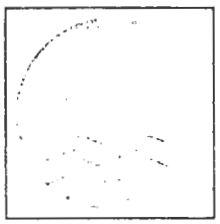
Galson
Technical Services, Inc.
6601 Kirkville Road
Post Office Box 546
E. Syracuse, N.Y. 13057
Tel: (315) 432-0506

452-32



Environmental Sciences
Division

September 1, 1987

Mr. Randy Battaglia
Seneca Army Depot
Bldg. 323 - Mat. Mgt. Br.
Romulus, NY 14541-5001

RE: GTS #L7018

Dear Mr. Battaglia:

Enclosed are the results of the analyses of the water samples we received on August 13, 1987, and August 19, 1987, for EPA Method 624 and TOX. One of the TOX bottles arrived broken on August 13, 1987, and the replacement sample was received on August 19, 1987.

Two of the samples contained trichloroethene. All the other 624 compounds were non-detectable. The field blank was contaminated with hexane, cyclohexane and trace amounts of chloroform and methylene chloride.

If you have any questions concerning our results, please feel free to contact me.

Sincerely,

GALSON TECHNICAL SERVICES, INC.

Eva Galson, CIH
Laboratory Director

EG/mb

Enclosure

Galson
Technical Services, Inc.
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LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT Job Number: L7018
Task Numbers: 87081405 AND 87081912
Location: AMMUNITION GROUNDS Date Sampled: 12-AUG-1987

PO Number: DAAC71-87M-2301

PURGEABLES METHOD 624

		Lab ID:	E20967	E20961	E20962	E20963	
		Client ID:	*FIELD BLANK	A+B SEAD PT-12	A+B SEAD PT-14	A+B SEAD PT-15	LOQ
Benzene	UG/L		ND	ND	ND	ND	5
Bromomethane	UG/L		ND	ND	ND	ND	5
Bromodichloromethane	UG/L		ND	ND	ND	ND	5
Bromoform	UG/L		ND	ND	ND	ND	5
Carbon Tetrachloride	UG/L		ND	ND	ND	ND	5
Chlorobenzene	UG/L		ND	ND	ND	ND	5
Chloroethane	UG/L		ND	ND	ND	ND	5
2-Chloroethylvinyl Ether	UG/L		ND	ND	ND	ND	5
Chloroform	UG/L		<5	ND	ND	ND	5
Chloromethane	UG/L		ND	ND	ND	ND	5
Dibromochloromethane	UG/L		ND	ND	ND	ND	5
1,3-Dichlorobenzene	UG/L		ND	ND	ND	ND	5
1,2-Dichlorobenzene	UG/L		ND	ND	ND	ND	5
1,4-Dichlorobenzene	UG/L		ND	ND	ND	ND	5
1,1-Dichloroethane	UG/L		ND	ND	ND	ND	5
1,2-Dichloeoethane	UG/L		ND	ND	ND	ND	5
1,1-Dichloroethene	UG/L		ND	ND	ND	ND	5
trans-1,2-Dichloroethene	UG/L		ND	ND	ND	ND	5
1,2-Dichloropropane	UG/L		ND	ND	ND	ND	5
cis-1,3-Dichloropropene	UG/L		ND	ND	ND	ND	5
trans-1,3-Dichloropropene	UG/L		ND	ND	ND	ND	5
Ethylbenzene	UG/L		ND	ND	ND	ND	5
Methylene Chloride	UG/L		<5	ND	ND	ND	5
1,1,2,2-Tetrachloroethane	UG/L		ND	ND	ND	ND	5
Tetrachloroethene	UG/L		ND	ND	ND	ND	5
1,1,1-Trichloroethane	UG/L		ND	ND	ND	ND	5
1,1,2-Trichloroethane	UG/L		ND	ND	ND	ND	5
Trichloroethene	UG/L		ND	1700	317	ND	5
Trichlorofluoromethane	UG/L		ND	ND	ND	ND	5
Toluene	UG/L		ND	ND	ND	ND	5
Vinyl Chloride	UG/L		ND	ND	ND	ND	5

Method(s): EPA 624
Footnotes: * HEXANE, CYCLOHEXANE PRESENT

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
µg - Micrograms
LOQ - Limit of Quantitation

Submitted by: ELI
Approved by:
Date: 28-AUG-1987

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LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT Job Number: L7018
Task Numbers: 87081405 AND 87081912
Location: AMMUNITION GROUNDS Date Sampled: 12-AUG-1987

PO Number: DAAC71-87M-2301

PURGEABLES METHOD 624

	Lab ID:	E20964	E20965	E20966	
	Client ID:	A+B NORTH WELL + C. PUMP	A+B BARN WELL SEAD	A+B SOUTH WELL C. FAUCET	LOQ
Benzene	UG/L	ND	ND	ND	5
Bromomethane	UG/L	ND	ND	ND	5
Bromodichloromethane	UG/L	ND	ND	ND	5
Bromoform	UG/L	ND	ND	ND	5
Carbon Tetrachloride	UG/L	ND	ND	ND	5
Chlorobenzene	UG/L	ND	ND	ND	5
Chloroethane	UG/L	ND	ND	ND	5
2-Chloroethylvinyl Ether	UG/L	ND	ND	ND	5
Chloroform	UG/L	ND	ND	ND	5
Chloromethane	UG/L	ND	ND	ND	5
Dibromochloromethane	UG/L	ND	ND	ND	5
1,3-Dichlorobenzene	UG/L	ND	ND	ND	5
1,2-Dichlorobenzene	UG/L	ND	ND	ND	5
1,4-Dichlorobenzene	UG/L	ND	ND	ND	5
1,1-Dichloroethane	UG/L	ND	ND	ND	5
1,2-Dichloeoethane	UG/L	ND	ND	ND	5
1,1-Dichloroethene	UG/L	ND	ND	ND	5
trans-1,2-Dichloroethene	UG/L	ND	ND	ND	5
1,2-Dichloropropane	UG/L	ND	ND	ND	5
cis-1,3-Dichloropropene	UG/L	ND	ND	ND	5
trans-1,3-Dichloropropene	UG/L	ND	ND	ND	5
Ethylbenzene	UG/L	ND	ND	ND	5
Methylene Chloride	UG/L	ND	ND	ND	5
1,1,2,2-Tetrachloroethane	UG/L	ND	ND	ND	5
Tetrachloroethene	UG/L	ND	ND	ND	5
1,1,1-Trichloroethane	UG/L	ND	ND	ND	5
1,1,2-Trichloroethane	UG/L	ND	ND	ND	5
Trichloroethene	UG/L	ND	ND	ND	5
Trichlorofluoromethane	UG/L	ND	ND	ND	5
Toluene	UG/L	ND	ND	ND	5
Vinyl Chloride	UG/L	ND	ND	ND	5

Method(s): EPA 624
Footnotes:

Submitted by: ELI
Approved by:
Date: 28-AUG-1987

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
µg - Micrograms
LOQ - Limit of Quantitation

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LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT Job Number: L7018
Task Numbers: 87081405 AND 87081912
Location: AMMUNITION GROUNDS Date Sampled: 12-AUG-1987

PO Number: DAAC71-87M-2301

Lab ID:	E20968	E20969	E20970	E20971	E20972	E21339
Client ID:	SEAD PT 12	SEAD PT 14	SEAD NORTH WELL C. PUMP	SEAD SOUTH WELL C. FAUCET	SEAD BARN WELL	SEAD PT 15
TOTAL ORGANIC HALOGENS	2.08	0.286	0.010	<0.01	0.027	<0.01

Method(s):
Footnotes:

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
M^3 - Cubic Meter
MG/M^3 - Milligrams Per Cubic Meter
PPM - Parts Per Million
μg - Micrograms
NG - Nanograms

Submitted by: ELI
Approved by:
Date: 28-AUG-1987

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Technical Services, Inc.

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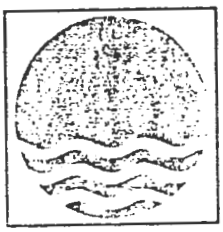

Environmental Sciences
Division

December 23, 1987

Mr. Randy Battaglia
Seneca Army Depot
Bldg. 323 - Mat. Mgt. Br.
Romulus, NY 14541-5001

RE: GTS #L7018

Dear Mr. Battaglia:

Enclosed are the results of the analyses of the samples we received on December 2, 1987 from Lozier Labs.

The three samples were clean, but both the field and trip blanks were contaminated.

When we perform our own sampling, we do not charge for the analysis of our field blank since it constitutes a check of the sampling method. Since we did not do the sampling, we are charging for the analysis of these blanks.

If you have any questions concerning our results, please feel free to contact me.

Sincerely,

GALSON TECHNICAL SERVICES, INC.

Eva Galson, CIH
Laboratory Director

EG/mb

Enclosure

Galson
Technical Services, Inc.
6601 Kirkville Road
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Tel: (315) 432-0506

LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT Job Number: L7018
Task Number: 87120209
Location: SEAD-SMITH VINEYARD RD. Date Sampled: 30-NOV-1987
SHAW RESIDENCE

PO Number: DAAC71-87M-2301

PURGEABLES METHOD 624

	Lab ID:	E31485ABC	E31486ABC	E31487ABC
	Client ID:	87111480 A	87111480B	87111480C
Benzene	UG/L	ND	ND	ND
Bromomethane	UG/L	ND	ND	ND
Bromodichloromethane	UG/L	ND	ND	ND
Bromoform	UG/L	ND	ND	ND
Carbon Tetrachloride	UG/L	ND	ND	ND
Chlorobenzene	UG/L	ND	ND	ND
Chloroethane	UG/L	ND	ND	ND
2-Chloroethylvinyl Ether	UG/L	ND	ND	ND
Chloroform	UG/L	ND	ND	ND
Chloromethane	UG/L	ND	ND	ND
Dibromochloromethane	UG/L	ND	ND	ND
1,3-Dichlorobenzene	UG/L	ND	ND	ND
1,2-Dichlorobenzene	UG/L	ND	ND	ND
1,4-Dichlorobenzene	UG/L	ND	ND	ND
1,1-Dichloroethane	UG/L	ND	ND	ND
1,2-Dichloroethane	UG/L	ND	ND	ND
1,1-Dichloroethene	UG/L	ND	ND	ND
trans-1,2-Dichloroethene	UG/L	ND	ND	ND
1,2-Dichloropropane	UG/L	ND	ND	ND
cis-1,3-Dichloropropene	UG/L	ND	ND	ND
trans-1,3-Dichloropropene	UG/L	ND	ND	ND
Ethylbenzene	UG/L	ND	ND	ND
Methylene Chloride	UG/L	ND	ND	ND
1,1,2,2-Tetrachloroethane	UG/L	ND	ND	ND
Tetrachloroethene	UG/L	ND	ND	ND
1,1,1-Trichloroethane	UG/L	ND	ND	ND
1,1,2-Trichloroethane	UG/L	ND	ND	ND
Trichloroethene	UG/L	ND	ND	ND
Trichlorofluoromethane	UG/L	ND	ND	ND
Toluene	UG/L	ND	ND	ND
Vinyl Chloride	UG/L	ND	ND	ND

Method(s): EPA 624 AND 601/602
Footnotes:

Submitted by: AM
Approved by:
Date: 16-DEC-1987

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
UG - Micrograms
LOQ - Limit of Quantitation

Galson
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LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT Job Number: L7018
Task Number: 87120209
Location: SEAD-SMITH VINEYARD RD. Date Sampled: 30-NOV-1987
SHAW RESIDENCE

PO Number: DAAC71-87M-2301

PURGEABLES METHOD 624

		Lab ID:	E31488	E31489	
		Client ID:	87111480D FIELD TRIP	87111480E TRIP BLANK	LOQ
Benzene	UG/L		ND	ND	5
Bromomethane	UG/L		ND	ND	5
Bromodichloromethane	UG/L		ND	ND	5
Bromoform	UG/L		ND	ND	5
Carbon Tetrachloride	UG/L		ND	ND	5
Chlorobenzene	UG/L		ND	ND	5
Chloroethane	UG/L		ND	ND	5
2-Chloroethylvinyl Ether	UG/L		ND	ND	10
Chloroform	UG/L		ND	ND	5
Chloromethane	UG/L		ND	ND	5
Dibromochloromethane	UG/L		ND	ND	5
1,3-Dichlorobenzene	UG/L		ND	ND	5
1,2-Dichlorobenzene	UG/L		ND	ND	5
1,4-Dichlorobenzene	UG/L		ND	ND	5
1,1-Dichloroethane	UG/L		ND	ND	5
1,2-Dichloroethane	UG/L		ND	ND	5
1,1-Dichloroethene	UG/L		ND	ND	5
trans-1,2-Dichloroethene	UG/L		ND	ND	5
1,2-Dichloropropane	UG/L		ND	ND	5
cis-1,3-Dichloropropene	UG/L		ND	ND	5
trans-1,3-Dichloropropene	UG/L		ND	ND	5
Ethylbenzene	UG/L		ND	ND	10
Methylene Chloride	UG/L		112	5	5
1,1,2,2-Tetrachloroethane	UG/L		ND	ND	10
Tetrachloroethene	UG/L		ND	ND	5
1,1,1-Trichloroethane	UG/L		ND	ND	5
1,1,2-Trichloroethane	UG/L		ND	ND	5
Trichloroethene	UG/L		65	ND	5
Trichlorofluoromethane	UG/L		ND	ND	5
Toluene	UG/L		ND	ND	5
Vinyl Chloride	UG/L		ND	ND	5

Method(s): EPA 624 AND 601
Footnotes:

Submitted by: AM
Approved by:
Date: 10-DEC-1987

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
UG - Micrograms
LOQ - Limit of Quantitation

Galson
Technical Services, Inc.

6601 Kirkville Road
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Environmental Sciences
Division

April 15, 1988

Mr. Randy Battaglia
Seneca Army Depot
Bldg. 323 - Mat. Mgt. Br.
Romulus, NY 14541-5001

RE: GTS #L7018

Dear Mr. Battaglia:

Enclosed are the results of the analyses of the samples we received from Lozier on March 21, 1988.

In addition to the compounds reported which are all on the EPA 624 list, a significant amount of acetone (PPM range) was found in Sample PT #19. Cis-1,2-dichloroethene, which is not on any of the Priority Pollutant lists, was present in Samples PT #12, PT #17, PT #18, PT #20, PT #22 and PT #24.

If you have any questions concerning our results, please feel free to contact me.

Sincerely,

GALSON TECHNICAL SERVICES, INC.

Eva Galson, CIH
Special Projects Manager

EG/mb

Enclosure

Galson
Technical Services, Inc.
6601 Kirkville Road
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LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT
Task Number: 88032122
Location: SEAD

Job Number: L7018
Date Sampled: 03/16-17/88

PO Number: DAAC71-87M-2301

PURGEABLES METHOD 624

Lab ID: / Client ID:		F9289A+B PT #10	F9290A+B PT #11	F9291A+B PT #12	F9292A+B PT #15	F9293A+B PT #16	F9294A+B PT #17
Benzene	UG/L	ND	ND	ND	ND	ND	ND
Bromomethane	UG/L	ND	ND	ND	ND	ND	ND
Bromodichloromethane	UG/L	ND	ND	ND	ND	ND	ND
Bromoform	UG/L	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	UG/L	ND	ND	ND	ND	ND	ND
Chlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
Chloroethane	UG/L	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl Ether	UG/L	ND	ND	ND	ND	ND	ND
Chloroform	UG/L	ND	ND	ND	ND	ND	ND
Chloromethane	UG/L	ND	ND	ND	ND	ND	ND
Dibromochloromethane	UG/L	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloeoethane	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/L	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethen	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	UG/L	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	UG/L	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	UG/L	ND	ND	ND	ND	ND	ND
Ethylbenzene	UG/L	ND	ND	ND	ND	ND	ND
Methylene Chloride	UG/L	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	UG/L	ND	ND	ND	ND	ND	ND
Tetrachloroethene	UG/L	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	UG/L	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/L	ND	ND	ND	ND	ND	ND
Trichloroethene	UG/L	ND	ND	140	ND	ND	130
Trichlorofluoromethane	UG/L	ND	ND	ND	ND	ND	ND
Toluene	UG/L	ND	ND	ND	ND	ND	ND
Vinyl Chloride	UG/L	ND	ND	ND	ND	ND	ND

Method(s): EPA 624
Footnotes: LOD = 10 UG/L

Submitted by: MP
Approved by: [signature]
Date: 13-APR-1988

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
UG - Micrograms
LOQ - Limit of Quantitation

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LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT Job Number: L7018
Task Number: 88032122
Location: SEAD Date Sampled: 03/16-17/88

PO NUMBER: DAAC71-87M-2301

PURGEABLES METHOD 624

	Lab ID:	F9295A+B	F9296A+B	F9297A+B	F9298A+B	F9299A+B	F9300A+B
	Client ID:	PT #18	PT #19	PT #20	PT #21	PT #22	PT #23
Benzene	UG/L	ND	ND	ND	ND	ND	ND
Bromomethane	UG/L	ND	ND	ND	ND	ND	ND
Bromodichloromethane	UG/L	ND	ND	ND	ND	ND	ND
Bromoform	UG/L	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	UG/L	ND	ND	ND	ND	ND	ND
Chlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
Chloroethane	UG/L	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl Ether	UG/L	ND	ND	ND	ND	ND	ND
Chloroform	UG/L	190	ND	ND	ND	ND	ND
Chloromethane	UG/L	ND	ND	ND	ND	ND	ND
Dibromochloromethane	UG/L	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloeoethane	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/L	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	UG/L	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	UG/L	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	UG/L	ND	ND	ND	ND	ND	ND
Ethylbenzene	UG/L	ND	ND	ND	ND	ND	ND
Methylene Chloride	UG/L	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	UG/L	ND	ND	ND	ND	ND	ND
Tetrachloroethene	UG/L	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	UG/L	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/L	ND	ND	ND	ND	ND	ND
Trichloroethene	UG/L	730	ND	29/28	ND	120/120	ND
Trichlorofluoromethane	UG/L	ND	ND	ND	ND	ND	ND
Toluene	UG/L	ND	ND	ND	ND	ND	ND
Vinyl Chloride	UG/L	ND	ND	ND	ND	ND	ND

Method(s): EPA 624
Footnotes: LOD = 10 UG/L

Submitted by: MP
Approved by: idd
Date: 13-APR-1988

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
UG - Micrograms
LOQ - Limit of Quantitation

Galson
Technical Services, Inc.
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Tel: (315) 432-0506

LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT
Task Number: 88032122
Location: SEAD

Job Number: L7018
Date Sampled: 03/16-17/88

PO Number: DAAC71-87M-2301

PURGEABLES METHOD 624

Lab ID:		F9301A+B	F9302A+B	F9303A+B	F9304A+B	F9305A+B	F9306A+B
Client ID:		PT #24	PT #25	PT #26	N. WELL-SHAW	S. WELL BEFORE FILTER - SHAW	BARN WELL
Benzene	UG/L	ND	ND	ND	ND	ND	ND
Bromomethane	UG/L	ND	ND	ND	ND	ND	ND
Bromodichloromethane	UG/L	ND	ND	ND	ND	ND	ND
Bromoform	UG/L	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	UG/L	ND	ND	ND	ND	ND	ND
Chlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
Chloroethane	UG/L	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl Ether	UG/L	ND	ND	ND	ND	ND	ND
Chloroform	UG/L	ND	ND	ND	ND	ND	ND
Chloromethane	UG/L	ND	ND	ND	ND	ND	ND
Dibromochloromethane	UG/L	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloeoethane	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/L	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	UG/L	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	UG/L	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	UG/L	ND	ND	ND	ND	ND	ND
Ethylbenzene	UG/L	ND	ND	ND	ND	ND	ND
Methylene Chloride	UG/L	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	UG/L	ND	ND	ND	ND	ND	ND
Tetrachloroethene	UG/L	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	UG/L	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/L	ND	ND	ND	ND	ND	ND
Trichloroethene	UG/L	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	UG/L	ND	ND	ND	ND	ND	ND
Toluene	UG/L	ND	ND	ND	ND	ND	ND
Vinyl Chloride	UG/L	ND	ND	ND	ND	ND	ND

Method(s): EPA 624
Footnotes: LOD = 10 UG/L

Submitted by: MP
Approved by: [signature]
Date: 13-APR-1988

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
UG - Micrograms
LOQ - Limit of Quantitation

Galson
Technical Services, Inc.
6601 Kirkville Road
Post Office Box - 546
E. Syracuse, N.Y. 13057
Tel: (315) 432-0506

LABORATORY ANALYSIS REPORT

Client: SENECA ARMY DEPOT
Task Number: 88032122
Location: SEAD

Job Number: L7018
Date Sampled: 03/16-17/88

PO Number: DAAC71-87M-2301

PURGEABLES METHOD 624

		Lab ID:	F9307A+B
		Client ID:	BLANK
Benzene	UG/L		ND
Bromomethane	UG/L		ND
Bromodichloromethane	UG/L		ND
Bromoform	UG/L		ND
Carbon Tetrachloride	UG/L		ND
Chlorobenzene	UG/L		ND
Chloroethane	UG/L		ND
2-Chloroethylvinyl Ether	UG/L		ND
Chloroform	UG/L		ND
Chloromethane	UG/L		ND
Dibromochloromethane	UG/L		ND
1,3-Dichlorobenzene	UG/L		ND
1,2-Dichlorobenzene	UG/L		ND
1,4-Dichlorobenzene	UG/L		ND
1,1-Dichloroethane	UG/L		ND
1,2-Dichloeoethane	UG/L		ND
1,1-Dichloroethene	UG/L		ND
trans-1,2-Dichloroethene	UG/L		ND
1,2-Dichloropropane	UG/L		ND
cis-1,3-Dichloropropene	UG/L		ND
trans-1,3-Dichloropropene	UG/L		ND
Ethylbenzene	UG/L		ND
Methylene Chloride	UG/L		ND
1,1,2,2-Tetrachloroethane	UG/L		ND
Tetrachloroethene	UG/L		ND
1,1,1-Trichloroethane	UG/L		ND
1,1,2-Trichloroethane	UG/L		ND
Trichloroethene	UG/L		ND
Trichlorofluoromethane	UG/L		ND
Toluene	UG/L		ND
Vinyl Chloride	UG/L		ND

Method(s): EPA 624
Footnotes: LOD = 10 UG/L

Submitted by: MP
Approved by: [signature]
Date: 13-APR-1988

(<) - Less Than
(>) - Greater Than
NA - Not Applicable
ND - Not detectable
NS - Not specified
MG - Milligrams
L - Liters
PPM - Parts Per Million
UG - Micrograms
LOQ - Limit of Quantitation

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

file GW 1987

REPLY TO ATTENTION OF

HSHB-ME-SG

SUBJECT: Schedule for Ground-water Monitoring

Commander
Seneca Army Depot
ATTN: SDSSE-AD
Romulus, NY 14541-5000

1. Reference:

a. U.S. Army Management Plan for the RCRA Ground-water Monitoring and Assessment Program, June 1981.

b. Letter, HQDA, DAEN-ZCE, 23 June 1986, subject: Modification of the U.S. Army Ground-water Monitoring Program.

2. As discussed in reference 1b, this Agency will discontinue analytical support of the Ground-water Monitoring Program no later than 1 October 1987. Information on options for analytical support after that time will be provided by the MACOM.

3. Ground-water sampling for 1987 is scheduled for the weeks listed in enclosure 1. These dates are for laboratory planning purposes only and changes may be made by notifying this Agency.

4. Enclosures 2 and 3 are tables listing wells to be sampled and parameters for which analyses will be performed. If the monitoring requirements listed on the tables are incorrect, contact this Agency.

5. Chemical preservatives, field data logsheets, computer-generated chain of custody sheets, and containers with computer-generated labels will be supplied prior to the sampling periods. Until 1 October 1987, all samples should be shipped to arrive within 48 hours of sampling to:

Commander
U.S. Army Environmental Hygiene Agency
ATTN: HSHB-ML-A (Mr. Fisher)
Edgewood Area Building E-2100
Aberdeen Proving Ground, MD 21010-5422

HSHB-ME-SG
SUBJECT: Schedule for Ground-water Monitoring

6. Questions regarding this information may be referred to Ms. Kim M. Fleischmann, this Agency, AUTOVON 584-2024.

FOR THE COMMANDER:

3 Encls

FREDERICK W. BOECHER
LTC, MS
Chief, Waste Disposa Engineering
Division

CF (w/encls):
Cdr, AMC (AMCSG-S)
Cdr, AMC (AMCEN-A)
Cdr, DESCOM (AMSDS-RM-EF-D)

06 JAN 87 GROUND-WATER MONITORING PROGRAM SAMPLING SCHEDULE

SENECA AD, NY

DEMOLITION GROUNDS	SEMIANNUAL PARAMETERS:	2MAR87	7SEP87
	ANNUAL PARAMETERS:	2MAR87	
LANDFILL	SEMIANNUAL PARAMETERS:	2MAR87	7SEP87

Encl 1

INSTALLATION: SENECA AD, NY

FACILITY NAME: DEMOLITION GROUNDS
WELLS: W5 W4 W6 W1 W3 W2 W7

MAR 87	SEMIANNUAL:	TOX					
		2,4,6-TNT	2,4-DNT	2,6-DNT	RDX	TETRYL	HMX
		TOC					
		SPEC COND					
MAR 87	ANNUAL:	IRON	MANGANESE	SODIUM			
		CHLORIDE	SULFATE				
		PHENOL					

Encl 2

INSTALLATION: SENECA AD, NY

FACILITY NAME: LANDFILL
WELLS: PT-10 PT-11 PT-12 PT-14 PT-15

MAR 87	SEMIANNUAL:	ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	SELENIUM	SILVER
		IRON	SODIUM	POTASSIUM				
		TOX						
		MERCURY						
		CHLORIDE	SULFATE					
		NITRATE-N						
		TOC						
		SPEC COND						
		PH(LAB)						
		GCMS-PURG						

NOTE: VOLATILE ORGANICS FOR PT-12 AND PT-14 ONLY.

Encl 3

fib GWM

GROUND WATER MONITORING WELL INSTALLATIONS

SENECA ARMY DEPOT

ROMULUS, NEW YORK

parratt wolff inc
FISHER RD., EAST SYRACUSE, N.Y. 13057
TELEPHONE AREA CODE 315/437-1429

September 29, 1987

Commander, Seneca Army Depot
Attn: Building 323, Mat. Mgt. Br.
M/F: DAAC71-87M-1766
Romulus, New York 14541-5001

Attention: Mr. Tom Enroth

Re: 87188
Ground Water Monitoring Wells
Seneca Army Depot
Romulus, New York

Gentlemen:

Enclosed are the logs of two ground water monitoring wells installed for you at the above site.

Soil samples from these wells will be retained by us until instruction for their disposition are received from you.

The borings were made at points located by you and were drilled in accordance with New York State Department of Environmental Conservation specifications.

Thank you for this opportunity to work with you.

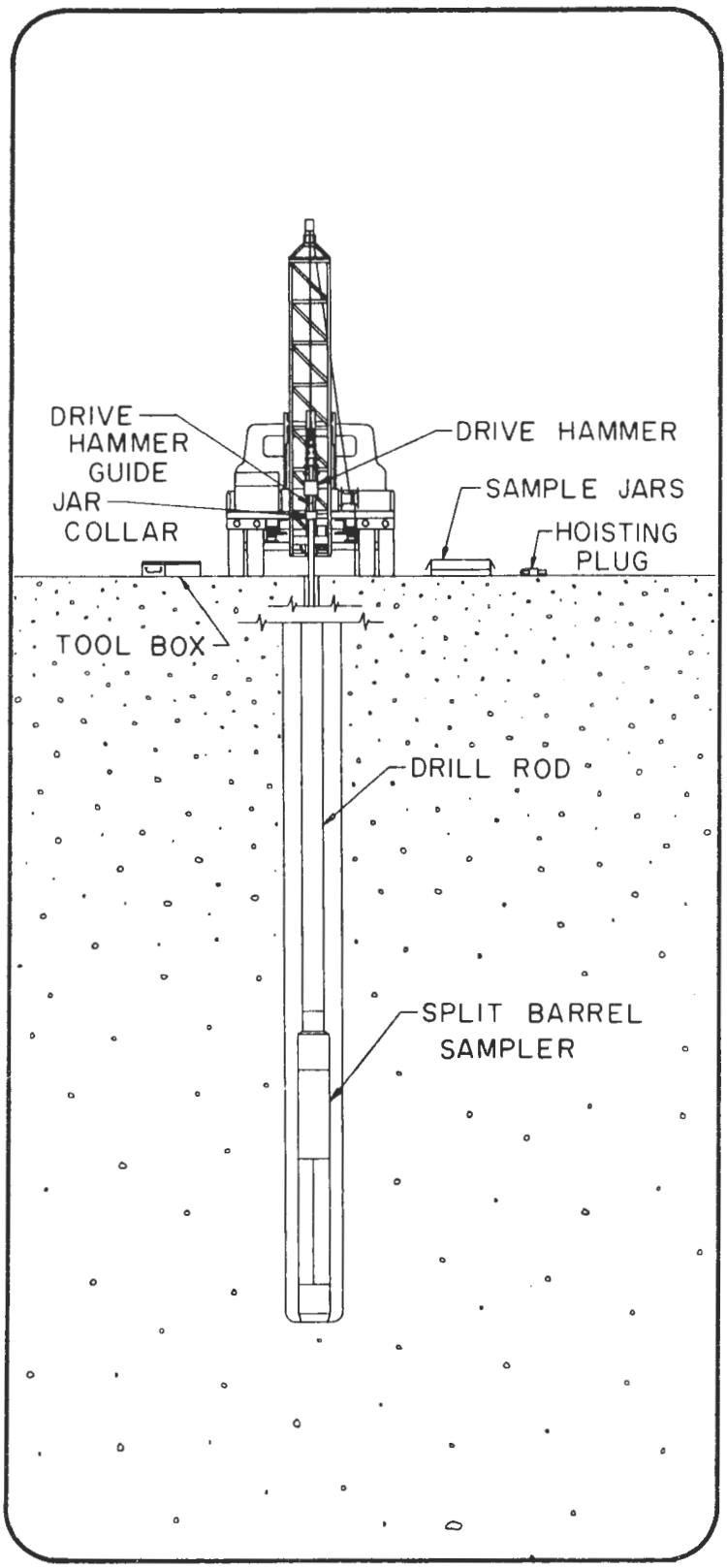
Very truly yours,

PARRATT - WOLFF, INC.

