, Overcast

Time of Collection: 1400 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
6.87	1900	7.5

Identification: LCL-MW9I-GW

Physical Observations: Clear, no odor

Turbidity = 26 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Clear, no odor

Reviewed by: [signature] Supervisor Date: 4/1/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC

Address: 455 South Niagara St Lockport, NY 14094

Contact: Joe Morris (NYSDEC) Phone: 433-9131 / 512-457-0315

Evacuation

Sample Point: MW4S

Sample Location: Downgradient of landfill on east side of the Gulf

Date: 4/1/91 Crew: S. Lumb / K. Nossavage / D. Sheppard

Weather: 40°F, Winds Var @ 3-5 mph. Overcast

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1400

Comments and Observations: Rusty orange to clear, no odor

Collection

Date: 4/2/91 Crew: D. Sheppard / S. Lumb / K. Nossavage

Weather: See above

Time of Collection: 1500 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
6.84	1900	10

Identification: LCL-MW4S-GW

Physical Observations: Clear, no Odor

Turbidity = 35 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex. Priority 1 for 4-2 arrival @ lab.

Reviewed by: [signature] Date: 4/1/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MW7S

Sample Location: North end of landfill south of the bulk.

Date: 4/2/91 Crew: S. Lamb / K. Nossavage

Weather: 40°F, Winds= We 5-10mph, Overcast

Purging Device: ISCO peristaltic pump + dedicated HDPE tubing

Time Evacuated: 0900

Comments and Observations: Grey w/floc, no odor

Collection

Date: 4/2/91 Crew: S. Lamb / K. Nossavage

Weather: 40°F, Winds= We 5-10mph, Overcast

Time of Collection: 1100 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.07	1850	10.4

Identification: LCL-MW7S-GW

Physical Observations: Clear to rusty orange, no odor

Turbidity = 4 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A + Oil+Grease. Shipped Federal Express Priority 1 for 4-3 arrival at lab.

Reviewed by: _____ Supervisor Date: 4/2/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St Lockport, NY 14094

Contact: Jim Morris Phone: 433-4131/518-457-0315

Evacuation

Sample Point: MW5I

Sample Location: Downgradient of landfill on east side of The Golf.

Date: 4/2/91 Crew: S. Lamb / K. Nossavage

Weather: 40°F, Winds= We 5-10mph, Overcast

Purging Device: ISCO peristaltic pump + dedicated HDPE tubing

Time Evacuated: 0910

Comments and Observations: Tan/Grey to clear, no odor

Collection

Date: 4/2/91 Crew: S. Lamb / K. Nossavage

Weather: See above

Time of Collection: 1030 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
6.81	1900	7.0

Identification: LCL-MW5I-GW

Physical Observations: Clear to turbid, no odor

Turbidity = 10 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed Ex Priority 1 for 4-3 arrival @ lab.

Reviewed by: _____ Date: 4/2/91
Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MW5S

Sample Location: Downgradient of landfill on east side of The Gulf

Date: 4/2/91 Crew: K. Nossavage + S. Lamb

Weather: 40°F, Winds = We 5-10 mph, Overcast

Purging Device: 1550 peristaltic pump + dedicated HDPE tubing

Time Evacuated: 0945

Comments and Observations: Rusty orange, no odor

Collection

Date: 4/2/91 Crew: S. Lamb / K. Nossavage

Weather: See above

Time of Collection: 1000 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
6.79	1900	8.2

Identification: LCL-MW5S-GW

Physical Observations: Clear turning turbid with some orange floc, no odor. Turbidity = 50 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex. Priority 1 for 4-3 arrival @ lab.

Reviewed by: [signature] Supervisor Date: 4/2/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-4131 / 518-457-0315

Evacuation

Sample Point: MW1S

Sample Location: Upgradient of landfill across S. Niagara St.

Date: 4/2/91 Crew: D. Sheppard

Weather: 40°F, Winds = We 5-10mph, Overcast

Purging Device: ISCO peristaltic pump + dedicated HDPE tubing

Time Evacuated: 1100

Comments and Observations: Slightly turbid orange, no odor

Collection

Date: 4/2/91 Crew: D. Sheppard / S. Lamb

Weather: See above

Time of Collection: 1330 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.07	1000	8.5

Identification: LCL-MW1S-GW

Physical Observations: Clear to slightly turbid, no odor

Turbidity = 54 NTU.

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed Ex priority 1 for 4-3 arrival at lab

Reviewed by: [signature] Date: 4/2/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW I I

Sample Location: Upgradient of landfill across S. Niagara St.

Date: 4 / 2 / 91 Crew: D. Sheppard / S. Lamb

Weather: 40°F, Winds We 5-10 mph, Overcast

Purging Device: ISCO peristaltic pump + dedicated HDPE tubing

Time Evacuated: 1115

Comments and Observations: Clear, No Odor

Collection

Date: 4 / 2 / 91 Crew: D. Sheppard / S. Lamb

Weather: See above

Time of Collection: 1400 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.14	1520	7.5

Identification: LCL - MW I I - GW

Physical Observations: Clear, no odor

Turbidity = 6 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex. Priority 1 for 4-3 arrival @ lab

Reviewed by: [signature] Date: 4/2/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9133 / 518-457-0315

Evacuation

Sample Point: MW6I

Sample Location: Upgradient of landfill in ark.

Date: 4 / 2 / 91 Crew: S. Lamb

Weather: 40°F, Winds We 5-10 mph

Purging Device: ISCO peristaltic pump + dedicated HDPE tubing

Time Evacuated: 1700

Comments and Observations: Clear to slightly turbid, no odor

Collection

Date: 4 / 3 / 91 Crew: S. Lamb / K. Nossavage / D. Sheppard

Weather: 45°F, Winds = Se 5-10mph, Clear

Time of Collection: 1400 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.30	710	10.6

Identification: LCL - MW6I - GW

Physical Observations: Clear, No Odor

Turbidity = 23 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex. Priority 1 for 4-4 arrival at lab

Reviewed by: [signature] Supervisor Date: 4 / 3 / 91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW6D

Sample Location: Upgradient of landfill in Park

Date: 4/3/91 Crew: D. Sheppard / K. Kearney / S. Lamb

Weather: 45°F, SE 5-10mph, Clear

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1300

Comments and Observations: Clear to turbid, no odor

Collection

Date: 4/3/91 Crew: S. Lamb / K. Massaraye

Weather: See above

Time of Collection: 1430 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
8.58	850	10.7

Identification: LCL-MW6D-GW

Physical Observations: Slightly turbid, no odor

Turbidity = >100 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A + B. Shipped Fed. Ex. Priority 1 for 4-4 arrival at lab

Reviewed by: [signature] Date: 4/3/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill Lockport, NYSDEC

Address: 455 South Niagara St Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW10I

Sample Location: Upgradient of landfill in Park

Date: 4/3/91 Crew: S. Lamb / K. Nossavage

Weather: 45°F, winds SW @ 5-10mph, Clear

Purging Device: Purged with a stainless steel bailer

Time Evacuated: 1215

Comments and Observations: Clear to slightly turbid, no odor

Collection

Date: 4/3/91 Crew: D. Sheppard / S. Lamb

Weather: See above

Time of Collection: 1500 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.26	910	11.8

Identification: LCL-MW10I-GW

Physical Observations: Clear, No Odor

Turbidity = 23 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex. Priority 1 for a 4-4 arrival at lab

Reviewed by: _____ Date: 4/3/91

Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131/518-457-0345

Evacuation

Sample Point: MW10D

Sample Location: Upgradient of landfill in Park

Date: 4/3/91 Crew: D. Sheppard/S. Lamb/K. Nassauage

Weather: 45°F, Winds SE 5-10 mph, Clear

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1040

Comments and Observations: Slightly turbid, no odor

Collection

Date: 4/3/91 Crew: D. Sheppard/S. Lamb

Weather: See above

Time of Collection: 1530 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
6.68	> 20,000	12.3

Identification: LCL - MW10D - GW

Physical Observations: Clear with a strong sulfer odor

Turbidity = 40 NTU PID of sample cup = 146 ppm

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A + B. Shipped Fed. Ex. Priority 1 for 4-4 arrival at lab.

Reviewed by: [signature] Supervisor Date: 4/3/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MW 8I

Sample Location: Upgradient of landfill in Park

Date: 4/3/91 Crew: S. Lamb

Weather: 45°F, Winds = SE 5-10, Clear

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1345

Comments and Observations: Clear to slightly turbid, no odor

Collection

Date: 4/3/91 Crew: K. Nossavage / S. Lamb

Weather: See above

Time of Collection: _____ Sampling Device: _____

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
6.86	730	11.6

Identification: LCL-MW8I-GW

Physical Observations: Clear, No Odor

Turbidity = 2.4 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed Ex Priority 1 for 4-4 arrival at lab

Reviewed by: _____ Date: 4/3/91

Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Morris (NYSDEC) Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MW8D

Sample Location: Upgradient of landfill in Park.

Date: 4/3/91 Crew: K. Messavage

Weather: 45°F, Winds SE 5-10 mph, Clear

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1400

Comments and Observations: Clear, No odor

Collection

Date: 4/3/91 Crew: S. Lamb/K. Messavage

Weather: See above

Time of Collection: _____ Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
7.06	3200	10.7

Identification: LCL-MW8D-GW

Physical Observations: Clear, no odor

Turbidity = 29 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed Ex. Priority 1 for 4-4 arrival at lab.

Reviewed by: _____ Date: 4/3/91

Supervisor

APPENDIX I

WELL LOCATIONS AND ELEVATIONS

LOCKPORT CITY LANDFILL
WELL AND SAMPLE LOCATIONS AND ELEVATIONS

NAME	NORTHING	EASTING	ELEVATION		
WELLS					
MW 1S	17852.59	12331.69	584.6	GRD.	
			586.72	RISER	
			586.91	CASE	
MW 1I	17869.56	12344.68	585.1	GRD.	
			587.26	RISER	
			587.48	CASE	
MW 1D	17858.16	12337.16	584.6	GRD.	
			586.73	RISER	
			586.83	CASE	
MW 2S	17981.84	11676.09	507.4	GRD.	
			509.23	RISER	
			509.36	CASE	
MW 2I	17985.20	11671.64	507.0	GRD.	
			508.29	RISER	
			508.42	CASE	
MW 3	18844.02	11426.92	490.3	GRD.	
			492.22	RISER	CASE CAP IS BENT
			492.21	CASE	OVER RISER
MW 3S	18834.26	11426.54	490.2	GRD.	
			491.78	RISER	
			491.86	CASE	
MW 4S	19385.91	11329.67	478.6	GRD.	
			480.49	RISER	
			480.60	CASE	
MW 5I	19774.47	11496.65	476.7	GRD.	
			479.34	RISER	
			479.62	CASE	
MW 5S	19784.78	11488.52	476.0	GRD.	
			477.32	RISER	
			477.61	CASE	
MW 6I	18720.74	12069.68	579.0	GRD.	
			580.15	RISER	
			580.59	CASE	
MW 6D	18727.46	12067.36	578.8	GRD.	
			581.05	RISER	
			581.39	CASE	
MW 7S	19719.41	11828.78	501.6	GRD.	
			503.82	RISER	
			504.00	CASE	
MW 8I	19212.26	12053.58	574.4	GRD.	
			576.96	RISER	
			577.05	CASE	
MW 8D	19211.39	12059.96	574.3	GRD.	
			577.30	RISER	
			577.40	CASE	
MW 9S	19264.66	11414.75	484.4	GRD.	
			488.01	RISER	
			488.37	CASE	
MW 9I	19260.48	11415.91	484.1	GRD.	
			486.53	RISER	
			486.60	CASE	
BOREHOLES					
B-1	19616.0	11600.6	503.0	GRD.	
B-2	19493.1	11740.0	514.6	GRD.	
B-3	19105.3	11644.9	538.3	GRD.	

B-4	18940.5	11662.6	540.3	GRD.
B-5	18798.1	11576.7	533.7	GRD.
B-6	18306.3	11734.5	558.4	GRD.
B-7	18127.3	11818.3	557.3	GRD.
B-8	18230.2	11820.1	559.6	GRD.
B-9/P-1	18308.2	11766.1	558.7	GRD.
			561.36	RISER
B-10	18290.9	11799.3	558.6	GRD.
B-11/P-2	17982.4	11888.1	561.2	GRD.
			563.85	RISER
B-12	18355.4	11731.0	556.4	GRD.
B-13/P-3	19246.6	11571.4	528.0	GRD.
			530.16	RISER
B-14/P-4	18450.7	11738.0	553.9	GRD.
			556.82	RISER
B-15/P-5	18372.3	12167.4	576.0	GRD.
			578.15	RISER
B-16	18476.1	11732.4	553.3	GRD.
B-17	18423.0	11744.1	554.3	GRD.
B-18	18440.8	11715.5	553.1	GRD.
B-19/P-6	18470.0	11820.5	554.5	GRD.
			557.56	RISER
STREAM GAGES				
1	20055.0	11942.0	469.40	TOP OF RULER
2	18702.2	11366.6	493.71	TOP OF RULER
3	18671.6	11426.0	495.52	TOP OF RULER
WATER SURFACE				
WS-1	18328.0	11556.8	501.5	GRD.
WS-2	18888.8	11474.8	487.6	GRD.
WS-3	19250.5	11406.0	481.8	GRD.
SURFACE SAMPLE				
SPS 1	18220.1	12100.5	573.1	GRD.
SPS 2	18955.1	11501.4	488.6	GRD.
SPS 3	19156.8	11473.1	485.7	GRD.
SPS 4	19390.0	11378.8	481.6	GRD.
SPS 5	19544.3	11368.0	482.8	GRD.
LEACHATE				
L-1	18093.2	11901.8	558.9	GRD.
L-2	18777.5	11419.1	495.2	GRD.
L-3	18913.4	11497.0	485.9	GRD.
STREAM WATER/STREAM SEDIMENT				
SW/SS 1	17582.9	11619.8	505.6	GRD.
SW/SS 2	18442.8	11528.0	497.2	GRD.
SW/SS 3	18735.2	11417.3	493.7	GRD.
SW/SS 4	18653.8	11359.3	494.3	GRD.
SW/SS 5	19784.1	11430.6	474.0	GRD.
SW/SS 6	18963.3	13509.2	598.0	GRD.
SW/SS 7	19407.2	12160.0	518.0	GRD.
SW/SS 8	20001.0	12253.6	463.4	GRD.

Reduced by B. Merritt & CLM/CEAL COGO 3/12/90
Checked by M. Ives 3/13/90

NOTE: Coordinate values are relative to a control traverse begining at LL-11 & LL-9 and closing on LL-7 & LL-8.
Beginning and ending control was established by URS Consultants 7/89.
Elevations are relative to a control bench loop using benchmarks TBM W elevation 589.20 and TBM Z elevation 577.65 established by URS Consultants 7/89.

LOCKPORT CITY LANDFILL
WELL AND SAMPLE LOCATIONS AND ELEVATIONS

JAME	NORTHING	EASTING	ELEVATION	
JELLS				
MW 5I	-----	-----	476.4	GRD.
			477.33	RISER
			477.32	CASE
MW 10I	18891.17	12296.54	577.4	GRD.
			580.25	RISER
			580.29	CASE
MW 10D	18881.92	12299.79	577.3	GRD.
			579.76	RISER
			579.79	CASE
MW 11D	17990.17	12922.29	612.5	GRD.
			614.90	RISER
			614.94	CASE
MW 12D	17751.29	11957.30	578.3	GRD.
			580.76	RISER
			580.90	CASE
MW 12I	17760.36	11960.89	578.1	GRD.
			580.79	RISER
			581.13	CASE
D-3A	18175.67	11915.27	558.6	GRD.
			559.66	RISER
			559.80	CASE
WELL POINTS				
WP 4	19948.5	11970.1	473.4	GRD.
			475.30	RISER
WP 5	19911.3	11828.8	470.8	GRD.
			472.89	RISER
WP 6	19954.5	11907.8	471.9	GRD.
			472.68	RISER
BOREHOLES				
B-20	18775.9	11752.4	545.8	GRD.
B-21/P-7	18665.2	11705.4	547.9	GRD.
			551.66	RISER
B-22	18633.1	12018.1	566.5	GRD.
B-23/P-8	18544.6	11999.8	563.8	GRD.
			567.64	RISER
B-24	18458.1	11991.6	562.5	GRD.
B-25	18361.0	12017.5	563.4	GRD.
B-26	18296.3	12096.8	572.6	GRD.
B-27	18255.0	12041.9	567.4	GRD.
STREAM GAGES				
1	----	----	469.06	TOP OF RULER
2	----	----	----	DESTROYED
3	----	----	495.51	TOP OF RULER
WETLAND SEDIMENT				
WSS-1	20083.8	11639.5	471.7	GRD.
SURFACE WATER/STREAM SEDIMENT				
SW/SS 4	18276.0	11227.9	503.8	GRD.
SW/SS 9	20130.3	12526.9	459.5	GRD.
SW/SS 10	20313.2	12347.8	455.2	GRD.
SANITARY MANHOLES				
MH 1	17065.7	11507.3	509.42	RIM
MH 2	20017.4	11980.9	469.68	RIM

LOCKPORT CITY LANDFILL

Reduced by B. Merritt 4/24/91
Checked by P. Vandrei 4/24/91

NOTE: Coordinate values are relative to a control traverse begining at LL-11 & LL-9 and closing on LL-10 & LL-9.
Beginning and ending control was established by URS Consultants 7/89.
Elevations are relative to a control bench loop using benchmarks TBM X elevation 614.08 and TBM Z elevation 577.65 established by URS Consultants 7/89.

APPENDIX J

PHYSICAL SOIL TESTING DATA

A TEAM...
Dedicated to serving your needs

SUMMARY OF LABORATORY TEST RESULTS

FOR

LOCKPORT LANDFILL SOIL SAMPLES

PREPARED FOR
URS CONSULTANTS
BUFFALO, NEW YORK

APRIL, 1990

R&R
INTERNATIONAL, INC.

1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OHIO 44321
(216) 666-2200

April 12, 1990

Mr. Ronald P. Tramposch
URS Consultants
570 Delaware Avenue
Buffalo, New York 14202-1207

Reference: Lockport Landfill Site
Lockport, New York
R & R Project No. 900333

Dear Mr. Tramposch:

Enclosed please find one (1) copy of our laboratory test summary report for the above referenced project.

Our services included physical soil parameter testing and preparation of a summary report presenting all laboratory test results. These services were provided in accordance with our proposal dated November 20, 1989.

We appreciate the opportunity to have worked with you on this project and we invite you to contact our office when we can be of further assistance.

Respectfully,

R & R INTERNATIONAL, INC.

Samuel C. Reed

Samuel C. Reed
Manager - Geotechnical Engineering

SCR:mm
Enclosures

R&R
INTERNATIONAL, INC.

NARRATIVE

The following report contains the laboratory test results for soil samples submitted to R & R International, Inc. by URS Consultants of Buffalo, New York. These samples were obtained by URS Consultants or its representatives from the Lockport Landfill site. The samples were received at R & R International, Inc. via Federal Express in March, 1990.

The soil samples were tested for those parameters indicated on URS Consultant's Chain of Custody records. The tests performed included the following:

TEST	ASTM METHOD
Atterberg Limits	D-4318-84
Grain Size Analysis	D-422-63
Moisture Content Determination	D-2216-80
Triaxial Permeability	N/A

All laboratory testing was performed in our Akron, Ohio facility.

R&R INTERNATIONAL, INC.

PROJECT: LOCKPORT LANDFILL PROJECT NUMBER: 900333

MOISTURE (ASTM D-2216-80) AND GRADATION (ASTM D-422-63) ANALYSIS

BORING NUMBER	DEPTH (FT.)	MOISTURE PERCENT	Gradation (% Retained on Standard Sieve) #4	#10	#40	#100	#200	SILT	CLAY	CLASSIFICATION
B-5	3.0	44.8	9.8	3.9	5.0	1.9	1.6	24.7	53.1	CL
B-13	16.0	24.4	2.9	3.5	6.1	2.0	1.1	38.5	45.9	CL
B-15	22.0	20.7	0.3	1.7	3.7	1.9	1.4	43.1	47.9	CL
MW-1	2.0	30.2	32.5	2.4	5.5	5.2	6.1	30.6	17.7	GC
MW-2	2.0	50.4	1.6	0.5	2.9	3.1	2.9	30.5	58.5	CL
MW-5	17.5	17.4	23.1	8.3	13.3	5.6	3.0	28.8	17.9	SC
MW-6	10.0	11.5	1.4	3.9	6.2	1.9	1.1	47.5	38.0	CL
MW-7	8.0	8.6	33.0	8.7	12.2	4.7	2.6	23.0	15.8	SC
MW-8	16.0	20.4	3.2	3.8	5.9	1.5	0.9	44.7	40.0	CL
MW-9	8.0	20.2	31.0	7.4	10.0	3.1	1.8	26.8	19.9	GC

R&R INTERNATIONAL, INC.

PROJECT: LOCKPORT LANDFILL PROJECT NUMBER: 900333

ATTERBERG LIMITS

ASTM D-4318-64

BORING NUMBER	DEPTH (FT.)	MOISTURE PERCENT	L.L.	P.L.	P.I.
B-5	3.0	44.8	55.7	27.9	27.8
B-13	16.0	24.4	40.9	26.5	14.4
B-15	22.0	20.7	36.9	24.6	12.3
MW-1	2.0	30.2	40.8	29.2	11.6
MW-2	2.0	50.4	61.1	33.3	27.8
MW-5	17.5	17.4	29.4	19.9	9.5
MW-6	10.0	11.5	33.6	22.2	11.4
MW-7	8.0	8.6	27.6	17.7	9.9
MW-8	16.0	20.4	36.3	23.5	12.8
MW-9	8.0	20.2	34.8	23.8	11.0

A-2424

URS CORPORATION

CHAIN OF CUSTODY RECORD

PROJECT NO.: 35180.00.2100

SITE NAME: Lockport Landfill

SAMPLERS (SIGNATURE): Daniel Shelton

STATION NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	300ml PL Jar Cool
1	1/15/90			X	MW 7, 8-10'	1	1
2	1/4/90			X	MW 9, 8-10'	1	1
3	12/29/89			X	MW 5, 17.5-19.5'	1	1
4	1/22/90			X	MW 2, 2-4'	1	1
5	12/7/89			X	MW 1, 2-4'	1	1
6	1/17/90			X	MW 6, 10-12'	1	1
7	1/19/90			X	MW 8, 16-17.5'	1	1
8	2/1/90			X	B-13, 16-18'	1	1
9	2/12/90			X	B-15, 22-24'	1	1
10	2/2/90			X	B-5, 30'-R	1	1

REMARKS

Perform the following Analysis on these samples:
1.) Moisture Content, ASTM Method # D2216
2.) Grain Size, ASTM Method # D422
3.) Atterberg Limits, ASTM Method # D423, 424

Note: Samples are potentially contaminated. Brad Kinzy has been Advised of such.

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
Daniel Shelton	3/15/90	11ish	
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)
			Samuel C Reed

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
DATE/TIME	REMARKS		

Distribution: Original accompanies shipment; copy to coordinator field files

R&R
INTERNATIONAL, INC.

CLIENT: URS Consultants
PROJECT: Lockport Landfill
R & R NO: 900333

MOISTURE CONTENT DETERMINATION

ASTM D-2216-80

BORING NUMBER	DEPTH (FT.)	MOISTURE PERCENT
B-2	12.0	28.9
B-9	16.0	12.2
B-10	8.0	24.2
B-11	6.0	19.3
B-16	12.0	9.4
B-17	8.0	11.6
MW-5	6.0	23.2
MW-6	6.0	11.2
MW-8	14.0	15.4
MW-9	0.0	18.4

A-2424

URS CORPORATION

CHAIN OF CUSTODY RECORD

PROJECT NO.: 35180.00.2100

SITE NAME: Lockport Landfill

SAMPLERS (SIGNATURE):

STATION NO	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Equipment Blank							REMARKS
1	2/31/90			X	B-2, 12-14'	1	1							Perform ASTM method D 2216 - Moisture Content - on all Samples.
2	2/13/90			X	B-16, 12-14'	1	1							
3	2/2/90			X	B-11, 6-8'	1	1							
4	2/7/90			X	B-10, 6-8.7'	1	1							
5	2/4/90			X	MW8, 14-16'	1	1							
6	1/17/90			X	MW6, 6-8'	1	1							
7	2/20/84			X	MW5, 6-8'	1	1							
8	2/4/90			X	MW9, 0-2'	1	1							
9	2/17/90			X	B-9, 16'-R	1	1							
10	2/13/90			X	B-17, 8-10'	1	1							
														Note: Samples are potentially contaminated. Brad Kinzy has been advised of such.

