

**Soil vapor sampling information**

Ambient Air (Canister) Sample Collection Field Form

Project # 35165 Consultant OBG  
 Project Name National Grid Collector C. Finle, B. Garrett

Sample ID Amb-01-NG-072707 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 7/27/07 1123 Start Pressure ("Hg) 30  
 End Date/Time 7/27/07 1129 End Pressure ("Hg) 29.7  
 Canister ID AC 01039 End pressure > "zero"? Yes  
 Flow controller ID FC 00287 Sampling duration (intended) 4 Hr

Tubing type used Polyethylene Length of tubing NA cm Tubing volume NA cc  
 Volume purged NA cc @ NA min 1 to 3 volumes purged @ < 200cc/min? NA

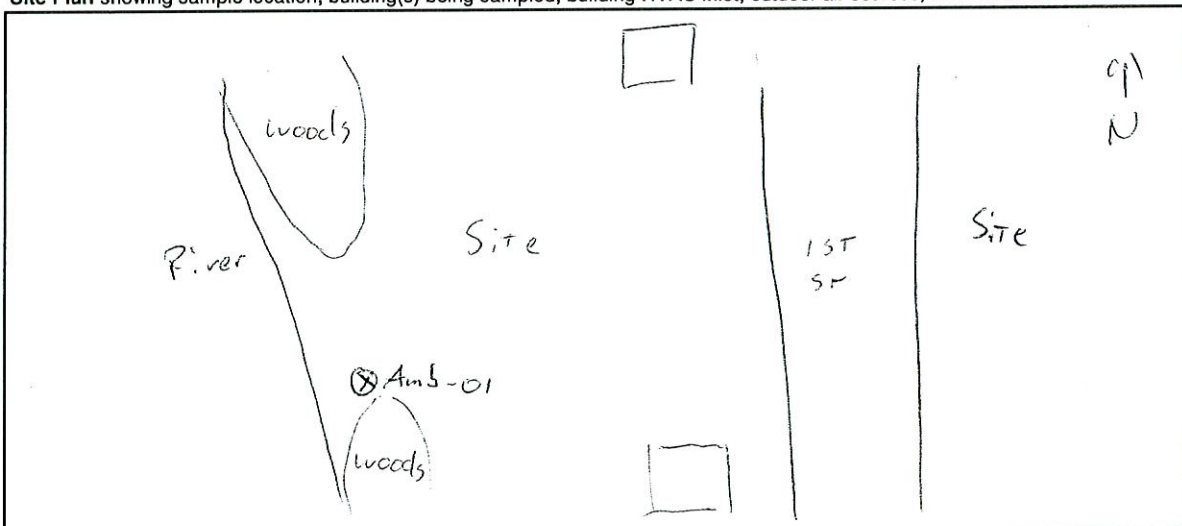
## Weather Conditions at Start of Sampling:

Air temperature (°F) 77 Rainfall None Wind direction South  
 Barometric pressure 29.91 Relative humidity 60% Wind speed (mph) 3-5 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction



Comments: \_\_\_\_\_  
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## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant OBG  
 Project Name National Grid Collector C. Fisher, B. Garrett

Sample ID SV-04-NG-072707 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 7/27/07 1116 Start Pressure ("Hg) 30  
 End Date/Time 7/27/07 1517 End Pressure ("Hg) 4  
 Canister ID SC00554 End pressure > "zero"? Yes  
 Flow controller ID 6V-4-23 Sampling duration (intended) 4 Hr  
 Associated ambient air sample ID Amb-01-NG-072707 Depth of sample point below grade 4.5 ft

Tubing type used Teflon lined Polyethylene Length of tubing 8 ft 244 cm Tubing volume 2444 cc  
 Volume purged 70 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 85% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 84 Rainfall None Wind direction South  
 Barometric pressure 29.96 Wind speed (mph) 5-7 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

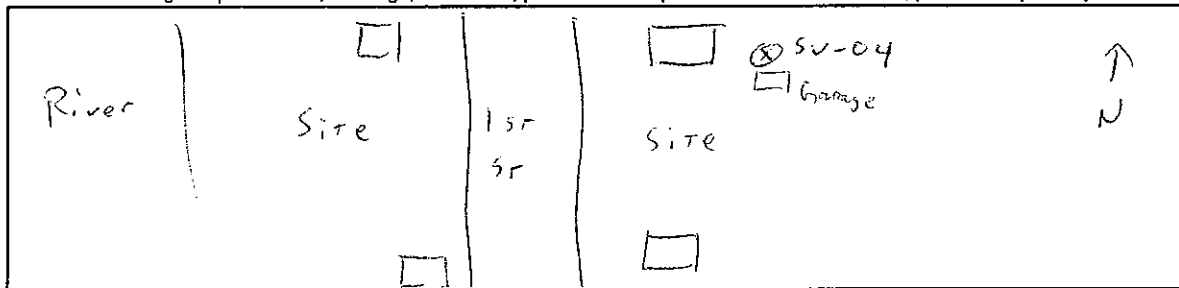
## Weather Conditions at Start of Sampling:

Air temperature (°F) 77 Rainfall None Wind direction South  
 Barometric pressure 29.91 Wind speed (mph) 3-5 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Found water @ 5.5 ft during installation, set sample pt @ 4 ft.

Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant OBG  
 Project Name National Grid Collector C. Finley, B. Garret

Sample ID SU-05-NG-072707 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 7/27/07 1118 Start Pressure ("Hg) 29  
 End Date/Time 7/27/07 1521 End Pressure ("Hg) 2  
 Canister ID SC 00523 End pressure > "zero"? Yes  
 Flow controller ID 6V-4-014 Sampling duration (intended) 4 Hr  
 Associated ambient air sample ID Amb-01-NG-072707 Depth of sample point below grade 4 ft

Tubing type used Regional final Polyethylene Length of tubing 85 244 cm Tubing volume 44 cc  
 Volume purged 70 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 90% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 84 Rainfall None Wind direction South  
 Barometric pressure 29.96 Wind speed (mph) 5-7 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

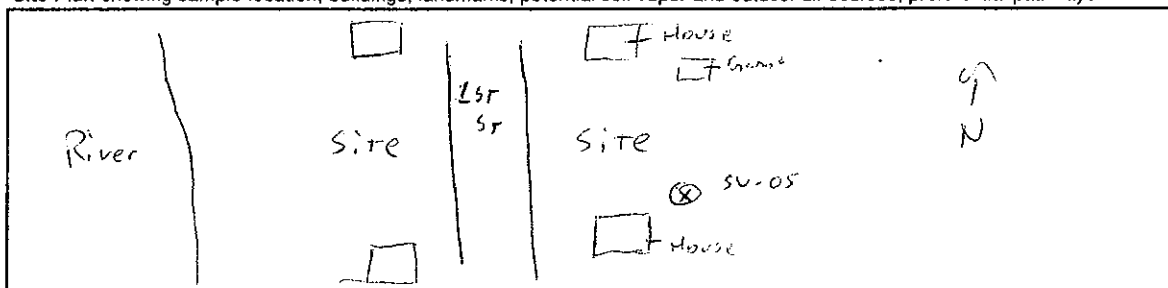
## Weather Conditions at Start of Sampling:

Air temperature (°F) 77 Rainfall None Wind direction South  
 Barometric pressure 29.91 Wind speed (mph) 3-5 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: \_\_\_\_\_  
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## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant OBG  
 Project Name National Grid Collector C. Finkle, B. Garrett

Sample ID SV-06-07-116-072707 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 7/27/07 1120 Start Pressure ("Hg) 730  
 End Date/Time 7/27/07 1523 End Pressure ("Hg) 2  
 Canister ID SC00139 End pressure > "zero"? Yes  
 Flow controller ID 6V-4-021 Sampling duration (Intended) 4 hr  
 Associated ambient air sample ID Amb-01-116-072707 Depth of sample point below grade 5.5

Tubing type used Teflon lined Polyethylene Length of tubing 274 cm Tubing volume 49 cc  
 Volume purged 80 cc @ 1.5 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 96% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 84 Rainfall None Wind direction South  
 Barometric pressure 29.96 Wind speed (mph) 3-7 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

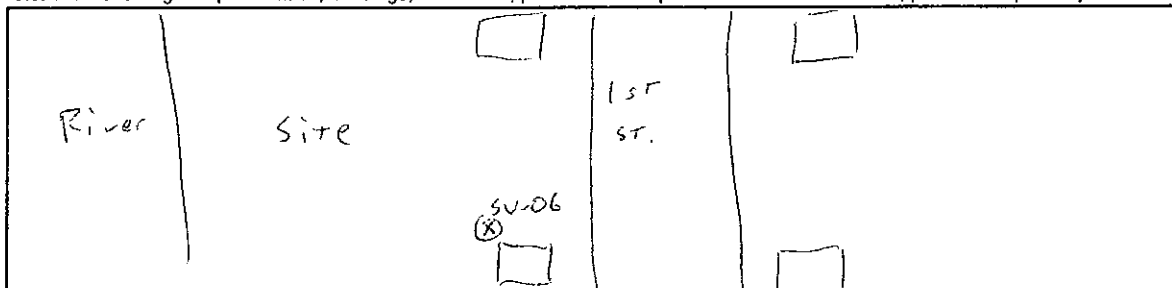
## Weather Conditions at Start of Sampling:

Air temperature (°F) 77 Rainfall None Wind direction South  
 Barometric pressure 29.91 Wind speed (mph) 3-5 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: During installation, found water @ 7 ft. Installed point @ 5.5 ft.

## Soil Vapor (Canister) Sample Collection Field Form

Project #	<u>35165</u>	Consultant	<u>OBG</u>
Project Name	<u>National Grid</u>	Collector	<u>C. Finke, B. Garrett</u>
Sample ID	<u>SV-07-NG-072707</u>	Vacuum gauge "zero" ("Hg)	<u>0</u>
Start Date/Time	<u>7/27/07 1121</u>	Start Pressure ("Hg)	<u>230"</u>
End Date/Time	<u>7/27/07 1524</u>	End Pressure ("Hg)	<u>3</u>
Canister ID	<u>SC00087</u>	End pressure > "zero"?	<u>Yes</u>
Flow controller ID	<u>GV-4-006</u>	Sampling duration (intended)	<u>4 Hr</u>
Associated ambient air sample ID	<u>Amb-01-NG-072707</u>	Depth of sample point below grade	<u>3 ft</u>

Tubing type used	<u>Teflon lined Polyethylene</u>	Length of tubing	<u>183</u> cm	Tubing volume	<u>33</u> cc
Volume purged	<u>50</u> cc @	<u>1</u> min	1 to 3 volumes purged @ < 200cc/min?	<u>✓</u>	
Chamber tracer gas conc.	<u>87%</u>	Tracer gas conc. during purging	<u>0%</u>		

## Weather Conditions during Probe Installation:

Air temperature (°F)	<u>84</u>	Rainfall	<u>None</u>	Wind direction	<u>South</u>
Barometric pressure	<u>29.96</u>			Wind speed (mph)	<u>5-7 mph</u>

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

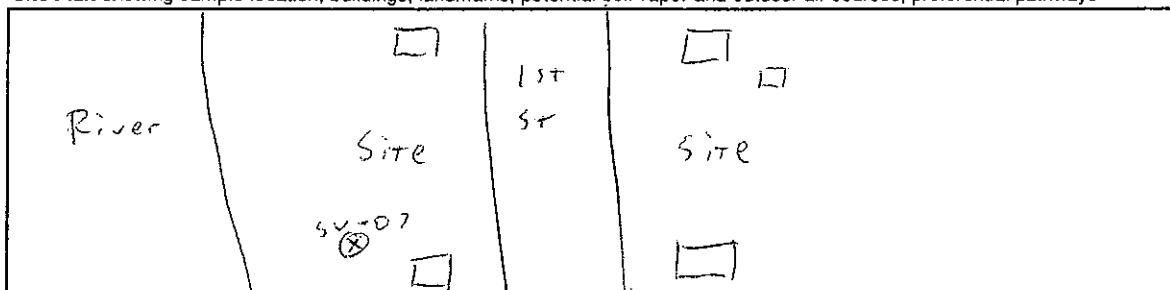
## Weather Conditions at Start of Sampling:

Air temperature (°F)	<u>77</u>	Rainfall	<u>None</u>	Wind direction	<u>South</u>
Barometric pressure	<u>29.91</u>			Wind speed (mph)	<u>3-5 mph</u>

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments:

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant OBC  
 Project Name National Grid Collector C. F. Le B. Garrett

Sample ID SV-08-NG-072707 Vacuum gauge "zero" ("Hg) 2.5  
 Start Date/Time 7/27/07 1127 Start Pressure ("Hg) 730  
 End Date/Time 7/27/07 1527 End Pressure ("Hg) 5  
 Canister ID SC 00459 End pressure > "zero"? Yes  
 Flow controller ID GV-4-003 Sampling duration (intended) 4 Hr  
 Associated ambient air sample ID Amb-01-NG-072707 Depth of sample point below grade 8 ft

Tubing type used Polyethylene <sup>Teflon lined</sup> Length of tubing 335 cm Tubing volume 60 cc  
 Volume purged 100 cc @ 2 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 87% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 84 Rainfall None Wind direction South  
 Barometric pressure 29.96 Wind speed (mph) 3-5 mph  
5-7

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

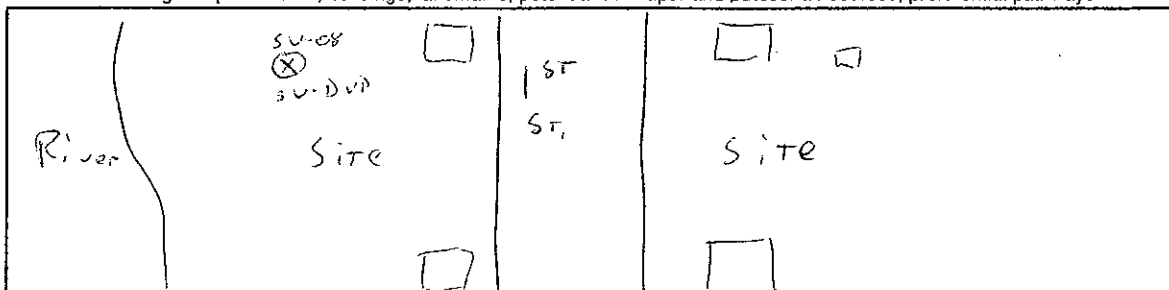
## Weather Conditions at Start of Sampling:

Air temperature (°F) 77 Rainfall None Wind direction South  
 Barometric pressure 29.91 Wind speed (mph) 3-5 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: \_\_\_\_\_  
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## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant OBG  
 Project Name National Grid Collector C. Finley, B. Garrett

Sample ID SV-DUP-NG-072707 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 7/27/07 1127 Start Pressure ("Hg) 29.5  
 End Date/Time 7/27/07 1527 End Pressure ("Hg) 5.5  
 Canister ID 5C00659 End pressure > "zero"? Yes  
 Flow controller ID 6V-4-001 Sampling duration (intended) 4 Hr  
 Associated ambient air sample ID Amb-01-NG-072707 Depth of sample point below grade 8 ft

Tubing type used Polyethylene <sup>Teflon lined</sup> Length of tubing 335 cm Tubing volume 60 cc  
 Volume purged 100 cc @ 2 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 87% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 84° Rainfall None Wind direction South  
 Barometric pressure 29.96 Wind speed (mph) 5-7 mph

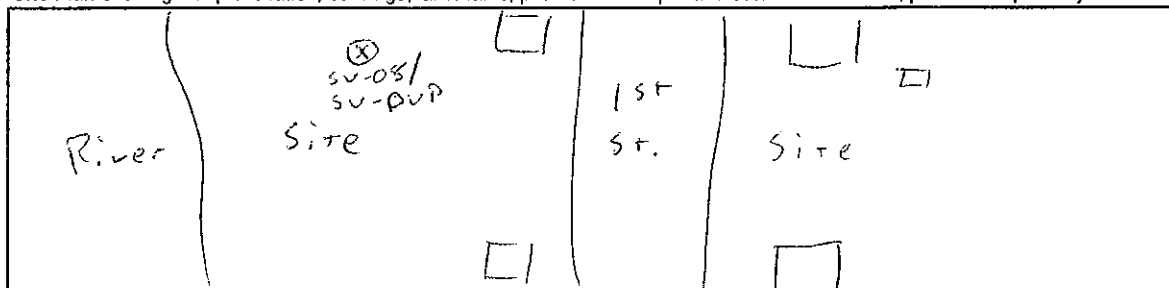
Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

## Weather Conditions at Start of Sampling:

Air temperature (°F) 77° Rainfall None Wind direction South  
 Barometric pressure 29.91 Wind speed (mph) 3-5 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: \_\_\_\_\_  
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## Soil Vapor (Canister) Sample Collection Field Form

Project #	<u>35165</u>	Consultant	<u>OBG</u>
Project Name	<u>National Grid</u>	Collector	<u>MAS, CTF</u>
Sample ID	<u>SV-06R<sup>-NG-</sup>060408</u>	Vacuum gauge "zero" ("Hg)	<u>0</u>
Start Date/Time	<u>6/4/08 1344</u>	Start Pressure ("Hg)	<u>-6-30"</u>
End Date/Time	<u>6/4/08 1807</u>	End Pressure ("Hg)	<u>8.5</u>
Canister ID	<u>92098</u>	End pressure > "zero"?	<u>-</u>
Flow controller ID	<u>K259</u>	Sampling duration (intended)	<u>4hr</u>
Associated ambient air sample ID	<u>Amb-NG-060408</u>	Depth of sample point below grade	<u>5.5'</u>

Tubing type used	<u>Teflon</u>	Length of tubing	<u>8.5'</u>	Tubing volume	<u>46</u> cc
Volume purged	<u>95</u> cc @	<u>1</u> min	1 to 3 volumes purged @ < 200cc/min?	<u>Yes</u>	
Chamber tracer gas conc.	<u>91%</u>	Tracer gas conc. during purging	<u>0%</u>		

## Weather Conditions during Probe Installation:

Air temperature (°F)	<u>67°F</u>	Rainfall	<u>scattered / light</u>	Wind direction	<u>SE</u>
Barometric pressure	<u>29.75</u>			Wind speed (mph)	<u>5-10 mph</u>

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

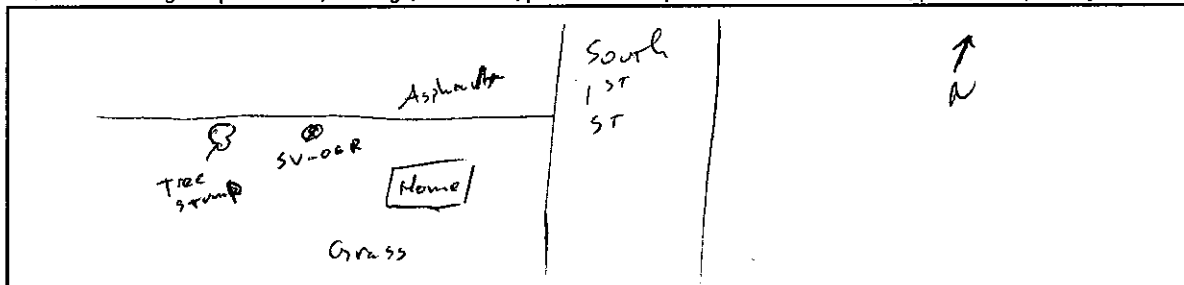
## Weather Conditions at Start of Sampling:

Air temperature (°F)	<u>72°F</u>	Rainfall	<u>scattered / light</u>	Wind direction	<u>East / South</u>
Barometric pressure	<u>29.77</u>			Wind speed (mph)	<u>5-10 mph</u>

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste from probe was observed to be consist  
of what appeared to be coral ash. Soil was sandy with dark color and  
had odor. Sample was collected in vicinity of SV-06 (2007)

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORG  
 Project Name National Grid Collector CJE, MAS

Sample ID SV-10<sup>-NG-</sup>060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1344 Start Pressure ("Hg) -29.1  
 End Date/Time 6/4/08 1807 End Pressure ("Hg) 8.8  
 Canister ID 7786 End pressure > "zero"? -  
 Flow controller ID K257 Sampling duration (intended) 4 hr  
 Associated ambient air sample ID Amb-NG-060408 Depth of sample point below grade 5.5

Tubing type used Teflon Length of tubing 8.5 cm Tubing volume 46 cc  
 Volume purged 95 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 90% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67° F Rainfall scattered light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

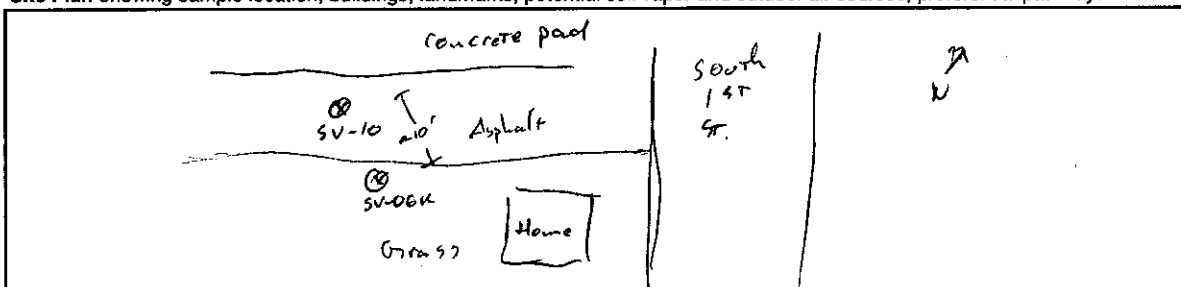
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72° F Rainfall \_\_\_\_\_ Wind direction East / South  
 Barometric pressure 29.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste was dark like smoke and had odor

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORG  
 Project Name National Grid Collector CJF, MAS

Sample ID SV-11-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1344 Start Pressure ("Hg) -27  
 End Date/Time 6/4/08 1808 End Pressure ("Hg) 8.5  
 Canister ID 7784 End pressure > "zero"? -  
 Flow controller ID K185 Sampling duration (intended) 4 hr  
 Associated ambient air sample ID Amb-NG-060408 Depth of sample point below grade 5.5

Tubing type used Teflon Length of tubing 8.5 cm Tubing volume 46 cc  
 Volume purged 95 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 90 % Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67° F Rainfall scattered light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

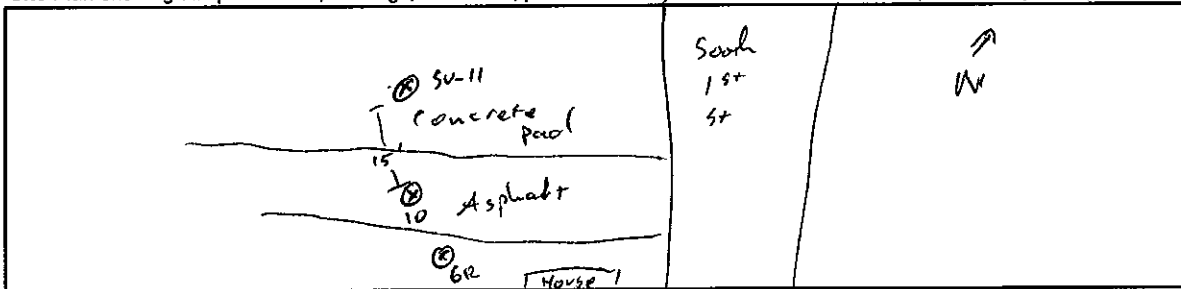
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72° F Rainfall None Wind direction East / South  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste had dark color and had odor - similar to SV-06

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ODG  
 Project Name National Grid Collector CJF, MAS

Sample ID SU-12-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1345 Start Pressure ("Hg) -30  
 End Date/Time 6/4/08 1808 End Pressure ("Hg) 8.5  
 Canister ID 7789 End pressure > "zero"? -  
 Flow controller ID K095 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID Amb-NG-060408 Depth of sample point below grade 5

Tubing type used Teflon Length of tubing 9 ft. Tubing volume 43 cc  
 Volume purged 87 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 89% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 61°F Rainfall scattered light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

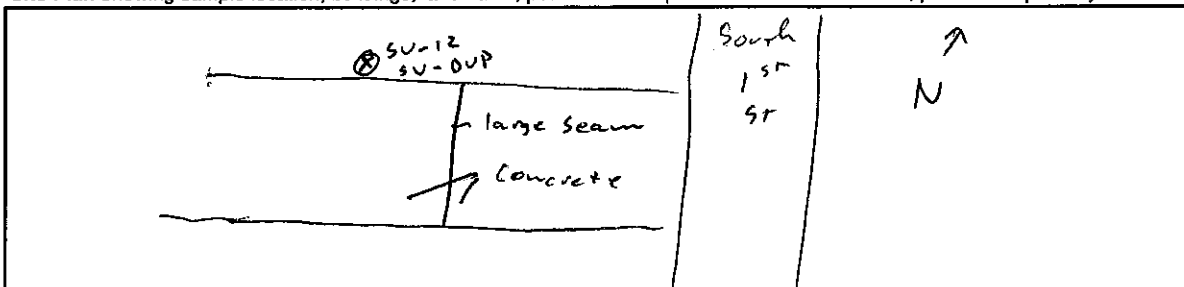
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East/South  
 Barometric pressure 29.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste did not have odor and had a reddish color



## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORIG  
Project Name National Grid Collector CJF, MAS

Sample ID SV-DUP-060408  
SV-12 Vacuum gauge "zero" ("Hg) 0  
Start Date/Time 6/4/08 1245 Start Pressure ("Hg) 25.5 29.5 @  
End Date/Time 6/4/08 1808 End Pressure ("Hg) \_\_\_\_\_  
Canister ID 7515 End pressure > "zero"? \_\_\_\_\_  
Flow controller ID R224 Sampling duration (intended) 4 hr.  
Associated ambient air sample ID Amb-NB-060408 Depth of sample point below grade 5ft.

Tubing type used Teflon Length of tubing 8 ft Tubing volume 43 cc  
Volume purged 87 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
Chamber tracer gas conc. See SV-12 Tracer gas conc. during purging N/A

## Weather Conditions during Probe Installation:

Air temperature (°F) 67° F Rainfall scattered light Wind direction SE  
Barometric pressure 29.95 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Weather Conditions at Start of Sampling:

Air temperature (°F) 72° F Rainfall None Wind direction East / South  
Barometric pressure 29.97 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

see SV-12 field form

Comments: \_\_\_\_\_  
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## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant DRG  
 Project Name National Grid Collector CJF, MAS

Sample ID SU-13-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1346 Start Pressure ("Hg) -29  
 End Date/Time 6/4/08 1809 End Pressure ("Hg) 8.9  
 Canister ID 12184 End pressure > "zero"? -  
 Flow controller ID K 268 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID Amb-NG-060408 Depth of sample point below grade 5 ft.

Tubing type used ② ~~PFA~~ Teflon Length of tubing 8 ft Tubing volume 43 cc  
 Volume purged ② ~~21.75~~ 87 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 94% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67°F Rainfall scattered / light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

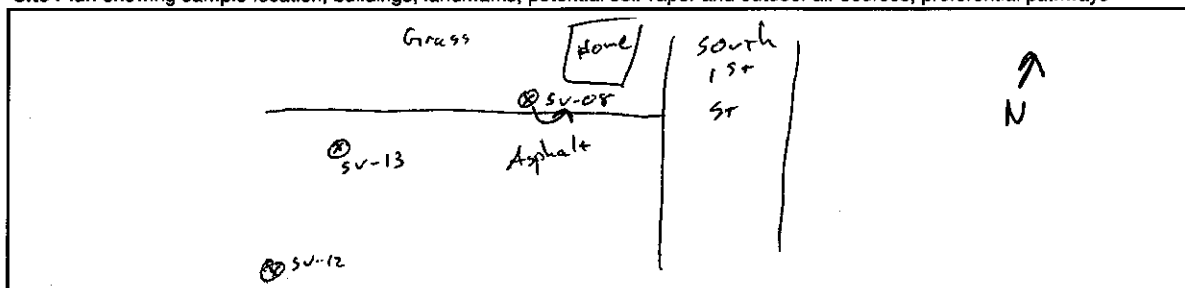
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East / South  
 Barometric pressure 29.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste had a dark color and had odor - similar to  
SU-00

Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant CBG  
 Project Name National Grid Collector CJF, MAS

Sample ID SV-08R-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1347 Start Pressure ("Hg) -30  
 End Date/Time 6/4/08 1810 End Pressure ("Hg) 9.6  
 Canister ID 12165 End pressure > "zero"? -  
 Flow controller ID K107 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID Amb-NG-060408 Depth of sample point below grade 8 ft

Tubing type used Teflon Length of tubing 11 ft. Tubing volume 60 cc  
 Volume purged 120 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 90% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67°F Rainfall scattered / light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

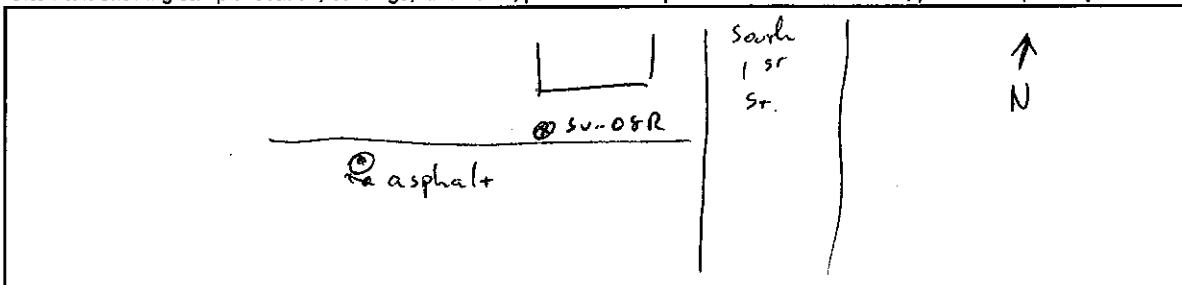
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East / South  
 Barometric pressure 29.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste was dark and sandy. Point was installed easily - not much loose soil. Derived waste had odor. Sample was collected in same vicinity as SV-08 (2007).

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORC  
 Project Name National Grid Collector CJF, MAS

Sample ID SV-04R-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1347 Start Pressure ("Hg) -29  
 End Date/Time 6/4/08 1810 End Pressure ("Hg) 8.2  
 Canister ID 7490 End pressure > "zero"? -  
 Flow controller ID K183 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID Amb-NG-060408 Depth of sample point below grade 4 ft

Tubing type used Teflon Length of tubing 7 ft Tubing volume 38 cc  
 Volume purged 76 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 90% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67°F Rainfall scattered / light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

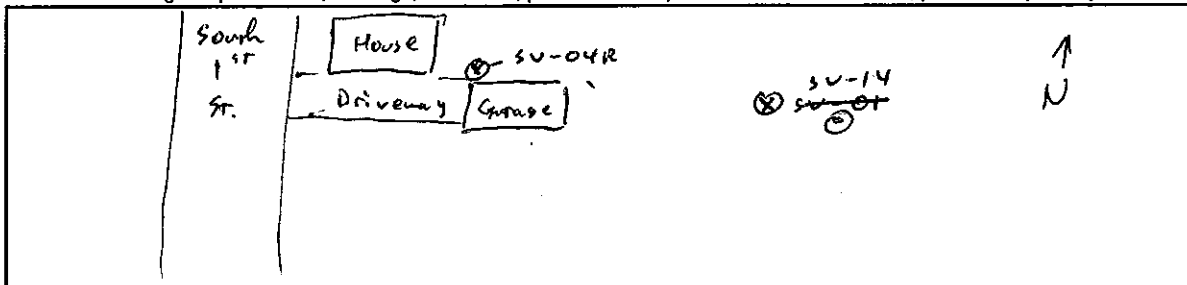
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East / South  
 Barometric pressure 29.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste was reddish clay with no odor.

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant CBG  
 Project Name National Grid Collector CTF, MAS

Sample ID SV-14-NG-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1419 Start Pressure ("Hg) -30  
 End Date/Time 6/4/08 1826 End Pressure ("Hg) 10.4  
 Canister ID 7508 End pressure > "zero"? -  
 Flow controller ID K312 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID Amb-NG-060408 Depth of sample point below grade 3 ft 4 ft

Tubing type used Teflon Length of tubing 6 ft Tubing volume 33 cc  
 Volume purged 66 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. AMB-NG-060408 Tracer gas conc. during purging 4%  
90%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67°F Rainfall Scattered/light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

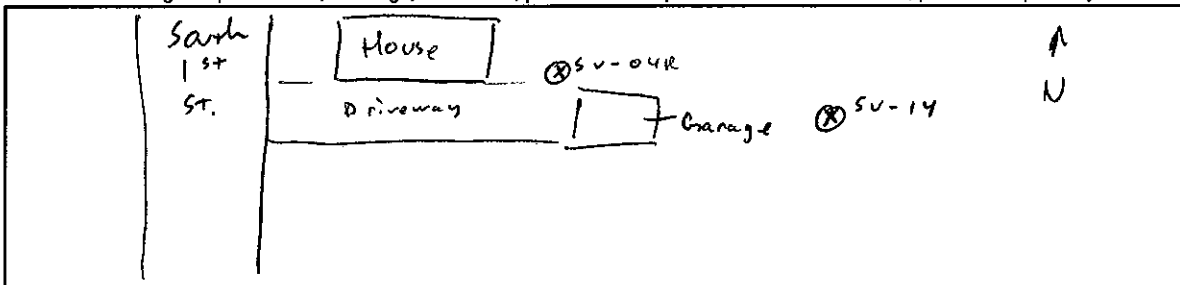
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction SE  
 Barometric pressure 27.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste was reddish clay w/ no odor.

Tested sample point with helium tracer gas and found 4%. Covered ground under tracer gas bucket and re-performed test and found concentrations of helium the same. Performed helium test at <sup>another</sup> nearby points (15) and found 4% without applying gas - most likely due to interferant gas.

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORC  
 Project Name National Grid Collector CJF, MAS

Sample ID SU-15-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1348 Start Pressure ("Hg) 2-30"  
 End Date/Time 6/4/08 1812 End Pressure ("Hg) 7.9  
 Canister ID 8116 End pressure > "zero"? —  
 Flow controller ID K226 Sampling duration (intended) 4 hr  
 Associated ambient air sample ID AMB-NG-060408 Depth of sample point below grade 4 ft 3 in

Tubing type used Teflon Length of tubing 6 ft Tubing volume 33 cc  
 Volume purged 66 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 90% Tracer gas conc. during purging 4%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67°F Rainfall scattered / light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

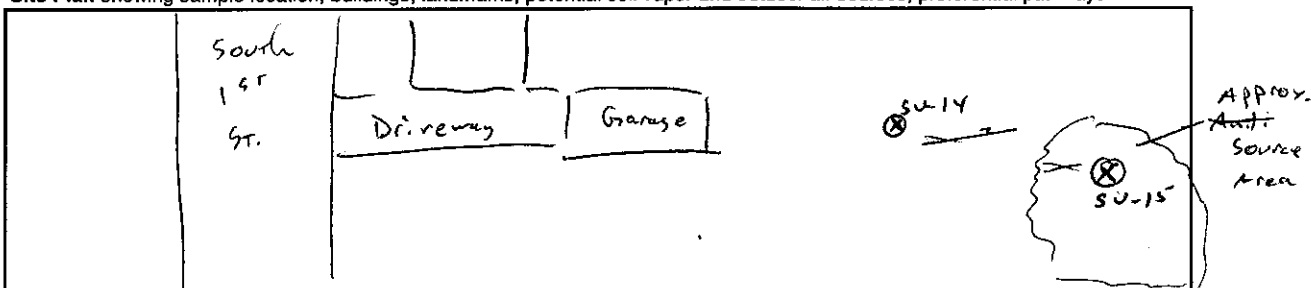
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East/South  
 Barometric pressure 29.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Driveway waste was reddish clay with no odor. 4% Tracer gas concentration is due to 4% background (interferent gas?). Instrument zeroed properly. Also, 4% was found without introducing helium.

Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORC  
 Project Name National Grid Collector CJF, MAS

Sample ID SV-16-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 1348 Start Pressure ("Hg) -30  
 End Date/Time 6/4/08 1814 End Pressure ("Hg) 9.6  
 Canister ID 7788 End pressure > "zero"? -  
 Flow controller ID K406 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID AMB-NG-060408 Depth of sample point below grade 3ft

Tubing type used Teflon Length of tubing 6 ft Tubing volume 33 cc  
 Volume purged 66 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 91% Tracer gas conc. during purging 0

## Weather Conditions during Probe Installation:

Air temperature (°F) 67°F Rainfall scattered / light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

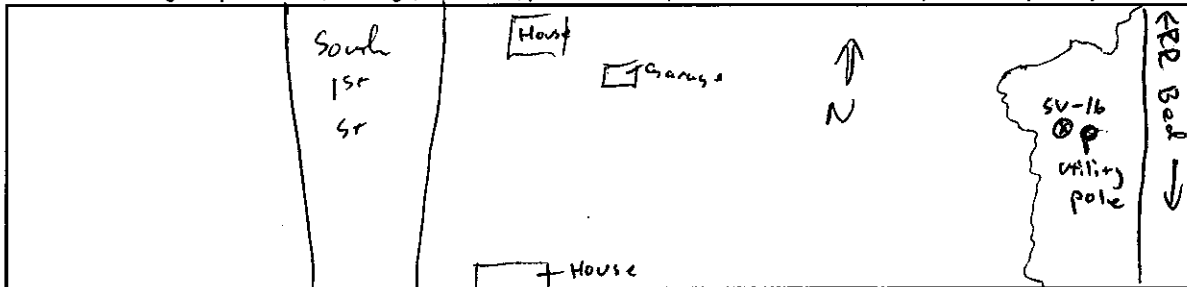
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East / South  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste was reddish clay w/ no odor

## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORC  
 Project Name National Grid Collector CJF, MAS

Sample ID SV-17-0604 Vacuum gauge "zero" ("Hg) -2  
 Start Date/Time 6/4/08 1349 Start Pressure ("Hg) -30  
 End Date/Time 6/4/08 1816 End Pressure ("Hg) 6.7  
 Canister ID 1352N End pressure > "zero"? -  
 Flow controller ID K407 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID AMB-NG-060408 Depth of sample point below grade 3 ft

Tubing type used Teflon Length of tubing 6 ft. Tubing volume 33 cc  
 Volume purged 66 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 90% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 67°F Rainfall scattered / light Wind direction SE  
 Barometric pressure 29.95 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

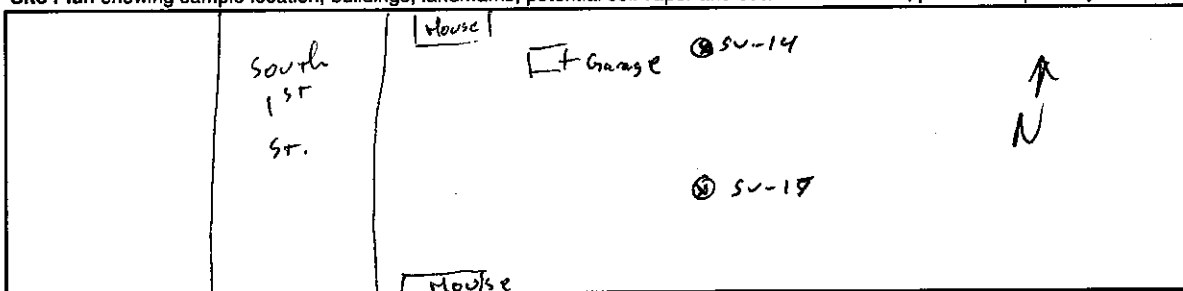
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East/South  
 Barometric pressure 29.97 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste was reddish clay w/ no odor



## Soil Vapor (Canister) Sample Collection Field Form

Project # 35165 Consultant ORSG  
 Project Name National Grid Collector CJS, MAS

Sample ID SV-OSR-060408 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 / 1353 Start Pressure ("Hg) -30  
 End Date/Time 6/4/08 / 1818 End Pressure ("Hg) 9.4  
 Canister ID 7500 End pressure > "zero"? -  
 Flow controller ID k171 Sampling duration (intended) 4 hr.  
 Associated ambient air sample ID AMB-N6-060408 Depth of sample point below grade 3 ft.

Tubing type used Teflon Length of tubing 6 ft. Tubing volume 33 cc  
 Volume purged 66 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 89% Tracer gas conc. during purging 0%

## Weather Conditions during Probe Installation:

Air temperature (°F) 69°F Rainfall scattered/light Wind direction SE  
 Barometric pressure 29.75 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

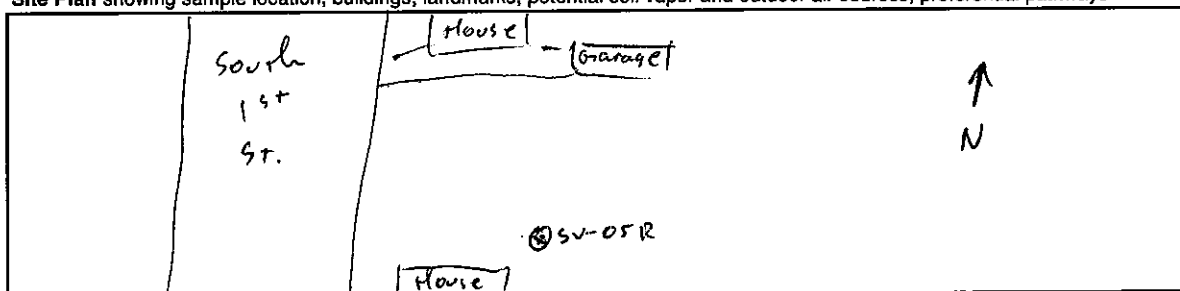
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction East/South  
 Barometric pressure 29.77 Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Derived waste was reddish clay w/ no odor. Sample was collected in vicinity of SV-OS (2007)

Ambient Air (Canister) Sample Collection Field Form

Project # 35165 Consultant OBG  
 Project Name National Grid Collector CJF, MAS

Sample ID Amb - NG - 060404 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 6/4/08 / 1359 Start Pressure ("Hg) -30"  
 End Date/Time 6/4/08 1826 End Pressure ("Hg) 7.8  
 Canister ID 7505 End pressure > "zero"? -  
 Flow controller ID R369 Sampling duration (intended) 4 Hr

Tubing type used None Length of tubing — cm Tubing volume — cc  
 Volume purged — cc @ — min 1 to 3 volumes purged @ < 200cc/min? —

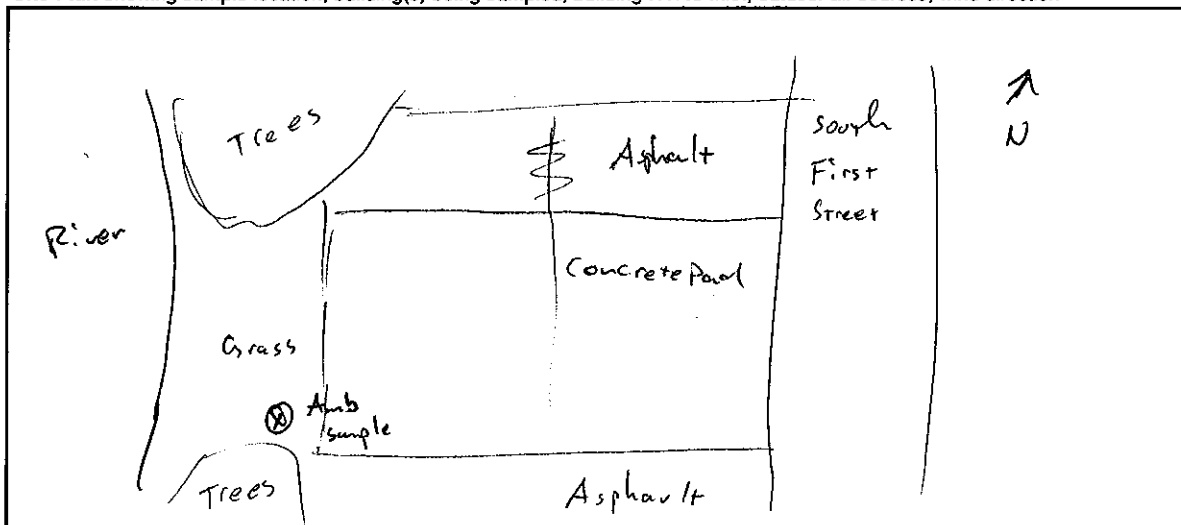
## Weather Conditions at Start of Sampling:

Air temperature (°F) 72°F Rainfall None Wind direction SE  
 Barometric pressure 27.77 Relative humidity 81% Wind speed (mph) 5-10 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction



Comments: Sample was collected from same location  
as ambient sample in 7/08 sampling.

1116/35165  
SURND 3

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # Fulton VI Consultant O'Brien & Gere  
Project Name 35165.002.271 Collector C. F. Loh

Sample ID SV-18-N6-122308 Vacuum gauge "zero" ("Hg) 0  
Start Date/Time 12/23/08 1104 Start Pressure ("Hg) 29.6  
End Date/Time 12/23/08 1504 End Pressure ("Hg) 5.4  
Canister ID 12303 End pressure > "zero"? Yes  
Flow controller ID K418 Sampling duration (intended) 4 hr  
Associated ambient air sample ID NA Depth of sample point below grade 3.5' 4'

Tubing type used Teflon Length of tubing 65' 7' or 65' 7' cc Tubing volume 3638 cc  
Volume purged 7570 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
Chamber tracer gas conc. 95% / 95% Tracer gas conc. during purging 0% / 0%  
pre post pre post

Weather Conditions during Probe Installation:

Air temperature (°F) 19°F Rainfall None Wind direction NW  
Barometric pressure 30.48 Wind speed (mph) 1-3 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

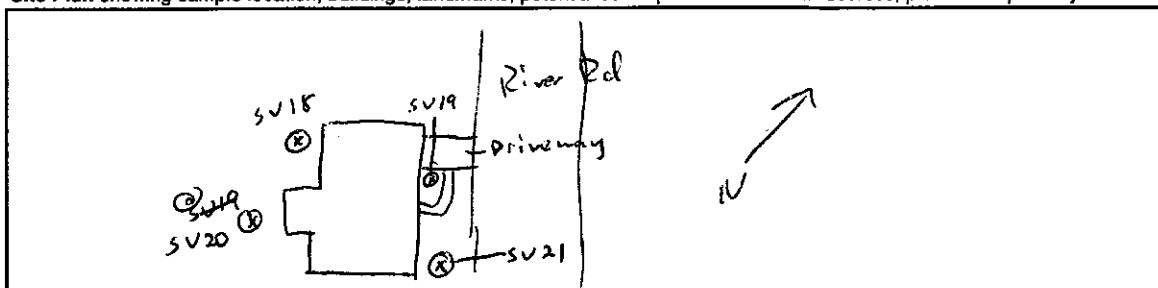
Weather Conditions at Start of Sampling:

Air temperature (°F) SAME Rainfall SAME Wind direction SAME  
Barometric pressure " Wind speed (mph) SAME

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways



Comments: Found subsurface water @ depth of 4.5' bgs.  
Installed point 1 foot above water. No odors from pt  
installation for all pts. No black/gray soil. - Appeared to be  
reddish brown silt/clay.