Steffen Wolff
SW/lc
encs:

parratt wolff inc
FISHER RD., EAST SYRACUSE, N.Y. 13057
TELEPHONE AREA CODE 315/437-1429

SOIL SAMPLING - METHODS



Split barrel sampling

The following excerpts are from "Standard Method for penetration test and split-barrel sampling of soils."[1] (ASTM designation: D-1586-67 AASHO Designation: T-206-70.)

1. Scope

1.1 This method describes a procedure for using a split-barrel sampler to obtain respresentative samples of soil for identification purposes and other laboratory tests, and to obtain a measure of the resistance of the soil to penetration of the sampler.

2. Apparatus

2.1 Drilling Equipment — Any drilling equipment shall be acceptable that provides a reasonably clean hole before insertion of the sampler to ensure that the penetration test is performed on undisturbed soil, and that will permit the driving of the sampler to obtain the sample and penetration record in accordance with the procedure described in 3. Procedure. To avoid "whips" under the blows of the hammer, it is recommended that the drill rod have stiffness equal to or greater than the A-rod. An "A" rod is a hollow drill rod or "steel" having an outside diameter of 1-5/8 in. or 41.2 mm and an inside diameter of 1-1/8 in. or 28.5 mm, through which the rotary motion of drilling is transferred from the drilling motor to the cutting bit. A stiffer drill rod is suggested for holes deeper than 50 ft (15m). The hole shall be limited in diameter to between 2-1/4 and 6 in. (57.2 and 152mm).

2.2 Split-Barrel Sampler — The sampler shall be constructed with the dimensions indicated (in Fig. 1.) The drive shoe shall be of hardened steel and shall be replaced or repaired when it becomes dented or distorted. The coupling head shall have four 1/2-in. (12.7-mm) (minimum diameter) vent ports and shall contain a ball check valve. If sizes other than the 2-in. (50.8-mm) sampler are permitted, the size shall be conspicuously noted on all penetration records.

2.3 Drive Weight Assembly — The assembly shall consist of a 140-lb (63.5-kg) weight, a driving head, and a guide permitting a free fall of 30 in. (0.76 m). Special precautions shall be taken to ensure that the energy of the falling weight is not reduced by friction between the drive weight and the guides.

2.4 Accessory Equipment — Labels, data sheets, sample jars, paraffin, and other necessary supplies should accompany the sampling equipment.

SOIL SAMPLING - METHODS

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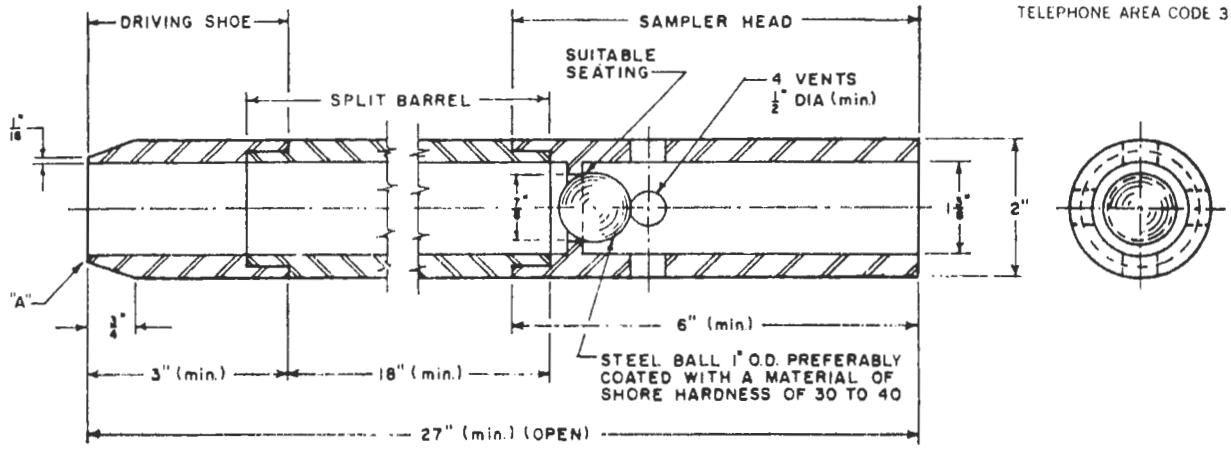
FISHER RD., EAST SYRACUSE, N.Y. 13057
TELEPHONE AREA CODE 315/437-1429



Note 1 – Split barrel may be 1-1/2 in. inside diameter provided it contains a liner of 16-gage wall thickness.

Note 2 – Core retainers in the driving shoe to prevent loss of sample are permitted.

Note 3 – The corners at A may be slightly rounded.

Table of Metric Equivalents.

In.	Mm	Cm	In.	Mm	Cm
1/16 (16 gage)	1.5	...	2	...	5.08
1/2	12.7	...	3	...	7.62
3/4	19.0	1.90	6	...	15.24
7/8	22.2	2.22	18	...	45.72
1-3/8	34.9	3.49	27	68.58	
1-1/2	38.1	3.81			

Fig. 1 – Standard Split Barrel Sampler Assembly

3. Procedure

3.1 Clear out the hole to sampling elevation using equipment that will ensure that the material to be sampled is not disturbed by the operation. In saturated sands and silts withdraw the drill bit slowly to prevent loosening of the soil around the hole. Maintain the water level in the hole at or above ground water level.

3.2 In no case shall a bottom-discharge bit be permitted. (Side-discharge bits are permissible.) The process of jetting through an open-tube sampler and then sampling when the desired depth is reached shall not be permitted. Where casing is used, it may not be driven below sampling elevation. Record any loss of circulation or excess pressure in drilling fluid during advancing of holes.

3.3 With the sampler resting on the bottom of the hole, drive the sampler with blows from the 140-lb (63.5 kg) hammer falling 30 in. (0.76 m) until either 18 in. (0.45 m) have been penetrated or 100 blows have been applied.

3.4 Repeat this operation at intervals not longer than 5 ft (1.5 m) in homogeneous strata and at every change of strata.

3.5 Record the number of blows required to effect each 6 in. (0.15 m) of penetration or fractions thereof. The first 6 in. (0.15 m) is considered to be a seating drive. The number of blows required for the second and third 6 in. (0.15 m) of penetration added is termed the penetration resistance, N. If the sampler is driven less than 18 in. (0.45 m), the penetration resistance is that for the last 1 ft (0.30 m) of penetration (if less than 1 ft (0.30 m) is penetrated, the logs shall state the number of blows and the fraction of 1 ft (0.30 m) penetrated).

3.6 Bring the sampler to the surface and open. Describe carefully typical samples of soils recovered as to composition, structure, consistency, color, and condition; then put into jars without ramming. Seal them with wax or hermetically seal to prevent evaporation of the soil moisture. Affix labels to the jar or make notations on the covers (or both) bearing job designation, boring number, sample number, depth penetration record, and length of recovery. Protect samples against extreme temperature changes.

4. Report

4.1 Data obtained in borings shall be recorded in the field and shall include the following:

4.1.1 Name and location of job,

4.1.2 Date of boring – start, finish,

4.1.3 Boring number and coordinate, if available,

4.1.4 Surface elevation, if available,

4.1.5 Sample number and depth,

4.1.6 Method of advancing sampler, penetration and recovery lengths,

4.1.7 Type and size of sampler,

4.1.8 Description of soil,

4.1.9 Thickness of layer,

4.1.10 Depth to water surface; to loss of water; to artesian head; time at which reading was made,

4.1.11 Type and make of machine,

4.1.12 Size of casing, depth of cased hole,

4.1.13 Number of blows per 6 in. (0.15 m)

4.1.14 Names of crewmen, and

4.1.15 Weather, remarks.

---

[1] Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-18 on Soil and Rock for Engineering Purposes. A list of members may be found in the ASTM Year Book.

Current edition accepted October 20, 1967. Originally issued, 1958. Replaces D-1586-64T.

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TELEPHONE AREA CODE 315/437-1429

GENERAL NOTES

1. Soil boring logs, notes and other data shown are the results of personal observations and interpretations made by Parratt-Wolff, Inc.

Exploration records prepared by our drilling foreman in the field form the basis of all logs, and samples of subsurface materials retained by the driller are observed by technical personnel in our laboratory to check field classifications.

2. Explanation of the classifications and terms:

a. Bedrock — Natural solid mineral matter occurring in great thickness and extent in its natural location. It is classified according to geological type and structure (joints, bedding, etc.) and described as solid, weathered, broken or fragmented depending on its condition.

b. Soils — Sediments or other unconsolidated accumulations of particles produced by the physical and chemical disintegration of rocks and which may or may not contain organic matter.

PENETRATION RESISTANCE

COHESIONLESS SOILS

Blows Per Ft.	Relative Density
0 to 4	Very Loose
4 to 10	Loose
10 to 30	Medium Dense
30 to 50	Dense
Over 50	Very Dense

COHESIVE SOILS

Blows Per Ft.	Consistency
0 to 2	Very Soft
2 to 4	Soft
4 to 8	Medium Stiff
8 to 15	Stiff
10 to 30	Very Stiff
Over 30	Hard

Size Component Terms

Boulder	Larger than 8 inches	
Cobble	8 inches to 3 inches	
Gravel — coarse	3 inches to 1 inch	
— medium	1 inch to 3/8 inch	
— fine	3/8 inch to 4.76 mm	
Sand — coarse	4.76 mm to 2.00 mm	(#10 sieve)
— medium	2.00 mm to 0.42 mm	(#40 sieve)
— fine	0.42 mm to 0.074 mm	(#200 sieve)
Silt and Clay	Finer than 0.074 mm	

Proportion By Weight

Major component is shown with all letters capitalized.

Minor component percentage terms of total sample are:

and . . . 35 to 50 percent
some . 20 to 35 percent
little . . 10 to 20 percent
trace . . 1 to 10 percent

c. Gradation Terms — The terms coarse, medium and fine are used to describe gradation of Sand and Gravel.

d. The terms used to describe the various soil components and proportions are arrived at by visual estimates of the recovered soil samples. Other terms are used when the recovered samples are not truly representative of the natural materials, such as soil containing numerous cobbles and boulders which cannot be sampled, thinly stratified soils, organic soils, and fills.

e. Ground water — The measurement was made during exploration work or immediately after completion, unless otherwise noted. The depth recorded is influenced by exploration methods, soil type and weather conditions during exploration. Where no water was observed it is so indicated. It is anticipated that the ground water will rise during periods of wet weather. In addition, perched ground water above the water levels indicated (or above the bottom of the hole where no ground water is indicated) may be encountered at changes in soil strata or top of rock.

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A BRIEF DESCRIPTION OF THE UNIFIED SOIL SYSTEM

The Unified Classification System is an engineering soil classification that is an outgrowth of the Air-Field classification developed by Casagrande.

The system incorporates the textural characteristics of a soil into the engineering classification. All soils are classified into fifteen groups, each group being designated by two letters. These letters are as follows: G—gravel, S—sand, M—Non plastic or low plasticity fines, C—plastic fines, Pt—peat, humus and swamp soils, O—organic, W—well graded, P—poorly graded, L—low liquid limit, H—high liquid limit.

GW and SW Groups

These groups comprise well graded gravelly and sandy soils which contain less than 5% of non plastic fines passing a #200 sieve. Fines which are present must not noticeably change the strength characteristics of the coarse grain fraction and must not interfere with its free draining characteristics. In areas subject to frost action the material should not contain more than about 3% of soil grains smaller than .02 millimeters in size.

GP and SP Groups

These groups are poorly graded gravels and sands containing less than 5% non plastic fines. They may consist of uniform gravels, uniform sands, or non uniform mixtures of very coarse material and very fine sand with intermediate sizes lacking. Materials of this latter type are sometimes referred to as skip graded, cap graded, or step graded.

GM and SM Groups

In general, these groups include gravels or sands which contain more than 12% of fines having little or no plasticity. The plasticity index and liquid limit of a soil in either of these groups plot below the "A" line on a plasticity chart. Gradation is not important and both low grade and poorly graded materials are included. Some sands and gravels in these groups may have a binder composed of natural cementing agents so proportioned that the mixture shows negligible swelling or shrinkage. Thus, the dry strength is provided by a small amount of soil binder or dry cementation of calcareous materials or iron oxide. A fine fraction of non cemented materials may be composed of silts or rock flour types having little or no plasticity, and the mixture will exhibit no dry strength.

GC and SC Groups

These groups comprise gravelly or sandy soils with more than 12% of fines which exhibit either low or high plasticity. The plasticity index and liquid limit of a soil in either of these groups plot above the "A" line on the plasticity chart. Gradation of these materials is not important. Plasticity of the binder fraction has more influence on the behavior of the soils than does the variation in gradation. A fine fraction is generally composed of clays.

ML and MH Groups

These groups include predominantly silty materials and micaceous or diatomaceous soils. An arbitrary division between the two groups has been established with a liquid limit of 50. Soils in these groups are sandy silts, clayey silts or organic silts with relatively low plasticity. Also included are loessial soils and rock flours. Micaceous and diatomaceous soils generally fall within the MH group, but may extend into the ML group when their liquid limit is less than 50. The same is true for certain types of kaolin clays and some illite clays having relatively low plasticity.

CL and CH Groups

The CL and CH groups embrace clays with low and high liquid limits respectively. They are primarily inorganic clays. Low plasticity clays are classified as CL and are usually lean clays, sandy clays, and silty clays. The medium plasticity and high plasticity clays are classified as CH. These include fat clays, gumbo clays, certain volcanic clays and bentonite.

OL and OH Groups

The soils in these groups are characterized by the presence of organic matter including organic silts and clays. They have a plasticity range that corresponds with the ML and MH groups.

Pt Group

Highly organic soils which are very compressible have undesirable construction characteristics and are classified in one group with the symbol Pt. Peat, humus and swamp soils with a highly organic texture are typical of the group. Particles of leaves, grass, branches of bushes and other fibrous vegetable matter are common components of these soils.

Borderline Classification

Soils in the GW, SW, GP and SP groups are non plastic materials having less than 5% passing the #200 sieve, while GM, SM, GC, and SC soils have more than 12% passing the #200 sieve. When these coarse grain materials contain between 5% and 12% of fines they are classified as borderline, and are designated by the dual symbol such as GW-GM. Similarly coarse grain soils which have less than 5% passing the #200 sieve, but which are not free draining or in which the fine fraction exhibits plasticity are also classed as borderline and are given a dual symbol. Still another type of borderline classification occurs when a liquid limit of a fine grain soil is less than 29 and the plasticity index lies in the range of four to seven. These limits are indicated by the shaded area on the plasticity chart.

Silty and Clayey

In the Unified System, these terms are used to describe soils whose Atterberg limits plot below and above the "A" line on the plasticity chart. The adjectives silty and clayey are used to describe soils whose limits plot close to the "A" line.

SOIL CLASSIFICATION SYSTEM

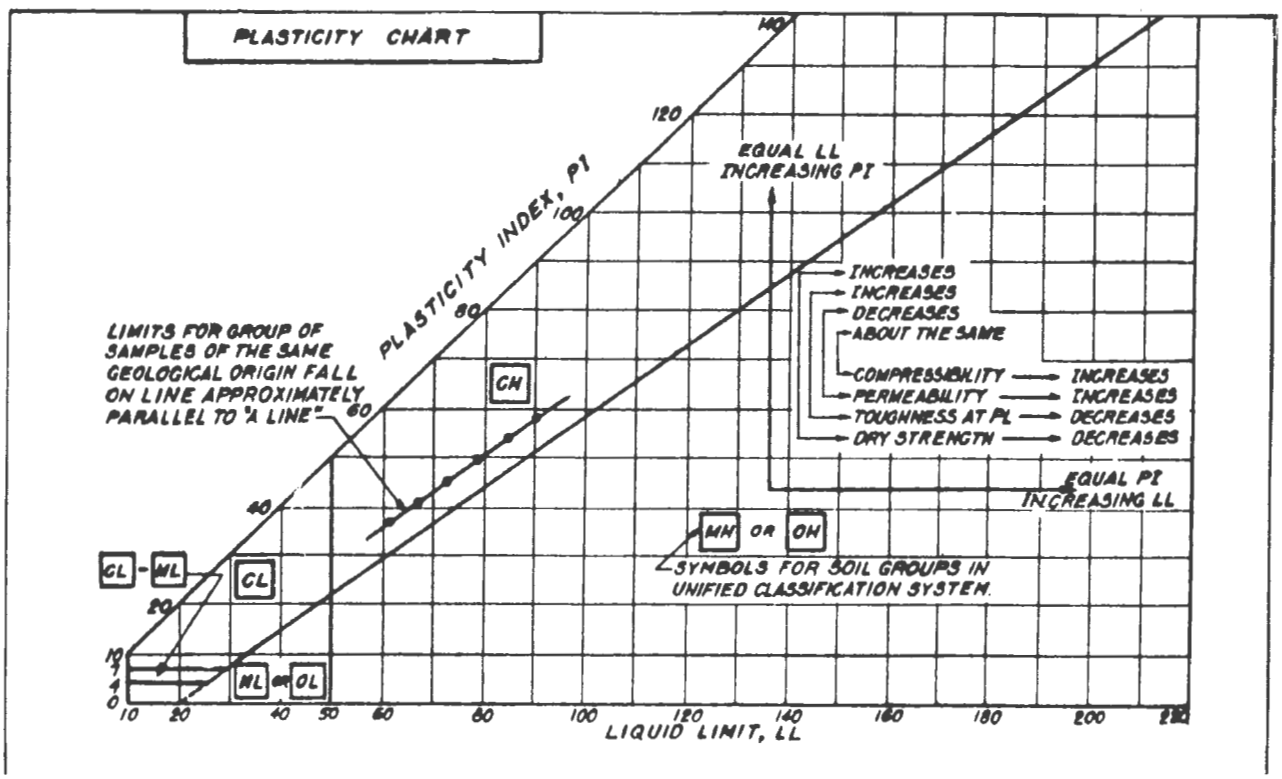
MAJOR DIVISIONS			GROUP SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)		GW	Well graded gravels, gravel - sand mixtures, little or no fines.
				GP	Poorly graded gravels or gravel - sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)		GM	Silty gravels, gravel - sand - silt mixtures.
				GC	Clayey gravels, gravel - sand - clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines)		SM	Silty sands, sand-silt mixtures.
				SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
No. 200	No. 40	No. 10	No. 4	¼ in.	3 in.	(12 in.)	

U.S STANDARD SIEVE SIZE



parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT Ground Water Monitoring Well
LOCATION Seneca Army Depot
Romulus, New York
DATE STARTED 9/24/87 DATE COMPLETED 9/24/87

HOLE NO. PT-16
SURF. EL.
JOB NO. 87188
GROUND WATER DEPTH
WHILE DRILLING 4.0'
BEFORE CASING REMOVED 4.0'
AFTER CASING REMOVED 3.0' In Well

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		2/3		TOPSOIL	1.5'
	2.0'			3/5	6	Brown moist medium stiff SILT, little clay, trace fine gravel	2.0'
	2.0'-	2		6/12		Gray moist medium dense to very dense SHALE GRAVEL and SILT	5.0'
WL ▼	4.0'			12/10	24	Gray wet hard silty weathered SHALE	
5.0	4.0'-	3		50-.4'			
	4.4'					Augered to 11.0'	
	8.0'-	4		50-.3'			
10.0	8.3'						
						Bottom of Boring	11.0'
15.0						Note: Installed 2" PVC screen 9.0' to 4.0', 2" PVC riser to surface with locking cover.	

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT: Ground Water Monitoring Well
LOCATION: Seneca Army Depot, Romulus, New York
DATE STARTED: 9/24/87 DATE COMPLETED: 9/24/87

HOLE NO. PT-17
SURF. EL.
JOB NO. 87188
GROUND WATER DEPTH
WHILE DRILLING 5.0'
BEFORE CASING REMOVED 3.0'
AFTER CASING REMOVED 3.0' In Well

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING "/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		2/3		TOPSOIL	1.5'
	2.0'			3/4	6		
	2.0'-	2		3/6		Brown moist medium stiff SILT, fine to coarse SAND and fine to coarse GRAVEL	3.5'
	4.0'			7/15	13		
5.0	4.0'-	3		4/6			
WL	6.0'			16/50-		Gray moist very stiff SILT and SHALE GRAVEL	5.0'
				.3'			
	6.0'-	4		50-.4'		Gray wet hard silty weathered SHALE	
	6.4'						
10.0	8.0'-	5		50-.4'		Augered to 11.0'	
	8.4'						
						Bottom of Boring	11.0'
						Note: Installed 2" PVC screen 9.0' to 4.0', 2" PVC riser to surface with locking cover.	

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: LANDFILL

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B PT-10	PT-11	PT-12	PT-13	PT-14	PT-15
WATER									
LEVELS (A)	14 DEC 81		FT	675.3	654.1	646.3	634.3	633.7	628.3
LEVELS (A)	29 MAR 82		FT	676.4	653.8	646.3	634.2	635.0	632.9
LEVELS (A)	21 JUN 82		FT	673.3	653.0	645.8	633.5	633.0	631.0
LEVELS (A)	20 SEP 82		FT	670.4	650.6	643.3	630.8	631.2	627.8
LEVELS (A)	15 FEB 83		FT	673.3	653.3	646.8	633.8	634.8	634.1
LEVELS (A)	08 AUG 83		FT	670.5		642.5	630.9	630.3	
LEVELS (A)	14 FEB 84		FT	675.9	651.0	647.9	634.1	634.9	632.8
LEVELS (A)	17 SEP 84		FT	674.4	654.4	648.7		634.3	629.9
LEVELS (A)	19 MAR 85		FT	676.6	652.1	647.1		635.4	633.7
LEVELS (A)	12 SEP 85		FT	670.0	652.3	642.0		630.1	630.6
LEVELS (A)	17 MAR 86		FT	675.5	653.9	644.9			634.2
LEVELS (A)	16 SEP 86		FT	675.4	650.9	646.0			631.2
LEVELS (A)	16 MAR 87		FT	675.1	653.8	647.5		635.5	633.0

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

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PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B PT-10	PT-11	PT-12	PT-13	PT-14	PT-15
ARSENIC	16 SEP 86	.010	MGL	ND	ND	ND			ND
ARSENIC	17 MAR 87	.005	MGL	ND	ND	ND		ND	ND
BARIUM	16 SEP 86	.30	MGL	ND	ND	ND			ND
BARIUM	17 MAR 87	.05	MGL	.22	.08	.03		.06	.08
CADMIUM	16 SEP 86	1.000	UGL	ND	ND	1.110*			ND
CADMIUM	17 MAR 87	.001	UGL	ND	ND	ND		ND	ND
CHROMIUM	16 SEP 86	.010	MGL	ND	ND	ND			ND
CHROMIUM	17 MAR 87	.020	MGL	ND	ND	ND		ND	ND
LEAD	16 SEP 86	.005	MGL	ND	ND	.013			ND
LEAD	17 MAR 87	.005	MGL	.055&	.027&	.031&		.023	.038&
MERCURY	16 SEP 86	.2	UGL	ND	ND	.3			ND
SELENIUM	16 SEP 86	.005	MGL	ND	ND	ND			ND
SELENIUM	17 MAR 87	.001	MGL	.001	ND	ND		ND	ND
SILVER	16 SEP 86	.025	MGL	ND	ND	ND			ND
SILVER	17 MAR 87	.020	MGL	ND	ND	ND		ND	ND
CHLORIDE	15 DEC 81	1.0	MGL	80.8	91.3	93.0	7.0	73.0	8.8
CHLORIDE	30 MAR 82	1.0	MGL	77.0	68.3	61.0	11.0	93.0	11.0
CHLORIDE	22 JUN 82	1.0	MGL	76.0	61.0	360.0&	5.0	86.0	5.0
CHLORIDE	20 SEP 82	1.0	MGL	78.0	68.0	1110.0&	7.0	95.0	15.0
CHLORIDE	15 FEB 83	1.0	MGL	70.0	69.0	30.0	8.0	79.0	15.0
CHLORIDE	09 AUG 83	1.0	MGL	72.0		1510.0&	9.0	66.0	
CHLORIDE	14 FEB 84	1.0	MGL	74.0	55.0	41.0	5.0	61.0	7.7
CHLORIDE	18 SEP 84	1.0	MGL	51.0	57.0	24.0		42.0	6.0
CHLORIDE	20 MAR 85	1.0	MGL	69.0	57.0	16.0		23.0	7.0
CHLORIDE	13 SEP 85	1.0	MGL	69.0	52.0	692.0&		46.0	13.0
CHLORIDE	18 MAR 86	1.0	MGL	34.0	57.0	14.0			10.0
CHLORIDE	16 SEP 86	1.0	MGL	62.0	58.0	305.0&			9.0
CHLORIDE	17 MAR 87	1.0	MGL	70.0	60.0	43.0		16.0	3.0
IRON	15 DEC 81	.03	MGL	ND	ND	ND	ND	ND	.15
IRON	30 MAR 82	.02	MGL	.05	.05	.06	.06	.03	.20
IRON	22 JUN 82	.03	MGL	ND	.11	.06	.03	.06	.08
IRON	20 SEP 82	.03	MGL	ND	ND	ND	ND	ND	ND
IRON	15 FEB 83	.03	MGL	ND	.07	ND	.05	.09	.16
IRON	09 AUG 83	.02	MGL	.24		.05	.10	.07	
IRON	14 FEB 84	.10	MGL	ND	ND	ND	ND	.24	.11
IRON	18 SEP 84	.10	MGL	.20	.11	ND		.35#	.24
IRON	20 MAR 85	.10	MGL	ND	ND	ND		ND	ND
IRON	13 SEP 85	.10	MGL	ND	ND	ND		ND	ND
IRON	18 MAR 86	.10	MGL	ND	ND	ND			ND
IRON	16 SEP 86	.10	MGL	ND	ND	ND			ND
IRON	17 MAR 87	.10	MGL	ND	ND	ND		ND	ND

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: LANDFILL

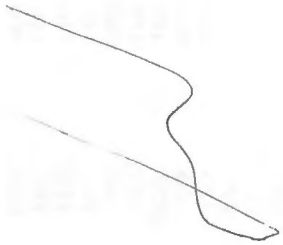
PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B PT-10	PT-11	PT-12	PT-13	PT-14	PT-15
SODIUM	16 SEP 86	1.	MGL	49.	56.	56.			31.
SODIUM	17 MAR 87	1.	MGL	49.	57.	43.		18.	32.
SULFATE	15 DEC 81	2.0	MGL	17.8	152.0	622.0&	41.6	100.0	42.7
SULFATE	30 MAR 82	2.0	MGL	29.0	131.1	360.0&	46.0	100.0	40.0
SULFATE	22 JUN 82	2.0	MGL	16.0	120.0	490.0&	35.0	100.0	31.0
SULFATE	20 SEP 82	2.0	MGL	29.0	110.0	480.0&	40.0	110.0	55.0
SULFATE	15 FEB 83	2.0	MGL	22.0	140.0	200.0	41.0	110.0	46.0
SULFATE	09 AUG 83	2.0	MGL	10.0		481.0&	70.0	21.0	
SULFATE	14 FEB 84	2.0	MGL	20.0	57.0	302.0&	39.0	105.0	40.0
SULFATE	18 SEP 84	2.0	MGL	16.0	37.0	36.0		34.0	29.0
SULFATE	20 MAR 85	2.0	MGL	19.0	163.0	275.0&		64.0	37.0
SULFATE	13 SEP 85	2.0	MGL	13.0	114.0	487.0&		97.0	44.0
SULFATE	18 MAR 86	2.0	MGL	28.0	152.0	211.0			58.0
SULFATE	16 SEP 86	2.0	MGL	28.0	150.0	404.0&			42.0
SULFATE	17 MAR 87	2.0	MGL	18.0	180.0	50.0		44.0	18.0
COND(FIELD)	20 MAR 85	1.	UMC	580.	700.	800.		490.	350.
COND(FIELD)	18 MAR 86	1.	UMC	620.	690.	610.			390.
COND(FIELD)	17 MAR 87	1.	UMC	545.	690.	1030.		445.	330.
PH(FIELD)	15 DEC 81		PH	7.3	7.3	7.1	7.2	7.3	7.6
PH(FIELD)	30 MAR 82		PH	7.4	7.8	7.3	7.3	7.4	7.9
PH(FIELD)	22 JUN 82		PH	7.7	7.6	7.1	7.3	7.4	7.7
PH(FIELD)	20 SEP 82		PH	7.5	7.6	7.2	7.9	7.4	7.8
PH(FIELD)	15 FEB 83		PH	7.6	7.6	7.5	7.5	7.5	7.8
PH(FIELD)	09 AUG 83		PH	7.3		6.3#	6.8	6.6	
PH(FIELD)	09 AUG 83		PH	7.3		6.3#	6.8	6.6	
PH(FIELD)	09 AUG 83		PH	7.3		6.3#	6.8	6.6	
PH(FIELD)	09 AUG 83		PH	7.3		6.3#	6.8	6.6	
PH(FIELD)	14 FEB 84		PH	7.7	7.5	7.3	7.1	7.5	7.6
PH(FIELD)	18 SEP 84		PH	7.6	7.7	7.4		7.2	7.7
PH(FIELD)	18 SEP 84		PH	7.6	7.6	7.4		7.3	7.7
PH(FIELD)	18 SEP 84		PH	7.6	7.6	7.4		7.2	7.6
PH(FIELD)	18 SEP 84		PH	7.5	7.6	7.3		7.2	7.7
PH(FIELD)	20 MAR 85		PH	7.2	6.9	6.9		7.0	7.1
PH(FIELD)	13 SEP 85		PH	7.5	7.4	6.9		7.1	7.4
PH(FIELD)	18 MAR 86		PH	6.9	7.0	7.0			7.3
PH(FIELD)	16 SEP 86		PH	7.0	7.0	6.7			7.4
PH(FIELD)	17 MAR 87		PH	7.4	7.2	6.7		6.8	7.3
PH(LAB)	15 DEC 81		PH	7.5	7.5	7.2	7.3	7.3	7.6
PH(LAB)	30 MAR 82		PH	7.5	7.5	7.2	7.2	7.3	7.7
PH(LAB)	22 JUN 82		PH	7.3	7.4	7.1	7.0	7.0	7.0
PH(LAB)	20 SEP 82		PH	7.2	6.9	6.7	6.9	6.8	7.1

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: LANDFILL

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B PT-10	PT-11	PT-12	PT-13	PT-14	PT-15
PH(LAB)	15 FEB 83		PH	7.3	7.0	6.7	6.8	6.8	7.1
PH(LAB)	09 AUG 83		PH	7.1		6.7	7.5	7.2	
PH(LAB)	14 FEB 84		PH	7.8	8.0	7.7	7.8	7.8	8.2
PH(LAB)	18 SEP 84		PH	7.7	7.7	7.3		7.6	7.8
PH(LAB)	13 SEP 85		PH	7.9	7.8	7.4		7.6	8.0
PH(LAB)	18 MAR 86		PH	7.8	7.7	7.8			7.8
PH(LAB)	17 MAR 87		PH	6.9	6.9	6.7		6.9	7.2
SPEC COND	15 DEC 81	1.	UMC	890.	1050.	1710.	610.	900.	510.
SPEC COND	15 DEC 81	1.	UMC	880.	1050.	1710.	610.	900.	510.
SPEC COND	15 DEC 81	1.	UMC	890.	1050.	1710.	610.	900.	510.
SPEC COND	15 DEC 81	1.	UMC	890.	1050.	1710.	600.	900.	510.
SPEC COND	30 MAR 82	1.	UMC	876.	950.	1340.	620.	970.	470.
SPEC COND	30 MAR 82	1.	UMC	879.	950.	1339.	625.	965.	470.
SPEC COND	30 MAR 82	1.	UMC	878.	949.	1340.	622.	968.	470.
SPEC COND	30 MAR 82	1.	UMC	874.	950.	1340.	624.	968.	470.
SPEC COND	22 JUN 82	1.	UMC	800.	850.	2250.	540.	850.	460.
SPEC COND	22 JUN 82	1.	UMC	800.	845.	2250.	540.	850.	455.
SPEC COND	22 JUN 82	1.	UMC	800.	845.	2250.	540.	850.	460.
SPEC COND	22 JUN 82	1.	UMC	800.	850.	2250.	540.	850.	460.
SPEC COND	20 SEP 82	1.	UMC	880.	940.	3900.	560.	1000.	570.
SPEC COND	20 SEP 82	1.	UMC	880.	940.	3850.	560.	1000.	570.
SPEC COND	20 SEP 82	1.	UMC	880.	940.	3850.	560.	1000.	570.
SPEC COND	20 SEP 82	1.	UMC	880.	940.	3900.	560.	1000.	570.
SPEC COND	15 FEB 83	1.	UMC	845.	925.	1280.	620.	960.	510.
SPEC COND	15 FEB 83	1.	UMC	845.	920.	1270.	620.	960.	505.
SPEC COND	15 FEB 83	1.	UMC	840.	920.	1270.	620.	960.	505.
SPEC COND	15 FEB 83	1.	UMC	845.	920.	1275.	620.	960.	510.
SPEC COND	09 AUG 83	1.	UMC	960.		5800.	670.	990.	
SPEC COND	09 AUG 83	1.	UMC	960.		5800.	670.	990.	
SPEC COND	09 AUG 83	1.	UMC	960.		5800.	670.	990.	
SPEC COND	09 AUG 83	1.	UMC	970.		5700.	670.	990.	
SPEC COND	14 FEB 84	1.	UMC	670.	780.	900.	480.	720.	420.
SPEC COND	14 FEB 84	1.	UMC	680.	780.	900.	470.	720.	420.
SPEC COND	14 FEB 84	1.	UMC	690.	780.	900.	470.	720.	420.
SPEC COND	14 FEB 84	1.	UMC	680.	780.	900.	480.	720.	420.
SPEC COND	18 SEP 84	1.	UMC	730.	850.	890.		740.	740.
SPEC COND	18 SEP 84	1.	UMC	740.	860.	900.		730.	740.
SPEC COND	18 SEP 84	1.	UMC	740.	860.	890.		740.	740.
SPEC COND	18 SEP 84	1.	UMC	740.	860.	900.		740.	740.
SPEC COND	20 MAR 85	1.	UMC	960.	800.	1110.		660.	460.
SPEC COND	20 MAR 85	1.	UMC	950.	800.	1100.		660.	460.



RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: LANDFILL

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B PT-10	PT-11	PT-12	PT-13	PT-14	PT-15
SPEC COND	20 MAR 85	1.	UMC	950.	810.	1120.		660.	450.
SPEC COND	20 MAR 85	1.	UMC	960.	800.	1110.		660.	460.
SPEC COND	13 SEP 85	1.	UMC	820.	840.	3800.		700.	510.
SPEC COND	13 SEP 85	1.	UMC	830.	840.	3800.		690.	520.
SPEC COND	13 SEP 85	1.	UMC	830.	830.	3800.		700.	520.
SPEC COND	13 SEP 85	1.	UMC	830.	840.	3800.		700.	520.
SPEC COND	18 MAR 86	1.	UMC	750.	990.	940.			500.
SPEC COND	18 MAR 86	1.	UMC	750.	1000.	940.			490.
SPEC COND	18 MAR 86	1.	UMC	750.	1000.	940.			500.
SPEC COND	18 MAR 86	1.	UMC	750.	990.	930.			500.
SPEC COND	16 SEP 86	1.	UMC	850.	1020.	2300.			540.
SPEC COND	16 SEP 86	1.	UMC	850.	1010.	2250.			540.
SPEC COND	16 SEP 86	1.	UMC	850.	1010.	2300.			540.
SPEC COND	16 SEP 86	1.	UMC	850.	1020.	2300.			540.
SPEC COND	17 MAR 87	1.	UMC	810.	1090.	1000.		650.	490.
SPEC COND	17 MAR 87	1.	UMC	810.	1090.	1000.		640.	500.
SPEC COND	17 MAR 87	1.	UMC	810.	1100.	1000.		640.	500.
SPEC COND	17 MAR 87	1.	UMC	800.	1100.	1000.		650.	490.
TOC	15 DEC 81	.1	MGL	2.0	3.0	3.0	1.0	3.0	2.0
TOC	15 DEC 81	.1	MGL	1.0	3.0	3.0	1.0	3.0	2.0
TOC	15 DEC 81	.1	MGL	2.0	3.0	3.0	1.0	3.0	2.0
TOC	15 DEC 81	.1	MGL	1.0	3.0	3.0	2.0	3.0	2.0
TOC	30 MAR 82	.1	MGL	2.0	3.0	4.0	2.0	3.0	2.0
TOC	30 MAR 82	.1	MGL	2.0	4.0	4.0	2.0	3.0	2.0
TOC	30 MAR 82	.1	MGL	2.0	4.0	4.0	2.0	3.0	2.0
TOC	30 MAR 82	.1	MGL	2.0	4.0	4.0	3.0	3.0	2.0
TOC	22 JUN 82	.1	MGL	60.0	55.0	67.0	62.0	58.0	42.0
TOC	22 JUN 82	.1	MGL	62.0	54.0	67.0	61.0	58.0	42.0
TOC	22 JUN 82	.1	MGL	61.0	55.0	67.0	60.0	58.0	42.0
TOC	22 JUN 82	.1	MGL	62.0	55.0	67.0	60.0	58.0	42.0
TOC	20 SEP 82	.1	MGL	53.0	45.0	47.0	19.0	40.0	27.0
TOC	20 SEP 82	.1	MGL	54.0	47.0	49.0	19.0	42.0	27.0
TOC	20 SEP 82	.1	MGL	52.0	47.0	48.0	19.0	41.0	27.0
TOC	20 SEP 82	.1	MGL	52.0	45.0	50.0	20.0	42.0	26.0
TOC	15 FEB 83	.1	MGL	14.0	12.0	14.0	11.0	11.0	7.0
TOC	15 FEB 83	.1	MGL	14.0	11.0	13.0	11.0	11.0	6.0
TOC	15 FEB 83	.1	MGL	13.0	12.0	13.0	10.0	11.0	7.0
TOC	15 FEB 83	.1	MGL	13.0	12.0	13.0	10.0	11.0	7.0
TOC	09 AUG 83	.1	MGL	59.0		59.0	34.0	49.0	
TOC	09 AUG 83	.1	MGL	59.0		58.0	35.0	49.0	
TOC	09 AUG 83	.1	MGL	60.0		59.0	36.0	48.0	

RUN DATE: 19 AUG 87

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PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B PT-10	PT-11	PT-12	PT-13	PT-14	PT-15
TOC	09 AUG 83	.1	MGL	60.0		60.0	35.0	50.0	
TOC	14 FEB 84	.1	MGL	42.0	38.0	32.0	30.0	29.0	23.0
TOC	14 FEB 84	.1	MGL	43.0	37.0	31.0	29.0	29.0	23.0
TOC	14 FEB 84	.1	MGL	43.0	38.0	31.0	29.0	29.0	23.0
TOC	14 FEB 84	.1	MGL	42.0	38.0	31.0	29.0	28.0	22.0
TOC	18 SEP 84	.1	MGL	3.0	4.0	5.0		5.0	2.0
TOC	18 SEP 84	.1	MGL	4.0	4.0	5.0		3.0	2.0
TOC	18 SEP 84	.1	MGL	3.0	5.0	4.0		4.0	2.0
TOC	18 SEP 84	.1	MGL	3.0	3.0	4.0		3.0	2.0
TOC	20 MAR 85	.1	MGL	3.0	6.5	7.2		3.9	5.1
TOC	20 MAR 85	.1	MGL	3.0	6.5	7.2		4.0	5.3
TOC	20 MAR 85	.1	MGL	3.0	6.5	7.2		4.1	5.3
TOC	20 MAR 85	.1	MGL	3.1	6.5	7.2		4.0	5.2
TOC	13 SEP 85	.1	MGL	1.3	2.7	3.5		3.2	1.8
TOC	13 SEP 85	.1	MGL	1.3	2.5	3.4		3.3	1.8
TOC	13 SEP 85	.1	MGL	1.4	2.6	3.5		3.3	1.9
TOC	13 SEP 85	.1	MGL	1.3	2.6	3.4		3.3	1.9
TOC	18 MAR 86	.1	MGL	1.6	2.8	3.2			1.5
TOC	18 MAR 86	.1	MGL	1.6	2.8	3.0			1.5
TOC	18 MAR 86	.1	MGL	1.6	2.8	3.0			1.5
TOC	18 MAR 86	.1	MGL	1.6	2.8	3.1			1.4
TOC	16 SEP 86	.1	MGL	4.5	5.6	5.8			3.3
TOC	16 SEP 86	.1	MGL	4.5	5.7	5.7			3.3
TOC	16 SEP 86	.1	MGL	4.6	5.7	5.7			3.3
TOC	16 SEP 86	.1	MGL	4.5	5.8	5.9			3.2
TOC	17 MAR 87	.1	MGL	2.8	5.1	3.9		5.0	2.2
TOC	17 MAR 87	.1	MGL	3.0	5.0	3.9		4.9	2.3
TOC	17 MAR 87	.1	MGL	2.9	5.0	3.6		5.0	2.4
TOC	17 MAR 87	.1	MGL	2.9	5.0	3.8		4.8	2.2
TOX	16 SEP 86	.010	MGL	ND	ND	1.140			ND
TOX	16 SEP 86	.010	MGL	ND	ND	1.087			ND
TOX	16 SEP 86	.010	MGL	ND	ND	.981			ND
TOX	16 SEP 86	.010	MGL	ND	ND	1.053			ND
TOX	17 MAR 87	.010	MGL	ND	.020	.748		.186	ND
TOX	17 MAR 87	.010	MGL	ND	.021	.738		.198	ND
TOX	17 MAR 87	.010	MGL	ND	.028	.745		.183	ND
TOX	17 MAR 87	.010	MGL	ND	.018	.664		.182	ND
NITRATE-N	17 MAR 87	.01	MGL	.22	.42	.10		.38	.37
POTASSIUM	16 SEP 86	.10	MGL	2.94	2.63	3.52			2.29
POTASSIUM	17 MAR 87	.10	MGL	2.46	2.17	2.33		3.38	1.94

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY SITE: LANDFILL

LEGEND
NOTES: ALL METALS AND OTHER PARAMETERS WHERE APPROPRIATE ARE ON A DISSOLVED (FILTERED) BASIS UNLESS OTHERWISE NOTED. DETECTION LIMITS SHOWN ARE NORMAL LEVELS; ACTUAL LIMITS MAY VARY IN ENVIRONMENTAL SAMPLES. ANALYTICAL RESULTS ARE ACCURATE TO EITHER 2 OR 3 SIGNIFICANT FIGURES.

B UPGRADIENT SITE
* VALUE EXCEEDS A NATIONAL INTERIM PRIMARY DRINKING WATER REGULATION STANDARD
# VALUE EXCEEDS A NATIONAL SECONDARY DRINKING WATER REGULATION CRITERIA
& VALUE EXCEEDS A STATE WATER QUALITY STANDARD OR CRITERIA

MGL - MILLIGRAMS/LITER
UGL - MICROGRAMS/LITER
PCL - PICOCURIES/LITER
UMC - MICROMHOS/CENTIMETER
NTU - NEPHELOMETRIC TURBIDITY UNITS
TON - THRESHOLD ODOR NUMBER
TDN - TASTE DILUTION INDEX NUMBER
CU - COLOR UNITS
PHM - PER 100 MILLILITERS

file GWM 1987

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B W5	W4	W6	W1	W3	W2	W7
WATER										
LEVELS (A)	04 JAN 82		FT	118.5	109.7	110.8	111.3	105.3	95.4	98.4
LEVELS (A)	13 APR 82		FT	118.2	109.4	110.9	111.6	105.4	94.7	103.3
LEVELS (A)	28 JUN 82		FT	116.3	108.2	108.7	108.2	102.6	93.4	99.9
LEVELS (A)	27 SEP 82		FT	112.9	107.2	105.2	108.6	99.7	92.6	
LEVELS (A)	07 FEB 83		FT	118.2	109.8	110.5	110.9	105.2	94.6	103.0
LEVELS (A)	08 AUG 83		FT	112.9	106.1	105.0		99.9	92.3	
LEVELS (A)	14 FEB 84		FT	118.3	108.9	109.7	109.3	105.5	94.9	103.1
LEVELS (A)	26 JUN 84		FT	109.4		109.6	109.3	104.6	94.8	99.3
LEVELS (A)	27 JUN 84		FT		109.0					
LEVELS (A)	17 SEP 84		FT	115.8	107.9	108.6	109.3	103.6	93.7	100.7
LEVELS (A)	19 MAR 85		FT	D	110.2	110.3	110.5	105.3	93.7	103.6
LEVELS (A)	12 SEP 85		FT	113.1		104.3	106.3	99.4	92.3	
LEVELS (A)	17 MAR 86		FT	118.5	110.8	110.0	112.9	105.5	95.7	104.0
LEVELS (A)	16 SEP 86		FT	115.7	108.3	107.7	107.5	102.5	93.1	99.8
LEVELS (A)	16 MAR 87		FT	118.5	109.8	111.0	110.5	104.9	94.1	102.8

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B						
				W5	W4	W6	W1	W3	W2	W7
ARSENIC	05 JAN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
ARSENIC	13 APR 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
ARSENIC	29 JUN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
ARSENIC	28 SEP 82	.010	MGL	ND		ND	ND	ND	ND	
BARIUM	05 JAN 82	.10	MGL	ND	ND	ND	ND	ND	ND	ND
BARIUM	13 APR 82	.10	MGL	ND	ND	ND	ND	ND	ND	ND
BARIUM	29 JUN 82	.10	MGL	ND	ND	ND	ND	ND	ND	ND
BARIUM	28 SEP 82	.10	MGL	ND		ND	ND	ND	ND	
CADMIUM	05 JAN 82	5.000	UGL	ND	ND	ND	ND	ND	ND	ND
CADMIUM	13 APR 82	5.000	UGL	ND	ND	ND	ND	ND	ND	ND
CADMIUM	29 JUN 82	5.000	UGL	ND	ND	ND	ND	ND	ND	ND
CADMIUM	28 SEP 82	5.000	UGL	ND		ND	ND	ND	ND	
CHROMIUM	05 JAN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
CHROMIUM	13 APR 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
CHROMIUM	29 JUN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
CHROMIUM	28 SEP 82	.010	MGL	ND		ND	ND	ND	ND	
FLUORIDE	05 JAN 82	.1	MGL	.3	.2	.3	.1	.2	.1	.3
FLUORIDE	13 APR 82	.1	MGL	.3	.2	.2	.2	.2	.1	.2
FLUORIDE	29 JUN 82	.1	MGL	.4	.2	.2	.2	.2	.2	.3
FLUORIDE	28 SEP 82	.1	MGL	.3	.2	.2	.2	.2	.2	
LEAD	05 JAN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
LEAD	13 APR 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
LEAD	29 JUN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
LEAD	28 SEP 82	.010	MGL	ND		ND	ND	ND	ND	
MERCURY	05 JAN 82	.2	UGL	ND	ND	ND	ND	ND	ND	ND
MERCURY	13 APR 82	.2	UGL	ND	ND	ND	ND	ND	ND	ND
MERCURY	29 JUN 82	.2	UGL	ND	ND	ND	ND	ND	ND	ND
MERCURY	28 SEP 82	.2	UGL	ND	ND	ND	ND	ND	ND	
NO2+NO3 AS N	05 JAN 82	.05	MGL	6.70	.71	1.20	1.60	.08	ND	.22
NO2+NO3 AS N	13 APR 82	.05	MGL	5.00	.49	1.00	1.00	.13	ND	.38
NO2+NO3 AS N	29 JUN 82	.05	MGL	6.00	.52	2.00	2.00	.06	ND	.30
NO2+NO3 AS N	28 SEP 82	.05	MGL	10.00	.12	3.00	2.00	.08	ND	
SELENIUM	05 JAN 82	.005	MGL	ND	ND	ND	ND	ND	ND	ND
SELENIUM	13 APR 82	.005	MGL	ND	ND	ND	ND	ND	ND	ND
SELENIUM	29 JUN 82	.005	MGL	ND	ND	ND	ND	ND	ND	ND
SELENIUM	28 SEP 82	.005	MGL	ND		ND	ND	ND	ND	
SILVER	05 JAN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
SILVER	13 APR 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
SILVER	29 JUN 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
SILVER	28 SEP 82	.010	MGL	ND		ND	ND	ND	ND	
ENDRIN	05 JAN 82	.04	UGL	ND	ND	ND	ND	ND	ND	ND

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B W5	W4	W6	W1	W3	W2	W7
ENDRIN	13 APR 82	40.00	UGL	ND	ND	ND	ND	ND	ND	ND
ENDRIN	29 JUN 82	.04	UGL	ND	ND	ND	ND	ND	ND	ND
ENDRIN	28 SEP 82	.04	UGL	ND		ND	ND	ND	ND	
LINDANE	05 JAN 82	.08	UGL	ND	ND	ND	ND	ND	ND	ND
LINDANE	13 APR 82	.08	UGL	ND	ND	ND	ND	ND	ND	ND
LINDANE	29 JUN 82	.08	UGL	ND	ND	ND	ND	ND	ND	ND
LINDANE	28 SEP 82	.08	UGL	ND		ND	ND	ND	ND	
TOXAPHENE	05 JAN 82	1.6	UGL	ND	ND	ND	ND	ND	ND	ND
TOXAPHENE	13 APR 82	1.6	UGL	ND	ND	ND	ND	ND	ND	ND
TOXAPHENE	29 JUN 82	1.6	UGL	ND	ND	ND	ND	ND	ND	ND
TOXAPHENE	28 SEP 82	1.6	UGL	ND		ND	ND	ND	ND	
METHOXYCHLOR	05 JAN 82	1.6	UGL	ND	ND	ND	ND	ND	ND	ND
METHOXYCHLOR	13 APR 82	1.6	UGL	ND	ND	ND	ND	ND	ND	ND
METHOXYCHLOR	29 JUN 82	1.6	UGL	ND	ND	ND	ND	ND	ND	ND
METHOXYCHLOR	28 SEP 82	1.6	UGL	ND		ND	ND	ND	ND	
2,4-D	05 JAN 82	3.8	UGL	ND	ND	ND	ND	ND	ND	ND
2,4-D	13 APR 82	3.8	UGL	ND	ND	ND	ND	ND	ND	ND
2,4-D	29 JUN 82	3.8	UGL	ND	ND	ND	ND	ND	ND	ND
2,4-D	28 SEP 82	3.8	UGL	ND		ND	ND	ND	ND	
SILVEX	05 JAN 82	.5	UGL	ND	ND	ND	ND	ND	ND	ND
SILVEX	13 APR 82	.5	UGL	ND	ND	ND	ND	ND	ND	ND
SILVEX	29 JUN 82	.5	UGL	ND	ND	ND	ND	ND	ND	ND
SILVEX	28 SEP 82	.5	UGL	ND		ND	ND	ND	ND	
GROSS ALPHA	05 JAN 82	4.61	PCL	ND	ND	ND	ND	ND	4.14	ND
GROSS ALPHA	13 APR 82	3.37	PCL	3.33	ND	2.63	2.30	3.64	3.39	ND
GROSS ALPHA	29 JUN 82	6.49	PCL	4.81	4.26	5.99	ND	12.60	9.04	3.87
GROSS ALPHA	28 SEP 82	5.20	PCL	ND		ND	ND	ND		
RADIUM-226	28 JUN 82	.24	PCL			ND	.27	ND	ND	
RADIUM-226	28 SEP 82	.18	PCL	ND						
GROSS BETA	05 JAN 82	1.52	PCL	2.02	3.01	2.06	2.31	2.91	2.12	ND
GROSS BETA	13 APR 82	1.64	PCL	ND	1.60	ND	2.05	2.08	ND	ND
GROSS BETA	29 JUN 82	1.86	PCL	1.59	3.34	ND	1.62	1.96	1.99	ND
GROSS BETA	28 SEP 82	1.76	PCL	ND		1.22	1.85	3.14		
CHLORIDE	05 JAN 82	1.0	MGL	4.6	10.0	17.6	7.9	28.5	5.8	3.5
CHLORIDE	13 APR 82	1.0	MGL	4.0	9.0	3.0	7.0	46.0	4.9	2.0
CHLORIDE	29 JUN 82	1.0	MGL	9.0	9.0	11.0	12.0	51.0	10.0	7.0
CHLORIDE	28 SEP 82	1.0	MGL	1.0	ND	ND	3.0	11.2	6.0	
CHLORIDE	08 FEB 83	1.0	MGL	2.0	6.0	7.0	6.0	9.0	3.0	2.0
CHLORIDE	09 AUG 83	1.0	MGL	3.0	5.0	3.0		15.0	4.0	
CHLORIDE	14 FEB 84	2.0	MGL	ND	8.7	20.0	2.3	4.0	ND	ND
CHLORIDE	20 MAR 85	1.0	MGL		6.0	12.0	7.0	15.0	4.0	3.0

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B W5	W4	W6	W1	W3	W2	W7
CHLORIDE	18 MAR 86	1.0	MGL	3.0	5.0	4.0	5.0	6.0	3.0	2.0
CHLORIDE	17 MAR 87	1.0	MGL	2.0	4.0	4.0	6.0	5.0	3.0	1.0
IRON	05 JAN 82	.02	MGL	.13	.15	.27	.15	.19	.10	.14
IRON	13 APR 82	.03	MGL	ND	.08	.09	.10	.10	.02	.10
IRON	29 JUN 82	.03	MGL	ND	.24	.26	.44#	.06	.09	.70#
IRON	28 SEP 82	.02	MGL	.12		.24	.19	.23	.09	
IRON	08 FEB 83	.02	MGL	.13	.10	.15	.09	.07	.06	.08
IRON	09 AUG 83	.02	MGL	.09	.16	.25		.07	.12	
IRON	14 FEB 84	.10	MGL	.15	.11	ND	ND	ND	ND	1.02#
IRON	20 MAR 85	.10	MGL		ND	ND	ND	ND	ND	ND
IRON	18 MAR 86	.03	MGL	ND	ND	.03	ND	ND	ND	ND
IRON	17 MAR 87	.10	MGL	ND	ND	ND	ND	ND	ND	ND
MANGANESE	05 JAN 82	.010	MGL	.270#	.040	.300#	ND	ND	.070#	.090#
MANGANESE	13 APR 82	.010	MGL	.100#	.060#	.040	.020	ND	.050	.030
MANGANESE	29 JUN 82	.001	MGL	.210#	.050	.020	.020	.030	.130#	.010
MANGANESE	28 SEP 82	.010	MGL	ND		ND	ND	.040	.160#	
MANGANESE	08 FEB 83	.010	MGL	.020	.120#	.020	ND	ND	.010	.010
MANGANESE	09 AUG 83	.001	MGL	.120#	.320#	.010		.020	.210#	
MANGANESE	14 FEB 84	.030	MGL	ND	ND	.035	ND	ND	ND	ND
MANGANESE	20 MAR 85	.030	MGL		.085#	.045	ND	ND	.038	ND
MANGANESE	18 MAR 86	.010	MGL	ND	.120#	ND	ND	ND	ND	ND
MANGANESE	17 MAR 87	.030	MGL	.078#	.275#	ND	ND	ND	ND	ND
PHENOL	05 JAN 82	.01	MGL	ND	ND	ND	ND	ND	ND	ND
PHENOL	13 APR 82	.01	MGL	ND	ND	ND	ND	ND	ND	ND
PHENOL	29 JUN 82	.01	MGL	ND	ND	ND	.01&	ND	ND	ND
PHENDL	28 SEP 82	.01	MGL	.01&	.01&	ND	.02&	ND	.01&	
PHENOL	08 FEB 83	.01	MGL	ND	ND	ND	ND	ND	ND	ND
PHENOL	09 AUG 83	.01	MGL	ND	ND	ND	ND	ND	ND	
PHENOL	14 FEB 84	.01	MGL	ND	ND	ND	ND	ND	ND	ND
PHENOL	20 MAR 85	.01	MGL		ND	ND	ND	ND	ND	ND
PHENOL	18 MAR 86	.01	MGL	ND	ND	ND	ND	ND	ND	ND
PHENOL	17 MAR 87	.01	MGL	ND	ND	ND	ND	ND	ND	ND
SODIUM	05 JAN 82	1.	MGL	15.	28.	20.	15.	14.	22.	12.
SODIUM	13 APR 82	1.	MGL	10.	37.	8.	11.	15.	21.	10.
SODIUM	29 JUN 82	1.	MGL	12.	11.	9.	15.	20.	24.	8.
SODIUM	28 SEP 82	1.	MGL	12.		9.	8.	10.	16.	
SODIUM	08 FEB 83	1.	MGL	21.	37.	11.	12.	8.	15.	7.
SODIUM	09 AUG 83	1.	MGL	16.	36.	11.		9.	15.	
SODIUM	14 FEB 84	1.	MGL	7.	7.	16.	5.	4.	14.	3.
SODIUM	20 MAR 85	1.	MGL		23.	24.	9.	7.	9.	2.
SODIUM	18 MAR 86	1.	MGL	8.	20.	30.	7.	5.	6.	4.