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
	3/12/90	11:00am					
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE/TIME	REMARKS		
			Samuel C. Reed				

Distribution: Original accompanies shipment; copy for coordinator field files

R&R
INTERNATIONAL,INC.

TRIAXIAL PERMEABILITY TEST

Project No.: 900333 Date: 4-5-90

Client: URS CONSULTANTS

Site: LOCKPORT LANDFILL - NEW YORK

Boring No.: B-1 Sample: Depth: 10-12 ft.

Description: BROWN TO GRAY CLAYEY SILT, TRACE SAND, TRACE GRAVEL

Test Fluid: DIST. WATER Sample Condition: UNDISTURBED

Chamber: 2 Tested By: J.H.

Test Pressures		Sample Dimensions	
Chamber:	60 psi	Final Length:	4.372 in
Upper Bur:	40 psi	Final Area:	6.101 sq in
Lower Bur:	50 psi		

Test Duration: 285 minutes

Permeability: 4.73E-06 cm/s

R&R
INTERNATIONAL,INC.

TRIAXIAL PERMEABILITY TEST

Project No.: 900333 Date: 4-5-90

Client: URS CONSULTANTS

Site: LOCKPORT LANDFILL - NEW YORK

Boring No.: B-6 Sample: STA. 3 Depth: 20-22 ft.

Description: BROWN CLAYEY SILT, TRACE SAND, TRACE GRAVEL

Test Fluid: DIST. WATER Sample Condition: UNDISTURBED

Chamber: 1 Tested By: J.H.

Test Pressures		Sample Dimensions	
Chamber:	60 psi	Final Length:	3.181 in
Upper Bur:	40 psi	Final Area:	6.158 sq in
Lower Bur:	50 psi		

Test Duration: 285 minutes

Permeability: 3.37E-06 cm/s

R&R
INTERNATIONAL, INC.

TRIAXIAL PERMEABILITY TEST

Project No.: 900333 Date: 4-5-90

Client: URS CONSULTANTS

Site: LOCKPORT LANDFILL - NEW YORK

Boring No.: B-18 Sample: Depth: 12-14 ft.

Description: GRAY CLAYEY SILT, TRACE SAND, TRACE GRAVEL, MOIST

Test Fluid: DIST. WATER Sample Condition: UNDISTURBED

Chamber: 2 Tested By: J.H.

Test Pressures		Sample Dimensions	
Chamber:	60 psi	Final Length:	3.491 in
Upper Bur:	40 psi	Final Area:	6.388 sq in
Lower Bur:	50 psi		

Test Duration: 225 minutes

Permeability: 4.55E-06 cm/s

R&R
INTERNATIONAL,INC.

TRIAXIAL PERMEABILITY TEST

Project No.: 900333 Date: 4-5-90

Client: URS CONSULTANTS

Site: LOCKPORT LANDFILL - NEW YORK

Boring No.: MW-9 Sample: Depth: 6-8 ft.

Description: BROWN SAND, SOME GRAVEL, LITTLE SILT AND CLAY

Test Fluid: DIST. WATER Sample Condition: RECONSTITUTED

Chamber: 2 Tested By: J.H.

Test Pressures		Sample Dimensions	
Chamber:	60 psi	Final Length:	3.443 in
Upper Bur:	40 psi	Final Area:	6.429 sq in
Lower Bur:	50 psi		

Test Duration: 130 minutes

Permeability: 7.78E-06 cm/s

A-2424

URS CORPORATION

CHAIN OF CUSTODY RECORD

PROJECT NO.: 35180.00.2100

SITE NAME: Lockport Landfill

SAMPLERS (SIGNATURE): Daniel Sheldon

STATION NO	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Shelby Tube	REMARKS
1	1/11/90			✓	MW9S, 6-8'	1	1	Perform Triaxial Permeability testing on all enclosed samples.
2	1/30/90			✓	B-1, 10-12'	1	1	
3	2/5/90			✓	B-6, 20-22'	1	1	
4	2/13/90			✓	B-18, 12-14'	1	1	
								Note: Samples are potentially contaminated. Brad Kinzy has been advised ~~of~~ of this.

RELINQUISHED BY (SIGNATURE)	DATE TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE TIME	RECEIVED BY (SIGNATURE)
Daniel Sheldon	3/12/90 11:00am				
RELINQUISHED BY (SIGNATURE)	DATE TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE/TIME	REMARKS	
		Joseph T. Ikos			

Destination Original accompanies shipment. One to coordinator field files

APPENDIX K

SLUG TEST RESULTS

APPENDIX K

SLUG TEST RESULTS

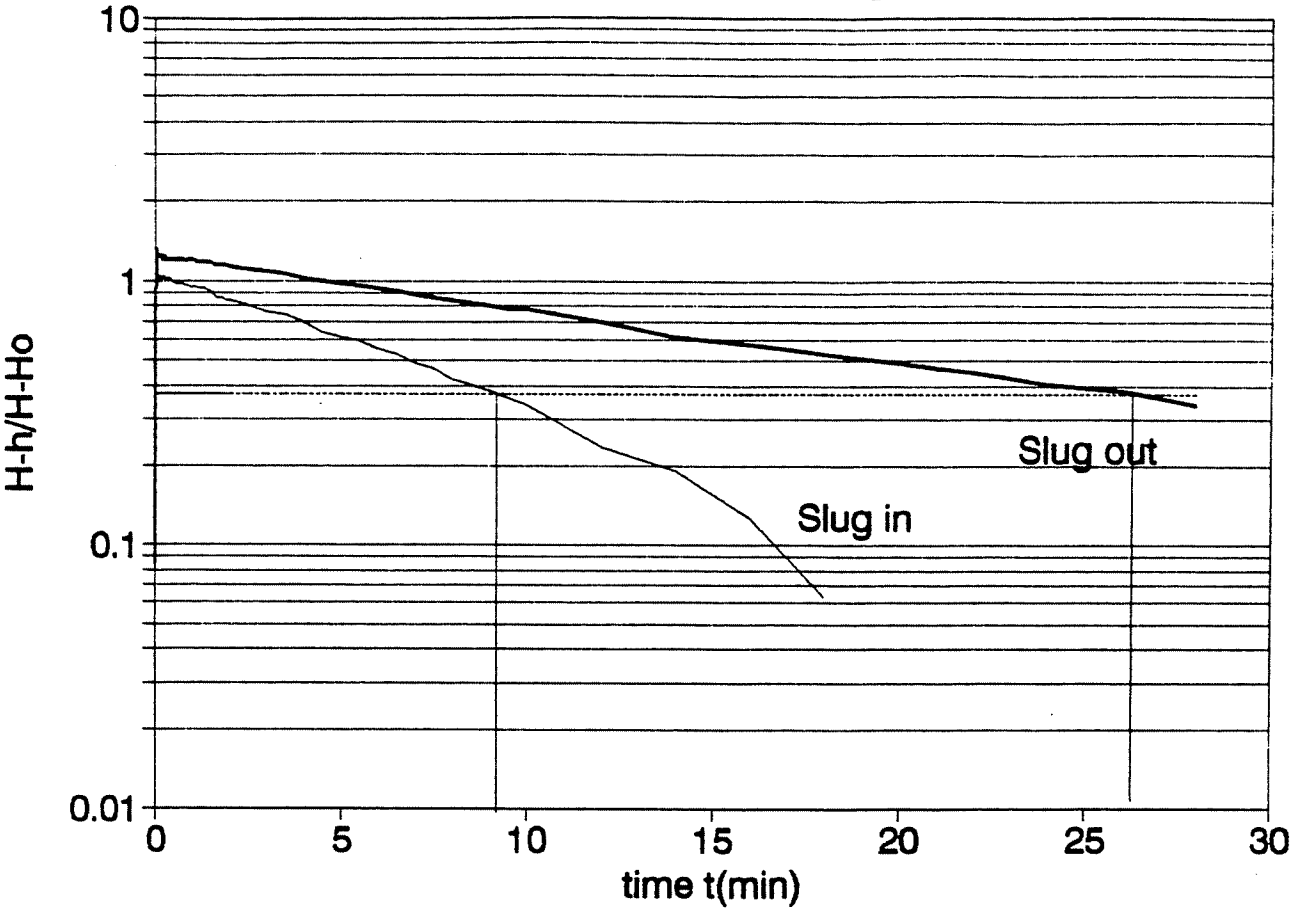
MW-1S Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.01	0.20	10.20	0.426	-0.34	9.66	0.723
0.02	0.51	10.51	1.085	-0.04	9.96	0.085
0.03	0.57	10.57	1.213	-0.40	9.60	0.851
0.05	0.60	10.60	1.277	-0.62	9.38	1.319
0.06	0.44	10.44	0.936	-0.59	9.41	1.255
0.08	0.46	10.46	0.979	-0.60	9.40	1.277
0.10	0.58	10.58	1.234	-0.59	9.41	1.255
0.11	0.47	10.47	1.000	-0.59	9.41	1.255
0.13	0.48	10.48	1.021	-0.58	9.42	1.234
0.15	0.49	10.49	1.043	-0.58	9.42	1.234
0.16	0.49	10.49	1.043	-0.58	9.42	1.234
0.18	0.48	10.48	1.021	-0.58	9.42	1.234
0.20	0.48	10.48	1.021	-0.58	9.42	1.234
0.21	0.48	10.48	1.021	-0.57	9.43	1.213
0.23	0.48	10.48	1.021	-0.57	9.43	1.213
0.25	0.49	10.49	1.043	-0.57	9.43	1.213
0.26	0.48	10.48	1.021	-0.57	9.43	1.213
0.28	0.48	10.48	1.021	-0.58	9.42	1.234
0.30	0.48	10.48	1.021	-0.57	9.43	1.213
0.31	0.48	10.48	1.021	-0.57	9.43	1.213
0.33	0.48	10.48	1.021	-0.57	9.43	1.213
0.41	0.48	10.48	1.021	-0.57	9.43	1.213
0.50	0.47	10.47	1.000	-0.57	9.43	1.213
0.58	0.46	10.46	0.979	-0.57	9.43	1.213
0.66	0.46	10.46	0.979	-0.57	9.43	1.213
0.75	0.46	10.46	0.979	-0.57	9.43	1.213
0.83	0.45	10.45	0.957	-0.56	9.44	1.191
0.91	0.45	10.45	0.957	-0.57	9.43	1.213
1.00	0.44	10.44	0.936	-0.57	9.43	1.213
1.08	0.45	10.45	0.957	-0.56	9.44	1.191
1.16	0.44	10.44	0.936	-0.55	9.45	1.170
1.25	0.44	10.44	0.936	-0.55	9.45	1.170
1.33	0.44	10.44	0.936	-0.55	9.45	1.170
1.41	0.43	10.43	0.915	-0.55	9.45	1.170
1.50	0.43	10.43	0.915	-0.55	9.45	1.170
1.58	0.42	10.42	0.894	-0.54	9.46	1.149
1.66	0.41	10.41	0.872	-0.54	9.46	1.149
1.75	0.41	10.41	0.872	-0.54	9.46	1.149
1.83	0.41	10.41	0.872	-0.54	9.46	1.149
1.91	0.40	10.40	0.851	-0.54	9.46	1.149
2.00	0.40	10.40	0.851	-0.53	9.47	1.128
2.50	0.38	10.38	0.809	-0.52	9.48	1.106
3.00	0.36	10.36	0.766	-0.51	9.49	1.085
3.50	0.35	10.35	0.745	-0.50	9.50	1.064
4.00	0.33	10.33	0.702	-0.48	9.52	1.021
4.50	0.30	10.30	0.638	-0.47	9.53	1.000
5.00	0.29	10.29	0.617	-0.46	9.54	0.979
5.50	0.28	10.28	0.596	-0.45	9.55	0.957

MW-1S Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
6.00	0.26	10.26	0.553	-0.44	9.56	0.936
6.50	0.25	10.25	0.532	-0.43	9.57	0.915
7.00	0.23	10.23	0.489	-0.42	9.58	0.894
7.50	0.22	10.22	0.468	-0.41	9.59	0.872
8.00	0.20	10.20	0.426	-0.40	9.60	0.851
8.50	0.19	10.19	0.404	-0.39	9.61	0.830
9.00	0.18	10.18	0.383	-0.38	9.62	0.809
9.50	0.17	10.17	0.362	-0.37	9.63	0.787
10.00	0.16	10.16	0.340	-0.37	9.63	0.787
12.00	0.11	10.11	0.234	-0.33	9.67	0.702
14.00	0.09	10.09	0.191	-0.29	9.71	0.617
16.00	0.06	10.06	0.128	-0.27	9.73	0.574
18.00	0.03	10.03	0.064	-0.25	9.75	0.532
20.00				-0.23	9.77	0.489
22.00				-0.21	9.79	0.447
24.00				-0.19	9.81	0.404
26.00				-0.18	9.82	0.383
28.00				-0.16	9.84	0.340

MW-1S Slug in & Slug out



URS CONSULTANTS, INC.

PROJECT
SUBJECT SLUG TEST CALCULATION
MW-15

PAGE OF
SHEET NO. OF
JOB NO. 35180
MADE BY SF DATE 4/2/90
CHKD. BY DATE

REF. PAGE

$$K = \frac{r^2 \ln (L/R)}{2L T_o}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_o = 9.3$ min SLUG IN

$T_o = 26.6$ min SLUG OUT

$K_{SLUG\ IN} = 1.14 \times 10^{-4}$ cm/sec

$K_{SLUG\ OUT} = 3.97 \times 10^{-5}$ cm/sec

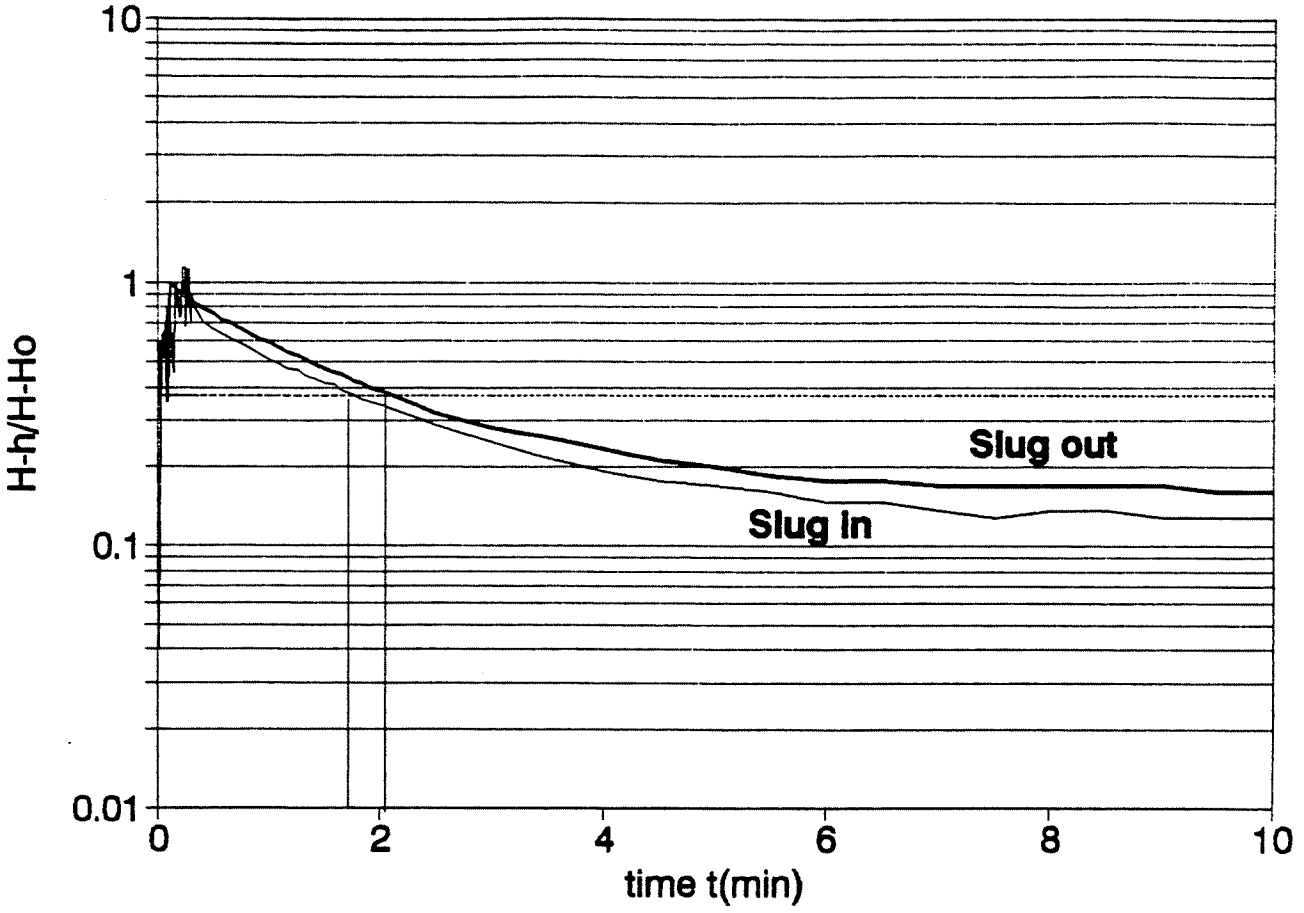
MW-1I Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.01	0.06	10.06	0.048	-0.75	9.25	0.600
0.02	0.05	10.05	0.040	-0.50	9.50	0.400
0.03	0.17	10.17	0.136	-0.43	9.57	0.344
0.05	0.74	10.74	0.592	-0.74	9.26	0.592
0.06	0.75	10.75	0.600	-0.81	9.19	0.648
0.08	0.96	10.96	0.768	-0.62	9.38	0.496
0.10	1.04	11.04	0.832	-0.44	9.56	0.352
0.11	1.09	11.09	0.872	-1.06	8.94	0.848
0.13	0.81	10.81	0.648	-1.24	8.76	0.992
0.15	0.57	10.57	0.456	-1.20	8.80	0.960
0.16	1.16	11.16	0.928	-1.18	8.82	0.944
0.18	1.23	11.23	0.984	-1.17	8.83	0.936
0.20	0.92	10.92	0.736	-1.16	8.84	0.928
0.21	0.94	10.94	0.752	-1.15	8.85	0.920
0.23	1.42	11.42	1.136	-1.13	8.87	0.904
0.25	1.41	11.41	1.128	-1.12	8.88	0.896
0.26	0.85	10.85	0.680	-1.10	8.90	0.880
0.28	1.39	11.39	1.112	-1.09	8.91	0.872
0.30	0.89	10.89	0.712	-1.08	8.92	0.864
0.31	1.13	11.13	0.904	-1.08	8.92	0.864
0.33	1.00	11.00	0.800	-1.05	8.95	0.840
0.41	0.88	10.88	0.704	-0.99	9.01	0.792
0.50	0.83	10.83	0.664	-0.95	9.05	0.760
0.58	0.80	10.80	0.640	-0.90	9.10	0.720
0.66	0.76	10.76	0.608	-0.87	9.13	0.696
0.75	0.73	10.73	0.584	-0.83	9.17	0.664
0.83	0.70	10.70	0.560	-0.80	9.20	0.640
0.91	0.67	10.67	0.536	-0.76	9.24	0.608
1.00	0.64	10.64	0.512	-0.74	9.26	0.592
1.08	0.62	10.62	0.496	-0.71	9.29	0.568
1.16	0.59	10.59	0.472	-0.68	9.32	0.544
1.25	0.58	10.58	0.464	-0.66	9.34	0.528
1.33	0.55	10.55	0.440	-0.64	9.36	0.512
1.41	0.54	10.54	0.432	-0.61	9.39	0.488
1.50	0.52	10.52	0.416	-0.59	9.41	0.472
1.58	0.51	10.51	0.408	-0.57	9.43	0.456
1.66	0.49	10.49	0.392	-0.56	9.44	0.448
1.75	0.47	10.47	0.376	-0.53	9.47	0.424
1.83	0.45	10.45	0.360	-0.52	9.48	0.416
1.91	0.44	10.44	0.352	-0.50	9.50	0.400
2.00	0.43	10.43	0.344	-0.49	9.51	0.392
2.50	0.36	10.36	0.288	-0.40	9.60	0.320
3.00	0.31	10.31	0.248	-0.35	9.65	0.280
3.50	0.27	10.27	0.216	-0.32	9.68	0.256
4.00	0.24	10.24	0.192	-0.29	9.71	0.232
4.50	0.22	10.22	0.176	-0.26	9.74	0.208
5.00	0.21	10.21	0.168	-0.25	9.75	0.200
5.50	0.20	10.20	0.160	-0.23	9.77	0.184

MW-1I Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
6.00	0.18	10.18	0.144	-0.22	9.78	0.176
6.50	0.18	10.18	0.144	-0.22	9.78	0.176
7.00	0.17	10.17	0.136	-0.21	9.79	0.168
7.50	0.16	10.16	0.128	-0.21	9.79	0.168
8.00	0.17	10.17	0.136	-0.21	9.79	0.168
8.50	0.17	10.17	0.136	-0.21	9.79	0.168
9.00	0.16	10.16	0.128	-0.21	9.79	0.168
9.50	0.16	10.16	0.128	-0.20	9.80	0.160
10.00	0.16	10.16	0.128	-0.20	9.80	0.160

MW-1I Slug in & Slug out



URS CONSULTANTS, INC.

PROJECT
SUBJECT SLUG TEST CALCULATION
MW-1I

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$$K = \frac{r^2 \ln(L/A)}{2 L T_o}$$

$r = .0833$ ft.

$L = 10$ ft.

$R = .25$ ft.