## Soil Vapor (Canister) Sample Collection Field Form

Project # Fulton VI Consultant O'Brien & Gere  
 Project Name 35165 Collector C. Finke

Sample ID SV-20-NG-122308 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 12/23/08 1104 Start Pressure ("Hg) 29.4  
 End Date/Time 12/23/08 1506 End Pressure ("Hg) 5.9  
 Canister ID 12339 End pressure > "zero"? Yes  
 Flow controller ID K255 Sampling duration (intended) 4 Hr  
 Associated ambient air sample ID — Depth of sample point below grade 24" 3.5'

Tubing type used Teflon Length of tubing 6.5' 70 cc Tubing volume 36 38 cc  
 Volume purged 70 35 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 95% / 95% Tracer gas conc. during purging 0% / 0%  
Pre Post Pre Post

## Weather Conditions during Probe Installation:

Air temperature (°F) 19°F Rainfall None Wind direction NW  
 Barometric pressure 30.48" Hg Wind speed (mph) 1-3 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Weather Conditions at Start of Sampling:

Air temperature (°F) Same Rainfall Same Wind direction Same  
 Barometric pressure Same Wind speed (mph) Same

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

See work plan or SV-18 field form for location.

Comments:

## Soil Vapor (Canister) Sample Collection Field Form

Project # Fulton VI Consultant O'Brien & Gere  
 Project Name 3435165 Collector C. Finke

Sample ID SU-19-N6+122308 Vacuum gauge "zero" ("Hg) 0  
 Start Date/Time 12/23/08 1104 Start Pressure ("Hg) 29.6  
 End Date/Time 12/23/08 1504 End Pressure ("Hg) 8.0  
 Canister ID 12513 End pressure > "zero"? Yes  
 Flow controller ID K355 Sampling duration (intended) 84 Hr  
 Associated ambient air sample ID - Depth of sample point below grade 3.5'

Tubing type used Teflon Length of tubing 6.5' cm Tubing volume 36 cc  
 Volume purged 70 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
 Chamber tracer gas conc. 95% / 95% Tracer gas conc. during purging 0% / 0%  
pre post pre post

## Weather Conditions during Probe Installation:

Air temperature (°F) 19°F Rainfall None Wind direction NW  
 Barometric pressure 30.48 Wind speed (mph) 1-3 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Weather Conditions at Start of Sampling:

Air temperature (°F) same Rainfall same Wind direction same  
 Barometric pressure @ 30 SAME Wind speed (mph) same

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

see work plan on SU-18 field form.

Comments: Canister 04392 was found with initial vacuum  
of ~5" Hg. Used canister for Dup (12513) for sample  
@ this location. Point was installed slightly WNW of  
work plan due to the lateral gas line location in front of the  
house.

## Soil Vapor (Canister) Sample Collection Field Form

Project # 3 Fulton VI Consultant D'Brien & Gere  
Project Name 35165 Collector C. F. L.

Sample ID SU-21-NG-122308 Vacuum gauge "zero" ("Hg) 0  
Start Date/Time 12/23/08 Start Pressure ("Hg) 29.2  
End Date/Time 12/23/08 End Pressure ("Hg) 4.4  
Canister ID #7497 End pressure > "zero"?   
Flow controller ID K412 Sampling duration (intended)   
Associated ambient air sample ID - Depth of sample point below grade 4'

Tubing type used Teflon Length of tubing 2' cm Tubing volume 38 cc  
Volume purged 75 cc @ 1 min 1 to 3 volumes purged @ < 200cc/min? Yes  
Chamber tracer gas conc. 95% / 95% Tracer gas conc. during purging 0% / 0%  
pre post pre post

## Weather Conditions during Probe Installation:

Air temperature (°F) 19°F Rainfall None Wind direction NW  
Barometric pressure 30.48 Wind speed (mph) 1-3 mph

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

## Weather Conditions at Start of Sampling:

Air temperature (°F) Same Rainfall Same Wind direction Same  
Barometric pressure Same Wind speed (mph) Same

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

None

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

See work plan or SU-18 field form for sample location.

Comments:

# TAL Knoxville

5815 Middlebrook Pike  
Knoxville, TN 37921

phone 865-291-3000 fax 865-584-4315

1482 24086

## Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Contact Information</b> Company: O'Brien & Gere Address: 5000 Britton Field Blvd City/State/Zip: East Syracuse, NY 12057 Phone: 315-437-6100 FAX: 315-437-6100 Project Name: National Grid SVI Site/location: Fulton - 35165.002.271 PO #		<b>Project Manager: Deb Wright</b> Phone: 315-437-6100 Site Contact: Chris Finke TAL Contact: Jamie McKinney		Sampled By: <i>Chad G. Fiel</i>		1 of 1 COCs	
<b>Sample Identification</b> SV-18-NG-122308 SV-19-NG-122308 SV-20-NG-122308 SV-21-NG-122308		<b>Analysis Turnaround Time</b> Standard (Specify) <input checked="" type="checkbox"/> Rush (Specify)		TO-15 TO-14A EPA 3C EPA 25C ASTM D-1946 Other (Please specify in notes section) Landfill Gas Soil Gas Ambient Air Indoor Air Sample Type		Other (Please specify in notes section)	
Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	
12/23/08	11:04	15:04	29.6	5.4	K418	12303	X
12/23/08	11:04	15:04	29.6	6.0	K355	12313	X
12/23/08	11:04	15:06	29.4	5.9	K425	12339	X
12/23/08	11:04	15:08	29.2	4.4	K412	12339	X
Sampled by: <i>Chad G. Fiel</i>							
Start Stop		Interior N/A N/A		Ambient 21.1 NA NA		Temperature (Fahrenheit)	
Start Stop		Interior 30.48 30.48		Ambient 19.0 F 21.0 F		Pressure (inches of Hg)	
Special Instructions/QC Requirements & Comments: Analyze for TO-15 PIANO LIST. Do not analyze canister 04392 - was not used.							
Canisters Shipped by: <i>Christopher Finke</i>				Canisters Received by: <i>FX</i>			
Samples Relinquished by:				Received by: <i>Kyran Henry</i>			
Relinquished by:				Received by:			

**Soil boring logs and monitoring well  
details**



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-1				
Client: Niagara Mohawk						Sampler: 2" Split Spoon		Page 1 of 2			
Proj. Loc: Fulton, NY						Hammer: 140 lbs		Location:			
File No.: 1118.081						Fall: 30"		Start Date: 7/12/96 End Date: 7/12/96			
Boring Company: Parratt Wolff, Inc.						Screen		Grout			
Foreman: Brian Waters						Riser		Sand Pack			
OBG Geologist: Chawn O'Dell								Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	PID Over Spoon (PPM)	Jar Head Space (PPM)	
0	1	0-2	~18 22-5	1.5'/0.1'	40	Dense, coarse angular GRAVEL, lodged in split spoon tip			0.0	0.0	
1											
2	2	2-4	3-1 5-6	2'/1.2'	6	Light brown (5YR 5/6), moist, loose, fine to medium SAND			0.0	0.0	
3											
4	3	4-6	7-7 10-10	2'/0.8'	17	Moderate yellowish brown (10YR 5/4), wet medium dense, fine SAND, little silt, trace medium sand			0.0	0.0	
5											
6	4	6-8	8-5 4-7	2'/1.3'	9	Moderate yellowish brown (10YR 5/4), saturated, loose fine to medium SAND, little silt, strong odor			65 (Dup-84)	275 (Dup-272)	
7											
8	5	8-10	8-10 10-10	2'/1.5'	20	Moderate yellowish brown (10YR 5/4), saturated, medium dense fine SAND, some silt			1.5	6.8	
9											
10	6	10-12	5-7 10-8	2'/0.0'	17	No recovery					
11											
12	7	12-14	10-11 12-10	2'/1.5'	23	Pale yellowish brown (10YR 6/2), saturated, medium dense, fine SAND, some very fine sand, little silt			0.0	2.2	
13											
14	8	14-16	6-7 11-7	2'/0.8'	18	Light brown (5YR 5/6), wet, medium dense, medium to coarse SAND, some subrounded to subangular fine to medium gravel, little fine sand to silt			0.0	2.9	
15											
16	9	16-18	20-25 35-29	2'/1.5'	60	Light brown (5YR 5/6), moist to wet, extremely dense, fine to medium SAND, some subrounded to subangular fine to coarse gravel, little coarse sand and silt			0.0	0.0	
17											
18	10	18-20	12-26 50/0.4'	1.4'/0.9'	50+	Light brown (5YR 5/6), extremely dense, fine to medium SAND, some silt, little fine to coarse angular gravel, trace coarse sand			0.0	0.0	
19											
20	11	20-22	27-45 49-50/0.4	1.9'/1.5'	50+	Light brown (5YR 5/6), extremely dense, fine to medium SAND, some silt, little fine to coarse angular gravel, trace coarse sand			0.0	0.0	
21											

[illegible]





[illegible]



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-7			
Client: Niagara Mohawk Power Corporation (South First Street Site)						3.25 inch HAS Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 02/21/00 End Date: 02/21/00			
Boring Company: Parratt-Wolff, Inc. Foreman: Joe Persey Drill Rig: IR OBG Geologist: Peter Bogardus						Screen <input type="checkbox"/> = <input type="checkbox"/> Riser <input type="checkbox"/> <input type="checkbox"/> Steel <input type="checkbox"/> // <input type="checkbox"/> <div style="display: inline-block; width: 15px; height: 15px; background-color: gray; border: 1px solid black; margin: 2px;"></div> Grout <div style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid black; margin: 2px;"></div> Sand Pack <div style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid black; margin: 2px;"></div> Bentonite				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		.5-2	20-49 52	1.5/.5	101	Asphalt Grayish brown 5YR3/2 moist, very moist, dense fine to medium GRAVEL, little fine to coarse sand, trace silt (fill)		.062/.9	0.2	neg
2		4	4-4 2-2	2/.5	6	Grayish brown moist, loose fine to med GRAVEL, little silt, few pieces of black N3 hard asphalt material		.054/.9	0.2	neg
4		6	2-1 1-7	2/1.6	2	Moderate yellowish brown soft, wet, SILT, some fine sand, trace of clay, few fine sand seams, odor and staining in last 0.5 ft of spoon		.069/.9	0.2	yes inseams
6		8	4-4 3-2	2/1.7	7	Dark gray N4, loose, wet, fine SAND and SILT, trace of clay		.057/.9	20.0	yes
8		10	2-5 7-11	2/1.6	12	Moderate yellowish brown, stiff, moist to wet, SILT, some fine sand, little to trace of clay (varved) UV in seams		0.59/.9	6.0	yes
10		12	8-11 8-10	2/1.5	19	Moderate yellowish brown, very stiff SILT, some fine sand, little to trace of clay, trace of subrounded fine gravel		.030/.9	16.0	yes
12		14	7-10 22-50	2/1.9	32	Similar, broken cobble in shoe		.066/.9	1.3	very slight
14		16	15-8 8-10	2/1.3	16	Medium brown 5YR4/4, wet, medium dense, medium to coarse GRAVEL, sub- rounded to subangular, fine and medium coarse sand with fine gravel, silt matrix		.066/.9	0.3	none
16		18	7-11 26-33	2/1.7	37	Moderate brown, wet, dense, subrounded to subangular, fine med to coarse SAND, some fine to med gravel, little silt			0.0	none
18		19.3	16-40 50/.3	1.3/1.0	90	Moderate brown, wet, very dense med to coarse sand, some fine to med gravel (subrounded to subangular), little silt, trace of clay			0.0	none
Boring grouted to surface										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-8			
Client: Niagara Mohawk Power Corporation (South First Street Site)						3.25 inch HAS Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: February 2000 End Date: February 2000			
Boring Company: Parratt-Wolff, Inc. Foreman: Joe Persey Drill Rig: IR OBG Geologist: Peter Bogardus						Screen <input type="checkbox"/> = <input type="checkbox"/> Riser <input type="checkbox"/> <input type="checkbox"/> Steel <input checked="" type="checkbox"/> // <input type="checkbox"/> <input type="checkbox"/> Grout <input type="checkbox"/> <input type="checkbox"/> Sand Pack <input type="checkbox"/> <input type="checkbox"/> Bentonite				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		2	44-90/4		100	Asphalt Dark gray N3 moist, very dense, fine to med sand, little silt, then red brick		.042/.9	0.0	none
2		4	50/4	.4/4		Grayish brown 5YR3/2 med to coarse SAND and fine to med GRAVEL, trace of silt (auger refusal ~3.5'), move hole ~3' SW Asphaltish material, dry,	Very Dense	.039/.9	0.0	none
4		6	2-1	2/8	3	Similar (FILL)		.040/.9	0.0	none
6		8	2-1	2/5	3	Dark gray N3, moist, soft, SILT and fine SAND, trace of clay, root hairs, wood fragments	(mothball odor)	.057/.9	42.0	none
8		10	6-7	2/1.2	17	Olive gray 5Y3/2 moist to wet, very stiff, SILT, mixed with fine sand, trace of clay, few fine to med sand seams	(mothball odor)	.054/.9	12.0	yes in seams
10		12	20-14	2/1.5	19	Dark gray N3, wet, very stiff, SILT, little fine sand, trace of clay, very "soupy in spoon".	(mothball odor)	.042/.9	19.0	no
12		14	7-9	1.7/1.2	18	Similar to ~14.5 then moderate brown dense med to coarse SAND, little fine to med gravel, trace of silt		.043/.9	23.0	yes
14		16	80/2	NR		No recovery		.032/.9		--
16		18	15-23		50	Moderate brown 5YR4/4 wet, very dense, fine to med SAND, little to trace of silt, embedded with fine to med gravel		.043/.9	0.5	no
18		20	18-31			Same		.055/.9	0.2	no
Boring grouted to surface										





O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-10			
Client: Niagara Mohawk Power Corporation (South First Street Site)						3.25 inch HAS Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 02/23/00 End Date: 02/23/00			
Boring Company: Parratt-Wolff, Inc. Foreman: Joe Persey Drill Rig: IR OBG Geologist: Peter Bogardus						Screen = <input type="checkbox"/> Grout Riser <input type="checkbox"/> Sand Pack Steel // <input checked="" type="checkbox"/> Bentonite				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		2				Asphalt Concrete				
2		4	3-1 2-1	2/5	3	Grayish black N2, moist, very loose med sand to med gravel, asphalt-like material		.072/.9	0.4	none
4		6	2-1 3-7	2/5	4	Similar to ~5.5, then moderate yellowish brown 10YR5/2 moist SILT and fine SAND		.126/.7	2.0	none
6		8	4-2 3-2	2/1.0	5	Grayish brown 5YR3/2 moist to med stiff SILT, little clay, few fine sand seams throughout		.063/.8	0.0	none
8		10	2-2 6-10	2/1.5	8	Dark gray N3, moist, med stiff SILT and fine SAND, ~9.5' dark yellowish orange 10YR6/6, wet fine sand, trace of silt		.075/.8	0.2	none
10		12	5-6 5-3	2/1.3	11	Moderate yellowish brown 10YR5/4 wet, stiff, SILT, some fine sand, trace of clay, few fine sand lenses throughout	(slight odor)	.068/.7	1.0	none
12		14	5-8 7-12	2/1.8	15	Light olive gray 5YR5/2 wet, very stiff, SILT, some clay, little to trace of fine sand		.072/.7	16.0	none
14		16	8-5 14-10	2/1.2	19	Olive gray 5YR4/1, wet, very stiff, fine SAND and SILT, Nose of spoon had slight odor and sheen. Sheen and product noted at top of spoon	(sheen) (product)	.072/.7	0.6	none
16		18	12-17 21-12	2/1.3	34	Moderate brown wet, dense, fine to med SAND, some coarse sand to med gravel, little silt (odorous)	(odor)	.052/.7	30.0	none
18		20	14-23 20-10	2/1.3	43	Moderate brown, wet, dense, fine to med SAND, some coarse sand to med gravel, little silt, odorous. (product noted in wash above sample) 3" spoon	(odor)	.043/.7	22.0	-

[illegible]



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-12			
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches	Start Date: 5/08/01 End Date: 5/08/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> Riser <input type="checkbox"/> Steel <input checked="" type="checkbox"/> Grout <input type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite <input type="checkbox"/>				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm) UV Light	
0	1	0-2	4-5 6-6	2.0/0.5	11	Pale yellowish brown 10YR 6/2, dry, medium dense, SILT, little fine gravel (angular), trace fine to coarse sand, trace organic matter		0.0	0.1	neg
2	2	2-4	4-4 3-4	2.0/0.6	7	Grayish brown 5YR 3/2, damp, loose, fine to medium SAND, some silt, little coarse sand to fine gravel (subangular)		0.0	3.6	neg
4	3	4-6	4-38 12-12	2.0/1.0	50	Grayish brown 5YR 3/2, dense, fine to coarse SAND, some silt, little fine to coarse gravel (subangular), trace concrete frags		0.0	3.7	neg
6	4	6-8	12-8 6-7	2.0/0.9	14	Dark yellowish brown 10YR 4/2, damp, medium, dense, SILT and fine SAND, little little fine to coarse gravel (subangular)		0.0	2.1	neg
8	5	8-10	6-4 4-4	2.0/0.8	8	Dusky yellowish brown 10YR 2/2, saturated, loose, coarse SAND and fine GRAVEL (subangular), little fine to medium sand		0.0	0.6	neg
10	6	10-12	4-7 50/0.3	1.3/0.0	50+	Spoon refusal @ approx. 11.3 ft No recovery		----	----	----
12	7	12-14	4-4 6-7	2.0/2.0	10	Dusky yellowish brown 10YR 2/2, saturated, loose, coarse SAND and fine GRAVEL (subangular), little fine to medium sand to approx. 13 ft, then moderate yellowish brown, 10 YR 5/4, saturated, stiff, SILT, some clay		0.0	0.1	neg
14	8	14-16	3-4 5-4	2.0/1.3	9	Light olive gray 5Y 5/2, saturated, loose, SILT, some clay		0.0	0.0	neg
16	9	16-18	5-4 4-4	2.0/1.0	8	Moderate brown, 5YR 4/4, saturated, loose, fine SAND, some silt, trace fine gravel (subangular)		0.0	0.0	neg
18	10	18-20	7-6 4-4	2.0/2.0	10	Moderate brown, 5YR 4/4, saturated, loose, fine SAND, some silt, trace fine gravel (subangular)		0.0	0.0	neg
						Terminate the borehole at 20 ft				
						Grout the borehole to the surface with cement/ bentonite grout				
Notes:										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-13				
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches		Start Date: 5/08/01 End Date: 5/08/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> = <input type="checkbox"/> Riser <input type="checkbox"/> Steel <input checked="" type="checkbox"/> // <input type="checkbox"/>		<input type="checkbox"/> Grout <input checked="" type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm) UV Light		
0	1	0-2	8-7 6-6	2.0/0.5	13	Dark yellowish brown 10YR 4/2, damp, medium dense, SILT and fine SAND, little medium to coarse sand, trace fine, trace fine gravel (angular), trace organic matter		0.0	0.0	neg	
2	2	2-4	4-5 5-5	2.0/0.5	10	Grayish brown 5YR 3/2, damp, medium dense, fine to medium SAND, little coarse sand to fine gravel (subangular), little silt, trace orange brick fragments		0.0	0.0	neg	
4	3	4-6	6-4 4-5	2.0/0.1	8	Orange BRICK fragments (poor recovery)		----	----	----	
6	4	6-8	3-4 4-5	2.0/0.0	8	No recovery		----	----	----	
8	5	8-10	5-5 3-2	2.0/1.0	8	Grayish brown 5YR 3/2, saturated, loose, fine SAND, some medium to coarse sand, little silt, trace fine gravel (subangular), trace cinder/brick fragments		0.0	0.0	neg	
10	6	10-12	2-3 3-3	2.0/0.3	6	Grayish brown 5YR 3/2, saturated, loose, fine SAND, some medium to coarse sand, little silt, trace fine gravel (subangular), trace cinder/brick fragments		0.0	0.0	neg	
12	7	12-14	2-2 1-2	2.0/1.2	3	Grayish brown 5YR 3/2, saturated, very loose, SILT and fine SAND, little fine gravel (subangular)		0.0	0.0	neg	
14	8	14-16	1-1 1-1	2.0/1.5	2	Grayish brown 5YR 3/2, saturated, very loose, SILT and fine SAND, little fine gravel (subangular)		0.0	0.0	neg	
16	9	16-18	1-2 2-2	2.0/1.5	4	Grayish brown 5YR 3/2, saturated, loose, fine SAND, some silt		0.0	0.0	neg	
18	10	18-20	2-2 2-2	2.0/2.0	4	Grayish brown 5YR 3/2, saturated, loose, fine SAND, some silt		0.0	0.0	neg	
						Terminate the borehole at 20 ft below grade					
						Grout the borehole to the surface with cement/bentonite grout					
Notes:											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-14			
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches	Start Date: 5/08/01 End Date: 5/08/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //	Grout Sand Pack Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm)	UV Light
0	1	0-2	2-3 2-5	2.0/0.5	5	Dusky brown 5YR 2/2, saturated, loose, SILT, little coarse gravel (subangular)		0.0	0.0	neg
2	2	2-4	2-3 3-6	2.0/1.0	6	Moderate brown 5YR 4/4, saturated, loose, fine SAND and SILT, little fine to medium gravel (subangular)		0.0	0.0	neg
4	3	4-6	3-5 7-7	2.0/1.0	12	Grayish brown 5YR 3/2, saturated, medium dense, SILT, some fine to coarse sand, little fine gravel (subangular)		0.0	0.0	neg
6	4	6-8	6-7 7-6	2.0/1.7	14	Pale brown 5YR 5/2, saturated, medium dense, SILT, some clay, trace organic matter		0.0	0.0	neg
8	5	8-10	5-11 8-7	2.0/1.8	19	Pale brown 5YR 5/2, saturated, medium dense, SILT, some clay, trace organic matter		0.0	0.0	neg
10	6	10-12	2-2 2-8	2.0/1.9	4	Pale brown 5YR 5/2, saturated, loose, SILT and fine SAND, little fine gravel (subangular)	odor staining	0.3	7.4	neg
12	7	12-14	7-8 5-4	2.0/2.0	13	Pale brown 5YR 5/2, saturated, medium dense, SILT and fine SAND, little fine gravel (subangular)	odor staining	1.1	11.3	neg
14	8	14-16	4-6 9-9	2.0/1.0	15	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, little medium sand, trace fine gravel (subrounded to subangular)		0.1	1.2	neg
16	9	16-18	3-9 11-12	2.0/1.7	18	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some medium sand, little fine to coarse gravel (subrounded to subangular)		0.0	0.2	neg
18	10	18-20	11-18 21-24	2.0/2.0	39	Pale reddish brown 10R 5/4, saturated, dense, fine SAND, some medium sand, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
Notes:										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING SB-15			
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches		Start Date: 5/08/01 End Date: 5/08/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> Riser <input type="checkbox"/> Steel <input type="checkbox"/>		Grout <input type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite <input type="checkbox"/>			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm) UV Light		
0	1	0-2	4-2 2-2	2.0/0.6	4	Pale yellowish brown 10YR 6/2, dry, loose, SILT, some fine to medium gravel (subrounded to angular), little fine to coarse sand		0.0	0.0	neg	
2	2	2-4	4-7 8-11	2.0/1.5	15	Dark yellowish brown 10YR 4/2, damp, medium dense, fine sand, little medium to coarse sand		0.0	0.0	neg	
4	3	4-6	7-11 12-14	2.0/2.0	23	Dark yellowish brown 10YR 4/2, damp, medium dense, fine sand, little medium to coarse sand		0.0	0.0	neg	
6	4	6-8	12-12 12-12	2.0/1.5	24	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, trace fine gravel (subangular)	staining odor	21.8	351.0	pos	
8	5	8-10	6-4 4-5	2.0/2.0	8	Pale reddish brown 10R 5/4, saturated, loose, fine SAND, some silt, trace fine gravel (subangular)	sheen odor	6.6	87.1	neg	
10	6	10-12	4-6 7-11	2.0/1.1	13	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, trace fine to coarse gravel (subangular)	odor	3.2	41.0	neg	
12	7	12-14	14- 50/0.4	0.9/0.3	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, trace fine to coarse gravel (subangular)	odor	1.7	20.6	neg	
14	8	14-16	50/0.3	0.3/0.3	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, trace fine to coarse gravel (subangular)		0.1	9.1	neg	
16	9	16-18	50/0.2	0.2/0.2	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, trace fine to coarse gravel (subangular)		0.0	1.2	neg	
18	10	18-20	50/0.2	0.2/0.2	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, trace fine to coarse gravel (subangular)		0.0	0.1	neg	
20	11	20-22	50/0.2	0.2/0.2	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, trace fine to coarse gravel (subangular)		0.0	0.1	neg	
						Terminate the borehole at 20.2 ft Grout the borehole to the surface with cement/bentonite grout					
Notes:											






O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-16			
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches	Start Date: 5/09/01 End Date: 5/09/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = <input type="checkbox"/> Riser <input type="checkbox"/> Steel // <input type="checkbox"/> Grout <input type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite <input type="checkbox"/>				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm)	UV Light
0	1	0-2	9-6	2.0/0.3	10	Grayish brown 5YR 3/2, damp, medium dense, SILT, some fine to coarse sand, little fine to medium gravel (angular) trace organic matter roots		0.0	0.0	neg
			4-7							
2	2	2-4	12-31	2.0/1.2	45	Moderate yellowish brown 10YR 5/4, damp, dense, SILT, some fine sand, little medium to coarse sand, trace gravel (subrounded to angular)		0.0	0.0	neg
			14-13							
4	3	4-6	6-5	2.0/1.5	10	Moderate yellowish brown 10YR 5/4, damp to wet, medium dense, SILT, some fine to medium sand, little coarse sand to fine gravel (subrounded to angular)	odor	5.5	7.1	neg
			5-6							
6	4	6-8	6-5	2.0/0.5	12	Moderate yellowish brown 10YR 5/4, saturated, fine SAND and SILT, little fine to medium gravel (angular)	poor recovery	1.2	3.2	neg
			7-7							
8	5	8-10	6-5	2.0/1.5	11	Dark yellowish brown 10YR 4/2, saturated, medium dense, fine SAND, some silt		0.5	1.1	neg
			6-6							
10	6	10-12	7-11	2.0/1.4	25	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt		0.0	0.0	neg
			14-25							
12	7	12-12.4	50/0.4	0.4/0.4	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, little fine to medium gravel (subangular)	odor	0.0	0.0	neg
14	8	14-14.9	26/50.4	0.9/0.8	50+	Pale reddish brown 10R 5/4, saturated, dense, fine SAND, some silt, little fine to medium gravel (subrounded to angular)		0.0	0.0	neg
16	9	16-16.7	26/50.2	0.7/0.7	50+	Pale reddish brown 10R 5/4, saturated, dense, fine SAND, some silt, little fine medium gravel (subrounded to angular)		0.0	0.0	neg
						Terminate the borehole at 16.7 ft				
						Grout the borehole to the surface with cement/bentonite grout				
Notes:										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-17			
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches	Start Date: 5/09/01 End Date: 5/09/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //	<input type="checkbox"/> Grout <input checked="" type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm) UV Light	
0	1	0-2	6-3 2-2	2.0/0.5	5	Dark yellowish brown 10YR 4/2, damp, loose, SILT, some fine to coarse sand, little fine gravel (subangular)		0.0	0.0	neg
2	2	2-4	2-2 7-12	2.0/1.5	9	Moderate yellowish brown 10YR 5/4, damp, stiff SILT, little fine sand, trace fine gravel (subangular)		0.0	0.0	neg
4	3	4-6	10-12 12-11	2.0/1.8	24	Moderate yellowish brown 10YR 5/4, saturated, medium dense, SILT and fine SAND, trace coarse to fine gravel (subangular)		0.0	0.1	neg
6	4	6-8	12-7 6-7	2.0/1.5	13	As above for top 0.5 ft, then pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to medium gravel (subrounded to subangular)		0.0	0.2	neg
8	5	8-10	7-6 5-5	2.0/1.0	11	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to medium gravel (subrounded to subangular)		0.0	0.0	neg
10	6	10-12	4-5 8-11	2.0/2.0	13	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to medium gravel (subrounded to subangular)	odor	0.0	0.0	neg
12	7	12-12.4	50/0.4	0.4/0.4	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, little fine to medium gravel (subrounded to subangular)	odor	0.0	0.0	neg
14	8	14-14.4	50/.4	0.4/0.4	50+	Pale reddish brown 10R 5/4, saturated, very dense, fine SAND, some silt, little fine to coarse gravel (subrounded to angular)		0.0	0.0	neg
						Terminate the borehole at 14.4 ft				
						Grout the borehole to the surface with cement/bentonite grout				
Notes:										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-18			
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches	Start Date: 5/09/01 End Date: 5/09/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //	<input type="checkbox"/> Grout <input checked="" type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm)	UV Light
0	1	0-2	2-3	2.0/2.0	6	Dark yellowish brown 10YR 4/2, damp, loose, SILT, little fine gravel (subangular), trace organic matter (roots)		0.0	0.0	neg
			3-3							
2	2	2-4	50/3	0.3/0.1	50+	Concrete pad approx. 2 ft below grade concrete in split spoon tip		----	----	----
4	3	4-6	12-8	2.0/1.2	15	Moderate yellowish brown 10YR 5/4, damp, medium dense, SILT and fine SAND, little fine gravel (subangular)		0.0	0.0	neg
			7-7							
6	4	6-8	12-16	2.0/2.0	32	As above for top 0.7 ft, then pale reddish brown 10R 5/4, saturated, dense, fine SAND, little fine to coarse gravel (subangular)		0.0	0.0	neg
			16-11							
8	5	8-10	11-10	2.0/2.0	25	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
			15-9							
10	6	10-12	7-11	2.0/1.0	28	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
			17-28							
12	7	12-14	27-50/4	0.9/0.8	50+	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
14	8	14-16	50/0.4	0.4/0.4	50+	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
16	9	16-18	50/0.3	0.3/0.2	50+	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
						Terminate the borehole at 16.3 ft Grout the borehole to the surface with cement/bentonite grout				
Notes:										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-18			
Client: Niagara Mohawk Power Corporation South First Street Site						Drill Method: Hollow Stem Auger Sampler: 2 inch Split Spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.081						Fall: 30 inches	Start Date: 5/09/01 End Date: 5/09/01			
Boring Company: Parratt-Wolff, Inc. Foreman: Glen Lansing Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> Riser <input type="checkbox"/> Steel <input checked="" type="checkbox"/>	<input type="checkbox"/> Grout <input checked="" type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	PID Over Spoon	Field Testing PID (ppm) UV Light	
0	1	0-2	2-3	2.0/2.0	6	Dark yellowish brown 10YR 4/2, damp, loose, SILT, little fine gravel (subangular), trace organic matter (roots)		0.0	0.0	neg
			3-3							
2	2	2-4	50/3	0.3/0.1	50+	Concrete pad approx. 2 ft below grade concrete in split spoon tip		----	----	----
4	3	4-6	12-8	2.0/1.2	15	Moderate yellowish brown 10YR 5/4, damp, medium dense, SILT and fine SAND, little fine gravel (subangular)		0.0	0.0	neg
			7-7							
6	4	6-8	12-16	2.0/2.0	32	As above for top 0.7 ft, then pale reddish brown 10R 5/4, saturated, dense, fine SAND, little fine to coarse gravel (subangular)		0.0	0.0	neg
			16-11							
8	5	8-10	11-10	2.0/2.0	25	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
			15-9							
10	6	10-12	7-11	2.0/1.0	28	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
			17-28							
12	7	12-14	27-50/4	0.9/0.8	50+	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
14	8	14-16	50/0.4	0.4/0.4	50+	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
16	9	16-18	50/0.3	0.3/0.2	50+	Pale reddish brown 10R 5/4, saturated, medium dense, fine SAND, some silt, little fine to coarse gravel (subrounded to subangular)		0.0	0.0	neg
						Terminate the borehole at 16.3 ft Grout the borehole to the surface with cement/bentonite grout				
Notes:										



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-20				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches		Start Date: 2/11/02 End Date: 2/11/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //		 Grout  Sand Pack  Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)	
0	1	2	---	1.5/1.5	---	0-0.5 ft: Concrete slab; then pale brown 5YR 5/2, damp, fine SAND, some orange brick (bottom 0.5 ft), little fine to coarse gravel (subangular)		neg	0.0	0.0	
2	2	4	---	2.0/1.5	---	Pale brown 5YR 5/2, damp, fine SAND, some orange brick fragments (bottom 0.5 ft)		neg	0.0	0.2	
4	3	6	---	2.0/1.5	---	BRICKS, SLAG, GRAVEL, some fine pale brown sand (damp)		neg	0.0	0.2	
6	4	8	---	2.0/1.3	---	As above, saturated at approximately 6.5 ft below grade		neg	0.0	0.3	
8	5	10	---	2.0/1.7	---	Grayish brown 5YR 3/2, saturated, fine SAND, little staining, little slag/brick fragments (top 0.5 ft)		neg	0.0	0.6	
10	6	12	---	2.0/2.0	---	Grayish brown 5YR 3/2, saturated, fine fine SAND	sheen on water	neg	1.4	2.1	
12	7	14	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, SILT, little fine sand, little clay		neg	0.0	0.3	
14	8	16	---	2.0/2.0	---	Pale yellowish brown 10YR 6/2, saturated, SILT and fine SAND to approximately 15.5 ft, then fine SAND, little fine to medium gravel (subangular). little silt	free product (more dense)	neg	48.1	96.0	
16	9	18	---	2.0/1.8	---	Pale reddish brown 10R 5/4, saturated, fine SAND, little silt, fine gravel (subrounded to subangular)	sheen on water	neg	6.1	32.0	
18	10	20	---	2.0/0.0	---	No Recovery		---	---	---	
20	11	22	---	2.0/1.6	---	Pale reddish brown 10R 5/4, saturated, fine SAND, little fine gravel (subrounded to subangular)	sheen on water (probable dragdown)	neg	38.2	53.1	
Notes: The soil boring was grouted to the surface with cement/bentonite grout.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-21				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches		Start Date: 2/11/02 End Date: 2/11/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //		<input type="checkbox"/> Grout <input checked="" type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)	
0	1	2	---	1.5/1.5	---	0-0.5 ft: Concrete slab; then brownish black 5YR 2/1, fine to coarse SAND, some fine gravel (angular), little brick/slag frag.		neg	0.3	0.7	
2	2	4	---	2.0/2.0	---	Dark yellowish brown 4/2, damp, fine SAND, (bottom 0.5 ft is mostly brick/slag	moderate odor	neg	28.2	39.2	
4	3	6	---	2.0/2.0	---	Dark yellowish brown 4/2, damp, fine SAND, little silt	moderate odor	neg	20.1	30.2	
6	4	8	---	2.0/2.0	---	Dark yellowish brown 4/2, saturated, fine SANID, little silt	sheen (free prod. droplets on water)	pos	173.0	361.0	
8	5	10	---	2.0/2.0	---	Dark yellowish brown 4/2, saturated, fine SANID, little silt	moderate odor	neg	221.0	412.0	
10	6	12	---	2.0/0.0	---	No Recovery		---	---	---	
12	7	14	---	2.0/0.7	---	Pale reddish brown 10YR 5/4, saturated, fine SAND, little fine to coarse gravel (subrounded to subangular), coarse gravel lodged in split spoon tip	odor	neg	25.2	61.6	
14	8	16	---	2.0/1.3	---	Pale reddish brown 10YR 5/4, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)	odor	neg	17.3	25.2	
16	9	18	---	2.0/1.5	---	Pale reddish brown 10YR 5/4, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)	odor	neg	25.9	36.2	
18	10	20	---	2.0/1.6	---	Pale reddish brown 10YR 5/4, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)	odor	neg	20.1	30.7	
Notes: The soil boring was grouted to the surface with cement/bentonite grout.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-22			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 2/12/02 End Date: 2/12/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> = <input type="checkbox"/> Riser <input type="checkbox"/> <input type="checkbox"/> Steel <input type="checkbox"/> // <input type="checkbox"/> <div style="display: inline-block; width: 15px; height: 15px; background-color: gray; border: 1px solid black; margin: 2px;"></div> Grout <div style="display: inline-block; width: 15px; height: 15px; background-color: gray; border: 1px solid black; margin: 2px;"></div> Sand Pack <div style="display: inline-block; width: 15px; height: 15px; background-color: gray; border: 1px solid black; margin: 2px;"></div> Bentonite				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	2	---	2.0/1.5	---	Moderate yellowish brown 10YR 5/4, damp, fine SAND, some silt, little organic matter, trace brick fragments		neg	0.0	0.0
2	2	4	---	2.0/1.0	---	Dark yellowish orange 10YR 6/6, damp, fine SAND, little silt		neg	0.0	0.0
4	3	6	---	2.0/2.0	---	Grayish red 10R 4/2, damp to wet, fine SAND, some fine to coarse gravel (subangular)		neg	0.0	0.0
6	4	8	---	2.0/1.3	---	Grayish red 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular)		neg	0.0	0.0
8	5	10	---	2.0/1.0	---	Dark yellowish brown 10YR 4/2, saturated, appears very loose, very fine SAND, trace fine gravel (subangular)	very light "spotty" sheen on water	neg	0.5	1.2
10	6	12	---	2.0/1.0	---	Dark yellowish brown 10YR 4/2, saturated, appears very loose, very fine SAND, trace fine gravel (subangular)		neg	0.3	1.2
12	7	14	---	2.0/2.0	---	As above to approximately 13 ft, then grayish red 5R 4/2, saturated, fine SAND, some medium to coarse sand, little fine to coarse gravel (subangular to angular)		neg	0.0	3.1
14	8	16	---	2.0/2.0	---	Grayish red 5R 4/2, saturated, fine SAND, little fine to coarse gravel (subangular)		neg	0.0	2.8
16	9	18	---	2.0/2.0	---	As above to approximately 15 ft, then brownish black 5YR 2/1, saturated, ORGANIC MATTER, little shells and shell fragments (PEAT)		neg	0.0	3.4
18	10	20	---	2.0/2.0	---	Pale brown 5YR 5/2, saturated, fine SAND, little fine to medium gravel (subangular)		neg	0.0	3.6
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-23			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 2/12/02 End Date: 2/12/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Riser <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Steel <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
						<input type="checkbox"/> Grout <input type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	2	---	2.0/1.6	---	Dusky yellowish brown 10YR 2/2, damp, SILT, little fine to coarse sand, little organic matter, trace orange brick frag		neg	0.0	0.0
2	2	4	---	2.0/0.1	---	Concrete fragment lodged in spilt spoon tip		---	---	---
4	3	6	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, damp, SILT, little fine sand, trace organic matter		neg	0.0	0.6
6	4	8	---	2.0/1.8	---	Pale yellowish brown 10YR 6/2, saturated, SILT and fine SAND, little clay, trace organic matter (veg)		neg	0.0	3.6
8	5	10	---	2.0/0.7	---	Dark yellowish brown 10YR 4/2, saturated, SILT, little clay, trace fine sand		neg	0.0	2.9
10	6	12	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND, little silt		neg	0.0	4.1
12	7	14	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND, little silt		neg	0.0	3.9
14	8	16	---	2.0/2.0	---	Pale yellowish brown 10YR 6/2, saturated, fine SAND, little fine gravel (subrounded to subangular)		neg	0.0	3.7
16	9	18	---	2.0/2.0	---	Dark reddish brown 10R 3/4, saturated, fine SAND, some fine gravel (subrounded to subangular)		neg	0.0	5.5
18	10	20	---	2.0/2.0	---	Dark reddish brown 10R 3/4, saturated, fine SAND, little fine gravel (subrounded to subangular)		neg	0.0	4.1
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										

O'BRIEN & GERE ENGINEERS, INC						TEST BORING LOG	REPORT OF BORING SB-24				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches		Start Date: 2/12/02 End Date: 2/12/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //		<div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background-color: gray; border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 0.8em;">Grout Sand Pack Bentonite</div> </div>			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)	
0	1	2	---	2.0/1.0	---	Dark yellowish brown 10YR 4/2, damp, SILT, some fine to coarse sand, little organic matter, little fine to coarse gravel (angular), trace brick fragments		neg	0.0	0.1	
2	2	4	---	2.0/0.5	---	Moderate yellowish brown 10YR 5/4, damp, fine to medium SAND, coarse gravel (angular) lodged in split spoon tip		neg	0.0	0.6	
4	3	6	---	2.0/1.5	---	Pale reddish brown 10R 5/4, damp to wet, fine SAND, some silt, little fine gravel (subangular), trace clay		neg	0.0	4.1	
6	4	8	---	2.0/1.6	---	Pale reddish brown 10R 5/4, saturated, SILT, some fine sand, trace fine gravel (angular)		neg	0.0	3.9	
8	5	10	---	2.0/1.8	---	Pale reddish brown 10R 5/4, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	4.0	
10	6	12	---	2.0/2.0	---	Olive gray 5Y 4/1, saturated, CLAY, some silt, trace organic matter, trace shells/shell fragments		neg	0.0	2.3	
12	7	14	---	2.0/2.0	---	Olive gray 5Y 4/1, saturated, CLAY, some silt, trace organic matter, trace shells/shell fragments		neg	0.0	3.2	
14	8	16	---	2.0/2.0	---	As above to approximately 15 ft, then pale reddish brown 10R 5/4, saturated, fine SAND, little fine to medium gravel		neg	0.0	1.6	
16	9	18	---	2.0/0.5	---	Pale reddish brown 10R 5/4, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	1.9	
18	10	20	---	2.0/1.5	---	Pale reddish brown 10R 5/4, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.6	
Notes: The soil boring was grouted to the surface with cement/bentonite grout.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-25			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 2/13/02 End Date: 2/13/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //	<input type="checkbox"/> Grout <input checked="" type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	2	---	2.0/0.0	---	No Recovery		---	---	---
2	2	4	---	2.0/0.3	---	Dark yellowish brown 10YR 4/2, saturated, fine SAND (poor recovery)		neg	0.0	0.0
4	3	6	---	2.0/2.0	---	Olive gray 5Y 3/2, saturated, CLAY, some silt, little organic matter		neg	0.0	0.0
6	4	8	---	2.0/2.0	---	Olive gray 5Y 3/2, saturated, CLAY, some silt, little organic matter		neg	0.0	0.0
8	5	10	---	2.0/2.0	---	Olive gray 5Y 3/2, saturated, CLAY, some silt, little organic matter		neg	0.0	0.0
10	6	12	---	2.0/2.0	---	As above to approximately 13 ft, then pale reddish brown 10R 5/4, saturated, fine SAND, little fine gravel (subangular)		neg	0.0	0.0
12	7	14	---	2.0/1.3	---	Pale reddish brown 10R5/4, saturated, fine SAND, little fine to coarse gravel (subangular)		neg	0.0	0.0
14	8	16	---	2.0/1.5	---	Pale reddish brown 10R5/4, saturated, fine SAND, little fine to coarse gravel (subangular)		neg	0.0	0.0
16	9	18	---	2.0/1.5	---	Pale reddish brown 10R5/4, saturated, fine SAND, little fine to coarse gravel (subangular)		neg	0.0	0.0
18	10	20	---	2.0/1.0	---	Pale reddish brown 10R5/4, saturated, fine SAND, little fine to coarse gravel (subangular)		neg	0.0	0.0
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-26			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 2/13/02 End Date: 2/13/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> = <input type="checkbox"/> Riser <input type="checkbox"/> <input type="checkbox"/> Steel <input type="checkbox"/> // <input type="checkbox"/> <div style="display: inline-block; width: 15px; height: 15px; background-color: gray; border: 1px solid black; margin: 2px;"></div> Grout <div style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid black; margin: 2px;"></div> Sand Pack <div style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid black; margin: 2px;"></div> Bentonite				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	2	---	2.0/1.0	---	Dark yellowish brown 10YR 4/2, damp, fine SAND some silt, little organic matter		neg	0.0	0.0
2	2	4	---	2.0/1.0	---	Dark yellowish brown 10YR 4/2, saturated, fine SAND, some silt, little fine gravel (angular)		neg	0.0	0.2
4	3	6	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND		neg	0.0	0.9
6	4	8	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND		neg	0.0	1.0
8	5	10	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND, some silt, little clay		neg	0.0	1.2
10	6	12	---	2.0/1.7	---	As above with intermittent clay seams (0.05 ft thick). Bottom of sample: little fine gravel (subrounded to subangular)		neg	0.0	1.6
12	7	14	---	2.0/0.5	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular) poor recovery		neg	0.0	2.1
14	8	16	---	2.0/1.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)	very dense	neg	0.0	0.9
16	9	18	---	1.5/1.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)	very dense	neg	0.0	0.0
18	10	20	---	2.0/1.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to medium gravel, little coarse gravel (subangular to angular)	very dense	neg	0.0	0.0
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-27				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches		Start Date: 2/13/02 End Date: 2/13/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //		<input type="checkbox"/> Grout <input checked="" type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)	
0	1	2	---	2.0/1.3	---	Grayish brown 5YR 3/2, damp, SILT, some fine to coarse sand, little organic matter, trace fine gravel (angular)		neg	0.0	0.0	
2	2	4	---	2.0/1.0	---	Dark yellowish brown 10YR 4/2, damp to wet, fine SAND, some silt		neg	0.0	0.0	
4	3	6	---	2.0/1.5	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND, little silt		neg	0.0	0.0	
6	4	8	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, SILT, fine SAND, intermittent fine sand lenses (0.05 ft thick)		neg	0.0	0.0	
8	5	10	---	2.0/0.4	---	Moderate yellowish brown 10YR 5/4, saturated, SILT, fine SAND, intermittent fine sand lenses (0.05 ft thick)		neg	0.0	0.0	
10	6	12	---	2.0/1.7	---	Moderate yellowish brown 10YR 5/4, saturated, very fine SAND		neg	0.0	0.0	
12	7	14	---	2.0/1.5	---	Moderate yellowish brown 10YR 5/4, saturated, very fine SAND; bottom 0.3 ft little fine to medium gravel (angular)		neg	0.0	0.0	
14	8	16	---	2.0/1.5	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)		neg	0.0	0.0	
16	9	18	---	2.0/1.5	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)		neg	0.0	0.0	
18	10	20	---	2.0/1.3	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)		neg	0.0	0.0	
Notes: The soil boring was grouted to the surface with cement/bentonite grout.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-28				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches		Start Date: 2/14/02 End Date: 2/14/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen Riser Steel		<input type="checkbox"/> Grout <input type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)	
0	1	2	---	2.0/1.0	---	Moderate yellowish brown 10YR 5/4, saturated, SILT, little fine sand, little organic matter		neg	0.0	0.0	
2	2	4	---	2.0/1.3	---	Moderate yellowish brown 10YR 5/4, saturated, very fine SAND, little silt, trace organic matter		neg	0.0	0.0	
4	3	6	---	2.0/1.5	---	As above to approximately 5.3 ft, then pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
6	4	8	---	2.0/1.3	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
8	5	10	---	2.0/1.2	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
10	6	12	---	2.0/1.5	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
12	7	14	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
14	8	16	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
16	9	18	---	2.0/1.4	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
18	10	20	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
Notes: The soil boring was grouted to the surface with cement/bentonite grout.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-29			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 2/14/02 End Date: 2/14/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen <input type="checkbox"/> = <input type="checkbox"/> Riser <input type="checkbox"/> Steel <input checked="" type="checkbox"/> // <input type="checkbox"/> Grout <input type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite <input type="checkbox"/>				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	1	---	1.0/1.0	---	Grayish brown 5YR 3/2, damp to wet, SILT, some fine gravel (angular), little organic matter		neg	0.0	0.0
1	---	4	---	---	---	Auger through concrete pad: 1-4 ft		---	---	---
4	2	6	---	2.0/2.0	---	Pale yellowish brown 10YR 6/2, saturated, fine SAND, little silt	low odor	neg	4.2	18.6
6	3	8	---	2.0/2.0	---	Pale brown 5YR 5/2, saturated, fine SAND, little fine gravel (subangular)		neg	2.1	5.3
8	4	10	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.1	0.3
10	5	12	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.1
12	6	14	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0
14	7	16	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0
16	8	18	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0
18	9	20	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-30				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches		Start Date: 2/14/02 End Date: 2/14/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = <input type="checkbox"/> Riser <input type="checkbox"/> Steel // <input type="checkbox"/>		<input type="checkbox"/> Grout <input type="checkbox"/> Sand Pack <input type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)	
0	1	2	---	2.0/1.5	---	Grayish brown 5YR 3/2, damp, fine to coarse SAND, little fine to coarse gravel (angular)		neg	0.0	0.0	
2	2	4	---	2.0/1.7	---	Dark yellowish brown 10YR 4/2, damp, SILT, some fine to coarse SAND, little fine to coarse gravel (angular)		neg	0.0	0.0	
4	3	6	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND, little silt		neg	0.0	0.0	
6	4	8	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND, little silt		neg	0.0	0.0	
8	5	10	---	2.0/2.0	---	Moderate yellowish brown 10YR 5/4, saturated, fine SAND, little silt		neg	0.0	0.0	
10	6	12	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
12	7	14	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
14	8	16	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
16	9	18	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
18	10	20	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, little fine to medium gravel (subrounded to subangular)		neg	0.0	0.0	
Notes: The soil boring was grouted to the surface with cement/bentonite grout.											