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B W5	W4	W6	W1	W3	W2	W7
SODIUM	17 MAR 87	1.	MGL	8.	30.	14.	11.	6.	9.	4.
SULFATE	05 JAN 82	2.0	MGL	57.5	327.0&	38.8	233.0	147.0	225.0	77.0
SULFATE	13 APR 82	2.0	MGL	110.0	330.0&	100.0	220.0	210.0	263.0&	84.0
SULFATE	29 JUN 82	2.0	MGL	110.0	150.0	100.0	260.0&	220.0	293.0&	70.0
SULFATE	28 SEP 82	2.0	MGL	130.0	81.0	88.0	180.0	194.0	280.0&	
SULFATE	08 FEB 83	2.0	MGL	93.0	600.0&	110.0	210.0	180.0	200.0	74.0
SULFATE	09 AUG 83	2.0	MGL	129.0	333.0&	106.0		215.0	203.0	
SULFATE	14 FEB 84	2.0	MGL	51.0	117.0	130.0	119.0	148.0	108.0	7.3
SULFATE	20 MAR 85	2.0	MGL		306.0&	231.0	231.0	194.0	180.0	47.0
SULFATE	18 MAR 86	2.0	MGL	77.0	283.0&	63.0	248.0	148.0	117.0	57.0
SULFATE	17 MAR 87	2.0	MGL	24.0	255.0&	67.0	160.0	56.0	6.0	27.0
COND(FIELD)	20 MAR 85	1.	UMC		680.	440.	540.	550.	490.	270.
COND(FIELD)	18 MAR 86	1.	UMC	415.	650.	315.	460.	440.	340.	240.
COND(FIELD)	18 MAR 86	1.	UMC	415.	645.	320.	460.	440.	335.	240.
COND(FIELD)	18 MAR 86	1.	UMC	415.	650.	315.	460.	450.	335.	240.
COND(FIELD)	18 MAR 86	1.	UMC	415.	645.	310.	460.	445.	335.	235.
COND(FIELD)	17 MAR 87	1.	UMC	380.	700.	400.	500.	445.	450.	310.
COND(FIELD)	17 MAR 87	1.	UMC	375.	705.	400.	495.	440.	445.	315.
COND(FIELD)	17 MAR 87	1.	UMC	370.	700.	405.	500.	445.	450.	315.
COND(FIELD)	17 MAR 87	1.	UMC	375.	695.	405.	500.	440.	440.	315.
PH(FIELD)	05 JAN 82		PH	7.3	7.2	7.5	7.2	7.4	7.3	7.1
PH(FIELD)	05 JAN 82		PH	7.3	7.2	7.5	7.2	7.4	7.3	7.1
PH(FIELD)	05 JAN 82		PH	7.3	7.2	7.5	7.2	7.4	7.3	7.1
PH(FIELD)	05 JAN 82		PH	7.3	7.2	7.5	7.2	7.4	7.3	7.1
PH(FIELD)	13 APR 82		PH	7.6	7.2	7.6	7.6	7.4	7.4	7.4
PH(FIELD)	13 APR 82		PH	7.6	7.2	7.6	7.6	7.4	7.4	7.4
PH(FIELD)	13 APR 82		PH	7.6	7.2	7.6	7.6	7.4	7.4	7.4
PH(FIELD)	13 APR 82		PH	7.6	7.2	7.6	7.6	7.4	7.4	7.4
PH(FIELD)	29 JUN 82		PH	7.8	7.8	7.8	8.1	7.7	7.8	7.8
PH(FIELD)	29 JUN 82		PH	7.8	7.8	7.8	8.1	7.7	7.8	7.8
PH(FIELD)	29 JUN 82		PH	7.8	7.8	7.8	8.1	7.7	7.8	7.8
PH(FIELD)	29 JUN 82		PH	7.8	7.8	7.8	8.1	7.7	7.8	7.8
PH(FIELD)	27 SEP 82		PH	7.6	7.9	7.7	7.5	7.5	7.6	
PH(FIELD)	27 SEP 82		PH	7.6	7.9	7.7	7.5	7.5	7.6	
PH(FIELD)	27 SEP 82		PH	7.6	7.9	7.7	7.5	7.5	7.6	
PH(FIELD)	27 SEP 82		PH	7.6	7.9	7.7	7.5	7.5	7.6	
PH(FIELD)	08 FEB 83		PH	7.8	7.3	7.8	7.5	7.5	7.7	7.6
PH(FIELD)	08 FEB 83		PH	7.8	7.3	7.8	7.5	7.5	7.7	7.6
PH(FIELD)	08 FEB 83		PH	7.8	7.3	7.8	7.5	7.5	7.7	7.6
PH(FIELD)	08 FEB 83		PH	7.8	7.3	7.8	7.5	7.5	7.7	7.6
PH(FIELD)	09 AUG 83		PH	7.1	6.9	6.9		7.0	7.1	

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

SAMPLING SITES
RESULTS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	B W5	W4	W6	W1	W3	W2	W7
PH(FIELD)	09 AUG 83		PH	7.1	6.9	6.9		7.0	7.1	
PH(FIELD)	09 AUG 83		PH	7.1	6.9	6.9		7.0	7.1	
PH(FIELD)	09 AUG 83		PH	7.1	6.9	6.9		7.0	7.1	
PH(FIELD)	14 FEB 84		PH	7.3	6.8	7.2	7.3	7.4	7.4	7.5
PH(FIELD)	14 FEB 84		PH	7.3	6.9	7.2	7.3	7.4	7.5	7.5
PH(FIELD)	14 FEB 84		PH	7.4	6.8	7.3	7.3	7.4	7.4	7.6
PH(FIELD)	14 FEB 84		PH	7.3	6.9	7.3	7.3	7.5	7.4	7.6
PH(FIELD)	27 JUN 84		PH	7.0	6.8	7.1	7.1	7.0	7.1	7.1
PH(FIELD)	18 SEP 84		PH	8.4	7.5	7.6	7.6	7.5	7.1	7.6
PH(FIELD)	18 SEP 84		PH	8.3	7.6	7.5	7.7	7.4	7.1	7.5
PH(FIELD)	18 SEP 84		PH	8.4	7.6	7.5	7.7	7.4	7.1	7.5
PH(FIELD)	18 SEP 84		PH	8.3	7.5	7.6	7.6	7.4	7.2	7.5
PH(FIELD)	20 MAR 85		PH		6.8	6.9	6.7	6.8	7.0	7.0
PH(FIELD)	13 SEP 85		PH	7.1		7.1	7.1	7.1	7.0	
PH(FIELD)	18 MAR 86		PH	7.1	6.8	7.4	7.2	7.0	7.2	7.3
PH(FIELD)	18 MAR 86		PH	7.1	6.9	7.4	7.3	7.1	7.3	7.3
PH(FIELD)	18 MAR 86		PH	7.1	6.8	7.4	7.2	7.0	7.3	7.3
PH(FIELD)	18 MAR 86		PH	7.1	6.8	7.4	7.1	7.0	7.2	7.3
PH(FIELD)	16 SEP 86		PH	7.1	7.0	7.4	6.9	7.0	7.0	7.2
PH(FIELD)	17 MAR 87		PH	6.9	7.3	7.4	6.9	7.2	7.1	6.9
PH(FIELD)	17 MAR 87		PH	7.0	7.2	7.4	6.8	7.1	7.0	7.0
PH(FIELD)	17 MAR 87		PH	6.8	7.1	7.5	6.9	7.1	6.9	6.8
PH(FIELD)	17 MAR 87		PH	6.9	7.2	7.4	6.9	7.1	6.9	6.9
PH(LAB)	14 FEB 84		PH	7.9	7.7	7.8	7.7	7.8	7.9	7.5
SPEC COND	05 JAN 82	1.	UMC	730.	1130.	720.	850.	860.	930.	640.
SPEC COND	05 JAN 82	1.	UMC	730.	1120.	722.	850.	860.	930.	640.
SPEC COND	05 JAN 82	1.	UMC	730.	1130.	720.	850.	850.	930.	640.
SPEC COND	05 JAN 82	1.	UMC	730.	1130.	720.	850.	850.	920.	640.
SPEC COND	13 APR 82	1.	UMC	719.	1300.	699.	810.	1000.	975.	639.
SPEC COND	13 APR 82	1.	UMC	718.	1302.	699.	810.	1000.	972.	639.
SPEC COND	13 APR 82	1.	UMC	719.	1301.	699.	810.	1000.	974.	640.
SPEC COND	13 APR 82	1.	UMC	720.	1300.	699.	810.	1000.	973.	638.
SPEC COND	29 JUN 82	1.	UMC	620.	590.	580.	750.	1040.	890.	490.
SPEC COND	29 JUN 82	1.	UMC	620.	590.	580.	760.	1030.	890.	490.
SPEC COND	29 JUN 82	1.	UMC	620.	600.	585.	760.	1030.	890.	490.
SPEC COND	29 JUN 82	1.	UMC	620.	600.	580.	750.	1030.	890.	490.
SPEC COND	28 SEP 82	1.	UMC	795.		665.	700.	925.	980.	
SPEC COND	28 SEP 82	1.	UMC	790.		665.	700.	920.	980.	
SPEC COND	28 SEP 82	1.	UMC	795.		665.	700.	920.	980.	
SPEC COND	28 SEP 82	1.	UMC	795.		665.	700.	920.	980.	
SPEC COND	08 FEB 83	1.	UMC	580.	1160.	685.	760.	680.	755.	605.

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B W5	W4	W6	W1	W3	W2	W7
SPEC COND	08 FEB 83	1.	UMC	580.	1160.	690.	755.	680.	755.	605.
SPEC COND	08 FEB 83	1.	UMC	585.	1160.	680.	755.	680.	760.	600.
SPEC COND	08 FEB 83	1.	UMC	580.	1160.	685.	760.	685.	760.	600.
SPEC COND	09 AUG 83	1.	UMC	900.	1190.	1020.		1050.	930.	
SPEC COND	09 AUG 83	1.	UMC	890.	1200.	1020.		1050.	940.	
SPEC COND	09 AUG 83	1.	UMC	890.	1190.	1020.		1040.	940.	
SPEC COND	09 AUG 83	1.	UMC	900.	1200.	1020.		1040.	940.	
SPEC COND	14 FEB 84	1.	UMC	360.	430.	620.	400.	500.	570.	88.
SPEC COND	14 FEB 84	1.	UMC	360.	420.	620.	410.	510.	580.	87.
SPEC COND	14 FEB 84	1.	UMC	360.	430.	620.	400.	510.	580.	88.
SPEC COND	14 FEB 84	1.	UMC	360.	430.	630.	400.	510.	570.	88.
SPEC COND	18 SEP 84	1.	UMC	710.	1000.	620.	670.	760.	860.	500.
SPEC COND	18 SEP 84	1.	UMC	720.	990.	620.	680.	760.	860.	500.
SPEC COND	18 SEP 84	1.	UMC	720.	1000.	620.	680.	760.	860.	490.
SPEC COND	18 SEP 84	1.	UMC	720.	1000.	620.	680.	760.	860.	510.
SPEC COND	20 MAR 85	1.	UMC		990.	700.	750.	760.	750.	390.
SPEC COND	20 MAR 85	1.	UMC		1000.	700.	750.	760.	740.	400.
SPEC COND	20 MAR 85	1.	UMC		1000.	700.	750.	760.	740.	390.
SPEC COND	20 MAR 85	1.	UMC		990.	700.	760.	760.	740.	390.
SPEC COND	13 SEP 85	1.	UMC	720.		610.	880.	830.	840.	
SPEC COND	13 SEP 85	1.	UMC	720.		600.	880.	840.	840.	
SPEC COND	13 SEP 85	1.	UMC	730.		600.	870.	840.	840.	
SPEC COND	13 SEP 85	1.	UMC	730.		600.	880.	830.	830.	
SPEC COND	18 MAR 86	1.	UMC	590.	960.	490.	670.	620.	520.	3600.
SPEC COND	18 MAR 86	1.	UMC	590.	960.	500.	660.	620.	520.	3600.
SPEC COND	18 MAR 86	1.	UMC	590.	950.	500.	670.	620.	520.	3600.
SPEC COND	18 MAR 86	1.	UMC	590.	950.	490.	660.	610.	520.	3600.
SPEC COND	16 SEP 86	1.	UMC	710.	1160.	690.	870.	950.	820.	600.
SPEC COND	16 SEP 86	1.	UMC	720.	1150.	690.	880.	950.	810.	600.
SPEC COND	16 SEP 86	1.	UMC	710.	1150.	690.	880.	950.	820.	600.
SPEC COND	16 SEP 86	1.	UMC	720.	1160.	690.	880.	960.	820.	610.
SPEC COND	17 MAR 87	1.	UMC	640.	990.	670.	820.	710.	730.	530.
SPEC COND	17 MAR 87	1.	UMC	630.	1000.	680.	810.	710.	730.	530.
SPEC COND	17 MAR 87	1.	UMC	630.	1000.	680.	820.	720.	730.	530.
SPEC COND	17 MAR 87	1.	UMC	640.	1000.	690.	820.	710.	740.	530.
TOC	05 JAN 82	.1	MGL	1.0	1.0	1.0	1.0	4.0	1.0	1.0
TOC	05 JAN 82	.1	MGL	1.0	1.0	1.0	1.0	4.0	1.0	1.0
TOC	05 JAN 82	.1	MGL	1.0	1.0	1.0	1.0	4.0	1.0	1.0
TOC	05 JAN 82	.1	MGL	1.0	1.0	1.0	1.0	4.0	1.0	1.0
TOC	13 APR 82	.1	MGL	39.0	54.0	40.0	37.0	48.0	44.0	40.0
TOC	13 APR 82	.1	MGL	39.0	54.0	40.0	37.0	47.0	44.0	40.0

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B						
				W5	W4	W6	W1	W3	W2	W7
TOC	13 APR 82	.1	MGL	40.0	54.0	42.0	37.0	47.0	44.0	40.0
TOC	13 APR 82	.1	MGL	39.0	55.0	43.0	37.0	48.0	44.0	40.0
TOC	29 JUN 82	.1	MGL	43.0	30.0	43.0	42.0	53.0	42.0	38.0
TOC	29 JUN 82	.1	MGL	42.0	30.0	41.0	40.0	53.0	42.0	39.0
TOC	29 JUN 82	.1	MGL	42.0	30.0	43.0	40.0	54.0	41.0	40.0
TOC	29 JUN 82	.1	MGL	42.0	30.0	43.0	42.0	54.0	43.0	38.0
TOC	28 SEP 82	.1	MGL	37.0	28.0	39.0	21.0	44.0	4.0	
TOC	28 SEP 82	.1	MGL	38.0	29.0	39.0	23.0	43.0	4.0	
TOC	28 SEP 82	.1	MGL	37.0	27.0	39.0	22.0	43.0	4.0	
TOC	28 SEP 82	.1	MGL	38.0	28.0	39.0	22.0	43.0	4.0	
TOC	08 FEB 83	.1	MGL	23.0	32.0	26.0	22.0	27.0	25.0	26.0
TOC	08 FEB 83	.1	MGL	23.0	33.0	27.0	22.0	26.0	25.0	26.0
TOC	08 FEB 83	.1	MGL	24.0	32.0	27.0	22.0	27.0	25.0	26.0
TOC	08 FEB 83	.1	MGL	23.0	33.0	27.0	22.0	27.0	25.0	26.0
TOC	09 AUG 83	.1	MGL	53.0	47.0	46.0		74.0	23.0	
TOC	09 AUG 83	.1	MGL	53.0	47.0	47.0		74.0	22.0	
TOC	09 AUG 83	.1	MGL	54.0	46.0	45.0		74.0	21.0	
TOC	09 AUG 83	.1	MGL	53.0	46.0	46.0		74.0	22.0	
TOC	14 FEB 84	.1	MGL	24.0	35.0	32.0	24.0	29.0	29.0	12.0
TOC	14 FEB 84	.1	MGL	23.0	36.0	33.0	24.0	29.0	29.0	11.0
TOC	14 FEB 84	.1	MGL	23.0	36.0	33.0	24.0	29.0	30.0	11.0
TOC	14 FEB 84	.1	MGL	24.0	35.0	32.0	24.0	29.0	29.0	11.0
TOC	18 SEP 84	.1	MGL	3.0	3.0	3.0	3.0	4.0	3.0	3.0
TOC	18 SEP 84	.1	MGL	3.0	4.0	3.0	3.0	4.0	3.0	4.0
TOC	18 SEP 84	.1	MGL	3.0	4.0	3.0	3.0	4.0	3.0	2.0
TOC	18 SEP 84	.1	MGL	3.0	4.0	3.0	3.0	5.0	4.0	3.0
TOC	20 MAR 85	.1	MGL		5.9	8.8	5.9	6.0	4.1	9.5
TOC	20 MAR 85	.1	MGL		5.7	8.8	6.1	6.0	4.0	9.6
TOC	20 MAR 85	.1	MGL		5.8	8.7	5.8	6.0	4.1	9.4
TOC	20 MAR 85	.1	MGL		5.7	8.8	5.9	6.0	4.1	9.5
TOC	13 SEP 85	.1	MGL	3.4		3.0	2.7	3.3	3.1	
TOC	13 SEP 85	.1	MGL	3.4		2.7	2.5	3.2	3.3	
TOC	13 SEP 85	.1	MGL	3.4		2.8	2.6	3.3	3.1	
TOC	13 SEP 85	.1	MGL	3.4		2.9	2.5	3.3	3.5	
TOC	18 MAR 86	.1	MGL	3.4	3.6	6.3	5.0	5.4	3.5	4.2
TOC	18 MAR 86	.1	MGL	3.4	3.5	6.3	5.0	5.1	3.5	4.2
TOC	18 MAR 86	.1	MGL	3.4	3.5	6.4	5.0	5.1	3.4	4.2
TOC	18 MAR 86	.1	MGL	3.4	3.5	6.2	5.2	5.2	3.6	4.2
TOC	16 SEP 86	.1	MGL	5.1	4.7	5.3	5.2	6.2	4.7	5.2
TOC	16 SEP 86	.1	MGL	5.0	4.7	5.4	5.4	6.2	4.9	5.1
TOC	16 SEP 86	.1	MGL	5.0	4.8	5.4	5.4	6.3	4.7	5.1

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B W5	W4	W6	W1	W3	W2	W7
TOC	16 SEP 86	.1	MGL	4.9	4.8	5.5	5.4	6.2	4.8	5.2
TOC	17 MAR 87	.1	MGL	5.0	3.8	3.7	2.3	5.6	4.0	3.6
TOC	17 MAR 87	.1	MGL	5.0	3.7	3.8	2.2	5.5	4.0	3.6
TOC	17 MAR 87	.1	MGL	4.9	3.6	3.7	2.2	5.5	3.9	3.5
TOC	17 MAR 87	.1	MGL	5.0	3.7	3.8	2.1	5.6	4.0	3.5
TOX	05 JAN 82	.010	MGL	ND	.060	.033	.016	.063	.048	.021
TOX	05 JAN 82	.010	MGL	ND	.050	.025	ND	.038	.059	.039
TOX	05 JAN 82	.010	MGL	ND	.050	.014	.019	.048	.016	.034
TOX	05 JAN 82	.010	MGL	.016	.052	.013	.016	.046	.056	.020
TOX	13 APR 82	.010	MGL	ND	ND	ND	ND	ND	ND	.014
TOX	13 APR 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	13 APR 82	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	13 APR 82	.010	MGL	ND	ND	.012	ND	.011	ND	.010
TOX	29 JUN 82	.010	MGL	ND	ND	ND	.017	.063	.068	.026
TOX	29 JUN 82	.010	MGL	.064	ND	ND	.076	ND	.039	.028
TOX	29 JUN 82	.010	MGL	.098	ND	.015	.070	.051	.026	.031
TOX	29 JUN 82	.010	MGL	.045	ND	ND	.066	ND	.082	.020
TOX	28 SEP 82	.010	MGL	.041		.130	.067	.096		
TOX	28 SEP 82	.010	MGL	ND		.080	ND	.069		
TOX	28 SEP 82	.010	MGL	ND		.095	.077	ND		
TOX	28 SEP 82	.010	MGL	ND		.095	.040	.062		
TOX	08 FEB 83	.010	MGL	.043	.030	.040	.039	.046	.017	.030
TOX	08 FEB 83	.010	MGL	.042	.047	.047	.028	.046	.033	.038
TOX	08 FEB 83	.010	MGL	.042	.041	.040	.044	.031	.039	.047
TOX	08 FEB 83	.010	MGL	.036	.041	.043	.041	.056	.038	.036
TOX	09 AUG 83	.010	MGL	.041	.040	.041		ND	ND	
TOX	09 AUG 83	.010	MGL	.036	.041	.036		ND	ND	
TOX	09 AUG 83	.010	MGL	.042	.038	.039		ND	ND	
TOX	09 AUG 83	.010	MGL	.040	.040	.036		ND	ND	
TOX	14 FEB 84	.010	MGL	.070	.064	ND	.037	.055	.064	ND
TOX	14 FEB 84	.010	MGL	.060	.074	ND	.035	.055	.030	.014
TOX	14 FEB 84	.010	MGL	.077	.041	ND	.036	.049	.044	.014
TOX	14 FEB 84	.010	MGL	.032	.062	ND	.039	.064	.041	.012
TOX	18 SEP 84	.010	MGL	.022	.016	ND	.015	.013	ND	.027
TOX	18 SEP 84	.010	MGL	.022	.018	.011	.025	.012	ND	.034
TOX	18 SEP 84	.010	MGL	.020	.016	ND	.013	ND	ND	.045
TOX	18 SEP 84	.010	MGL	.021	.026	.012	.013		ND	.045
TOX	20 MAR 85	.010	MGL		ND	ND	ND	ND	ND	.012
TOX	20 MAR 85	.010	MGL		ND	ND	ND	ND	ND	.013
TOX	20 MAR 85	.010	MGL		ND	ND	ND	ND	ND	.014
TOX	20 MAR 85	.010	MGL		ND	ND	ND	ND	ND	.014

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B W5	W4	W6	W1	W3	W2	W7
TOX	13 SEP 85	.010	MGL	ND		ND	ND	ND	ND	
TOX	13 SEP 85	.010	MGL	ND		ND	ND	ND	ND	
TOX	13 SEP 85	.010	MGL	ND		ND	ND	ND	ND	
TOX	13 SEP 85	.010	MGL	ND		ND	ND	ND	ND	
TOX	18 MAR 86	.010	MGL	ND	ND	.010	ND	ND	ND	ND
TOX	18 MAR 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	18 MAR 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	18 MAR 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	16 SEP 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	16 SEP 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	16 SEP 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	16 SEP 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	17 MAR 87	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	17 MAR 87	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	17 MAR 87	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TOX	17 MAR 87	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TDS	29 JUN 82	1.	MGL	465.	431.	406.	672.#	704.#	698.#	382.
2,4,6-TNT	27 JUN 84	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4,6-TNT	18 SEP 84	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4,6-TNT	20 MAR 85	.001	MGL		ND	ND	ND	ND	ND	ND
2,4,6-TNT	13 SEP 85	.001	MGL	ND		ND	ND	ND	ND	
2,4,6-TNT	18 MAR 86	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4,6-TNT	16 SEP 86	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4,6-TNT	17 MAR 87	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4-DNT	27 JUN 84	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4-DNT	18 SEP 84	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4-DNT	20 MAR 85	.001	MGL		ND	ND	ND	ND	ND	ND
2,4-DNT	13 SEP 85	.001	MGL	ND		ND	ND	ND	ND	
2,4-DNT	18 MAR 86	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4-DNT	16 SEP 86	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,4-DNT	17 MAR 87	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,6-DNT	27 JUN 84	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,6-DNT	18 SEP 84	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,6-DNT	20 MAR 85	.001	MGL		ND	ND	ND	ND	ND	ND
2,6-DNT	13 SEP 85	.001	MGL	ND		ND	ND	ND	ND	
2,6-DNT	18 MAR 86	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,6-DNT	16 SEP 86	.001	MGL	ND	ND	ND	ND	ND	ND	ND
2,6-DNT	17 MAR 87	.001	MGL	ND	ND	ND	ND	ND	ND	ND
RDX	27 JUN 84	.030	MGL	ND	ND	ND	ND	ND	ND	ND
RDX	18 SEP 84	.030	MGL	ND	ND	ND	ND	ND	ND	ND
RDX	20 MAR 85	.030	MGL		ND	ND	ND	ND	ND	ND

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY

SITE: DEMOLITION GROUNDS

PARAMETER	SAMPLING DATE	DETECTION LIMIT	UNITS	SAMPLING SITES RESULTS B						
				W5	W4	W6	W1	W3	W2	W7
RDX	13 SEP 85	.030	MGL	ND		ND	ND	ND	ND	
RDX	18 MAR 86	.030	MGL	ND	ND	ND	ND	ND	ND	ND
RDX	16 SEP 86	.030	MGL	ND	ND	ND	ND	ND	ND	ND
RDX	17 MAR 87	.030	MGL	ND	ND	ND	ND	ND	ND	ND
HMX	27 JUN 84	.100	MGL	ND	ND	ND	ND	ND	ND	ND
HMX	18 SEP 84	.100	MGL	ND	ND	ND	ND	ND	ND	ND
HMX	20 MAR 85	.100	MGL		ND	ND	ND	ND	ND	ND
HMX	13 SEP 85	.100	MGL	ND		ND	ND	ND	ND	
HMX	18 MAR 86	.100	MGL	ND	ND	ND	ND	ND	ND	ND
HMX	16 SEP 86	.100	MGL	ND	ND	ND	ND	ND	ND	ND
HMX	17 MAR 87	.100	MGL	ND	ND	ND	ND	ND	ND	ND
TETRYL	27 JUN 84	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TETRYL	18 SEP 84	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TETRYL	20 MAR 85	.010	MGL		ND	ND	ND	ND	ND	ND
TETRYL	13 SEP 85	.010	MGL	ND		ND	ND	ND	ND	
TETRYL	18 MAR 86	.005	MGL	ND	ND	ND	ND	ND	ND	ND
TETRYL	16 SEP 86	.010	MGL	ND	ND	ND	ND	ND	ND	ND
TETRYL	17 MAR 87	.010	MGL	ND	ND	ND	ND	ND	ND	ND

RUN DATE: 19 AUG 87

INSTALLATION: SENECA AD, NY SITE: DEMOLITION GROUNDS

LEGEND
NOTES: ALL METALS AND OTHER PARAMETERS WHERE APPROPRIATE ARE ON A DISSOLVED (FILTERED) BASIS UNLESS OTHERWISE NOTED. DETECTION LIMITS SHOWN ARE NORMAL LEVELS; ACTUAL LIMITS MAY VARY IN ENVIRONMENTAL SAMPLES. ANALYTICAL RESULTS ARE ACCURATE TO EITHER 2 OR 3 SIGNIFICANT FIGURES.
B UPGRADIENT SITE
VALUE EXCEEDS A NATIONAL SECONDARY DRINKING WATER REGULATION CRITERIA
& VALUE EXCEEDS A STATE WATER QUALITY STANDARD OR CRITERIA

MGL - MILLIGRAMS/LITER
UGL - MICROGRAMS/LITER
PCL - PICOCURIES/LITER
UMC - MICROMHOS/CENTIMETER
NTU - NEPHELOMETRIC TURBIDITY UNITS
TON - THRESHOLD ODOR NUMBER
TDN - TASTE DILUTION INDEX NUMBER
CU - COLOR UNITS
PHM - PER 100 MILLILITERS

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Environmental Sciences
Division

May 9, 1988

Mr. Randy Battaglia
Seneca Army Depot
Bldg. 323 - Mat. Mgt. Br.
Romulus, NY 14541-5001

RE: GTS #L7082

Dear Randy:

Enclosed are the results of the analyses of the samples collected by Andy Watkins on April 5, 1988. The samples were taken from the landfill and demolition sites located at the Seneca Army Depot facility in Romulus, NY. All wells were purged the day before -- Monday, April 4, 1988.

The samples to be analyzed for explosives were analyzed by the U.S. Army Environmental Hygiene Agency in Aberdeen Proving Ground, MD. The results were given to GALSON to incorporate into this report. A separate copy of the explosive report was sent by them directly to you.

If you have any questions concerning our results, please feel free to contact me.

Sincerely,

GALSON TECHNICAL SERVICES, INC.

Ed Stuber

Edward A. Stuber,
Associate Laboratory Director

EAS/mrb

Enclosure

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: PT10

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 5.3 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 3.6 FT

DEPTH TO WATER FROM GROUND SURFACE: 1.7 FT

TIME OF MEASUREMENT: 1145 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 2.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ø, 5.0' long pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: DRY GALLONS < 12 gal

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1145 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 5.3 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):
45 °C ~~°F~~ °F (temperature) pH: ____ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

44' to bottom of well, ≈ 6.4 gallons, $39' \times 0.1632 \frac{gal}{ft}$
Bailed well 4/4/88, Depth to water was 5.0'.

SAMPLE COLLECTOR'S NAME: Andrew Watkins

WORK AREA MEASUREMENTS(IF PERFORMED): °C °F (temperature) pH: ____ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: PT 11

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 17.3 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 3.5 FT

DEPTH TO WATER FROM GROUND SURFACE: 13.8 FT

TIME OF MEASUREMENT: 1215 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 2.0 INCHES

PUMPING/SAMPLING METHOD: 1"ϕ, 5.0' pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: DRY GALLONS <12 gal

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1215 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 17.3 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

44 °F (temperature) pH: ___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

4/4/88 Bailed well dry, ~~Depth~~ to water = ~~17.6~~ 4.6'
Bottom of well = 19.0'
14.5' x 0.1632 gal/ft = 2.4 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ____ °C ____ °F (temperature) pH: ___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: PT12

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 5.0 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 3.0 FT

DEPTH TO WATER FROM GROUND SURFACE: 2.0 FT

TIME OF MEASUREMENT: 1240 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 2.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ø, 5.0 pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1240 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 5.0 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

44 °F temperature pH: ___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

well bailed Dry 4/4/88, Depth to water = 5.0'
Depth to bottom = 13.0'
8.0' x 0.1632 = 1.3 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ____ °C ____ °F temperature pH: ___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: PT15

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 4.8 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 3.5 FT

DEPTH TO WATER FROM GROUND SURFACE: 1.3 FT

TIME OF MEASUREMENT: 1610 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 2.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ø, 5.0' pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1610 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 4.8 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):
48 °F temperature
pH: ___.__
___.__
___.__
___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed Dry 4/4/88, depth to water 4.0'
depth to bottom 19.0', 15.0' x 0.1632 = 2.4 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ___ °C ___ °F temperature
pH: ___.__
___.__
___.__
___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: PT16

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 3.0 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 2.0 FT

DEPTH TO WATER FROM GROUND SURFACE: 1.0 FT

TIME OF MEASUREMENT: 1302 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 2.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ϕ, ± 5.0 pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:

TIME OF SAMPLING: 1302 HRS

DEPTH TO WATER PRIOR TO SAMPLING: (FROM TOP OF CASING) 3.0 FT

AMOUNT OF SAMPLE COLLECTED (LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

47 °F temperature pH: ___ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

well bailed 4/4/88, 12 gallons bailed, 3.0' depth to water 11.3' depth to bottom, 8.3' x 0.1632 = 1.4 gal

4/5/88 - water very cloudy after first bale full.

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ___ °C ___ °F temperature pH: ___ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: PT 1 J

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 4.5 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 2.0 FT

DEPTH TO WATER FROM GROUND SURFACE: 2.5 FT

TIME OF MEASUREMENT: 1320 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 2.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ø, 5.0' pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1320 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 4.5 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):
44 °F (temperature) pH: ___ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed 5 gallons 4/4/88, depth to water = 4.7', depth to bottom = 10.8'
6.4' x 0.1632 = ≈ 1.0 gal

4/5/88 - water very cloudy after first bale full.