$T_o = 1.78$ SLUG IN

$T_o = 2.15$ SLUG OUT

$K_{SLUG\ IN} = 3.65 \times 10^{-4}$ cm/sec

$K_{SLUG\ OUT} = 3.02 \times 10^{-4}$ cm/sec

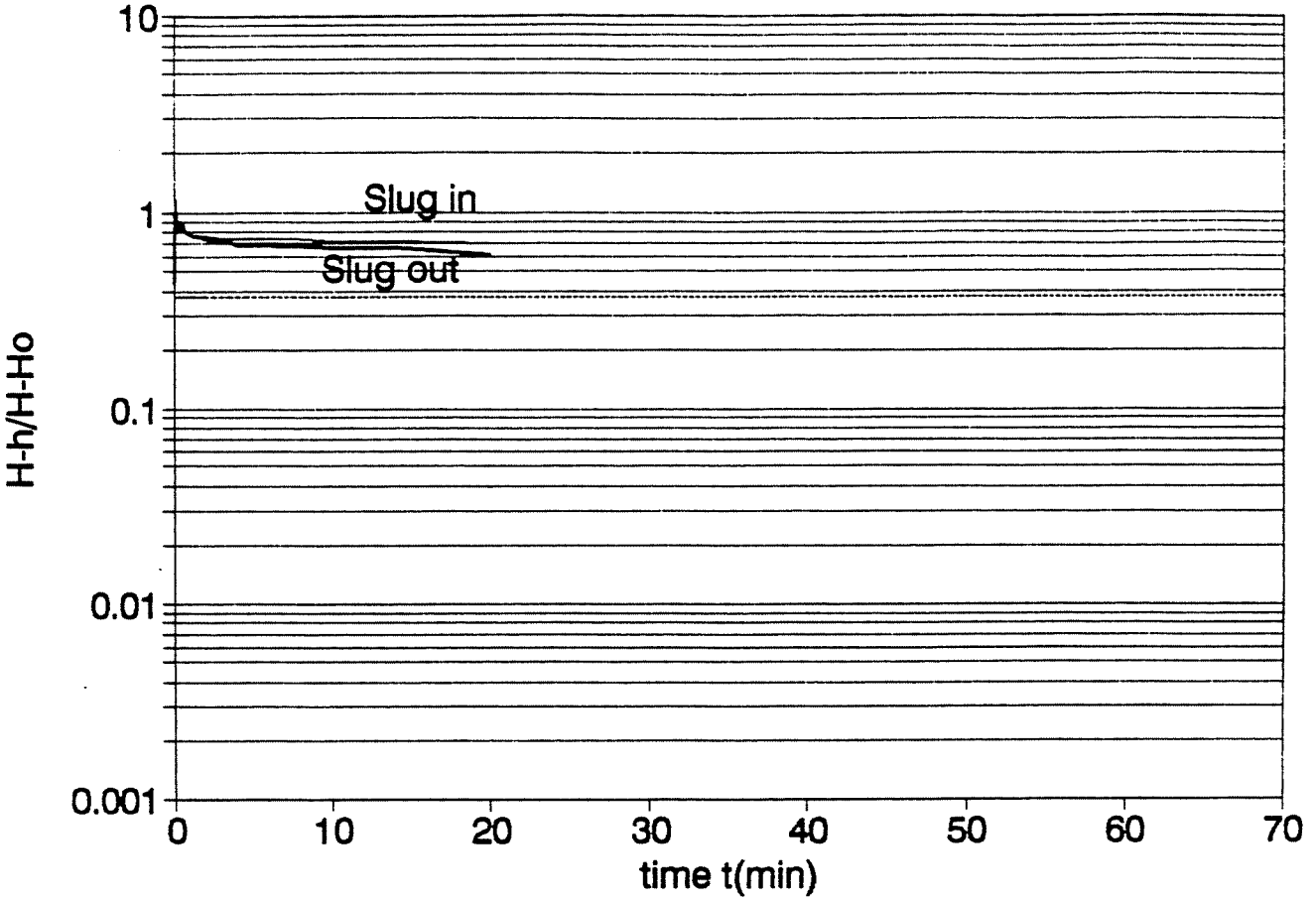
MW-1D Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.01	0.01	10.01	0.008	-0.65	9.35	0.520
0.02	0.94	10.94	0.752	-0.90	9.10	0.720
0.03	0.80	10.80	0.640	-0.60	9.40	0.480
0.05	0.54	10.54	0.432	-0.54	9.46	0.432
0.06	2.25	12.25	1.800	-1.21	8.79	0.968
0.08	1.43	11.43	1.144	-0.97	9.03	0.776
0.10	1.45	11.45	1.160	-1.27	8.73	1.016
0.11	0.98	10.98	0.784	-1.12	8.88	0.896
0.13	1.10	11.10	0.880	-1.18	8.82	0.944
0.15	1.05	11.05	0.840	-1.16	8.84	0.928
0.16	1.06	11.06	0.848	-1.15	8.85	0.920
0.18	1.06	11.06	0.848	-1.14	8.86	0.912
0.20	1.05	11.05	0.840	-1.12	8.88	0.896
0.21	1.05	11.05	0.840	-1.12	8.88	0.896
0.23	1.05	11.05	0.840	-1.12	8.88	0.896
0.25	1.04	11.04	0.832	-1.11	8.89	0.888
0.26	1.04	11.04	0.832	-1.11	8.89	0.888
0.28	1.04	11.04	0.832	-1.10	8.90	0.880
0.30	1.03	11.03	0.824	-1.10	8.90	0.880
0.31	1.03	11.03	0.824	-1.09	8.91	0.872
0.33	1.03	11.03	0.824	-1.12	8.88	0.896
0.41	1.02	11.02	0.816	-1.10	8.90	0.880
0.50	1.01	11.01	0.808	-1.02	8.98	0.816
0.58	1.00	11.00	0.800	-1.08	8.92	0.864
0.66	1.09	11.09	0.872	-1.01	8.99	0.808
0.75	0.98	10.98	0.784	-0.99	9.01	0.792
0.83	0.97	10.97	0.776	-0.98	9.02	0.784
0.91	0.97	10.97	0.776	-0.97	9.03	0.776
1.00	0.96	10.96	0.768	-0.97	9.03	0.776
1.08	0.96	10.96	0.768	-0.96	9.04	0.768
1.16	0.95	10.95	0.760	-0.96	9.04	0.768
1.25	0.95	10.95	0.760	-0.95	9.05	0.760
1.33	0.95	10.95	0.760	-0.94	9.06	0.752
1.41	0.95	10.95	0.760	-0.94	9.06	0.752
1.50	0.95	10.95	0.760	-0.94	9.06	0.752
1.58	0.95	10.95	0.760	-0.94	9.06	0.752
1.66	0.94	10.94	0.752	-0.93	9.07	0.744
1.75	0.94	10.94	0.752	-0.93	9.07	0.744
1.83	0.94	10.94	0.752	-0.93	9.07	0.744
1.91	0.94	10.94	0.752	-0.92	9.08	0.736
2.00	0.94	10.94	0.752	-0.92	9.08	0.736
2.50	0.93	10.93	0.744	-0.90	9.10	0.720
3.00	0.92	10.92	0.736	-0.89	9.11	0.712
3.50	0.92	10.92	0.736	-0.88	9.12	0.704
4.00	0.92	10.92	0.736	-0.86	9.14	0.688
4.50	0.92	10.92	0.736	-0.86	9.14	0.688
5.00	0.92	10.92	0.736	-0.85	9.15	0.680
7.50	0.91	10.91	0.728	-0.84	9.16	0.672

MW-1D Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
10.00	0.89	10.89	0.712	-0.83	9.17	0.664
14.00	0.88	10.88	0.704	-0.82	9.18	0.656
20.00	0.87	10.87	0.696	-0.76	9.24	0.608
70.00						

MW-1D Slug in & Slug out



URS CONSULTANTS, INC.

PROJECT
SUBJECT SLUG TEST CALCULATION
MW 10

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$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$r = .0833$ ft

$L = 10$ ft

$R = .25$ f

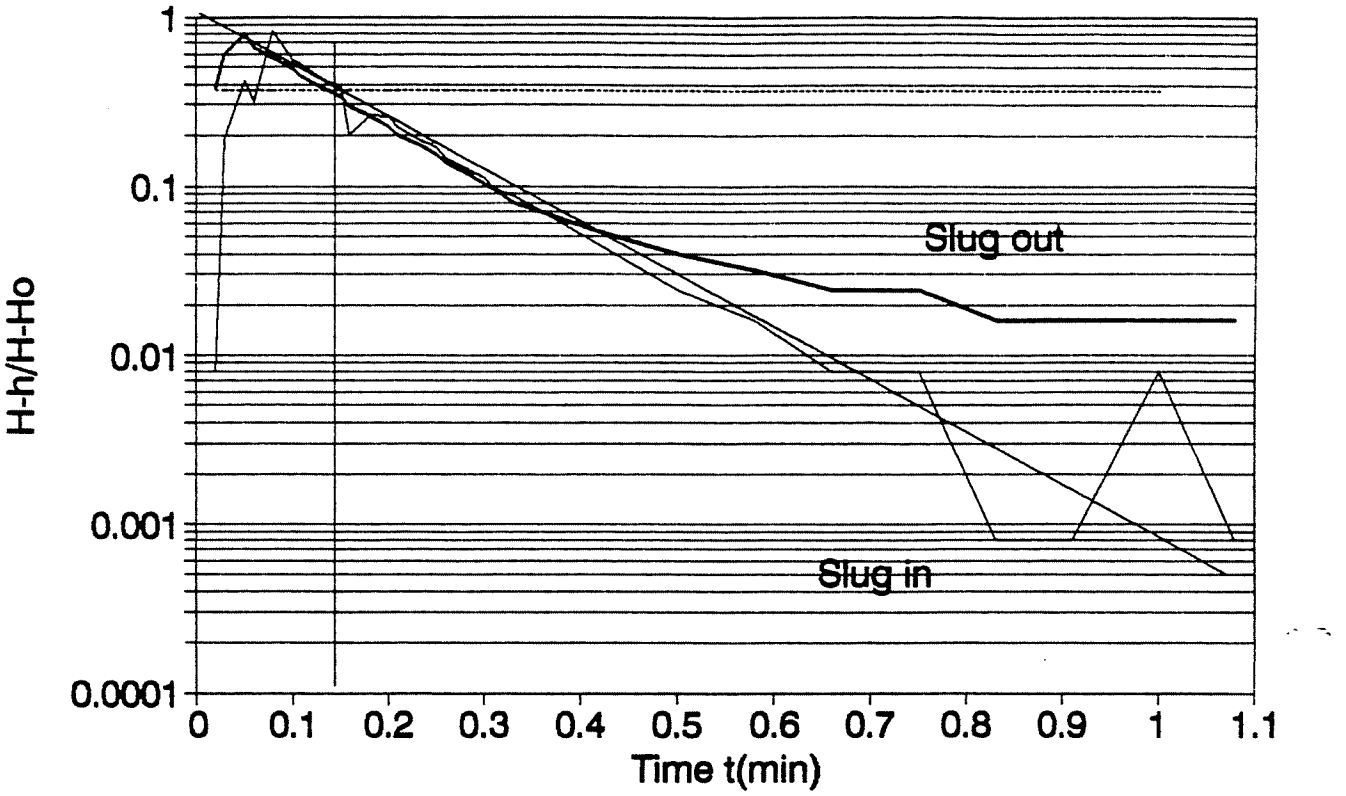
$T_o \cong 60$ min SLUG OUT ESTIMATE

$K_{\text{SLUG OUT}} = 1.08 \times 10^{-5}$ cm/sec

MW-2S Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.02	0.01	10.01	0.008	-0.47	9.53	0.376
0.03	0.24	10.24	0.192	-0.75	9.25	0.600
0.05	0.53	10.53	0.424	-1.00	9.00	0.800
0.06	0.39	10.39	0.312	-0.81	9.19	0.648
0.08	1.04	11.04	0.832	-0.71	9.29	0.568
0.10	0.69	10.69	0.552	-0.62	9.38	0.496
0.11	0.64	10.64	0.512	-0.55	9.45	0.440
0.13	0.54	10.54	0.432	-0.48	9.52	0.384
0.15	0.48	10.48	0.384	-0.42	9.58	0.336
0.16	0.25	10.25	0.200	-0.37	9.63	0.296
0.18	0.33	10.33	0.264	-0.32	9.68	0.256
0.20	0.32	10.32	0.256	-0.28	9.72	0.224
0.21	0.28	10.28	0.224	-0.25	9.75	0.200
0.23	0.24	10.24	0.192	-0.22	9.78	0.176
0.25	0.21	10.21	0.168	-0.19	9.81	0.152
0.26	0.18	10.18	0.144	-0.17	9.83	0.136
0.28	0.16	10.16	0.128	-0.15	9.85	0.120
0.30	0.14	10.14	0.112	-0.13	9.87	0.104
0.31	0.12	10.12	0.096	-0.12	9.88	0.096
0.33	0.11	10.11	0.088	-0.10	9.90	0.080
0.41	0.06	10.06	0.048	-0.07	9.93	0.056
0.50	0.03	10.03	0.024	-0.05	9.95	0.040
0.58	0.02	10.02	0.016	-0.04	9.96	0.032
0.66	0.01	10.01	0.008	-0.03	9.97	0.024
0.75	0.01	10.01	0.008	-0.03	9.97	0.024
0.83	0.00	10.00	0.001	-0.02	9.98	0.016
0.91	0.00	10.00	0.001	-0.02	9.98	0.016
1.00	0.01	10.01	0.008	-0.02	9.98	0.016
1.08	0.00	10.00	0.001	-0.02	9.98	0.016

MW-2S Slug in & slug out



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MW-2S

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$$K = \frac{r^2 \ln (L/R)}{2L\, T_0}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_0 = .15$ min SLUG IN

$T_0 = .13$ min SLUG OUT

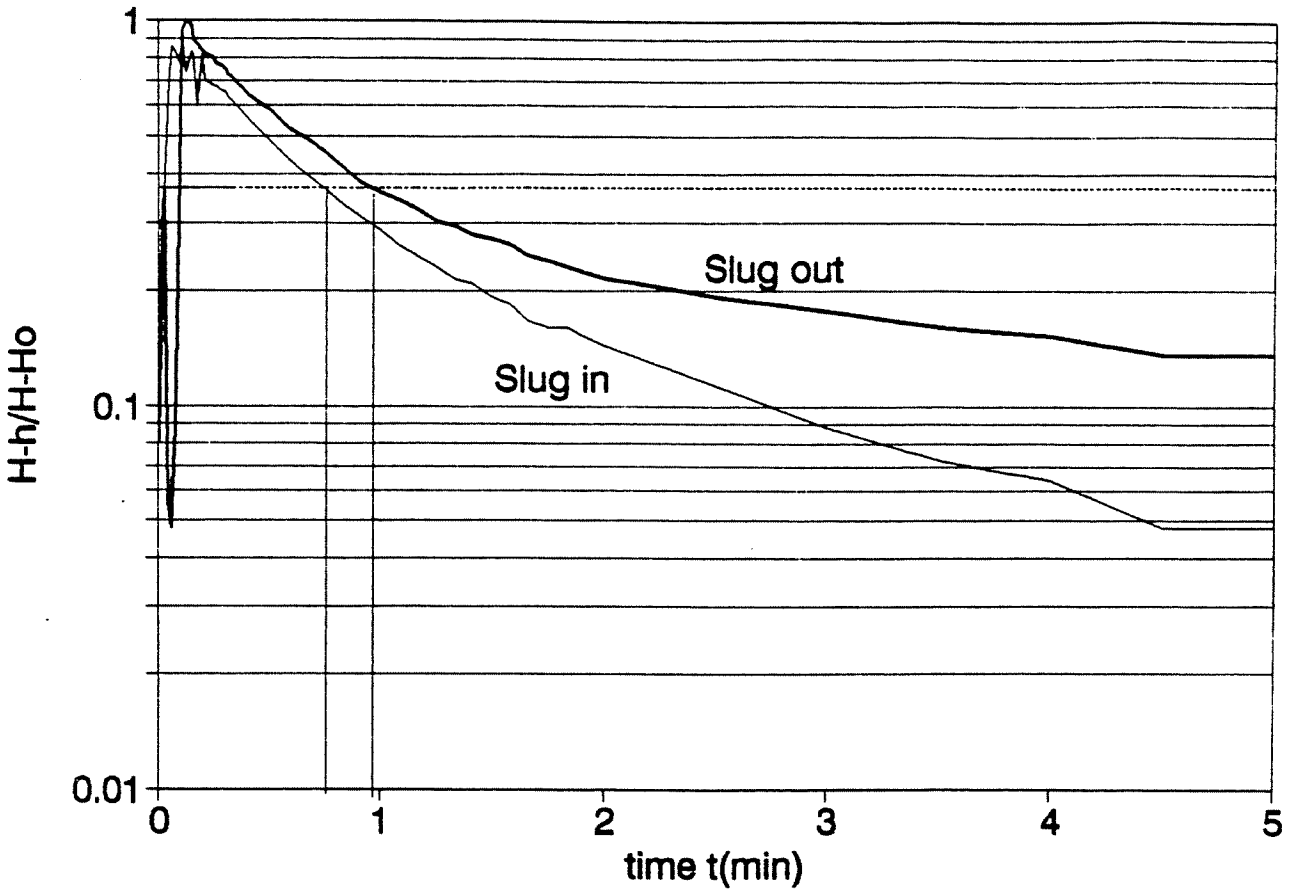
$K_{SLUG\ IN} = 6.99 \times 10^{-3}$ cm/sec

$K_{SLUG\ OUT} = 7.82 \times 10^{-3}$ cm/sec

MW-2I Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.01	0.10	10.10	0.080	-0.13	9.87	0.104
0.02	0.25	10.25	0.200	-0.37	9.63	0.296
0.03	0.45	10.45	0.360	-0.46	9.54	0.368
0.05	0.79	10.79	0.632	-0.07	9.93	0.056
0.06	1.07	11.07	0.856	-0.06	9.94	0.048
0.08	1.04	11.04	0.832	-0.11	9.89	0.088
0.10	0.96	10.96	0.768	-0.70	9.30	0.560
0.11	1.13	11.13	0.904	-1.18	8.82	0.944
0.13	0.92	10.92	0.736	-1.24	8.76	0.992
0.15	1.04	11.04	0.832	-1.21	8.79	0.968
0.16	1.02	11.02	0.816	-1.11	8.89	0.888
0.18	0.75	10.75	0.600	-1.08	8.92	0.864
0.20	1.04	11.04	0.832	-1.05	8.95	0.840
0.21	0.88	10.88	0.704	-1.03	8.97	0.824
0.23	0.86	10.86	0.688	-1.01	8.99	0.808
0.25	0.85	10.85	0.680	-0.99	9.01	0.792
0.26	0.84	10.84	0.672	-0.97	9.03	0.776
0.28	0.82	10.82	0.656	-0.95	9.05	0.760
0.30	0.81	10.81	0.648	-0.93	9.07	0.744
0.31	0.79	10.79	0.632	-0.91	9.09	0.728
0.33	0.77	10.77	0.616	-0.89	9.11	0.712
0.41	0.69	10.69	0.552	-0.80	9.20	0.640
0.50	0.61	10.61	0.488	-0.73	9.27	0.584
0.58	0.55	10.55	0.440	-0.66	9.34	0.528
0.66	0.50	10.50	0.400	-0.62	9.38	0.496
0.75	0.46	10.46	0.368	-0.57	9.43	0.456
0.83	0.42	10.42	0.336	-0.52	9.48	0.416
0.91	0.39	10.39	0.312	-0.48	9.52	0.384
1.00	0.36	10.36	0.288	-0.45	9.55	0.360
1.08	0.33	10.33	0.264	-0.43	9.57	0.344
1.16	0.31	10.31	0.248	-0.41	9.59	0.328
1.25	0.29	10.29	0.232	-0.38	9.62	0.304
1.33	0.27	10.27	0.216	-0.37	9.63	0.296
1.41	0.26	10.26	0.208	-0.35	9.65	0.280
1.50	0.24	10.24	0.192	-0.34	9.66	0.272
1.58	0.23	10.23	0.184	-0.33	9.67	0.264
1.66	0.21	10.21	0.168	-0.31	9.69	0.248
1.75	0.20	10.20	0.160	-0.30	9.70	0.240
1.83	0.20	10.20	0.160	-0.29	9.71	0.232
1.91	0.19	10.19	0.152	-0.28	9.72	0.224
2.00	0.18	10.18	0.144	-0.27	9.73	0.216
2.50	0.14	10.14	0.112	-0.24	9.76	0.192
3.00	0.11	10.11	0.088	-0.22	9.78	0.176
3.50	0.09	10.09	0.072	-0.20	9.80	0.160
4.00	0.08	10.08	0.064	-0.19	9.81	0.152
4.50	0.06	10.06	0.048	-0.17	9.83	0.136
5.00	0.06	10.06	0.048	-0.17	9.83	0.136

MW-2I Slug in & Slug out



URS CONSULTANTS, INC.

PROJECT
SUBJECT SLUG TEST CALCULATION
MW-2I

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$$K = \frac{r^2 \ln(L/R)}{2L T_0}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_0 = .74$ min SLUG IN

$T_0 = .96$ min SLUG OUT

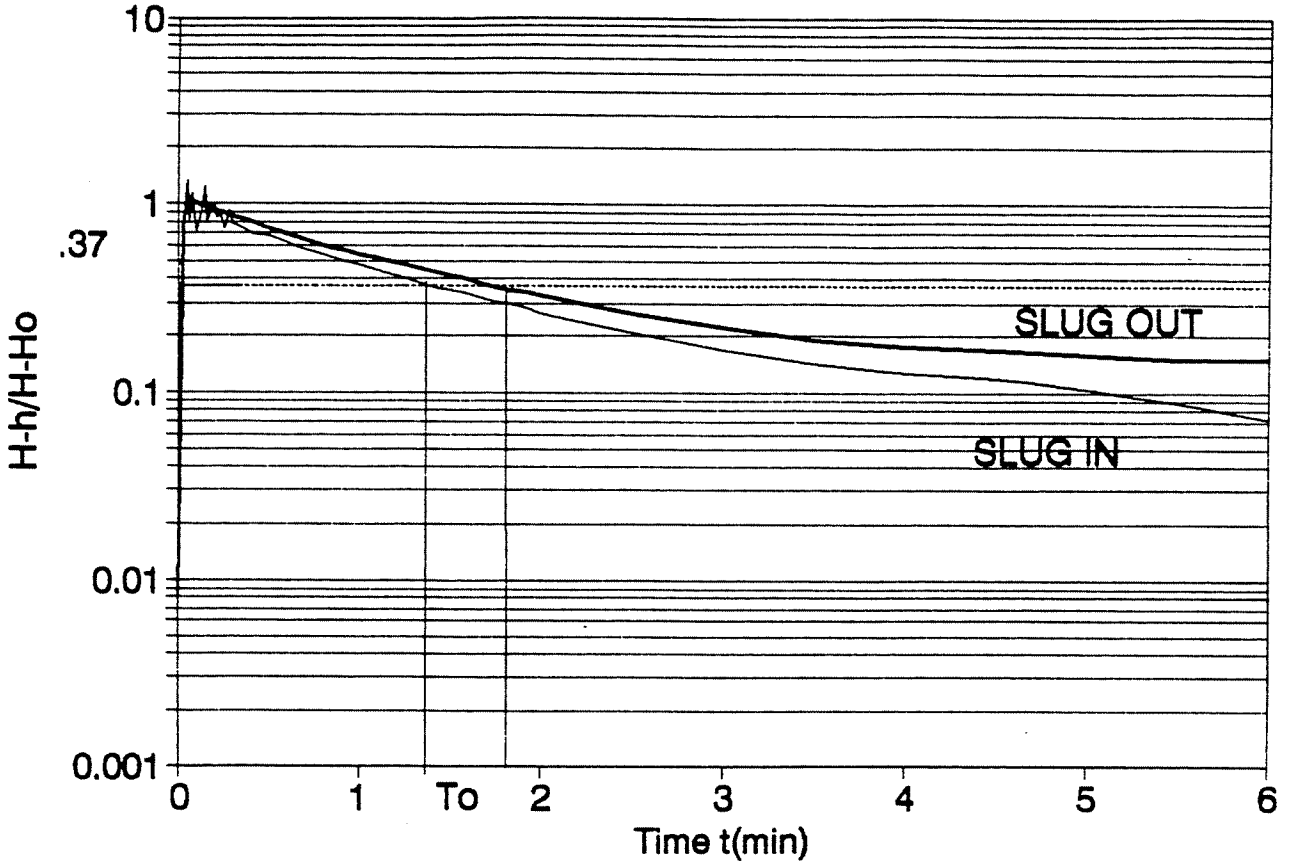
$K_{SLUG\ IN} = 1.42 \times 10^{-3}$ cm/sec

$K_{SLUG\ OUT} = 1.10 \times 10^{-3}$ cm/sec

MW-3S Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	Reference	H-h/H-Ho	S.P.V	Reference	H-h/H-Ho
0.00	0.14	10.14	0.112	0.01	10.01	0.008
0.03	0.98	10.98	0.784	-0.98	9.02	0.784
0.05	1.66	11.66	1.328	-1.38	8.62	1.104
0.06	1.01	11.01	0.808	-1.33	8.67	1.064
0.08	1.42	11.42	1.136	-1.30	8.70	1.040
0.10	0.89	10.89	0.712	-1.28	8.72	1.024
0.13	1.14	11.14	0.912	-1.24	8.76	0.992
0.15	1.55	11.55	1.240	-1.22	8.78	0.976
0.16	1.02	11.02	0.816	-1.20	8.80	0.960
0.18	1.15	11.15	0.920	-1.18	8.82	0.944
0.20	1.26	11.26	1.008	-1.17	8.83	0.936
0.21	1.05	11.05	0.840	-1.14	8.86	0.912
0.23	1.12	11.12	0.896	-1.13	8.87	0.904
0.25	0.92	10.92	0.736	-1.12	8.88	0.896
0.26	0.98	10.98	0.784	-1.10	8.90	0.880
0.28	1.14	11.14	0.912	-1.09	8.91	0.872
0.30	0.98	10.98	0.784	-1.08	8.92	0.864
0.31	0.97	10.97	0.776	-1.06	8.94	0.848
0.33	0.96	10.96	0.768	-1.05	8.95	0.840
0.41	0.86	10.86	0.688	-0.99	9.01	0.792
0.50	0.84	10.84	0.672	-0.93	9.07	0.744
0.58	0.79	10.79	0.632	-0.88	9.12	0.704
0.66	0.74	10.74	0.592	-0.83	9.17	0.664
0.75	0.70	10.70	0.560	-0.78	9.22	0.624
0.83	0.66	10.66	0.528	-0.74	9.26	0.592
0.91	0.62	10.62	0.496	-0.71	9.29	0.568
1.00	0.59	10.59	0.472	-0.67	9.33	0.536
1.08	0.56	10.56	0.448	-0.65	9.35	0.520
1.16	0.53	10.53	0.424	-0.62	9.38	0.496
1.25	0.50	10.50	0.400	-0.59	9.41	0.472
1.33	0.48	10.48	0.384	-0.57	9.43	0.456
1.41	0.45	10.45	0.360	-0.54	9.46	0.432
1.50	0.44	10.44	0.352	-0.52	9.48	0.416
1.58	0.42	10.42	0.336	-0.50	9.50	0.400
1.66	0.40	10.40	0.320	-0.48	9.52	0.384
1.75	0.38	10.38	0.304	-0.45	9.55	0.360
1.83	0.37	10.37	0.296	-0.44	9.56	0.352
1.91	0.35	10.35	0.280	-0.43	9.57	0.344
2.00	0.33	10.33	0.264	-0.41	9.59	0.328
2.50	0.26	10.26	0.208	-0.33	9.67	0.264
3.00	0.21	10.21	0.168	-0.28	9.72	0.224
3.50	0.18	10.18	0.144	-0.24	9.76	0.192
4.00	0.16	10.16	0.128	-0.22	9.78	0.176
4.50	0.15	10.15	0.120	-0.21	9.79	0.168
5.00	0.13	10.13	0.104	-0.20	9.80	0.160
5.50	0.11	10.11	0.088	-0.19	9.81	0.152
6.00	0.09	10.09	0.072	-0.19	9.81	0.152

MW-3S Slug in & Slug out



URS CONSULTANTS, INC.