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-31			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118.080						Fall: 30 inches	Start Date: 2/15/02 End Date: 2/15/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //	Grout Sand Pack Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	2	---	2.0/2.0	---	Dark yellowish brown 10 YR 4/2, damp, SILT, some fine to coarse sand, little fine to coarse gravel (angular), trace concrete fragments		neg	0.0	0.0
2	2	4	---	2.0/0.7	---	As above, gravel lodged in split spoon tip		neg	0.0	0.0
4	3	6	---	2.0/1.4	---	Dark yellowish brown 10 YR 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular)		neg	0.0	0.0
6	4	8	---	2.0/1.0	---	Dark yellowish brown 10 YR 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular)		neg	0.0	0.0
8	5	10	---	2.0/2.0	---	As above to approximately 9.5 ft, then Pale reddish brown 10R 4/2, saturated, fine sand, little fine to medium gravel (angular)		neg	0.0	0.0
10	6	12	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (angular)		neg	0.0	0.0
12	7	14	---	2.0/1.5	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (angular); bottom 0.2 ft apparent broken cobble		neg	0.0	0.0
14	8	16	---	2.0/2.0	---	Cobble 14.0 - 14.5 ft, then dark yellowish brown 10YR 4/2, saturated, fine SAND, little silt		neg	0.0	0.0
16	9	18	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subrounded to subangular)		neg	0.0	0.0
18	10	20	---	2.0/2.0	---	Pale reddish brown 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subrounded to subangular)		neg	0.0	0.0
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-32			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 2/15/02 End Date: 2/15/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = Riser Steel //	<input type="checkbox"/> Grout <input type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	2	---	2.0/1.0	---	Grayish brown 5YR 3/2, damp, SILT, some fine to coarse gravel, little fine to coarse sand	boney augering (cobbles?)	neg	0.0	0.0
2	2	4	---	2.0/1.5	---	Grayish red 10R 4/2, damp, fine SAND, some coarse to fine gravel (angular)		neg	0.0	0.0
4	3	6	---	2.0/0.9	---	Grayish red 10R 4/2, saturated, coarse to fine GRAVEL (angular), some fine sand		neg	0.0	0.0
6	4	8	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some coarse to fine gravel (angular)		neg	0.0	0.0
8	5	10	---	2.0/1.0	---	Grayish red 10R 4/2, saturated, fine SAND, some coarse to fine gravel (angular); gravel lodged in spoon tip		neg	0.0	0.0
10	6	12	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)		neg	0.0	0.0
12	7	14	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)		neg	0.0	0.0
14	8	16	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some fine to coarse gravel (subangular to angular)		neg	0.0	0.0
16	9	18	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular)		neg	0.0	0.0
18	10	20	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular)		neg	0.0	0.0
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-33			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location:			
Proj. Loc: Fulton, NY File No.: 1118/29192						Fall: 30 inches	Start Date: 2/15/02 End Date: 2/15/02			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod Drill Rig: CME OBG Geologist: Chawn O'Dell						Screen = <input type="checkbox"/> Riser <input type="checkbox"/> Steel <input checked="" type="checkbox"/> <div style="display: inline-block; vertical-align: top; margin-left: 10px;"> <input type="checkbox"/> Grout  <input checked="" type="checkbox"/> Sand Pack  <input checked="" type="checkbox"/> Bentonite         </div>				
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	UV Light	PID over spoon (ppm)	head space (ppm)
0	1	2	---	2.0/1.0	---	Dark yellowish brown 10YR 4/2, damp to wet, fine SAND, some silt, little organic matter		neg	0.0	0.0
2	2	4	---	2.0/1.3	---	Dark yellowish brown 10YR 4/2, saturated, fine SAND, trace yellow brick fragments		neg	0.0	0.0
4	3	6	---	2.0/2.0	---	As above to approximately 5 ft, then 0.2 ft of brick fragments, followed by grayish red 10R 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular)		neg	0.0	0.0
6	4	8	---	2.0/1.6	---	Grayish red 10R 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular), trace fine to coarse sand		neg	0.0	0.0
8	5	10	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular), trace fine to coarse sand		neg	0.0	0.0
10	6	12	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, little fine to coarse gravel (subangular to angular), trace fine to coarse sand		neg	0.0	0.0
12	7	14	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some coarse gravel (subangular to angular), little fine to medium gravel		neg	0.0	0.0
14	8	16	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some coarse gravel (subangular to angular), little fine to medium gravel		neg	0.0	0.0
16	9	18	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some coarse gravel (subangular to angular), little fine to medium gravel	very dense	neg	0.0	0.0
18	10	20	---	2.0/2.0	---	Grayish red 10R 4/2, saturated, fine SAND, some coarse gravel (subangular to angular), little fine to medium gravel	very dense	neg	0.0	0.0
Notes: The soil boring was grouted to the surface with cement/bentonite grout.										

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-35				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger		Page 1 of 2			
Proj. Loc: Fulton, NY						Sampler: 2-inch split spoon Hammer: 140 lbs		Location: Conc. Pad Area 1			
File No.: 1118/35165						Fall: 30 inches		Start Date: 6/14/04 End Date: 6/14/04			
Boring Company: Parratt-Wolff, Inc.						Screen		=		Grout	
Foreman: Lee Penrod						Riser		=		Sand Pack	
OBG Geologist: Scott Tucker										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV		
0		2	3	2.0/0.0	--	18" concrete					
2		4	12-9 12-12	2.0/1.2	21	7"-5YR6/4 Dusky Yellow, cmf(+) SAND, medium dense, moist, odor			11.2	POS	
						7"-4YR5/2 Pale Brown, cmf(+) SAND, little rnd gravel, medium dense, moist, odor, sheen at tip					
4		6	4-8 6-6	2.0/1.2	14	14"-N2 Grayish Black (5") grading to 10YR6/6 Dark Yellowish Orange (3") to 10YR5/4 Moderate Yellowish Brown, f SAND, medium dense, sat., odor, sheen, some silt last 5"			5.5	POS	
6		8	5-6 10-11	2.0/1.4	16	17"-10YR5/4 Moderate Yellowish Brown, f SAND, trace cm sand and rnd gravel, medium dense, sat., sheen, NAPL in sand (black and yellow) oriented horizontally, odor			41.3	POS	
8		10	10-9 17-25	2.0/?	26	10YR5/4 Moderate Yellowish Brown, very f SAND, medium dense, sat., odor			4.6	POS	
10		11.3	3-19 50/0.3	2.0/1.1	50+	as above grading to cmf SAND and GRAVEL, tight, very dense, saturated, no odor at bottom, slight at top.			2.1	Slight POS	
12		12.9	38 50/0.4	0.9/0.5	50+	6"-10YR5/4 Pale Reddish Brown, tight f SAND, and little (subrnd-sub ang) gravel, trace silt, very dense, moist-wet, slight odor.			3.8	NEG	
14		14.9	25 50/0.4	0.9/0.5	50+	6"-As above, rnd gravel.			2.3	NEG	
16		16.8	25 50/0.3	0.8/0.7	50+	8"-As Above			4.2	NEG	
18		18.9	38 50/0.4	0.9/0.7	50+	8"-As above, f SAND, little (rnd) gravel, moist, no odor			1.6	NEG	
20		20.9	30 50/0.4	0.9/0.7	50+	8"-As above, no gravel			1.1	NEG	

[illegible]

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-36				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 2 Location: South of SB-3			
Proj. Loc: Fulton, NY						Fall: 30 inches		Start Date: 6/15/04 End Date: 6/15/04			
File No.: 1118/35165								Screen <input type="checkbox"/> = <input type="checkbox"/> Grout Riser <input type="checkbox"/> Sand Pack Bentonite			
Boring Company: Parratt-Wolff, Inc.											
Foreman: Lee Penrod											
OBG Geologist: Scott Tucker											
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV		
0		1	--	1.0/0.0	--	Blacktop, gravel					
1		2	6-6	1.0/0.5	--	10YR6/6 Dark Yellowish Orange, SILT, stiff, moist, no odor			2.5	NEG	
2		4	11-25 24-20	2.0/0.7	49	8"-5YR3/2 Grayish Brown, as above, grading to cmf SAND, some silt, little ang gravel, brick fragments, dense, moist, no odor			0.9	NEG	
4		6	6-9 9-14	2.0/0.5	18	4"-As above 10"-10YR6/6 Dark Yellowish Orange, SILT, trace rnd gravel, moist, no odor 4"-10YR4/2 Dark Yellowish Brown, cmf SAND, little silt and ang gravel, medium dense, moist, no odor			0.7	NEG	
6		8	2-2 3-4	2.0/0.5	5	As above			0.6	NEG	
8		10	6-9 9-11	2.0/0.7	18	8"-N2 Grayish Black and 10YR5/4 Moderate Yellowish Brown, cmf SAND and f GRAVEL (some silt top 2"), brick fragment, slag/coal fragments (shiny), medium dense, saturated, sheen, odor			3.6	NEG	
10		12	12-4 2-2	2.0/0.1	6	2"-As above, some silt, coal fragment			6.3	NEG	
12		14	2-3 4-3	2.0/1.3	7	3"-As above, sheen 13" - N6 Medium Light Gray, SILT, organic (roots?) matter, mottling, some clay, trace sand, firm, moist, odor			6.5	NEG	
14		16	2-2 4-4	2.0/1.6	6	10"-As above, gravel and concrete fragment seam <1" at 6" 5YR7/6 Moderate Yellow mottling			3.8	NEG	
						9"-N6 SILT and f SAND, loose, wet, odor				Slight POS	
16		18	2-3 4-4	2.0/1.4	7	7"-N3 Dark Gray SILT, little clay, loose, moist slight odor 10"-N3 Dark Gray, f SAND, little silt, organic fragments, loose, wet, slight odor			2.3	NEG	
18		20	1-1 1-1	2.0/0.3	2	14"-N7 Light Gray, CLAY, very soft, wet, slight odor			1.8	NEG	
At 4-6 ft. hard drilling. Cuttings stop coming to surface at ~10 ft.											





O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-37			
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 2			
Proj. Loc: Fulton, NY							Location: West of SB-3 and 4, between SB-3 and 4			
File No.: 1118/35165						Fall: 30 inches	Start Date: 6/15/04 End Date: 6/15/04			
Boring Company: Parratt-Wolff, Inc.						Screen Riser	=	\	Grout	
Foreman: Lee Penrod									Sand Pack	
OBG Geologist: Scott Tucker									Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm)	UV
0		1	--	1.0/0.0	--	Asphalt, gravel				
1		2	4-7	1.0/0.8	--	9"-10YR4/2 Dark Yellowish Brown, f SAND, little (rnd) gravel, grading to 10YR6/4 Moderate Yellowish Brown SILT, some clay, trace coal fragments, medium dense, moist, no odor			0.5	NEG
2		4	16-16 18-17	2.0/0.3	34	2"-10YR4/2 Dark Yellowish Brown, cmf SAND and GRAVEL, trace coal fragments, dense, moist, no odor 2"-10YR5/4 Moderate Yellowish Brown, cmf SAND, little cmf gravel, dense, moist, no odor			0.6	NEG
4		6	8-8 27-21	2.0/0.2	35	2"-As above, moist			1.7	NEG
6		8	4-3 1-1	2.0/0.8	4	2"-N2 Grayish Black, f SAND, trace coal fragments, loose, slight odor, wet 8"-10YR5/4 Moderate Yellowish Brown, f SAND, some silt, trace (rnd) gravel, very loose, wet, no odor			0.9	NEG
8		10	1-1 1-2	2.0/1.3	2	11"-As above, liquefied, light discoloring at bottom, odor, very loose 4"-N2 Black, GRAVEL, little sand, coal slag, roots, organic fragments, (gold color fragment), very loose, odor			0.6 1.3	NEG Slightly POS
10		12	1-2 3-2	2.0/0.3	5	3"-As above			1.0	NEG
12		14	2-2 4-7	2.0/1.6	6	3"-As above 16"-N6, Medium Light Gray, SILT, little clay, rust mottles, organic matter (roots), stiff, moist, odor			4.5	NEG
14		16	2-2 4-5	2.0/1.6	6	16"-As above, moist, odor 3" - N6 Medium Light Gray, f SAND and SILT, loose, moist, odor			1.7	NEG
16		18	3-3 4-4	2.0/1.4	7	17"-As above shell fragments, odors, becoming wet. Grading to (sticky, wet, no odor (clay last 4"))			5.1	NEG


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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-38			
Client: Niagara Mohawk Power Corporation (South First Street Site) Proj. Loc: Fulton, NY						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location: East of SB-35, Area 1			
File No.: 1118/35165						Fall: 30 inches	Start Date: 6/16/04 End Date: 6/16/04			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod OBG Geologist: Scott Tucker						Screen Riser	=  	<input checked="" type="checkbox"/>	Grout Sand Pack Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		2	2/2 4/4	2.0/0.8		5" - 10YR5/12 - Dark Yellow Brown, cmf(+) sand, moist, no odor, little (rnd) gravel. 5" - 10YR8/2 - Dark Yellow Brown, cmf(+), sand, trace gravel, moist, no odor			2.8	NEG
2		4	2/10 32/23	2.0/0.9		7" - 10YR4/2 Dark Yellow Brown, f SAND, little silt, trace (rnd) gravel, wet, sheen, odor 3" - 5YR6/4 Dusky Yellow, f SAND, dry- moist, odor, some silt 1" - as above, some gravel, sheen, odor, moist			27.3	NEG
4		6	25/19 11/9	2.0/1.2		14" - 10YR6/6 - Dark Yellow Brown, cmf(+) SAND, trace of gravel (rnd), moist, odor, becomes wet and sheen at 6" from top			7.6	POS
6		8	10/8 8/7	2.0/0.9		11" - As above, becoming some fine NAPL blebs 9" - As above, slight sheen, saturated			7.6 2.7	POS NEG
8		10	7/8 8/8	2.0/0.8						
10		12	10/14 15/20			2" - As above, saturated, poor recovery			NA	NEG
12		14	19/21 17/15	2.0/1.3		15" - As above, cmf SAND, little fine (rnd) gravel, saturated slight odor - silt lens ~1" thick, 2" from top becoming light (dense)			2.0	NEG
14		15.4	15/40 50/0.4	2.0/1.3		13" - As above, becoming more fine sand, trace fine gravel, moist, more dense, slight odor, becoming 5YR4/4, 2" - 5YR4/4 Medium Brown, CLAY, little silt and fine sand, moist, stiff, no odor			2.6	NEG
16		17.3	11/42 50/0.3	2.0/0.6		8" - 10YR5/4 Pale Reddish Brown, CMF(+), SAND, trace (fine (rnd) gravel, moist, no odor, tight			2.4	NEG
18		18.8	14 50/0.3	2.0/0.6		8" - As above, tight			2.2	NEG
20		21.4	40/50 50/0.4	2.0/0.8		9" - As above, no odor				NEG
						EOB - 22'				

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-39				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location: Adjacent to water and MW-7			
Proj. Loc: Fulton, NY						Fall: 30 inches		Start Date: 6/16/04 End Date: 6/16/04			
File No.: 1118/35165								Screen = <input type="checkbox"/> Grout Riser <input type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Boring Company: Parratt-Wolff, Inc.											
Foreman: Lee Penrod											
OBG Geologist: Scott Tucker											
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV		
0		2	3-5 6-5	2.0/1.3	11	7"-Topsoil 10YR5/4 Medium Yellowish Brown 9"-10YR4/2 Dark Yellowish Brown, cmf SAND, coal fragments, slag, medium dense, no odor, dry			0.0	NEG	
2		4	3-4 7-7	2.0/1.3	11	16"-10YR5/4 Moderate Yellowish Brown, f SAND, medium dense, moist, no odor			3	NEG	
4		6	4-6 6-5	2.0/1.6	12	19"-As above, bedding, oxidation (rust), medium dense, wet, no odor,			2.5	NEG	
6		8	4-5 5-6	2.0/1.4	10	17"-As above, grading to some silt, medium dense, becoming less wet			2.6	NEG	
8		10	4-5 5-4	2.0/1.1	10	13"-As above, SILT, intermittent f sand lenses, stiff, moist, more moist at lenses, no odor			2.5	NEG	
10		12	4-5 6-6	2.0/1.3	11	16"-As above, becoming f SAND and SILT, trace f (rnd) gravel, stiff, wet, no odor			2.5	NEG	
12		14	3-3 2-2	2.0/1.0	5	6"-As above, f SAND, some silt, no odor 6" - 10YR5/4 Pale Reddish Brown, cmf(++) SAND, little f (rnd) gravel, loose, saturated, no odor			2.5	NEG	
14		16	2-2 2-2	2.0/0.1	4	2"-10YR5/4 Moderate Yellowish Brown, f SAND, little silt, loose, saturated, no odor			2.7	NEG	
16		18	6-6 14-20	2.0/1.0	20	12"-As above, little cmf(rnd) gravel, bedoming dense, saturated, no odor			2.3	NEG	
18		20	34-17 35-48	2.0/0.9	52	11"-10YR5/4 Pale Reddish Brown, cmf SAND, little cmf (rnd) gravel, very dense, moist-wet, no odor			2.6	NEG	
20		20.9	21 50/0.4	2.0/0.4	50+	5"-As above, no odor, moist			2.4	NEG	
22		23.4	25-43 50/0.4	1.4/0.6	50+	7"-As above, cmf(+) SAND, moist			2.6	NEG	
24		25	30 30	2.0/0.2	--	3"-As above			2.7	NEG	
						End of boring at 25 ft.					
MS/MSD collected at SB-39 (0-4'). Grouted to surface.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-40			
Client: Niagara Mohawk Power Corporation (South First Street Site) Proj. Loc: Fulton, NY						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 1 Location: South of Concrete Pad Area 1 Start Date: 6/17/04 End Date: 6/17/04			
File No.: 1118/35165						Fall: 30 inches	Screen <input type="checkbox"/> Grout Riser <input type="checkbox"/> Sand Pack Bentonite <input checked="" type="checkbox"/>			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod OBG Geologist: Scott Tucker										
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		2	1-1 1-2	2.0/1.3	3	6"-topsoil 10"-10YR7/4 Grayish orange to 10YR2/2 Dusky Yellowish Brown, cmf SAND, trace f (rnd) gravel, green mottles, stained, very loose, moist-wet, slight odor			0.0	
2		4	10-23 16-10	2.0/1.0	39	2"-As above 10"-10YR6/6 Dark Yellowish Orange, cmf(++) SAND, trace (rnd) gravel, dense, moist, no odor			0.0	
4		6	9-5 6-4	2.0/1.0	11	As above, 10YR5/4, Moderate Yellowish Brown, some silt at top grading to trace silt, becoming medium dense, saturated, no odor			0.0	
6		8	6-5 14-8	2.0/0.5	19	6"-As above, rock in shoe			0.0	
8		10	14-18 22-17	2.0/0.7	40	9"-As above, organics trace, dense			0.0	
10		12	4-9 15-21	2.0/1.0	24	12"-As above, medium dense, moist, no odor			0.0	
12		12.4	50/0.4	0.4/0.0	50+	NR-rock in shoe, very dense			0.2	
14		16	20-10 18-26	2.0/0.8	28	10"-As 10-12', medium dense, saturated			0.8	
16		16.9	14 50/0.4	0.9/0.8	50+	10"-5YR4/4 Moderate Brown, f SAND, very dense, saturated, no odor			0.0	
18		19.4	2-15 50/0.4	1.4/0.3	50+	4"-10YR5/4 Pale Reddish Brown, cmf(+) SAND, little f (rnd) gravel, very dense, moist, no odor			0.4	
20		20.9	10 50/0.4	0.9/0.2	50+	3" - As above			0.1	
22		22.9	30 50/0.4	2.0/0.2	50+	3" - As above			0.3	
24		25	16-43	1.0/0.1	--	2" - As above			0.3	
End of Boring at 25 ft										

1200: Trip Blank prepared in field with Wegman's Distilled Water  
UV Light not used due to rain.

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-41			
Client: Niagara Mohawk Power Corporation (South First Street Site) Proj. Loc: Fulton, NY						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 2 Location: Southwest of SB-36			
File No.: 1118/35165						Fall: 30 inches	Start Date: 6/18/04 End Date: 6/18/04			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod OBG Geologist: Scott Tucker						Screen Riser	=		Grout Sand Pack Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		2	--	2.0/0.0		Asphalt, gravel				
1		2	5-7	1.0/0.7		9"-10YR4/4, Moderate Brown, SILT, some cmf sand, trace (rnd) f gravel, stiff, moist, no odor			0.3	NEG
2		4	10-12 11-9	2.0/0.1	23	2"-As above Concrete in shoe			1.0	NEG
4		6	5-3 3-2	2.0/0.0	6	NR - spoon not wet			NA	NA
6		8	2-2 2-2	2.0/0.6	4	2"-10YR5/4 Moderate Yellowish Brown, cmf SAND and, some gravel, little silt, loose, moist, no odor 5"-N1 Black, coal fragments, clinker, sheen, loose, wet, slight odor			2.0	POS
8		10	3-2 2-2	2.0/0.3	4	1"-As above, coal tar 2"-N2 Grayish Black, SILT, coal fragments, blebs of NAPL, soft, odor, moist,			7.0	NEG
10		12	4-4 6-7	2.0/0.7	10	9"-As above, organic (roots), blebs of NAPL, stiff, strong odor, moist,			9.6	NEG
12		14	2-2 2-2	2.0/1.1	4	14"-N5 Medium Gray, SILT, some clay, organics (roots), rusty mottles, soft, moist, odor			7.9	NEG
14		16	2-4 2-4	2.0/1.1	6	9"-As above, firm, more moist 5"-5YR4/1 Olive Gray, SILT and f SAND, firm, wet, odor			2.5	NEG
16		18	3-4 2-3	2.0/1.3	6	6"- as above 9"-5YR4/2 Oliver Gray, SILT, little f sand, shell fragments, organics, loose, moist, slight odor			2.5	NEG
18		20	3-2 2-4	2.0/1.2	4	6"-SILT, soft 8"-4YR5/7 light olive gray, f SAND, some silt, loose, wet, slight odor			1.1	NEG
20		22	1-2 1-1	2.0/1.5	3	11"-As above, SILT, little clay, very soft, odor, wet 7"-5YR5/1 light olive gray, CLAY, wet, soft, moist, odor			2.3	NEG

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-42			
Client: Niagara Mohawk Power Corporation (South First Street Site) Proj. Loc: Fulton, NY						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs	Page 1 of 2 Location: East of SB-31			
File No.: 1118/35165						Fall: 30 inches	Start Date: 6/23/04 End Date: 6/23/04			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod OBG Geologist: Scott Tucker						Screen Riser	=	\	Grout Sand Pack Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		2	4-6 6-6	2.0/0.5	12	2" - 10YR2/2 Dusky Yellowish Brown, topsoil 2" - Slag			0.0	NEG
						2" - 10YR2/2 Dusky Yellowish Brown, cmf sand, some angular gravel, moist, no odor, brick fragments				
2		4	6-10 11-11	2.0/0.7	21	8" - As above, trace clinkers, becoming wet at bottom, no odor			0.1	NEG
4		6	10-10 13-10	2.0/0.8	23	9" - 5YR4/4 Moderate Brown, coarse GRAVEL (angular), saturated, no odor, little cmf sand			0.1	NEG
6		8	GP	2.0/0.8	GP	10" - As above, saturated, no odor			0.0	NEG
8		10	6-7 8-5	2.0/0.8	15	10" - 10YR4/2 Grayish Red, cmf sand and GRAVEL, moist, no odor			0.5	NEG
10		12	3-11 8-8	2.0/1.3	19	5" - As above, saturated, no odor 8" - 10YR4/2 - Dark Yellowish Brown, cmf (++) SAND, trace fine (rnd gravel), coal fragment, wet, no odor			1.4	NEG
12		14	15-7 4-6	2.0/0.6	11	7" - As above, N2 Grayish Black, SILT, trace fine sand, shell fragments, moist, no odor, organic fragments, hint of laminations at top			1.5	NEG
14		16	2-2 2-2	2.0/1.0	4	5YR5/2 Pale Brown, cmf(++) SAND grading to fine SAND, 3" silt lens, 4" from top, wet, no odor			0.0	NEG
16		18	GP	2.0/0.0	GP	NR - sample, trace of material similar to 14-16' description			NA	NEG
18		20	9-5 5-10	2.0/0.0	10	NR spoon wet			NA	NEG
20		22	5-9 22-23	2.0/1.4	31	6" - 5YR3/2 Grayish Brown, cmf(+) SAND, wet, no odor, little fine gravel 11" - 10YR5/4 Pale Reddish Brown, cmf SAND and (ang) GRAVEL, moist, dry, no odor			0.0	NEG



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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-43				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location: North of SB-31			
Proj. Loc: Fulton, NY						Fall: 30 inches		Start Date: 6/23/04 End Date: 6/23/04			
File No.: 1118/35165								Screen <input type="checkbox"/> Grout Riser <input type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Boring Company: Parratt-Wolff, Inc.											
Foreman: Lee Penrod											
OBG Geologist: Scott Tucker											
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV		
0		2	3-7 3-2	2.0/0.9	10	4" - topsoil, roots 6" N5 med gray, cmf SAND, little gravel, shale fragments, brick fragments, no odor, dry			0.0	NEG	
2		4	1-2 4-4	2.0/0.5	6	6" - 5YR4/4 med brown, cmf SAND and GRAVEL (sub-rnd), wet, no odor, coal fragments			0.0	NEG	
4		6	3-3 3-3	2.0/0.5	6	6" - as above, brick fragments, slight odor, wet			0.2	NEG	
6		8	GP	2.0/0.8	GP	10" - as above, wood fragments (5"), sat, slight odor, sheen on water from spoon. (interval geoprobed)			2.6	NEG	
8		10	5-5 17-11	2.0/0.4	22	5" - as above, sat, no odor, no sheen observed			2.1	NEG	
10		12	3-7 21-12	2.0/0.8	28	3" - 10YR5/4 mod yellow brown, cmf SAND, some (rnd) gravel, sat, no odor 3" - black wood, slight odor 5" - shale rock fragments, sat, no odor			2.6	NEG	
12		14	GP	2.0/0.3	GP	3"-10YR5/4 mod, yellow brown, fine GRAVEL, little cmf sand, sat, no odor (interval geoprobed)			2.9	NEG	
14		16	5-3 5-17	2.0/1.1	6	5" - 5YR4/1 olive gray, CLAY, bound by wood fragments, moist, no odor, soft 8" - 10YR4/2 dark yellow brown, silt and fine SAND, wet, no odor, laminated			1.4	NEG	
16		18	GP	2.0/0.8	GP	8" - 5YR5/2 pale brown, fine SAND, trace (ang-rnd) f gravel, rock in shoe, wet, no odor. (interval geoprobed)			2.3	NEG	
18		18.9	11 50/0.4	0.9/0.8	50+	8" - as above, cmf SAND, trace rnd gravel, wet, no odor			2.7	NEG	
						Spoon refusal at 18.9' Auger refusal @ 19.5'					
Notes: DUP-2 collected at SB-43(0-4') @1230 0-4 ft interval sampled twice 6" apart for sample volume Coal and clinkers not sampled.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-44				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 2 Location: West of SB-31 ~15-22'			
Proj. Loc: Fulton, NY						Fall: 30 inches		Start Date: 6/23/04 End Date: 6/23/04			
File No.: 1118/35165								Screen = <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Grout Riser <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Sand Pack Bentonite			
Boring Company: Parratt-Wolff, Inc.											
Foreman: Lee Penrod											
OBG Geologist: Scott Tucker											
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV		
0		2	4-1 1-1	2.0/1.0	2	6" - N5 Medium Gray, cmf SAND, ash, clinkers, moist, slight odor, black wood fragments, black staining. 6" - topsoil, organics			NA	NEG	
2		4	11-8 6-2	2.0/0.3	14	4" - 10YR5/4 Pale Reddish Brown, cmf SAND, some (ang) mf gravel, moist, wet at bottom, no odor			NA	NEG	
4		6	9-5 5-5	2.0/1.4	10	3" shale fragments, sat 4" - 10YR5/4 Pale Reddish Brown, cmf(+) SAND, trace (ang) fine gravel, wet, no odor			NA	NEG	
6		8	GP	2.0/0.8	GP	10" - as above, saturated, no odor (interval geoprobed)			NA	NEG	
8		10	2-2 2-2	2.0/1.0	4	10YR5/4 Moderate Yellow Brown, cmf SAND, some (ang) fine gravel, little silt, saturated, no odor			4.3	NEG	
10		12	3-4 4-3	2.0/0.5	8	10YR3/4 Dark Reddish Brown, cm GRAVEL (ang), sat, no odor, some fine sand....(broken rock)			2.1	NEG	
12		14	GP	2.0/0.6	GP	7" -10YR3/4 Dark Reddish Brown, cm GRAVEL (ang), saturated, no odor, some fine sand, broken rock fragments. (interval geoprobed)			3.9	NEG	
14		16	2-2 1-2	2.0/0.9	3	8" N2 Grayish Black, SILT, organics, shell fragments, moist, no odor, becoming little clay 1" - 10YR5/4 Moderate Yellowish Brown, m SAND, wet, no odor 2" - 10YR4/2 Dark Yellow Brown, SILT, little fine sand, moist, no odor			4.6	NEG	
16		18	GP	2.0/1.4	GP	8" - as above, laminations(-) trace shell fragments 9" - 5YR6/4 Light Brown, cmf SAND and (ang) GRAVEL, becoming cmf(+), SAND, little fine gravel, wet, no odor. (interval geoprobed)			4.9	NEG	
18		20	GP	2.0/0.8	GP	9" - as above, becoming cmf(++) SAND, little (rnd) fine gravel, wet, no odor			4.3	NEG	
20		22	5-12 22-25	2.0/0.6	34	7" - as above, no odor, moist			4.2	NEG	
Notes: 0-2 ft and 2-4 ft sampled twice 6" apart for sample volume. 0-8 ft headspace not available due to volume. No coal or clinkers sampled.											

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING SB-45			
Client: Niagara Mohawk Power Corporation (South First Street Site) Proj. Loc: Fulton, NY						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs.	Page 1 of 2 Location: So. neighbors property westerly location near stump Start Date: 6/24/04 End Date: 6/24/04			
File No.: 1118/35165						Fall: 30 inches	Screen = <input type="checkbox"/> Grout Riser <input type="checkbox"/> Sand Pack <input checked="" type="checkbox"/> Bentonite			
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod OBG Geologist: Scott Tucker										
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
0		2	2-2 2-2	2.0/0.9	4	6" - topsoil 5" - coal fragments, ash clinkers, dry, no odor			0.1	NEG
2		4	3-3 3-4	2.0/1.6	6	3" - as above 6" - 10YR4/3 Dark Yellow Brown, fine SAND, coal fragments, moist, no odor 10" - 10YR6/6 Dark Yellow Orange, fine SAND grading to fine SAND, some silty, wet near top (fine sand) becoming moist, no odor, organics			0.3	NEG
4		6	2-3 13-11	2.0/1.1	16	13" - as above, little silt, moist-wet, no odor			1.6	NEG
6		8	GP	2.0/1.2	GP	14" - 10YR7/4 Grayish Orange, SILT, trace-little clay, little fine sand, wet, no odor, trace fine gravel (rnd-sub rnd) at last 3". (interval geoprobed)			5.4	NEG
8		10	2-4 4-5	2.0/1.6	8	19" - as above SILT (3"), becoming fine SAND, little silt (12"), then becoming SILT, little clay and fine sand, moist-wet, no odor			5.8	NEG
10		12	1-1 3-3	2.0/1.0	4	12" - 10YR6/7 Pale Yellow Brown, fine SAND and SILT, trace rnd gravel and cm sand, wet, no odor			5.1	NEG
12		14	GP	2.0/1.9	GP	20" - N6 Medium Light Gray, SILT, trace fine sand, sat, sticky, trace clay, inc. to little clay 3" - 5YR4/4 Moderate Brown, cmf(+) SAND, trace silt and subrnd gravel, wet, no odor (interval geoprobed)			4.4	NEG
14		16	8-5 5-3	2.0/0.5	10	6" - as above becoming no silt			2.7	NEG
16		18	GP	2.0/0.8	GP	9" - as above, cmf SAND, some (rnd) coarse gravel, saturated, no odor (interval geoprobed)			2.3	NEG
18		20	25-4 3-3	2.0/0.8	7	9" - as above becoming little silt, no odor, saturated			2.7	NEG
20		22	3-4 13-7	2.0/0.9	17	11" - as above becoming tight			2.3	NEG
Notes:										

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-1		
Client: Niagara Mohawk						Sampler: 2" Split Spoon		Page 1 of 2	
Proj. Loc: Fulton, NY						Hammer: 140 lbs.		Location:	
File No.: 1118.081						Fall: 30"		Start Date: 7/9/96	
Boring Company: Parratt Wolff, Inc.								End Date: 7/9/96	
Foreman: Brian Waters						Screen		Grout	
OBG Geologist: Chawn O'Dell						Riser		Sand Pack	
								Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID Over Spoon (PPM) Jar Head Space (PPM)
0						Augered to 4 ft., due to the test pit excavation.			
1	4-6	3-4	2/2'	7		Pale moderate yellowish brown (10YR 6/2), and medium light gray (N6), mottling, moist to wet, loose SILT, some fine sand, little medium sand, well sorted.			0.0 0.0
5									
2	6-8	18-50	1.2/1.2'	50(+)		Pale moderate yellowish brown (10YR 6/2), and medium light gray (N6), mottling, moist to wet, loose SILT, some fine sand, little medium sand, well sorted.			0.0 0.0
		50/0.2							
3	8-10	21-15	2/0.3'	38		Light brownish gray (5YR 6/1), saturated, hard, fine SAND, some silt, little cobbles. (Cobble driven with the split spoon - poor recovery).			0.0 0.0
10		23-25							(Dup 0.0)
4	10-12	5-10	2/2'	18		Dark yellowish brown (10YR 4/2), saturated, medium dense, fine to medium, subrounded to subangular SAND, little fine angular gravel, trace silt.			0.0 0.0
		8-9							
5	12-14	7-8	2/2'	23		Dark yellowish brown (10YR 4/2), saturated, medium dense, fine to medium, subrounded to subangular SAND, little fine angular gravel, trace silt.			0.0 0.0
15		15-14							(Dup 0.0)
6	14-16	13-28	2/2'	72		Dark yellowish brown (10YR 4/2), moist to wet, extremely dense, subrounded to subangular, fine to coarse SAND, some subangular to subrounded, fine gravel, little silt and clay.			0.0 0.0
		44-51							
7	16-18	24-50/0.4	0.9/0.9'	50(+)		Dark yellowish brown (10YR 4/2), wet, extremely dense, subrounded to subangular, medium SAND, some fine sand, little silt, trace subrounded to subangular gravel.			0.0 0.0
8	18-20	27-32	2.0/2.0'	69		Pale brown (5YR 5/2), saturated, extremely dense, subrounded to subangular medium SAND, some fine sand, little subrounded to subangular fine gravel, trace silt and clay.			0.0 0.0
20		37-34							(Dup 0.0) (Dup 0.0)
9	20-22	16-38	2.0/2.0'	89		Pale brown (5YR 5/2), saturated, extremely dense, subrounded to subangular fine to medium SAND, some silt, little subrounded to subangular fine gravel, trace clay.			0.0 0.0
		51-51							



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-2				
Client: Niagara Mohawk						Sampler: 2" Split Spoon		Page 1 of 2			
Proj. Loc: Fulton, NY						Hammer: 140 lbs.		Location:			
File No.: 1118.081						Fall: 30"		Start Date: 7/10/96 End Date: 7/10/96			
Boring Company: Parratt Wolff, Inc.						Screen		=		Grout	
Foreman: Brian Waters						Riser		=		Sand Pack	
OBG Geologist: Chawn O'Dell										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	PID Over Spoon (PPM)	Jar Head Space (PPM)	
0	1	0-2	2-4	2/1.3'	8	Moderate yellowish brown (10YR 5/4), damp, loose, fine to medim SAND, some silt, little subrounded to subangular fine gravel.			0.0	0.0	
			4-2								
	2	2-4	2-3	2/1.6'	5	Pale yellowish brown (10YR 6/2), damp, loose, SILT and fine SAND, little medium sand, trace fine angular gravel, trace asphalt pieces.			0.0	0.0	
5			2-5								
	3	4-6	2-2	2/0.2'	4	Dark yellowish brown (10YR 2/2), saturated, loose, medium SAND, little fine sand and silt, trace subrounded gravel.			0.0	0.0	
			2-2								
	4	6-8	1-2	2/1.1'	5	Pale yellowish brown (10YR 6/2), saturated, loose, SILT and fine SAND, little medium sand.			1.3	2.6	
			3-3						(Dup 1.2)	(Dup 2.4)	
	5	8-10	2-4	2/0.5'	11	Dark yellowish brown (10YR 4/2), saturated, medium dense, fine SAND, some medium sand, little silt.			0.0	1.9	
10			7-4								
	6	10-12	6-9	2/0.2'	18	Dark yellowish brown (10YR 4/2), saturated, medium dense, fine SAND little subrounded to subangular fine to coarse gravel.			0.0	2.9	
			9-7								
	7	12-14	9-6	2/0.2'	13	Dark yellowish brown (10YR 4/2), saturated, medium dense, fine SAND, some medium sand, little subrounded to subangular fine to coarse gravel.			0.0	1.7	
			7-9								
	8	14-16	10-9	2/17'	25	Moderate yellowish brown (10YR 5/4), saturated, medium dense, subrounded to subangular fine to medium SAND, little subrounded to angular fine to coarse gravel, trace silt.			0.0	2.0	
			16-18								
15											
	9	16-18	49-50/0.3	0.8/0.8'	50(+)	Moderate brown (5YR 4/4), saturated, extremely dense, subrounded to angular, fine to coarse SAND and GRAVEL, little silt.			1.2	1.1	
									(Dup 1.1)	(Dup 1.0)	
	10	18-20	54-50/0.2	0.7/0.7'	50(+)	Moderate yellowish brown (5YR 4/4), saturated, extremely dense, subrounded to subangular fine to coarse SAND and GRAVEL.			0.0	0.0	
20	11	20-22	50/0.3	0.3/0.3'	50(+)	Moderate brown (5YR 4/4), saturated, extremely dense, fine to medium SAND, little silt, trace fine angular gravel.			0.0	0.0	

[illegible]

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-3			
Client: Niagara Mohawk						Sampler: 2" Split Spoon		Page 1 of 2			
Proj. Loc: Fulton, NY						Hammer: 140 lbs.		Location:			
File No.: 1118.081						Fall: 30"		Start Date: 7/12/96			
								End Date: 7/12/96			
Boring Company: Parratt Wolff, Inc.								Screen		<input checked="" type="checkbox"/>	
Foreman: Brian Waters								Riser		<input type="checkbox"/>	
OBG Geologist: Chawn O'Dell										<input checked="" type="checkbox"/> Grout	
										<input checked="" type="checkbox"/> Sand Pack	
										<input checked="" type="checkbox"/> Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript		Equip Installed	PID Over Spoon (PPM)	Jar Head Space (PPM)
0	1	0-2	4-4	2/0.3'	8	Moderate yellowish brown (10YR 5/4), dry, loose, fine to medium SAND, little coarse sand, trace subangular, fine gravel.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
			4-3					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	2	2-4	2-4	2/1.2'	18	Moderate yellowish brown (10YR 5/4), moist, medium dense, medium SAND, some coarse sand, little fine subangular gravel, little ash and asphalt fragments, trace orange brick fragments.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
			14-15					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	3	4-6	3-2	2/0.5'	5	Dusky yellowish brown (10YR 2/2), moist, loose, asphalt (hard chunks), some fine to coarse sand, little ash.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
5			3-2					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	4	6-8	3-2	2/0.3'	4	Dusky yellowish brown (10YR 2/2), moist, loose, asphalt (hard chunks), some fine to coarse sand, little ash.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
			2-1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	5	8-10	3-3	2/1.2'	7	Moderate yellowish brown (10YR 5/4), wet, loose, fine SAND, little medium sand, trace clay.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
			4-7					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
10	6	10-12	5-11	2/1.7'	25	Pale yellowish brown (10YR 6/2), moist, hard, CLAY, little silt, trace fine sand.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
			14-15					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	7	12-14	7-10	2/2'	19	Pale yellowish brown (10YR 6/2), moist hard, CLAY, some silt, little fine sand.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
			9-14					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(Dup. 0.0)	(Dup. 0.0)
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	8	14-16	5-6	2/2'	12	Pale yellowish brown (10YR 6/2), saturated, medium dense, very fine SAND, some silt, little clay.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
15			6-7					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	9	16-18	9-11	2/1.6'	22	Pale yellowish brown (10YR 6/2), saturated, very fine SAND, some silt, little clay.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.0	0.0
			11-12					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	10	18-20	15-9	2/0.4'	23	Pale brown (5YR 5/2), saturated, medium dense, fine to coarse, subrounded to angular, SAND and GRAVEL. Sheen-free product (strong odor).		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5.6	210

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-4			
Client: Niagara Mohawk						Sampler: 2" Split Spoon		Page 1 of 2			
Proj. Loc: Fulton, NY						Hammer: 140 lbs.		Location:			
File No.: 1118.081						Fall: 30"		Start Date: 7/11/96 End Date: 7/11/96			
Boring Company: Parratt Wolff, Inc. Foreman: Brian Waters OBG Geologist: Chawn O'Dell						Screen Riser		<div><div></div><div></div><div></div></div>		Grout Sand Pack Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	PID Over Spoon (PPM)	Field Testing Jar Head Space (PPM)	
0	1	0-2	6	1.5/1.5'	10	Grayish brown (5YR 3/2), damp, medium dense, medium to coarse SAND, some angular fine to coarse gravel, little silt to fine sand. (0-0.5' asphalt and gravel).		<div><div></div><div></div><div></div></div>	0.0	0.0	
		4-9						<div><div></div><div></div><div></div></div>			
	2	2-4	6-9	2/1.4'	12	Grayish brown (5YR 3/2), moist, medium dense, medium SAND, some subrounded to angular, coarse sand and fine to medium gravel, little orange brick fragments.		<div><div></div><div></div><div></div></div>	0.0	0.0	
		3-4						<div><div></div><div></div><div></div></div>			
	3	4-6	41-10	2/0.4'	15	Light brown (5YR 6/4), moist, medium dense, fine to coarse subrounded to angular SAND and GRAVEL, some orange brick fragments.		<div><div></div><div></div><div></div></div>	0.0	0.0	
		5-5						<div><div></div><div></div><div></div></div>			
	4	6-8	47-100/0.3	0.8/0.5'	100+	Moderate reddish brown (10YR 4/6), damp, extremely dense BRICKS.		<div><div></div><div></div><div></div></div>	0.0	2.1	
		0.3						<div><div></div><div></div><div></div></div>			
	5	8-10	12-4	2/1.6'	7	Grayish black (N2), saturated, loose, fine to coarse, subrounded to angular SAND and GRAVEL, little silt, trace brick and concrete fragments, strong odor.		<div><div></div><div></div><div></div></div>	14.3 (Dup. 14.1)	19.4 (Dup. 18.9)	
		3-4						<div><div></div><div></div><div></div></div>			
	6	10-12	2-3	2/1.5'	10	Brownish black (5YR 2/1), saturated, medium dense, SILT and fine SAND, little medium sand, trace clay moderate odor.		<div><div></div><div></div><div></div></div>	15.2	21.2	
		7-6						<div><div></div><div></div><div></div></div>			
	7	12-14	10-11	2/1.3'	26	Brownish gray (5YR 4/1), saturated, medium dense, subrounded to angular, fine, to coarse SAND and GRAVEL, little silt, moderate odor.		<div><div></div><div></div><div></div></div>	6.1	8.3	
		15-27						<div><div></div><div></div><div></div></div>			
	8	14-16	3-7	2/0.6'	44	Brownish gray (5YR 4/1), saturated, dense, subrounded to angular, fine to coarse SAND and GRAVEL, little silt, moderate odor.		<div><div></div><div></div><div></div></div>	5.2	7.6	
		37-49						<div><div></div><div></div><div></div></div>			
	9	16-18'	50/0.2'	0.2/0.0		No Recovery.		<div><div></div><div></div><div></div></div>	N.A	N/A	
	10	18-20	3-5	2'/1.2'	17	Light brownish gray (5YR 6/1), saturated, extremely dense, medium to coarse SAND, some fine to angular gravel, little silt, slight odor.		<div><div></div><div></div><div></div></div>	1.3	3.2	
		12-12						<div><div></div><div></div><div></div></div>			
	11	20-22	21-42	2/0.9'	79	Light brownish gray (5YR 6/1), saturated, extremely dense, medium to coarse SAND, some fine to angular gravel, little silt, slight odor.		<div><div></div><div></div><div></div></div>	1.7 (Dup. 1.5)	3.6 (Dup. 3.6)	
		37-46						<div><div></div><div></div><div></div></div>			
	12	22-24	5.0/0.4	0.4/0.4'	50(+)	Brownish black (5YR 2/1), saturated, extremely dense, fine to coarse subangular to angular SAND and GRAVEL, little silt, slight odor.		<div><div></div><div></div><div></div></div>	0.8	1.2	
								<div><div></div><div></div><div></div></div>			



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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-6			
Client: Niagara Mohawk Power Corpora South Fulton Street Site Proj. Loc: Fulton, NY  File No.: 1118.081						Drill Method: Hollow Stem Auger Sampler: 2-inch Split Spoon Hammer: 140 lbs  Fall: 30 inches		Page 2 of 2 Location:			
								Start Date: 6/17/98 End Date: 6/18/98			
Boring Company Parratt/Wolff, Inc. Foreman: Glen Lansing Drill Rig: Inger Soli-Rand A-300 OBG Geologist: Chawn O'Dell						Screen = Riser = Steel //		<div><div></div><div></div><div></div></div> <div>Grout Sand Pack Bentonite</div>			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	PID Head Space (ppm)	Equip. Installed	PID (ppm)	Field Testing UV Light	
22	12	22-24	32-60	1.0/0.8	92+	Light brown (5YR 6/4), saturated, extremely dense, fine to medium SAND, little silt, little fine to medium gravel (subangular)	0.0		0.0	Neg.	
23											
24	13	24-26	29-50/ 0.2	0.7/0.6	79+	Light brown (5YR 6/4), saturated, very dense, fine to medium SAND, little silt, little fine to medium gravel (subangular)	0.0		0.0	Neg.	
25											
26	14	26-28.8	52-50/ 0.3	0.8/0.8	102+	Light brown (5YR 6/4), saturated, extremely dense, fine to medium SAND, little silt, little fine to medium gravel (subangular)	0.0		0.0	Neg.	
27											
28	15	28-28.5	100	0.5/0.5	100+	Light brown (5YR 6/4), saturated, extremely dense, fine to medium SAND, little fine to coarse gravel (sub-angular, little silt)	0.2		0.0	Neg.	
29											
30	16	30-30.5	63	0.5/0.5	63+	Light brown (5YR 6/4), saturated, very dense, fine to medium SAND, little fine to coarse gravel (sub-angular, little silt)	0.2		0.0	Neg.	
31											
32	17	32-34.0	8-20 31-37	2.0/1.8	51	Light brown (5YR 6/4), saturated, very dense, fine to medium SAND, some silt, little fine to coarse gravel (subangular) intermittent clay seams (~0.05' thick)	0.1		0.0	Neg.	
33											
34	18	34-34.4	50/0.4	0.4/0.4	50+	Light brown (5YR 6/4), saturated, extremely dense, fine to medium SAND, some silt, little fine to medium gravel (subangular), intermittent clay seams (~0.05' thick)	0.0		0.0	Neg.	
35											
36	19	36-36.4	50/0.4	0.4/0.4	50+	Light brown (5YR 6/4), saturated, extremely dense, fine to medium SAND, some silt, little fine to medium gravel (subangular), intermittent clay seams (~0.05' thick) spoon refusal at 36.4 ft, advance augers to approx. 36.9 ft, auger refusal	0.2		0.0	Neg.	
37	20	36.9-37.6	50/0.1	0.1/0.05	50+	Grayish black (N2), fine grained SANDSTONE	0.0		0.0	Neg.	
						Bottom of boring at 37 ft					
Notes: Well Installed 2-inch x 0.020 inch slotted PVC Screen: 37- 27 ft Bentonite Seal: 24-22 ft Finished as a flush mount well Sand Pack (1 Morie): 37-25 ft Sand Choke (00 Morie): 22-21 ft Sand Choke (00 Morie): 25-24 Grout: to 0.5 ft											

CPO:ers/div76/4 notes/porinas/mw-6

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# TEST BORING LOG

# REPORT OF BORING

## MW-7D

**Client: Niagara Mohawk Power Corporation**  
**(South First Street Site)**  
**Proj. Loc: Fulton, NY**

**Hollow Stem Auger**  
**Sampler: 2-inch split spoon**  
**Hammer: 140 lbs**

Page 1 of 2  
Location: Between MW-7 and river.