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ___ °C ___ °F (temperature) pH: ___ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: MW1

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 6.2 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 4.7 FT

DEPTH TO WATER FROM GROUND SURFACE: 1.5 FT

TIME OF MEASUREMENT: 1450 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 4.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ø, 5.0' pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:

TIME OF SAMPLING: 1450 HRS

DEPTH TO WATER PRIOR TO SAMPLING: (FROM TOP OF CASING) 6.2 FT

AMOUNT OF SAMPLE COLLECTED (LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

45 °F temperature

pH: ____ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed Dry 4/4/88, depth to water = 6.1', depth to bottom 13.5', 7.4' x 0.6528 = 4.8 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ____ °C °F temperature

pH: ____ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: MW 2

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 6.0 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 3.8 FT

DEPTH TO WATER FROM GROUND SURFACE: 2.2 FT

TIME OF MEASUREMENT: 1530 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 4.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ϕ, 5.0' pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1530 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 6.0 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):
46 °F temperature pH: ___.__
___.__
___.__
___.__
___.__
4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:
Bailed Dry 4/4/88, depth to water = 5.8'
depth to bottom = 9.5', 3.7' x 0.6528 = 2.4 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ___ °C ___ °F temperature pH: ___.__
___.__
___.__
___.__
4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: W3

DATE: 05 (day) 04 (month) 88 (year) ____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: 17.3 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 5.5 FT

DEPTH TO WATER FROM GROUND SURFACE: 1.8 FT

TIME OF MEASUREMENT: 1545 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 4.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ø, 5.0' PVC bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1545 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 17.3 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

45 °F (temperature) pH: ___.__ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed Dry 4/4/88, depth to water 7.5'
depth to bottom 16.0', 8.5 x 0.6528 = 5.5 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ____ °C ____ °F (temperature) pH: ___.__ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: ___ W4

DATE: 05 (day) 04 (month) 88 (year) _____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: __7.0 FT

LENGTH OF CASING ABOVE GROUND SURFACE: __3.3 FT

DEPTH TO WATER FROM GROUND SURFACE: __3.7 FT

TIME OF MEASUREMENT: 1505 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: __4.0 INCHES

PUMPING/SAMPLING METHOD: 1"¼ ø, 5.0' pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below ___ GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1505 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) __7.0 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

__43 °F (temperature) pH: ___.__ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

___.__
___.__
___.__

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed Dry 4/4/88, depth to water = 7.0', depth to bottom = 12.3'
5.3' x 0.6528 = 3.5 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ____ °C ____ °F (temperature) pH: ___.__ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

___.__
___.__

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: ___W5

DATE: 05 (day) 04 (month) 88 (year) _____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: __2.7 FT

LENGTH OF CASING ABOVE GROUND SURFACE: __2.5 FT

DEPTH TO WATER FROM GROUND SURFACE: __0.2 FT

TIME OF MEASUREMENT: 1430 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: __4.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ϕ, 5.0' pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:

TIME OF SAMPLING: 1430 HRS

DEPTH TO WATER PRIOR TO SAMPLING: (FROM TOP OF CASING) __2.7 FT

AMOUNT OF SAMPLE COLLECTED (LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

__48 °F temperature pH: ___.__

___.__

___.__

___.__

___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed dry 4/4/88, depth to water = 2.8', depth to bottom = 11.3'

8.5 x 0.6528 = 5.5 gal

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ____ °C ____ °F temperature pH: ___.__

___.__

___.__

___.__

___.__

4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: ___ W 6

DATE: 05 (day) 04 (month) 88 (year) _____ (Julian)

DEPTH TO WATER FROM TOP OF CASING: __ 3 . 0 FT

LENGTH OF CASING ABOVE GROUND SURFACE: __ 2 . 5 FT

DEPTH TO WATER FROM GROUND SURFACE: __ 0 . 5 FT

TIME OF MEASUREMENT: 1410 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: __ 4 . 0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ϕ, 5.0 pvc bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below ___ GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:

TIME OF SAMPLING: 1410 HRS

DEPTH TO WATER PRIOR TO SAMPLING: (FROM TOP OF CASING) __ 3 . 0 FT

AMOUNT OF SAMPLE COLLECTED (LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

__ 50 °F (temperature) pH: ___ . __ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

___ . __

___ . __

___ . __

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed 9 gallons to dry 4/4/88, depth to water 2.7'
depth to bottom 11.2', 8.5 x 0.6528 = 5.5 gal

Note: ~~water st~~ standing water on ground around well

SAMPLE COLLECTOR'S NAME: Awatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ___ °C ___ °F (temperature) pH: ___ . __ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

___ . __

___ . __

___ . __

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

GROUND-WATER MONITORING
FIELD DATA LOGSHEET

INSTALLATION: Seneca Army Depot WELL ID: MW7

DATE: 05 day 04 month 88 year ____ Julian

DEPTH TO WATER FROM TOP OF CASING: 12.9 FT

LENGTH OF CASING ABOVE GROUND SURFACE: 2.3 FT

DEPTH TO WATER FROM GROUND SURFACE: 0.6 FT

TIME OF MEASUREMENT: 1347 HRS

METHOD OF MEASUREMENT: bailer & tape measure

INSIDE DIAMETER OF CASING: 4.0 INCHES

PUMPING/SAMPLING METHOD: 1¼" ø, 5.0' PVC bailer

AMOUNT OF WATER PUMPED PRIOR TO SAMPLING: see below GALLONS

IF TIME ALLOWED FOR WELL TO RECHARGE BEFORE SAMPLING:
TIME OF SAMPLING: 1347 HRS
DEPTH TO WATER PRIOR TO SAMPLING:
(FROM TOP OF CASING) 12.9 FT

AMOUNT OF SAMPLE COLLECTED
(LIST CONTAINERS FILLED):

FIELD MEASUREMENTS(IF PERFORMED):

48 °F temperature pH: ____ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

NOTES CONCERNING CONDITION OF WELL, ODOR AND COLOR OF WATER, DEVIATIONS FROM SPECIFIED SAMPLING PROCEDURES, AND OTHER OBSERVATIONS:

Bailed 11 gallons to dry 4/4/88, depth to water = 3.0'
depth to bottom 8.0', 5.0' x 0.6528 = 3.3 gal.
Note: water standing on ground around well.

SAMPLE COLLECTOR'S NAME: AWatkins

WORK AREA MEASUREMENTS(IF PERFORMED): ____ °C ____ °F temperature pH: ____ 4 REPLICATE pH MEASUREMENTS IF A HAZARDOUS WASTE SITE

pH METER TYPE AND MODEL:

FILTERING METHOD:

TIME WHEN FILTERING AND PRESERVATION IS COMPLETED: ____ HRS

NOTES CONCERNING USE OF ANY SPECIAL PROCEDURES OR DEVIATIONS FROM SPECIFIED PROCEDURES:

COMMENTS AND OBSERVATIONS(CONTINUE ON REVERSE SIDE IF ADDITIONAL SPACE IS NEEDED):

SAMPLE PREPARER'S NAME:

Galson
Technical Services, Inc.
6601 Kirkville Road
E Syracuse, N Y 13057
Tel: (315) 437-7181
Environmental Sciences Division

LABORATORY PERFORMING ANALYSIS GALSONS

SURVEY Seneca Army Depot

SAMPLERS (Signatures) Andrew Watkins

Station Number	Station Location	Date 1988	Time	Sample Type: Water Comp	Sample Type: Water Grab	Sample Type: Air	GTS No.	Other	No. of Containers	Analysis Required
PT 10	Landfill	4/5/88	1145		✓				5	
PT 11	"	4/5	1215		✓				5	
PT 12	"	4/5	1240		✓				5	
PT 15	"	4/5	1610		✓				5	
PT 16	"	4/5	1302		✓				5	
PT 17	"	4/5	1320		✓				5	

Relinquished By (Signature): RWatkins	Received By (Signature): S Brakeman	Date/Time 4/5/88 1930
Relinquished By (Signature): S Brakeman	Received By (Signature): Rose Myers	Date/Time 4/06/88 8:00 a.m.
Relinquished By (Signature): Rose Myers	Received By (Signature):	Date/Time
Relinquished By (Signature):	Received by Mobile Laboratory for Field Analysis (Signature):	Date/Time

Dispatched By (Signature):	Date/Time	Received for Laboratory By: S BRAKEMAN	Date/Time 4-5 1530

Method of Shipment:

Galson
Technical Services, Inc.
6601 Kirkville Road
E Syracuse, N Y 13057
Tel: (315) 437-7181
Environmental Sciences Division

LABORATORY PERFORMING ANALYSIS GALSON

SURVEY Seneca Army Depot				SAMPLERS (Signatures)						
Station Number	Station Location	Date 1988	Time	Sample Type: Water Comp	Water Grab	Air	GTS No.	Other	No. of Containers	Analysis Required
W1	Demo site	4/5	1450		✓				6	
W2	"	"	1530		✓				6	
W3	"	"	1545		✓				6	
W4	"	"	1505		✓				6	
W5	"	"	1430		✓				6	
W6	"	"	1410		✓				6	
99	Bailer Blank	"	1330		✓				1	
W7	Demo site	"	1347		✓				6	

Relinquished By (Signature): A Watkins	Received By (Signature): S. Brakeman	Date/Time 4/5/88 1930
Relinquished By (Signature): S. Brakeman	Received By (Signature): Rose Meyers	Date/Time 4-06-88 8:00 a.m.
Relinquished By (Signature): Rose Meyers	Received By (Signature):	Date/Time
Relinquished By (Signature):	Received by Mobile Laboratory for Field Analysis (Signature):	Date/Time

Dispatched By (Signature):	Date/Time	Received for Laboratory By: S BRAKMAN	Date/Time 4-5 1530

Method of Shipment:

DEPARTMENT OF THE ARMY
SENECA ARMY DEPOT
ROMULUS, NEW YORK 14541-5001

July 7, 1988

REPLY TO
ATTENTION OF

Director of Engineering
and Housing

Mr. Glenn Wilmar
Remedial Project Manager
Site Investigation Section
Room 2230, ATTN: ERRD-PSB/SIS
26 Federal Plaza
New York, New York 10278

Dear Mr. Wilmar:

As you know, organic solvents were detected in existing ground water monitoring wells at Seneca's landfill site. Seneca subsequently requested the Army Environmental Hygiene Agency (AEHA) to investigate the degree of contamination at this site.

AEHA's geohydrologic study is enclosed (enclosure 1). Also enclosed is data for the wells installed during the study, and data from a nearby farmhouse' wells (enclosure 2).

Seneca Army Depot obtained funding for a Preliminary Assessment/Site Investigation (PA/SI) and interim remedial action. The PA/SI is expected to be completed by September 1, 1988. The PA/SI will determine sources of contamination, and recommended cleanup alternatives.

The interim remedial action will remove and properly dispose of the sources, and collect and treat groundwater on the site. The intent of the interim remedial action is to take corrective actions in an appropriate and timely manner. Funds have been approved to initiate the interim remedial action in the first quarter of fiscal year 1989.

The interim actions will, of course, depend upon data obtained during the PA/SI. Although the interim actions may or may not satisfy final cleanup requirements, Seneca Army Depot will pursue interim corrective actions to protect human health and the environment.

We request your concurrence/nonconcurrence with this plan of action.

If you need additional information or have any questions regarding this correspondence, contact Randall W. Battaglia at 607-869-1450.

Sincerely,

Gary W. Kittell

Gary W. Kittell
Director of Engineering & Housing

Enclosures

Copies Furnished:

Mr. Frank Shattuck, Regional Solid and Hazardous Waste Engineer, Department of Environmental Conservation, Region 8, 6274 E. Avon-Lima Road, Avon, New York 14414

Mr. Paul R. Counterman, P.E., Chief, Bureau of Hazardous Waste Technology, Division of Hazardous Substances Regulation, 50 Wolf Road, Albany, New York 12233

Mr. Marwan Fanek, New York Facilities Section, U.S. Environmental Protection Agency, 26 Federal Plaza, New York, New York 10278

Mr. Robert Hargrove, Federal Facilities Coordinator, U.S. Environmental Protection Agency, 26 Federal Plaza, New York, New York 10278

Mr. and Mrs. Thomas Shaw, Smith Vineyard Road, MacDougall, New York 14541

Mr. Charles Carroll, Seneca County Health Department, Thurber Drive, Waterloo, New York 13165

Mr. John J. Nicit, Attorney at Law, 20 W. Main Street, Waterloo, New York 13165

UNITED STATES ARMY ENVIRONMENTAL HYGIENE AGENCY

ABERDEEN PROVING GROUND, MD 21010-5422

GEOHYDROLOGIC STUDY NO. 38-26-0313-88
SENECA ARMY DEPOT
ROMULUS, NEW YORK
13-21 OCTOBER 1987

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO ATTENTION OF

HSHB-ME-SE

25 APR 1988

MEMORANDUM FOR: Commander, U.S. Army Materiel Command, ATTN: AMCSG, 5001 Eisenhower Ave., Alexandria, VA 22333-0001

SUBJECT: Geohydrologic Study No. 38-26-0313-88, Seneca Army Depot, Romulus, New York, 13-21 October 1987

Copies of report with Executive Summary are enclosed.

FOR THE COMMANDER:

Paul R. Thies

Encl

PAUL R. THIES
LTC, MS
Chief, Waste Disposal Engineering Division

CF:
DA, USAEHSC, ATTN: CEHSC-E/CEHSC-F (w/encl)
HQDA(DASG-PSP) (wo/encl)
Cdr, DESCOM, ATTN: AMSDS-T (w/encl)
Cdr, SEAD, (w/encl)
Cdr, USATHAMA, ATTN: AMXTH-TE (w/encl)
Cdr, MEDDAC, Ft Devens, ATTN: PVNTMED Svc (2 cy) (w/encl)
Cdr, WRAMC, ATTN: PVNTMED Svc (w/encl)
Cdr, USAEHA Fld Spt Actv, Ft Meade (w/encl)

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO ATTENTION OF

HSHB-ME-SE

EXECUTIVE SUMMARY
GEOHYDROLOGIC STUDY NO. 38-26-0313-88
SENECA ARMY DEPOT
ROMULUS, NEW YORK
13-21 OCTOBER 1987

The purpose, general summary and conclusions, and recommendations of the enclosed report follow:

a. Purpose. In June 1987, ground-water monitoring detected organic solvents near the closed incinerator at Seneca Army Depot. This site is near the post boundary, and approximately 1/2 mile off the post is a domestic drinking water well. Seneca Army Depot and the U.S. Army Materiel Command requested an investigation of the contamination to determine the direction, extent, and migration of the plume, and the risk to human health.

b. Summary and Conclusions.

(1) General. The study team completed 12 borings and installed nine monitoring wells across the site, from which samples were drawn. The site contains a number of possible sources of the ground-water contamination, the most probable being old burning pits, which were later used as part of the north landfill.

(2) Hydrogeology. The ground water appears to be in the fractured and weathered shale, confined to semiconfined between a glacial till and unweathered shale bedrock. The ground water flows evenly across the site toward the west-southwest.

(3) Ground-water Contamination. The contamination forms a definite plume, with two main constituents, trichloroethene and trans-1,2-dichloroethene. Chloroform, 1,2-dichloroethane, vinyl chloride, and a floating product that appeared to be diesel fuel were also detected.

No ground-water contamination has been detected offpost, either in the private wells, or in Well PT-26, installed in the northeast corner of the airstrip. However, based on the results from the wells onpost near the boundary, the contamination has probably migrated offpost at levels exceeding drinking water standards. Surface water sampling results show that the contamination may extend to surface water, and has moved offpost. The offpost surface water contamination is probably due to contaminated ground water seeping to the surface and not direct surface water flow.

c. Recommendations.

(1) We base the following recommendations on good environmental engineering practices: Keep the sites around the wells mowed; collect contaminated surface water before it flows offpost; investigate appropriate technologies for the collection and treatment of the contaminated ground water; excavate and clean contamination source areas; and properly dispose of contaminated materials.

(2) Based on 40 Code of Federal Regulations 264.101, negotiate corrective actions with the proper regulatory agencies; investigate the extent of the plume offpost.

Geohydrologic Study No. 38-26-0313-88, 13-21 Oct 87

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DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO ATTENTION OF

HSHB-ME-SE

GEOHYDROLOGIC STUDY NO. 38-26-0313-88
SENECA ARMY DEPOT
ROMULUS, NEW YORK
13-21 OCTOBER 1987

1. AUTHORITY. Memorandum, U.S. Army Materiel Command, AMCSG-S, 15 June 1987, subject: Fiscal Year 1988 Field Services Requirements.

2. PURPOSE. To investigate the ground-water contamination of the old incinerator at SEAD and determine the direction, extent, and nature of the plume, and the risk to human health (reference 8).

3. GENERAL.

a. Abbreviations and Definitions. Appendix A contains a list of abbreviations and definitions.

b. Project Personnel. William J. Bangsund, Environmental Engineer, as Project Officer, and William P. Smithson, Engineering Technician, from USAEHA conducted this study. Bill Pagano and Kevin Burchell from SEAD Roads and Grounds assisted with the field work.

c. Location.

(1) Seneca Army Depot is in Seneca County in the Finger Lakes Region of central New York (Figure 1). It is on the west side of the highlands separating Seneca Lake and Cayuga Lake.

(2) The study site is midway up the western edge of SEAD (Figure 2).

d. Background.

(1) History. Construction of Seneca Ordnance Depot (reference 12) began in July 1941. Later expansion included the airstrip from the former Sampson Air Force Base. Civilian employment peaked in 1943 at 2,500, and reached its low in 1946 at 600. Military employment is approximately 300 to 400. Present civilian employment is near 700. In August 1963, Seneca Ordnance Depot was transferred from the Chief of Ordnance to the U.S. Army Supply and Maintenance Command and renamed Seneca Army Depot. On 1 July 1966, SEAD was reassigned to the AMC. On 1 September 1976, DESCOM was activated with command and control over all AMC depots.

(2) Climate. The hottest month of the year in the area of SEAD (reference 18) is July, with an average daily high temperature of 80 °F. The coldest month is January, with an average low daily temperature of 4 °F. Prevailing winds are out of the west and northwest. The average yearly precipitation is 30 inches.

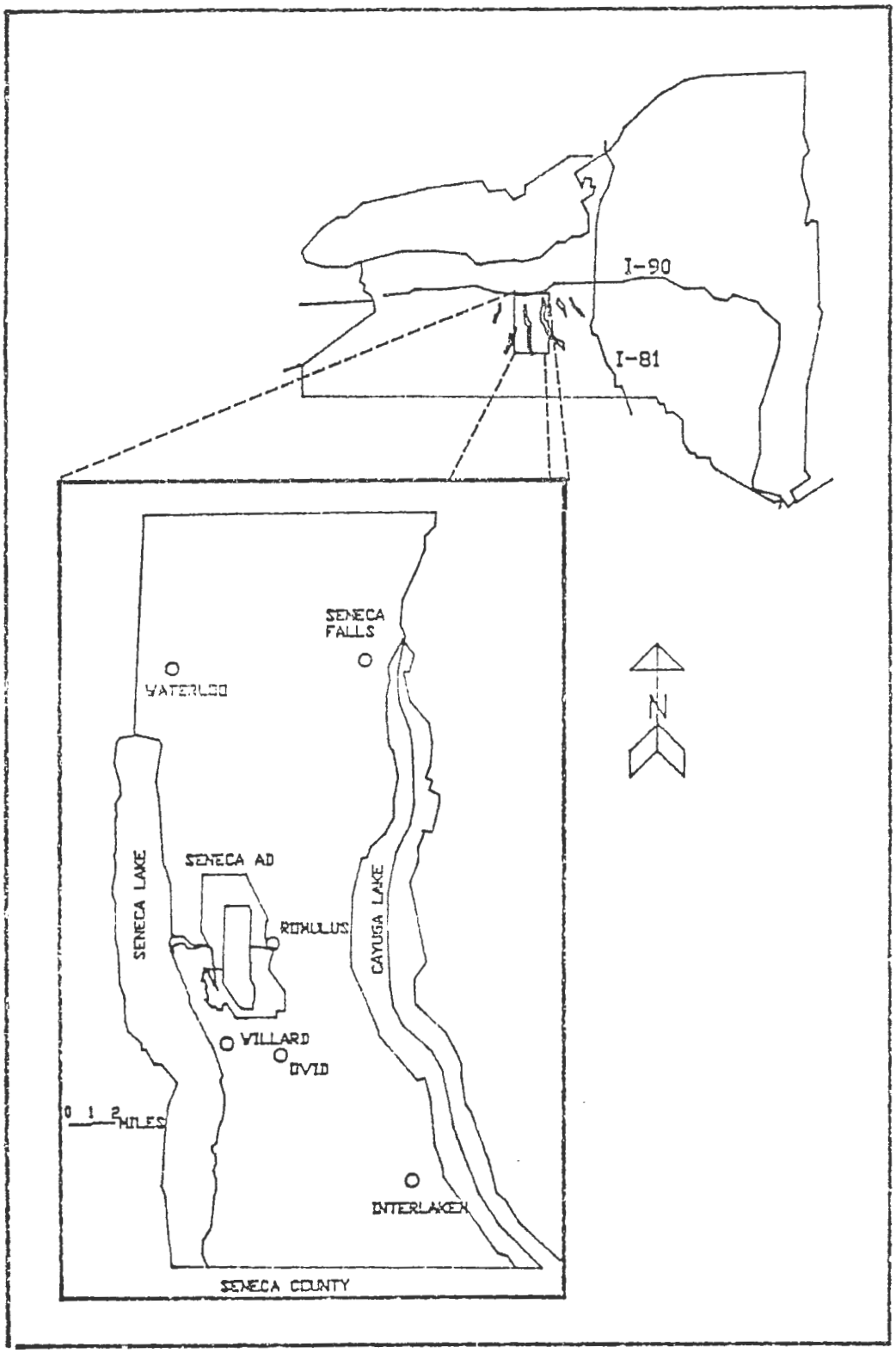

FIGURE 1. LOCATION OF SENECA ARMY DEPOT.

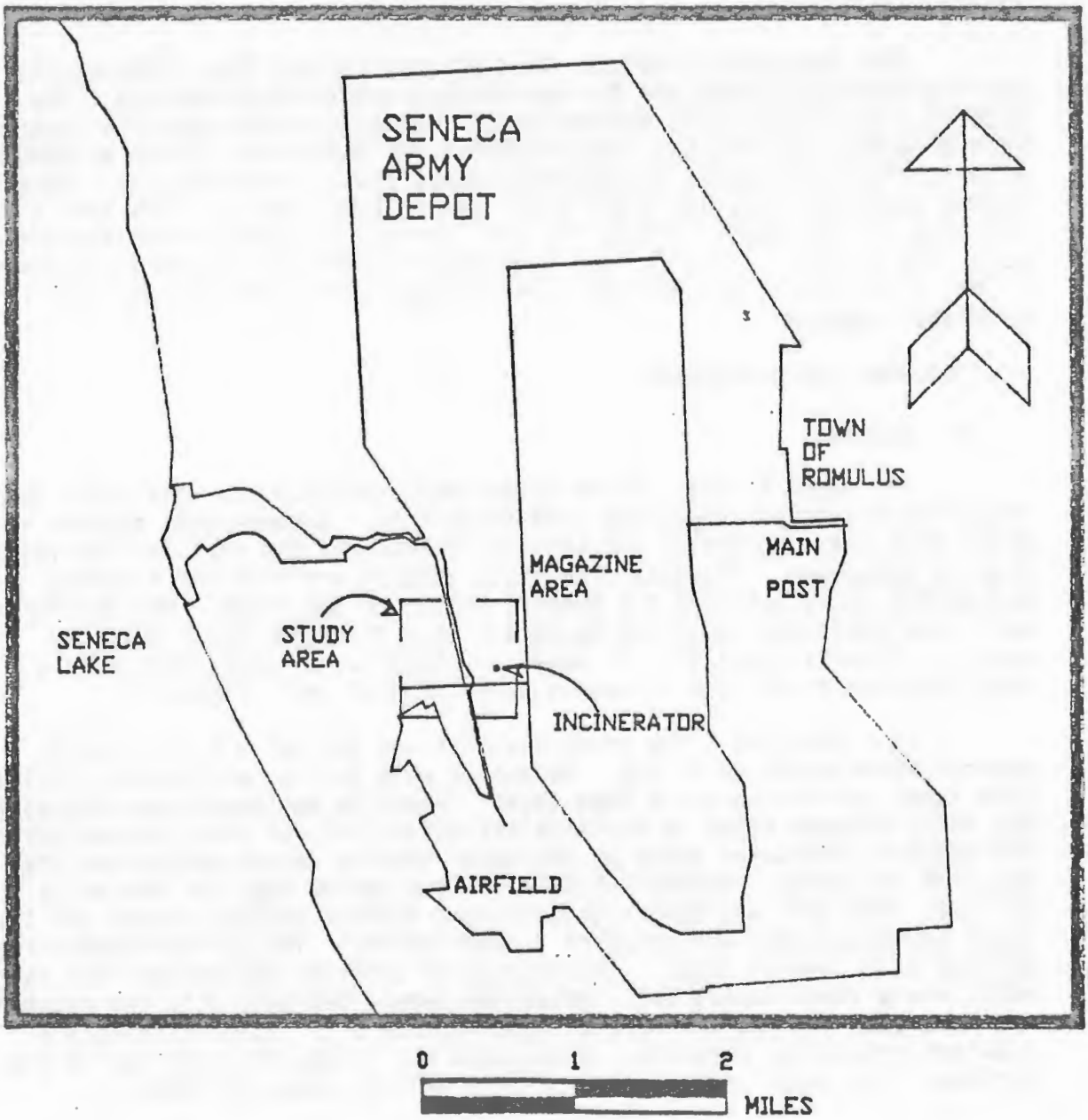

FIGURE 2. LOCATION OF THE STUDY AREA.

(3) Regional Hydrogeology. The SEAD is within the glacial till plain of the Central Lowlands physiographic province. Most surface drainage goes west to Seneca Lake. However, one stream in the northeast corner flows north into the Seneca-Cayuga Canal. Glacial deposits mantle most of Seneca County. North of SEAD is a glacial lake plain, and to the south is the north end of the Appalachian Plateau (Figure 3). Figure 4 is a map of the bedrock geology. The SEAD is underlain by a series of Middle Devonian shales that make up the Hamilton Group. The composite thickness of the units beneath the depot is approximately 500 feet. They dip evenly at a shallow angle to the south. Figure 5 shows cross sections of the SEAD area.

(4) Regulatory Status. The SEAD has applied for a RCRA permit for storing hazardous waste and for operating a deactivation furnace. The Hazardous and Solid Waste Amendments of 1984 to the RCRA requires that a Part B permit must include identification and corrective action at SWMU's with continuing releases of hazardous constituents (reference 3). Recently, USAEHA performed a review (reference 16) of SEAD's SWMU's. The SWMU's in the area of this study include the old incinerator with its cooling water pond, the ash and burn pits, and two closed landfills. Corrective action at a SWMU site must be coordinated with and approved by the appropriate regulatory agency.

4. FINDINGS AND DISCUSSION.

a. Methods.

(1) Well Siting. Prior to any well construction, the study team installed boreholes across the site (Figure 6). Ground-water samples were drawn from these boreholes and sent to USAEHA labs and analyzed for volatile organic compounds. The data from these samples and from the existing monitoring wells outlined the general extent of the plume. New monitoring wells and additional sampling boreholes were completed based on those samples (Figures 7 and 8). In addition, SEAD has already instituted a sampling program for the privately-owned offpost well (Figure 8).

(2) Drilling. The study team drilled the wells with a truck-mounted Acker AD-II drill rig. Boreholes were drilled with 6-inch hollow stem auger and 4-inch solid stem auger. Downhole equipment was cleaned with tap water between holes to minimize the possibility of cross contamination. The depth to the water table or the water bearing strata determined the depth of the holes. Appendix B contains the boring logs for the wells drilled. One well was constructed using a surface casing to seal off the upper saturated zone and screened in the bedrock. The surface deposits were drilled using 6-inch auger. Then a plug of concrete was poured into the hole, and a steel casing set. After the cement had set, drilling resumed. The hole plug and bedrock were drilled with NW drill steel driving a 3 1/4-inch tri-roller cone bit. Compressed air lifted the cuttings to the surface. The final construction of this well is shown in Figure 9.