PROJECT

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MW - 3S

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$$K = \frac{r^2 \ln(L/R)}{2L T_o}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_o = 1.38$ min SLUG IN

$T_o = 1.71$ min SLUG OUT

$K_{SLUG\ IN} = 7.65 \times 10^{-4}$ cm/sec

$K_{SLUG\ OUT} = 6.18 \times 10^{-4}$ cm/sec

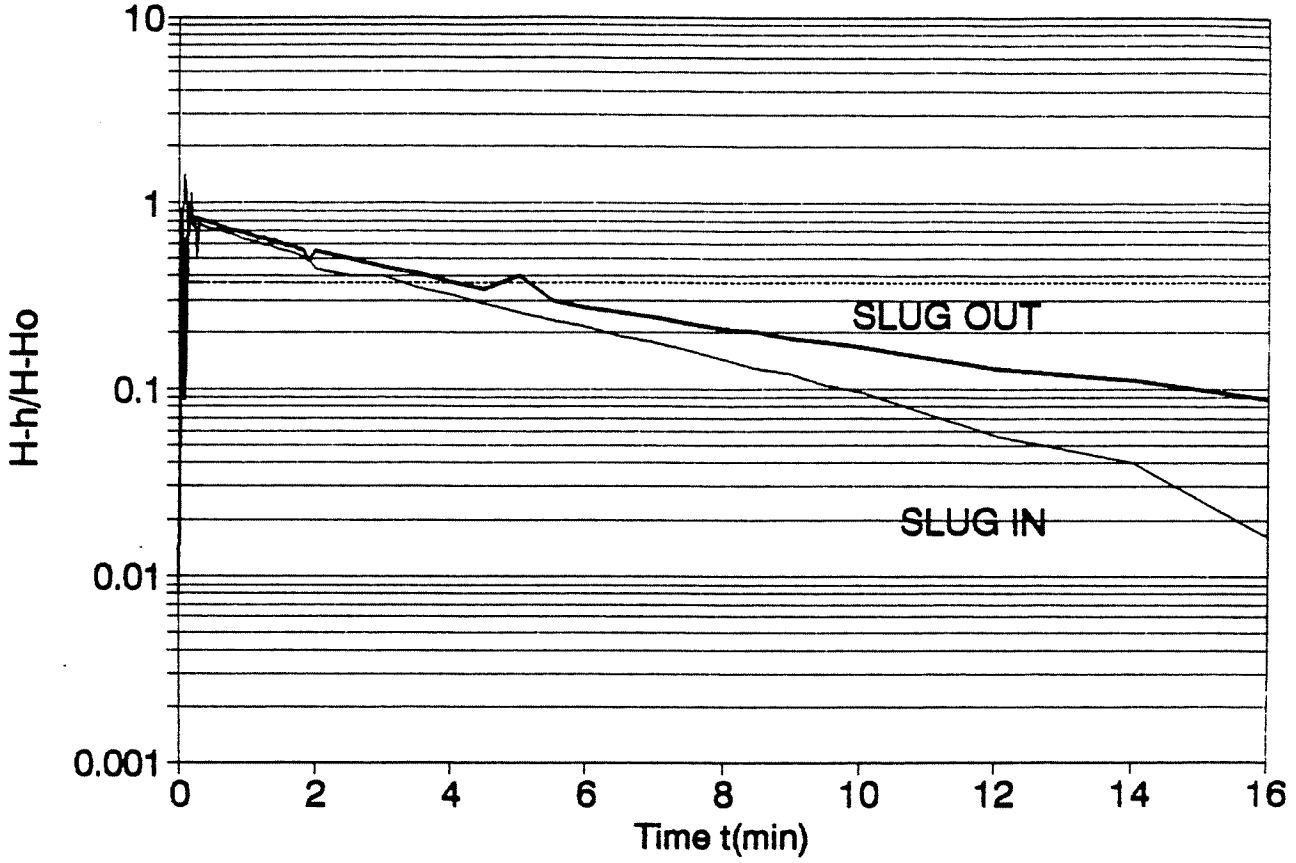
MW-4S Slug Test Field Data

Time	SLUG IN S.P.V	REFERENCE	H-h/H-Ho	SLUG OUT S.P.V	REFERENCE	H-h/H-Ho
0.00	0.09	10.09	0.072	-0.01	9.99	0.008
0.05	0.85	10.85	0.680	-1.14	8.86	0.912
0.10	1.81	11.81	1.448	-0.11	9.89	0.088
0.13	1.04	11.04	0.832	-1.09	8.91	0.872
0.15	1.03	11.03	0.824	-1.08	8.92	0.864
0.16	0.87	10.87	0.696	-1.08	8.92	0.864
0.18	1.42	11.42	1.136	-1.07	8.93	0.856
0.20	1.00	11.00	0.800	-1.06	8.94	0.848
0.21	0.97	10.97	0.776	-1.06	8.94	0.848
0.23	0.93	10.93	0.744	-1.05	8.95	0.840
0.25	0.99	10.99	0.792	-1.04	8.96	0.832
0.26	0.64	10.64	0.512	-1.04	8.96	0.832
0.28	0.83	10.83	0.664	-1.03	8.97	0.824
0.30	0.97	10.97	0.776	-1.03	8.97	0.824
0.31	0.96	10.96	0.768	-1.02	8.98	0.816
0.33	0.96	10.96	0.768	-1.02	8.98	0.816
0.41	0.93	10.93	0.744	-0.99	9.01	0.792
0.50	0.91	10.91	0.728	-0.97	9.03	0.776
0.58	0.89	10.89	0.712	-0.94	9.06	0.752
0.66	0.87	10.87	0.696	-0.92	9.08	0.736
0.75	0.85	10.85	0.680	-0.90	9.10	0.720
0.83	0.83	10.83	0.664	-0.88	9.12	0.704
0.91	0.81	10.81	0.648	-0.86	9.14	0.688
1.00	0.79	10.79	0.632	-0.85	9.15	0.680
1.08	0.77	10.77	0.616	-0.83	9.17	0.664
1.16	0.76	10.76	0.608	-0.81	9.19	0.648
1.25	0.74	10.74	0.592	-0.80	9.20	0.640
1.33	0.73	10.73	0.584	-0.78	9.22	0.624
1.41	0.71	10.71	0.568	-0.77	9.23	0.616
1.50	0.70	10.70	0.560	-0.75	9.25	0.600
1.58	0.68	10.68	0.544	-0.74	9.26	0.592
1.66	0.67	10.67	0.536	-0.73	9.27	0.584
1.75	0.66	10.66	0.528	-0.71	9.29	0.568
1.83	0.64	10.64	0.512	-0.70	9.30	0.560
1.91	0.62	10.62	0.496	-0.60	9.40	0.480
2.00	0.55	10.55	0.440	-0.68	9.32	0.544
2.50	0.50	10.50	0.400	-0.62	9.38	0.496
3.00	0.50	10.50	0.400	-0.56	9.44	0.448
3.50	0.44	10.44	0.352	-0.52	9.48	0.416
4.00	0.40	10.40	0.320	-0.47	9.53	0.376
4.50	0.36	10.36	0.288	-0.43	9.57	0.344
5.00	0.32	10.32	0.256	-0.50	9.50	0.400
5.50	0.29	10.29	0.232	-0.37	9.63	0.296

MW-4S Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	REFERENCE	H-h/H-Ho	S.P.V	REFERENCE	H-h/H-Ho
6.00	0.27	10.27	0.216	-0.34	9.66	0.272
6.50	0.24	10.24	0.192	-0.32	9.68	0.256
7.00	0.22	10.22	0.176	-0.30	9.70	0.240
7.50	0.20	10.20	0.160	-0.28	9.72	0.224
8.00	0.18	10.18	0.144	-0.26	9.74	0.208
8.50	0.16	10.16	0.128	-0.25	9.75	0.200
9.00	0.15	10.15	0.120	-0.23	9.77	0.184
9.50	0.13	10.13	0.104	-0.22	9.78	0.176
10.00	0.12	10.12	0.096	-0.21	9.79	0.168
12.00	0.07	10.07	0.056	-0.16	9.84	0.128
14.00	0.05	10.05	0.040	-0.14	9.86	0.112
16.00	0.02	10.02	0.016	-0.11	9.89	0.088

MW-4S Slug in & Slug out



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$$K = \frac{r^2 \ln(L/R)}{2L T_0}$$

$r = .0833$ ft
$L = 5$ ft
$R = .25$ ft
$T_0 = 3.3$ min SLUG IN
$T_0 = 4.1$ min SLUG OUT

$K_{SLUG\ IN} = 3.20 \times 10^{-4}$ cm/sec
$K_{SLUG\ OUT} = 2.58 \times 10^{-4}$ cm/sec

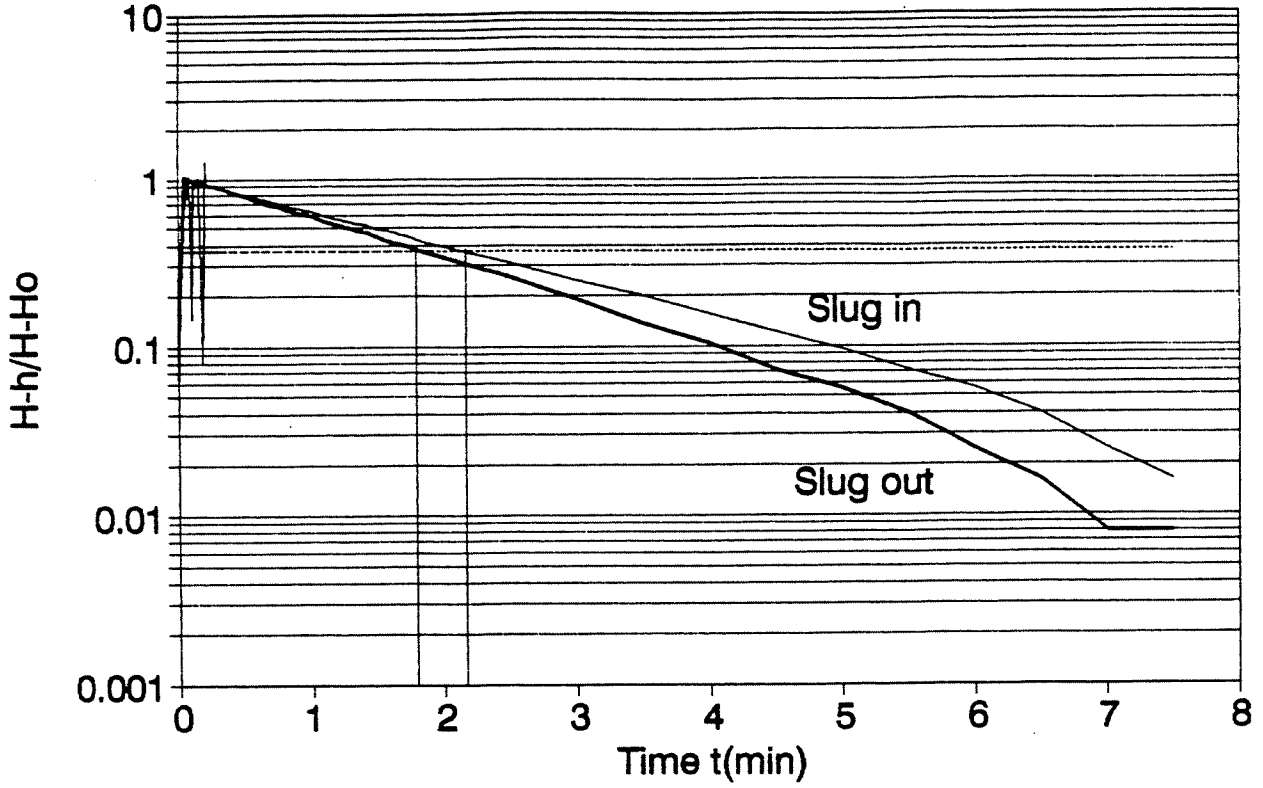
MW-5S Slug Test Field Data

	Slug in			Slug out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.00	0.02	10.02	0.016	-0.08	9.92	0.064
0.01	0.07	10.07	0.056	-0.32	9.68	0.256
0.02	0.21	10.21	0.168	-0.29	9.71	0.232
0.03	0.39	10.39	0.312	-0.44	9.56	0.352
0.05	0.80	10.80	0.640	-1.29	8.71	1.032
0.06	0.93	10.93	0.744	-1.28	8.72	1.024
0.08	1.29	11.29	1.032	-1.25	8.75	1.000
0.10	0.18	10.18	0.144	-1.24	8.76	0.992
0.11	1.24	11.24	0.992	-1.22	8.78	0.976
0.13	1.09	11.09	0.872	-1.21	8.79	0.968
0.15	1.26	11.26	1.008	-1.20	8.80	0.960
0.16	1.03	11.03	0.824	-1.19	8.81	0.952
0.18	0.10	10.10	0.080	-1.18	8.82	0.944
0.20	1.60	11.60	1.280	-1.17	8.83	0.936
0.21	1.14	11.14	0.912	-1.16	8.84	0.928
0.23	1.14	11.14	0.912	-1.15	8.85	0.920
0.25	1.13	11.13	0.904	-1.13	8.87	0.904
0.26	1.11	11.11	0.888	-1.12	8.88	0.896
0.28	1.10	11.10	0.880	-1.12	8.88	0.896
0.30	1.09	11.09	0.872	-1.10	8.90	0.880
0.31	1.09	11.09	0.872	-1.09	8.91	0.872
0.33	1.08	11.08	0.864	-1.08	8.92	0.864
0.41	1.03	11.03	0.824	-1.01	8.99	0.808
0.50	1.00	11.00	0.800	-0.97	9.03	0.776
0.58	0.96	10.96	0.768	-0.92	9.08	0.736
0.66	0.92	10.92	0.736	-0.88	9.12	0.704
0.75	0.88	10.88	0.704	-0.84	9.16	0.672
0.83	0.84	10.84	0.672	-0.80	9.20	0.640
0.91	0.82	10.82	0.656	-0.77	9.23	0.616
1.00	0.79	10.79	0.632	-0.74	9.26	0.592
1.08	0.76	10.76	0.608	-0.70	9.30	0.560
1.16	0.73	10.73	0.584	-0.67	9.33	0.536
1.25	0.70	10.70	0.560	-0.64	9.36	0.512
1.33	0.67	10.67	0.536	-0.61	9.39	0.488
1.41	0.65	10.65	0.520	-0.59	9.41	0.472
1.50	0.62	10.62	0.496	-0.56	9.44	0.448
1.58	0.60	10.60	0.480	-0.53	9.47	0.424
1.66	0.58	10.58	0.464	-0.51	9.49	0.408
1.75	0.56	10.56	0.448	-0.49	9.51	0.392
1.83	0.53	10.53	0.424	-0.46	9.54	0.368
1.91	0.51	10.51	0.408	-0.44	9.56	0.352
2.00	0.49	10.49	0.392	-0.42	9.58	0.336
2.50	0.39	10.39	0.312	-0.32	9.68	0.256

MW-5S Slug Test Field Data

	Slug in			Slug out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
3.00	0.31	10.31	0.248	-0.24	9.76	0.192
3.50	0.25	10.25	0.200	-0.17	9.83	0.136
4.00	0.19	10.19	0.152	-0.13	9.87	0.104
4.50	0.15	10.15	0.120	-0.09	9.91	0.072
5.00	0.12	10.12	0.096	-0.07	9.93	0.056
5.5	0.09	10.09	0.072	-0.05	9.95	0.040
6.0	0.07	10.07	0.056	-0.03	9.97	0.024
6.5	0.05	10.05	0.040	-0.02	9.98	0.016
7.0	0.03	10.03	0.024	-0.01	9.99	0.008
7.5	0.02	10.02	0.016	-0.01	9.99	0.008

MW-5S Slug in & slug out



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$$K = \frac{r^2 \ln(L/R)}{2LT_0}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_0 = 2.14$ min SLUG IN

$T_0 = 1.83$ min SLUG OUT

$K_{SLUG\,IN} = 4.93 \times 10^{-4}$ cm/sec

$K_{SLUG\,OUT} = 5.77 \times 10^{-4}$ cm/sec

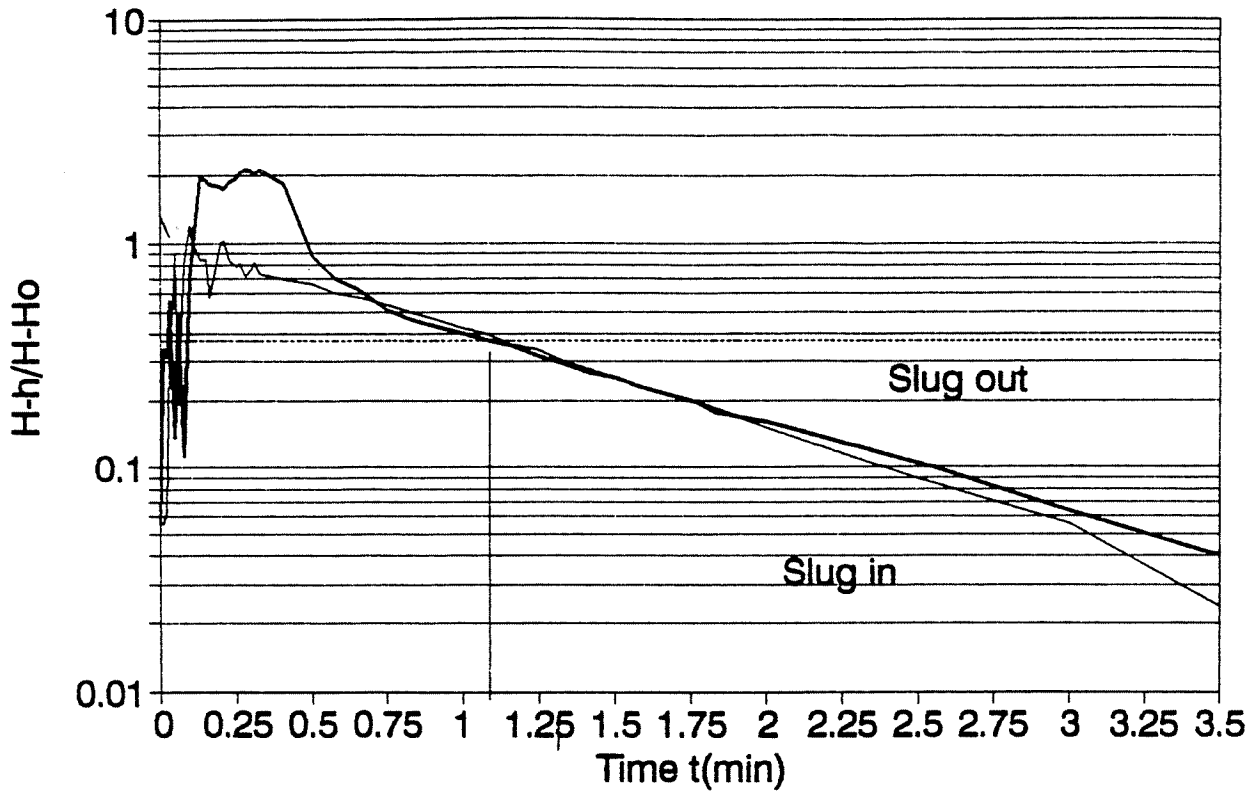
MW-5I Slug Test Field Data

	Slug in			Slug out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.00	0.07	10.07	0.056	-0.07	9.93	0.056
0.01	0.07	10.07	0.056	-0.43	9.57	0.344
0.02	0.08	10.08	0.064	-0.39	9.61	0.312
0.03	0.37	10.37	0.296	-0.70	9.30	0.560
0.05	1.12	11.12	0.896	0.17	10.17	0.136
0.06	0.24	10.24	0.192	-0.61	9.39	0.488
0.08	1.02	11.02	0.816	-0.14	9.86	0.112
0.10	1.49	11.49	1.192	-0.89	9.11	0.712
0.11	1.23	11.23	0.984	-1.23	8.77	0.984
0.13	1.06	11.06	0.848	-2.44	7.56	1.952
0.15	1.07	11.07	0.856	-2.38	7.62	1.904
0.16	0.72	10.72	0.576	-2.28	7.72	1.824
0.18	0.94	10.94	0.752	-2.23	7.77	1.784
0.20	1.26	11.26	1.008	-2.20	7.80	1.760
0.21	1.29	11.29	1.032	-2.19	7.81	1.752
0.23	1.05	11.05	0.840	-2.33	7.67	1.864
0.25	0.99	10.99	0.792	-2.40	7.60	1.920
0.26	1.01	11.01	0.808	-2.55	7.45	2.040
0.28	0.89	10.89	0.712	-2.65	7.35	2.120
0.30	0.96	10.96	0.768	-2.61	7.39	2.088
0.31	1.04	11.04	0.832	-2.51	7.49	2.008
0.33	0.92	10.92	0.736	-2.62	7.38	2.096
0.41	0.87	10.87	0.696	-2.26	7.74	1.808
0.50	0.82	10.82	0.656	-1.10	8.90	0.880
0.58	0.76	10.76	0.608	-0.88	9.12	0.704
0.66	0.72	10.72	0.576	-0.78	9.22	0.624
0.75	0.67	10.67	0.536	-0.63	9.37	0.504
0.83	0.62	10.62	0.496	-0.58	9.42	0.464
0.91	0.58	10.58	0.464	-0.54	9.46	0.432
1.00	0.53	10.53	0.424	-0.50	9.50	0.400
1.08	0.50	10.50	0.400	-0.47	9.53	0.376
1.16	0.45	10.45	0.360	-0.44	9.56	0.352
1.25	0.42	10.42	0.336	-0.40	9.60	0.320
1.33	0.38	10.38	0.304	-0.37	9.63	0.296
1.41	0.35	10.35	0.280	-0.34	9.66	0.272
1.50	0.32	10.32	0.256	-0.32	9.68	0.256
1.58	0.29	10.29	0.232	-0.29	9.71	0.232
1.66	0.27	10.27	0.216	-0.27	9.73	0.216
1.75	0.25	10.25	0.200	-0.25	9.75	0.200
1.83	0.22	10.22	0.176	-0.23	9.77	0.184
1.91	0.21	10.21	0.168	-0.21	9.79	0.168
2.00	0.19	10.19	0.152	-0.20	9.80	0.160
2.50	0.11	10.11	0.088	-0.13	9.87	0.104
3.00	0.07	10.07	0.056	-0.08	9.92	0.064

MW-5I Slug Test Field Data

		Slug in			Slug out	
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
3.50	0.03	10.03	0.024	-0.05	9.95	0.040