**File No.: 1118/35165**

**Fall: 30 inches**

<b>Start Date:</b>	<b>6/22/2004</b>
<b>End Date:</b>	<b>6/22/2004</b>

<b>Boring Company:</b>	<b>Parratt-Wolff, Inc.</b>
<b>Foreman:</b>	<b>Lee Penrod</b>
<b>OBG Geologist:</b>	<b>Scott Tucker</b>

Screen			Grout
Riser			Sand Pack
			Bentonite

[illegible]

Well set at 28 ft., 2" schedule 40 PVC, 5' 0.010" slot screen (23-28'), 7' sand, 2' bentonite seal, grout to surface, stick-up protective casing.

[illegible]

[illegible]





[illegible]

[illegible]

[illegible]

[illegible]



O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-12S				
Client: Niagara Mohawk Power Corporation (South First Street Site)						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 1 Location: South 5' from MW-12D			
Proj. Loc: Fulton, NY						Fall: 30 inches		Start Date: 6/21/04 End Date: 6/21/04			
File No.: 1118/35165								Screen = <input type="checkbox"/> \ <input type="checkbox"/> Grout Riser <input type="checkbox"/> <input type="checkbox"/> Sand Pack Bentonite			
Boring Company: Parratt-Wolff, Inc.											
Foreman: Lee Penrod											
OBG Geologist: Scott Tucker											
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV		
0		2				See log MW-12D dated 6/21/2004 for description.					
2		4									
4		6									
6		8									
8		10				No Recovery - Sand/gravel on basket wet spoon, spot of sheen				NA	
10		12									
12		14									
14		16	-	2.0/0.0	-	EOB at 16 ft				NA	
Notes: 0-4 ft boney augering 10-12 ft UV Light not working											
2" PVC well set at 16 ft, 10 ft. of 0.010" slot screen (6-16'), sand to 4 ft., bentonite to 3 ft, grout to surface. Flushmount finish.											
10 gallons used to remove bridge											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-12D				
Client: Niagara Mohawk Power Corporation (South First Street Site) Proj. Loc: Fulton, NY						Hollow Stem Auger Sampler: 2-inch split spoon Hammer: 140 lbs		Page 1 of 2 Location: North of property on City property, south of SB-24 Start Date: 6/21/04 End Date: 6/21/04			
File No.: 1118/35165						Fall: 30 inches					
Boring Company: Parratt-Wolff, Inc. Foreman: Lee Penrod OBG Geologist: Scott Tucker						Screen Riser		<input type="checkbox"/> = <input type="checkbox"/> <input type="checkbox"/> \ <input type="checkbox"/> <input checked="" type="checkbox"/>		Grout Sand Pack Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV		
0		2	8-13 40-10	2.0/0.3	53	5YR3/4 Moderate Brown, topsoil, dry, no odor			0.0	NEG	
2		4	7-15 15-8	2.0/0.5	30	Brick concrete and rock fragments 2" 10YR2/2 Dusky Yellowish Brown, SILT, trace (ang) coarse gravel, very organic, moist, no odor.			0.0	NEG	
4		6	10-43 17-7	2.0/0.9	60	5YR3/4 Moderate Brown, cmf SAND, some (ang-subrnd) gravel, dry, no odor.			0.0	NEG	
6		8	3-4 5-5	2.0/1.0	9	5B7/1 Light Bluish Gray, SILT, little clay, rusty mottles, peat seam <1" at 4" from bottom, moist, wet seam vertical parting, no odor, stiff			0.0	NEG	
8		10	2-3 4-4	2.0/1.2	7	as above, grading to 5GY4/1 Dark Greenish Gray, SILT, varved, soft, shell fragments, blebs of NAPL, vertical root filled fractures, wet-moist, odor			3.0	POS	
10		12	3-4 4-6	2.0/0.3	8	5YR3/4 Moderate Brown, SILT, some cmf sand, trace (subrnd) gravel, wet, slight odor.			0.6	-	
12		14	2-3 4-3	2.0/0.6	7	5"- 5YR4/1 Brownish Gray and 5Y4/1 Olive Gray, SILT, little clay, moist-wet, slight odor. 3"- 10R4/6 Moderate Reddish Brown, cmf(+) SAND, little silt, wet, odor.			1.3	NEG	
14		16	5-4 5-6	2.0/1.5	9	as above, some silt, little rnd gravel, fine seams of f sand, wet, slight odor			0.7	NEG	
16		18	8-12 17-21	2.0/1.1	29	As above, wet, no odor			1.2	NEG	
18		20	15-21 25-32	2.0/0.4	46	5" - as above, wet, no odor			0.9	NEG	
20		22	23-17 27-29	2.0/0.1	44	As above			0.6	NEG	
22		22.8	26 50/0.3	2.0/0.2	50+	As above - rock in shoe			0.5	NEG	
Notes: 0-4 ft boney augering 10-12 ft UV Light not working 2" PVC well set at 28 ft, 5 ft. of 0.010" slot screen (23-28 ft), sand to 21 ft., bentonite to 19 ft, grout to surface. Flushmount finish.											



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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-13			
Client: National Grid Proj. Loc: South First Street Fulton, NY						Direct Push Drill	Page 1 of 1 Location: 4 ft north of SB-36			
File No.: 1118/35273						Sampler: 2-inch dia.split spoon	Start Date: 10/14/2005 End Date: 10/14/2005			
Boring Company: Parratt-Wolff Inc. Foreman: Jim Lansing Drill Rig: IR Geologist: Scott Tucker						Screen = Riser	Grout Sand Pack Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm) UV	
						0 - 16 ft See boring log for SB-36 for geologic details (hard drilling at 14 ft)				
16		18				8"- 10Y6/2 Pale Olive, CLAY, stiff, moist. 4"- 10Y6/2 Pale Olive, SILT, little f sand, shells, wood fragments, saturated, strong odor.			10.3	neg
18		20				3"- as above, little clay, strong odor. 5"- N6 Medium Light Gray, SILT, wet, strong odor.		=	6	neg
20		22				6"- as above, some c-m round gravel, NAPL, sheen, strong odor.		=	75.9	pos
22		24				9"- N3 Dark Gray, cmf SAND and rnd- subrnd GRAVEL, saturated, NAPL, sheen, strong odor. 6"- 5YR6/4 Light Brown, cmf SAND and rnd GRAVEL, sheen, strong odor.		=	426	pos
24		26				9"- 5Y6/4 Light Brown, f SAND, trace f rnd gravel, sheen (dragdown), slight odor.		=	3.6	neg
						EOB @ 26 ft				
Notes: Screen: 19 - 24 ft      Bentonite: 24-26 ft Sump: 24 - 26 ft      Bentonite Seal: 2-17 ft Riser: 0.5 - 19 ft      PVC Material: 4" dia. - 0.020" slot screen										

[illegible]

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING PZ-1				
Client: Nlagara Mohawk						Sampler: 2" Split Spoon		Page 1 of 2			
Proj. Loc: Fulton, NY						Hammer: 140 lbs		Location:			
File No.: 1118.081						Fall: 30"		Start Date: 7/10/96 End Date: 7/10/96			
Boring Company: Parratt Wolff, Inc.						Screen		Grout			
Foreman: Brian Waters						Riser		Sand Pack			
OBG Geologist: Chawn O'Dell								Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID Over Spoon (PPM)	Jar Head Space (PPM)	
0	1	0-2	3-10	2'/1.3'	17	Dusky yellowish brown (10YR 2/2), medium dense, fine to medium SAND, some silt, little coarse sand, trace orange brick fragments.			0.0	0.0	
1			7-7								
2	2	2-4	8-10	2'/1.5'	18	Moderate reddish brown (10R 4/6), moist to wet, medium dense, medium subrounded to subangular SAND and orange brick fragments, little fine sand, trace coarse sand			0.0	0.0	
3			8-3								
4	3	4-6	13-50/	0.7/0.3	50+	Moderate reddish brown (10R 4/6), damp, extremely dense, bricks and brick fragments			0.0	0.0	
5			0.2								
6	4	6-8	10-3	2'/0.6'	6	Brown gray (5YR 4/1), saturated, loose, SILT and fine SAND, little clay, trace fine, sub-rounded gravel			5.3	9.6	
7			3-4								
8	5	8-10	4-9	2'/1.7'	18	Light brownish gray (5YR 4/1), saturated, medium dense, fine SAND, some silt, little clay			1.3	3.7	
9			9-10								
10	6	10-12	4-8	2'/1.2'	20	Light brownish gray (5YR 4/1), saturated, medium dense, fine SAND, some SILT, little clay, trace fine subrounded to subangular gravel			0.0	1.2	
11			12-9								
12	7	12-14	9-10	2'/1.5'	21	Light brownish gray (5YR 4/1), saturated, medium dense, fine SAND, some silt, little clay, trace subrounded to subangular fine gravel			0.0	0.0	
13			11-14								
14	8	14-16	16-14	2'/1.9'	26	Moderate brown (5YR 4/4), saturated, medium dense, fine to coarse subrounded to subangular SAND and GRAVEL			0.0	0.0	
15			12-10								
16	9	16-18	6-9	2'/2'	21	Moderate brown (5YR 4/4), saturated, medium dense, fine to coarse subrounded to subangular SAND and GRAVEL			0.0	0.0	
17			12-17								
18	10	18-20	12-18	2'/1.6'	35	Moderate brown (5YR 4/4), saturated, dense, subrounded to subangular, medium to coarse SAND, some fine gravel, little silt to fine sand			0.0	0.0	
19			17-15								
20	11	20-22	12-18	2'/0.5'	38	Moderate brown (5YR 4/4), saturated, dense, medium to coarse SAND, some fine sub-rounded to angular gravel, little fine sand			0.0 (Dup 0.0)	0.0 (Dup 0.0)	
21			20-17								

[illegible]

[illegible]



[illegible]





[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

**Ground water sampling logs**



## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather SUNNY 90°Well # MW - 1Evacuation Metho Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 19.13 ft.Depth to Water \* 4.99 ft.Length of Water Column 14.14 ft.Volume of Water in Well 2.30 gal.(s)3X Volume of Water in Well 6.90 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling

Did well go dry?

4 gal.(s)  
965

\* Measurements taken from

x

Well Casing

Protective Casing

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard

7.0 Standard

10.0 Standard

4.007.017.99

## Conductivity Standard Readings

84 S Standard

1413 S Standard

1470 @ 25°

## Water parameters:

Gallons  
Removedinitial 65  
2  
84  
3  
5Temperature  
Readingsinitial 23.2  
16.8  
16.2pH  
Readingsinitial 7.94  
7.81  
7.76Conductivity  
Readings uS/cminitial 599  
672  
687Turbidity  
Readings NTUinitial 654  
1152  
51000

## Water Sample:

Time Collected

1530

## Physical Appearance at Start

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

Colorless  
None  
654  
None

## Physical Appearance at Sampling

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

Translucent  
None  
7000  
None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40ml</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>NONE</u>	
<u>1L</u>	<u>AMBER GLASS</u>	<u>2</u>	<u>NO</u>	<u>NONE</u>	

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather SUNNY 90°Well # MW - 2Evacuation Method Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 13.38 ft.Depth to Water \* 3.75 ft.Length of Water Column 9.63 ft.Volume of Water in Well 1.57 gal.(s)3X Volume of Water in Well 4.71 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling

Did well go dry?

5 gal.(s)  
NO

\* Measurements taken from

x

Well Casing

Protective Casing

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard

7.0 Standard

10.0 Standard

4.007.019.99

## Conductivity Standard Readings

84 S Standard

1413 S Standard

1470 @ 27°

## Water parameters:

Gallons  
Removedinitial 0.5  
2  
4  
5  
  
  
Temperature  
Readingsinitial 22.8  
20.5  
19.8  
19.6  
  
  
pH  
Readingsinitial 6.81  
6.84  
6.97  
6.95  
  
  
Conductivity  
Readings uS/cminitial 1032  
1124  
1071  
1064  
  
  
Turbidity  
Readings NTUinitial 27.8  
1089  
>1000  
>1000  
  
  

## Water Sample:

Time Collected

1500

## Physical Appearance at Start

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

ColorlessSweet27.8None

## Physical Appearance at Sampling

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

ColorlessSweet>1000None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40mL</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>None</u>	<u>—</u>
<u>1L</u>	<u>GLASS</u>	<u>2</u>	<u>NO</u>	<u>None</u>	<u>—</u>

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather SWWY 90°FWell # MW-3Evacuation Metho Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 18.93 ft.Depth to Water \* 11.40 ft.Length of Water Column 7.53 ft.Volume of Water in Well 1.23 gal.(s)3X Volume of Water in Well 3.69 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling 4 gal.(s)Did well go dry? No

\* Measurements taken from

☒

Well Casing

☐

Protective Casing

☐

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.007.0 Standard 7.0110.0 Standard 9.99

## Conductivity Standard Readings

84 S Standard 1470 @ 27°C1413 S Standard 1470 @ 27°C

## Water parameters:

Gallons  
Removedinitial 0.5  
1.5  
2.5  
4  
    
  Temperature  
Readingsinitial 19.1  
16.8  
16.6  
16.5  
    
  pH  
Readingsinitial 7.69  
7.16  
7.16  
7.12  
    
  Conductivity  
Readings uS/cminitial 840  
877  
776  
812  
    
  Turbidity  
Readings NTUinitial 35.6  
1,130  
1645  
1549  
    
  

## Water Sample:

Time Collected 1100

## Physical Appearance at Start

Color ColorlessOdor NoneTurbidity (> 100 NTU) 35.6Sheen/Free Product None

## Physical Appearance at Sampling

Color BrownOdor NoneTurbidity (> 100 NTU) 1,549Sheen/Free Product None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40mL</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>None</u>	<u>  </u>
<u>1Ltr</u>	<u>GLASS</u>	<u>2</u>	<u>NO</u>	<u>None</u>	<u>  </u>

Notes:

# O'Brien & Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998  
 Site Name Niagara Mohawk  
 Location Fulton, NY  
 Project No 1118.081.013.130  
 Personnel James A. Moore

Weather SUNNY 90°F  
 Well # MW - 4  
 Evacuation Metho Bottom Loading Stainless Steel Bailer  
 Sampling Method Bottom Loading Stainless Steel Bailer

### Well Information:

Depth of Well \* 15.98 ft.  
 Depth to Water \* 8.20 ft.  
 Length of Water Column 7.78 ft.  
 Volume of Water in Well 1.27 gal.(s)  
 3X Volume of Water in Well 3.81 gal.(s)

### Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 4 gal.(s)  
 Did well go dry? No

\* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

### Instrument Calibration:

#### pH Buffer Readings

4.0 Standard 4.00  
 7.0 Standard 7.01  
 10.0 Standard 9.99

#### Conductivity Standard Readings

84 S Standard 1470 @ 27°C  
 1413 S Standard

### Water parameters:

Gallons Removed	Temperature Readings	pH Readings	Conductivity Readings uS/cm	Turbidity Readings NTU
initial <u>0.5</u>	initial <u>23.4</u>	initial <u>6.97</u>	initial <u>933</u>	initial <u>220</u>
<u>1.5</u>	<u>19.1</u>	<u>6.47</u>	<u>1,130</u>	<u>694</u>
<u>3</u>	<u>18.0</u>	<u>6.39</u>	<u>1,100</u>	<u>812</u>
<u>4</u>	<u>17.9</u>	<u>6.40</u>	<u>1,110</u>	<u>613</u>

### Water Sample:

Time Collected 1245

### Physical Appearance at Start

Color Yellow  
 Odor Sweet  
 Turbidity (> 100 NTU) 220  
 Sheen/Free Product None

### Physical Appearance at Sampling

Color Brown  
 Odor Sweet  
 Turbidity (> 100 NTU) 613  
 Sheen/Free Product None

### Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40ml</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>None</u>	
<u>1L</u>	<u>GLASS</u>	<u>2</u>	<u>NO</u>	<u>None</u>	

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather OVERCAST 90°FWell # MW - 5Evacuation Method Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 15.81 ft.Depth to Water \* 7.48 ft.Length of Water Column 8.33 ft.Volume of Water in Well 1.36 gal.(s)3X Volume of Water in Well 4.08 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling

Did well go dry?

4.5 gal.(s)NO

\* Measurements taken from

x

Well Casing

Protective Casing

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard

4.00

7.0 Standard

7.01

10.0 Standard

9.99

## Conductivity Standard Readings

84 S Standard

1413 S Standard

1470 @ 27°C

## Water parameters:

Gallons  
Removedinitial 0.51.534.5Temperature  
Readingsinitial 21.818.116.916.8pH  
Readingsinitial 6.806.676.596.54Conductivity  
Readings uS/cminitial 655781887907Turbidity  
Readings NTUinitial 172347698752

## Water Sample:

Time Collected

1400

## Physical Appearance at Start

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

tanSWEET172None

## Physical Appearance at Sampling

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

tan/brownSWEET752None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40ml</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>None</u>	<u>---</u>
<u>1L</u>	<u>GLASS</u>	<u>2</u>	<u>NO</u>	<u>None</u>	<u>---</u>

Notes:

BAILOR EQUIPMENT BLANK COLLECTED @ 1415 AFTER MW-5

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather SUNNY 90°FWell # MW - 6Evacuation Method Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 36.62 ft.Depth to Water \* 7.16 ft.Length of Water Column 29.46 ft.Volume of Water in Well 4.80 gal.(s)3X Volume of Water in Well 14.40 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling

Did well go dry?

9 gal.(s)

\* Measurements taken from

☒

Well Casing

☐

Protective Casing

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.007.0 Standard 7.0110.0 Standard 9.99

## Conductivity Standard Readings

84 S Standard

1413 S Standard 1470 @ 27°C

## Water parameters:

Gallons  
Removedinitial 0.55  
9.9 DPT  
15Temperature  
Readingsinitial 26.116.7  
16.6pH  
Readingsinitial 7.457.61  
7.75Conductivity  
Readings uS/cminitial 447466  
483Turbidity  
Readings NTUinitial 39.7760  
> 1000

## Water Sample:

Time Collected 1130

## Physical Appearance at Start

Color COLORLESSOdor SLIGHT SWEETTurbidity (> 100 NTU) 39.7Sheen/Free Product NONE

## Physical Appearance at Sampling

Color DARK BROWNOdor SLIGHT SWEETTurbidity (> 100 NTU) 3900Sheen/Free Product SLIGHT

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40ml</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>NONE</u>	<u>—</u>
<u>60ml</u>	<u>GLASS</u>	<u>2</u>	<u>NO</u>	<u>NONE</u>	<u>—</u>

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather SUNNY 90°PWell # MW - 7Evacuation Metho Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 16.44 ft.Depth to Water \* 8.90 ft.Length of Water Column 7.54 ft.Volume of Water in Well 1.23 gal.(s)3X Volume of Water in Well 3.69 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling

Did well go dry?

4 gal.(s)  
NO

(Other, Specify)

\* Measurements taken from

x

Well Casing

Protective Casing

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.007.0 Standard 7.0110.0 Standard 9.99

## Conductivity Standard Readings

84 S Standard 147001413 S Standard 14700 2700

## Water parameters:

Gallons  
Removedinitial 0.5  
1.5  
3  
4Temperature  
Readingsinitial 21.4  
18.9  
17.7  
17.5pH  
Readingsinitial 6.63  
6.70  
6.71  
6.76Conductivity  
Readings uS/cminitial 671  
672  
729  
707Turbidity  
Readings NTUinitial 12.3  
154  
422  
701

## Water Sample:

Time Collected 1330

## Physical Appearance at Start

Color ColorlessOdor SLIGHT SWEETTurbidity (> 100 NTU) 123Sheen/Free Product None

## Physical Appearance at Sampling

Color Teal/GrayOdor SLIGHT SWEETTurbidity (> 100 NTU) 701Sheen/Free Product None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>4L</u>	<u>GLASS</u>	<u>9</u>	<u>NO</u>	<u>None</u>	<u>—</u>
<u>1L</u>	<u>GLASS</u>	<u>10</u>	<u>NO</u>	<u>None</u>	<u>—</u>

Notes:

MS & MSD COLLECTED

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather Sunny 85°FWell # MW - 8Evacuation Method Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 18.02 ft.Depth to Water \* 9.43 ft.Length of Water Column 8.59 ft.Volume of Water in Well 1.46 gal.(s)3X Volume of Water in Well 4.20 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling 45 gal.(s)Did well go dry? no

\* Measurements taken from

☒ x

Well Casing

☐

Protective Casing

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard

4.00

7.0 Standard

7.01

10.0 Standard

9.99

## Conductivity Standard Readings

84 S Standard

1413 S Standard

1470 @ 27°C

## Water parameters:

Gallons  
Removedinitial 0.3  
1.5  
3  
4.5Temperature  
Readingsinitial 18.0  
16.6  
15.5  
15.4pH  
Readingsinitial 5.48  
6.06  
6.19  
6.27Conductivity  
Readings uS/cminitial 688  
689  
696  
702Turbidity  
Readings NTUinitial 15.2  
46.9  
34.7  
36.8

## Water Sample:

Time Collected 0900

## Physical Appearance at Start

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

ColorlessNone15.2None

## Physical Appearance at Sampling

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

ColorlessNone36.8None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40 mL</u>	<u>GLASS</u>	<u>36</u>	<u>NO</u>	<u>None</u>	<u>—</u>
<u>1 Ltr</u>	<u>GLASS</u>	<u>24</u>	<u>NO</u>	<u>None</u>	<u>—</u>

Notes:

FIELD DUPLICATIONS



# O'Brien & Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998  
 Site Name Niagara Mohawk  
 Location Fulton, NY  
 Project No 1118.081.013.130  
 Personnel James A. Moore

Weather SUNNY 85°F  
 Well # MW - 9  
 Evacuation Metho Bottom Loading Stainless Steel Bailer  
 Sampling Method Bottom Loading Stainless Steel Bailer

### Well Information:

Depth of Well \* 18.04 ft.  
 Depth to Water \* 8.56 ft.  
 Length of Water Column 9.48 ft.  
 Volume of Water in Well 1.55 gal.(s)  
 3X Volume of Water in Well 4.65 gal.(s)

### Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 5 gal.(s)  
 Did well go dry? NO

\* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

### Instrument Calibration:

pH Buffer Readings  
 4.0 Standard 4.20  
 7.0 Standard 7.01  
 10.0 Standard 9.99

Conductivity Standard Readings  
 84 S Standard 1470 @ 27°  
 1413 S Standard

### Water parameters:

Gallons Removed	Temperature Readings	pH Readings	Conductivity Readings uS/cm	Turbidity Readings NTU
initial <u>0.5</u>	initial <u>20.6</u>	initial <u>6.93</u>	initial <u>791</u>	initial <u>184</u>
<u>2</u>	<u>17.4</u>	<u>6.88</u>	<u>849</u>	<u>1114</u>
<u>4</u>	<u>16.4</u>	<u>6.84</u>	<u>814</u>	<u>946</u>
<u>5</u>	<u>16.1</u>	<u>6.80</u>	<u>807</u>	<u>831</u>

### Water Sample:

Time Collected 1000

### Physical Appearance at Start

Color MILKY  
 Odor None  
 Turbidity (> 100 NTU) 184  
 Sheen/Free Product None

### Physical Appearance at Sampling

Color BROWN  
 Odor None  
 Turbidity (> 100 NTU) 831  
 Sheen/Free Product None

### Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40mL</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>NONE</u>	<u>—</u>
<u>1Ltr</u>	<u>GLASS</u>	<u>2</u>	<u>NO</u>	<u>NONE</u>	<u>—</u>

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather SUNNY 90°FWell # MW - 90Evacuation Metho Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 31.80 ft.Depth to Water \* 10.57 ft.Length of Water Column 21.23 ft.Volume of Water in Well 3.46 gal.(s)3X Volume of Water in Well 10.38 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling 10.5 gal.(s)  
Did well go dry? No (Note)

\* Measurements taken from

☒

Well Casing

☐

Protective Casing

☐

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.007.0 Standard 7.0110.0 Standard 9.92

## Conductivity Standard Readings

84 S Standard 14701413 S Standard 1470 @ 27°C

## Water parameters:

Gallons  
Removedinitial 0.5  
3  
7  
10.5  
    
  Temperature  
Readingsinitial 19.2  
15.8  
15.3  
15.1  
    
  pH  
Readingsinitial 6.81  
7.24  
7.31  
7.19  
    
  Conductivity  
Readings uS/cminitial 1162  
1380  
1516  
2360  
    
  Turbidity  
Readings NTUinitial 4.44  
54.2  
316  
647  
    
  

## Water Sample:

Time Collected 1030

## Physical Appearance at Start

Color ColorlessOdor NoneTurbidity (> 100 NTU) 4.44Sheen/Free Product None

## Physical Appearance at Sampling

Color BrownOdor NoneTurbidity (> 100 NTU) 647Sheen/Free Product None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>40mL</u>	<u>GLASS</u>	<u>3</u>	<u>NO</u>	<u>None</u>	<u>  </u>
<u>1L</u>	<u>GLASS</u>	<u>2</u>	<u>NO</u>	<u>None</u>	<u>  </u>

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date July 16, 1998Site Name Niagara MohawkLocation Fulton, NYProject No 1118.081.013.130Personnel James A. MooreWeather Sunny 90°FWell # MW-10Evacuation Method Bottom Loading Stainless Steel BailerSampling Method Bottom Loading Stainless Steel Bailer

## Well Information:

Depth of Well \* 14.92 ft.Depth to Water \* 7.91 ft.Length of Water Column 7.01 ft.Volume of Water in Well 1.14 gal.(s)3X Volume of Water in Well 3.42 gal.(s)

Water Volume /ft. for:

x 2" Diameter Well = 0.163 X LWC

4" Diameter Well = 0.653 X LWC

6" Diameter Well = 1.469 X LWC

Volume removed before sampling

Did well go dry?

3.5 gal.(s)No

\* Measurements taken from

☒

Well Casing

☐

Protective Casing

☐

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.087.0 Standard 7.0110.0 Standard 9.99

## Conductivity Standard Readings

84 S Standard 1470 @ 20°C

1413 S Standard

## Water parameters:

Gallons  
RemovedTemperature  
ReadingspH  
ReadingsConductivity  
Readings uS/cmTurbidity  
Readings NTUinitial 0.51.52.53.5initial 20.118.117.817.7initial 7.317.047.147.08initial 2060205020602070initial 19.7948389266

## Water Sample:

Time Collected 1215

## Physical Appearance at Start

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

ColorlessNone19.7None

## Physical Appearance at Sampling

Color

Odor

Turbidity (&gt; 100 NTU)

Sheen/Free Product

BrownNone266None

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>400mL</u>	<u>GLASS</u>	<u>3</u>	<u>AB</u>	<u>None</u>	<u>—</u>
<u>1L</u>	<u>GLASS</u>	<u>2</u>	<u>AB</u>	<u>None</u>	<u>—</u>

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log -

Date 08/04/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather overcast; ~75°F  
 Well # MW-3  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 18.91 ft.  
 Depth to Water \* 12.12 ft.  
 Length of Water Column 6.85 ft.  
 Volume of Water in Well 1.12 gal.(s)  
 3X Volume of Water in Well 3.36 gal.(s)

## Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 3.5 gal.(s)  
 Did well go dry? no

\* Measurements taken from

☒

Well Casing

☐

Protective Casing

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.03  
 7.0 Standard 7.00  
 10.0 Standard 10.00

## Conductivity Standard Readings

84 S Standard 1413 uS/cm  
 1413 S Standard 1413 uS/cm

## Water parameters:

Gallons  
Removed

initial 0.25  
1.25  
2.25  
3.50  
 \_\_\_\_\_  
 \_\_\_\_\_

Temperature  
Readings

initial 16.3 °C  
15.8  
15.3  
15.5  
 \_\_\_\_\_  
 \_\_\_\_\_

pH  
Readings

initial 7.24  
7.03  
7.01  
7.03  
 \_\_\_\_\_  
 \_\_\_\_\_

Conductivity  
Readings uS/cm

initial 1022 uS/cm  
1026  
925  
963  
 \_\_\_\_\_  
 \_\_\_\_\_

Water Sample:  
 Time Collected 1220

## Physical Appearance at Start:

Color Colorless → Gray  
 Odor no  
 Turbidity (> 100 NTU) > 100 ntu  
 Sheen/Free Product no

## Physical Appearance at Sampling

Color Brown Gray  
 Odor no  
 Turbidity (> 100 NTU) > 100 ntu  
 Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	voa	3	no	HCL	<2
quart	amber glass	2	no	none	~7

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log -

Date 08/04/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather 16, rain, ~80°F  
 Well # MW-4  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 16.03 ft.  
 Depth to Water \* 8.98 ft.  
 Length of Water Column 7.05 ft.  
 Volume of Water in Well 1.15 gal.(s)  
 3X Volume of Water in Well 3.45 gal.(s)

## Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 3.75 gal.(s)  
 Did well go dry? No

\* Measurements taken from

☒ Well Casing☐ Protective Casing

(Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.03  
 7.0 Standard 7.00  
 10.0 Standard 10.00

## Conductivity Standard Readings

84 S Standard 1413.43/cm  
 1413 S Standard 1413.43/cm

## Water parameters:

Gallons  
Removed

Initial 0.25  
1.25  
2.50  
3.75  
 \_\_\_\_\_  
 \_\_\_\_\_

Temperature  
Readings

Initial 16.3 °C  
16.9  
16.7  
17.0  
 \_\_\_\_\_  
 \_\_\_\_\_

pH  
Readings

Initial 6.71  
6.36  
6.07  
6.57  
 \_\_\_\_\_  
 \_\_\_\_\_

Conductivity  
Readings uS/cm

Initial 1455 uS/cm  
1369  
1461  
1382  
 \_\_\_\_\_  
 \_\_\_\_\_

## Water Sample:

Time Collected 1340

## Physical Appearance at Start

Color Colorless  
 Odor Yes  
 Turbidity (> 100 NTU) <100 NTU  
 Sheen/Free Product No

## Physical Appearance at Sampling

Color Gray-Brown  
 Odor Yes  
 Turbidity (> 100 NTU) >100 NTU  
 Sheen/Free Product Yes - Sheen

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	voa	3	no	HCL	<2
quart	amber glass	2	no	none	~7

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date 08/04/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather OVERCAST, ~83°F  
 Well # MW-5  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 15.85 ft.  
 Depth to Water \* 7.86 ft.  
 Length of Water Column 7.99 ft.  
 Volume of Water in Well 1.30 gal.(s)  
 3X Volume of Water in Well 3.9 gal.(s)

## Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 4.0 gal.(s)  
 Did well go dry? NO

\* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

## Instrument Calibration:

pH Buffer Readings  
 4.0 Standard 4.03  
 7.0 Standard 7.00  
 10.0 Standard 10.00

Conductivity Standard Readings  
 84 S Standard 1413 us/cm  
 1413 S Standard 1413 us/cm

## Water parameters:

Gallons Removed	Temperature Readings	pH Readings	Conductivity Readings uS/cm
initial <u>0.25</u>	initial <u>17.5</u>	initial <u>6.96</u>	initial <u>704 us/cm</u>
<u>1.25</u>	<u>16.7</u>	<u>6.59</u>	<u>737</u>
<u>2.75</u>	<u>16.4</u>	<u>6.51</u>	<u>771</u>
<u>4.0</u>	<u>16.2</u>	<u>6.49</u>	<u>796</u>

## Water Sample:

Time Collected 1615

## Physical Appearance at Start

Color Colorless  
 Odor Yes  
 Turbidity (> 100 NTU) <100 ntu  
 Sheen/Free Product NO

## Physical Appearance at Sampling

Color Yellow - Gray  
 Odor Yes  
 Turbidity (> 100 NTU) >100 ntu  
 Sheen/Free Product NO

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	voa	3	no	HCL	<2
quart	amber glass	2	no	none	~7

## Notes:

Collect blind Duplicate

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date 08/04/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather OVERCAST; ~83°F  
 Well # MW-6  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 36.74 ft.  
 Depth to Water \* 7.75 ft.  
 Length of Water Column 28.99 ft.  
 Volume of Water in Well 4.73 gal.(s)  
 3X Volume of Water in Well 14.20 gal.(s)

## Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling  
 Did well go dry?

11.0 gal.(s)  
yes

\* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.03  
 7.0 Standard 7.00  
 10.0 Standard 10.00

## Conductivity Standard Readings

84 S Standard 1413 uS/cm  
 1413 S Standard 1413 uS/cm

## Water parameters:

Gallons Removed	Temperature Readings	pH Readings	Conductivity Readings uS/cm
initial <u>0.25</u>	initial <u>17.0 °C</u>	initial <u>7.95</u>	initial <u>412 uS/cm</u>
<u>5.0</u>	<u>15.1</u>	<u>7.93</u>	<u>370</u>
<u>10.0</u>	<u>17.0</u>	<u>8.01</u>	<u>345</u>
<u>11.0</u>	<u>DRY</u>	<u>DRY</u>	<u>DRY</u>

## Water Sample:

Time Collected 1515

## Physical Appearance at Start

Color Colorless  
 Odor yes  
 Turbidity (> 100 NTU) <100 ntu  
 Sheen/Free Product no

## Physical Appearance at Sampling

Color Brown  
 Odor yes  
 Turbidity (> 100 NTU) >100 ntu  
 Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	voa	3	no	HCL	<2
quart	amber glass	2	no	none	~7

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date 08/05/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather Partly sunny, ~75°F  
 Well # MW-1  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 16.48 ft.  
 Depth to Water \* 9.34 ft.  
 Length of Water Column 7.14 ft.  
 Volume of Water in Well 1.17 gal.(s)  
 3X Volume of Water in Well 3.51 gal.(s)

## Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 4.0 gal.(s)  
 Did well go dry? NO

\* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.02  
 7.0 Standard 7.00  
 10.0 Standard 10.00

## Conductivity Standard Readings

84 S Standard                       
 1413 S Standard 1413 uS/cm

## Water parameters:

Gallons  
Removed

initial 0.25  
1.25  
2.50  
4.0  
 \_\_\_\_\_  
 \_\_\_\_\_

Temperature  
Readings

initial 16.6 °C  
16.0  
15.1  
14.5  
 \_\_\_\_\_  
 \_\_\_\_\_

pH  
Readings

initial 6.84  
6.71  
6.56  
6.50  
 \_\_\_\_\_  
 \_\_\_\_\_

Conductivity  
Readings uS/cm

initial 820 uS/cm  
809  
191  
778  
 \_\_\_\_\_  
 \_\_\_\_\_

Water Sample:  
 Time Collected 0945

## Physical Appearance at Start

Color Colorless  
 Odor NO  
 Turbidity (> 100 NTU) <100 ntu  
 Sheen/Free Product NO

## Physical Appearance at Sampling

Color Brown  
 Odor NO  
 Turbidity (> 100 NTU) >100 ntu  
 Sheen/Free Product NO

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	voa	3	no	HCL	<2
quart	amber glass	2	no	none	~7

Notes:



## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date 08/05/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather Partly Sunny ~ 70°F  
 Well # Mu-8  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 18.06 ft.  
 Depth to Water \* 10.49 ft.  
 Length of Water Column 7.57 ft.  
 Volume of Water in Well 1.23 gal.(s)  
 3X Volume of Water in Well 3.69 gal.(s)

## Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 4.0 gal.(s)  
 Did well go dry? No

\* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.02  
 7.0 Standard 7.00  
 10.0 Standard 10.00

## Conductivity Standard Readings

84 S Standard             
 1413 S Standard 1413 uS/cm

## Water parameters:

Gallons  
Removed

Initial 0.25  
1.25  
7.75  
4.0

Temperature  
Readings

Initial 14.6 °C  
13.5  
12.8  
12.5

pH  
Readings

Initial 6.75  
6.84  
6.77  
6.73

Conductivity  
Readings uS/cm

Initial 926 uS/cm  
898  
893  
891

Water Sample:  
Time Collected

0845

## Physical Appearance at Start

Color Colorless  
 Odor No  
 Turbidity (> 100 NTU) <100 NTU  
 Sheen/Free Product No

## Physical Appearance at Sampling

Color Brown  
 Odor No  
 Turbidity (> 100 NTU) >100 NTU  
 Sheen/Free Product No

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	voa	3	no	HCL	<2
quart	amber glass	2	no	none	~7

## Notes:

Collect Matrix spike/matrix spike duplicate

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date 08/05/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather Partly Sunny - 75°F  
 Well # MW-45  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 18.07 ft.  
 Depth to Water \* 9.44 ft.  
 Length of Water Column 8.63 ft.  
 Volume of Water in Well 1.41 gal.(s)  
 3X Volume of Water in Well 4.23 gal.(s)

Water Volume /ft. for:  
 X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 4.5 gal.(s)  
 Did well go dry? no

\* Measurements taken from ☒ Well Casing ☐ Protective Casing ☐ (Other, Specify)

## Instrument Calibration:

pH Buffer Readings  
 4.0 Standard 4.02  
 7.0 Standard 7.00  
 10.0 Standard 10.00

Conductivity Standard Readings  
 84 S Standard 1413 uS/cm  
 1413 S Standard 1413 uS/cm

## Water parameters:

Gallons Removed	Temperature Readings	pH Readings	Conductivity Readings uS/cm
Initial <u>0.25</u>	Initial <u>17.0 °C</u>	Initial <u>7.01</u>	initial <u>882 uS/cm</u>
<u>1.50</u>	<u>15.6</u>	<u>7.17</u>	<u>790</u>
<u>3.00</u>	<u>15.7</u>	<u>7.29</u>	<u>801</u>
<u>4.5</u>	<u>15.7</u>	<u>7.35</u>	<u>746</u>

## Water Sample:

Time Collected

1030

## Physical Appearance at Start

Color Colorless  
 Odor NO  
 Turbidity (> 100 NTU) <100 NTU  
 Sheen/Free Product NO

## Physical Appearance at Sampling

Color Brown  
 Odor NO  
 Turbidity (> 100 NTU) >100 NTU  
 Sheen/Free Product NO

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	vsa	3	no	HCL	<2
quart	amber glass	2	no	none	~7

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Standard Ground Water Sampling Log

Date 08/05/99  
 Site Name NMPC South First Street  
 Location Fulton, NY  
 Project No 1118.081  
 Personnel Chawn O'Dell

Weather Partly Sunny, ~75°F  
 Well # MW-9DU  
 Evacuation Metho disposable polyethylene bailer  
 Sampling Method disposable polyethylene bailer

## Well Information:

Depth of Well \* 31.83 ft.  
 Depth to Water \* 11.06 ft.  
 Length of Water Column 20.77 ft.  
 Volume of Water in Well 3.39 gal.(s)  
 3X Volume of Water in Well 10.17 gal.(s)

Water Volume /ft. for:

X 2" Diameter Well = 0.163 X LWC  
 4" Diameter Well = 0.653 X LWC  
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling  
 Did well go dry?

10.5 gal.(s)  
NO - nearly

(Other, Specify)

\* Measurements taken from ☒ Well Casing

☐ Protective Casing

## Instrument Calibration:

## pH Buffer Readings

4.0 Standard 4.02  
 7.0 Standard 7.00  
 10.0 Standard 10.00

## Conductivity Standard Readings

84 S Standard 1413 uS/cm  
 1413 S Standard 1413 uS/cm

## Water parameters:

Gallons  
Removed

initial 0.25  
3.5  
7.0  
10.5

Temperature  
Readings

initial 17.8  
14.4  
14.2  
14.7

pH  
Readings

initial 6.89  
7.19  
7.24  
7.33

Conductivity  
Readings uS/cm

initial 689 2320  
2030  
2320  
2760

## Water Sample:

Time Collected 1130

## Physical Appearance at Start

Color Colorless  
 Odor NO  
 Turbidity (> 100 NTU) <100 ntu  
 Sheen/Free Product NO

## Physical Appearance at Sampling

Color Brown  
 Odor NO  
 Turbidity (> 100 NTU) >100 ntu  
 Sheen/Free Product NO

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	voa	3	no	HCL	<2
quart	amber glass	2	no	none	-7

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 5/3/01 Personnel C. O'Dell Weather Mostly Clear, ~55°F  
 Site Name NMPC - South First St. Evacuation Method peristaltic pump Well # MW-1  
 Site Location Fulton, NY Sampling Method peristaltic pump Project # 1118.081

## Well information:

Depth of Well \* 19.42 ft.  
 Depth to Water \* 4.66 ft.  
 Length of Water Column \_\_\_\_\_ ft.

\* Measurements taken from

☒ X Top of Well Casing  
☐ Top of Protective Casing  
☐ (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	4.65							
4	6.32							350
6	6.94	11.01	7.25	708.0	210.2	3.63	46.2	350
9	7.53	11.04	7.25	702.0	215.9	3.03	47.1	290
12	8.06	11.30	7.24	704.0	219.8	3.02	46.5	290
15	8.58	11.56	7.24	710	220.4	3.08	48.2	230
18	8.72	11.80	7.22	712	221.4	3.08	47.1	220
21	8.87	11.89	7.20	726	224.6	3.22	40.2	220
24	8.91	11.86	7.20	714	226.1	3.30	20.1	220
27	8.99	11.85	7.20	710	228.8	3.35	14.9	220
30	9.04	11.84	7.20	709	230.2	3.37	14.6	220
33	9.08	11.84	7.20	708	231.5	3.38	13.8	220
36	9.20	11.85	7.23	705	234.1	3.51	11.6	220
39	9.27	11.85	7.24	704	235.8	3.55	10.1	190
42	9.30	11.86	7.23	703	236.1	3.57	9.2	190
45	9.31	11.91	7.24	703	236.6	3.62	10.1	190
48	9.31	11.92	7.24	702	236.7	3.63	10.6	190
51	9.31	11.93	7.23	704	237.1	3.65	10.5	190
54	9.31	11.92	7.24	702	236.9	3.63	10.1	190

## Water sample:

Time collected: 1250

Total volume of purged water removed: \_\_\_\_\_

Physical appearance at start

Color GRAYOdor NOSheen/Free Product NO

Physical appearance at sampling

Color ColorlessOdor NOSheen/Free Product NO

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

## Low Flow Ground Water Sampling Log

Date 5/31/01  
Site Name NMPC - South First St.  
Site Location Fulton, NY

Personnel  
Evacuation Method  
Sampling Method

C. O'Dell  
peristaltic pump  
peristaltic pump

Weather clear; ~60°F  
Well # MW-4  
Project # \_\_\_\_\_

**Well information:**

Depth of Well \* \_\_\_\_\_ ft.  
 Depth to Water \* \_\_\_\_\_ ft.  
 Length of Water Column \_\_\_\_\_ ft.

\* Measurements taken from

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

[illegible]

**Water sample:**

Time collected:

**Total volume of purged water removed:**

### Physical appearance at start

### Physical appearance at sampling

Color *Colorless*

Color Color/ea

Odor yes

Odor yes

Sheen/Free Product yes

Shreen/Free Product Yes

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

**Notes:**

Collect BLIND Duplicate sample.

Ferrous Iron - 4.4 mg/l

Iron - 5 (+) mg/L

Mangan - 0 mo/L

## Low Flow Ground Water Sampling Log

## Weather

Well #

Project #

Depth of Well \* \_\_\_\_\_ ft.  
 Depth to Water \* \_\_\_\_\_ ft.  
 Length of Water Column \_\_\_\_\_ ft.

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

[illegible]

Sheen/Free Product NO

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Iron - 5mg/L (+)  
Ferrous Iron - 3.2mg/L  
Manganese - 0.5mg/L

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 5/3/01  
 Site Name NMPC - South First St.  
 Site Location Fulton, NY

Personnel C. O'Dell  
 Evacuation Method peristaltic pump  
 Sampling Method peristaltic pump

Weather MC-8  
 Well # MC-8  
 Project #

## Well Information:

Depth of Well \* 18.06 ft.  
 Depth to Water \* 8.84 ft.  
 Length of Water Column  ft.