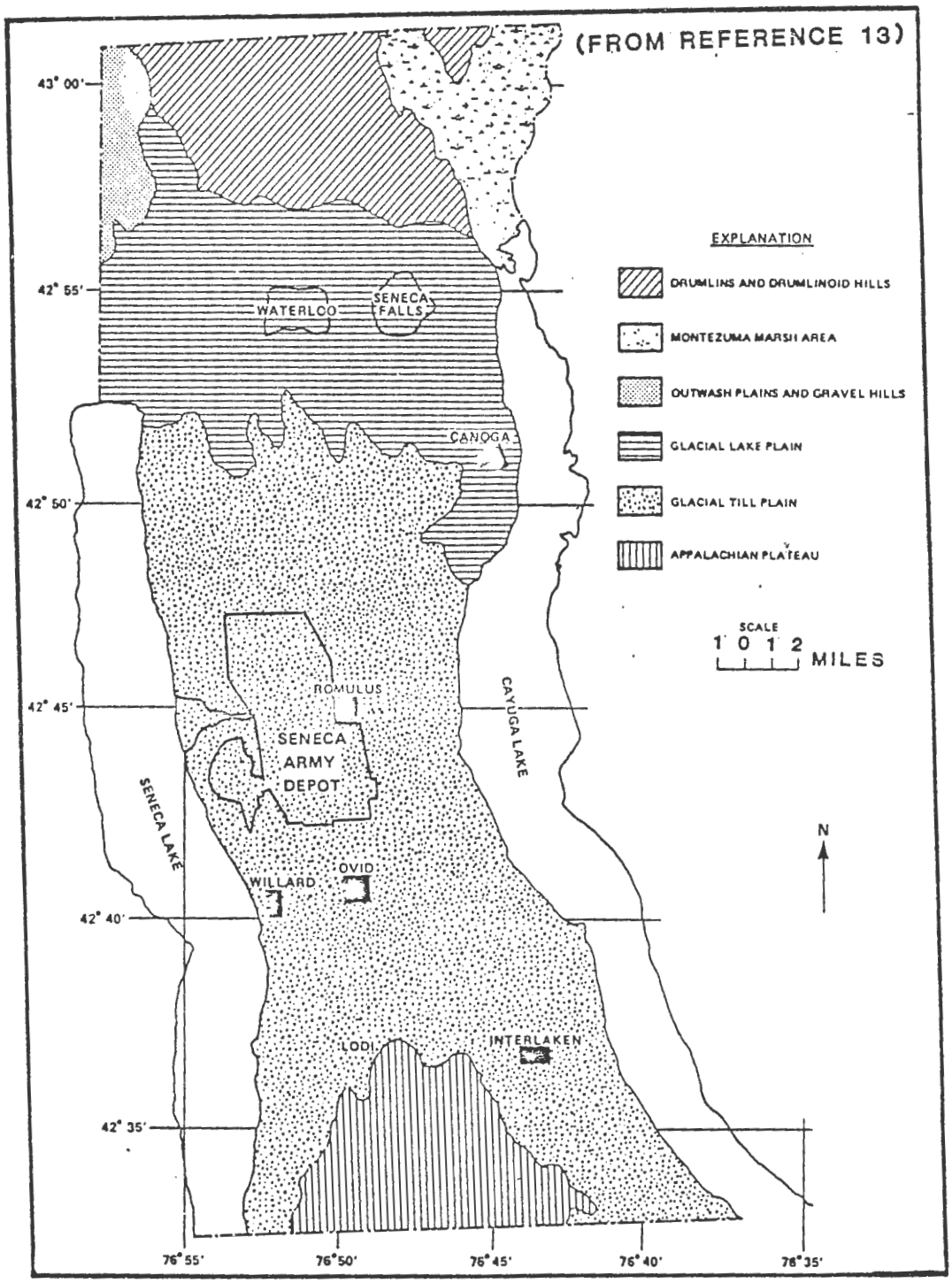

FIGURE 3 Physiographic Map of Seneca County, New York

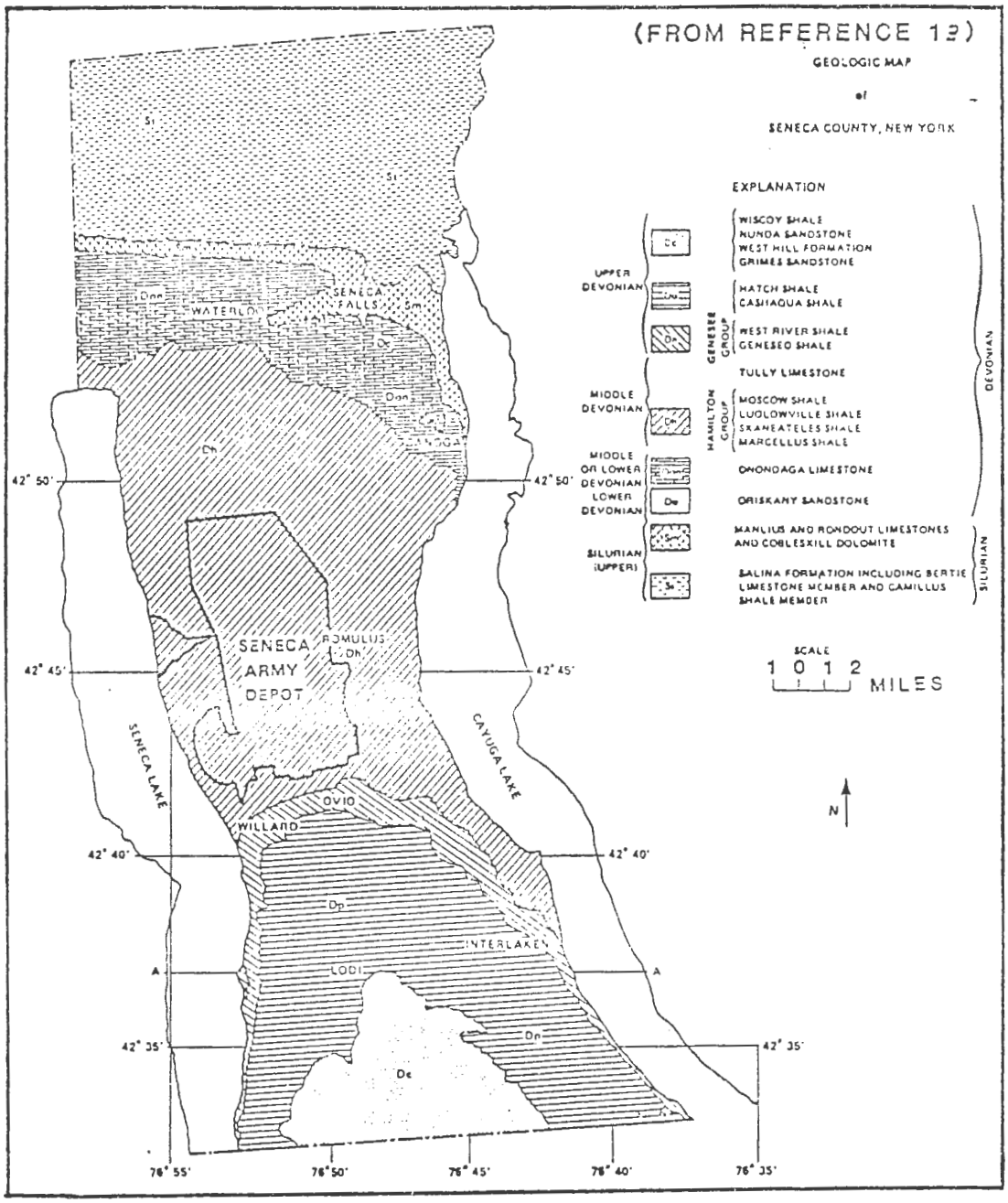

FIGURE 4 Geologic Map of Seneca County, New York

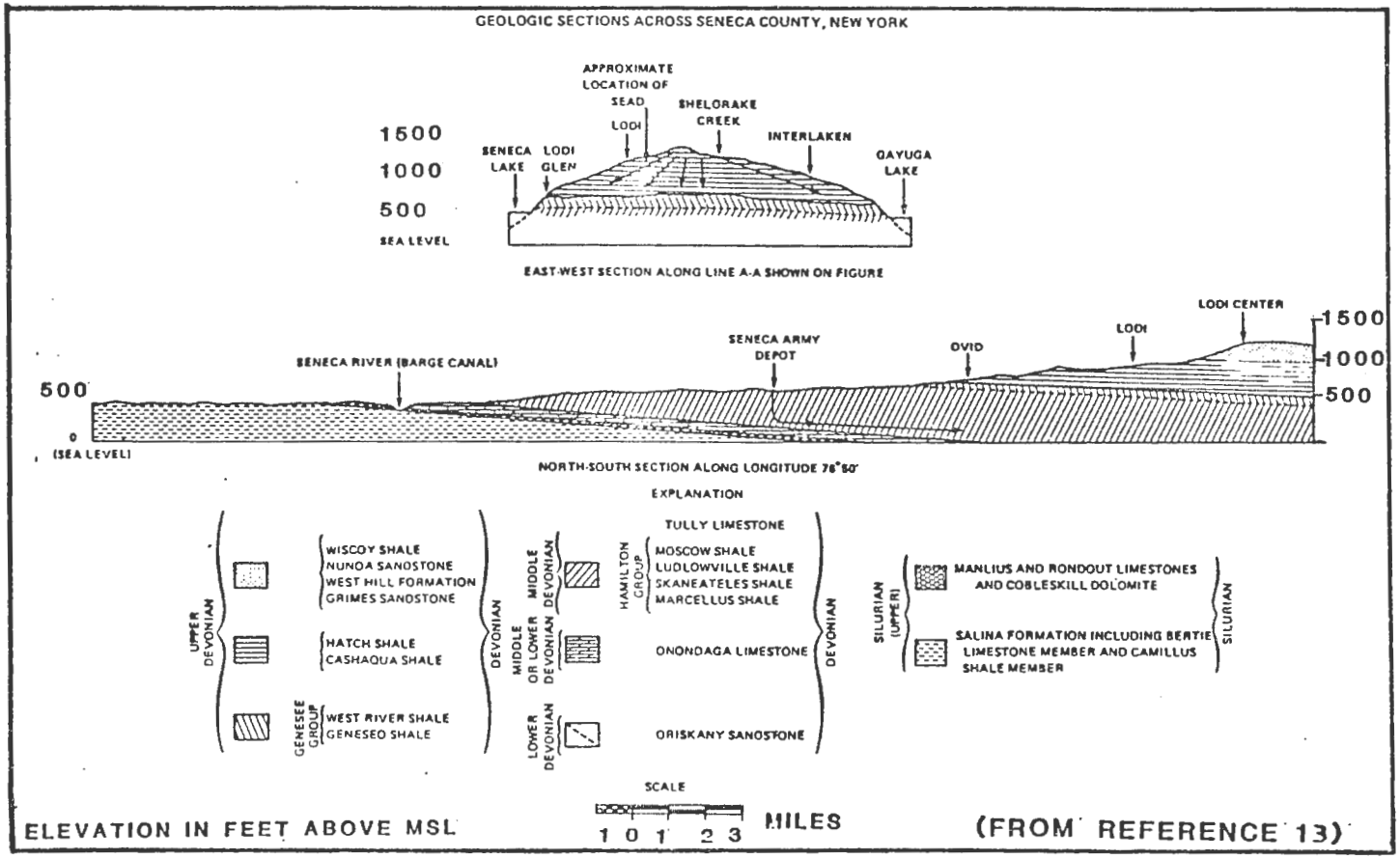

FIGURE 5 Geologic Cross Sections of Seneca County, New York

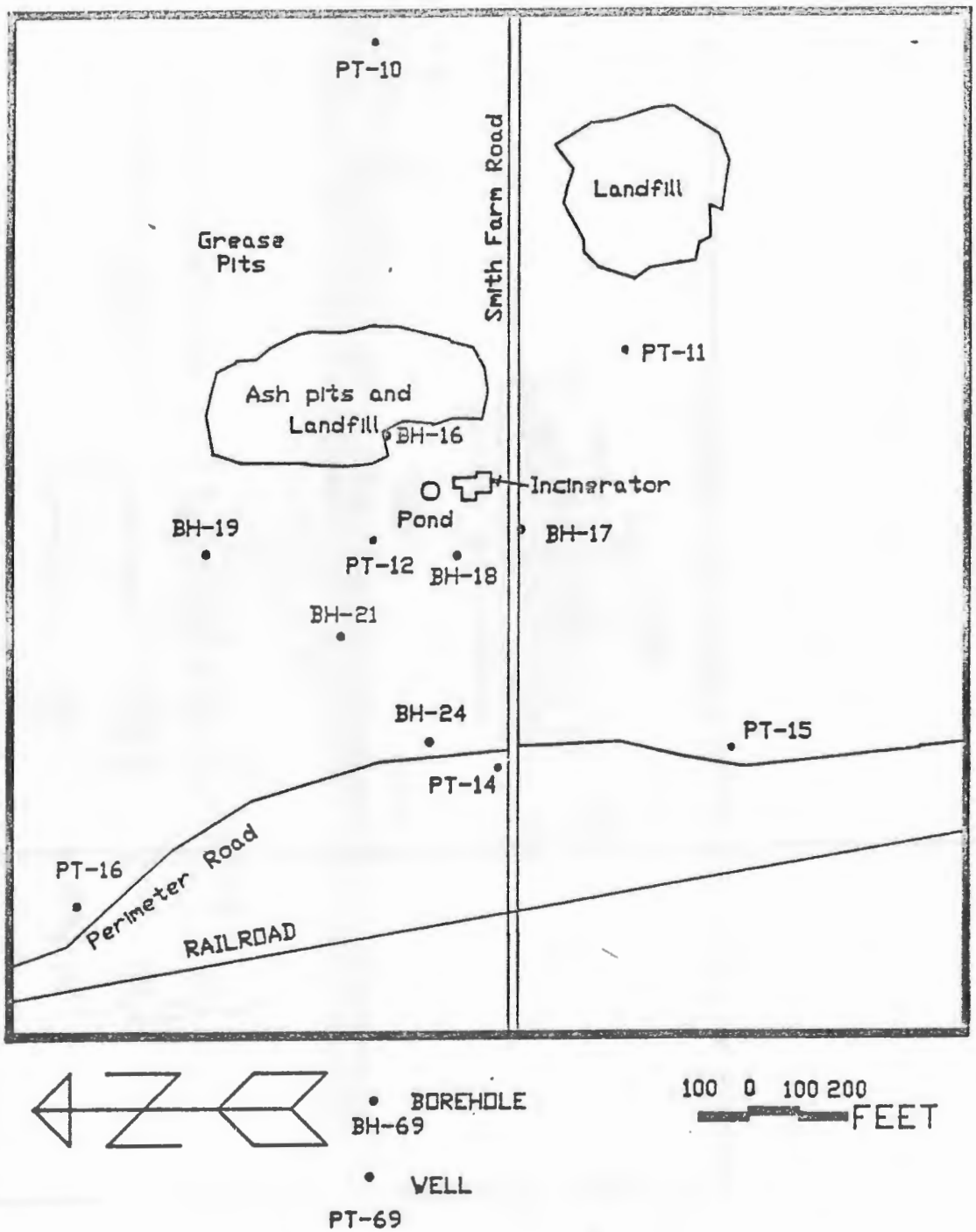

FIGURE 6. MAP SHOWING THE INITIAL SAMPLING POINTS.

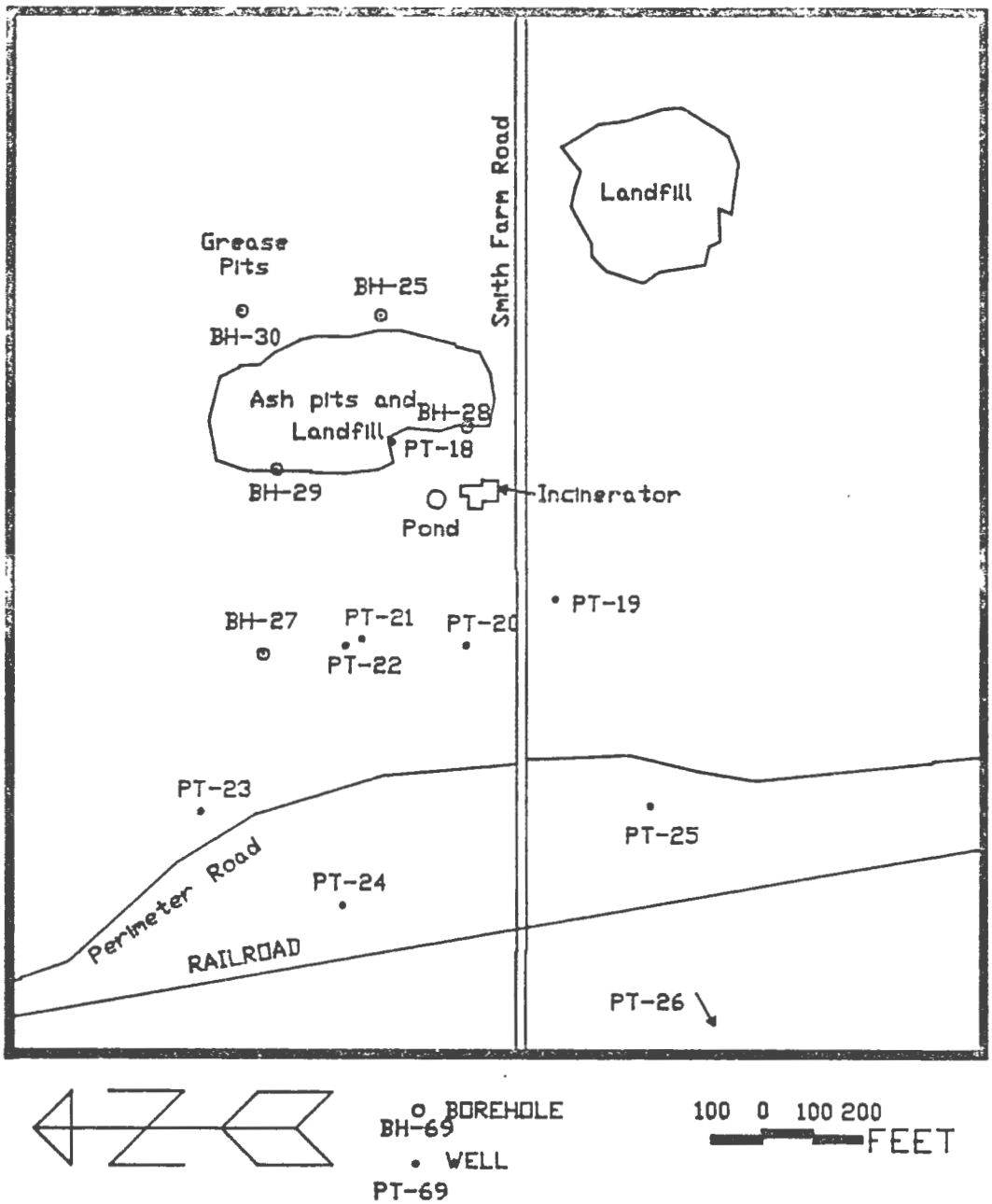

FIGURE 7. MAP SHOWING THE ADDITIONAL GROUND WATER SAMPLING POINTS.

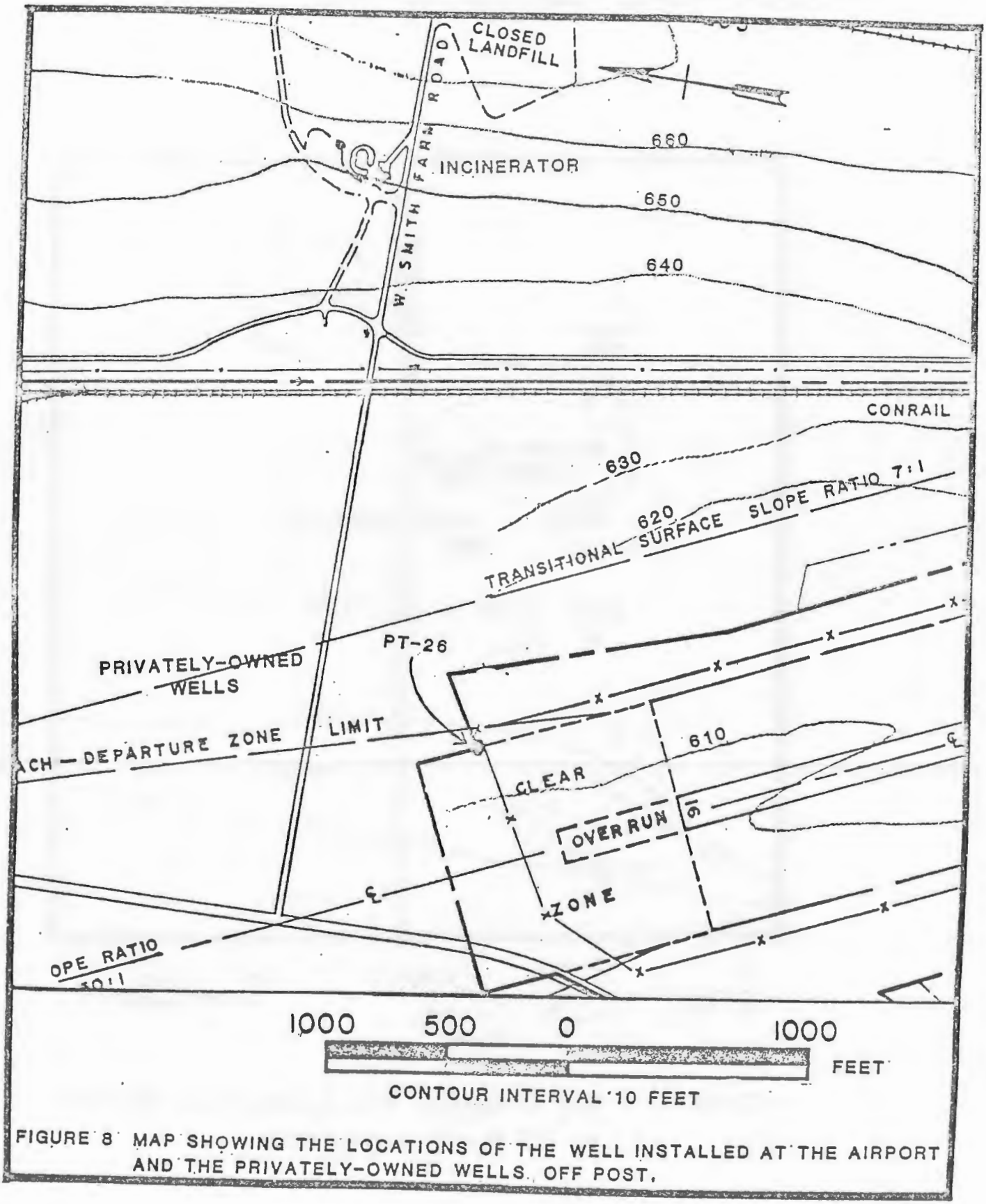

FIGURE 8 MAP SHOWING THE LOCATIONS OF THE WELL INSTALLED AT THE AIRPORT AND THE PRIVATELY-OWNED WELLS OFF POST.

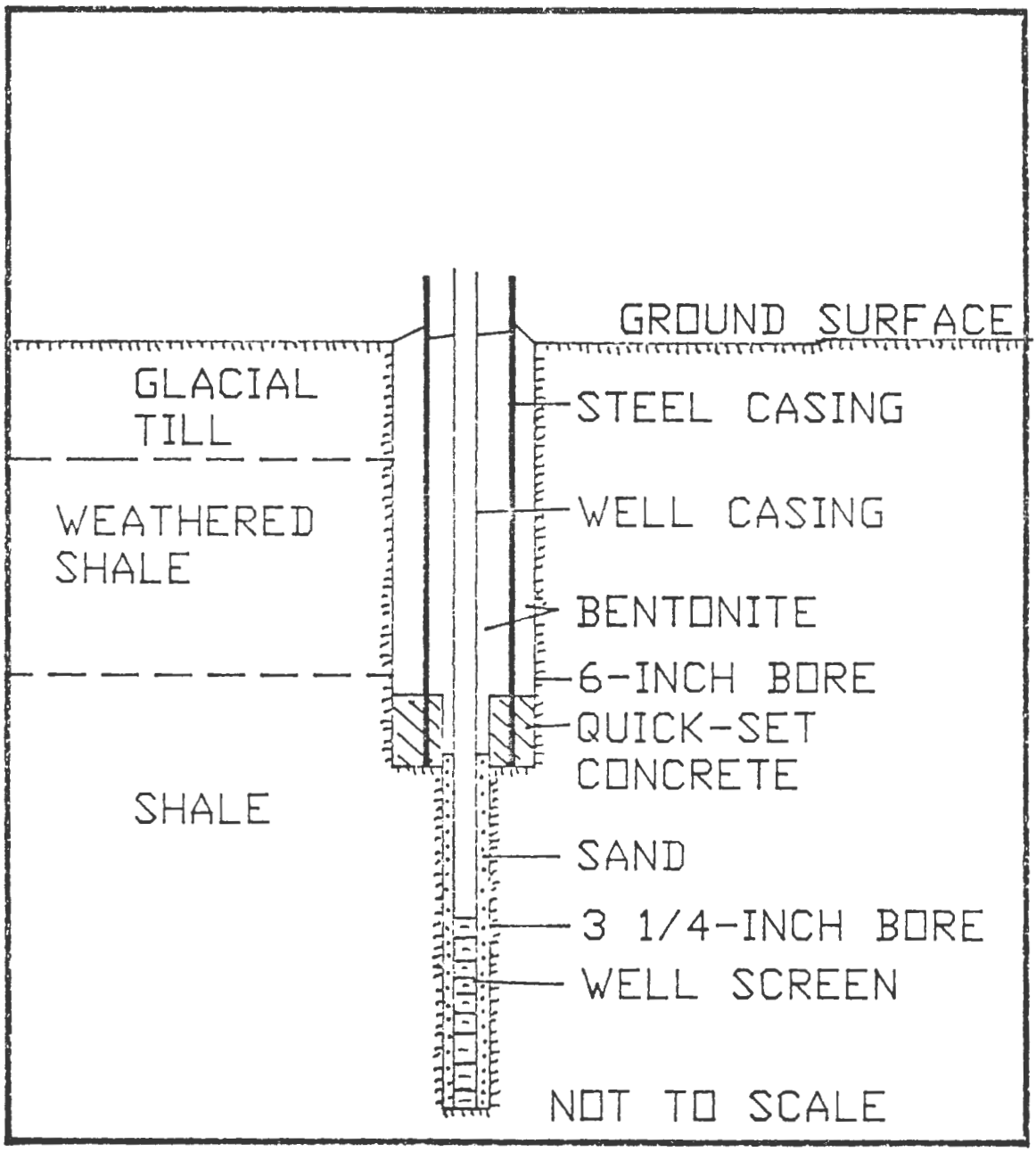

FIGURE 9. CONSTRUCTION DIAGRAM FOR THE DEEP WELL.

(3) General Monitoring Well Construction. Figure 10 shows general monitoring well construction. Monitoring wells were constructed in the boreholes using 2-inch ID Schedule 40 PVC pipe, in 10-foot sections, with flush-threaded, screw-type joints. The bottom 5-foot sections are 0.010-inch, factory-installed slotted screen. The filter pack around the well screen is clean, medium-grained sand, filled to a level, usually 1 foot, above the screen. The annular space above the sand is sealed with bentonite clay. A steel casing with a locking cap anchored in the bentonite protects the well. Concrete is not used in surface grouting because of the problem of frost heave. The problems this causes was evident on SEAD's existing wells. They generally had raised casings and broken concrete grouts which may have affected the integrity of the well casings. The study team attempted to repair the wells as much as possible. Appendix C contains the well construction data. Boreholes which were not completed as wells were backfilled with cuttings and dry cement as a seal.

(4) Bailing Sands and Silts. All wells were developed by bailing the sands and silts out of the casing until some degree of clarity was achieved. As a minimum, 10 well volumes of water were removed [see paragraph (6) below]. Teflon® bailers were used exclusively.

(5) Water Level Measurements. Immediately after drilling, the project officer measured the water level in the well. In addition, water levels were measured after allowing sufficient time for the water to rise to its static level. The measuring instrument was an electric water level indicator.

(6) Purging the Wells. Immediately prior to sampling, each of the wells was purged to assure that the samples were representative of the aquifer water. Generally, the volume purged was equal to 5 well volumes. The formula:

$$L \times 0.162 = n$$

where:
L = depth of water in the well (in feet)
n = number of gallons equal to one well volume

determines the volume of water standing in each 2-inch-diameter well. In most cases, the developing of the well was also considered the purging of the well.

® Teflon is a registered trademark of E.I. DuPont de Nemours and Company, Inc., Wilmington, Delaware. Use of trademarked names does not imply endorsement by the U.S. Army but is intended only to assist in identification of a specific product.

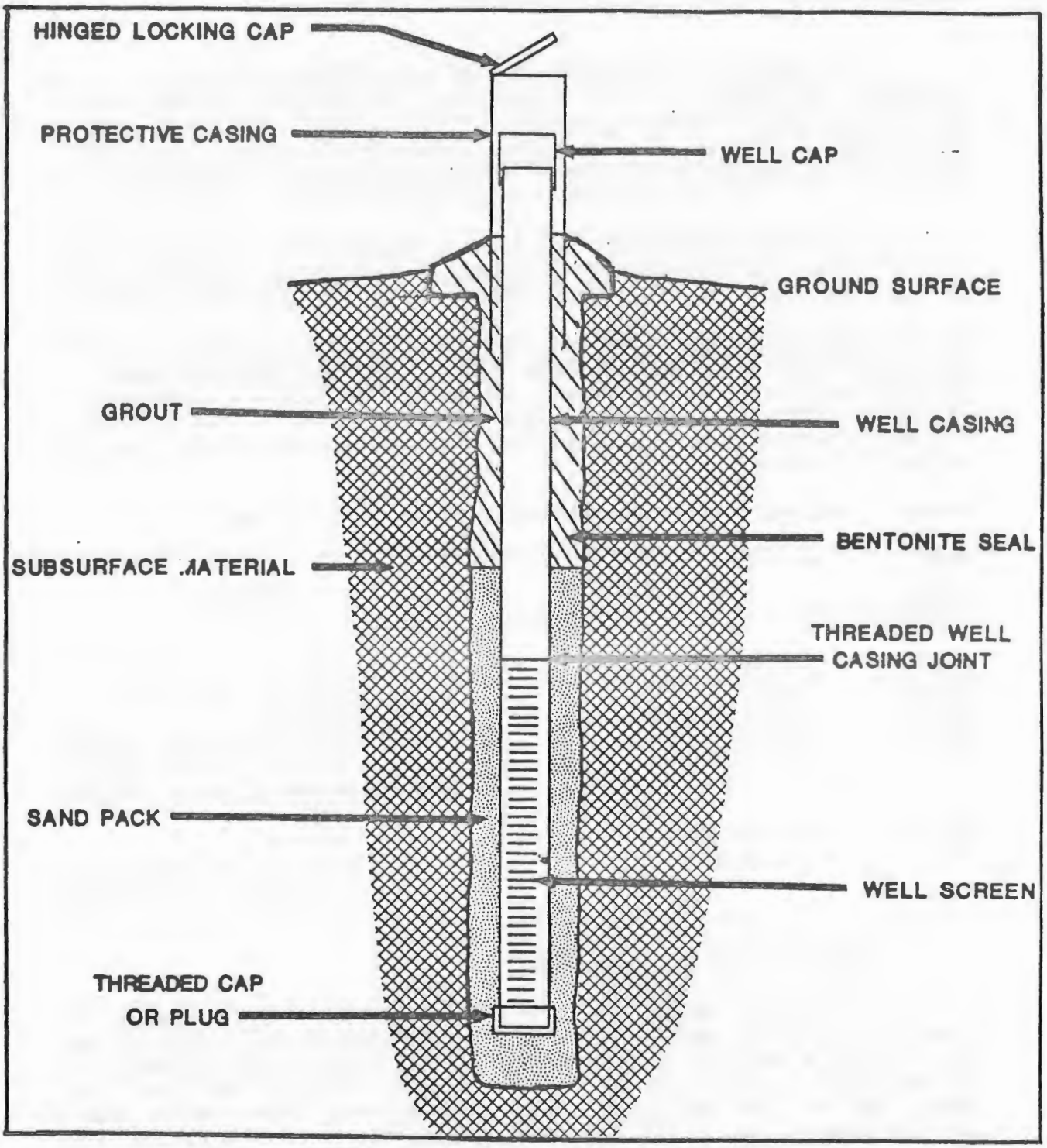

FIGURE 10
Generalized Monitoring Well Construction

(7) Sampling. All sample bottles were filled at the well, disturbing the sample as little as possible. All downhole equipment was thoroughly cleaned between wells using a triple rinse of distilled water. After sampling one well which contained obvious hydrocarbons, the bailer was carefully cleaned in the sewage treatment lab using a citrus-based degreaser and a tap water wash in addition to the distilled water rinses.

(8) Samples were stored at 4 °C at the wastewater treatment plant lab until sampling was complete. The samples were brought to USAEHA labs by the project officer. They were shipped in coolers with freezer packs.

b. Site Description. The site is a level field that gently slopes to the west. The site is grass covered, with a number of small drainage ditches running east-west across it. North of the site is a swampy area. The site contains a number of possible sources which are listed in Table 1. The most probable source is the burning pits, which later were used as part of the north landfill.