MW-5I Slug in & slug out



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$$K = \frac{r^2 \ln(L/R)}{2LT_o}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_o = 1.14$ min SLUG IN

$T_o = 1.11$ min SLUG OUT

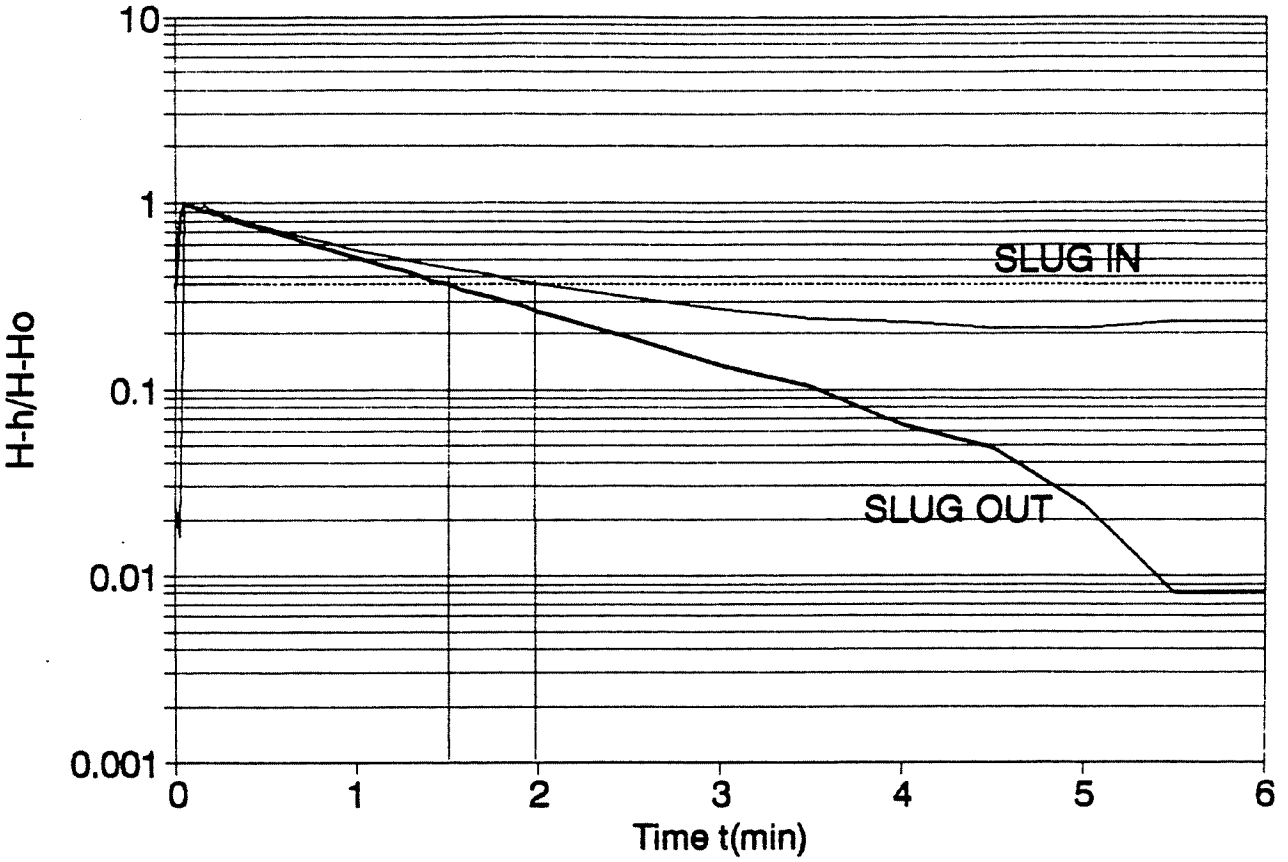
$K_{SLUG\ IN} = 9.26 \times 10^{-4}$ cm/sec

$K_{SLUG\ OUT} = 9.51 \times 10^{-4}$ cm/sec

MW-6I Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	Reference	H-h/H-Ho	S.P.V	Reference	H-h/H-Ho
0.00	0.03	10.03	0.024	-0.44	9.56	0.352
0.03	0.02	10.02	0.016	-1.06	8.94	0.848
0.05	1.28	11.28	1.024	-1.26	8.74	1.008
0.06	1.21	11.21	0.968	-1.23	8.77	0.984
0.08	1.26	11.26	1.008	-1.21	8.79	0.968
0.10	1.22	11.22	0.976	-1.19	8.81	0.952
0.13	1.12	11.12	0.896	-1.17	8.83	0.936
0.15	1.18	11.18	0.944	-1.13	8.87	0.904
0.16	1.23	11.23	0.984	-1.13	8.87	0.904
0.18	1.16	11.16	0.928	-1.12	8.88	0.896
0.20	1.14	11.14	0.912	-1.10	8.90	0.880
0.21	1.13	11.13	0.904	-1.09	8.91	0.872
0.23	1.11	11.11	0.888	-1.08	8.92	0.864
0.25	1.10	11.10	0.880	-1.06	8.94	0.848
0.26	1.08	11.08	0.864	-1.05	8.95	0.840
0.28	1.07	11.07	0.856	-1.04	8.96	0.832
0.30	1.06	11.06	0.848	-1.03	8.97	0.824
0.31	1.04	11.04	0.832	-1.01	8.99	0.808
0.33	1.03	11.03	0.824	-1.00	9.00	0.800
0.41	0.97	10.97	0.776	-0.95	9.05	0.760
0.50	0.92	10.92	0.736	-0.89	9.11	0.712
0.58	0.88	10.88	0.704	-0.84	9.16	0.672
0.66	0.84	10.84	0.672	-0.80	9.20	0.640
0.75	0.80	10.80	0.640	-0.75	9.25	0.600
0.83	0.77	10.77	0.616	-0.71	9.29	0.568
0.91	0.74	10.74	0.592	-0.67	9.33	0.536
1.00	0.70	10.70	0.560	-0.64	9.36	0.512
1.08	0.67	10.67	0.536	-0.60	9.40	0.480
1.16	0.65	10.65	0.520	-0.57	9.43	0.456
1.25	0.63	10.63	0.504	-0.54	9.46	0.432
1.33	0.60	10.60	0.480	-0.51	9.49	0.408
1.41	0.58	10.58	0.464	-0.48	9.52	0.384
1.50	0.56	10.56	0.448	-0.46	9.54	0.368
1.58	0.54	10.54	0.432	-0.43	9.57	0.344
1.66	0.53	10.53	0.424	-0.41	9.59	0.328
1.75	0.51	10.51	0.408	-0.39	9.61	0.312
1.83	0.49	10.49	0.392	-0.37	9.63	0.296
1.91	0.48	10.48	0.384	-0.35	9.65	0.280
2.00	0.46	10.46	0.368	-0.33	9.67	0.264
2.50	0.39	10.39	0.312	-0.24	9.76	0.192
3.00	0.34	10.34	0.272	-0.17	9.83	0.136
3.50	0.30	10.30	0.240	-0.13	9.87	0.104
4.00	0.29	10.29	0.232	-0.08	9.92	0.064
4.50	0.27	10.27	0.216	-0.06	9.94	0.048
5.00	0.27	10.27	0.216	-0.03	9.97	0.024
5.50	0.29	10.29	0.232	-0.01	9.99	0.008
6.00	0.29	10.29	0.232	-0.01	9.99	0.008

MW-6I Slug in & Slug out



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$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_o = 2$ min SLUG IN

$T_o = 1.5$ min SLUG OUT

$K_{SLUG\,IN} = 5.28 \times 10^{-4}$ cm/sec

$K_{SLUG\,OUT} = 7.04 \times 10^{-4}$ cm/sec

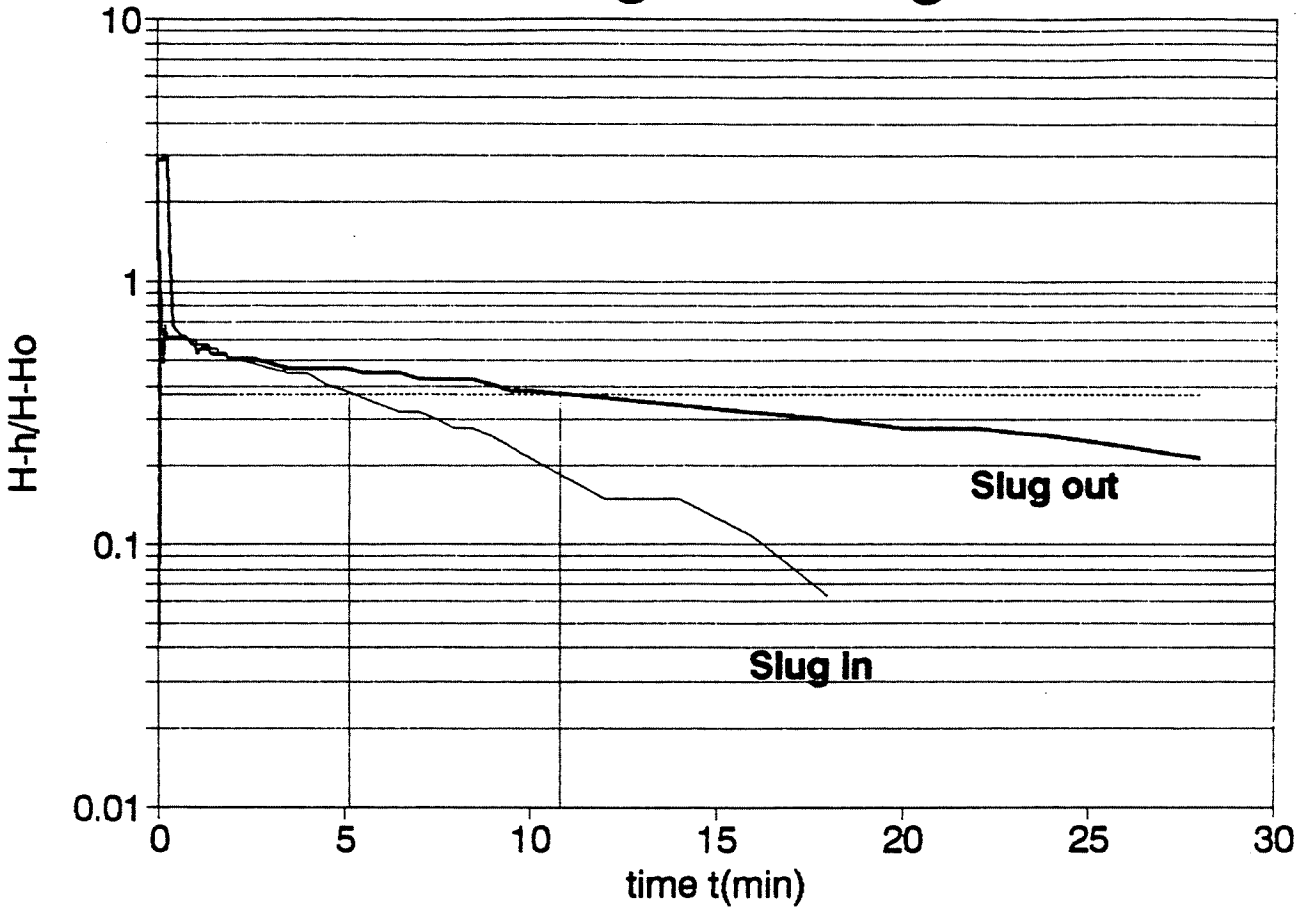
MW-7S Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
0.01	0.02	10.02	0.043	-0.57	9.43	1.213
0.02	-0.02	9.98	0.043	-1.10	8.90	2.340
0.03	-0.04	9.96	0.085	-1.39	8.61	2.951
0.05	-0.02	9.98	0.043	-1.37	8.63	2.915
0.06	0.08	10.08	0.170	-1.37	8.63	2.915
0.08	-0.04	9.96	0.085	-1.37	8.63	2.915
0.10	0.61	10.61	1.298	-1.37	8.63	2.915
0.11	0.45	10.45	0.957	-1.37	8.63	2.915
0.13	0.39	10.39	0.830	-1.37	8.63	2.915
0.15	0.31	10.31	0.660	-1.37	8.63	2.915
0.16	0.30	10.30	0.638	-1.37	8.63	2.915
0.18	0.23	10.23	0.489	-1.39	8.61	2.957
0.20	0.32	10.32	0.681	-1.39	8.61	2.957
0.21	0.29	10.29	0.617	-1.39	8.61	2.957
0.23	0.29	10.29	0.617	-1.39	8.61	2.957
0.25	0.30	10.30	0.638	-1.39	8.61	2.957
0.26	0.29	10.29	0.617	-1.39	8.61	2.957
0.28	0.29	10.29	0.617	-1.38	8.62	2.936
0.30	0.29	10.29	0.617	-1.38	8.62	2.936
0.31	0.29	10.29	0.617	-1.39	8.61	2.957
0.33	0.29	10.29	0.617	-0.65	9.35	1.383
0.41	0.29	10.29	0.617	-0.32	9.68	0.681
0.50	0.29	10.29	0.617	-0.31	9.69	0.660
0.58	0.29	10.29	0.617	-0.30	9.70	0.638
0.66	0.29	10.29	0.617	-0.29	9.71	0.617
0.75	0.29	10.29	0.617	-0.29	9.71	0.617
0.83	0.28	10.28	0.596	-0.28	9.72	0.596
0.91	0.28	10.28	0.596	-0.27	9.73	0.574
1.00	0.28	10.28	0.596	-0.27	9.73	0.574
1.08	0.27	10.27	0.574	-0.25	9.75	0.532
1.16	0.27	10.27	0.574	-0.26	9.74	0.553
1.25	0.27	10.27	0.574	-0.26	9.74	0.553
1.33	0.27	10.27	0.574	-0.26	9.74	0.553
1.41	0.26	10.26	0.553	-0.25	9.75	0.532
1.50	0.26	10.26	0.553	-0.25	9.75	0.532
1.58	0.26	10.26	0.553	-0.25	9.75	0.532
1.66	0.25	10.25	0.532	-0.25	9.75	0.532
1.75	0.25	10.25	0.532	-0.25	9.75	0.532
1.83	0.25	10.25	0.532	-0.25	9.75	0.532
1.91	0.24	10.24	0.511	-0.24	9.76	0.511
2.00	0.24	10.24	0.511	-0.24	9.76	0.511
2.50	0.23	10.23	0.489	-0.24	9.76	0.511
3.00	0.22	10.22	0.468	-0.23	9.77	0.489

MW-7S Slug Test Field Data

	Slug In			Slug Out		
Time	S.P.V.	Reference	H-h/H-Ho	S.P.V.	Reference	H-h/H-Ho
3.50	0.21	10.21	0.447	-0.22	9.78	0.468
4.00	0.21	10.21	0.447	-0.22	9.78	0.468
4.50	0.19	10.19	0.404	-0.22	9.78	0.468
5.00	0.18	10.18	0.383	-0.22	9.78	0.468
5.50	0.17	10.17	0.362	-0.21	9.79	0.447
6.00	0.16	10.16	0.340	-0.21	9.79	0.447
6.50	0.15	10.15	0.319	-0.21	9.79	0.447
7.00	0.15	10.15	0.319	-0.20	9.80	0.426
7.50	0.14	10.14	0.298	-0.20	9.80	0.426
8.00	0.13	10.13	0.277	-0.20	9.80	0.426
8.50	0.13	10.13	0.277	-0.20	9.80	0.426
9.00	0.12	10.12	0.255	-0.19	9.81	0.404
9.50	0.11	10.11	0.234	-0.18	9.82	0.383
10.00	0.10	10.10	0.213	-0.18	9.82	0.383
12.00	0.07	10.07	0.149	-0.17	9.83	0.362
14.00	0.07	10.07	0.149	-0.16	9.84	0.340
16.00	0.05	10.05	0.106	-0.15	9.85	0.319
18.00	0.03	10.03	0.064	-0.14	9.86	0.298
20.00	0.02	10.02	0.043	-0.13	9.87	0.277
22.00				-0.13	9.87	0.277
24.00				-0.12	9.88	0.255
26.00				-0.11	9.89	0.234
28.00				-0.10	9.90	0.213

MW-7S Slug in & Slug out



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$$K = \frac{r^2 \ln(L/R)}{2L T_0}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_0 = 5.31$ min SLUG IN

$T_0 = 11.2$ min SLUG OUT

$K_{SLUG\ IN} = 3.91 \times 10^{-4}$ cm/sec

$K_{SLUG\ OUT} = 1.86 \times 10^{-4}$ cm/sec

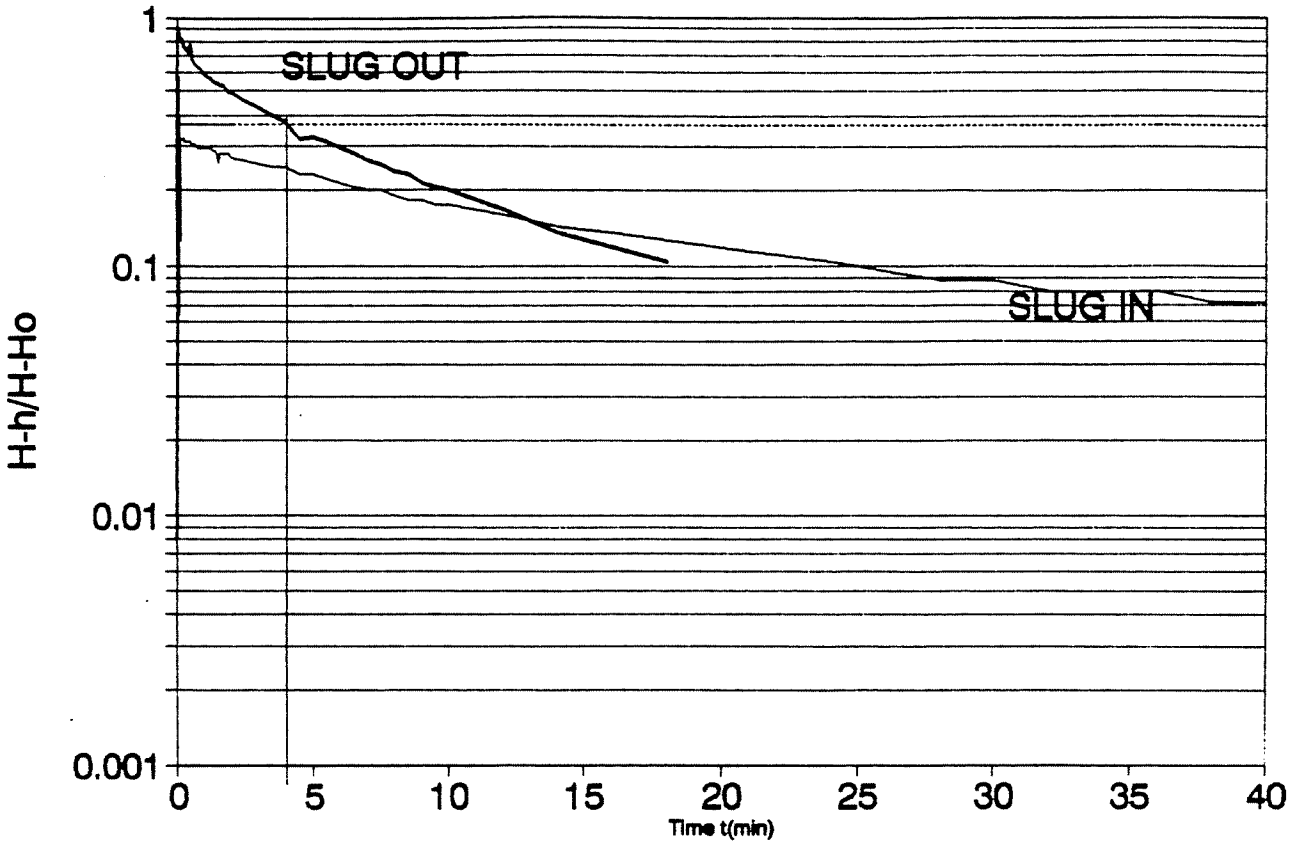
MW-8I Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	REFERENCE	H-h/H-Ho	S.P.V	REFERENCE	H-h/H-Ho
0.00	0.01	10.01	0.008	-0.01	9.99	0.008
0.03	0.02	10.02	0.016	-0.04	9.96	0.030
0.05	0.35	10.35	0.280	-1.14	8.86	0.912
0.06	0.08	10.08	0.064	-1.09	8.91	0.872
0.08	0.57	10.57	0.456	-1.07	8.93	0.856
0.10	0.72	10.72	0.576	-1.05	8.95	0.840
0.13	0.16	10.16	0.128	-1.03	8.97	0.824
0.15	0.40	10.40	0.320	-1.02	8.98	0.816
0.16	0.40	10.40	0.320	-1.01	8.99	0.808
0.18	0.40	10.40	0.320	-1.01	8.99	0.808
0.20	0.40	10.40	0.320	-0.99	9.01	0.792
0.21	0.40	10.40	0.320	-1.00	9.00	0.800
0.23	0.40	10.40	0.320	-0.97	9.03	0.776
0.25	0.40	10.40	0.320	-0.97	9.03	0.776
0.26	0.40	10.40	0.320	-0.96	9.04	0.768
0.28	0.40	10.40	0.320	-0.95	9.05	0.760
0.30	0.39	10.39	0.312	-0.95	9.05	0.760
0.31	0.39	10.39	0.312	-0.94	9.06	0.752
0.33	0.39	10.39	0.312	-0.93	9.07	0.744
0.41	0.39	10.39	0.312	-0.90	9.10	0.720
0.50	0.39	10.39	0.312	-0.97	9.03	0.776
0.58	0.38	10.38	0.304	-0.84	9.16	0.672
0.66	0.38	10.38	0.304	-0.81	9.19	0.648
0.75	0.37	10.37	0.296	-0.79	9.21	0.632
0.83	0.37	10.37	0.296	-0.78	9.22	0.624
0.91	0.37	10.37	0.296	-0.76	9.24	0.608
1.00	0.37	10.37	0.296	-0.74	9.26	0.592
1.08	0.37	10.37	0.296	-0.73	9.27	0.584
1.16	0.37	10.37	0.296	-0.72	9.28	0.576
1.25	0.37	10.37	0.296	-0.70	9.30	0.560
1.33	0.36	10.36	0.288	-0.69	9.31	0.552
1.41	0.36	10.36	0.288	-0.68	9.32	0.544
1.50	0.33	10.33	0.261	-0.67	9.33	0.536
1.58	0.35	10.35	0.280	-0.66	9.34	0.528
1.66	0.35	10.35	0.280	-0.66	9.34	0.528
1.75	0.35	10.35	0.280	-0.65	9.35	0.520
1.83	0.35	10.35	0.280	-0.63	9.37	0.504
1.91	0.35	10.35	0.280	-0.62	9.38	0.496
2.00	0.34	10.34	0.272	-0.62	9.38	0.496
2.50	0.33	10.33	0.264	-0.57	9.43	0.456
3.00	0.32	10.32	0.256	-0.53	9.47	0.424
3.50	0.31	10.31	0.248	-0.50	9.50	0.400
4.00	0.31	10.31	0.248	-0.47	9.53	0.376
4.50	0.29	10.29	0.232	-0.40	9.60	0.320
5.00	0.29	10.29	0.232	-0.41	9.59	0.328
5.50	0.28	10.28	0.224	-0.39	9.61	0.312
6.00	0.27	10.27	0.216	-0.37	9.63	0.296
6.50	0.26	10.26	0.208	-0.35	9.65	0.280
7.00	0.25	10.25	0.200	-0.33	9.67	0.264

MW-8I Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	REFERENCE	H-h/H-Ho	S.P.V	REFERENCE	H-h/H-Ho
7.50	0.25	10.25	0.200	-0.32	9.68	0.256
8.00	0.24	10.24	0.192	-0.30	9.70	0.240
8.50	0.23	10.23	0.184	-0.29	9.71	0.232
9.00	0.23	10.23	0.184	-0.27	9.73	0.216
9.50	0.22	10.22	0.176	-0.26	9.74	0.208
10.00	0.22	10.22	0.176	-0.25	9.75	0.200
12.00	0.20	10.20	0.160	-0.21	9.79	0.168
14.00	0.18	10.18	0.144	-0.17	9.83	0.136
16.00	0.17	10.17	0.136	-0.15	9.85	0.120
18.00	0.16	10.16	0.128	-0.13	9.87	0.104
20.00	0.15	10.15	0.120			
22.00	0.14	10.14	0.112			
24.00	0.13	10.13	0.104			
26.00	0.12	10.12	0.096			
28.00	0.11	10.11	0.088			
30.00	0.11	10.11	0.088			
32.00	0.10	10.10	0.080			
34.00	0.10	10.10	0.080			
36.00	0.10	10.10	0.080			
38.00	0.09	10.09	0.072			
40.00	0.09	10.09	0.072			