\* Measurements taken from

☒ X Top of Well Casing  
☐ Top of Protective Casing  
☐ (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min)
0	8.85							
7	9.12	12.61	6.55	762	-20.8	5.59	30.1	160
10	9.25	11.10	6.51	747	-19.2	5.79	27.2	160
13	9.39	10.72	6.49	742	-6.1	5.67	24.6	220
16	9.49	10.72	6.49	743	-12.6	5.72	18.2	220
19	9.58	10.72	6.49	744	-18.3	5.84	15.9	300
22	9.71	10.66	6.49	746	-26.6	5.82	15.1	300
25	9.81	10.79	6.52	750	-37.4	6.02	8.12	220
28	9.89	10.83	6.52	752	-38.3	6.09	5.98	220
31	9.95	10.81	6.53	754	-40.6	6.17	5.62	220
34	10.00	10.83	6.54	757	-43.0	6.25	3.84	220
37	10.02	10.84	6.54	757	-46.2	6.11	3.62	
40	10.03	10.83	6.54	756	-47.6	6.06	3.71	
43	10.03	10.82	6.54	756	-49.1	6.03	3.52	
46	10.03	10.83	6.54	756	-49.5	6.02	3.49	220

## Water sample:

Time collected: Total volume of purged water removed: 

Physical appearance at start

Color Colorless  
 Odor NO

Sheen/Free Product NO

Physical appearance at sampling

Color Colorless  
 Odor NO

Sheen/Free Product NO

## Samples collected:

Container Size	Container Type	# Collected	Filled/Filled	Preservative	Container pH

Notes:

i:\71\projects\forms\microlog.xls

Ferrous Iron - 2.5 mg/l  
 Iron - 5 (+) mg/l  
 Manganese - 0.3 mg/l

April 25, 1997

## Low Flow Ground Water Sampling Log

Date	<u>6/1/01</u>	Personnel	<u>C. O'Dell</u>	Weather	
Site Name	<u>NMPC - South First St.</u>	Evacuation Method	<u>peristaltic pump</u>	Well #	<u>MW-95</u>
Site Location	<u>Fulton, NY</u>	Sampling Method	<u>peristaltic pump</u>	Project #	

**Well information:**

Depth of Well *	_____ ft.	* Measurements taken from <table border="1"> <tr> <td>X</td> <td>Top of Well Casing</td> </tr> <tr> <td></td> <td>Top of Protective Casing</td> </tr> <tr> <td></td> <td>(Other, Specify)</td> </tr> </table>	X	Top of Well Casing		Top of Protective Casing		(Other, Specify)
X	Top of Well Casing							
	Top of Protective Casing							
	(Other, Specify)							
Depth to Water *	_____ ft.							
Length of Water Column	_____ ft.							

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

[illegible]

**Water sample:**

Time collected: 1000

**Total volume of purged water removed:**

Physical appearance at start

### Physical appearance at sampling

Color	Colorless
Odor	No
Sheen/Free Product	No

Color	<u>No Colorless</u>
Odor	<u>NO</u>
Shcen/Free Product	<u>NO</u>

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

**Notes:**

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Iron - 0.2 mg/l  
Manganese - 0.1 mg/l  
Ferro us Iron - 0 mg/l

April 25, 1997



## Low Flow Ground Water Sampling Log

Weather \_\_\_\_\_  
Well # MW-11  
Project # \_\_\_\_\_

\* Measurements taken from

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

[illegible]

**Total volume of purged water removed:**

### Physical appearance at sampling

Sheen/Free Product no

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

Iron - 3.9 mg//  
Ferrous Iron - 3.2 mg//  
Manganese - 0.2 mg//

**O'Brien & Gere Engineers, Inc.**

## Low Flow Ground Water Sampling Log

Date	<u>7/12/04</u>	Personnel	<u>Scott Tucker</u>	Weather	<u>Overcast 75°</u>
Site Name	<u>NIMO - Fulton</u>	Evacuation Method	<u>Low Flow</u>	Well #	<u>MW-1</u>
Site Location	<u>S. 1st Ft. Fulton, NY</u>	Sampling Method	<u>Low Flow</u>	Project #	<u>35165</u>

**Well information:**

Depth of Well *	<u>19.46</u>	ft.
Depth to Water *	<u>5.22</u>	ft.
Length of Water Column	14.24	ft.

\* Measurements taken from

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

**Water parameters:**

Lower submersible pump slowly through stagnant water column

**Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute**

**Collect readings at every three minute intervals**

[illegible]

**Water sample:**

Time collected: 1250

1013

**Total volume of purged water removed:**

Physical appearance at start

Color clear/fluorescent? black

Odor 40

Sheen/Free Product	h0
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### Physical appearance at sampling

Color clear / Maculant black?

Odor nc

Sheen/Free Product	<u>No</u>
--------------------	-----------

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40m	g/bs	3	no	HCl	
2L	1'	1	no	none.	

**Notes:**

## Low Flow Ground Water Sampling Log

**Project #**            **35165**

X	Top of Well Casing PVC
	Top of Protective Casing
	(Other, Specify)

**Collect readings at every three minute intervals**

Water sample:		Total volume of purged water removed:	
Time collected:	1350		
Physical appearance at start		Physical appearance at sampling	
Color	clear	Color	clear
Odor	no	Odor	no
Sheen/Free Product	no	Sheen/Free Product	no

Notes: 1316: Rain.

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/8/04 Personnel Scott Tucker Weather \_\_\_\_\_  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-3  
 Site Location S. 1st St, Fulton, NY Sampling Method Low Flow Project # 35165

## Well Information:

Depth of Well \* 19.08 ft.  
 Depth to Water \* 11.11 ft.  
 Length of Water Column 7.97 ft.

\* Measurements taken from

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Top of Well Casing PVC  
 Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water $\pm 0.3$	3% Temperature	$\pm 0.1$ pH	5% Conductivity	Oxidation Reduction Potential $\pm 10$	Dissolved Oxygen 10% (mg/l)	Turbidity 10% (NTU)	Flow Rate (ml/min).
1650	11.25	69.8	6.89	0.677	400	0.96	60	110
1655	11.26	65.0	6.84	0.680	425	0.54	38	90
1657-1700	11.26	65.0	6.84	0.687	438	0.48	27	95
1703	11.26	64.7	6.84	0.688	442	0.51	32	95
1706	11.27	64.2	6.84	0.688	446	0.55	45	85
1709	11.27	64.3	6.84	0.688	449	0.59	36	90
1712	11.27	64.6	6.85	0.691	451	0.58	30	80
1715	11.27	64.5	6.86	0.692	453	0.60	24	-
1718	11.27	64.2	6.86	0.690	458	0.72	15	80
1721	11.27	64.4	6.86	0.691	459	0.95	13	75
1724	11.27	64.4	6.86	0.688	461	1.05	9.4	70
1727	11.27	64.0	6.86	0.687	464	1.18	6.2	80
1730	11.27	63.1	6.86	0.686	467	1.24	-	-
1733	11.27	63.6	6.86	0.688	444	1.22	7.1	80
1736	11.27	62.9	6.86	0.687	449	1.32	3.7	80
1739	11.27	62.7	6.85	0.688	451	1.41	3.4	80
1742	11.27	62.7	6.85	0.687	452	1.47	2.3	80
1745	11.27	62.7	6.86	0.685	454	1.45	2.3	80
1748	11.27	62.7	6.86	0.683	455	1.42	2.0	80

## Water sample:

Time collected: 1815

Total volume of purged water removed:

~2.0 gall.

Physical appearance at start

Physical appearance at sampling

Color clear  
 Odor no

Color clear  
 Odor clear

Sheen/Free Product noSheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 mL	glass	3	no	HCl	
2 L	"	1	no	none	

Notes:

**O'Brien & Gere Engineers, Inc.**
**Low Flow Ground Water Sampling Log**

Date 7/9/04 Personnel Scott Tucker Weather \_\_\_\_\_  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-4  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

**Well Information:**

Depth of Well \* 16.10 ft.  
 Depth to Water \* 7.76 ft.  
 Length of Water Column 8.34 ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify) \_\_\_\_\_

**Water parameters:** Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To <sup>±0.3</sup> Water	3% Temperature	50.1 pH	3% Conductivity	Oxidation Reduction <sup>±10</sup> Potential	Dissolved Oxygen <sup>10%</sup> (mg/l)	Turbidity <sup>10%</sup> (NTU)	Flow Rate (ml/min).
1230	7.89	65.5	6.49	0.886	-26	1.28	36	115
1233	7.89	64.4	6.46	0.889	-26	0.72	31	80
1236	7.90	65.9	6.46	0.875	-25	0.57	37	80
1239	7.91	66.1	6.45	0.886	-27	0.53	37	85
1242	7.92	66.6	6.45	0.893	-30	0.48	35	80
1245	7.93	66.4	6.45	0.908	-34	0.48	30	80
1248	7.93	66.7	6.46	0.911	-37	0.44	31	80
1251	7.95	66.6	6.45	0.918	-38	0.40	30-28	85
1254	7.96	66.4	6.45	0.922	-40	0.38	24	90
1257	7.96	66.5	6.46	0.928	-42	0.40	24	80
1300	7.96	67.0	6.46	0.927	-43	0.36	20	80
1303	7.96	66.8	6.46	0.933	-44	0.37	20	80
1306	7.96	66.8	6.46	0.938	-45	0.37	18	80

**Water sample:**

 Time collected: 1320

Total volume of purged water removed: \_\_\_\_\_

**Physical appearance at start**

Color clear  
 Odor no

**Physical appearance at sampling**

Color clear  
 Odor slight yes  
 Sheen/Free Product no

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	3	no	HCl	
2L	"	1	no	none	

Notes: \_\_\_\_\_

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

**Water sample:**

**Samples collected:**

Notes: when tubing in hole removed, black stains observed along ~6ft of bottom of tubing / pumped oiliferous material from bottom of well.

**O'Brien & Gere Engineers, Inc.**
**Low Flow Ground Water Sampling Log**

Date 7/9/04 Personnel Scott Tucker Weather Overcast ~70°F  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # 1NW-6  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

**Well Information:**

Depth of Well \* 36.80 ft.  
 Depth to Water \* 6.85 ft.  
 Length of Water Column 29.95 ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water $\pm 0.3$	Temperature $\pm 0.3^\circ$	pH $\pm 0.1$	Conductivity $\pm 3\%$	Oxidation Reduction Potential $\pm 10$	Dissolved Oxygen $\pm 10\%$ (mg/l)	Turbidity (NTU) $\pm 10\%$	Flow Rate (ml/min).
1041	7.84	61.0	8.00	0.374	-116	0.83	5.5	120
1044	8.11	60.5	7.98	0.375	-122	0.63	4.9	80
1047	8.40	61.8	7.98	0.373	-119	0.56	5.3	85
1050	8.69	61.9	7.96	0.372	-116	0.52	3.8	80
1053	9.06	62.4	7.97	0.373	-111	0.51	5.2	-
1056	9.24	62.0	7.97	0.372	-110	0.51	5.8	85
1059	9.50	61.1	7.97	0.373	-107	0.52	4.6	80
1102	9.75	61.2	7.99	0.373	-111	0.49	4.9	75
1105	9.98	61.7	7.97	0.373	-110	0.49	3.7	-
1108	10.21	62.6	7.96	0.373	-104	0.55	4.2	80
1111	10.43	62.6	7.95	0.371	-90	0.57	4.2	75
1114	10.62	62.7	7.95	0.370	-84	0.63	6.2	-
1117	10.80	62.9	7.97	0.371	-86	0.59	5.0	75
1120	11.00	62.7	7.98	0.371	-93	0.60	5.1	75
1123	11.24	62.7	7.99	0.370	-97	0.55	4.9	75
1126	11.39	62.8	7.99	0.370	-97	0.56	3.8	75
1129	11.58	62.6	7.99	0.371	-97	0.60	4.4	75
1132	11.75	63.0	8.00	0.371	-98	0.58	5.5	75
1135	11.88	63.2	8.00	0.370	-98	0.60	3.9	75

 Water sample: 1.857
0.011

 Time collected: 1150

Total volume of purged water removed:

1.5

Physical appearance at start

Physical appearance at sampling

Color clear  
 Odor no  
 Sheen/Free Product no

Color clear  
 Odor slight  
 Sheen/Free Product no

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	3	no	HCl	
2L	plastic	1	no	none	

Notes:

## Low Flow Ground Water Sampling Log

Date	<u>7/9/04</u>	Personnel	<u>Scott Tucker</u>	Weather	
Site Name	<u>NIMO - Fulton</u>	Evacuation Method	<u>Low Flow</u>	Well #	<u>MW-7AS</u>
Site Location	<u>S. 1st Ft, Fulton, NY</u>	Sampling Method	<u>Low Flow</u>	Project #	<u>35165</u>

**Well information:**

Depth of Well *	<u>16.51</u>	ft.
Depth to Water *	<u>8.65</u>	ft.
Length of Water Column		ft.

\* Measurements taken from

7	Top of Well Casing <i>PVC</i>
	Top of Protective Casing
	(Other, Specify)

**Water parameters:**

Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

[illegible]

**Water sample:**

Time collected: <u>1545</u> Physical appearance at start Color <u>clear</u> Odor <u>none</u> Sheen/Free Product <u>none</u>	Total volume of purged water removed:	<u>~0.5 gall.</u> Physical appearance at sampling Color <u>clear</u> Odor <u>slight</u> Sheen/Free Product <u>no</u>
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**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	3	no	HCl	
2L	plastic	1	no	none	

**Notes:**



## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

**Water sample:**

**Samples collected:**

**Notes:**

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/8/04 Personnel Scott Tucker Weather \_\_\_\_\_  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-3 MW-8S  
 Site Location S. 1st St, Fulton, NY Sampling Method Low Flow Project # 35165

## Well Information:

Depth of Well \* 18.10 ft.  
 Depth to Water \* 9.23 ft.  
 Length of Water Column 8.87 ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water $\pm 0.3$	$\pm 3^\circ$ Temperature	$\pm 0.1$ pH	$\pm 3^\circ$ Conductivity	Oxidation Reduction Potential $\pm 10$	Dissolved Oxygen $\pm 10\%$ (mg/l)	$\pm 10\%$ Turbidity (NTU)	Flow Rate (ml/min).
0918	9.46	58.7	6.57	0.666	170	1.17	80	105
0921	9.49	58.1	6.56	0.669	170	0.72	90	105
0924	9.57	57.9	6.55	0.667	170	0.56	75	125
0927	9.62	57.4	6.54	0.664	168	0.46	55	-
0930	9.67	58.0	6.55	0.655	166	0.45	40	110
0933	9.69	57.9	6.55	0.647	162	0.41	34	100
0936	9.72	58.2	6.55	0.634	156	0.41	31	100
0939	9.76	58.4	6.54	0.625	150	0.38	28	105
0942	9.82	58.4	6.54	0.618	145	0.40	35	-
0945	9.85	58.1	6.55	0.612	141	0.39	26	115
0948	9.89	58.2	6.55	0.607	138	0.38	29	115
0951	9.93	58.2	6.55	0.604	135	0.38	30	-
0954	9.95	58.0	6.55	0.604	133	0.38	22	110
0957	9.98	58.2	6.55	0.604	131	0.37	20	100
0900	9.98	58.7	6.55	0.602	130	0.39	14	95
1003	10.00	59.1	6.56	0.603	129	0.38	12	95
1006	10.00	59.2	6.56	0.604	129	0.35	13	95
1009	10.01	59.0	6.56	0.604	128	0.36	12	100

## Water sample:

Time collected: 1030 Total volume of purged water removed: 2.0 gallons  
 Physical appearance at start Physical appearance at sampling  
 Color clear/orange flocculation Color clear  
 Odor no Odor no  
 Sheen/Free Product no Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 ml	glass	3	10	HCl	
2 L	"	1	no	no	

Notes: Tubing in well being used. / Orange Tubing replaced due to lack of seal / orange flocculant in water and on tubing removed from well

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/8/04 Personnel Scott Tucker Weather Average ~75  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-8B  
 Site Location S. 1st St, Fulton, NY Sampling Method Low Flow Project # 35165

## Well Information:

Depth of Well \* 33.47 ft.  
 Depth to Water \* 9.52 ft.  
 Length of Water Column 23.95 ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min.)
1041	9.52 10.15	59.4	7.71	0.722	33	1.23	70	100
1044	10.64	57.8	7.71	0.725	-34	0.66	75	105
1047	10.97	57.2	7.71	0.726	-145	0.51	80	110
1050	11.39	57.3	7.71	0.725	-183	0.47	110	100
1053	11.77	57.5	7.71	0.726	-166	0.45	80	105
1056	12.16	57.8	7.71	0.726	-149	0.40	45	100
1059	12.63	57.8	7.71	0.726	-137	0.39	30	—
1102	12.86	58.3	7.72	0.725	-131	0.40	27	95
1105	13.22	58.0	7.72	0.727	-130	0.37	26	100
1108	13.58	58.3	7.72	0.729	-127	0.36	27	100
1111	13.93	58.1	7.72	0.729	-129	0.33	26	100
1114	14.40	57.9	7.71	0.730	-124	0.34	30	—
1118	14.96	57.9	7.72	0.727	-116	0.33	28	95
1121	15.14	57.7	7.72	0.730	-107	0.34	30	—
1124	15.49	57.5	7.72	0.730	-86	0.39	30	100
1127	15.79	57.6	7.72	0.729	-68	0.47	36	100
1130	16.23	57.6	7.72	0.731	-49	0.59	45	100
1133	16.48	57.8	7.73	0.725	-33	0.63	55	105
1136	16.90	57.0	7.73	0.729	-105	0.44	60	100
1139	17.21	56.6	7.73	0.726	-81	0.46	50	100

## Water sample:

Time collected: 1045 Total volume of purged water removed: 3.5 gal.  
 Physical appearance at start Physical appearance at sampling  
 Color clear Color clear  
 Odor no Odor no  
 Sheen/Free Product no Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40 mL	glass	3	no	HCl	
2 L	"	1	no	none	

Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/8/04 Personnel Scott Tucker Weather \_\_\_\_\_  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-8 D continued  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

## Well information:

Depth of Well \* \_\_\_\_\_ ft. \* Measurements taken from \_\_\_\_\_  
 Depth to Water \* \_\_\_\_\_ ft. \_\_\_\_\_ Top of Well Casing  
 Length of Water Column \_\_\_\_\_ ft. \_\_\_\_\_ Top of Protective Casing  
 (Other, Specify) \_\_\_\_\_

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	3% Temperature	pH	3% Conductivity	Oxidation Reduction Potential	Dissolved Oxygen 10% (mg/l)	Turbidity 10% (NTU)	Flow Rate (ml/min).
1142	17.60	56.9	7.73	0.724	-51	0.58	55	105
1145	18.04	56.8	7.73	0.724	-38	0.65	50	105
1148	18.42	57.4	7.74	0.726	-37	0.66	45	110
1151	18.65	56.9	7.73	0.724	-39	0.71	45	—
1154	18.98	56.9	7.74	0.725	-41	0.71	55	100
1157	19.26	56.8	7.74	0.723	-40	0.70	50	105
1201	19.73	56.6	7.75	0.726	-38	0.76	50	80
1204	19.99	57.1	7.75	0.725	-36	0.80	50	85
1207	20.20	57.0	7.76	0.725	-34	0.80	50	—
1212	20.46	57.4	7.76	0.729	-44	0.70	55	65
1215	20.67	57.8	7.76	0.727	-43	0.74	60	60
1218	20.86	57.9	7.76	0.727	-42	0.78	50	—
1222	21.00	58.0	7.77	0.727	-42	0.77	50	60
1226	21.19	57.9	7.77	0.726	-45	0.74	60	60
1229	21.33	57.9	7.77	0.728	-48	0.73	55	60
1232	21.46	57.9	7.77	0.728	-46	0.73	55	60

## Water sample:

Time collected: 1245 Total volume of purged water removed: 3.5 gull.  
 Physical appearance at start Physical appearance at sampling  
 Color clear Color clear  
 Odor no Odor no  
 Sheen/Free Product no Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	3	no	no HCl	
2L	"	1	no	none	

## Notes:

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

**Water sample:**

**Samples collected:**

**Notes:**

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/8/04 Personnel Scott Tucker Weather \_\_\_\_\_  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-9D  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

## Well Information:

Depth of Well \* 32.89 ft.  
 Depth to Water \* 10.42 ft.  
 Length of Water Column \_\_\_\_\_ ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify) \_\_\_\_\_

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	3% Temperature	0.1 pH	3% Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	10% Turbidity (NTU)	Flow Rate (ml/min.)
1430	11.71	56.6	7.55	1,470	62	0.59	9.9	100
1433	12.20	58.2	7.56	1,470	64	0.58	10	110
1436	12.37	58.6	7.56	1,470	67	0.59	10	85
1439	12.60	59.4	7.56	1,470	71	0.64	8.4	80
1442	12.91	59.6	7.57	1,470	74	0.75	9.0	80
1445	13.18	59.6	7.57	1,470	75	0.77	8.2	75
1448		59.2	7.57	1,470		1.64		(57)
1454	13.53	63.0	7.61	1,424	57	1.92	4.8	65
1457	13.75	61.4	7.60	1,459	49	0.80	2.4	70
1500	14.05	59.8	7.59	1,458	46	0.50	2.6	95
1503	14.34	59.3	7.59	1,462	44	0.42	3.2	90
1506	14.56	59.2	7.59	1,468	44	0.44	2.1	70
1509	14.75	60.8	7.60	1,465	43	0.39	2.1	70
1512	14.94	60.8	7.60	1,460	44	0.41	2.2	65
1515	15.13	61.4	7.60	1,460	44	0.38	2.2	-
1518	15.31	61.0	7.59	1,456	45	0.38	2.2	80
1521	15.53	60.6	7.57	1,448	47	0.33	2.2	80
1524	15.78	59.8	7.58	1,457	49	0.39	3.0	80
1527	15.95	59.7	7.57	1,453	51	0.44	3.5	70
1530	16.14	60.0	7.56	1,448	55	0.49	3.1	70

## Water sample:

Time collected: 1615Total volume of purged water removed: 20 gal.

## Physical appearance at start

Color clear  
 Odor no

## Physical appearance at sampling

Color clear  
 Odor no

## Sheen/Free Product

no

## Sheen/Free Product

no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
<u>4/2 ml</u>	<u>glass</u>	<u>3</u>	<u>no</u>	<u>+ HCl</u>	
<u>2L</u>	<u>11</u>	<u>1</u>	<u>no</u>	<u>none</u>	

Notes: 1448: Tubing adjusted, water level below tubing.

## Low Flow Ground Water Sampling Log

Date 7/8/04  
Site Name NIMO - Fulton  
Site Location S. 1st Ft, Fulton, NY

Personnel	<u>Scott Tucker</u>
Evacuation Method	<u>Low Flow</u>
Sampling Method	<u>Low Flow</u>

Weather \_\_\_\_\_  
Well # MW-9D continued  
Project # 35165

### Well information:

Depth of Well \* \_\_\_\_\_ ft.  
 Depth to Water \* \_\_\_\_\_ ft.  
 Length of Water Column \_\_\_\_\_ ft.

\* Measurements taken from

Top of Well Casing  
Top of Protective Casing  
(Other, Specify)

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

[illegible]

Water sample: 17

Time collected: 1615

**Total volume of purged water removed:**

Physical appearance at start

### Physical appearance at sampling

Color \_\_\_\_\_  
Odor \_\_\_\_\_

Color \_\_\_\_\_  
Odor \_\_\_\_\_

Sheen/Free Product

Sheen/Free Product

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

**Notes:**

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/9/04 Personnel Scott Tucker Weather Overcast 70°f  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # 14W-10  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

## Well Information:

Depth of Well \* 14.98 ft.  
 Depth to Water \* 7.89 ft.  
 Length of Water Column 7.14 ft.

\* Measurements taken from

X

Top of Well Casing PVC  
 Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water $\pm 0.1$	3% Temperature	$\pm 1$ pH	3% Conductivity	Oxidation Reduction $\pm 10$ Potential	Dissolved Oxygen $10\%$ (mg/l)	Turbidity $10\%$ (NTU)	Flow Rate (ml/min).
0911	7.87	58.5	6.77	1.085	157	6.74	11	75
0914	7.90	57.9	6.77	1.080	161	6.51	11	100
0917	7.92	57.8	6.77	1.028	163	6.44	9.2	-
0920	7.93	58.0	6.78	1.034	164	6.09	9.2	95
0923	7.95	58.1	6.78	1.034	166	6.03	8.2	95
0926	7.95	58.1	6.78	1.033	167	6.02	8.5	85
0929	7.96	58.6	6.78	1.041	169	5.93	7.3	80
0932	7.96	58.7	6.79	1.090030	171	5.79	6.3	-
0935	7.99	58.1	6.79	1.044	172	5.71	6.9	85
0938	8.00	57.8	6.78	1.187	174	4.38	6.5	100
0941	8.03	57.4	6.78	1.190	176	4.29	4.6	105
0944	8.04	58.0	6.79	1.189	177	4.37	4.4	105
0947	8.05	58.3	6.79	1.187	178	4.32	2.9	105
0950	8.06	58.3	6.80	1.186	179	4.46	1.6	105
0953	8.08	58.5	6.80	1.181	181	4.56	0.55	100
0956	8.09	58.7	6.80	1.178	182	4.62	0.65	100

## Water sample:

Time collected: 1015

Total volume of purged water removed:

1.5 gall.

## Physical appearance at start

Color clear  
 Odor no  
 Sheen/Free Product no

## Physical appearance at sampling

Color clear  
 Odor slight  
 Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	3	no	HCl	
2L	"	1	no	none	

Notes:



## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/12/04 Personnel Scott Tucker Weather \_\_\_\_\_  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # WV-11  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

## Well information:

Depth of Well \* 11.91 ft.  
 Depth to Water \* 2.65 ft.  
 Length of Water Column 9.26 ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen	Turbidity	Flow Rate
	To $\pm 0.3$	3'	$\pm 0.1$	3'	%	mg/l	NTU	(ml/min)
1012	2.65	68.9	6.62	0.571	24	1.50	1100	110
1017	2.66	67.6	6.61	0.574	23	0.67	750	95
1020	2.66	68.0	6.62	0.578	22	0.48	450	95
1023	2.66	69.0	6.61	0.558	25	0.46	310	95
1026	2.66	69.5	6.60	0.553	28	0.42	140	85
1029	2.66	69.8	6.59	0.540	28	0.42	45	85
1032	2.66	70.1	6.58	0.533	33	0.40	22	85
1035	2.66	70.3	6.58	0.530	36	0.37	11	85
1038	2.66	70.2	6.58	0.528	38	0.39	8.0	85
1041	2.66	70.2	6.58	0.527	40	0.38	5.9	85
1044	2.66	70.2	6.58	0.526	42	0.36	5.3	85
1047	2.66	69.7	6.58	0.525	43	0.34	4.3	85
1050	2.66	69.7	6.58	0.525	44	0.33	3.6	80
1053	2.66	69.5	6.58	0.525	45	0.34	3.4	80
1056	2.66	69.5	6.58	0.524	47	0.34	2.5	80
1059	2.66	69.5	6.58	0.523	48	0.34	3.0	80

## Water sample:

Time collected: 1115 Total volume of purged water removed: 1.016 1 gal.  
 Physical appearance at start Physical appearance at sampling  
 Color clear/flocculent Color clear  
 Odor no Odor no  
 Sheen/Free Product no Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	3	no	HCl	
2L	"	1	no	none	

## Notes:

Slight black stain, silty material at bottom of tube removed from bottom of well.

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/7/04 Personnel Scott Tucker Weather \_\_\_\_\_  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-125  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

## Well Information:

Depth of Well \* 15.59 ft.  
 Depth to Water \* 5.23 ft.  
 Length of Water Column 10.36 ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify) \_\_\_\_\_

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth $\pm 0.3$ To Water	$\pm 0.3^\circ$ Temperature	$\pm 0.1$ pH	$\pm 3\%$ Conductivity	Oxidation $\pm 10$ Reduction Potential	Dissolved Oxygen $\pm 10\%$ (mg/l)	Turbidity $10\%$ (NTU)	Flow Rate (ml/min).
1340	5.72	64.9	6.76	0.626	270	1.83	3.3	120
1343	5.68	61.6	6.71	0.629	251	0.62	2.7	—
1346	5.72	61.8	6.71	0.630	247	0.49	1.7	115
1349	5.79	61.8	6.71	0.629	246	0.43	1.5	—
1352	5.85	61.6	6.71	0.629	248	0.39	2.2	130
1355	5.90	61.5	6.71	0.630	247	0.40	16	100
1358	5.94	62.5	6.72	0.628	248	0.42	15	—
1401	6.01	62.0	6.73	0.628	247	0.44	10	100
1404	6.04	62.0	6.73	0.628	244	0.43	8.1	—
1407	6.07	62.3	6.74	0.630	243	0.43	8.4	90
1410	6.10	62.5	6.74	0.629	240	0.43	7.4	90
1413	6.13	62.5	6.75	0.632	237	0.42	7.2	900
1416	6.15	62.4	6.75	0.631	235	0.44	6.6	90/100
1419	6.20	62.6	6.75	0.634	232	0.43	6.3	100
1422	6.24	62.2	6.75	0.634	231	0.45	6.3	100

## Water sample:

Time collected: 1455

Total volume of purged water removed:

~1 gal

## Physical appearance at start

Color clear  
 Odor no

Sheen/Free Product no

## Physical appearance at sampling

Color clear  
 Odor no

Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	39	no	HCl	
2L 2L	plastic	13	no	none	

## Notes:

MS/MSD collected

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 7/7/04 Personnel Scott Tucker Weather Overcast ~80°F  
 Site Name NIMO - Fulton Evacuation Method Low Flow Well # MW-12A  
 Site Location S. 1st Ft, Fulton, NY Sampling Method Low Flow Project # 35165

## Well Information:

Depth of Well \* 37.83 ft.  
 Depth to Water \* 7.05 ft.  
 Length of Water Column 20.78 ft.

\* Measurements taken from

☒ Top of Well Casing PVC  
☐ Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature °F ± 0.3	pH ± 0.1	Conductivity µS/cm ± 3%	Oxidation Reduction Potential ± 10	Dissolved Oxygen % (mg/l)	Turbidity (NTU) 10%	Flow Rate (ml/min).
1122	—	67.0	7.54	0.660	337	2.86	23	135
1126	8.17	59.7	7.49	0.701	334	3.03	26	195
1129	8.56	58.9	7.48	0.705	329	2.86	26	100
1132	8.76	60.0	7.49	0.707	326	2.83	27	110
1135	8.96	60.6	7.50	0.703	327	2.71	26	100
1138	9.18	60.3	7.50	0.703	328	2.66	29	110
1141	9.32	60.1	7.50	0.703	329	2.77	28	125
1144	9.40	60.0	7.51	0.691	327	2.55	28	120
1147	9.54	60.3	7.52	0.689	324	2.43	32	110
1150	9.59	60.5	7.51	0.690	320	2.44	30	110
1153	9.66	60.9	7.51	0.693	316	2.40	31	110
1156	9.70	62.5	7.53	0.687	311	2.32	26	100
1159	9.75	63.1	7.53	0.682	307	2.25	22	—
1202	9.79	63.3	7.53	0.677	304	2.15	24	85
1205	9.90	62.4	7.53	0.681	299	2.14	22	100
1208	9.92	62.5	7.53	0.674	295	2.16	25	105
1211	9.95	62.1	7.54	0.676	290	2.12	22	110

## Water sample:

Time collected: 1225

Total volume of purged water removed:

1.5 gal.

## Physical appearance at start

Color clear  
 Odor no

Sheen/Free Product no

## Physical appearance at sampling

Color clear  
 Odor no

Sheen/Free Product no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH
40ml	glass	26	n	HCl	
2L	glass	12	n	none	

Notes: DUP-7 collected

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

157

~ 1.5 gallons

Color	colorless
Odor	no
Product	no/no

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

$10^1$  sample depth

## Low Flow Ground Water Sampling Log

Weather Sunny/Windy + 70°F  
Well # MW-2-110305  
Project # 1118/35165

Notes: ID# 11 - 13.64 DT# 11 - 3.68 / ms/msp Taken

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

Water sample:	3	5	1	02	10	5	8
Time collected:	0917			Total volume of purged water removed:			2.5 gal
Physical appearance at start				Physical appearance at sampling			
Color	Colorless			Color	Colorless		
Odor	N			Odor	N		
Sheen/Free Product	N/N			Sheen/Free Product	N/N		

**Samples collected:**

i:\71\projects\forms\microlog.xls

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

**Samples collected:**

**Notes:**

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 11/2/05 Personnel Scott Tucker/Jay Kavanaugh Weather Sunny 45°F  
 Site Name South First Street Evacuation Method Low Flow Well # AW4 (94)  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

## Well information:

Depth of Well \* 15.79 ft.  
 Depth to Water \* 6.59 ft.  
 Length of Water Column \_\_\_\_\_ ft.

\* Measurements taken from

X Top of Well Casing  
 \_\_\_\_\_ Top of Protective Casing  
 \_\_\_\_\_ (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column

Position pump in center of screened interval &amp; maximum pumping rate of 0.5 liters/minute

Collect readings at every three minute intervals

Elapsed Time	Depth To Water Ft	Temperature °C	pH	ms/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	6.59	16.1	7.05	0.97	-99	6.88	151	200
1245	6.95	16.2	7.07	0.96	-100	6.34	85.6	200
1248	6.99	16.2	7.06	0.96	-108	6.04	58.2	200
1249/1251	7.00	16.2	7.06	0.95	-102	5.84	41.7	200
1254	7.01	16.1	7.05	0.95	-102	5.76	30.8	200
1257	7.01	16.2	7.05	0.95	-103	5.64	23.3	200
1300	7.02	16.2	7.05	0.95	-104	5.49	18.6	200
1303	7.02	16.2	7.04	0.96	-105	5.40	18.1	200
1306	7.04	16.2	7.05	0.96	-107	5.32	14.6	200
1309	7.04	16.2	7.05	0.96	-107	5.25	14.8	200
1312	7.05	16.2	7.07	0.96	-108	5.21	13.5	200
1315	7.05	16.2	7.05	0.96	-109	5.14	14.2	200
1318	7.06	16.2	7.06	0.97	-110	5.08	12.1	200
1321	7.06	16.2	7.06	0.97	-111	4.98	11.2	200
1324	7.07	16.1	7.06	0.97	-111	4.95	10.26	200
1327	7.08	16.2	7.06	0.98	-112	4.86	8.93	200
1330	7.09	16.2	7.07	0.98	-112	4.79	8.86	200
1333	<del>7.09</del> 7.10	16.2	7.08	0.98	-112	4.74	8.26	200
1336	7.10	16.1	7.07	0.98	-112	4.68	7.49	200
1339	7.10	16.2	7.07	0.99	-113	4.61	7.22	200

## Water sample:

Time collected: 1420Total volume of purged water removed: 0.5 gal

Physical appearance at start

Color Colorless  
 Odor N

Sheen/Free Product N/A

Physical appearance at sampling

Color Colorless  
 Odor MGP

Sheen/Free Product N/A

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Duplicate Taken



**O'Brien & Gere Engineers, Inc.**

## Low Flow Ground Water Sampling Log

Date	<u>11/2/05</u>	Personnel	<u>Scott Tucker/Jay Kavanaugh</u>	Weather	<u>Sunny/Breezy 40°F</u>
Site Name	<u>South First Street</u>	Evacuation Method	<u>Low Flow</u>	Well #	<u>MW 4 (8ft)</u>
Site Location	<u>Fulton, NY</u>	Sampling Method	<u>Low Flow</u>	Project #	<u>1118/35165</u>

[illegible]

**Water sample:**

Time collected: 1420

Total volume of purged water removed: 6 gallons

Physical appearance at start

### Physical appearance at sampling

Color colorless

Color colorless

Odor W

Odor MPG

Shreen/Free Product	<i>NNN</i>
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Sheen/Free Product	N/N
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**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

**Notes:**

1 of 2

# O'Brien & Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 11/2/05 Personnel Scott Tucker/Jay Kavanaugh Weather Sunny/Breezy 40°F  
 Site Name South First Street Evacuation Method Low Flow Well # MW-4 (12')  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

### Well information:

Depth of Well \* 15.79 ft. \* Measurements taken from  
 Depth to Water \* 6.84 ft. ☒ Top of Well Casing  
 Length of Water Column 8.95 ft. ☐ Top of Protective Casing  
1.45 x 3 - 14.4 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min.)
0	6.84	15.2	6.90	1.10	-90	6.70	101.3	200
1507	6.99	15.5	6.91	1.13	-97	4.22	62.7	200
1510	7.00	15.7	6.92	1.15	-102	3.81	47.1	200
1513	7.00	15.8	6.96	1.16	-106	3.63	33.9	200
1516	7.01	15.9	6.97	1.16	-109	3.48	30.2	200
1519	7.01	15.9	6.99	1.15	-110	3.40	32.0	200
1522	7.03	15.9	7.01	1.12	-111	3.35	36.1	200
1525	7.03	16.0	7.01	1.08	-110	3.29	34.5	200
1528	7.03	15.9	7.01	1.07	-110	3.28	29.5	200
1531	7.03	15.9	7.01	1.06	-110	3.29	24.7	200
1534	7.03	15.9	7.01	1.05	-110	3.26	21.4	200
1537	7.03	15.9	7.02	1.04	-110	3.23	15.2	200
1540	7.04	15.9	7.02	1.04	-110	3.22	13.0	200
1543	7.04	15.9	7.02	1.04	-110	3.20	10.23	200
1546	7.04	15.9	7.02	1.03	-110	3.20	7.51	200
1549	7.04	16.0	7.02	1.03	-111	3.19	7.55	200
1552	7.04	15.9	7.01	1.03	-111	3.19	6.23	200
1555	7.04	15.9	7.01	1.03	-111	3.17	5.60	200
1558	7.04	15.9	7.01	1.03	-110	3.16	4.49	200
1601	7.04	15.9	7.01	1.03	-110	3.16	4.19	200

### Water sample:

Time collected: 1620 Total volume of purged water removed: 3.5 Gallons  
 Physical appearance at start Physical appearance at sampling  
 Color Colorless Color Colorless  
 Odor MPG Odor MPG  
 Sheen/Free Product N/N Sheen/Free Product N/N

### Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Possible sheen from <sup>page</sup> bucket



O'Brien & Gere Engineers, Inc.				Low Flow Ground Water Sampling Log				
Date	<u>11/02/05</u>	Personnel	<u>Scott Tucker/Jay Kavanaugh</u>	Weather	<u>Night calm &lt;40°F</u>			
Site Name	<u>South First Street</u>	Evacuation Method	<u>Low Flow</u>	Well #	<u>MW-5 <del>Calmax</del> 10 ft</u>			
Site Location	<u>Fulton, NY</u>	Sampling Method	<u>Low Flow</u>	Project #	<u>1118/35165</u>			
Well Information:								
Depth of Well *	<u>15.58</u> ft.	* Measurements taken from		<input checked="" type="checkbox"/>	Top of Well Casing			
Depth to Water *	<u>6.03</u> ft.			<input type="checkbox"/>	Top of Protective Casing			
Length of Water Column				<input type="checkbox"/>	(Other, Specify)			
Water parameters: Lower submersible pump slowly through stagnant water column Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute Collect readings at every three minute intervals								
Elapsed Time	Depth To Water $\pm .3\%$	Temperature $\pm .3\%$	pH $\pm .01$	Conductivity $\pm .3\%$	Oxidation Reduction Potential $\pm 10$	Dissolved Oxygen (mg/l) $\pm .0\%$	Turbidity (NTU) $\pm .0\%$	Flow Rate (ml/min).
0	6.03	14.5	6.87	0.639	-60	5.17	45.5	150
01716	6.18	14.8	6.74	0.628	-65	3.89	41.9	200
1721	6.20	14.9	6.76	0.615	-68	3.64	41.9	200
1724	6.20	15.0	6.79	0.610	-70	3.50	41.5	200
1727	6.22	15.1	6.81	0.609	-73	3.37	34.4	200
1730	6.22	15.2	6.83	0.603	-75	3.30	29.8	200
1733	6.23	15.2	6.84	0.600	-77	3.23	24.1	200
1736	6.23	15.3	6.85	0.600	-78	3.21	15.3	200
1739	6.23	15.2	6.88	0.594	-80	3.19	13.6	200
1741	6.23	15.2	6.88	0.591	-80	3.17	11.4	200
1744	6.24	15.3	6.90	0.603	-81	3.10	10.94	200
1747	6.24	15.3	6.90	0.592	-82	3.10	8.82	200
1750	6.24	15.3	6.89	0.588	-83	3.10	7.13	200
1753	6.24	15.2	6.90	0.591	-83	3.11	7.13	200
1756	6.24	15.1	6.90	0.590	-84	3.10	5.92	200
1759	6.25	15.2	6.90	0.596	-84	3.06	5.33	200
1802	6.25	15.1	6.91	0.588	-85	3.06	4.99	200
1805	6.25	15.2	6.92	0.588	-85	3.06	5.21	200
Water sample: <u>002</u> <u>.5</u> <u>.01</u> <u>.02</u> <u>.4</u> <u>1</u> Time collected: <u>1815</u> Total volume of purged water removed: <u>2 Gal</u> Physical appearance at start      Physical appearance at sampling Color <u>Colorless</u> Color <u>Colorless</u> Odor <u>MPG</u> Odor <u>MPG</u> Sheen/Free Product <u>N/A</u> Sheen/Free Product <u>Slight Sheen/N</u>								
Samples collected:								
Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH			
Notes:								

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

$$1 \text{ vol} = 3,55 \quad 3 \text{ vol} = 10,5$$

**Water sample:**

Time collected: 635 110

**Total volume of purged water removed:**

Physical appearance at start

### Physical appearance at sampling

Color colorless

**Color**

Odor no ~~no~~

**Odor**

Sheen/Free Product	no/no
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Sheen/Free Product

**Samples collected:**

**Notes:**

## Low Flow Ground Water Sampling Log

**Well Information:**

\* Measurements taken from

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

[illegible]

Color	Colorless
Odor	Sulfur
Product	N/A

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

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**O'Brien & Gere Engineers, Inc.**
**Low Flow Ground Water Sampling Log**

Date 11/1/05 Personnel Scott Tucker/Jay Kavanaugh Weather Partly Cloudy Breezy 56°F  
 Site Name South First Street Evacuation Method Low Flow Well # MW-7- (FF+)  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

**Well information:**

Depth of Well \* 16.02 ft.  
 Depth to Water \* ~~9.41~~ 7.67 ft.  
 Length of Water Column            ft.

\* Measurements taken from

<input checked="" type="checkbox"/>	Top of Well Casing
<input type="checkbox"/>	Top of Protective Casing
<input type="checkbox"/>	(Other, Specify)

**Water parameters:** Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature °C	pH	ms/cm Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l) <sup>φ</sup>	Turbidity (NTU)	Flow Rate (ml/min).
0	7.67	15.67	6.67	0.432	-400	0.98	35	250
1037	7.68	15.50	6.61	0.431	-46	0.00	20	200
1040	8.09	15.44	6.59	0.426	-65	0.00	16	200
1043	8.15	15.49	6.57	0.423	-63	0.00	9.8	200
1046	8.21	15.51	6.56	0.422	-73	0.00	7.4	250
1049	8.26	15.60	6.58	0.423	-79	0.00	8.0	250
1052	8.30	15.62	6.58	0.424	-83	0.00	5.8	250
1055	8.32	15.61	6.60	0.424	-84	0.00	5.7	200
1058	8.35	15.75	6.62	0.424	-88	0.00	6.5	200
1001	8.40	15.71	6.63	0.425	-89	0.00	2.8	200
1101	8.41	15.75	6.64	0.426	-91	0.00	5.9	200
1107	8.47	15.71	6.65	0.423	-91	0.00	5.6	200
1110	8.56	15.69	6.65	0.400	-91	0.00	4.2	200
1113	8.60	15.53	6.65	0.415	-91	0.00	5.6	200
1116	8.60	15.71	6.65	0.415	-91	0.00	6.0	200
1119	8.61	15.67	6.65	0.415	-91	0.00	6.6	200

**Water sample:**

 Time collected: 1130 1135

Total volume of purged water removed:

4 gallons
**Physical appearance at start**

Color colorless  
 Odor N  
 Sheen/Free Product N/N

**Physical appearance at sampling**

Color colorless  
 Odor sulfur  
 Sheen/Free Product N/N

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

**Water sample:**

Total volume of purged water removed: 12 Gallons

### Physical appearance at sampling

Color Colorless  
Odor N  
Sheen/Free Product N/A

**Samples collected:**

**Notes:**





## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

$$|v_{ol}| = 4.1 \quad 3v_{ol} = 12.3$$

**Water sample:**

**Total volume of purged water removed:**

Fellows

### Physical appearance at sampling

Color	brown / dark brown
Odor	organic / much
Product	no / no

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

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10/3

# O'Brien & Gere Engineers, Inc. Low Flow Ground Water Sampling Log

Date 11/1/05 Personnel Scott Tucker/Jay Kavanaugh Weather Rainy 45°F  
 Site Name South First Street Evacuation Method Low Flow Well # NW-3D  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

## Well Information:

Depth of Well \* 33.1 ft. \* Measurements taken from  
 Depth to Water \* 2.81 ft. ☒ Top of Well Casing  
 Length of Water Column 25.29 ft. ☐ Top of Protective Casing  
25.29 x 0.163 = 4.12g x 3 = 12.4 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature °C	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	7.81	12.4	6.90	0.92	29	12.92	411	200
1422	10.41	12.2	7.38	0.848	-8	10.46	220	200
1425	11.14	12.2	7.47	0.848	-20	9.67	103.5	200
1428	11.95	12.1	7.44	0.840	0	7.819	75.2	200
1431	12.91	12.7	7.43	0.837	-3	8.48	44.6	200
1434	13.79	12.0	7.45	0.836	-16	8.02	44.6	200
1437	14.35	12.0	7.54	0.834	-22	7.02	42.6	200
1440	15.21	12.0	7.56	0.832	-29	7.33	42.1	200
1443	15.81	12.0	7.63	0.830	-41	7.10	38.1	200
1446	16.37	12.0	7.64	0.829	-46	6.84	37.7	200
1449	16.67	11.9	7.69	0.829	-52	6.62	35.3	200
1452	17.38	11.9	7.72	0.830	-58	6.40	35.2	200
1455	17.96	11.9	7.81	0.828	-64	6.24	35.3	200
1458	18.23	11.9	7.80	0.828	-67	6.04	36.7	200
1501	19.21	11.8	7.86	0.825	-71	5.93	34.6	200
1504	19.51	11.7	7.84	0.827	-76	5.65	35.5	200
1507	20.19	11.7	7.85	0.827	-80	5.49	34.9	200

Water sample:  
 Time collected: \_\_\_\_\_ Total volume of purged water removed: \_\_\_\_\_  
 Physical appearance at start \_\_\_\_\_ Physical appearance at sampling \_\_\_\_\_  
 Color colorless Color \_\_\_\_\_  
 Odor N Odor \_\_\_\_\_  
 Sheen/Free Product N/N Sheen/Free Product \_\_\_\_\_

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:

**O'Brien & Gere Engineers, Inc.**

## Low Flow Ground Water Sampling Log

Date 11/2/05

Personnel Scott Tucker/Jay Kavanaugh

Weather \_\_\_\_\_

Site Name South First Street

Evacuation Method Low Flow

Well # MW-8D

Site Location Fulton, NY

Sampling Method Low Flow

Project # 1118/35165

[illegible]

**Water sample:**

Time collected: \_\_\_\_\_

Total volume of purged water removed: \_\_\_\_\_

Physical appearance at start

### Physical appearance at sampling

**Color** \_\_\_\_\_

**Color** \_\_\_\_\_

Odor \_\_\_\_\_

Odor \_\_\_\_\_

Sheen/Free Product

Sheen/Free Product

**Samples collected:**

Samples Collected:					
Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

**Notes:**

**O'Brien & Gere Engineers, Inc.**

## Low Flow Ground Water Sampling Log

Date 11/2/05

## Personnel

**Scott Tucker/Jay Kavanaugh**

## Weather

Site Name South First Street

### Evacuation Method

### Low Flow

Well #

**Site Location** Fulton, NY

### Sampling Method

### Low Flow

Project #

1118/35165

[illegible]

**Water sample:**

Time collected:

**Total volume of purged water removed:**

Physical appearance at start

### Physical appearance at sampling

Color

Color

Odor

Odor \_\_\_\_\_

Sheen/Free Product

Sheen/Free Product

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

**Notes:**

## Low Flow Ground Water Sampling Log

Date	<u>11/03/05</u>	Personnel	<u>Scott Tucker/Jay Kavanaugh</u>	Weather	<u>Sunny/Breezy 70°F</u>
Site Name	<u>South First Street</u>	Evacuation Method	<u>Low Flow</u>	Well #	<u>MW-95</u>
Site Location	<u>Fulton, NY</u>	Sampling Method	<u>Low Flow</u>	Project #	<u>1118/35165</u>

**Well information:**

Depth of Well *	<u>17.69</u>	ft.
Depth to Water *	<u>6.95</u>	ft.
Length of Water Column	10.74	ft.