TABLE 1. POSSIBLE SOURCES OF CONTAMINATION IN THE STUDY AREA

SWMU Number (reference 16)	Description	Comments
SEAD-3	Incinerator cooling water pond	1974-79
SEAD-6	Landfill north	1941-60's and 74-79
SEAD-8	Landfill south	1974-79
SEAD-14	Burning pits	Oils and solvent sludges; 1941-74; 2 pits, 40x80 ft burned at least once per week
SEAD-15	Incinerator	1974-79
none	Grease pits	Unlined pits used for the disposal of kitchen grease

c. Results of Chemical Analyses.

(1) Initial Samples. On the first 2 days of the onsite work, the study team collected samples from the newly constructed well replacing well 13, and from a number of open boreholes. These samples were shipped back to the USAEHA lab for quick turn around. Table 2 contains the results of these samples. The regular monitoring wells had also been recently sampled. Table 3 contains the results from that work. These data were used to locate fully developed monitoring wells.

September is typically a time of low ground-water levels. Conversely, March is typically a time of high ground-water levels. These data show that the spring melt and rains may release more contamination from the source. Therefore, some of the results from this study may represent a seasonally low value.

TABLE 2. RESULTS OF FIRST SAMPLING (ALL VALUES IN PPB) 14-15 OCTOBER 1987

NUMBER	TCE	TRANS-1,2-DCE	OTHERS
Well 13	BDL	BDL	BDL
BH 16	1225	238	Vinyl chloride 7 Methylene chloride 32 Chloroform 390
BH 17	13	BDL	BDL
BH 18	6	37	BDL
BH 19	BDL (4)	BDL (3)	BDL
BH 21	30	176	BDL
BH 24	7	88	BDL
Blank	BDL	BDL	BDL

TABLE 3. MOST RECENT RESULTS FROM THE GROUND-WATER MONITORING PROGRAM

	September 1987		March 1987
PT-10		all BDL	all BDL
PT-11		all BDL	all BDL
PT-12	95	trans-1,2-dichloroethene	570
	94	Trichloroethene	540
	BDL	Vinyl chloride	11
PT-14	172	trans-1,2-dichloroethene	100
	192	Trichloroethene	160
	79	Vinyl chloride	BDL
PT-15	all BDL		all BDL
Blank	all BDL		all BDL

(2) Final Samples.

(a) Table 4 contains the remaining volatile organic analysis results. Well PT-18 has a high level of TCE, as well as DCE and chloroform. Borehole 29 (north of Well PT-18) has a high level of DCE, as well as TCE and vinyl chloride, and a floating product that appeared to be diesel fuel. Other wells contained TCE and/or DCE. The resampling of Well PT-18, along with the field blanks, indicate these results are acceptable.

(b) Sampling to date has been TOX, followed by volatile organics. Well PT-18 was also sampled for ABN extractable organic compounds, pesticides and PCBs, since these compounds would register in the TOX results. Wells PT-20, PT-22, and PT-24 were also sampled for ABN's. All these parameters were below detection limits in all these wells (see Appendix E for detection limits).

d. Discussion of Results.

(1) Hydrogeology.

(a) Most of the area is covered by 1 to 5 feet of compact brown silty-sandy-gravelly till. This is a glacially-derived, unsorted, nonstratified deposit, typically with a very low permeability. Below the till is weathered and fractured shale, usually about 5-feet thick. The shale becomes increasingly harder and less fractured and weathered with depth. The shale is generally massive, displaying very few if any bedding features. The shale contains a small amount of naturally occurring oil. The ground water appears to be in the fractured and weathered shale, confined to semiconfined beneath the till. The saturated thickness is, therefore, effectively only 1 to 5 feet. Figure 11 is a cross section of a typical portion of the site. The shale below 10 feet is essentially dry, although some ground water undoubtedly flows through fractures. The amount of deep leakage through fractures from this site is unknown, but should be inconsequential, considering the thickness of the shale.

(b) At one location, two borings were drilled, one to 6 feet and the other to 10 feet. The top of the weathered shale was at a depth of 5 feet at this location. The water rose to the same level in both, approximately 4.5 feet, indicating the aquifer zone is at or above 5 feet.

(c) The hydraulic conductivity of the glacial till is less than 0.1 ft/day, based on laboratory measurements taken from a Shelby tube sample (see Appendix D). Roots and fractures would tend to increase this value, which is typical for a glacial till (reference 14). The hydraulic conductivity of the fractured shale is unknown. However, based on the project officer's experience in bailing the wells, the hydraulic conductivity must be quite high. This is due entirely to the secondary permeability created by the fractures. In one well, with at most a 5-foot saturated zone and only 6 feet of water in a 2-inch casing, there was no detectable drop in water level during rapid bailing.

TABLE 4. VOLATILE ORGANIC ANALYSIS RESULTS

Wells	Trans-1,2-dichloroethene	Trichloroethene	Chloroform	Vinyl chloride	1,2-dichloroethane
PT-10	BDL	BDL	BDL	BDL	BDL
PT-11	BDL	BDL	BDL	BDL	BDL
PT-12	95	94	BDL	BDL	BDL
PT-15	BDL	BDL	BDL	BDL	BDL
PT-16	BDL	BDL	BDL	BDL	BDL
PT-17	172	192	BDL	BDL	BDL
PT-18	160	8800	390	BDL	BDL
PT-19	BDL	BDL	BDL	BDL	BDL
PT-20	39	14	BDL	BDL	BDL
PT-21	6	BDL	BDL	BDL	BDL
PT-22	220	110	BDL	BDL	9
PT-23	BDL	BDL	BDL	BDL	BDL
PT-24	66	BDL	BDL	BDL	BDL
PT-25	BDL	BDL	BDL	BDL	BDL
PT-26	BDL	BDL	BDL	BDL	BDL
Boreholes					
BH-16	Replaced by Well PT-18				
BH-17	13	BDL	BDL	BDL	BDL
BH-18	6	37	BDL	BDL	BDL
BH-19	3	4	BDL	BDL	BDL
BH-23	BDL	BDL	BDL	BDL	BDL
BH-24	7	88	BDL	BDL	BDL
BH-25	BDL	BDL	BDL	BDL	BDL
BH-26	Replaced by Well PT-20				
BH-27	76	51	BDL	BDL	BDL
BH-28	BDL	BDL	BDL	BDL	BDL
BH-29	8600	660	BDL	1700	BDL
BH-30	BDL	BDL	BDL	BDL	BDL
Surface Water					
31	4	23	BDL	BDL	BDL
32	110	50	BDL	BDL	BDL
33	BDL	BDL	BDL	BDL	BDL

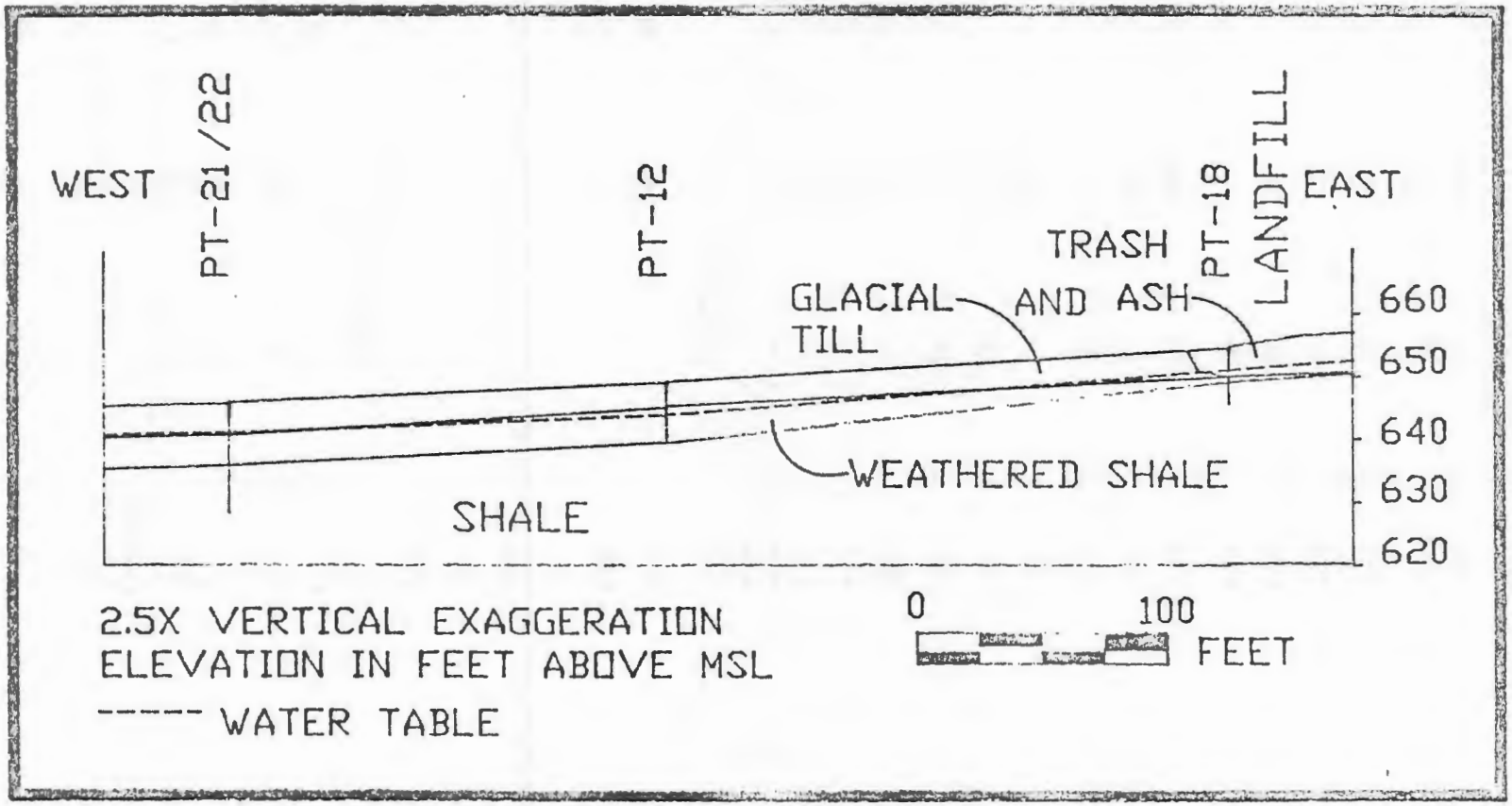

FIGURE 11. CROSS SECTION OF THE STUDY AREA.

(d) Figure 12 is a ground-water surface map of the site. The ground water flows evenly across the site toward the west-southwest. North of the landfill is a swampy area. This area does not appear to affect the flow of the ground water. Surface water in the study area is probably due to the discharge of contaminated ground water.

(e) Based on 5 years of records, it appears that late winter to early summer is the time of highest ground-water levels. Ground-water levels appear to be lowest in late summer to early winter.

(2) Extent of the Contaminant Plume.

(a) Figure 13 is a map showing the concentrations of TCE in the wells and boreholes. Figure 14 shows the concentrations of total DCE in the wells. Figure 15 shows the total affected area. Based on these results, and the distribution of the chemicals, it appears there may be two different source areas. One, in the vicinity of Well PT-18, is a source of TCE and chloroform. The other, in the vicinity of borehole 29 (north of Well PT-18), is a source of DCE and vinyl chloride, and a floating product that appeared to be diesel fuel. It should also be noted that many of these compounds have a parent/daughter product relationship by biodegradation, as shown in Table 5.

(b) The vinyl chloride detected in borehole 29 and the chloroform found in Well PT-18 have not migrated. The plume appears to be moving west-southwest, crossing Smith Farm Road at the intersection of the perimeter security road.

TABLE 5. RELATIONSHIP OF THE COMPOUNDS DUE TO BIODEGRADATION (from reference 10)

Carbon tetrachloride → chloroform → methylene chloride

Tetrachloroethylene → trichloroethylene → { *cis* 1,2-dichloroethene; *trans* 1,2-dichloroethene; 1,1-dichloroethene } → vinyl chloride

1,1,1-trichloroethane → 1,1-dichloroethane → chloroethane

(c) Figure 16 is a map showing the results of the surface water sampling. These results show that the contamination may extend to surface water, and has moved offpost. These results should be confirmed. At the time of the study, the surface water was generally small intermittent streams, which were the result of ground-water discharge. The offpost surface water contamination is probably due to ground water seeping to the surface and not direct surface water flow. The middle surface water sample had all parameters below detection limits. This is despite being downstream of contaminated surface water, and in an area where the ground water is contaminated. This may be an indication that the surface water will degas.

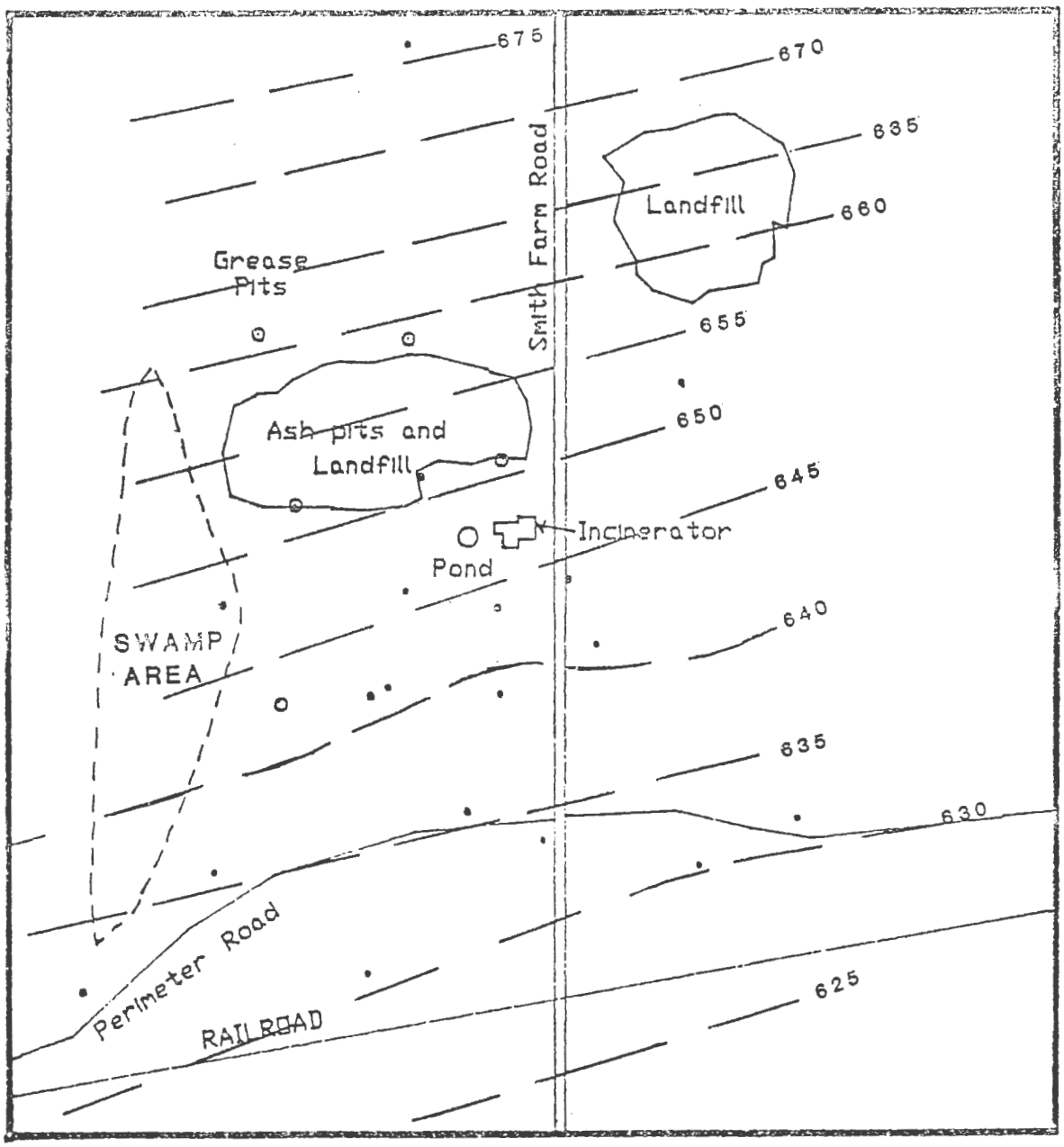

FIGURE 12. MAP OF THE GROUND-WATER SURFACE.

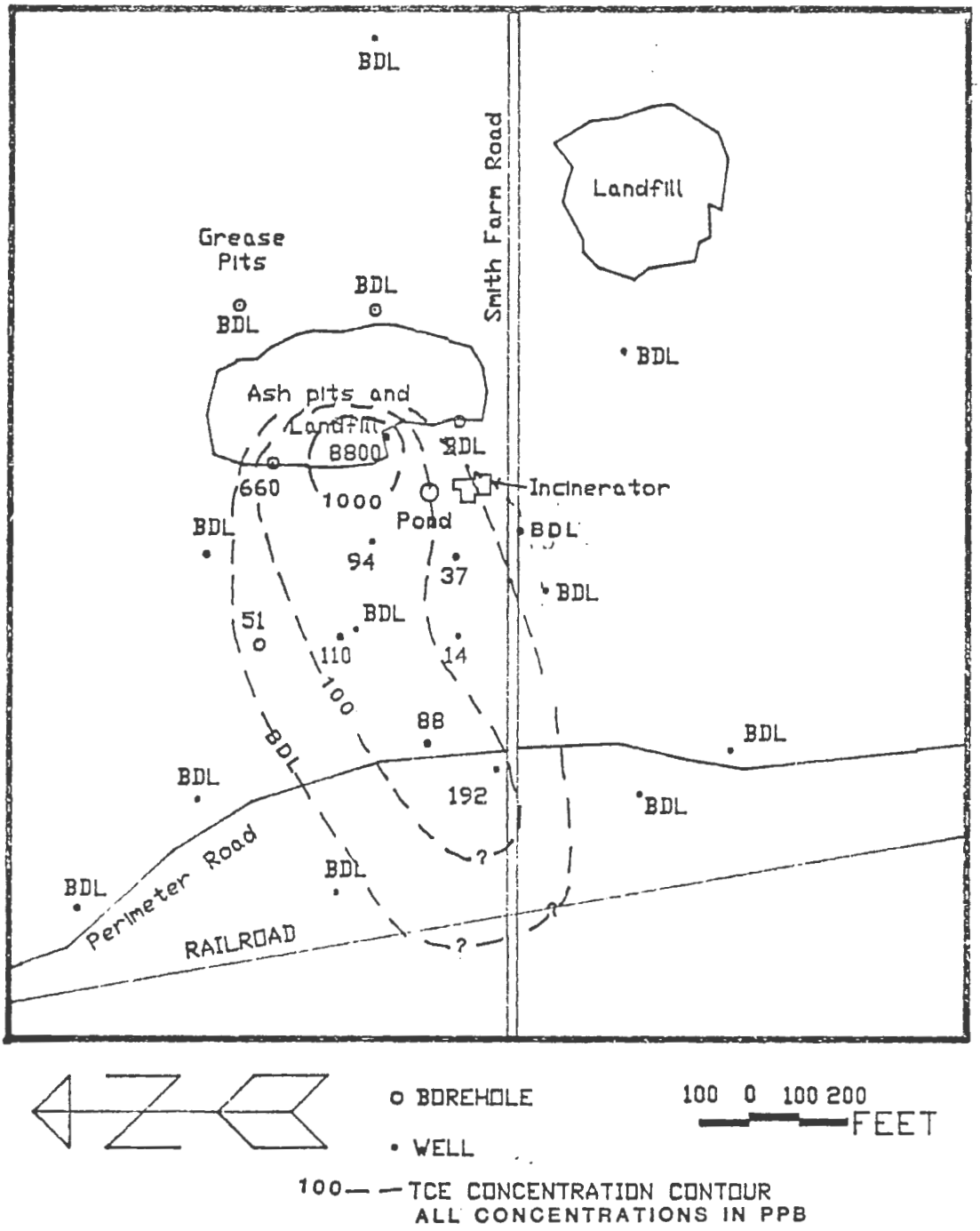

FIGURE 13. MAP SHOWING THE CONCENTRATION OF TCE DETECTED IN THE SAMPLES.

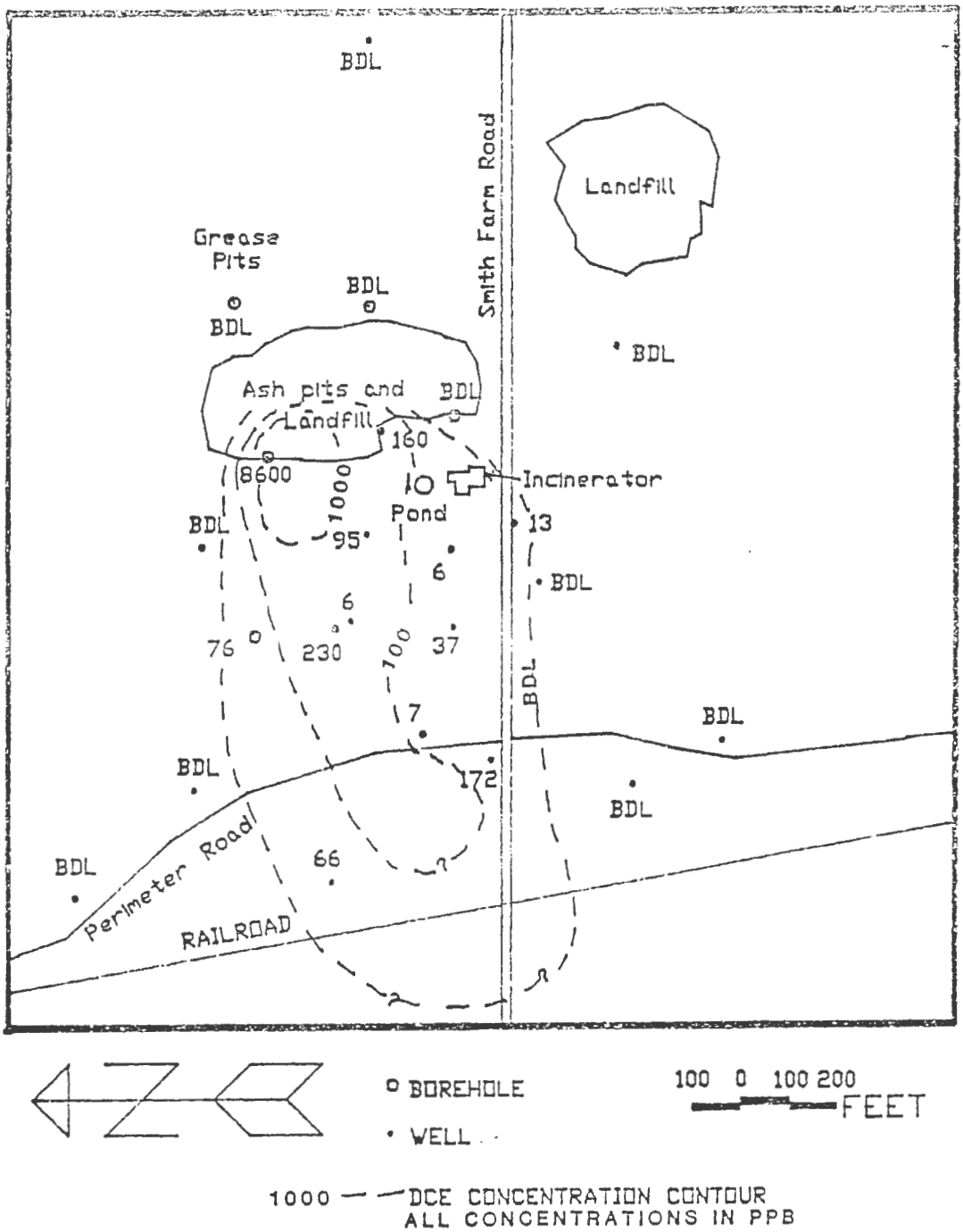

FIGURE 14. MAP SHOWING THE CONCENTRATIONS OF DCE DETECTED IN THE SAMPLES.

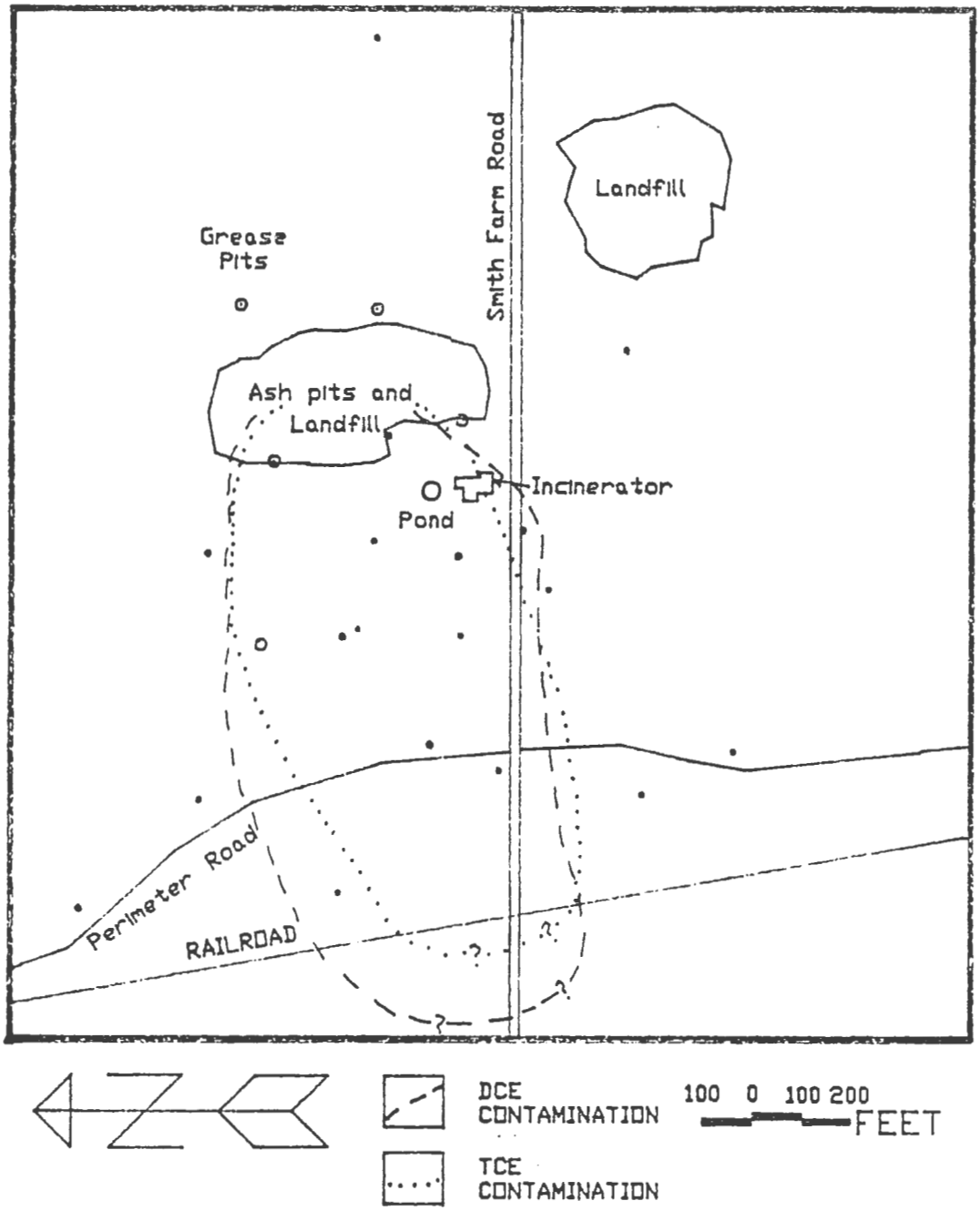

FIGURE 15. MAP SHOWING THE TOTAL AREA OF AFFECTED GROUND WATER.

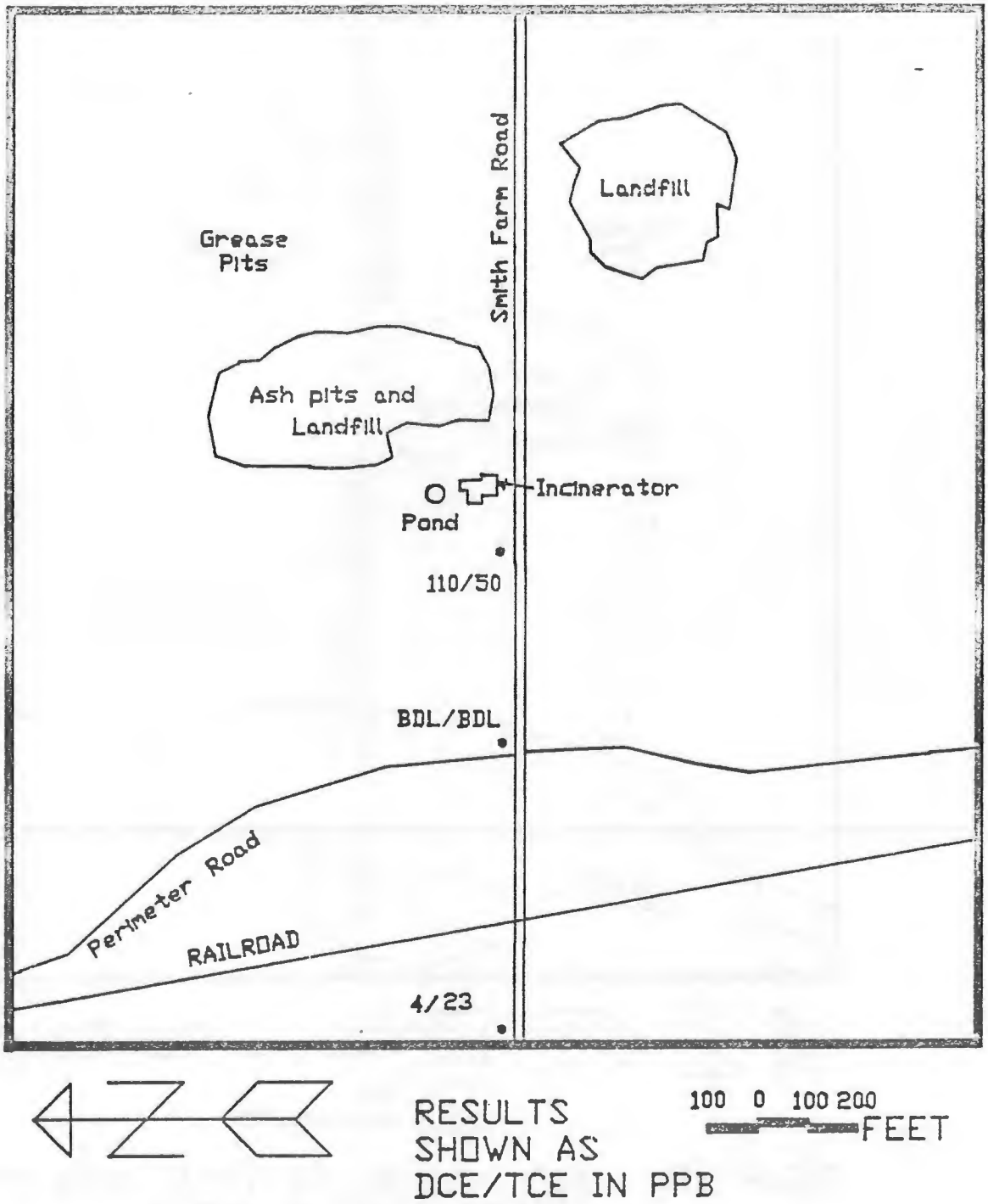

FIGURE 16 MAP SHOWING THE SURFACE WATER SAMPLING RESULTS.