MW-8I Slug in & Slug out



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$$K = \frac{r^2 \ln(L/R)}{2LT_0}$$

$r = .0833$ ft

$L = 10$ ft

$R = .25$ ft

$T_0 = 4$ min SLUG OUT

$K_{\text{SLUG OUT}} = 1.63 \times 10^{-4}$ cm/sec

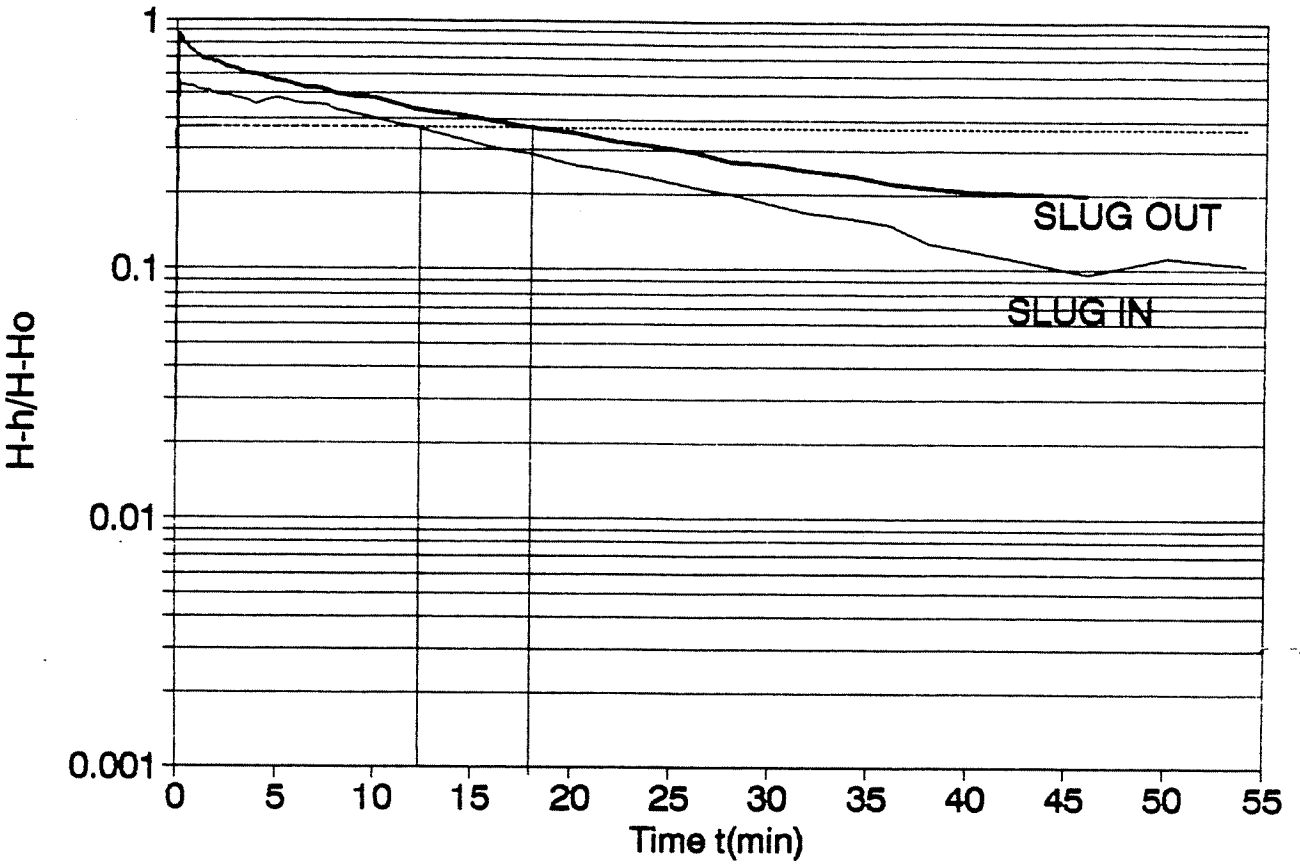
MW-8D Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	Reference	H-h/H-Ho	S.P.V	Reference	H-h/H-Ho
0.00	0.01	10.01	0.008	-0.38	9.62	0.304
0.10	0.84	10.84	0.672	-0.70	9.30	0.560
0.13	0.89	10.89	0.712	-1.09	8.91	0.872
0.15	0.61	10.61	0.488	-1.08	8.92	0.864
0.16	0.70	10.70	0.560	1.08	11.08	0.864
0.18	0.68	10.68	0.544	-1.07	8.93	0.856
0.20	0.68	10.68	0.544	-1.06	8.94	0.848
0.21	0.68	10.68	0.544	-1.06	8.94	0.848
0.23	0.68	10.68	0.544	-1.06	8.94	0.848
0.25	0.68	10.68	0.544	-1.05	8.95	0.840
0.26	0.68	10.68	0.544	-1.04	8.96	0.832
0.28	0.68	10.68	0.544	-1.05	8.95	0.840
0.30	0.68	10.68	0.544	-1.03	8.97	0.824
0.31	0.68	10.68	0.544	-1.03	8.97	0.824
0.33	0.68	10.68	0.544	-1.02	8.98	0.816
0.41	0.68	10.68	0.544	-1.00	9.00	0.800
0.50	0.68	10.68	0.544	-0.99	9.01	0.792
0.58	0.67	10.67	0.536	-0.97	9.03	0.776
0.66	0.67	10.67	0.536	-0.95	9.05	0.760
0.75	0.67	10.67	0.536	-0.94	9.06	0.752
0.83	0.67	10.67	0.536	-0.92	9.08	0.736
0.91	0.66	10.66	0.528	-0.91	9.09	0.728
1.00	0.66	10.66	0.528	-0.90	9.10	0.720
1.08	0.65	10.65	0.520	-0.89	9.11	0.712
1.16	0.65	10.65	0.520	-0.89	9.11	0.712
1.25	0.65	10.65	0.520	-0.87	9.13	0.696
1.33	0.64	10.64	0.512	-0.86	9.14	0.688
1.41	0.64	10.64	0.512	-0.86	9.14	0.688
1.50	0.64	10.64	0.512	-0.86	9.14	0.688
1.58	0.64	10.64	0.512	-0.85	9.15	0.680
1.66	0.64	10.64	0.512	-0.86	9.14	0.688
1.75	0.63	10.63	0.504	-0.86	9.14	0.688
1.83	0.63	10.63	0.504	-0.84	9.16	0.672
1.91	0.63	10.63	0.504	-0.83	9.17	0.664
2.00	0.62	10.62	0.496	-0.84	9.16	0.672
2.50	0.62	10.62	0.497	-0.80	9.20	0.640
3.00	0.60	10.60	0.480	-0.79	9.21	0.632
3.50	0.59	10.59	0.472	-0.76	9.24	0.608
4.00	0.57	10.57	0.456	-0.75	9.25	0.600
4.50	0.59	10.59	0.472	-0.73	9.27	0.584
5.00	0.60	10.60	0.480	-0.71	9.29	0.568
5.50	0.59	10.59	0.472	-0.70	9.30	0.560
6.00	0.58	10.58	0.464	-0.68	9.32	0.544
6.50	0.57	10.57	0.456	-0.66	9.34	0.528
7.00	0.57	10.57	0.456	-0.66	9.34	0.528
7.50	0.56	10.56	0.448	-0.65	9.35	0.520
8.00	0.54	10.54	0.432	-0.63	9.37	0.504
8.50	0.53	10.53	0.424	-0.62	9.38	0.496

MW-8D Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	Reference	H-h/H-Ho	S.P.V	Reference	H-h/H-Ho
9.00	0.52	10.52	0.416	-0.61	9.39	0.488
9.50	0.51	10.51	0.408	-0.61	9.39	0.488
10.00	0.50	10.50	0.400	-0.60	9.40	0.480
12.00	0.46	10.46	0.368	-0.54	9.46	0.432
14.00	0.42	10.42	0.336	-0.52	9.48	0.416
16.00	0.38	10.38	0.304	-0.49	9.51	0.392
18.00	0.36	10.36	0.288	-0.46	9.54	0.368
20.00	0.33	10.33	0.264	-0.44	9.56	0.352
22.00	0.31	10.31	0.248	-0.41	9.59	0.328
24.00	0.29	10.29	0.232	-0.39	9.61	0.312
26.00	0.27	10.27	0.216	-0.37	9.63	0.296
28.00	0.25	10.25	0.200	-0.34	9.66	0.272
30.00	0.23	10.23	0.184	-0.33	9.67	0.264
32.00	0.21	10.21	0.168	-0.31	9.69	0.248
34.00	0.20	10.20	0.160	-0.30	9.70	0.240
36.00	0.19	10.19	0.152	-0.28	9.72	0.224
38.00	0.16	10.16	0.128	-0.27	9.73	0.216
40.00	0.15	10.15	0.120	-0.26	9.74	0.208
46.00	0.12	10.12	0.096	-0.25	9.75	0.200
50.00	0.14	10.14	0.112	-0.05	9.95	0.040
54.00	0.13	10.13	0.104	-0.05	9.95	0.040

MW-8D Slug in & Slug out



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$$K = \frac{r^2 \ln(L/R)}{2L T_0}$$

$r = .0833$ ft
$L = 10$ ft
$R = .25$ ft
$T_0 = 10.4$ min SLUG IN
$T_0 = 15.6$ min SLUG OUT

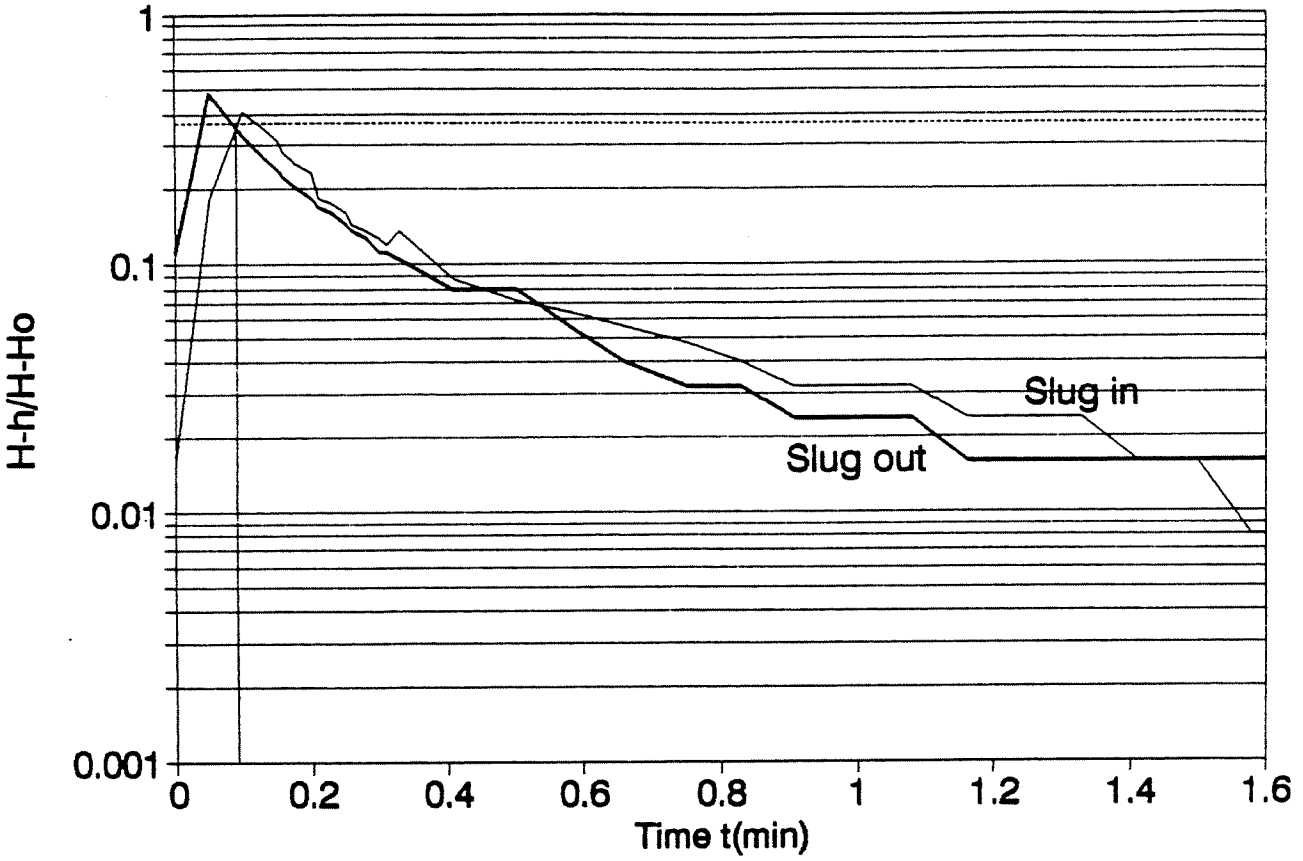
$K_{SLUG IN} = 6.25 \times 10^{-5}$ cm/sec

$K_{SLUG OUT} = 4.17 \times 10^{-5}$ cm/sec

MW-9S Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	Reference	H-h/H-Ho	S.P.V	Reference	H-h/H-Ho
0.00	0.02	10.02	0.016	-0.14	9.86	0.112
0.05	0.23	10.23	0.184	-0.61	9.39	0.488
0.10	0.51	10.51	0.408	-0.41	9.59	0.328
0.13	0.44	10.44	0.352	-0.34	9.66	0.272
0.15	0.39	10.39	0.312	-0.30	9.70	0.240
0.16	0.35	10.35	0.280	-0.28	9.72	0.224
0.18	0.31	10.31	0.248	-0.25	9.75	0.200
0.20	0.29	10.29	0.232	-0.23	9.77	0.184
0.21	0.23	10.23	0.184	-0.21	9.79	0.168
0.23	0.22	10.22	0.176	-0.20	9.80	0.160
0.25	0.20	10.20	0.160	-0.18	9.82	0.144
0.26	0.18	10.18	0.144	-0.17	9.83	0.136
0.28	0.17	10.17	0.136	-0.16	9.84	0.128
0.30	0.16	10.16	0.128	-0.14	9.86	0.112
0.31	0.15	10.15	0.120	-0.14	9.86	0.112
0.33	0.17	10.17	0.136	-0.13	9.87	0.104
0.41	0.11	10.11	0.088	-0.10	9.90	0.080
0.50	0.09	10.09	0.072	-0.10	9.90	0.080
0.58	0.08	10.08	0.064	-0.07	9.93	0.056
0.66	0.07	10.07	0.056	-0.05	9.95	0.040
0.75	0.06	10.06	0.048	-0.04	9.96	0.032
0.83	0.05	10.05	0.040	-0.04	9.96	0.032
0.91	0.04	10.04	0.032	-0.03	9.97	0.024
1.00	0.04	10.04	0.032	-0.03	9.97	0.024
1.08	0.04	10.04	0.032	-0.03	9.97	0.024
1.16	0.03	10.03	0.024	-0.02	9.98	0.016
1.25	0.03	10.03	0.024	-0.02	9.98	0.016
1.33	0.03	10.03	0.024	-0.02	9.98	0.016
1.41	0.02	10.02	0.016	-0.02	9.98	0.016
1.50	0.02	10.02	0.016	-0.02	9.98	0.016
1.58	0.01	10.01	0.008	-0.02	9.98	0.016
1.66	0.01	10.01	0.008	-0.02	9.98	0.016

MW-9S Slug in & Slug out



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$$K = \frac{r^2 \ln(L/R)}{2LT_0}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_0 \hat{=} .11$ min SLUG IN

$T_0 \hat{=} .08$ min SLUG OUT

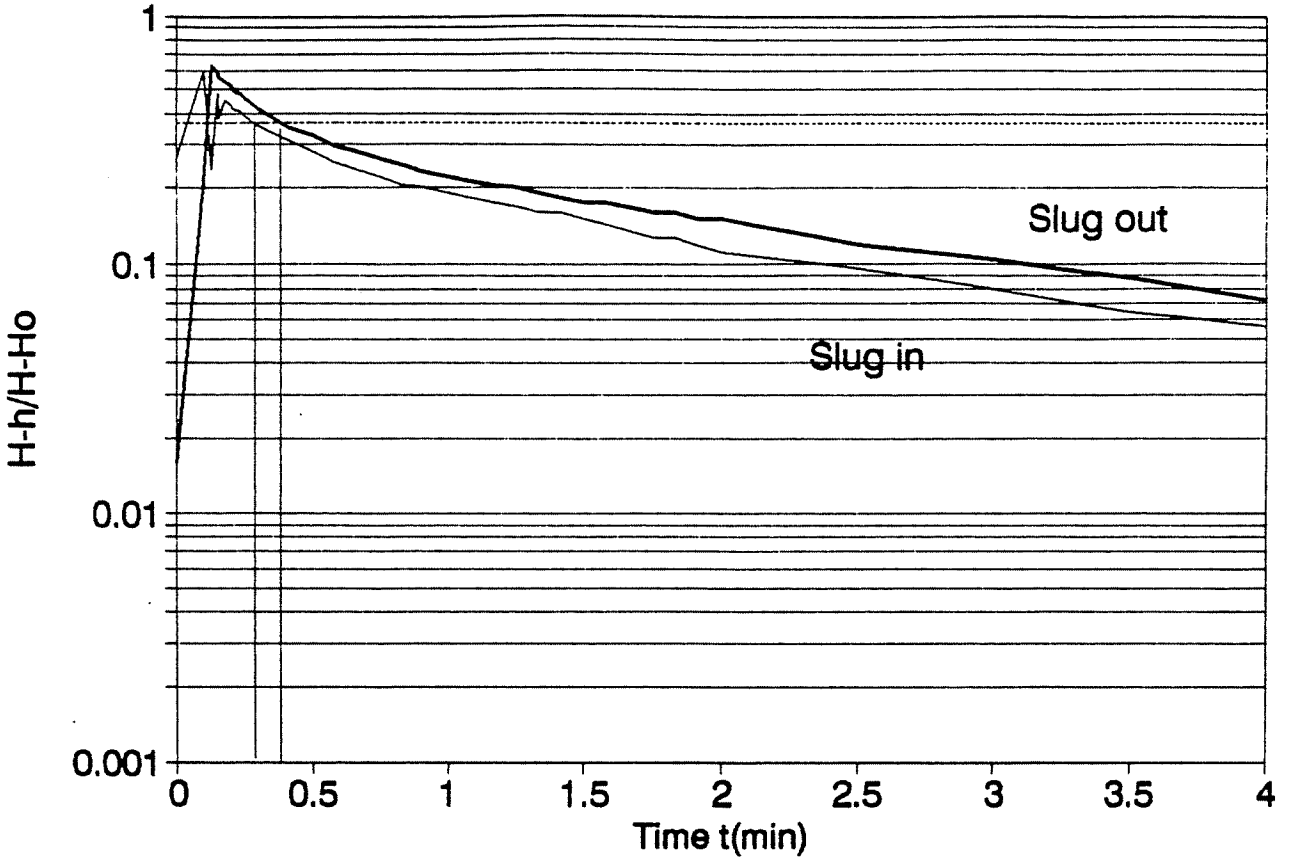
$K_{SLUG\,IN} = 9.60 \times 10^{-3}$

$K_{SLUG\,OUT} = 1.32 \times 10^{-2}$

MW-9I Slug Test Field Data

	SLUG IN			SLUG OUT		
Time	S.P.V	Reference	H-h/H-Ho	S.P.V	Reference	H-h/H-Ho
0.00	0.33	10.33	0.264	-0.02	9.98	0.016
0.10	0.75	10.75	0.600	-0.27	9.73	0.216
0.13	0.30	10.30	0.240	-0.79	9.21	0.632
0.15	0.60	10.60	0.480	-0.74	9.26	0.592
0.16	0.48	10.48	0.384	-0.71	9.29	0.568
0.18	0.56	10.56	0.448	-0.67	9.33	0.536
0.20	0.54	10.54	0.432	-0.65	9.35	0.520
0.21	0.52	10.52	0.416	-0.62	9.38	0.496
0.23	0.51	10.51	0.408	-0.60	9.40	0.480
0.25	0.49	10.49	0.392	-0.58	9.42	0.464
0.26	0.48	10.48	0.384	-0.56	9.44	0.448
0.28	0.46	10.46	0.368	-0.54	9.46	0.432
0.30	0.45	10.45	0.360	-0.52	9.48	0.416
0.31	0.44	10.44	0.352	-0.51	9.49	0.408
0.33	0.43	10.43	0.344	-0.50	9.50	0.400
0.41	0.39	10.39	0.312	-0.44	9.56	0.352
0.50	0.35	10.35	0.280	-0.41	9.59	0.328
0.58	0.32	10.32	0.256	-0.37	9.63	0.296
0.66	0.30	10.30	0.240	-0.35	9.65	0.280
0.75	0.28	10.28	0.224	-0.33	9.67	0.264
0.83	0.26	10.26	0.208	-0.31	9.69	0.248
0.91	0.25	10.25	0.200	-0.29	9.71	0.232
1.00	0.24	10.24	0.192	-0.28	9.72	0.224
1.08	0.23	10.23	0.184	-0.27	9.73	0.216
1.16	0.22	10.22	0.176	-0.26	9.74	0.208
1.25	0.21	10.21	0.168	-0.25	9.75	0.200
1.33	0.20	10.20	0.160	-0.24	9.76	0.192
1.41	0.20	10.20	0.160	-0.23	9.77	0.184
1.50	0.19	10.19	0.152	-0.22	9.78	0.176
1.58	0.18	10.18	0.144	-0.22	9.78	0.176
1.66	0.17	10.17	0.136	-0.21	9.79	0.168
1.75	0.16	10.16	0.128	-0.20	9.80	0.160
1.83	0.16	10.16	0.128	-0.20	9.80	0.160
1.91	0.15	10.15	0.120	-0.19	9.81	0.152
2.00	0.14	10.14	0.112	-0.19	9.81	0.152
2.50	0.12	10.12	0.096	-0.15	9.85	0.120
3.00	0.10	10.10	0.080	-0.13	9.87	0.104
3.50	0.08	10.08	0.064	-0.11	9.89	0.088
4.00	0.07	10.07	0.056	-0.09	9.91	0.072
4.50	0.06	10.06	0.048	-0.08	9.92	0.064
5.00	0.04	10.04	0.032	-0.07	9.93	0.056
5.50	0.01	10.01	0.008	-0.06	9.94	0.048
6.00	0.01	10.01	0.008	-0.05	9.95	0.040

MW-9I Slug in & Slug out



URS CONSULTANTS, INC.