\* Measurements taken from

X	Top of Well Casing
	Top of Protective Casing
	(Other, Specify)

**Water parameters:**

Lower submersible pump slowly through stagnant water column

**Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute**

**Collect readings at every three minute intervals**

[illegible]

Water sample:	2.3	.4	.1	0.03	10	.4	1.5
Time collected:	1310			Total volume of purged water removed:			3 gall
Physical appearance at start				Physical appearance at sampling			
Color	colorless			Color	colorless		
Odor	N			Odor	N		
Sheen/Free Product	N/N			Sheen/Free Product	N/N		

**Samples collected:**

Samples collected:					
Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

**Notes:**

## Low Flow Ground Water Sampling Log

**Well information:**

\* Measurements taken from

**Water sample:**

**Samples collected:**

Notes: Lamant 20/20 used for Turbid. test

# O'Brien & Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 11/1/05 Personnel Scott Tucker/Jay Kavanaugh Weather Rainy 40°F  
 Site Name South First Street Evacuation Method Low Flow Well # MW 10 11Ft  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

### Well information:

Depth of Well \* 14.47 ft.  
 Depth to Water \* 4.14 ft.  
 Length of Water Column \_\_\_\_\_ ft.

\* Measurements taken from

☒ Top of Well Casing  
☐ Top of Protective Casing  
☐ (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
0	4.14	14.8	6.76	0.721	125	7.74	118	200
1700	7.40	14.9	6.66	0.696	132	6.50	119	200
1703	7.42	14.9	6.65	0.714	133	6.39	45.6	200
1706	7.43	15.0	6.62	0.689	141	6.08	54.4	200
1709	7.47	15.0	6.61	0.654	147	6.33	13.8	200
1712	7.49	15.1	6.60	0.653	151	6.34	13.8	200
1715	7.50	15.1	6.59	0.633	156	6.31	9.49	200
1718	7.50	15.1	6.59	0.635	160	6.35	7.50	200
1721	7.51	15.1	6.58	0.630	163	6.72	5.82	200
1724	7.51	15.2	6.57	0.632	166	7.03	6.07	200
1727	7.53	15.2	6.57	0.634	170	6.36	5.84	200
1730	7.54	15.2	6.56	0.635	172.0	6.28	6.20	200
1733	7.54	15.3	6.56	0.628	174	6.28	6.24	200
1736	7.55	15.3	6.56	0.628	177	6.25	6.22	200
1739	7.55	15.3	6.55	0.633	179	6.29	6.56	200
1742	7.57	15.3	6.55	0.626	181	6.18	6.50	200
1745	7.57	15.3	6.55	0.629	182	6.18	6.36	200
1748	7.58	15.3	6.55	0.623	184	6.16	4.47	200
1751	7.58	15.3	6.55	0.628	185	6.19	4.25	200
1754	7.61	15.3	6.55	0.625	187	6.16	3.63	200

### Water sample:

Time collected: 1815 Total volume of purged water removed: 394 liters  
 Physical appearance at start Physical appearance at sampling  
 Color colorless Color colorless  
 Odor N Odor N  
 Sheen/Free Product N/N Sheen/Free Product N/N

### Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes:



**O'Brien & Gere Engineers, Inc.**

## Low Flow Ground Water Sampling Log

Date 11/1/03  
Site Name South First Street  
Site Location Fulton, NY

Personnel	<u>Scott Tucker/Jay Kavanaugh</u>
Evacuation Method	<u>Low Flow</u>
Sampling Method	Low Flow

Weather Rainy 40°F  
Well # MW 10 11ft  
Project # 1118/35165

[illegible]

**Water sample:**

Time collected:

**Total volume of purged water removed:**

Physical appearance at start

### Physical appearance at sampling

Color \_\_\_\_\_  
Odor \_\_\_\_\_

Color \_\_\_\_\_  
Odor \_\_\_\_\_

Sheen/Free Product

Sheen/Free Product

**Samples collected:**

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: Turbidity began to rise, other parameters stable - Sample 10

## Low Flow Ground Water Sampling Log

Weather p-sunny, windy, ~45°F  
Well # MLW-11 ~~11~~ (5')  
Project # 1118/35165

<input checked="" type="checkbox"/>	Top of Well Casing
<input type="checkbox"/>	Top of Protective Casing
<input type="checkbox"/>	(Other, Specify)

Color	<u>colorless</u>
Odor	<u>no</u>
Product	<u>no/no</u>

Notes: MS/MSD

## O'Brien &amp; Gere Engineers, Inc.

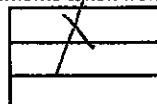
## Low Flow Ground Water Sampling Log

Date 11/2/04 Personnel Scott Tucker/Jay Kavanaugh Weather Clear, ~40°F  
 Site Name South First Street Evacuation Method Low Flow Well # MW-11- (10')  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

## Well Information:

Depth of Well \* 11.91 ft.  
 Depth to Water \* 1.04 ft.  
 Length of Water Column 10.87 ft.

\* Measurements taken from



Top of Well Casing  
 Top of Protective Casing  
 (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
16	1.04	13.60	6.15	0.249	21	0.00	59.2	200
19	1.04	13.49	6.12	0.246	21	0.00	47.8	200
22	1.04	13.36	6.12	0.245	20	0.00	37.9	200
25	1.04	13.34	6.12	0.244	19	0.00	33.2	200
29	1.04	13.23	6.13	0.244	17	0.00	27.6	200
32	1.04	13.16	6.14	0.244	15	0.00	24.7	200
35	1.04	13.07	6.14	0.243	14	0.00	22.9	200
39	1.04	13.16	6.16	0.242	11	0.00	21.1	200
42	1.04	13.15	6.17	0.242	10	0.00	20.5	200
45	1.04	13.09	6.17	0.241	9	0.00	16.4	200
48	1.04	13.11	6.18	0.240	8	0.00	14.7	200
51	1.04	13.08	6.18	0.240	6	0.00	13.3	200
54	1.04	13.04	6.18	0.240	5	0.00	12.4	200
57	1.04	13.06	6.18	0.240	4	0.00	11.3	200
00	1.04	13.03	6.19	0.240	4	0.00	11.2	200
03	1.04	13.06	6.19	0.239	3	0.00	8.93	200
06	1.04	13.03	6.19	0.239	2	0.00	8.54	200
09	1.04	13.05	6.19	0.239	1	0.00	8.84	200

## Water sample:

Time collected: 1745

Total volume of purged water removed:

25-3 gallons.

## Physical appearance at start

Color colorless  
 Odor no

## Physical appearance at sampling

Color colorless  
 Odor no

Sheen/Free Product noSheen/Free Product See notes

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: possible sheen on purge water

# O'Brien & Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 11/3/05 Personnel Scott Tucker/Jay Kavanaugh Weather Sunny ~65°F  
 Site Name South First Street Evacuation Method Low Flow Well # MLW-125 (12')  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

### Well Information:

Depth of Well \* 15.53 ft.  
 Depth to Water \* 4.37 ft.  
 Length of Water Column 11.16 ft.

\* Measurements taken from

☒ Top of Well Casing  
☐ Top of Protective Casing  
☐ (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
40	4.54	14.9	6.93	0.479	211	7.33	11.3	150
45	5.47	14.8	7.04	0.745	208	6.21	6.17	150
Start over, cell was leaking								
53	5.75	14.8	7.22	1.12	204	7.05	5.12	160
58	5.82	14.9	7.21	not working	207	7.27	4.16	100
03	5.83	15.0	7.25	0.275	205	8.40	4.04	125
08	5.79	14.9	7.23		205	8.29	3.59	125
13	5.65	15.0	7.26		204	8.36	3.94	75
18	5.63	15.0	7.24		206	7.87	2.96	125
23	5.63	14.9	7.26		206	7.84	2.97	125
28	5.71	15.0	7.26		209	7.94	2.78	125
Readings from Monitor U-22 S/N 0000012 (post sample) pump never turned off								
44	—	14.5	6.61	0.730	210	8.20	—	125
49	—	14.5	6.61	0.730	208	6.72	—	125
54	—	14.5	6.62	0.730	206	6.42	—	125

### Water sample:

Time collected: 1315 Total volume of purged water removed: ~1.5 - 2 gallons  
 Physical appearance at start Physical appearance at sampling  
 Color colorless Color colorless  
 Odor no Odor no  
 Sheen/Free Product no/no Sheen/Free Product no/no

### Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

### Notes:

## O'Brien &amp; Gere Engineers, Inc.

## Low Flow Ground Water Sampling Log

Date 11/3/05 Personnel Scott Tucker/Jay Kavanaugh Weather Sunny ~ 60°F  
 Site Name South First Street Evacuation Method Low Flow Well # mw-125 (8.5')  
 Site Location Fulton, NY Sampling Method Low Flow Project # 1118/35165

## Well Information:

Depth of Well \* 15.53 ft.  
 Depth to Water \* 4.06 ft.  
 Length of Water Column 11.47 ft.

\* Measurements taken from

☒ Top of Well Casing  
☐ Top of Protective Casing  
☐ (Other, Specify)

Water parameters: Lower submersible pump slowly through stagnant water column  
 Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
 Collect readings at every three minute intervals

Elapsed Time	Depth To Water	Temperature	pH	Conductivity	Oxidation Reduction Potential	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow Rate (ml/min).
24	5.40	14.5	6.90	12.01	127	4.12	16.6	200
27	5.74	14.5	6.96	89.4	140	3.83	10.6	200
30	5.89	14.5	7.07	53.1	145	3.84	9.34	150
33	5.95	14.5	7.09	31.3	156	3.75	7.27	175
36	6.03	14.6	7.12	41.6	165	3.05	6.883	200
39	6.12	14.6	7.16	24.2	171	3.19	5.74	200
42	6.18	14.7	7.18	19.1	174	3.84	4.25	200
45	6.26	14.7	7.22	14.6	177	3.10	3.48	200
48.50	6.42	14.8	7.24	3.97	178	3.11	3.06	225
51.53	6.51	14.8	7.26	4.12	177	3.27	3.34	200
56	6.59	14.8	7.26	2.83	175	3.25	3.83	200
59	6.64	14.8	7.29	3.19	171	3.03	3.96	200
02	6.75	14.8	7.31	3.00	169	3.23	3.87	200
05	6.95	14.9	7.33	2.06	167	3.45	5.79	200
10	7.02	14.9	7.41	2.25	164	3.38	7.70	125
17	7.04	14.9	7.40	1.50	177	3.70	7.19	125
22	7.10	14.9	7.41	1.47	185	4.17	5.74	125
27	7.11	15.0	7.41	1.68	190	4.10	4.99	125
32	7.08	15.0	7.45	2.13	192	4.66	4.78	125
37	7.02	15.0	7.47	2.80	196	5.05	4.57	125

## Water sample:

Time collected: 1045

Total volume of purged water removed:

~4.5 gallons.

Physical appearance at start

Physical appearance at sampling

Color colorless

Color

colorlessOdor none

Odor

noSheen/Free Product no/no

Sheen/Free Product

no/no

## Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Container pH

Notes: 933 - lowered pumping rate to 125ml/min to reduce drawdown



## Low Flow Ground Water Sampling Log

**Well information:**

**Water parameters:** Lower submersible pump slowly through stagnant water column  
Position pump in center of screened interval & maximum pumping rate of 0.5 liters/minute  
Collect readings at every three minute intervals

**Water sample:**

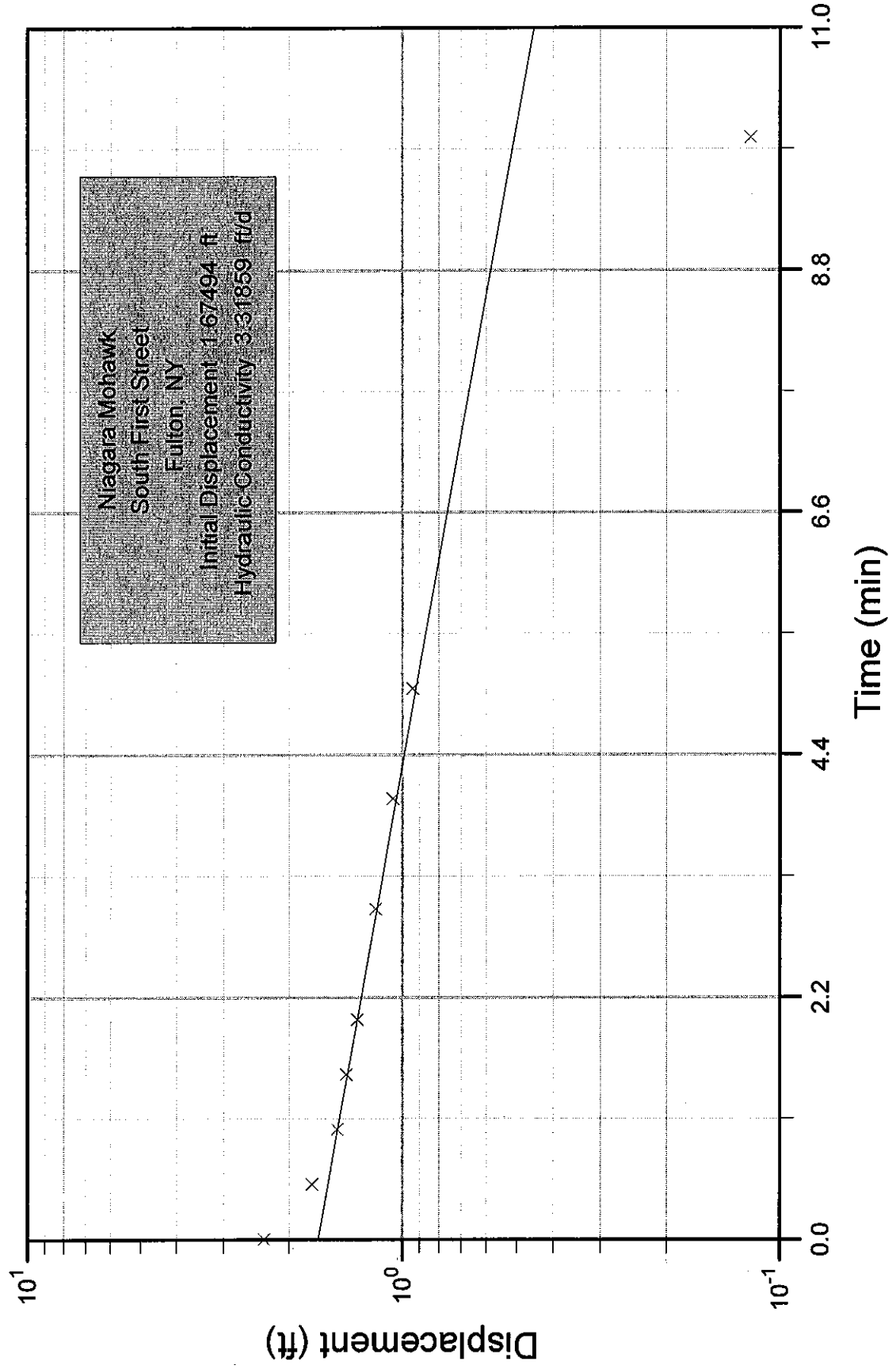
**Samples collected:**

**Notes:**

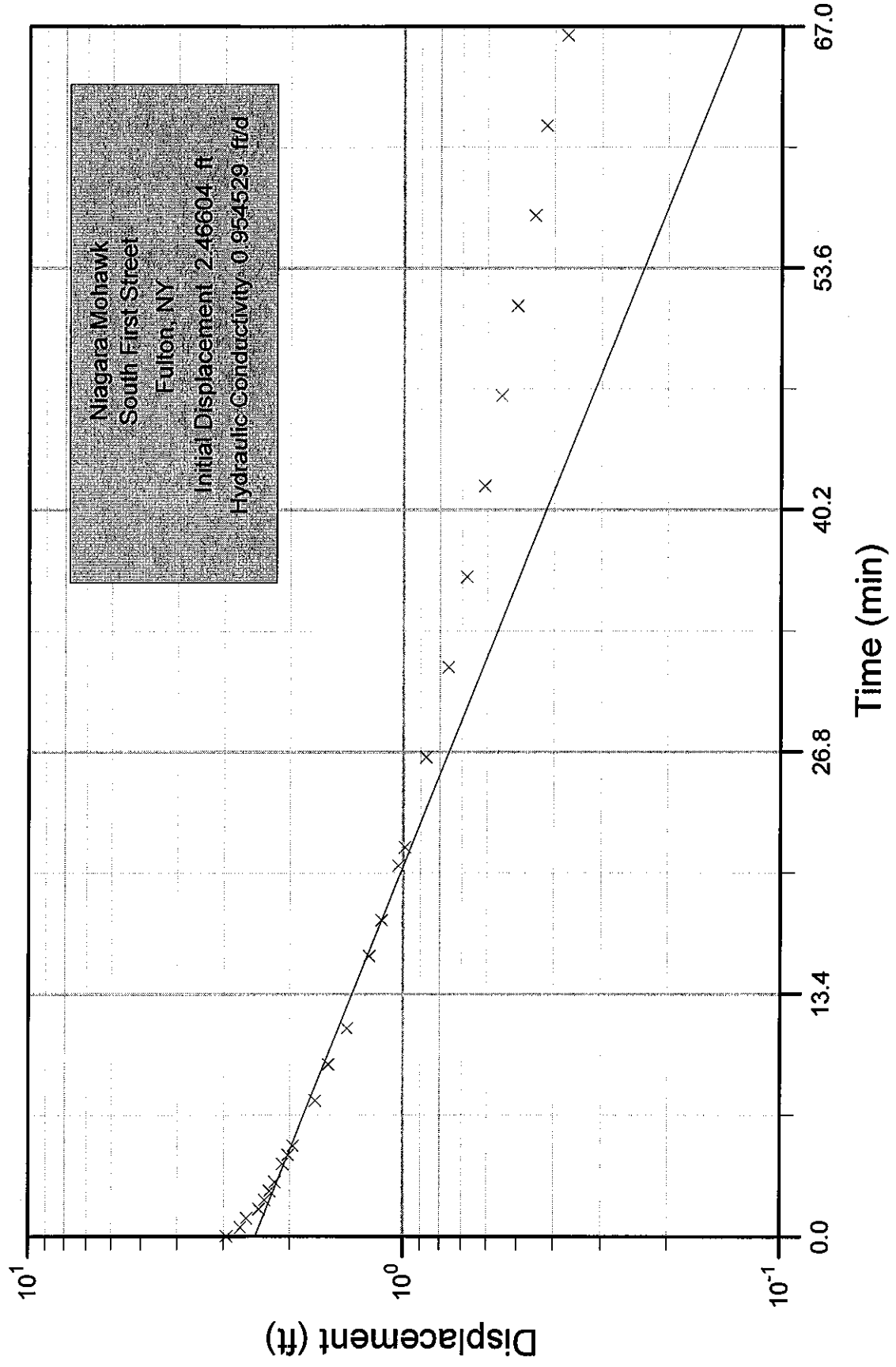
## **Hydraulic conductivity test plots**



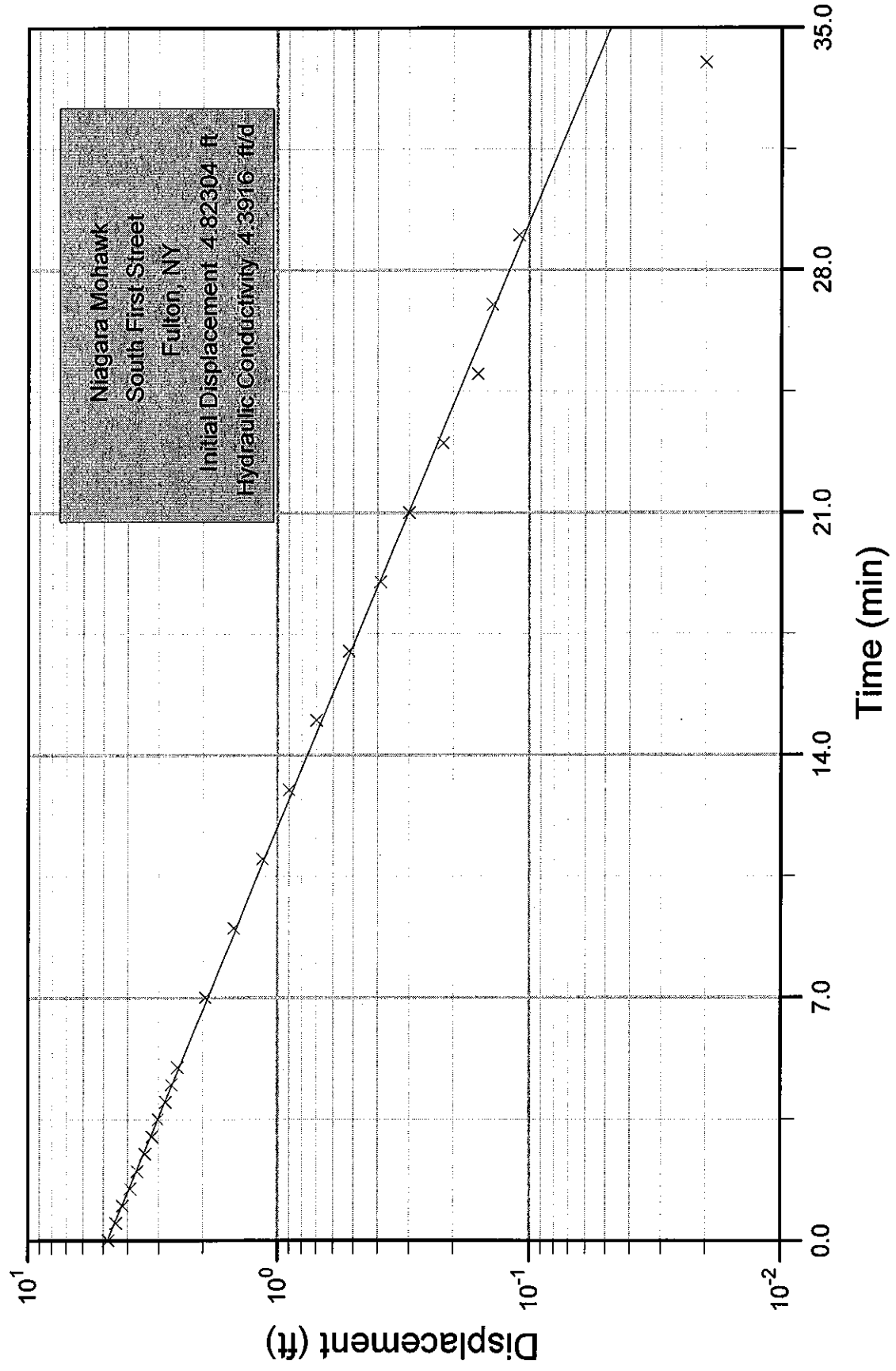
# MW-3 Slug Test (2004)



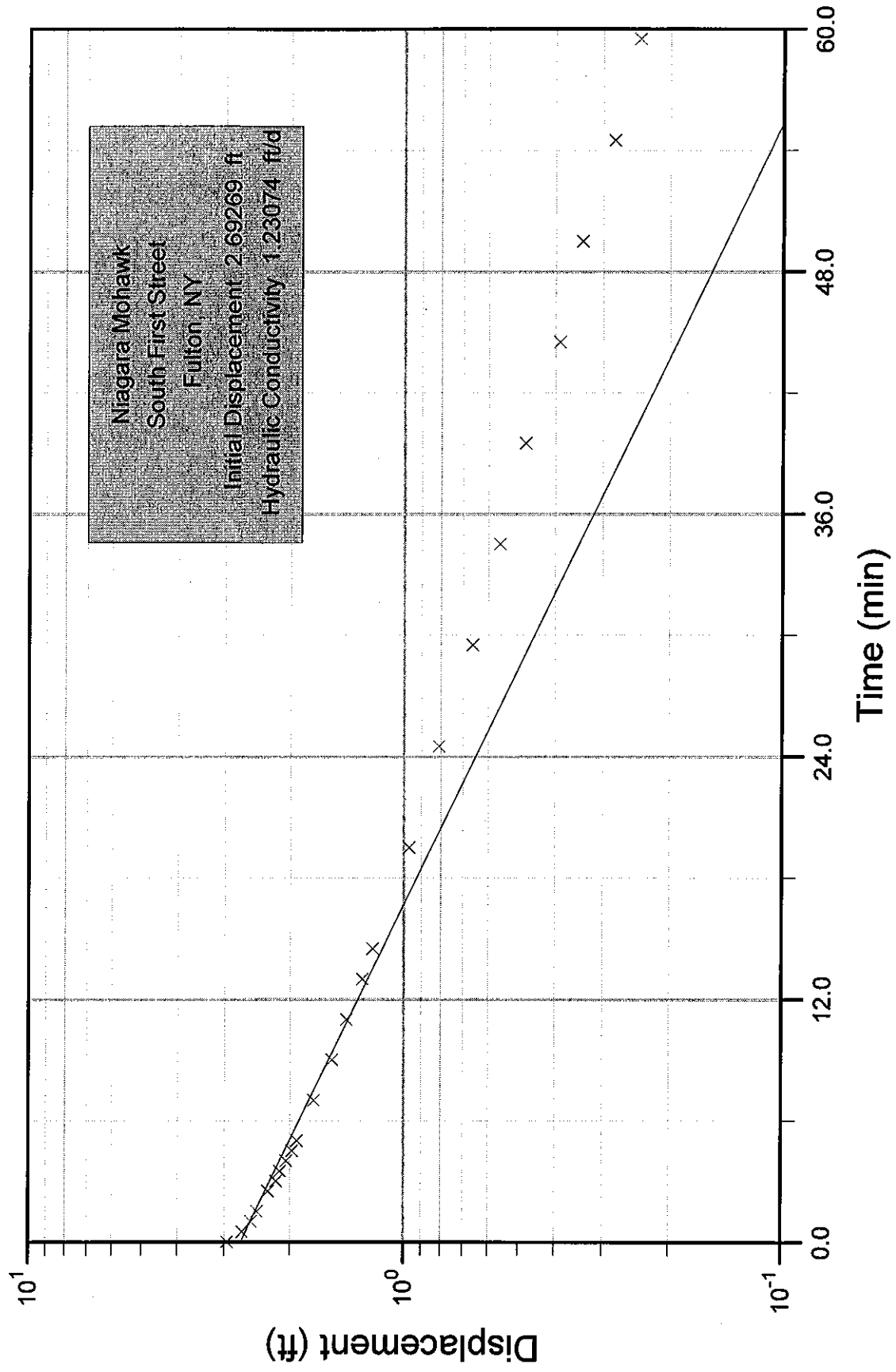
# MW-7 Slug Test (2004)



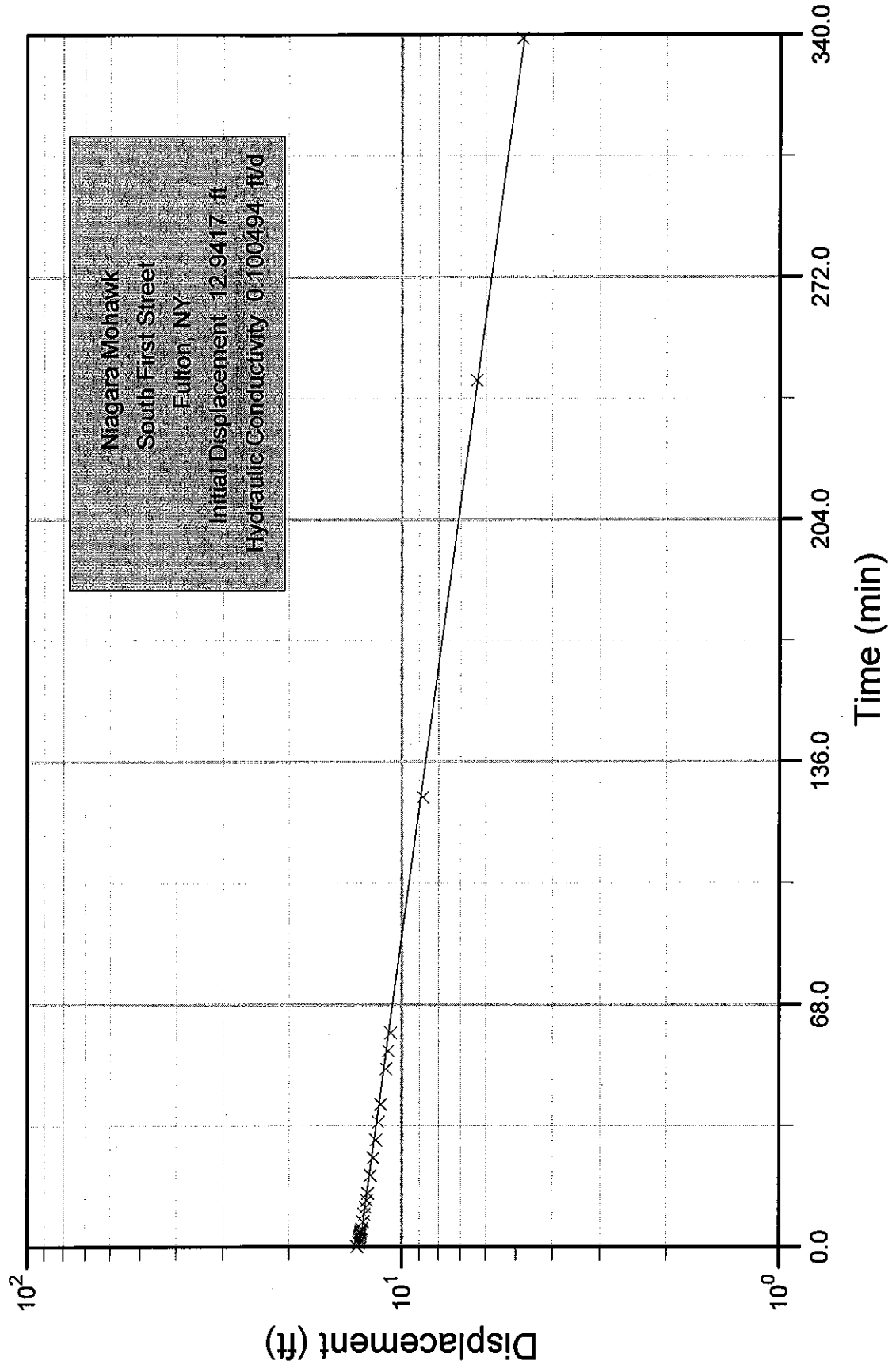
# MW-7D Slug Test (2004)



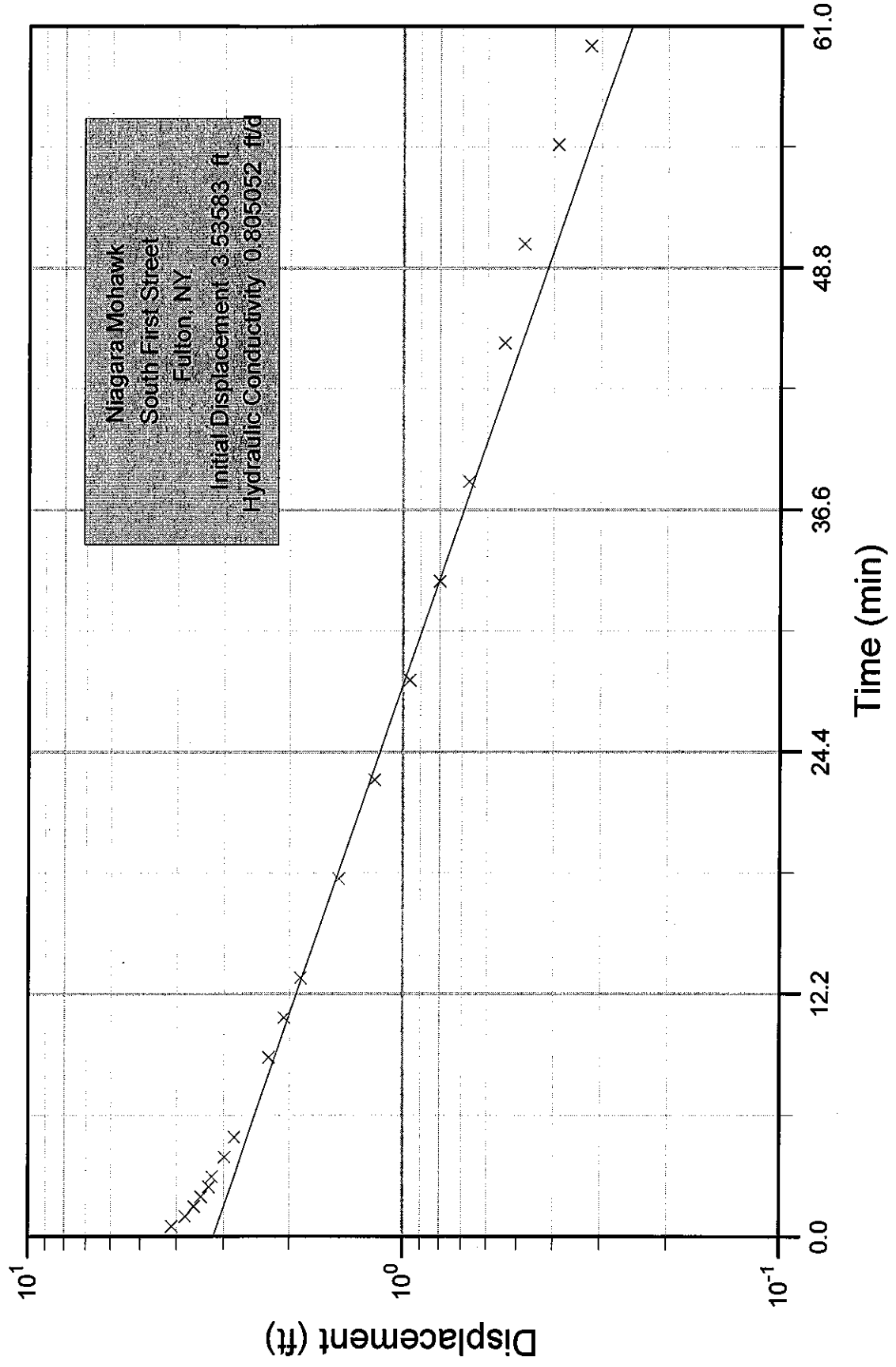
# MW-8 Slug Test (2004)



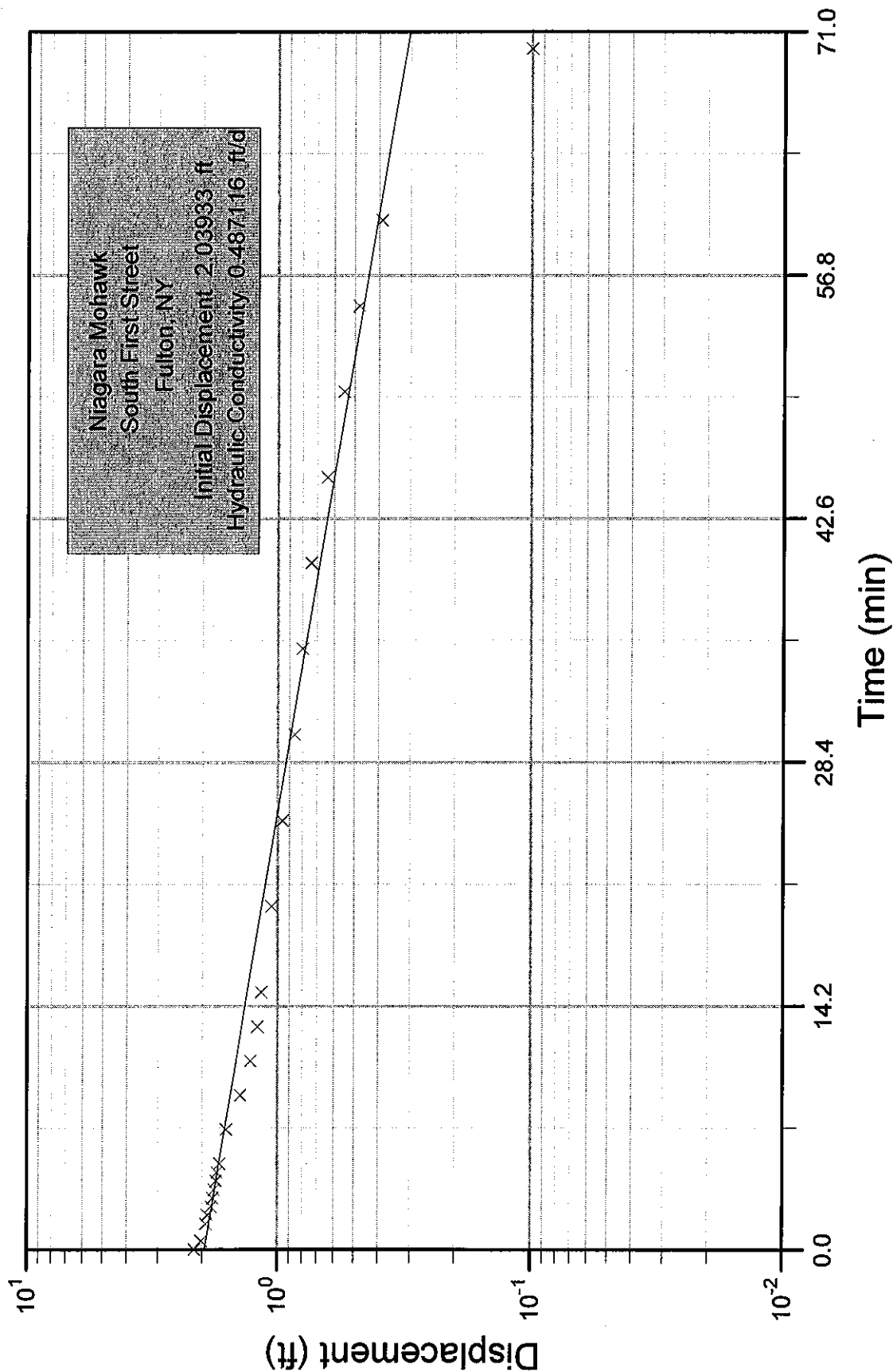
# MW-8D Slug Test (2004)



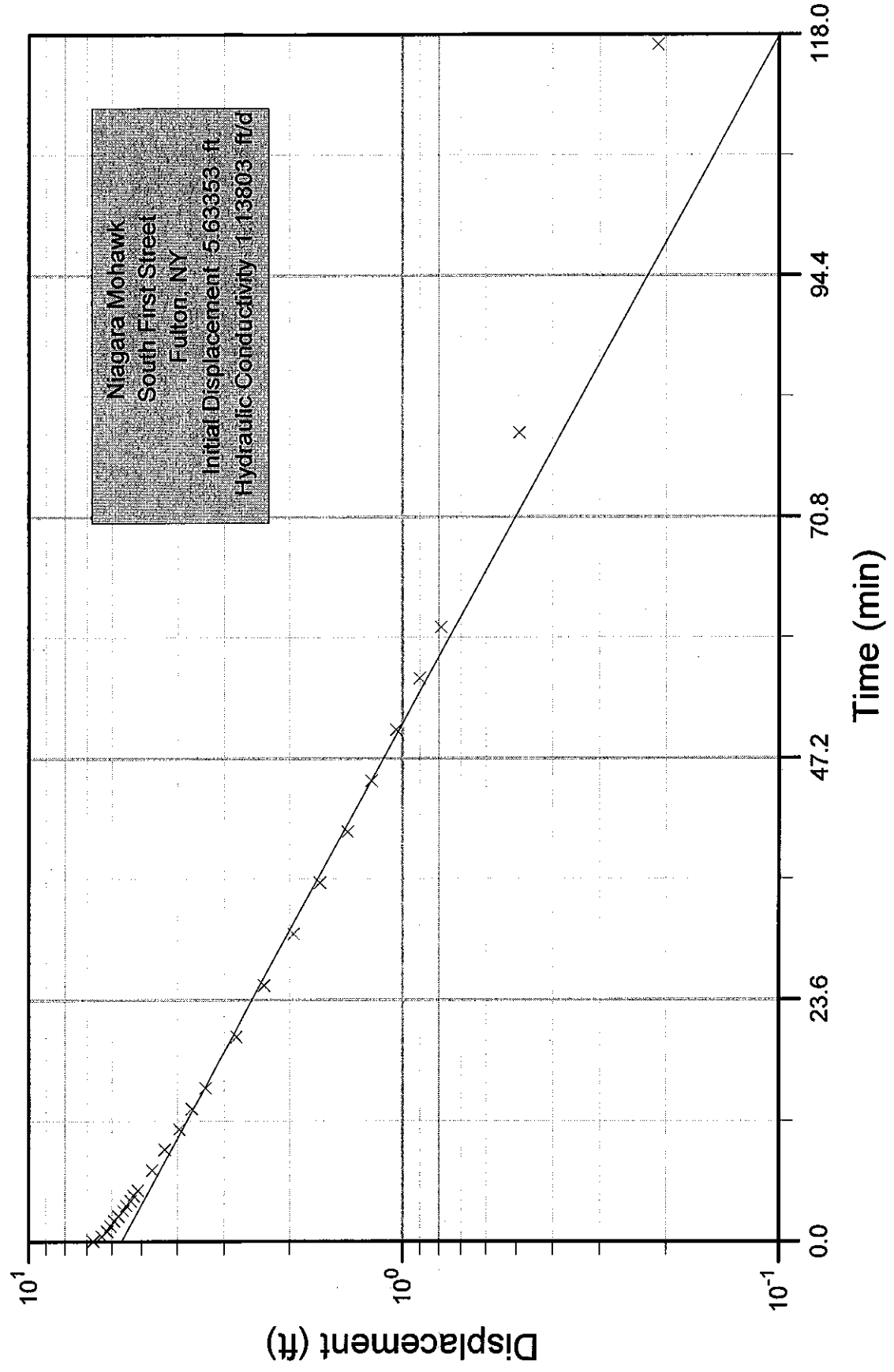
# MW-9S Slug Test (2004)