No contamination has been detected in the private wells offpost. These wells are approximately 1/2 mile from the post boundary. Well PT-26 was installed in the northeast corner of the airstrip. This well is also approximately 1/2 mile from the site. No contamination was detected in this well. This indicates that the plume has not extended this far. No wells could be placed offpost during this study. However, based on the results from the wells onpost near the boundary, as well as the surface water sampling, the contamination has probably migrated offpost at levels exceeding drinking water standards.

(3) Appendix F contains information on the volatile organic chemicals detected at this site.

(4) Table 6 lists the MCL's and RMCL's for the compounds detected. These values are based on potential carcinogenic effects of these chemicals.

TABLE 6. MCL's AND RMCL's FOR THE COMPOUNDS DETECTED (ALL VALUES IN PPB) (FROM REFERENCE 1)

	RMCL	MCL
Trichloroethene	0	5
trans-1,2-dichloroethene	70 (proposed)	--
Chloroform	--	100
Vinyl chloride		1
1,2-dichloroethane	0	5 (proposed)

e. Possible responses.

(1) Corrective action alternatives.

(a) Do nothing. This is probably an unacceptable option.

(b) Withdrawal Wells and Water Treatment. The thickness (approximately 2 feet) of the semiconfined aquifer may make this approach impractical.

(c) Recovery trenches with water treatment. Because the aquifer is so shallow and so thin, an alternative method to recover the ground water for treatment would be a series of dewatering trenches used in conjunction with wells or sumps. These could be constructed quickly and inexpensively by SEAD.

(d) Removal of the Source. If the source is a leaking container, it may be found by electromagnetic survey and removed. However, if the source is disseminated throughout the soil, it may be more difficult to recover. Even so, recovery may still be possible because of the geology of the site. Below 10 feet, the bedrock is relatively impermeable, so there is a shallow limit of vertical migration. Removal of soils would probably generate a large quantity of hazardous waste.

(e) Enhanced biodegradation of the contamination is another possibility. This process is made more promising, again, by the hydrogeology.

(f) Cut-off walls and capping the source area will lessen, and maybe stop the migration from the source. However, this does not eliminate the source, and requires maintenance in perpetuity.

(2) Further study of the plume could include wells offpost, and further surface water sampling. Figure 17 is a map showing the recommended approximate locations of future wells. The extent of plume migration offpost may also be somewhat determined by sampling surface water.

(3) The SEAD should ensure contaminated surface water does not flow offpost. However, this will not prevent offpost surface water contamination, since much of that water comes directly from ground-water seeps.

5. SUMMARY AND CONCLUSIONS.

a. General. The study team completed a number of borings and installed nine new monitoring wells across the site, from which samples were drawn. The site contains a number of possible sources, the most probable being the burning pits, which later were used as part of the north landfill.

b. Hydrogeology.

(1) Most of the area is covered by 1 to 5 feet of compact brown silty-sandy-gravely till. This is a glacially-derived unsorted, nonstratified deposit, typically with a very low permeability. Below the till is weathered and fractured shale, usually about 5 feet thick. The shale becomes increasingly harder and less fractured and weathered with depth. The ground water appears to be in the fractured and weathered shale, confined to semiconfined beneath the till. The shale beneath is essentially dry, although some ground water undoubtedly flows through some deep fractures. The amount of leakage from this site is unknown but should be inconsequential, considering the thickness of the shale. The ground water flows evenly across the site toward the west-southwest.

(2) The hydraulic conductivity of the fractured shale is much higher than either the overlying glacial till or the underlying unweathered shale. Late winter to early summer is the time of highest ground-water levels. Ground-water levels appear to be lowest in late summer to early winter.

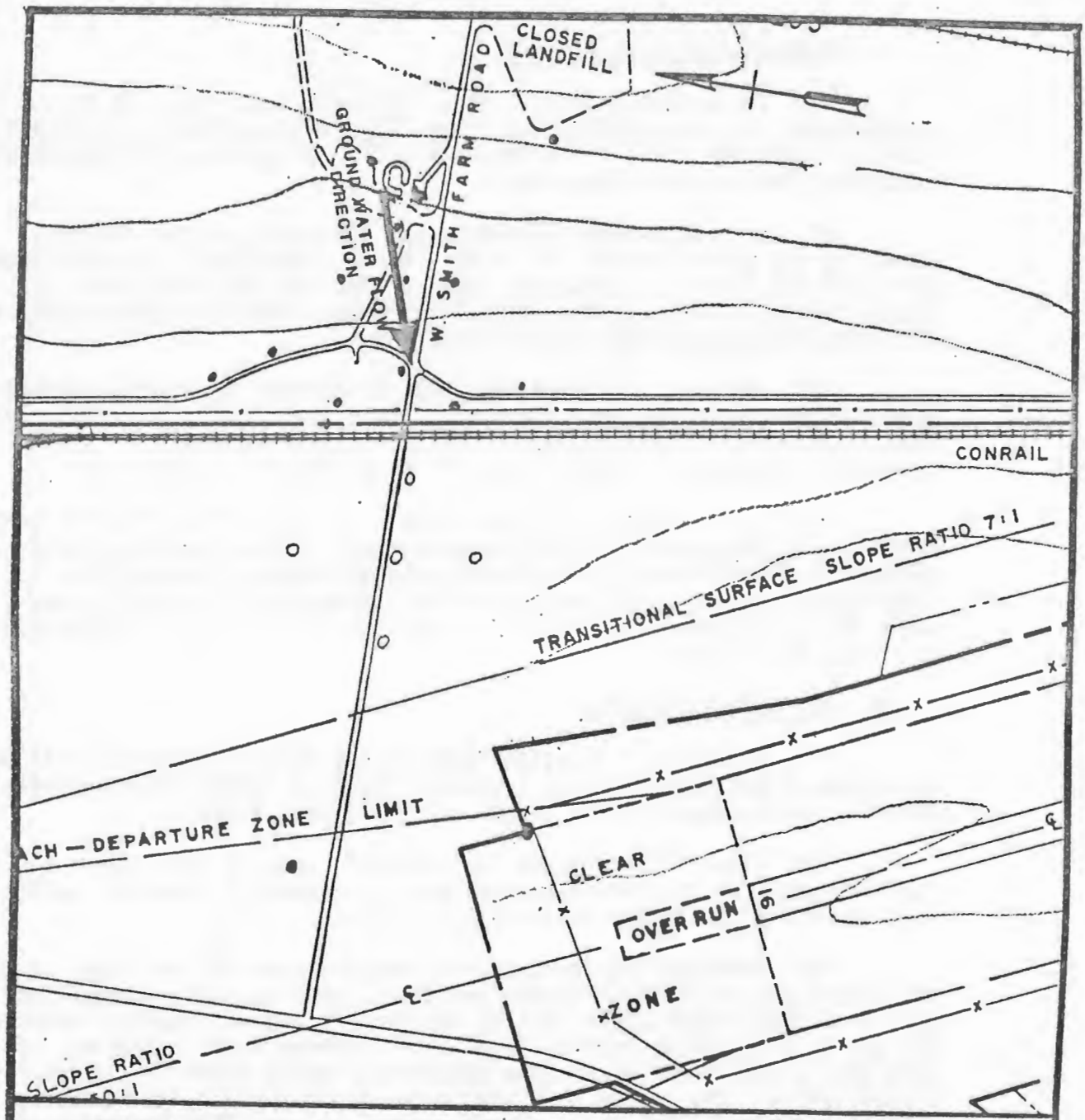

FIGURE 17. MAP SHOWING THE RECOMMENDED LOCATIONS FOR FUTURE WELLS.

c. Ground-Water Contamination.

(1) The contamination forms a definite plume, with two main constituents, trichloroethene and trans-1,2-dichloroethene. Chloroform, 1,2-dichloroethane, vinyl chloride, and a floating product that appeared to be diesel fuel were also detected.

(2) No ground-water contamination has been detected offpost, either in the private wells, or in Well PT-26, installed in the northeast corner of the airstrip. However, based on the results from the wells onpost near the boundary, the contamination has probably migrated offpost at levels exceeding drinking water standards.

(3) The vinyl chloride detected in borehole 29 and the chloroform found in Well PT-18 have not migrated. The plume of trichloroethene and trans-1,2-dichloroethene appears to be moving west-southwest, crossing Smith Farm Road at the intersection of the perimeter security road.

(4) Surface water sampling results show that the contamination may extend to surface water, and has moved offpost. These results should be confirmed. The offpost surface water contamination is probably due to contaminated ground water seeping to the surface and not direct surface water flow. One sample collected onpost indicates that the surface water may degas the solvents.

d. Corrective Measures.

(1) A number of remedial methods have been developed to deal with this type of problem. In this instance, the best method of ground-water recovery would probably be a system with intercept trenches.

(2) Federal regulations (reference 3) require that Seneca AD, as a facility applying for RCRA hazardous waste storage and treatment permit, must institute corrective action at this site.

(3) Although the contamination has extended off the installation, the source and most of the contamination is still on post. The offpost extent of the contamination must be determined, and may require corrective action, as directed by Federal regulation (reference 21). However, that work should not hinder corrective measures directed toward the onpost contamination. The onpost work should be relatively easy to implement, and will quickly reduce the total contamination and the offpost migration. It may be done as interim corrective measures in accordance with USEPA draft strategy for SWMU work (reference 22).

(4) Army regulation (reference 23) requires that any offpost construction required for contamination abatement, including monitoring wells, must be approved by: HQDA(DAEN-MPO-U), Washington, DC 20314.

6. RECOMMENDATIONS.

a. We base the following recommendations on good environmental engineering practice.

(1) Keep the sites around the wells mowed.

(2) Collect contaminated surface water before it flows offpost.

(3) Investigate appropriate technologies for the collection and treatment of the contaminated ground water.

(4) Excavate and clean contamination source areas, and properly dispose of contaminated materials (see paragraph 6b).

b. Based on 40 CFR 264.101 the following recommendations are made:

(1) Negotiate corrective actions with the proper regulatory agencies.

(2) Investigate the extent of the plume offpost, upon approval of HQDA.

7. TECHNICAL ASSISTANCE. Direct requests for services through appropriate command channels of the requesting activity. Send them to the Commander, U.S. Army Environmental Hygiene Agency, ATTN: HSHB-ME-SG, Aberdeen Proving Ground, MD 21010-5422, with an information copy furnished to the Commander, U.S. Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000.

8. REFERENCES. See Appendix G for the list of references.

WILLIAM J. BANGSUND
Environmental Engineer
Waste Disposal Engineering Division

APPROVED:

JOHN W. BAUER
Program Manager
Ground Water and Solid Waste

APPENDIX A

ABBREVIATIONS AND DEFINITIONS

ABN	Acid-Base-Neutrals
alluvium	All deposits of gravel, sand, silt and clay resulting from the actions of modern rivers and streams
AMC	U.S. Army Materiel Command
aquifer	Any formation, portion of a formation, or group of formations capable of yielding a usable quantity of water at atmospheric pressure
BDL	Below detectable limit
DCE	Trans-1,2-dichloroethene, or trans-1,2-Dichloroethylene
DEH	Directorate of Engineering and Housing
DESCOM	U.S. Army Depot System Command
ground water	Water occurring below the earth's surface in pore spaces and fractures
hydraulic conductivity	The measure of how well water may move through an aquifer; comparable to permeability
MCL	Maximum contaminant level
mg/L	Milligrams per liter, roughly equivalent to ppm
MSL	Mean sea level
PCB	Polychlorinated biphenyl
Pleistocene	A geologic time period, the earlier of two epochs in the Quaternary period, beginning approximately 1 million years before present and ending approximately 15,000 years before present
ppb	Parts per billion, roughly equivalent to µg/L
ppm	Parts per million, roughly equivalent to mg/L
PVC	Polyvinyl chloride
RCRA	Resource Conservation and Recovery Act

RMCL	Recommended Maximum Contaminant Level
SEAD	Seneca Army Depot
SWMU	Solid waste management unit, pronounced shmoo
TCE	Trichloroethylene, trichloroethene
TOX	Total Organic Halides
µg/L	Micrograms per liter, roughly equivalent to ppb
USAEHA	U.S. Army Environmental Hygiene Agency
water table	The surface defined by the level to which ground water from an unconfined aquifer will rise to in a well

APPENDIX B

DRILLING LOGS

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 38-26-0313-88 Seneca AD

DATE 18 Oct 87

LOCATION South of Smith Farm Road

DRILLERS William P. Smithson

DRILL RIG Acker AD-II

BORE HOLE Well PT-19

DEPTH (feet)	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
		Moist brown silty-gravely-clay	
5			
5.5		Gray shale, fractured	
		Cuttings very dry	
10		Very hard shale Some fracture zones	
14		BOH	

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 38-26-0313-88 Seneca AD

DATE 16 Oct 87

LOCATION West of incinerator approximately 200 feet

DRILLERS William P. Smithson

DRILL RIG Acker AD-II

BORE HOLE Well PT-20

DEPTH (feet)	SAMPLE TYPE / BLOWS PER 6 IN.	DESCRIPTION	REMARKS
		Brown silty-gravely-clay	
2.5		Weathered shale	
5			
6.67		▽ 3	
10		Hard shale	
14		BOH	

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 38-26-0313-88 Seneca AD

DATE 16 Oct 87

LOCATION Between incinerator and perimeter security road

DRILLERS William P. Smithson

DRILL RIG Acker AD-II

BORE HOLE Well PT-22

DEPTH	SAMPLE TYPE / BLOWS PER 6 IN.	DESCRIPTION	REMARKS
(feet)		Brown silty-pebbly-clay	
3.7		▽	
5		Weathered shale	
10		Hard shale	
12		BOH	

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 38-26-0313-88 DATE 18 Oct 87

LOCATION Between wells PT-16 and PT-17 DRILLERS William P. Smithson

DRILL RIG Acker AD-II BORE HOLE Well PT-23

DEPTH (feet)	SAMPLE TYPE / BLOWS PER 6 IN.	DESCRIPTION	REMARKS
		Brown silty, gravely-clay; dry	
4.5		Gray shale dry cuttings	
5		▽ 3	
5.5		Light brown, dry cuttings	Very quiet, easy drilling
			Slower drilling
8		Hard shale	
10		Dry cuttings	
10.5		BOH	

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 39-26-0313-88 Seneca AD DATE 18 Oct 87

LOCATION Corner of fence offset DRILLERS William P. Smithson

DRILL RIG Acker AD-II BORE HOLE Well PT-24

DEPTH (feet)	SAMPLE TYPE / BLOWS PER 6 IN.	DESCRIPTION	REMARKS
	3	Brown silty gravely clay and ash	
3	Shelby	Ash, weathered shale	
4.75		▽ 3	
5	Tubes		
5.5		Hard shale	Oil slick on mud
10		BOH	

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 38-26-0313-88 DATE 18 Oct 87

LOCATION North end of airstrip out side of perimeter fence (NE corner) DRILLERS William P. Smithson

DRILL RIG Acker AD-II BORE HOLE Well PT-26

DEPTH	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
(feet)		Red-brown clay, some sand and silt	
2		Very weathered shale?	
3.5		Gray-brown weathered shale	
5		▽	
5.2		3	
10		Gray chips at shale	
11		Hard shale	
15		Very hard 17' BOH	

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 38-26-0313-88 DATE 17 Oct 87

LOCATION On fenceline, between wells 17 and 15 DRILLERS

DRILL RIG Acker AD-II BORE HOLE Well Pt-25

DEPTH (feet)	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
		Brown silty=pebbly clay film	
2		Weathered gray shale	
5			
5.67		▽ S	
9		Hard shale	
10		Very hard, some fractures	Oil slicks on and coming from hole
14		BOH	

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

APPENDIX C

WELL CONSTRUCTION DATA

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
GROUND-WATER MONITORING WELL SUMMARY

PROJECT 38-26-0313 88 DATE 13-21 Oct 87

WELL NUMBER	MW-18	MW-19	MW-20	MW-22	MW-21
1. Height of Monitoring Well Casing above ground level	30"	30"	30"	30"	30"
2. Total Depth of Well below ground level	9	9	8' 10"	9	17' 5"
3. Depth to Top of Well Screen below ground level	4	4	3' 10"	4	12' 5"
4. Well Screen Length	5	5	5	5	5
5. Well Screen Slot Size	0.010	0.010	0.010	0.010	0.010
6. Well Diameter	2 in ID	2 in ID	2 in ID	2 in ID	2 in ID
7. Monitoring Well Casing Material	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC
8. Monitoring Well Screen Material	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC
9. Grout Thickness below ground level	3' 10"	4	3	3' 11'	10' 6"
10. Depth to Top of Bentonite Seal below ground level	All wells grouted to surface with bentonite				
11. Bentonite Seal Thickness	3' 10"	4	3	3' 11"	10' 6"
12. Depth to Top of Sand Pack	3' 10"	4	3	3' 11"	10' 6"
13. Depth to Static Water Level from top of monitoring well casing	5' 11"	5' 5½"	6' 8"	6' 6"	18' 8½"
Date Measured	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87
14. Depth to Static Water from ground level	654.6	644.0	644.1	645.1	645.8
Date Measured	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87
15. Elevation at ground level	654.6	644.0	644.1	645.1	645.8
16. Elevation - Top of monitoring well casing					
17. Ground-water elevation	651.1	641.0	637.4	641.1	629.2
Date Measured	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87
Comments					

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
GROUND-WATER MONITORING WELL SUMMARY

PROJECT 38-26-0313-88 DATE 13-21 Oct 87

WELL NUMBER	MW-23	MW-24	MW-25	MW-26	
1. Height of Monitoring Well Casing above ground level	30"	30"	30"	30"	
2. Total Depth of Well below ground level	9'	9'	9'	9'	
3. Depth to Top of Well Screen below ground level	4'	4'	4'	6'	
4. Well Screen Length	5'	5'	5'	5'	
5. Well Screen Slot Size	0.010"	0.010"	0.010"	0.010"	
6. Well Diameter	2 in ID	2 in ID	2 in ID	2 in ID	
7. Monitoring Well Casing Material	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	
8. Monitoring Well Screen Material	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	Schd 40 PVC	
9. Grout Thickness below ground level	4	3	4	4' 10"	
10. Depth to Top of Bentonite Seal below ground level	All wells grouted to surface with bentonite				
11. Bentonite Seal Thickness	4	3	4	4' 10"	
12. Depth to Top of Sand Pack	4	3	4	4' 10"	
13. Depth to Static Water Level from top of monitoring well casing	5' 5"	4' 9½"	5' 8"	5' 2"	
Date Measured	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87	
14. Depth to Static Water from ground level	2' 11"	2' 3½"	3' 2"	2' 8"	
Date Measured	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87	
15. Elevation at ground level	638.6	633.3	634.0	617.5	
16. Elevation - Top of monitoring well casing					
17. Ground-water elevation	635.7	631	630.8	615	
Date Measured	19 Oct 87	19 Oct 87	19 Oct 87	19 Oct 87	
Comments					

APPENDIX D

RESULTS OF PHYSICAL ANALYSES OF THE SOILS

SOIL ANALYSIS FOR SENECA (GP) (B. BANGSUND) 12/09/87

SOILS ANALYSIS

PROJECT NO.	38-26-0313-87	38-26-0313-87	38-26-0313-87
LOCATION	SENECA	SENECA	SENECA
BORE HOLE NO.	FENCE	FENCE2-4	FENCE2-4
DEPTH OF SAMPLE (FT)	0-2	2-4	2-4
SAMPLE TYPE	SHELBY TUBE	SHELBY TUBE	SHELBY TUBE
GRAIN SIZE ANALYSIS			
% PASSING 1.5"	100.0%	100.0%	
% PASSING 1.0"	100.0%	100.0%	
% PASSING 0.5"	100.0%	100.0%	
% PASSING NO. 4	93.7%	95.4%	
% PASSING NO. 10	79.1%	77.5%	
% PASSING NO. 20	66.2%	70.1%	
% PASSING NO. 40	57.9%	66.5%	
% PASSING NO. 100	48.0%	61.3%	
% PASSING NO. 200	42.5%	56.9%	
PERMEABILITY cm/sec			
IN SITU		5.07E-07	1.52E-05
PD-COMPACTION MOLD		NA	NA
PD-HAND REMOLDED		NA	NA
3-VOID		NA	NA
VOID RATIO (K)		0.62	0.96
% SATURATION (K)		119.82	104.32
% POROSITY (K)		38.16	49.01
DRY DENSITY (K)		1.67	1.39
% MOISTURE CONTENT (K)		27.15	37.14
SPECIFIC GRAVITY		2.70	2.70

COMPLETED BY Mark E. Favro CHECKED BY Holdsmith APPROVED BY

WNS = WILL NOT STICK

SPECIFIC GRAVITY IS ESTIMATED AS 2.7

APPENDIX E

CHEMICAL PARAMETERS, ANALYTICAL METHODS, AND DETECTION LIMITS

Geohydrologic Study No. 38-26-0313-88, 13-21 Oct 87

CHEMICAL PARAMETERS, ANALYTICAL METHODS,
AND DETECTION LIMITS

Volatile Organic Compounds, Method No. 624 (reference 5)

	BH 29 Limit of Detection		All Others Limit of Detection
Chloromethane	60.	µg/L	3.
Bromomethane	60.	µg/L	3.
Vinyl chloride	60.	µg/L	3.
Chloroethane	60.	µg/L	3.
Methylene chloride	60.	µg/L	3.
Trichlorofluoromethane	60.	µg/L	3.
1,1-Dichloroethene	60.	µg/L	3.
1,1-Dichioroethane	60.	µg/L	3.
trans-1,2-Dichloroethene	60.	µg/L	3.
Chloroform	60.	µg/L	3.
1,2-Dichloroethane	60.	µg/L	3.
1,1,1-Trichloroethane	60.	µg/L	3.
Carbon tetrachloride	60.	µg/L	3.
Bromodichloromethane	60.	µg/L	3.
1,1,2,2-Tetrachloroethane	60.	µg/L	3.
1,2-Dichloropropane	60.	µg/L	3.
trans-1,3-Dichloropropene	60.	µg/L	3.
Trichloroethene	60.	µg/L	3.
Dibromochloromethane	60.	µg/L	3.
1,1,2-Trichloroethane	60.	µg/L	3.
Benzene	60.	µg/L	3.
cis-1,3-Dichloropropene	60.	µg/L	3.
2-Chloroethylvinyl ether	60.	µg/L	3.
Bromoform	60.	µg/L	3.
Tetrachloroethene	60.	µg/L	3.
Toluene	60.	µg/L	3.
Chlorobenzene	60.	µg/L	3.
Ethylbenzene	60.	µg/L	3.

CHEMICAL PARAMETERS, ANALYTICAL METHODS,
AND DETECTION LIMITS

Acid Extractable Organics, Method 625 (reference 5)

	Field No. BH 26 Limit of Detection		All Others Limit of Detection
2-chlorophenol	20.	µg/L	10.
phenol	20.	µg/L	10.
2-nitrophenol	20.	µg/L	10.
2,4-dimethylphenol	20.	µg/L	10.
2,4-dichlorophenol	20.	µg/L	10.
4-chloro-3-methylphenol	20.	µg/L	10.
2,4,6-trichloropheno	20.	µg/L	10.
2,4-dinitrophenol	50.	µg/L	25.
4-nitrophenol	50.	µg/L	25.
2-methyl-4,6-dinitrophenol	50.	µg/L	25.
pentachlorophenol	50.	µg/L	25.

CHEMICAL PARAMETERS, ANALYTICAL METHODS, AND DETECTION LIMITS

Base/Neutral Extractable Organic Compounds Method 625 (reference 5)

	Limit of Detection	
N-nitrosodimethylamine	10.	µg/L
bis (2-chloroethyl) ether	10.	µg/L
1,3-dichlorobenzene	10.	µg/L
1,4-dichlorobenzene	10.	µg/L
1,2-dichlorobenzene	10.	µg/L
bis (2-chloroisopropyl) ether	10.	µg/L
hexachloroethane	10.	µg/L
N-nitrosodi-n-propylamine	10.	µg/L
nitrobenzene	10.	µg/L
isophorone	10.	µg/L
bis (2-chloroethoxy) methane	10.	µg/L
1,2,4-trichlorobenzene	10.	µg/L
naphthalene	10.	µg/L
hexachlorobutadiene	10.	µg/L
hexachlorocyclopentadiene	10.	µg/L
2-chloronaphthalene	10.	µg/L
acenaphthylene	10.	µg/L
dimethyl phthalate	10.	µg/L
2,6-dinitrotoluene	10.	µg/L
acenaphtnene	10.	µg/L
2,4-dinitrotoluene	10.	µg/L
fluorene	10.	µg/L
4-chlorophenyl phenyl ether	10.	µg/L
dithyl phthalate	10.	µg/L
1,2-diphenylhydrazine	10.	µg/L
N-nitrosodiphenylamine	10.	µg/L
4-bromophenyl phenyl ether	10.	µg/L
hexachlorobenzene	10.	µg/L
phenanthrene	10.	µg/L
anthracene	10.	µg/L
di-n-butyl phthalate	10.	µg/L
fluoranthene	10.	µg/L
pyrene	10.	µg/L
benzidine	25.	µg/L
butyl benzyl phthalate	10.	µg/L
benzo (a) anthracene	10.	µg/L
chrysene	10.	µg/L
3,3-dichlorobenzidine	25.	µg/L
bis (2-ethylhexyl) phthalate	10.	µg/L
di-n-octyl phthalate	10.	µg/L
benzo (b) fluoranthene	10.	µg/L
benzo (K) fluoranthene	10.	µg/L
benzo (a) pyrene	10.	µg/L
indeno (1,2,3-cd) pyrene	10.	µg/L
dibenzo (a,h) anthracene	10.	µg/L
benzo (ghi) perylene	10.	µg/L

CHEMICAL PARAMETERS, ANALYTICAL METHODS, AND DETECTION LIMITS

Pesticides, PCBs, and Herbicides (references 5 and 6)

	Limit of Detection	
Alpha BHC	0.05	µg/L
Beta BHC	0.05	µg/L
Gamma BHC - Lindane	0.05	µg/L
Delta BHC	0.05	µg/L
Heptachlor	0.05	µg/L
Aldrin	0.05	µg/L
Heptachlor Epoxide	0.05	µg/L
DDE	0.05	µg/L
DDD	0.05	µg/L
DDT	0.05	µg/L
Dieldrin	0.05	µg/L
Endrin	0.05	µg/L
Chlordane	0.5	µg/L
oxaphene	5.	µg/L
Endosulfan I	0.05	µg/L
Endosulfan II	0.05	µg/L
Endosulfan Sulfate	0.2	µg/L
Endrin Aldehyde	0.5	µg/L
PCB-1016	5.	µg/L
PCB-1221	5.	µg/L
PCB-1232	5.	µg/L
PCB-1242	5.	µg/L
PCB-1248	5.	µg/L
PCB-1254	5.	µg/L
PCB-1260	5.	µg/L
Methoxychlor	0.5	µg/L

APPENDIX F

INFORMATION ON THE CHEMICALS DETECTED

1. The following descriptions were taken from reference 20.

a. Trans-1,2-dichloroethene (also known as Trans-1,2-dichloroethylene) is a general solvent for organic compounds, also known as acetylene dichloride. It is a colorless liquid with a pleasant odor. It decomposes slowly in water, and is slightly soluble.

b. 1,2-dichloroethane is a colorless, oily liquid with a chloroform-like odor. It is stable and slightly soluble in water. It is a solvent used as a paint remover and metal degreaser, in soaps and scouring compounds, and in wetting and penetrating compounds.

c. Chloroform is a clear, colorless liquid that is slightly soluble in water. It is used as a solvent, with propellents and refrigerants, and as a fumigant.

d. Vinyl chloride is a gas, slightly soluble in water. It is used in organic synthesis of plastics, and in plastic adhesives.

2. The following is from reference 17. Trichloroethylene is a powerful industrial solvent of both natural and synthetic organic compounds. It is used mainly for degreasing and in dry cleaning. The liquid form is about 1.5 times heavier than water, and the vapor form is about 4.5 times heavier than air. The solubility of TCE in water is 1100 mg/L (slightly soluble). Trichloroethylene appears to be chemically and physically stable in groundwater aquifers but is susceptible to biodegradation. For humans, TCE is specifically damaging to the liver and kidneys and has been classified a B2 carcinogen.

APPENDIX G

REFERENCES

1. Title 40, CFR, 1987 rev, Part 141, National Primary Drinking Water Regulations.

2. Title 40, CFR, 1987 rev, Part 143, National Secondary Drinking Water Regulations.

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22. Environment Reporter, 10-31-86, EPA Draft Strategy for Carrying Out RCRA Provisions Requiring Corrective Action at Hazardous Waste Facilities, p. 1068-1075.

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