PROJECT

SUBJECT SLUG TEST CALCULATION
MW - 9I

PAGE OF
SHEET NO. OF
JOB NO. 35180
MADE BY SF DATE 3/29/90
CHKD. BY DATE

REF. PAGE

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$r = .0833$ ft

$L = 5$ ft

$R = .25$ ft

$T_o = .28$ min SLUG IN

$T_o = .38$ min SLUG OUT

$K_{SLUG\ IN} = 3.77 \times 10^{-3}$ cm/sec

$K_{SLUG\ OUT} = 2.78 \times 10^{-3}$ cm/sec

HVORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)
1	1.580	17.11	0.090	1.00	0.0000	-0.08
2	1.660	17.10	0.080	0.89	-0.1178	0.00
3	3.500	17.09	0.070	0.78	-0.2513	1.84
4	4.500	17.08	0.060	0.67	-0.4055	2.84
5	5.500	17.07	0.050	0.56	-0.5878	3.84
6	7.500	17.06	0.040	0.44	-0.8109	5.84
7	8.500	17.05	0.030	0.33	-1.0986	6.84
8	9.500	17.04	0.020	0.22	-1.5041	7.84
9	14.000	17.03	0.010	0.11	-2.1972	12.34
10	30.000	17.02	0.000	0.00	ERR	28.34

PROJECT NAME :LOCKPORT CITY LANDFILL
PROJECT NO :35180
WELL NO :MW-10D (SLUG IN)
ANALYST :MOELLER CHECKED BY :
DATE COLLECTED :4/11/91
RISER PIPE (ID): (d) = 2.0 in.
EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
MAX DRAWDOWN (IN SUBSET): (H-Ho)= 0.09 Ft.
STATIC WATER LEVEL : (H) = 17.02 Ft.
INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
SPECIFIC YIELD OF SANDPACK = 0.15
ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 5.86 min.
HYDRAULIC CONDUCTIVITY (K) = 1.44E-04 cm/sec

Regression Output:

Constant	4.66E-02
Std Err of Y Est	0.1276
R Squared	0.9718
No. of Observations	8
Degrees of Freedom	6
X Coefficient(s)	-1.78E-01
Std Err of Coef.	0.0124

LINEAR REGRESSION DATA RANGE: 2 TO 9

ALTERNATE TWO POINT METHOD OF COMPUTATION:
SEE NAVFAC Table 4-3 (Piezometer in Isotropic Soil for method's reference)

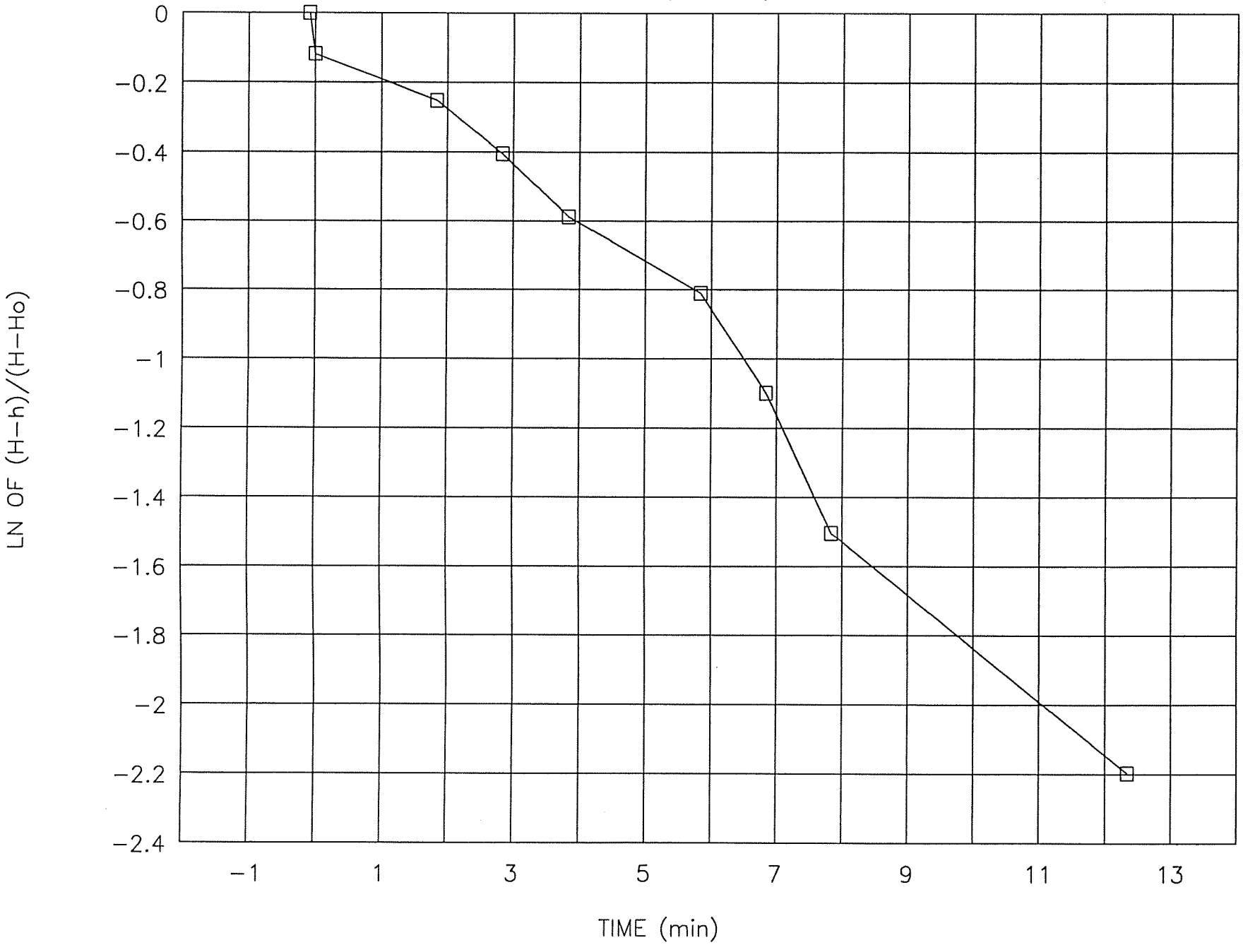
SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
(H values are normalized heads and t is in minutes)

H1 = 0.89 t1 = 1.66 min
H2 = 0.11 t2 = 14.00 min

HYDRAULIC CONDUCTIVITY = 4.69E-06 ft/sec
= 1.43E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

MW-10D (SLUG IN)



HVORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)
1	0.020	16.77	0.230	1.00	0.0000	-0.39
2	0.023	16.78	0.220	0.96	-0.0445	-0.39
3	0.030	16.79	0.210	0.91	-0.0910	-0.38
4	0.080	16.80	0.200	0.87	-0.1398	-0.33
5	0.160	16.81	0.190	0.83	-0.1911	-0.25
6	0.210	16.82	0.180	0.78	-0.2451	-0.20
7	0.410	16.83	0.170	0.74	-0.3023	0.00
8	0.910	16.84	0.160	0.70	-0.3629	0.50
9	1.160	16.85	0.150	0.65	-0.4274	0.75
10	1.660	16.86	0.140	0.61	-0.4964	1.25
11	2.500	16.87	0.130	0.57	-0.5705	2.09
12	3.000	16.88	0.120	0.52	-0.6506	2.59
13	3.500	16.89	0.110	0.48	-0.7376	3.09
14	4.000	16.90	0.100	0.43	-0.8329	3.59
15	5.000	16.91	0.090	0.39	-0.9383	4.59
16	5.500	16.92	0.080	0.35	-1.0561	5.09
17	6.500	16.93	0.070	0.30	-1.1896	6.09
18	8.000	16.95	0.050	0.22	-1.5261	7.59
19	12.000	16.96	0.040	0.17	-1.7492	11.59
20	14.000	16.98	0.020	0.09	-2.4423	13.59
21	18.000	16.99	0.010	0.04	-3.1355	17.59
22	24.000	17.00	0.000	0.00	ERR	23.59

PROJECT NAME :LOCKPORT CITY LANDFILL
PROJECT NO :35180
WELL NO :MW-10D (SLUG OUT)
ANALYST :MOELLER CHECKED BY :
DATE COLLECTED :4/11/91
RISER PIPE (ID): (d) = 2.0 in.
EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
MAX DRAWDOWN (IN SUBSET): (H-Ho)= 0.23 Ft.
STATIC WATER LEVEL : (H) = 17.00 Ft.
INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
SPECIFIC YIELD OF SANDPACK = 0.15
ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 4.69 min.
HYDRAULIC CONDUCTIVITY (K) = 1.80E-04 cm/sec

Regression Output:

Constant	-2.67E-01
Std Err of Y Est	0.1031
R Squared	0.9851
No. of Observations	15
Degrees of Freedom	13
X Coefficient(s)	-1.55E-01
Std Err of Coef.	0.0053

LINEAR REGRESSION DATA RANGE: 7 TO 21

ALTERNATE TWO POINT METHOD OF COMPUTATION:
SEE NAVFAC Table 4-3 (Piezometer in Isotropic Soil for method's reference)

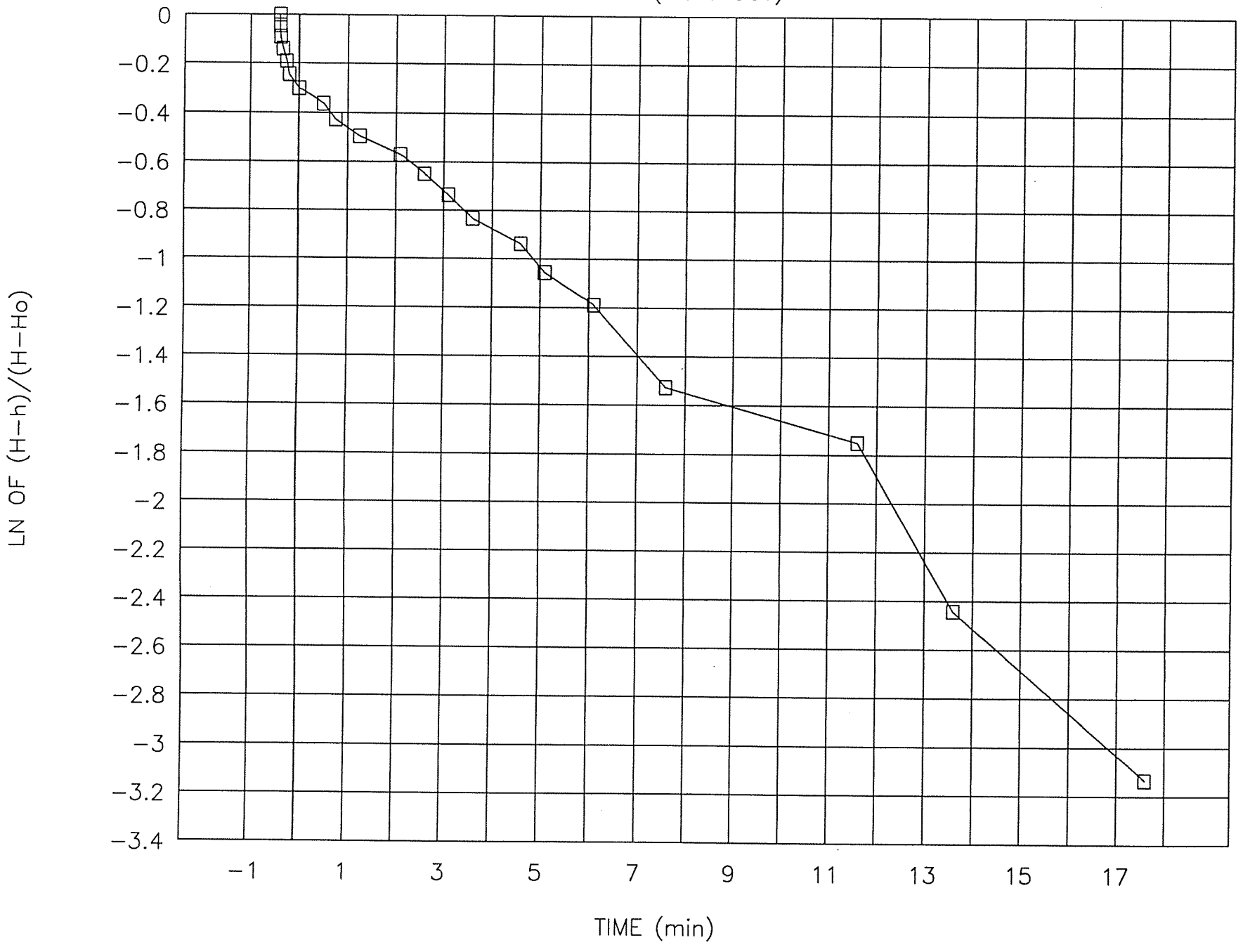
SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
(H values are normalized heads and t is in minutes)

H1 = 0.74 t1 = 0.41 min
H2 = 0.04 t2 = 18.00 min

HYDRAULIC CONDUCTIVITY = 4.60E-06 ft/sec
= 1.40E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

MW-10D (SLUG OUT)



HVORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)
1	0.100	11.11	0.770	1.00	0.0000	-0.23
2	0.150	11.12	0.760	0.99	-0.0131	-0.18
3	0.180	11.13	0.750	0.97	-0.0263	-0.15
4	0.210	11.14	0.740	0.96	-0.0397	-0.12
5	0.250	11.15	0.730	0.95	-0.0533	-0.08
6	0.280	11.16	0.720	0.94	-0.0671	-0.05
7	0.330	11.17	0.710	0.92	-0.0811	0.00
8	0.410	11.19	0.690	0.90	-0.1097	0.08
9	0.500	11.20	0.680	0.88	-0.1243	0.17
10	0.580	11.22	0.660	0.86	-0.1542	0.25
11	0.660	11.23	0.650	0.84	-0.1694	0.33
12	0.750	11.25	0.630	0.82	-0.2007	0.42
13	0.830	11.26	0.620	0.81	-0.2167	0.50
14	0.910	11.27	0.610	0.79	-0.2329	0.58
15	1.000	11.28	0.600	0.78	-0.2495	0.67
16	1.080	11.29	0.590	0.77	-0.2663	0.75
17	1.160	11.31	0.570	0.74	-0.3008	0.83
18	1.330	11.33	0.550	0.71	-0.3365	1.00
19	1.410	11.34	0.540	0.70	-0.3548	1.08
20	1.500	11.35	0.530	0.69	-0.3735	1.17
21	1.580	11.36	0.520	0.68	-0.3926	1.25
22	1.750	11.37	0.510	0.66	-0.4120	1.42
23	1.830	11.38	0.500	0.65	-0.4318	1.50
24	1.910	11.39	0.490	0.64	-0.4520	1.58
25	2.000	11.40	0.480	0.62	-0.4726	1.67
26	2.500	11.45	0.430	0.56	-0.5826	2.17
27	3.000	11.49	0.390	0.51	-0.6802	2.67
28	3.500	11.53	0.350	0.45	-0.7885	3.17
29	4.000	11.56	0.320	0.42	-0.8781	3.67
30	4.500	11.59	0.290	0.38	-0.9765	4.17
31	5.000	11.61	0.270	0.35	-1.0480	4.67
32	5.500	11.64	0.240	0.31	-1.1658	5.17
33	6.000	11.65	0.230	0.30	-1.2083	5.67
34	6.500	11.68	0.200	0.26	-1.3481	6.17
35	7.000	11.69	0.190	0.25	-1.3994	6.67
36	7.500	11.71	0.170	0.22	-1.5106	7.17
37	8.000	11.72	0.160	0.21	-1.5712	7.67
38	8.500	11.73	0.150	0.19	-1.6358	8.17
39	9.000	11.74	0.140	0.18	-1.7047	8.67
40	9.500	11.76	0.120	0.16	-1.8589	9.17
41	10.000	11.77	0.110	0.14	-1.9459	9.67
42	12.000	11.80	0.080	0.10	-2.2644	11.67
43	14.000	11.82	0.060	0.08	-2.5520	13.67
44	16.000	11.84	0.040	0.05	-2.9575	15.67
45	18.000	11.85	0.030	0.04	-3.2452	17.67
46	20.000	11.86	0.020	0.03	-3.6507	19.67
47	22.000	11.87	0.010	0.01	-4.3438	21.67
48	26.000	11.88	0.000	0.00	ERR	25.67

PROJECT NAME :LOCKPORT CITY LANDFILL
PROJECT NO :35180
WELL NO :MW-10I (SLUG IN)
ANALYST :MOELLER CHECKED BY :
DATE COLLECTED :4/11/91
RISER PIPE (ID): (d) = 2.0 in.
EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
MAX DRAWDOWN (IN SUBSET): (H-Ho)= 0.77 Ft.
STATIC WATER LEVEL : (H) = 11.88 Ft.
INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
SPECIFIC YIELD OF SANDPACK = 0.15
ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 4.62 min.
HYDRAULIC CONDUCTIVITY (K) = 1.83E-04 cm/sec

Regression Output:

Constant	-1.59E-01
Std Err of Y Est	0.0460
R Squared	0.9971
No. of Observations	39
Degrees of Freedom	37
X Coefficient(s)	-1.81E-01
Std Err of Coef.	0.0016

LINEAR REGRESSION DATA RANGE: 7 TO 45

ALTERNATE TWO POINT METHOD OF COMPUTATION:
SEE NAVFAC Table 4-3 (Piezometer in Isotropic Soil for method's reference)

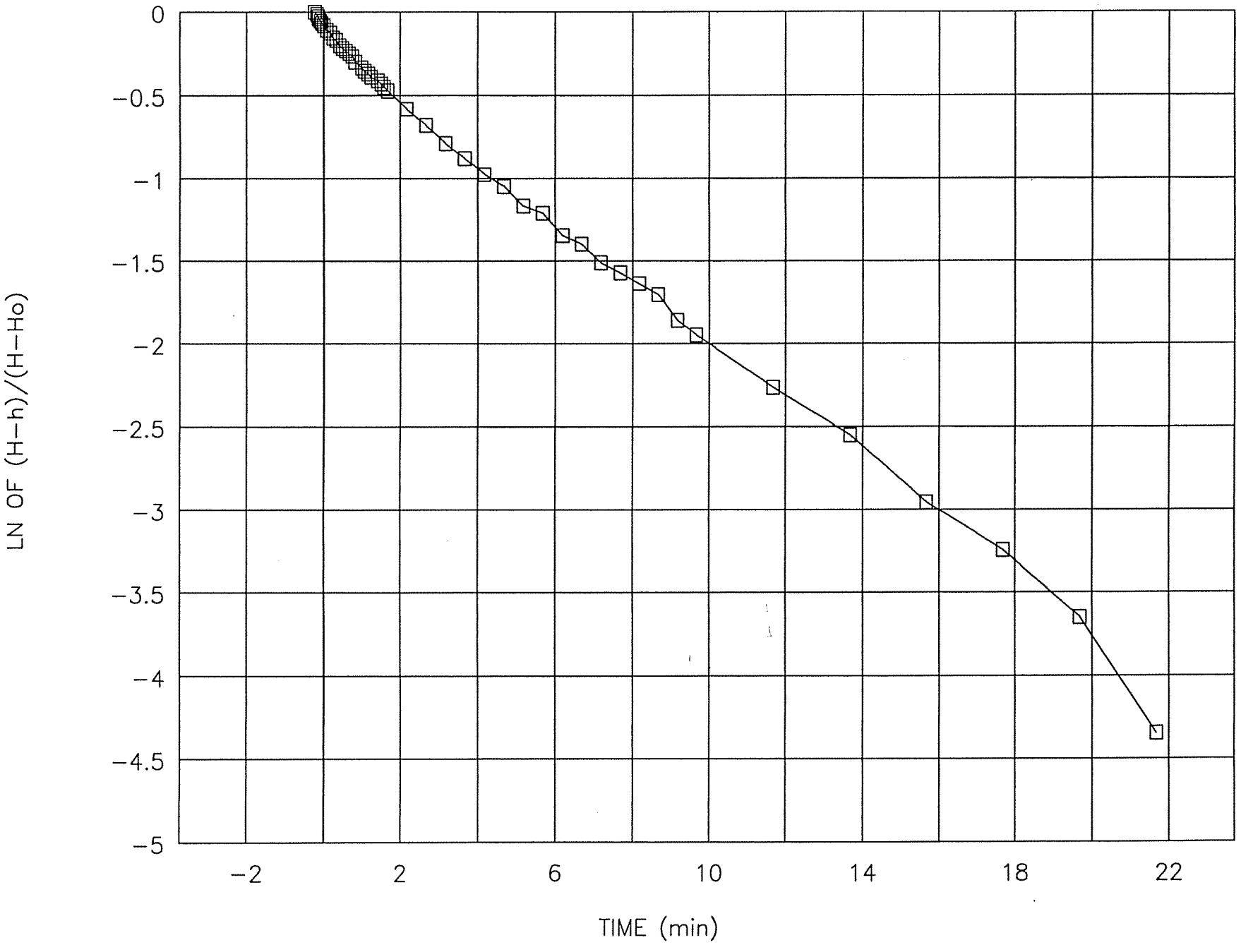
SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
(H values are normalized heads and t is in minutes)

H1 = 0.92 t1 = 0.33 min
H2 = 0.04 t2 = 18.00 min

HYDRAULIC CONDUCTIVITY = 4.92E-06 ft/sec
= 1.50E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

MW-101 (SLUG IN)



HVORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)
1	0.300	12.60	0.740	1.00	0.0000	-0.70
2	0.330	12.59	0.730	0.99	-0.0136	-0.67
3	0.410	12.57	0.710	0.96	-0.0414	-0.59
4	0.500	12.56	0.700	0.95	-0.0556	-0.50
5	0.580	12.54	0.680	0.92	-0.0846	-0.42
6	0.660	12.53	0.670	0.91	-0.0994	-0.34
7	0.750	12.51	0.650	0.88	-0.1297	-0.25
8	0.830	12.50	0.640	0.86	-0.1452	-0.17
9	0.910	12.48	0.620	0.84	-0.1769	-0.09
10	1.000	12.47	0.610	0.82	-0.1932	0.00
11	1.080	12.45	0.590	0.80	-0.2265	0.08
12	1.250	12.43	0.570	0.77	-0.2610	0.25
13	1.330	12.42	0.560	0.76	-0.2787	0.33
14	1.410	12.41	0.550	0.74	-0.2967	0.41
15	1.500	12.40	0.540	0.73	-0.3151	0.50
16	1.580	12.39	0.530	0.72	-0.3338	0.58
17	1.660	12.38	0.520	0.70	-0.3528	0.66
18	1.750	12.37	0.510	0.69	-0.3722	0.75
19	1.830	12.36	0.500	0.68	-0.3920	0.83
20	1.910	12.35	0.490	0.66	-0.4122	0.91
21	2.000	12.34	0.480	0.65	-0.4329	1.00
22	2.500	12.29	0.430	0.58	-0.5429	1.50
23	3.000	12.25	0.390	0.53	-0.6405	2.00
24	3.500	12.21	0.350	0.47	-0.7487	2.50
25	4.000	12.18	0.320	0.43	-0.8383	3.00
26	4.500	12.15	0.290	0.39	-0.9368	3.50
27	5.000	12.12	0.260	0.35	-1.0460	4.00
28	5.500	12.10	0.240	0.32	-1.1260	4.50
29	6.000	12.08	0.220	0.30	-1.2130	5.00
30	6.500	12.06	0.200	0.27	-1.3083	5.50
31	7.000	12.04	0.180	0.24	-1.4137	6.00
32	7.500	12.03	0.170	0.23	-1.4709	6.50
33	8.000	12.01	0.150	0.20	-1.5960	7.00
34	8.500	12.00	0.140	0.19	-1.6650	7.50
35	9.000	11.99	0.130	0.18	-1.7391	8.00
36	9.500	11.98	0.120	0.16	-1.8192	8.50
37	10.000	11.97	0.110	0.15	-1.9062	9.00
38	12.000	11.94	0.080	0.11	-2.2246	11.00
39	14.000	11.92	0.060	0.08	-2.5123	13.00
40	16.000	11.90	0.040	0.05	-2.9178	15.00
41	20.000	11.89	0.030	0.04	-3.2055	19.00
42	24.000	11.88	0.020	0.03	-3.6109	23.00
43	30.000	11.87	0.010	0.01	-4.3041	29.00

PROJECT NAME :LOCKPORT CITY LANDFILL
PROJECT NO :35180
WELL NO :MW-10I (SLUG OUT)
ANALYST :MOELLER CHECKED BY :
DATE COLLECTED :4/11/91
RISER PIPE (ID): (d) = 2.0 in.
EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
MAX DRAWDOWN (IN SUBSET): (H-Ho)= 0.74 Ft.
STATIC WATER LEVEL : (H) = 11.86 Ft.
INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
SPECIFIC YIELD OF SANDPACK = 0.15
ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 4.04 min.
HYDRAULIC CONDUCTIVITY (K) = 2.09E-04 cm/sec

Regression Output:

Constant	-2.58E-01
Std Err of Y Est	0.0455
R Squared	0.9964
No. of Observations	31
Degrees of Freedom	29
X Coefficient(s)	-1.82E-01
Std Err of Coef.	0.0020

LINEAR REGRESSION DATA RANGE: 10 TO 40

ALTERNATE TWO POINT METHOD OF COMPUTATION:
SEE NAVFAC Table 4-3 (Piezometer in Isotropic Soil for method's reference)