# MW-12S Slug Test (2004)

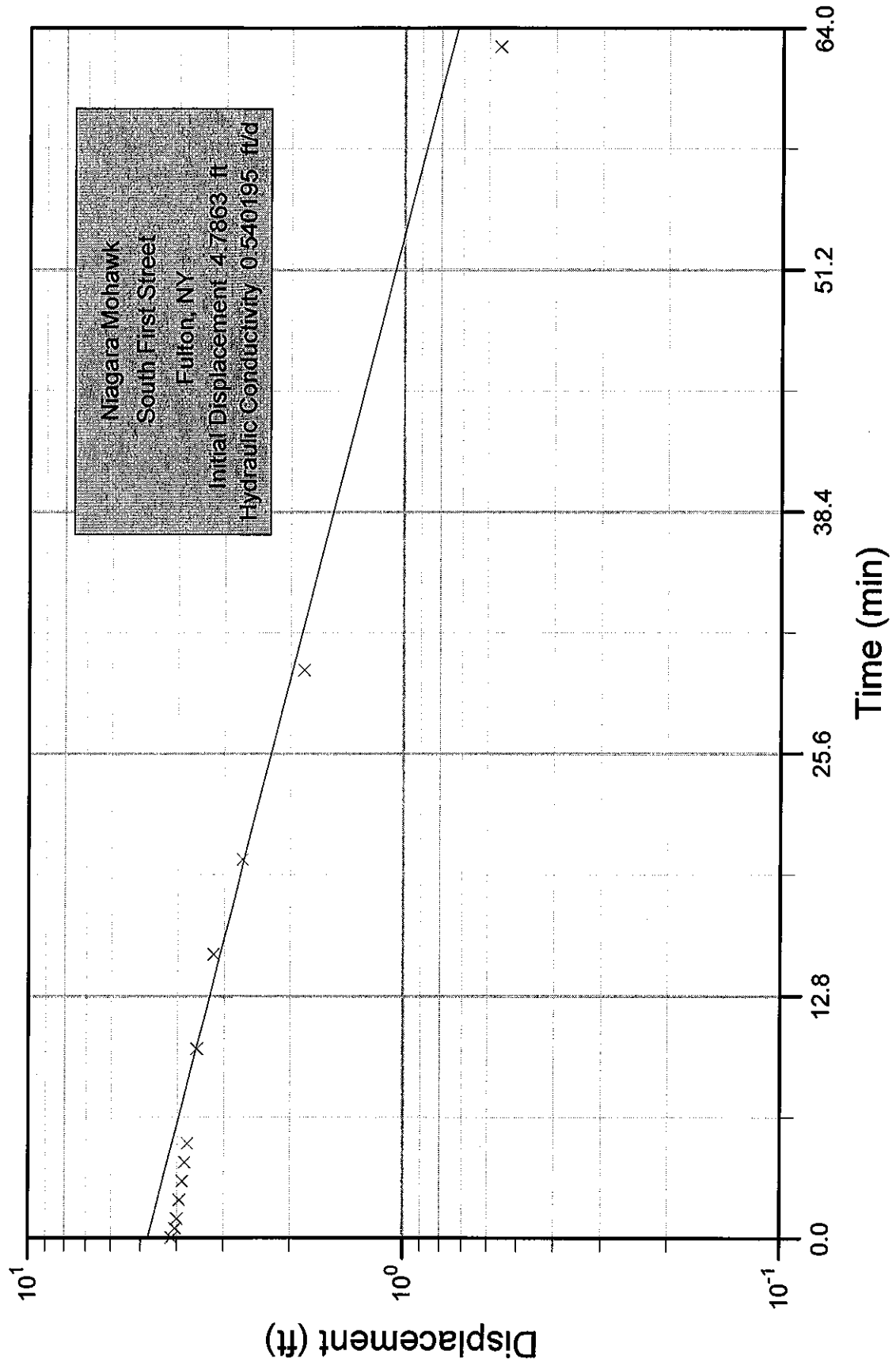


# MW-12D Slug Test (2004)

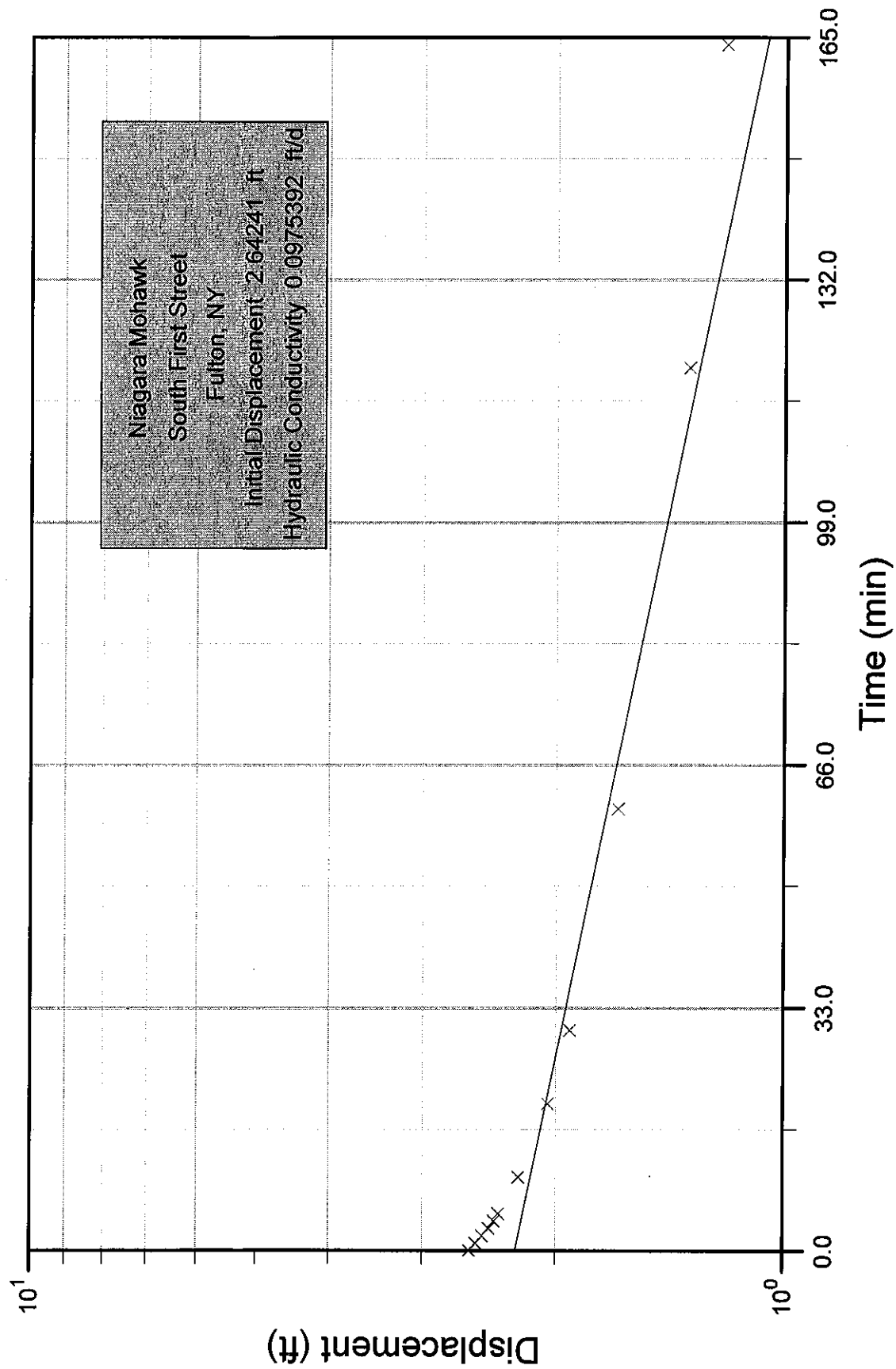




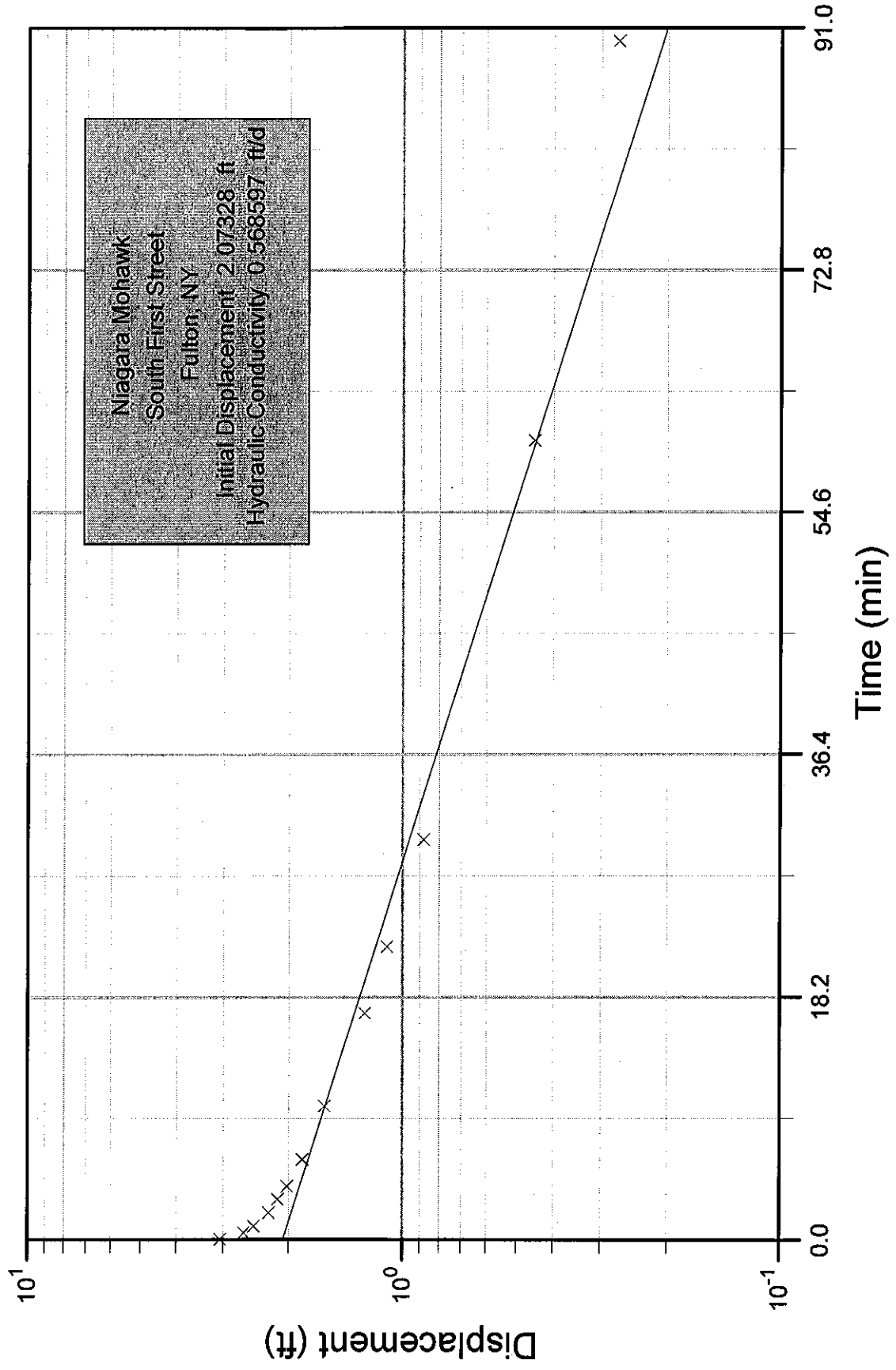
# MW-1 Slug Test (1998)



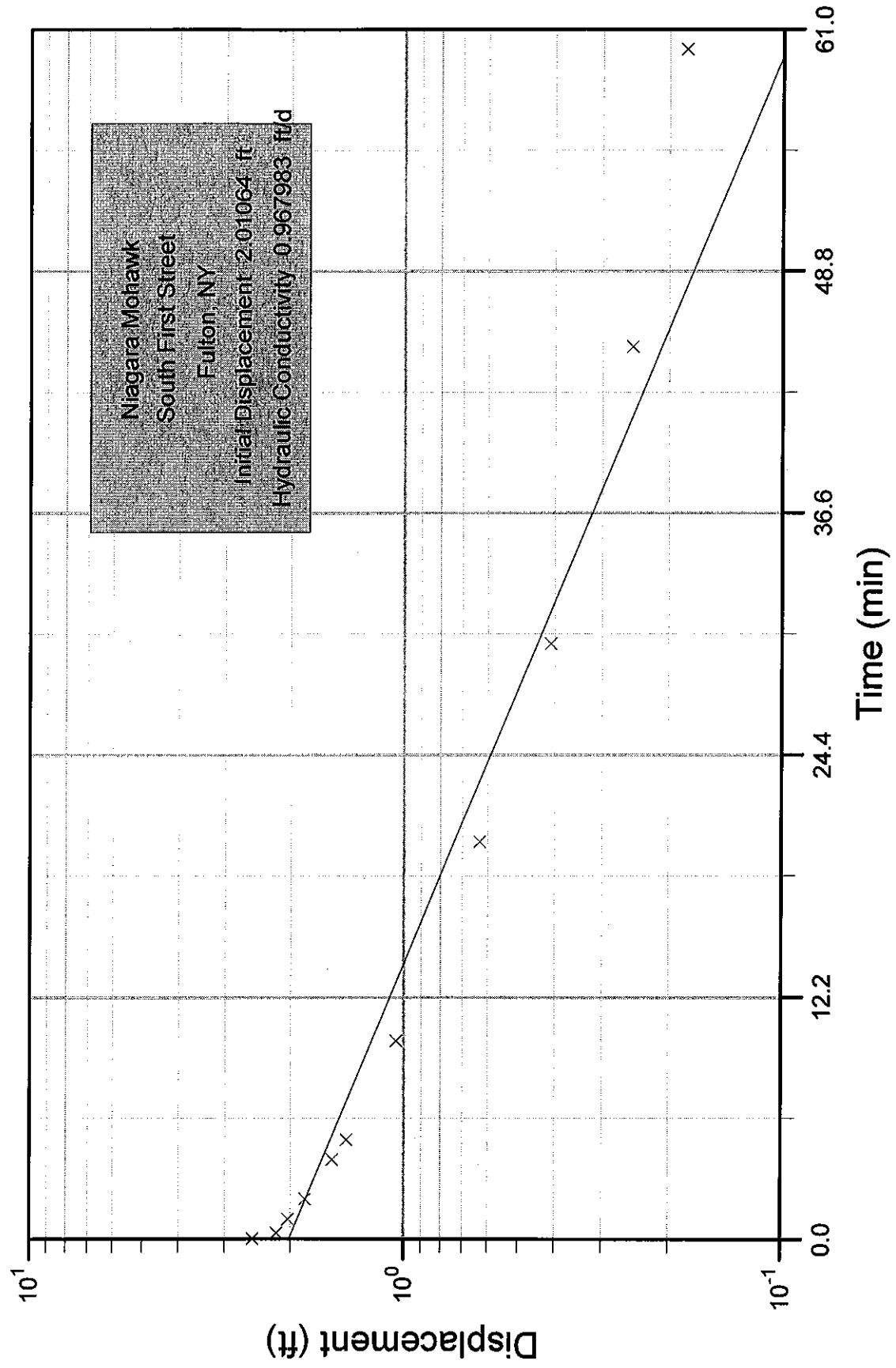
# MW-6 Slug Test (1998)



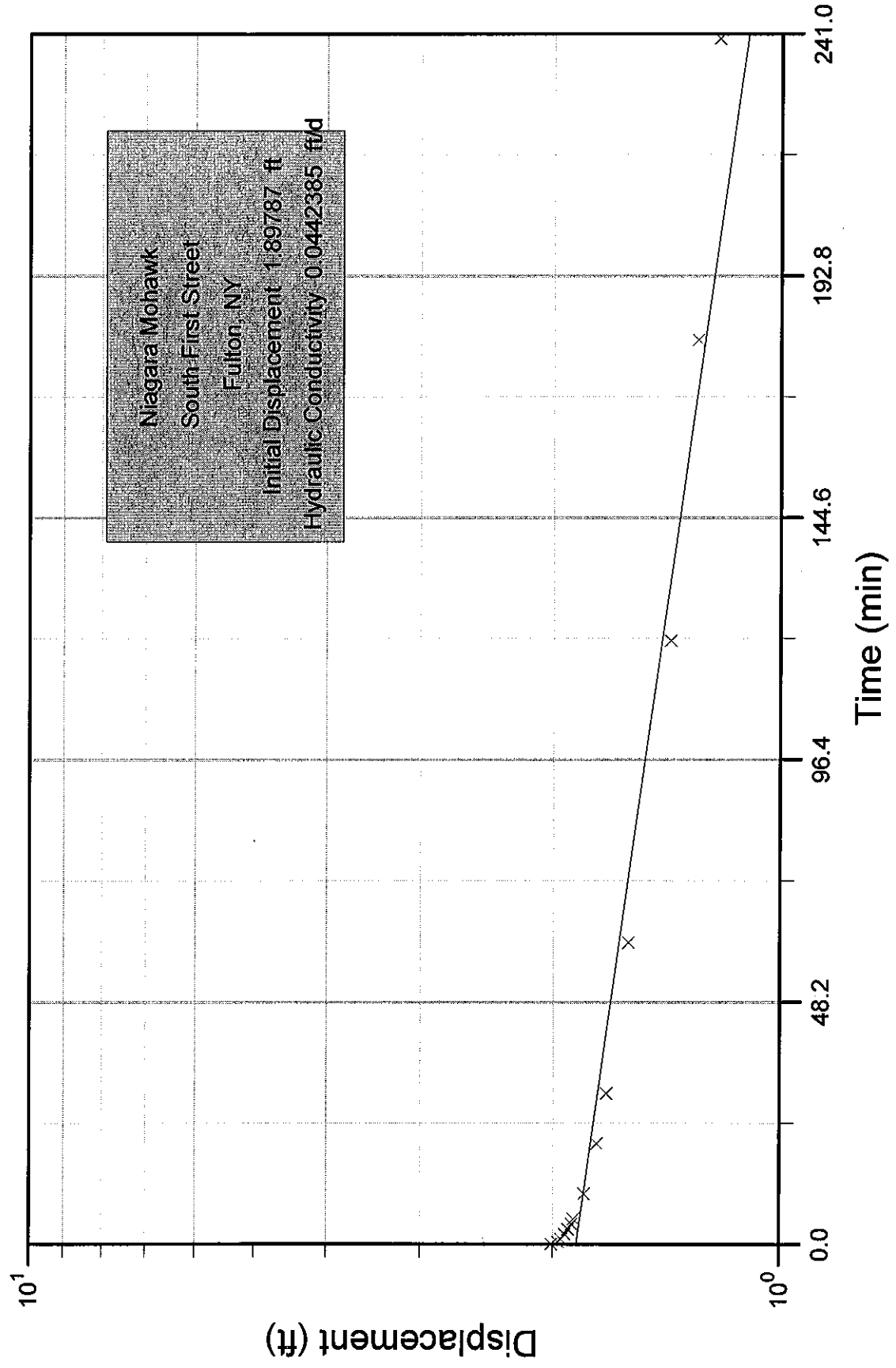
# MW-7 Slug Test (1998)



# MW-9S Slug Test (1998)



# MW-9D Slug Test (1998)



**Sediment coring logs & photos**

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	BK1	05/24/01 0945	overcast & light rain
Water Depth	Core Type		
2.5'	Auger		
Penetration Depth	Length Recovered	GPS Coordinates	
6"	~6"	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
0-6	<p>Medium brown silt w/ some light brown silt and trace gravel. White fleck of unknown material observed.</p> <p>Location: South (opposite) shore of river approx. 20 ft downstream of marker buoy 75 (green) and marker 76 (red). Sample collected approx 10 ft from shore w/ clump of maple trees at upstream end of lot for white house w/ deck &amp; brown house downstream. Upstream house w/ mural on side.</p>	<p>photo 11</p> <p>photo 12</p>	

Sampler Initials:

WAB KRH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	BK2	05/24/01 1030	Overcast
Water Depth	Core Type		
3 ft	Auger		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5'	~0.5'	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
<div style="border: 1px solid black; padding: 5px; margin: 5px;">           0-1" 1-6"         </div>	<p>Surface consists of gravel medium brown silt w/ Some fine sand, trace white flecks &amp; twig.</p> <p>Location Description: ~10 from south shore at white ranch house opposite gray house (north shore) marker tag in middle of photo</p>	<p>photo 13</p> <p>Photo 14</p>	

Sampler Initials:

WAA / KRN



**Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log**

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	BK3	05/24/01 1110	overcast light breeze
Water Depth	Core Type		
7	Auger		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5'	- 0.5	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
Surf. 1-6"	Surface = brown silt w, twigs firm gray clay with root material.	photo 16	
	Location Description: North shore in front of cream house w, blue trim w/ lawn fronting river. Location sampled at left of photo (tagged)	photo 15	

Sampler Initials: WAA/KRH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	BK4	05/24/01 1135	Overcast/ SOME CLEARING
Water Depth	Core Type		
1ft	AUGER		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5	0.5	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
<div style="border: 1px solid black; padding: 5px; margin: 5px;">           Surf. ~ 1-4 4-6         </div>	surface = gravel brown medium SAND w/ some brown clay	gravel no photo	
<p>LOCATION:            North Shore ~ 2 ft from shore            in line with middle of three poplar            TREES. Location approximate to downstream            property boundary of white house            (cream colored house upstream, brown house downstream)</p> <p style="text-align: right;">photo 17</p>			

Sampler Initials: WAA/KRH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	SD2-10	05/24/01 1405	SUNNY
Water Depth	Core Type		
3ft	AUGER		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5 ft	~0.5 ft	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description		Comments
0-6"	GRAVEL/ROCKS AND MEDIUM BROWN SAND		PHOTO 18
	rocks at 10ft from shore Sample relocated @ ~8ft from shore		

Sampler Initials: WAA/KRH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	SD 2-22	05/24/01 1430	SUNNY & BREEZY
Water Depth	Core Type		
7.5 ft	AUGER		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5 ft	~ 0.5 ft ~ 0.5 ft NAM ~ 0.2 ft NAM	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
0-5"	rocks and gravel w/ some dark brown sand and organic materials (Roots & twigs)	PHOTO 19	
5-6"	MEDIUM brown sand		
	COMPOSITE OF THREE GRABS		

Sampler Initials:

WAA/KRH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	SD 3-25	05/24/01 1500	SUN & BREEZE
Water Depth	Core Type		
7.0 ft	Auger		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5 ft	0.3-0.5 ft	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
0.0-0.5 ft	MIXTURE OF GRAVEL AND BROWN SAND W/ SOME Rocks, twigs, roots, shells TRACE shell observed in sample bowl during collection of sample. COMPOSITE OF TWO GRABS	# PHOTO 20	

Sampler Initials: WAB/KRH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	SD4-0	05/24/01 1520	SUN & BREEZE
Water Depth	Core Type		
~1 ft	AUGER		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5 ft	0.5 ft	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
0-0.5'	BROWN SAND AND gravel with some organic matter (twigs/roots)  BLIND DUPLICATE COLLECTED AS SEPARATE GRAB	Photo # 21	

Sampler Initials: WAA / KRIH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	SD7-5 <del>SD7-NAN</del>	05/24/01 1545	SUN & BREEZE
Water Depth	Core Type		
1.5 fr	AUGER		
Penetration Depth	Length Recovered	GPS Coordinates	
0.5 fr	0.5 fr	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description	Comments	
0-0.5'	BROWN SAND & GRAVEL W/ SOME ROCKS Shell fragments, twigs	PHOTO # 22	

Sampler Initials: WAA/KRH

Niagara Mohawk Corporation  
Former MGP Site - Fulton, New York  
Oswego River: Sediment Coring Log

Sampling Program	Sample ID Number	Date/Time	Weather Conditions
	EGBL	05/24/01	SUN & BREEZE
Water Depth	Core Type		
—	—		
Penetration Depth	Length Recovered	GPS Coordinates	
—	—	Northing/Lat. = Easting/Long. =	
Core Section Interval	Visual Description		Comments
	Rinse Sample of two stainless steel bowls, 2 spoons, & auger.		

Sampler Initials: WJA/KRH





1. Sediment sample BK1.



2. Sediment sample BK1 collected approx. 10 ft from south shore near base of clump of Maple trees.





3. Sediment sample BK2.



4. Sediment sample BK2 collected approximately 10 ft from south shore in near clearing at center of photo.





5. Sediment sample BK3.



6. Sediment location BK 3 collected near flagging located at left of photo.





7. Sediment sample BK4 located approximately 2 ft from north shore perpendicular to middle Poplar Tree.





8. Sediment sample SD2-10.



9. Sediment sample SD2-22.





10. Sediment sample SD3-25.



11. Sediment sample SD4-0.





12. Sediment sample SD7-5.



13. Sediment auger with polycarbonate tubing used to collect sediment samples (file photograph).

## **Cultural resource assessment**





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# PUBLIC ARCHAEOLOGY FACILITY REPORT

Department of Anthropology  
State University of New York at Binghamton  
Binghamton, New York

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PHASE 1A CULTURAL RESOURCE ASSESSMENT  
SOUTH FIRST STREET SITE PROJECT  
FULTON, OSWEGO COUNTY, NEW YORK

PREPARED BY:

B. CURTIS WEST

PREPARED FOR:

O'BRIEN AND GERE ENGINEERS  
5000 BRITTONFIELD PARKWAY  
P.O. BOX 4873  
SYRACUSE, NY 13221

July 16, 1998



**PHASE 1A CULTURAL RESOURCE ASSESSMENT  
SOUTH FIRST STREET SITE PROJECT  
FULTON, OSWEGO COUNTY, NEW YORK**

**Permit Applicant:** O'Brien and Gere Engineers, Inc.  
**Permit Number:**  
**Location:** Fulton (C), Oswego County (MCD 07541)

**Report prepared by:** B. Curtis West  
**Date:** July 15, 1998  
**Affiliation:** Public Archaeology Facility  
Binghamton University  
Binghamton, New York 13902-6000  
(607) 777-4786

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**PROJECT SUMMARY**

A Phase 1A cultural resource assessment was requested for the proposed South First Street Site project in the City of Fulton, Oswego County. The area consists of a vacant lot on the east side of South First Street, and a church property on the west side of the street, which contains a portion of the towpath of the Oswego Canal and abuts the Oswego River. The surrounding area is mixed residential and commercial. Fulton lies on the edge of the generally flat Erie-Ontario Lake Plain. The city is located atop a small escarpment through which cuts the Oswego River on its course to Lake Ontario. Background research into the prehistory of the surrounding area indicated that the parcel is situated in a zone of high prehistoric sensitivity. Twelve known prehistoric sites are located along and near this portion of the Oswego River. Background research into the history of the surrounding area indicated that the parcel is situated in a zone of high historic sensitivity, as it has been heavily used as a transportation route from colonial exploration through the development of the railroad. Four known historic sites are located within 3.2 km (2 mi) of the project area, ranging from a mid 18<sup>th</sup> century British fort to 19<sup>th</sup> century industrial sites. Fulton served as an important commercial and industrial center for the county during the 19<sup>th</sup> and into the 20<sup>th</sup> century.

The South First Street Site is located near to or at the location of the upper landing of the portage route around the Oswego Falls, and is considered to be an area of high sensitivity for both prehistoric and early historic archaeological sites associated with the river and the portage location. An archaeological reconnaissance including subsurface testing is recommended in the western parcel to identify the presence of these potential archaeological resources within the project area.

## Part 1: DOCUMENTARY RESEARCH ADDENDUM SITE IDENTIFICATION

### A. Documentary Research Addendum

#### 1. ..X.. Local site inventory checked (specify)

Public Archaeology Facility

#### ..X.. Division for Historic Preservation

National Register of Historic Places

#### ..X.. New York State Museum

#### 2. .... Informants interviewed (name, address, specialty)

#### 3. ..X.. Other sources checked (specify)

- 1900 Beauchamp, William M. Aboriginal Occupation of New York in *Bulletin of the New York State Museum*, No. 32, Vol. 7. University of the State of New York, Albany.
- 1866 Child, Hamilton *Child's Gazetteer and Business Directory of Oswego County, N. Y. 1866-67*. Oswego Daily Commercial Advertising Office, Oswego, NY.
- 1895 Churchill, John C. (editor) *Landmarks of Oswego County, New York..* Albany, NY.
- 1877 Everts, L. H. & CO. *History of Oswego County, New York..* Philadelphia,, PA
- 1949 French, M. J. *Champlain's Incursion Against the Onondaga*. Ann Arbor, MI.
- 1993 Funk, Robert E. *Archaeological Investigations in the Upper Susquehanna Valley, New York State*. Persimmon Press, Buffalo.
- 1997 Hohman, Christopher D. *The Archaeology of the Niagara House Block, City of Niagara Falls, New York*. Public Archaeology Facility, Binghamton University, Binghamton.
- 1873 Hough, Franklin B. *Gazetteer of the State of New York*. New York, NY.
- 1996 Mann, Rob *Archaeological Excavations at the Ehler Site (12-HU-1022) An Early 19<sup>th</sup> Century Miami Indian Habitation Site Near the Forks of the Wabash, Huntington County, Indiana*. Prepared by Landmark Archaeological and Environmental Services, Inc. for the Indiana Department of Transportation.
- 1853-1883 O'Callaghan, E. B. Editor, *Documents Relative to the Colonial History of New York*. Albany, NY.
- 1920 Parker, Arthur C. The Archaeological History of New York in *The New York State Museum Bulletin*, Nos. 237, 238. The University of the State of New York, Albany.
- 1983 Riordan, Timothy B. "An Equal Space on Each Side of Your House;" A Brief Survey of the Potential for Archaeological Research in an Urban Setting. *Proceedings of the Symposium on Ohio Valley Urban and Historic Archaeology*. University of Louisville, Louisville, KY.

- 1980 Ritchie, William. *The Archaeology of New York State*.
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- 1970 Stewart, Alexander M. *French Pioneers in the Eastern Great Lakes Area 1609-1791*. The New York State Archeological Association, Rochester, NY.
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- 1867 Stone, C. K. *Atlas of Oswego County, New York*
- 1987 Tanner, Helen Hornbeck *Atlas of Great Lakes Indian History* University of Oklahoma Press, Norman, OK.
- 1971 Tuck, James *Onondaga Iroquois Prehistory, A Study in Settlement Archaeology*. Syracuse University Press, Syracuse, NY.
- 1955 USGS. *7.5 minute, Fulton quadrangle*.
- 1991 West, Bryan C. *First Light on Anthony Wayne's Headquarters of Greene Ville: The Historic Archaeology of the Headquarters of the Legion of the United States (1793 to 1796)*. Ball State University, Muncie, IN.
- 1975 Wright, J. Leitch Jr. *Britian and the American Frontier 1783-1815* University of Georgia Press, Athens, GA.
- 1993 Wurst, Louann and Nina Versaggi. *Under the Asphalt: The Archaeology of the Binghamton Mall Project*. Prepared for the The City of Binghamton Urban Renewal Agency by the Public Archaeology Facility, Binghamton University, Binghamton.

#### **Results of Documentary Research: ENVIRONMENT AND SOILS**

The project is located in the City of Fulton on the east side of the Oswego River. The project lies on the glaciated Ontario Erie Lake Plain. The topography is flat to gently rolling. The elevation of the present project area is approximately 110 m (350 ft) ASL.

The project area for the proposed South First Street Site project was used historically for the last two centuries. This use may have started with camps for travelers taking the portage around the Oswego Falls and continued through to the development of the commercial use of the area with the construction of the Oswego Canal. The area has been in mixed residential and commercial use throughout the 20<sup>th</sup> century. The present surface of the lot on the eastern side of First Street is covered by grass. The lot to the west is covered in grass and asphalt, and a metal building stands on the southern portion of this lot. To the rear of the western lot are the remains of the towpath of the Oswego Canal.

The soils of the entire project area are classified as "urban land" and are not typed by the USDA Soils Conservation Service. Subsurface testing of the site will be necessary to determine the existing soil profile, as well as to determine the potential for deep testing of buried alluvial deposits.



## **Results of Documentary Research: PREHISTORY**

The prehistory of New York State began about 10,000 B.C., when Paleo-indian hunting bands migrated into the area pursuing big game such as mammoth and mastodon. These animals became extinct around 8000 B.C. and an extended period of small game hunting, fishing and gathering of wild plants started within localized territories. Archaeologists believe that these small bands of people moved their camps seasonally along the rivers, tributary streams, lakes and swamps of New York. By 1000 A.D., prehistoric groups practiced horticulture, mainly the planting of corn, beans and squash. Sedentary villages replaced the nomadic hunting camps, and in some areas ceremonial sites including mound building and other earthen structures were constructed. Although land use tended to become more sedentary in the Woodland period, groups still went out on hunting and fishing trips lasting several days to several months. Resource areas such as the rivers on the great lakes were popular for abundant seasonal fish and ell runs, as was noted by early explorers at the Oswego Falls (Stewart 1970 ).

The proposed project is located on the east side of the Oswego River, an area that has a long history of land use during prehistory. Ritchie notes that paleo-indian points have been found along the Oswego River and other water resources in Oswego County (1971). Ritchie also notes that sites through the Archaic and Woodland periods have been found along the rivers that flow into Oneida Lake, which is situated approximately 24 km (15 mi) to the southeast of the project area (Ritchie 1971).

A site files search was conducted at the New York State Museum, and the Office of Parks and Recreation in Albany (see Attachment F), and at the Public Archaeology Facility at SUNY Binghamton. The site files note at least 12 known sites ranging from the Paleo-Indian through the Contact time periods (9000 B.C. - A.D. 1760) within 3.2 km (2 mi) of the project area. The sites range from isolated point finds to large, multicomponent villages. Parker (1920) notes that several of these sites (OSWG-7 , and OSWG-7B and OSWG-9), both prehistoric villages and mound sites, are identified along the Oswego River. The project area lies on the eastern bank of the Oswego River (see site files correspondence, Attachment F).

The area adjacent to the Oswego River was used heavily throughout prehistory. Given the project's proximity to the river and its location near known prehistoric sites, the potential for prehistoric cultural deposits from ephemeral (campsites, processing locations) sites to villages is considered to be high.

## **Results of Documentary Research: HISTORY**

The Oswego River and Falls have long been a conduit for travel from Lake Ontario, inland, to central New York State. This route was frequented by Native Americans and by those who wished to do business with them. The portage around the falls passed directly through the City of Fulton and was the primary reason for the settlement at this location.

The first European travelers to record the Oswego Falls in 1654 were Father Simon Le Moyne and his French Jesuit mission traveling to meet with the Oneida Indians (Churchill 1895) following the French and Iroquois Peace of 1653 (Stewart 1970). The River may have been the route of an earlier, and more famous Frenchman, Sieur Samuel de Champlain in 1615 (French, 1949). In that year, Champlain and a dozen Frenchmen accompanied a small army of Hurons in an attack against the Onondaga Iroquois (Stewart 1970). This raid on a fortified village of the Onondaga is argued by French to have been located on Lake Onondaga at modern Syracuse with the route up the Oswego River being the most direct way for an attack party coming from Lake Ontario. Others have argued that the objective was a fort on Nicholas Pond in Madison County to the north (Stewart 1970).



War between the French and the English led to the surrender of New France by Champlain in 1629, only to be given back over to France again in 1633. From 1634 into the 1640s, the French busied themselves with re-establishing their empire and missions among the Hurons, precluding the French from making inroads with the New York Iroquois (Stewart 1970).

The French had decided to create a Mission to the Onondaga, and to do so meant traversing the Oswego route from Lake Ontario to Lake Onondaga. Aside from the occasional explorer and war party, Le Moyne's 1654 trip was the first intended to establish a European colony in the area of the Onondaga (Stewart 1970). In 1656, twenty canoe loads of French colonists arrived in present-day New York in the area of the Salmon River. They followed the coast line to the mouth of the Oswego which they ascended to Lake Onondaga, reportedly stopping to camp at the portage at the Oswego Falls (Stewart 1970). The initial Onondaga Mission lasted for only twenty months, but from here other missions were made to the Cayuga, Oneida, and the Seneca (Stewart 1970).

Growing British influence with the Mohawk, following their conquest of the Dutch holdings along the Hudson river, led them to attempt expansion of trade to other Nations of the Iroquois. By the early 1700s, the British had established trade at the mouth of the Oswego River. A permanent presence was set up by Albany traders in 1720 and by 1722 they had established a military presence at the site named Fort Oswego (Snyder 1968).

During the French and Indian War, battles were waged off of Lake Ontario and along the Oswego River, with the military resources of the Northern colonies and the British army traveling to Oswego via the portage route at Oswego Falls (now Fulton). During the war, a post was built at the lower portage point, called Fort Bradstreet or Fort Oswego Falls (Everts 1877).

The trade route on the Oswego was to remain important between the French and Indian Wars and the Revolutionary War and still proved an important military artery between the Mohawk Valley and Lake Ontario (Everts 1877; Snyder 1968). During the Revolutionary War, the British and the colonists fought a number of battles at Fort Ontario (located at the confluence of Lake Ontario and the Oswego River). In 1782, an American assault was unsuccessful against the fort, stopping along the way to the fort at the upper portage at Oswego Falls to build siege ladders for the assault (Snyder 1968).

Between the revolution and the British surrender of the Fort at Oswego, American settlers began to make inroads along the Oswego River, and particularly at the portage. Lawrence Van Valfenburg maintained a tavern for river traffic at the Upper Portage at the Oswego Falls on the East bank of the river near Velverton Island (Everts 1877). Many Loyalists passed through the portage on their way to new lands in Canada, and many American settlers also passed this route on their journey to Northern Ohio with General Moses Cleveland (Snyder 1968). The salt trade from the salt springs on lake Onondaga became an important part of river commerce during the 1790s and would be a driving factor in the development of canal plans in the early 19<sup>th</sup> century (Everts 1877).

The Oswego River would once again become a contested site between the Americans and the British in the War of 1812. The Americans utilized the port at Oswego to harass Canadian shipping on the lake during 1812 and 1813. In 1814 the British, under General Drumond, attacked and burned the post and the town. The Americans fell back to Fulton to defend the river route and the towns of the interior; however, the British did not press the battle down the river (Snyder 1968; Wright 1975).

The Canal Era developed along the Oswego as a continuation of the flat boat trade, but traffic increased in 1794 with the completion of the Western Inland Navigation Company's canal and lock system that opened keel boat travel from Schenectady to Oswego Falls. The Falls were to be an obstacle on the river and the portage of goods was necessary until 1828, when the Oswego Canal locks were completed. This continued portage insured that a settlement



would grow at Fulton (Everts 1877; Snyder 1968).

Water power at the falls ushered in an era of industrial development within Fulton by the mid 19<sup>th</sup> century. As the area grew, plank roads, railroads and, later, highways enhanced the area's transportation access and eventually replaced the importance of the canal and river transport systems.

Within the 19<sup>th</sup> century, little is known about the property on which the project area is located. Prior to 1867, the project area was probably used for farming or was woodlands. In 1867, although the properties along South First Street are subdivided, there are no structures located on them (Stone 1867, Appendix D.1). The Canal is noted adjacent to the Oswego River to the west of the parcel located on the west side of South First Street.

By 1911, the parcels on both sides of South First Street are owned by Fulton Fuel and Light Company. Within the parcel on the east side of South First Street, much of the property by 1911 and through 1924 is covered by two large gas holders (30,000 and 50,000 cubic ft), as well as an oil tank and gas tanks. By 1951, the structures have all been removed and the lot is noted as vacant. Within the parcel on the west side of South First Street, the eastern 15-24 m (50-80 ft) of the property is covered by 1911 and through 1924 by a coal shed and building related to the development of the fuel products by the Fulton Fuel and Light Company. By 1951, the buildings have been removed. In the southern end of the lot, in the vicinity of the present Cross Road Tabernacle building, a farm implement store has been constructed, which has since been removed (Appendices D.2-D.4).

### **Documentary Summary**

..... no sites reported

..X.. sites reported (describe briefly)

At least 12 prehistoric sites are noted within 3.2 km (2 mi) of the project area with the sites largely being located along the Oswego River. These sites range from the Paleo-Indian period through the Archaic, and Woodland periods. Historic sites within 3.2 km (2 mi) include the Colonial period site of the fort at Oswego Falls on the lower landing of the portage at Fulton, historic 19<sup>th</sup> century features such as the remnants of the Oswego Canal, as well as 19<sup>th</sup> century industrial/commercial archaeological sites.

### **Potential for Archaeological Resources**

As has been established in the archaeological literature of the past twenty years, urban settings have yielded important archaeological information. This information is frequently buried beneath the construction spoil of succeeding generations, especially during the 19<sup>th</sup> century and early 20<sup>th</sup> century (Riordan 1983; Wurst and Versaggi 1993; Hohman 1997). In areas along elevated river banks earlier deposits, especially those of 18<sup>th</sup> century occupations, can be buried intact by as much as two meters (6.6 ft) of urban fill or more (West 1991). The fill of the levee/canal towpath on the extreme western portion of the project is likely to have capped the 18<sup>th</sup> century surface existing at the time of canal construction. The fill associated with present lot on the west side of South First Street may also have served to cap an earlier land surface. This fill extends from the central portion of the lot to the edge of the levee/towpath to the western portion of the site. This fill is evident on this property only, as the elevation of the adjacent properties is considerably lower to the north and to the south of this parcel. In the vicinity of the project area Lawrence Van Valfenburg is reported to have maintained a tavern ( during the late 18<sup>th</sup> century) for river traffic at the Upper Portage of the Oswego Falls on the East bank of the river near Velverton Island (Everts 1877). If any portion of this site is located of the western lot, the presence of the fill and the levee/towpath would potentially serve to preserve archaeological materials associated with the tavern or the upper portage site in general. This portion of the parcel is

therefore considered to have a high sensitivity for intact historic resources and a moderate sensitivity for buried prehistoric or resources.

Although much of the project area on the west side of South First Street is under asphalt or built up fill, the known history and prehistory of the area suggest that the potential for buried intact archaeological deposits on the western portion of the parcel is high. In addition, a portion of the towpath of the Oswego Canal remains intact at the western edge of the parcel on the west side of South First Street. The Canal system in New York has been determined to be National Register eligible. Although the towpath itself may have limited archaeological information, it may serve to cover earlier archaeological materials. The features associated with the filled in canal would likewise need to be mapped and photographed due to the thematic NRHP eligibility of these canal structures.

On the east side of South First Street (and on the eastern half of the lot on the west side of South First Street) the former location of the gas storage tanks and gas and oil tanks, suggests that these portions of the parcel have been disturbed by the excavation and construction of the fuel tanks, as well as the demolition of the structures in the mid 20<sup>th</sup> century. Therefore, these portions of the parcel are considered to have a low sensitivity for any intact prehistoric or historic resources.

**END PART 1**

---

**If site evaluation is not completed at this time, proceed to Part 3.**



### PART 3: SUPPORTIVE DATA

Reports should include the items listed below. Bracketed information is optional. Put a check next to each item appended.

**PLEASE NOTE:** Most attachments listed below often provide precise locational and compositional data on archaeological sites. This information is confidential to protect the resource from vandalism. All attachments with site specific information should be omitted from report copies which will be available to the general public.

- ..A..      qualifications of the principal investigator(s)
- ..B..      Topographic map with project area noted
- ..C..      map(s) of test locations, field inspection, and areas of cultural material; maps must have title, legend, bar scale, and directional arrow.
- ....      record of soil stratigraphy in each test unit.
- .....      artifact catalog
- ..D..      copies of relevant, supplemental historic maps
- ..E..      photographs of the project area
- ..F...      site files correspondence

For reports on surveys which include Site Evaluation and Definition (Part 2 above), the following items should be included:

- .....      project area map with site boundaries delineated (mark "Confidential: For Office Use Only").
- .....      site inventory forms (mark "Confidential: For Office Use Only")
- .....      soil profiles
- .....      photographs, as appropriate, characterizing project area and documenting salient cultural remains.
- .....      recommendations

Certification: I certify that I directed the cultural resource investigation reported here, that my observations and methods are fully reported, and that this report is complete and accurate to the best of my knowledge.

July 16, 1998  
date

B. Curtis West / NV  
signature of preparer

**ATTACHMENT A.1: QUALIFICATIONS OF THE PRINCIPAL INVESTIGATOR  
and PROJECT DIRECTOR**

Dr. Nina M. Versaggi  
Director and Principal Investigator, Public Archaeology Facility

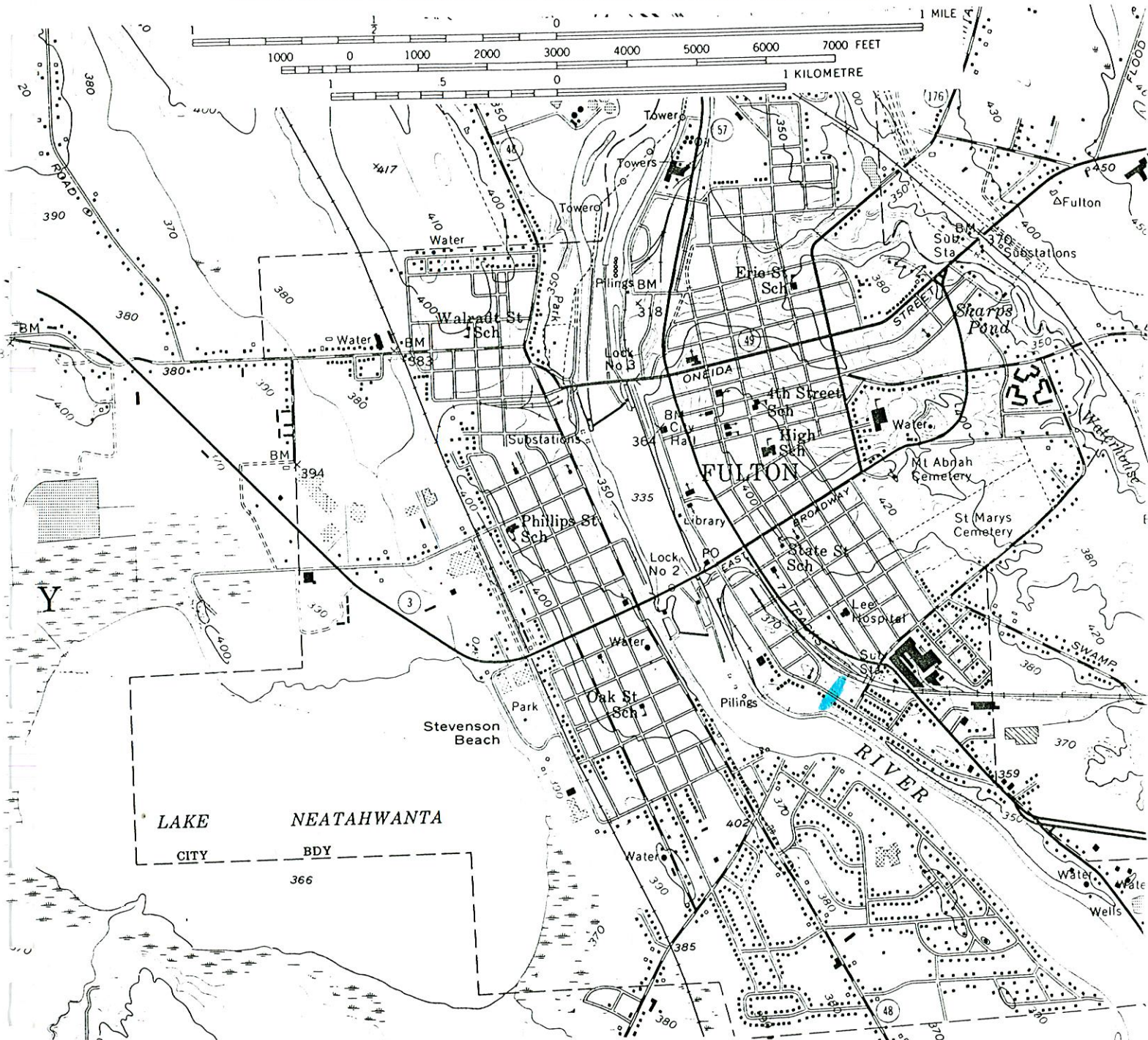
Versaggi received her doctorate in Anthropology from SUNY-Binghamton in 1988, her MA from SUNY University at Binghamton in 1976 and her BA from Rutgers University in 1974. She has been active in professional archaeology since 1972. Professional positions held include Director of the Public Archaeology Facility since 1988, Partner in Compliance Survey Associates for 6 years, Guest Curator at the Roberson Museum and Science Center, and Post-doctoral Fellow at the Hartwick College Museums. She serves as principal investigator for all current and past projects of the Public Archaeology Facility whose recent projects include the Rainbow Plaza Data Recovery in Niagara Falls and the state-wide highway subcontract with the New York State Museum and NYSDOT. She has authored "Hunter to Farmer: 10,000 Years of Susquehanna Valley Prehistory," "Prehistoric Hunter-Gatherer Settlement Models: Interpretating the Upper Susquehanna Valley," and "Upland Foraging Sites in the Northeast: Engendering Prehistory," which are based on NYSDOT and pipeline prehistoric data. She is a member of the board for the Preservation Association of the Southern Tier, and for the New York Archaeological Council she chairs the Professional Survey and Report Standards Committee. She serves as an Adjunct Associate Professor at Binghamton University.

B. Curtis West  
Project Director, Public Archaeology Facility

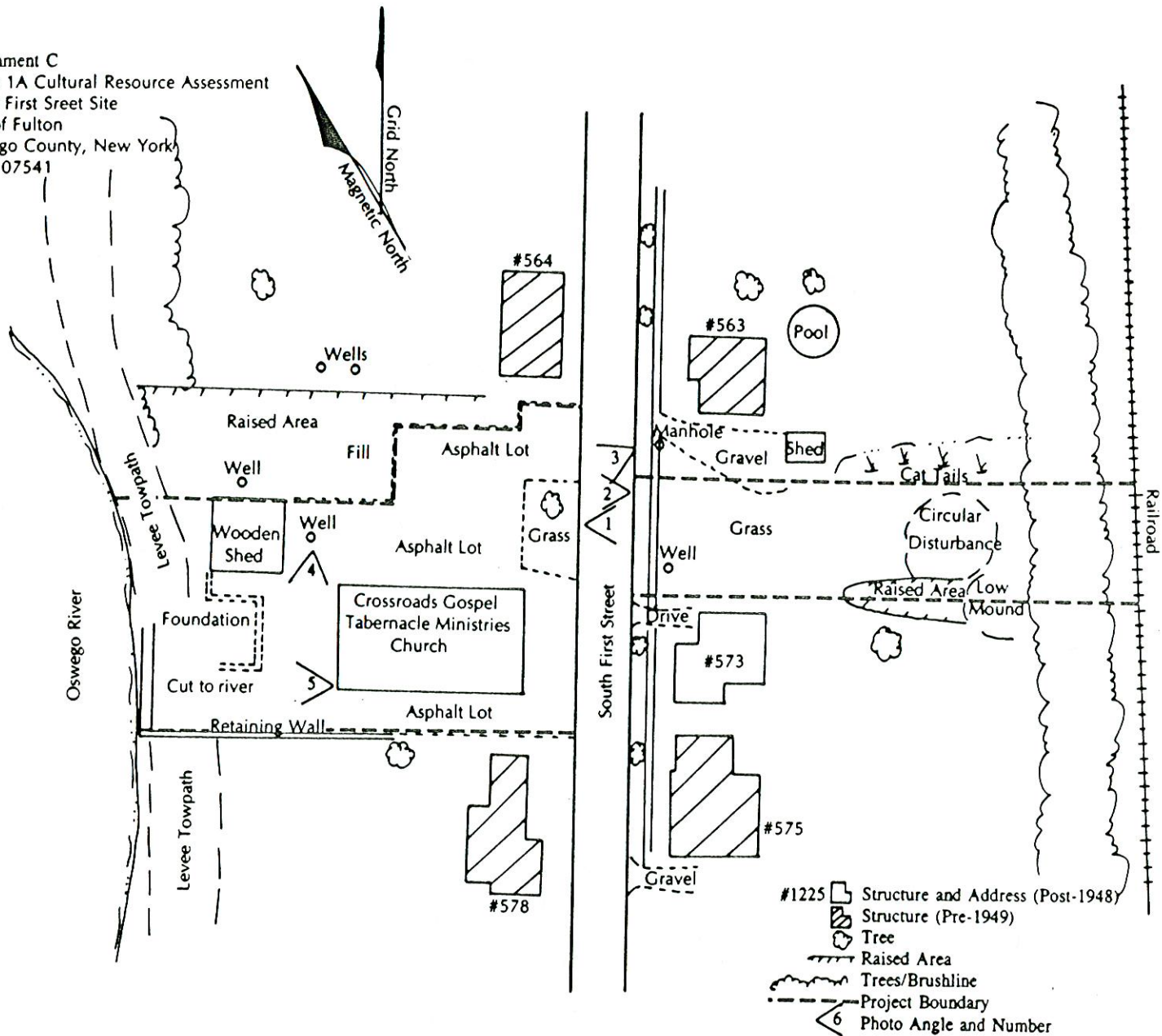
West received his MA in Anthropology from Ball State University in 1991 and his B S in Anthropology, History, and Geography from Ball State University 1987. He has worked in professional archaeology since 1986 and in 1998 joined the staff of the Public Archaeology Facility. He has served as project director and coordinator on many transportation and pipeline corridor projects in New York, Connecticut, Pennsylvania, Ohio West Virginia, Indiana, Georgia, and Oregon. Mr. West has also served as Principal Investigator in his own private consulting business in West Virginia. He has served as project director on a wide range of site examinations and surveys, as well as historic and prehistoric site Data Recoveries. His research interests include Late Colonial and Federal Era Historic Archaeology, Past Landscape Studies, Eastern North American prehistory, and Cultural Resource Management Law. The author of numerous cultural resource management reports, he currently directs projects for PAF's statewide highway contract with the State Museum and other projects in New York State and Pennsylvania.