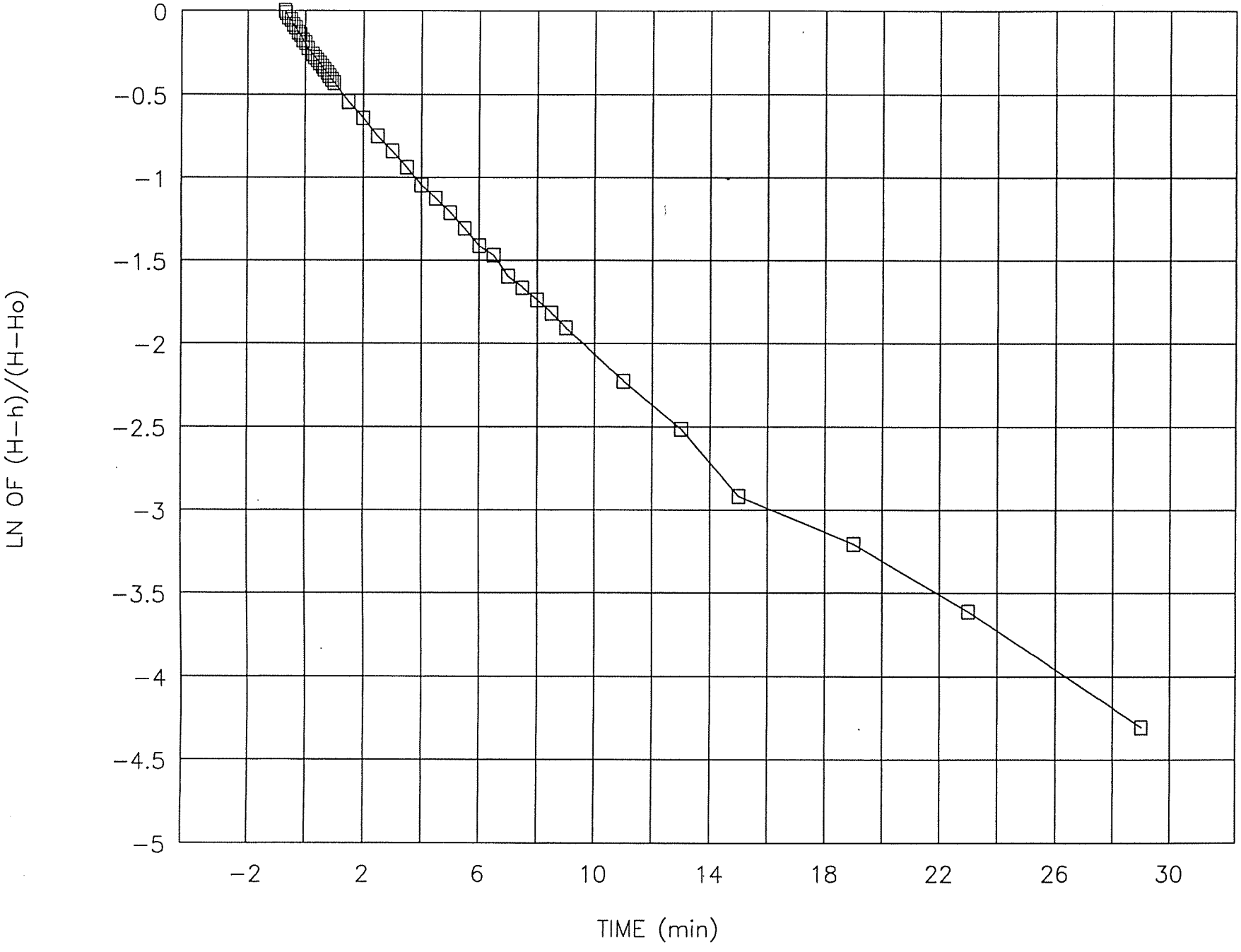
SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
(H values are normalized heads and t is in minutes)

H1 = 0.82 t1 = 1.00 min
H2 = 0.05 t2 = 16.00 min

HYDRAULIC CONDUCTIVITY = 5.17E-06 ft/sec
= 1.57E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

MW-10I (SLUG OUT)



LOCKPORT LANDFILL RI/FS

PERMEABILITY VALUES GENERATED FROM PACKER TEST DATA FOR BEDROCK WELLS

WELL NUMBER	INTERVAL TESTED	BOREHOLE RADIUS (feet)	INTERVAL LENGTH (feet)	ELEVATION HEAD (feet)	PRESSURE HEAD (psi)	TEST DURATION (min)	TOTAL FLOW (gal)	k (ft/min)	k (cm/sec)
MW-1D	92-87	0.333	5.0	102.4	44.0	5.0	0.0	0.0E+00	0.0E+00
MW-1D	87-82	0.333	5.0	102.4	42.0	5.0	21.0	2.4E-04	1.2E-04
MW-1D	82-77	0.333	5.0	102.3	40.0	5.0	6.0	7.1E-05	3.6E-05
MW-1D	77-72	0.333	5.0	81.5	38.0	5.0	3.6	4.9E-05	2.5E-05
MW-1I	26.3-21.3	0.333	5.0	30.3	20.0	5.0	4.8	1.4E-04	7.3E-05
MW-1I	21.3-16.3	0.333	5.0	29.3	15.0	5.0	14.0	5.0E-04	2.6E-04
MW-1I	16.3-11.3	0.333	5.0	29.3	15.0	3.0	0.0	0.0E+00	0.0E+00
MW-2I	28.1-23.1	0.250	5.0	39.3	20.0	5.0	20.0	6.0E-04	3.0E-04
MW-2I	23.1-18.1	0.250	5.0	39.3	17.0	5.0	20.0	6.5E-04	3.3E-04
MW-2I	18.1-13.1	0.250	5.0	30.1	14.0	5.0	22.0	9.0E-04	4.6E-04
MW-5I	25.5-20.5	0.416	5.0	28.5	18.0	4.0	8.5	3.2E-04	1.6E-04
MW-5I	20.5-15.5	0.416	5.0	28.5	10.0	5.0	10.0	4.1E-04	2.1E-04
MW-6D	84-79	0.333	5.0	90.0	45.0	5.0	0.0	0.0E+00	0.0E+00
MW-6D	79-74	0.333	5.0	90.0	45.0	5.0	0.0	0.0E+00	0.0E+00
MW-6D	77-72	0.333	5.0	86.0	15.0	5.0	47.0	9.0E-04	4.6E-04
MW-6D	26-21	0.333	5.0	29.7	13.0	5.0	5.0	1.9E-04	9.8E-05
MW-8I	31.7-26.7	0.333	5.0	35.2	28.0	5.0	2.0	4.6E-05	2.3E-05
MW-8I	26.7-21.7	0.333	5.0	35.2	16.0	5.0	13.0	4.1E-04	2.1E-04
MW-8D	79-74	0.333	5.0	86.0	50.0	5.0	0.5	5.7E-06	2.9E-06
MW-8D	74-69	0.333	5.0	86.0	20.0	5.0	31.0	5.4E-04	2.7E-04
MW-8D	69-64	0.333	5.0	76.0	46.0	5.0	11.0	1.4E-04	7.1E-05
MW-8D	64-59	0.333	5.0	76.0	50.0	5.0	1.0	1.2E-05	6.1E-06
MW-12D	80.7-75.7	0.250	5.0	21.14	38.0	5.0	28.8	6.7E-04	3.4E-04
MW-12D	85.7-80.7	0.250	5.0	16.14	40.0	5.0	11.7	2.7E-04	1.4E-04
MW-12D	90.7-85.7	0.250	5.0	11.14	43.0	5.0	16.5	3.8E-04	1.9E-04

APPENDIX L

STREAM FLOW CALCULATIONS

BY MH DATE 2-25-91

CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 1 OF 9

JOB NO. 35180.00.2200

SUBJECT: LOCKPORT RI/FS
STREAM DATA

~~[illegible]~~ = 3

4 3/4", Sect. A-A, Dated 2-8-90

Sta. (ft)	Depth (in)	Velocity (ft/s)	Segment Width (ft)	Discharge (ft^3/s)
0	/	/		
0.5	/	/	/	
1	1	/		
1.5	1 3/4	/	/	
2.0	4 3/4	0.2		
2.25	5 3/4	0.75		
2.5	5 3/4	1.20	1.0	0.58
3.0	4 3/4	1.0		
3.5	4 1/2	0.8	1.0	0.30
4.0	~~5~~	0.5		
4.5	4	0.7	1.0	0.23
5.0	3 1/8	0.5		
			$Q = \Sigma q_i$	1.11

BY MH DATE 2-23-90

CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 2 OF 9

JOB NO. 35180

SUBJECT: LOCKPORT RI/FS
STREAM DATA

GAGE #2

14½", Sect. B-B, Dated 2-8-90

Sta. (ft)	Depth (in)	Velocity (ft/s)	Segment WIDTH (ft)	Discharge (ft^3/s)
0	2¼			
1	6½	0.3	1.0	0.16
2	5½	1.6	1.0	0.73
3	6	2.0	1.0	1
4	9	3.5	1.0	2.63
5	12½	4.0	1.0	4.17
6	16½	4.0	1.0	5.5
7	17	5.0	1.0	7.08
8	15	3.5	1.0	4.38
9	~~16~~	4.5	1.0	6.0
10	12½	2.5	1.0	2.60
11	9½	1.5	1.0	1.19
12	6	0.3	1.0	0.15
			$Q = \Sigma q_i$	35.59

BY MH DATE 2-23-90

CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 3 OF 9

JOB NO. 35180

SUBJECT: LOCKPORT RI/FS
STREAM DATA

GAGE #1

24¼", Sect. C-C, Dated 2-8-90

Sta. (ft)	Depth (in)	Velocity (ft/s)	Segment WIDTH (ft)	Discharge (ft^3/s)
0	7	/	/	/
1	12	1.5	1	1.5
2	27¼	1.3	1	2.95
3	28½	1.7	1	4.04
4	29¼	1.5	1	3.66
5	35	1.7	1	4.96
6	37½	1.5	1	4.69
7	34	1.5	1	4.25
8	23	0.9	1	1.73
9	23	0.7	1	1.34
10	20¼	0.8	1	1.35
11	15⅛	/	/	/
12	4½	/	/	/
			$Q = \Sigma q_i$	30.47

BY MH DATE 2-23-90

CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 4 OF 9

JOB NO. 35180

SUBJECT: LOCKPORT RI/FS
STREAM DATA

GAGE #3

6 1/4", Sect. A-A, Dated 2-9-90

Sta. (ft)	Depth (in)	Velocity (ft/s)	Segment WIDTH (ft)	Discharge (ft^3/s)
0	5/8	0.3		
0.5	2 3/4	1.2	1.0	0.28
1.0	3	1.8		
1.5	7 1/4	2.1	1.0	1.27
2.0	7 3/8	1.8		
2.5	5 1/2	1.8	1.0	0.83
3.0	5 1/2	2.0		
3.5	4 3/8	1.5	1.0	0.55
4.0	5 1/4	1.0		
4.5	2 1/2	0.6	1.0	0.13
5.0	1 1/4	/	/	/
5.5	1	/	/	/
6.0	1/2	/	/	/
			$Q = \Sigma q_i$	3.06

BY MH DATE 1-23-90

CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 5 OF 9

JOB NO. 35180

SUBJECT: LOCKPORT RI/FS
STREAM DATA

GAGE # 2

15', Sect. B-B,

Sta. (ft)	Depth (in)	Velocity (ft/s)	Segment ~~Width~~ WIDTH (ft)	Discharge (ft^3/s)
0	7	0.4	/	/
1	7½	1.9	1	1.19
2	14¼	2.5	1	2.97
3	19	3.5	1	5.54
4	18½	5.1	1	7.86
5	19	5.5	1	8.71
6	16	3.0	1	4.0
7	12	7.2	1	7.2
8	6	4.5	1	2.25
9	4	4.5	1	1.5
10	8½	4.5	1	3.19
11	4	3.4	1	1.13
12	1	/	/	/
			$Q = \Sigma q_i$	45.54

BY MH DATE 2-23-90

CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 6 OF 9

JOB NO. 35180

SUBJECT: LOCKPORT RI/FS
STREAM DATA

GAGE #1

23", Ref. C-C

Sta. (ft)	Depth (in)	Velocity (ft/s)	Segment WIDTH (ft)	Discharge (ft^3/s)
0	6	0.6	/	
1	8½	No READING	/	
2	30¼	1.3	1	3.28
3	32	1.7	1	4.53
4	32¼	1.5	1	4.03
5	30½	1.6	1	4.07
6	33	1.8	1	4.95
7	32½	1.7	1	4.60
8	25½	1.5	1	3.19
9	23	1.4	1	2.68
10	21¼	1.2	1	2.13
11	18	1.2	1	1.8
12	15½	0.5	1	0.65
13	5½	0.1	1	0.05
			$Q = \Sigma q_i$	35.96

BY AM DATE 2-23-90

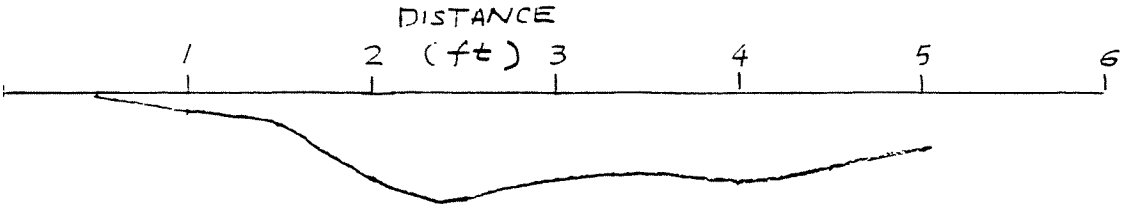
CHKD. BY ____ DATE ____

URS CO. RATION
CONSULTING ENGINEERS

SHEET NO. 7 OF 9

JOB NO. 35180.00-2200c

SUBJECT: LOCKPORT, NIES
STREAM DATA



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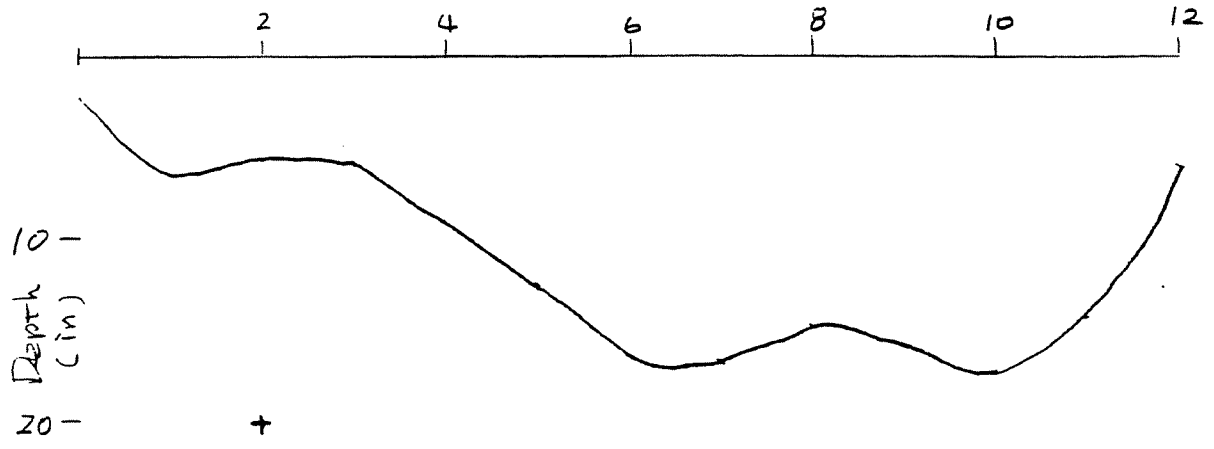

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BY MH DATE 3-23-90

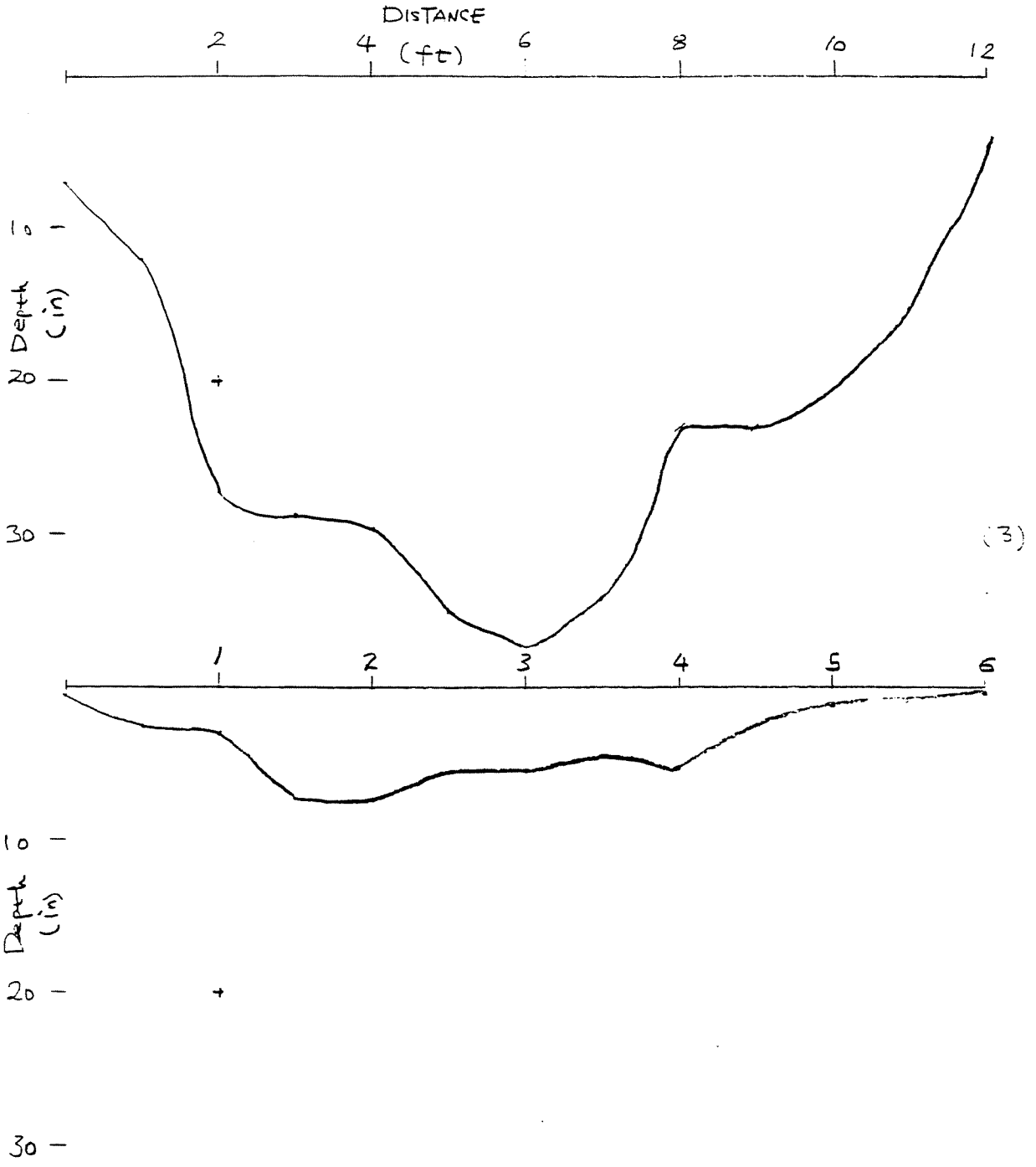
CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 8 OF 9

JOB NO. 35620.00.22000

SUBJECT: LOCKPORT, RI/FS
STREAM DATA



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(4)

BY MH DATE 2-23-90

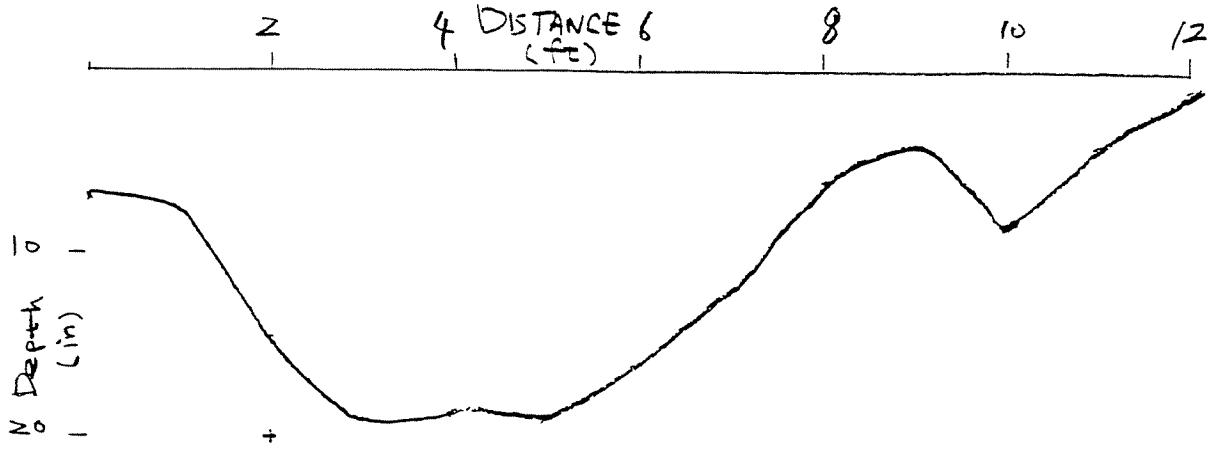
CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 9 OF 9

JOB NO. 35180.00.22000

SUBJECT: LOCKPORT, RI/FS
STREAM DATA



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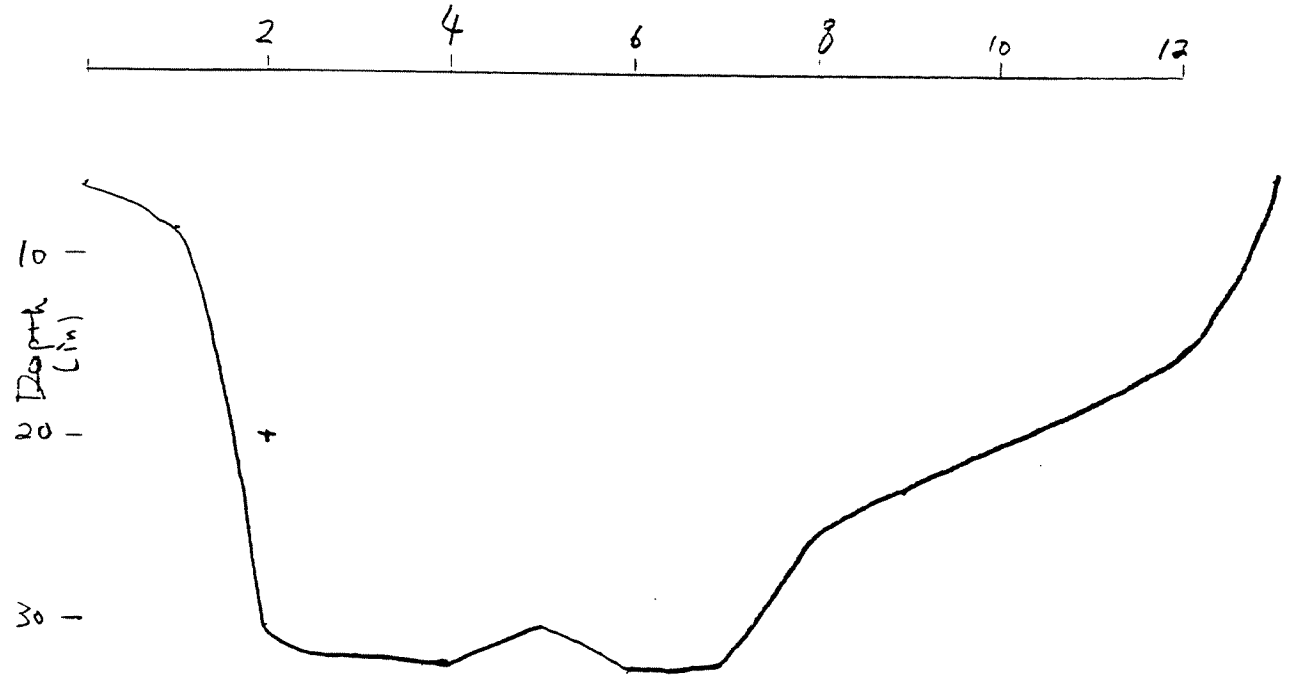

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