ATTACHMENT B: 1978 USGS MAP, WITH PROJECT AREA HIGHLIGHTED



Attachment C  
Phase 1A Cultural Resource Assessment  
South First Street Site  
City of Fulton  
Oswego County, New York  
MCD 07541



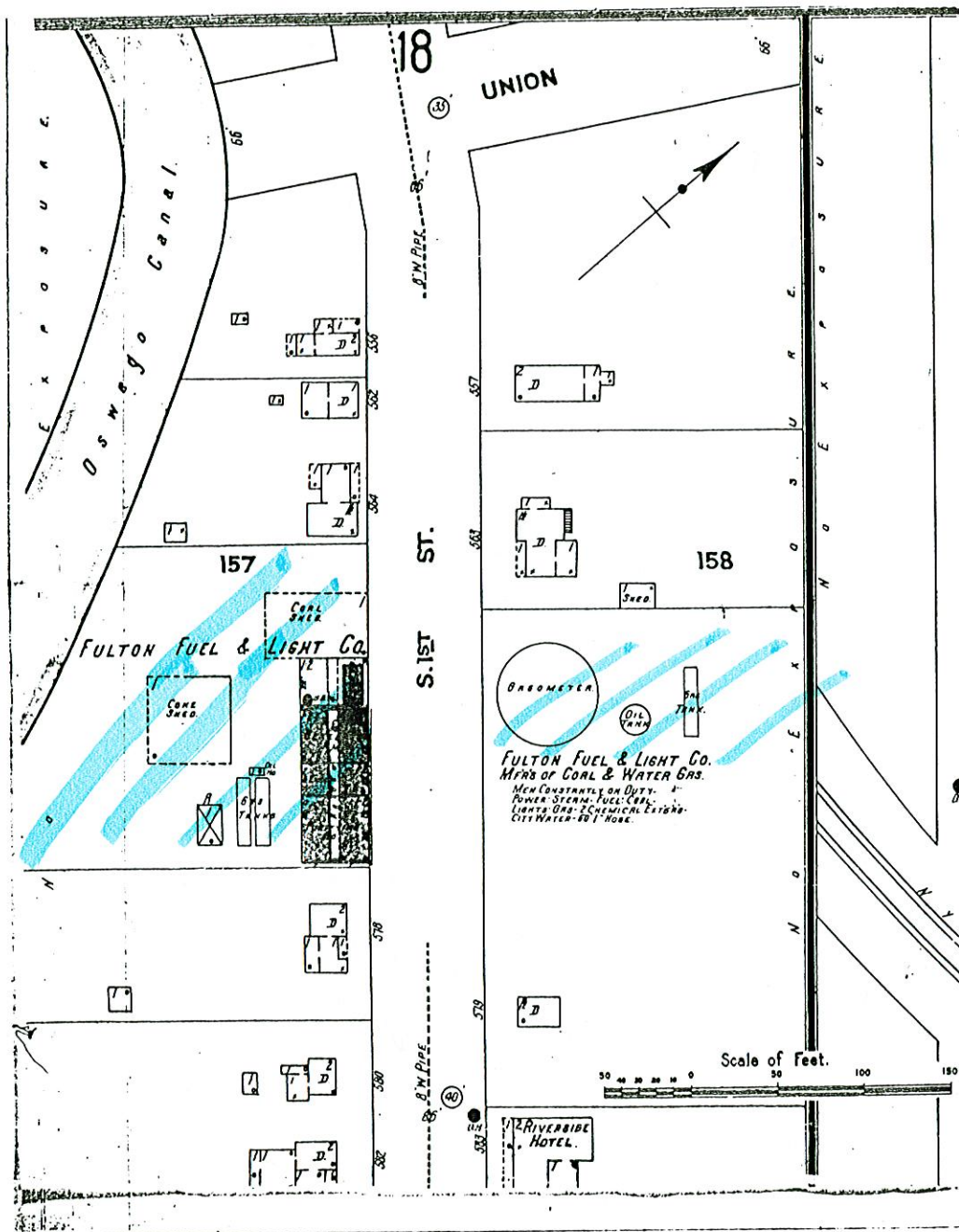


ATTACHMENT D.1: 1867 STONE MAP, WITH PROJECT AREA HIGHLIGHTED

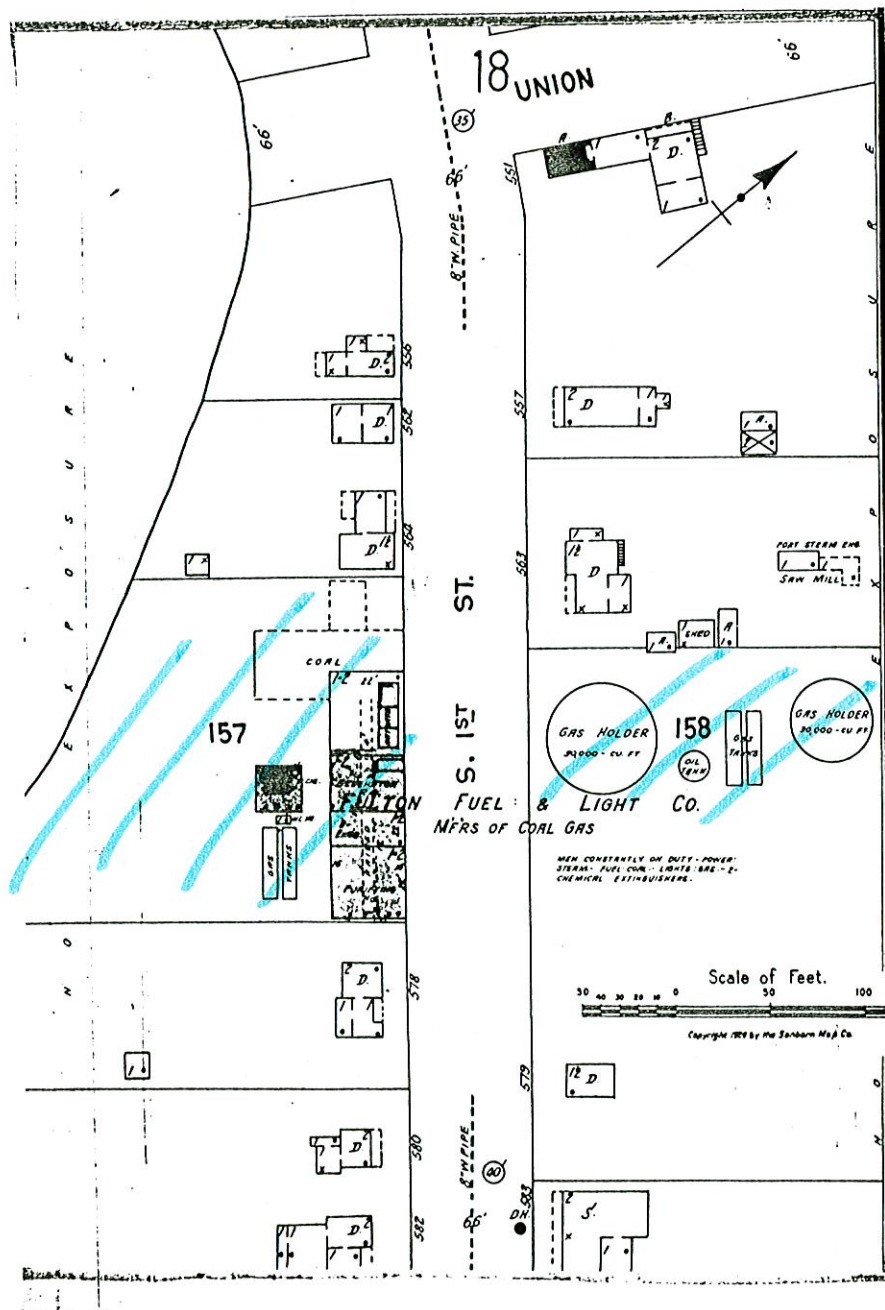




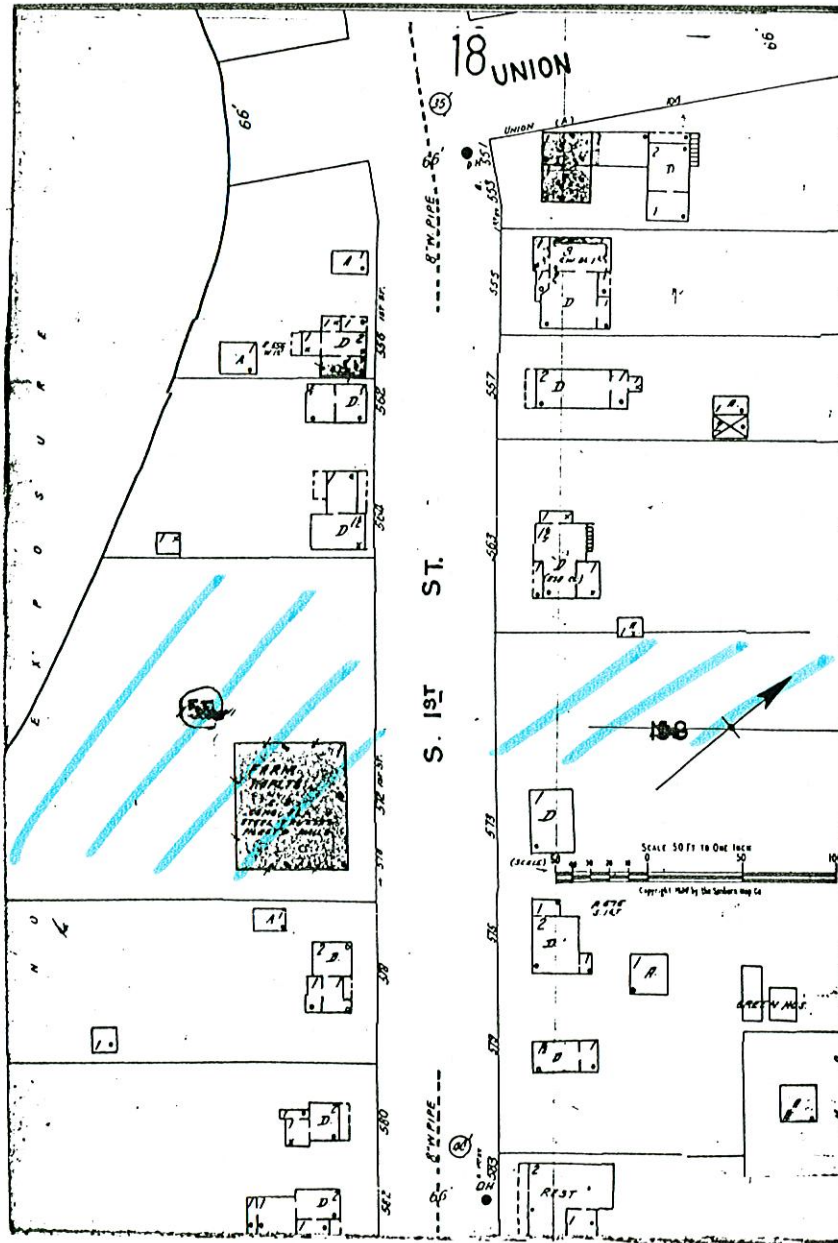
ATTACHMENT D.2: 1911 SANBORN MAP, WITH PROJECT AREA HIGHLIGHTED



ATTACHMENT D.3: 1924 SANBORN MAP, WITH PROJECT AREA HIGHLIGHTED



ATTACHMENT D.4: 1951 USGS MAP, WITH PROJECT AREA HIGHLIGHTED





**ATTACHMENT E: PROJECT AREA PHOTOGRAPHS**



Photo 1. Facing east, grassy parcel on east side of South First Street.



Photo 2. Facing west, asphalt parking area in parcel on west side of South First Street.





Photo 3. Facing southwest, asphalt parking and post-1948 Crossroads Tabernacle Church structure.



Photo 4. Facing south, Oswego Canal towpath to the south of the parcel on the west side of South First Street.



Photo 5. Facing west, asphalt parking area adjacent to canal towpath and Oswego River.

## ATTACHMENT F: SITE FILES CORRESPONDENCE



**CONFIDENTIAL**

OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION  
Field Services Bureau Files Search

DATE: 4/2/98

CONDUCTED BY: B. Ross

Project: Niagara Mohawk Gasline, South First Street  
Minor Civil Division: city of Fulton (07541), town of Volney  
County: Oswego  
USGS Quadrangle: Fulton

1. Archaeological Sites (within 3.2 km/2 mi radius of project area):

Refer to attached table.

2. Projects and Surveys within or adjacent minor civil division (MCD):

Unnumbered, 92PR0227. Includes survey of James R. Fairgrieve School, 07541.000017 on South Seventh Street - determined not eligible, 6/92.

Unnumbered, 98PR0561. Handicapped Access for NR listed South First Street, Fulton post office.

Unnumbered, 95PR1285. *Cultural Resource Assessment of Sealright Property Feasibility Study, South First Street and East Broadway, City of Fulton*, Hartgen Archaeological Associates, 8/94. Stage IA recorded no sites. Includes building 07541.000019 at 314 South First Street for the Oswego River Valley Industrial Interpretive Center.

OPR Report #2. *Cultural Resource Survey of PIN 3750.55, Oneida Street Bridge, city of Fulton, towns of Volney and Granby, Oswego County, NY*, SUNY Binghamton PAF, 9/78. Seven sites identified within Stage IB for DOT. A07541.000009-15 (9 & 13 prehistoric, 12, 14 & 15 historic and 11 unidentified). This includes Item 1, Sites 2-7 within 3.2 km of current project area. AND 1980 supplemental survey by Gordon DeAngelo recorded no sites.

OPR Report #10. *City of Fulton Stage IA Cultural Resource Survey Wastewater Treatment and Collection Facilities 201 Wastewater Facilities Plan, City of Fulton, C-36-1009*, Pratt & Pratt, 10/77 for EPA. Nine prehistoric sites recorded. A07505.000002-8 includes Item 1, Sites 1 and 10 and A07541.000007 (Item 1, Site 9) within 3.2 km of current project area. AND Stage IB, 8/78, did not identify any sites. Surveys on east side of city.

OPR Report #15. *Cultural Resource Literature Search and Site Inventory for Oswego Basin, DACIW 49-80-C-0029*, Deborah Swartz, 10/80. Multi-MCD survey along Lake Ontario, Oneida and Oswego Rivers.

OPR Report #19. *Stage IA Cultural Resource Survey, Oswego County Energy Recovery Facility, town of Volney*, Stephen Oberon, 8/82. No sites recorded in project area near CR 57 and Walkins Road. AND Stage IB, 9/82; no sites.

OPR Report #26. *Stage IB Cultural Resource Survey of the Fulton Hydro Station, city of Fulton*, Neil Johnson, 4/83 for FERC. No sites identified within project area near CR 57 near Volney town line.

OPR Report #30. *A Cultural Resource Survey Report, Dutch Ridge Road/Route 481, PIN 3107.05, towns of Volney and Scriba*, Syracuse University, 10/86 for DOT. No sites identified within 66.8 acres surveyed.

Niagara Mohawk Project, city of Fulton

OPR Report #35. *Stage IA/B Cultural Resource Survey of PIN 3751.21, BIN 2-20939-0, North Sixth Street over Conrail, City of Fulton*, NYSM, 12/88 for DOT. No sites identified within 5.2 acres surveyed.

OPR Report #49. *Stage IA/B Cultural Resource Survey of PIN 3107.09.101, Route 481, northern Fulton city line to Route 57, town of Volney*, NYSM, 1/90 for DOT. No sites identified within 48 acres surveyed.

OPR Report #50. *Stage IA/B Cultural Resource Survey of PIN 3107.10.101, Route 481, Dutch Ridge Road to Oswego City Boundary, town of Fulton*, NYSM, 2/90 for DOT. No sites identified within 21.8 acres surveyed.

OPR Report #52. *Stage I Cultural Resource Survey of the Fulton City School District, NW Quadrant Elementary School, town of Granby, Oswego County*, Pratt and Pratt, 8/89. No sites identified within 57 acres surveyed near Melrose Road.

OPR Report #56. *Stage IA/B Cultural Resource Survey of the First Ward Sewer and Water Project, City of Fulton*, 11/90. No sites identified within 15.1 acres surveyed near the railroad at the western end of the city.

OPR Report #57. *Cultural Resource Survey of the Fulton YMCA Project, city of Fulton*, Pratt & Pratt, 10/90. No sites identified within four acres surveyed near Tannery Creek on west side of city.

3. State/National Register Listed and Eligible Properties (within or adjacent to project area):

Only NR property within the city is the US post office at 214 South First Street. <sup>90</sup>NR2156, 90THM004, 07541.000016. Listed 5/11/89 as part of thematic listing for USPO in NYS built between 1858 and 1943.

All NR listed properties within adjacent town of Volney are barn, house, tavern related to an early settler and family, the Van Burens.

4. Structure Inventories within or adjacent to project area:

07541.000001	115 South First Street	Dewitt W. Gardner House
07541.000005	177 South First Street	Pratt House

The following do not have inventory forms.

out	07541.000016	214 South First Street	US Post Office	NR listed, 98PR0561
out	07541.000019	314 South First Street	Sealright Building	95PR1285 project
out	07541.000015	Oswego Canal		

5. National Register Staff Comments and Concerns:

None.



**CONFIDENTIAL**  
**OPRHP/NYSM Site Files**  
**Fulton Niagara Mohawk Gasline Project**

Item 1. Archaeological Sites, page 1 of 2. Fulton Quadrangle

SITE NUMBER	SITE NAME	DIST. From Project/Dist. From	Elevation/Slope	Cultural Affiliation/Site Type	Testing/Type/Interval	Report
A07505.000002 NYSM 2164 1) prehistoric	Indian Point Site FLT 5-3 River	0.8 km (0.5 mi) N / 46 m (150 ft) E of Oswego River	113 m (370 ft) ansl; gentle slope	Paleoindian to Late Woodland camps?	sps & units by landowners in 1960s sps (1977) during survey	OPR Report #10 & RMSC files
A07541.000010 2) historic A07541.000011 NYSM 4419 & 6887	Oswego Falls Fort ACP OSWG - 7, 7B, 8 Beauchamp 3	1.9 km (1.2 mi) N / 30 m (100 ft) E of river 1.6 km (1 mi) NW / 488 m (1600 ft) W of Oswego River	98 m (320 ft) ansl; gentle slope 122 m (400 ft) ansl; gentle slope	1756-1759 fort site bone hill at Oswego Falls may be extension of A07541.000007	no visible evidence no visible evidence	documented in OPR Report 2
3) prehistoric A07541.000012 4) historic A07541.000013 May be same as NYSM 1258 and 1259	Perkins Seal Right Factory Site ACP OSWG - 7 Perkins Site	0.6 km (0.4 mi) N / 122 m (400 ft) E of river 1.6 km (1 mi) W / mouth of creek at north side of Lake Nealahwanza	113 m (370 ft) ansl; gentle slope 113 m (370 ft) ansl; flat	19 <sup>th</sup> century ? factory site Late Archaic, Laurentian or Point Peninsula	no visible evidence no visible evidence	" "
5) prehistoric A07541.000014 6) historic A07541.000015 7) historic A07541.000007 NYSM 6887 8) prehistoric A07541.000008 9) historic A07505.000008 NYSM 1260 10) prehistoric NYSM 4449 11) prehistoric	SUBI-881 A - 1 SUBI-882 Oswego Canal probably ACP OSWG - 7B Oswego River Candee Site FLT 3-5 ACP OSWG	1.4 km (0.9 mi) N / 46 m (150 ft) E of river " " 1.8 km (1.1 mi) NW / 46 m (150 ft) W of Oswego River 1.1 km (0.7 mi) S / 61 m (200 ft) E of river 1.9 km (1.2 mi) S / adj. to Ley Creek & 61 m from Lake Nealahwanza covers large area including project area; south 1.6 km and north 3.2 km / along east side Oswego River	110 m (360 ft) ansl; gentle slope " " 104 m (340 ft) ansl; gentle slope 107 m (350 ft) ansl; gentle slope 113 m (370 ft) ansl; flat 101 - 122 m (330 - 400 ft) ansl; gentle slope	mill complex (19 <sup>th</sup> century?) 19 <sup>th</sup> century canal Late Woodland burial mounds (described by Parker as burial place) May be extension of A07541.000011 Indian settlement of four to five cabins, c. 1743 Late Archaic unidentified prehistoric camp	under urban renewal project parking lot no visible evidence no visible evidence landowner excavation and collection	" " documented in OPR Report #10 Pratt report C- 36-732 documented in OPR Report #10 Refer to Parker 1922
NYSM 4421 12) prehistoric	ACP OSWG - 9	1.4 km (0.9 mi) S / 457 m (1500 ft) W of river	113 - 116 m (370 - 380 ft) ansl; gentle slope	unidentified prehistoric village		"

**CONFIDENTIAL**  
**OPRHP/NYSM Site Files**  
**Fulton Niagara Mohawk Gasline Project**

Item 1. Archaeological Sites, page 2 of 2. Fulton Quadrangle

SITE NUMBER	SITE NAME	DIST. From Project/Dist. From	Elevation/Slope	Cultural Affiliation/Site Type	Testing/Type/Interval	Report
NYSM 4420 13) prehistoric	ACP OSWG - 8	water covers large area from 1.3 - 4 km (0.8 - 2.5 mi) W surrounding Lake Neatahwanta	113 m (370 ft) ansl; flat to gentle slope	unidentified scattered camps around the lake		Refer to Parker 1922
NYSM 7370 14) prehistoric		2.6 km (1.6 mi) S covering large area 30 - 91 m (100 - 300 ft) E of Oswego River	110 - 113 m (360 - 370 ft) ansl; gentle slope	unidentified prehistoric		
NYSM 1258 15) prehistoric	FLT 1-3, RMSC 1-5, Case Farm Site	1.6 km (1 mi) W / west side of creek at mouth of Lake Neatahwanta	113 m (370 ft) ansl; gentle slope	may be associated with A07541.000013 & NYSM 1259 transitory prehistoric site with at least two cultures		
NYSM 1259 16) prehistoric	FLT 2-3, Lysack Site	same, but on east side of creek		may be associated with A07541.000013 & NYSM 1258 transitory site of multiple cultures likely a fishing village		





**Ground water user survey summary**

July 27, 1998

Mr. Gardiner Cross  
Division of Environmental Remediation  
New York State Department of  
Environmental Conservation  
50 Wolf Road  
Albany, New York 12233-7010

RE: **Groundwater Well Survey  
Fulton (S. First St.) Site**

Dear Mr. Cross:

Niagara Mohawk has substantially completed the monitoring well survey of property owners adjacent to the Fulton (S. First St.) Site as required by the focused RI/FS work plan. The purpose of the well survey was to determine if any domestic wells exist on the closest 12 properties adjacent to the site. A summary of the survey activities and the survey results are presented below:

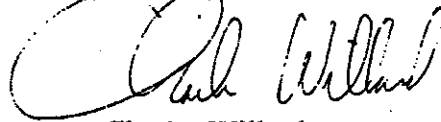
- The City of Fulton Water Department was contacted on April 8, 1998. Mr. Roger Parsons confirmed that all 12 adjacent properties are connected to the city water supply.
- A well survey questionnaire was sent to the 12 property owners on May 26, 1998. Seven property owners responded to the questionnaire. Copies of the responses are attached. All seven owners indicated that a well did not exist on their property.
- A second letter was sent to property owners and tenants on June 10, 1998. The letter presented the preliminary results of the questionnaire and provided responses to property owner comments.
- On June 29, Mr. Gary Robinson of the NYS Department of Health and I attempted to interview the five property owners that did not respond to the questionnaire. The property owners of 555 and 562 South First St. were interviewed and indicated that no well was present on their property. A vacancy notice was posted at the residence at 575 South First Street. Following the interviews, Mr. Robinson indicated that the remaining two property owners could be interviewed by telephone.
- The telephone numbers for the two remaining residences are not published in the telephone directory. The property at 580 South First St. is located two lots away from the site on the East (upgradient) Side of South First Street. The property owner resides in Davenport, Iowa. The property at 557 South First St. is located on the West Side of South First Street three lots

away from the site. This residence is located on the opposite side (south) of the site from the former canal bed.

- Mr. Gary Robinson was verbally provided the results of the well survey on July 27, 1998 and expressed his satisfaction with the survey results.

Please contact me (315)428-5015 if you have any questions or comments regarding the results of the well survey.

Sincerely,

A handwritten signature in dark ink, appearing to read "Charles Willard", written over a horizontal line.

Charles Willard  
Environmental Affairs Department

cc: Mr. Gary Robinson (NYSDOH, Syracuse)  
Ms. D. Wright (OBG)  
Internal Distribution List

**GROUNDWATER WELL SURVEY  
CITY OF FULTON  
SOUTH FIRST STREET**

Neighbor: Ray LaFrate

Residence: 579 S. First St., Fulton, NY 13069

The City of Fulton Water Department has advised Niagara Mohawk that your residence is connected to the city water supply system. Please indicate if you operate a groundwater well at your residence by marking the appropriate box below:

☐ YES, I operate a well at my residence in addition to receiving my city-supplied water.

☒ NO, I do not operate a well at my residence in addition to receiving my city-supplied water.

☐ I would feel more comfortable speaking to you in person to provide my response. Please contact me to arrange a personal interview.

If you have any comments or concerns regarding this questionnaire, please provide them in the space below, or attach an additional sheet if needed:

*Would this in any way affect  
our drinking water - or any water  
that we use?*

If you do not complete and return this questionnaire, it will be assumed that you desire a personal interview.

**GROUNDWATER WELL SURVEY  
CITY OF FULTON  
SOUTH FIRST STREET**

Neighbor: Rev. John Coleman

Residence: 2578 Co Rt 57, Fulton, NY 13069; as owner of 578 S. First St., Fulton, NY 13069

The City of Fulton Water Department has advised Niagara Mohawk that your residence is connected to the city water supply system. Please indicate if you operate a groundwater well at your residence by marking the appropriate box below:

☐ YES, I operate a well at my residence in addition to receiving my city-supplied water.

☒ NO, I do not operate a well at my residence in addition to receiving my city-supplied water.

☐ I would feel more comfortable speaking to you in person to provide my response. Please contact me to arrange a personal interview.

If you have any comments or concerns regarding this questionnaire, please provide them in the space below, or attach an additional sheet if needed:

Thank you

*[Signature]*

If you do not complete and return this questionnaire, it will be assumed that you desire a personal interview.

**GROUNDWATER WELL SURVEY  
CITY OF FULTON  
SOUTH FIRST STREET**

Neighbor: The Crossroads Tabernacle Church  
Residence: 576 S. First St., Fulton, NY 13069

The City of Fulton Water Department has advised Niagara Mohawk that your residence is connected to the city water supply system. Please indicate if you operate a groundwater well at your residence by marking the appropriate box below:

☐ YES, I operate a well at my residence in addition to receiving my city-supplied water.

☒ NO, I do not operate a well at my residence in addition to receiving my city-supplied water.

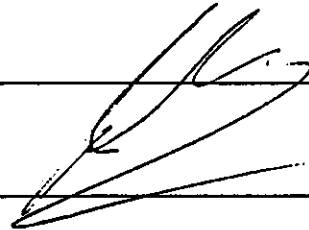
☐ I would feel more comfortable speaking to you in person to provide my response. Please contact me to arrange a personal interview.

If you have any comments or concerns regarding this questionnaire, please provide them in the space below, or attach an additional sheet if needed:

No Questions

Well informed

Thanks



If you do not complete and return this questionnaire, it will be assumed that you desire a personal interview.

**GROUNDWATER WELL SURVEY  
CITY OF FULTON  
SOUTH FIRST STREET**

Neighbor: Nick Taranto

Residence: 556 S. First St., Fulton, NY 13069

The City of Fulton Water Department has advised Niagara Mohawk that your residence is connected to the city water supply system. Please indicate if you operate a groundwater well at your residence by marking the appropriate box below:

☐ YES, I operate a well at my residence in addition to receiving my city-supplied water.

☒ NO, I do not operate a well at my residence in addition to receiving my city-supplied water.

☐ I would feel more comfortable speaking to you in person to provide my response. Please contact me to arrange a personal interview.

If you have any comments or concerns regarding this questionnaire, please provide them in the space below, or attach an additional sheet if needed:

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If you do not complete and return this questionnaire, it will be assumed that you desire a personal interview.



**GROUNDWATER WELL SURVEY  
CITY OF FULTON  
SOUTH FIRST STREET**

Neighbor: Joseph or Judy Catalone  
Residence: 573 S. First St., Fulton, NY 13069

The City of Fulton Water Department has advised Niagara Mohawk that your residence is connected to the city water supply system. Please indicate if you operate a groundwater well at your residence by marking the appropriate box below:

☐ YES, I operate a well at my residence in addition to receiving my city-supplied water.

☒ NO, I do not operate a well at my residence in addition to receiving my city-supplied water.

☐ I would feel more comfortable speaking to you in person to provide my response. Please contact me to arrange a personal interview.

If you have any comments or concerns regarding this questionnaire, please provide them in the space below, or attach an additional sheet if needed:

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If you do not complete and return this questionnaire, it will be assumed that you desire a personal interview.

**GROUNDWATER WELL SURVEY  
CITY OF FULTON  
SOUTH FIRST STREET**

Neighbor: Paul Lewchanin

Residence: 562 S. First St., Fulton, NY 13069

The City of Fulton Water Department has advised Niagara Mohawk that your residence is connected to the city water supply system. Please indicate if you operate a groundwater well at your residence by marking the appropriate box below:

- ☐ YES, I operate a well at my residence in addition to receiving my city-supplied water.
- ☒ NO, I do not operate a well at my residence in addition to receiving my city-supplied water.
- ☐ I would feel more comfortable speaking to you in person to provide my response. Please contact me to arrange a personal interview.

If you have any comments or concerns regarding this questionnaire, please provide them in the space below, or attach an additional sheet if needed:

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If you do not complete and return this questionnaire, it will be assumed that you desire a personal interview.

**GROUNDWATER WELL SURVEY  
CITY OF FULTON  
SOUTH FIRST STREET**

Neighbor: George Ashby

Residence: 564 S. First St., Fulton, NY 13069

The City of Fulton Water Department has advised Niagara Mohawk that your residence is connected to the city water supply system. Please indicate if you operate a groundwater well at your residence by marking the appropriate box below:

☐ YES, I operate a well at my residence in addition to receiving my city-supplied water.

☒ NO, I do not operate a well at my residence in addition to receiving my city-supplied water.

☐ I would feel more comfortable speaking to you in person to provide my response. Please contact me to arrange a personal interview.

If you have any comments or concerns regarding this questionnaire, please provide them in the space below, or attach an additional sheet if needed:

No comments. Thank you

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If you do not complete and return this questionnaire, it will be assumed that you desire a personal interview.

## **Appendix H**

### **DUSRs**

# Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

November 22, 1996

Chawn O'Dell  
O'Brien & Gere Engineers  
5000 Brittonfield Parkway  
Syracuse, NY 13221

RE: Data Usability Summary Report for NMPC-Fulton South First St. Site Data Packages  
OBG Labs data packages for samples collected 7-8-96 through 9-4-96

Dear Mr. O'Dell:

Review has been completed for the data packages generated by O'Brien and Gere Laboratories, pertaining to samples collected at the Niagara Mohawk Fulton Site. Nineteen soil and twelve aqueous field samples were analysed for full TCL CLP, twenty four soil field samples were analysed for BTEX/PAH/CN (MGP Indicators), three samples were analysed for TCLP (volatiles, semivolatiles, metals), and two samples were analysed for TCLP benzene. Matrix spikes/duplicates, and equipment/trip blanks were also processed. Methodologies utilized are those of the 1991 NYSDEC ASP/SW846.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the summary form information, with some review of associated raw data. Full validation has not been performed; however, the reported summary tables have been reviewed for application of validation qualifiers per USEPA Region II SOPs HW-2 and HW-6. All conclusions are based upon assumption of accurate reported values on the summary forms, and compliance in sample processing.

The following items were reviewed:

- \* Laboratory Narrative Discussion
- \* Custody Documentation
- \* Holding Times
- \* Surrogate and Internal Standard Recoveries
- \* Matrix Spike Recoveries/Duplicate Correlations
- \* Field Duplicate Correlations
- \* Preparation/Calibration Blanks
- \* Control Spike/Laboratory Control Samples
- \* Instrumental Tunes
- \* Calibration Standards
- \* Instrument IDLs
- \* Method Compliance

Those items listed above which show deficiency are discussed within the text of this narrative, and on the attached Qualification Summary. All other items were determined to be acceptable.

Attached to this narrative is a summary of the validation qualifiers resulting from the review. Resubmission communications, copies of laboratory case narratives and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are attached to this text, and should be reviewed in conjunction with this report.

The following text discusses quality issues of concern.

In summary, most sample results are were generated with acceptable quality of processing, and are usable with some modifications/qualifications.

Major items of concern are:

- a) Many responses reported as pesticides are evaluated to be interferences, and are not considered sample pesticide components (detailed later in text).
- b) Tentatively Identified Compound values were incorrectly reported (corrections requested and provided under separate cover).
- c) Reported volatile and semivolatile detection limits for those samples analysed for CLP TCL are recommended for adjustment to bring into compliance with the protocol and QAPP.

Some minor qualifications for reported values as estimated are indicated by quality parameter values. These are detailed in the attached Qualification Summary. Most result from typical processing or matrix effects.

## **DELIVERABLES**

Although data package deliverables were to be consistent with the ASP Category B, these data packages were not. The packages contained most of the information required for full validation, but the information was not properly summarized; in most cases it was available in the raw data.

## **SOIL SAMPLES**

### **General**

Volatile and semivolatile samples, which were processed under the ASP 91-1 and 91-2 protocols, were reported with lower detection limits (CRDLs) that are not consistent with protocol requirements. The ASP protocols provide for sample CRDLs that correspond to the lowest concentration standards; therefore detection at, and linearity to, those levels are ensured and defensible.

Therefore, in keeping with the requirements of the project QAPP and protocols, recommendations are made herein (see Qualification Summary) to adjust upward the reported CRDLs for most volatile and semivolatile compounds processed by 91-1 and 91-2. In most cases, the CRDLs reported by laboratory are between one fifth or one half of the QAPP CRDL values (and lowest standard concentrations). Some compounds were reported at one tenth of the CRDL. Detected values below the adjusted CRDLs are considered estimated because linearity is not established to those levels.

Although these recommendations for adjustment of the reported CRDLs are made, it is noted that the instrumentation does show good sensitivity, and detection below the adjusted CRDLs is probable. Without system evaluation, accurate values for possible lower CRDLs are not known.

Results Report Forms do not contain all required information such as solids/moisture content, receive date and dilution factor. Sample weights/volumes were omitted or incorrect in some instances.

Client Sample IDs were not indicated on certain of the summary forms and in some of the raw data (the deliverables clearly require more complete identification incorporating the Client Sample ID). Because these were not readily available, the laboratory ID numbers are therefore used and are often referenced within this DUSR report in lieu of the Client Sample ID.

Field duplicate correlations were performed:

Blind Dup #1 is the field duplicate of SB1(6-8) (TCL/TAL)

Blind Dup #2 is the field duplicate of SB1(12-14) (MGP Indicators)

Most showed generally good correlation, outliers are denoted within this text.

Per client instruction, holding time evaluations have been performed in accordance with the 1995 updates of the NYSDEC ASP.

Accuracy and precision evaluations were performed on MW4(8-10), TP-2, SS4(0-24), and MW3(8-10).

## **Volatile Analyses**

Multiple dilution analyses on given samples were not reported individually, but were combined onto single report forms.

No summaries for surrogate recoveries (Forms 2) or instrument tunes (Forms 5) were provided. The omitted surrogate summary forms were requested and provided under separate cover for future data reviews. Raw data includes forms to show proper tune performance; log pages show analysis times usually found on the Forms 5.

As noted in the case narrative, certain samples were overly diluted due to responses of nontarget analytes, resulting in elevated detection limits. These samples should have been reanalysed at lower dilution, even if done outside holding time. As it stands, the technical holding time would have been met.

Accuracy and precision values were primarily within recommended ranges. Some slightly outlying values were noted, but reported results are unaffected.

Field duplicate correlation was acceptable.

The same blank was reported for low and medium level analyses on 7/18/96. The medium level analysis blank should differ from the low due to addition of methanol, and should also have been reported with medium level values. Sample results are not recommended for qualification due to this processing.

## **Semivolatile Analyses**

Multiple dilution analyses on given samples were not reported individually, but were combined onto single report forms.

No summaries for surrogate recoveries (Forms 2) or instrument tunes (Forms 5) were provided. The omitted surrogate summary forms were requested and provided under separate cover for future data reviews. Raw data includes forms to show proper tune performance; log pages show analysis times usually found on the Forms 5.

Certain of the accuracy and precision values were slightly out of recommended range, including duplicate correlations for matrix spike analytes also present in the unspiked sample. Some others were diluted out of detection due to sample compound levels. The variances were not of magnitude for qualification of sample results.

With the exception of that of samples SB1(6-8) and MW-4, field duplicate correlation was good. The variance observed in SB1(6-8) (detailed in the qualification section) indicate caution for possible nonhomogeneity in samples of similar matrix with high level detections of PAHs.

The attached Qualification Summary lists many BNA compounds for qualification due to standard responses. Most of the standard compound responses, while greater than the action level of 25% Difference, were below 40% Difference, thereby not showing a great bias to the reported results. The laboratory was not required to take corrective action.

The 91-2 protocol requires that samples submitted for BNA analysis be screened in order to determine the proper extraction level prior to expiration of the required holding time. This was not performed, and all extractions were done as low level. This results in an inability to evaluate surrogate recoveries (and therefore extraction efficiency) in those samples which should have been extracted at medium level. Due to high levels of the target compounds, many of those samples would have required dilution even at the medium level which would also have prohibited surrogate evaluation. No qualifications are recommended based upon this noncomplaint processing. It should be noted that in cases where excessive dilution is required (i.e. greater than 1:100), the extracting solvent may become saturated, and loss of analyte recovery may occur. Those sample showing very high detection limits (indicating strong dilution) may have falsely low reported values and detection limits.



Some sample exhibited repeated matrix effects causing depression of internal standard responses. The associated compounds have been recommended for qualification.

## **Pesticide/PCB Analyses**

Certain analytes produced dual column percent differences exceeding 25%. These have been flagged as "P" by the laboratory. Those with values between 25%D and 50%D should be considered with estimated quantitations ("J" flag); those from 50%D to 90%D should be considered estimated, and tentative in identification ("N"); those with variances exceeding 90%D should be rejected as qualitative identification, and reported values edited to reflect nondetection at the CRDL or at the originally reported value, whichever is greater. These are detailed in the qualification summary.

Accuracy and precision (when not diluted beyond evaluation), and field duplicate correlation were acceptable. The reported value of 37 ppb for endrin in the matrix spikes of SS4(0-24) should have been nondetection at that level (due to inability to resolve this compound from sample interferences).

Method blanks reported detections, most of which were less than the reported IDL for the lab processing, and represent system "noise." These exhibited high %D values, as discussed above. Sample reported detections were also observed to be integrations of system baseline background. This has been incorporated into the final pesticide evaluations in the qualification summary.

## **TCLP Analyses**

The ZHE TCLP extract of SB1(6-8) was performed at 13 days from receipt, beyond the allowable 7 day holding time. Results are recommended for qualification.

Batch QC was reported in most cases for accuracy and precision, which were generally acceptable.

## **Metals/CN Analyses**

Metals data were not properly flagged with laboratory QC flags ( i.e. N, \*, E)

Those equipment blanks which show detections of certain analytes are outlined in the Qualification Summary. The associated sample analytes with detected values at levels similar to those of the blank are to be considered a result of contamination and are therefore rejected. These are denoted on the attached qualifier summary, and are to be flagged as "R" (per SOP HW-2). However, it is appropriate to consider results for these sample analytes which are elevated detection limits corresponding to the originally reported values. Although the reported detections may be from contamination, it can be said that the analytes are not present at higher levels than those reported.

Those matrix spike recoveries, duplicate correlations, and field duplicate correlation outliers requiring qualification are listed on the attached qualification summary. These results were generally within acceptable ranges. Serial dilution of SS4(0-24), MW8(8-10) and Blind Dup#1 were also primarily acceptable.

Thallium standard recoveries associated with the soil analyses were elevated above allowable limits; these results are already qualified as estimated due to matrix spike recoveries.

## **AQUEOUS SAMPLES**

### **General**

Volatile and semivolatile samples, which were processed under the ASP 91-1 and 91-2 protocols, were reported with lower detection limits (CRDLs) that are not consistent with protocol requirements. The ASP protocols provide for sample CRDLs that correspond to the lowest concentration standards; therefore detection at, and linearity to, those levels are ensured and defensible.

Therefore, in keeping with the requirements of the project QAPP and protocols, recommendations are made herein (see Qualification Summary) to adjust upward the reported CRDLs for most volatile and semivolatile compounds processed by 91-1 and 91-2. In most cases, the CRDLs reported by laboratory are between one fifth or one half of the QAPP CRDL values (and lowest standard concentrations). Some compounds were reported at one tenth of the CRDL, including benzene, which was reported with a CRDL of 0.7 ug/L (lowest calibration standard is 10 ug/L). Detected values below the adjusted CRDLs are considered estimated because linearity is not established to those levels.

Although these recommendations are made, it is noted that the instrumentation does show good sensitivity, and detection below the adjusted CRDLs is probable. Without system evaluation, accurate values for possible lower CRDLs are not known. See the attached communication regarding the 0.7 ug/L benzene standard analysis which was requested, and performed successfully.

Results Report Forms do not contain all required information such as receive date and dilution factor. Sample weights and volumes were omitted or incorrect in some instances.

Client Sample IDs were not indicated on certain of the summary forms and in some of the raw data (the deliverables clearly require more complete identification incorporating the Client Sample ID). Because these were not readily available, the laboratory ID numbers are therefore used and are often referenced within this DUSR report in lieu of the Client Sample ID.

Accuracy and precision determinations were performed on MW-4 (first round) and MW-1 (second round).

Field duplicates were performed on MW-3 for both rounds.

Per client instruction, holding time evaluations have been performed in accordance with the 1995 updates of the NYSDEC ASP.

## **Volatile Analyses**

No summaries for surrogate recoveries (Forms 2) or instrument tunes (Forms 5) were provided. The omitted surrogate summary forms were requested and provided under separate cover for future data reviews. Raw data includes forms to show proper tune performance; log pages show analysis times usually found on the Forms 5.

Accuracy and precision evaluations were acceptable.

Field duplicate correlation was acceptable.

## **Semivolatile Analyses**

Multiple dilution analyses on given samples were not reported individually, but were combined onto single report forms.

No summaries for surrogate recoveries (Forms 2) or instrument tunes (Forms 5) were provided. The omitted surrogate summary forms were requested and provided under separate cover for future data reviews. Raw data includes forms to show proper tune performance; log pages show analysis times usually found on the Forms 5.

Matrix spike recoveries, and laboratory and field duplicate correlation was acceptable.

The attached Qualification Summary lists many BNA compounds for qualification due to standard responses. Most of the standard compound responses, while greater than the action level of 25% Difference, were below 40% Difference, thereby not showing a great bias to the reported results. The laboratory was not required to take corrective action.

## **Pesticide/PCB Analyses**

Certain analytes produced dual column percent differences exceeding 25%. These have been flagged as "P" by the laboratory. Those with values between 25%D and 50%D should be considered with estimated quantitations ("J" flag); those from 50%D to 90%D should be considered estimated, and tentative in identification ("N"); those with variances exceeding 90%D should be rejected as qualitative identification, and reported values edited to reflect nondetection at the CRDL or at the originally reported value, whichever is greater. These are detailed in the qualification summary.

Method blanks reported detections, most of which were less than the reported IDL for the lab processing, and represent system "noise." These exhibited high %D values, as discussed above. Sample reported detections were also observed to be integrations of system baseline background. This has been incorporated into the final pesticide evaluations in the qualification summary.

Field duplicate correlation was acceptable.

## **Metals/CN Analyses**

Metals data were not properly flagged with laboratory QC flags ( i.e. N, \*, E)

The equipment blank for the second round of groundwaters shows detections of certain analytes. The associated sample analytes with detected values at levels similar to those of the blank are to be considered a result of contamination and are therefore rejected. These are denoted on the attached qualifier summary, and are to be flagged as "R" (per SOP HW-2). However, it is appropriate to consider results for these sample analytes which are elevated detection limits corresponding to the originally reported values. Although the reported detections may be from contamination, it can be said that the analytes are not present at higher levels than those reported.

Field duplicate correlation was acceptable, but the laboratory duplicate evaluation showed numerous outliers, although most were not of sufficient magnitude to warrant qualification.

Accuracy and serial dilution evaluations were acceptable.

## QUALIFICATION SUMMARY

### Volatiles ASP 91-1

1. The solids content of MW4(8-10) was just below the action limit of 50%, at 48.9%. Due to possible nonhomogeneity from low solids content, the reported results for this sample should be considered estimated.

2. Due to outlying holding time, the volatile TCLP results for SB1(6-8) should be considered estimated.

3. Volatile TICs are misreported for most samples (see attached resubmission communications). In some instances dilution factors were not incorporated, soil values were not corrected for moisture content, improper compounds were reported (i.e. BNA TCLs), none are properly labeled with the "B" flag to indicate contamination rather than sample constituency, and some errors exist in values. Per agreement with OBG, the laboratory is supplying, under separate cover, copies of the TIC "report forms", with correction factors indicated for application to sample values. This report does not incorporate those corrections, nor review for application of the "B" qualifier.

4. In keeping with the intent of the required protocol (ASP 91-1), which requires linearity determinations down to the reported detection limits, all sample results should be edited/qualified to meet those CRDLs outlined in the method and project QAPP. The laboratory can provide corrected results for each sample, incorporating dilution factors, moisture content, and weights not evident on the summary report forms.

In addition, those detected values below the adjusted CRDLs should be considered estimated ("J" flag) because they are below the established linearity.

These edits do not apply to BTEX or TCLP analyses, which are reported with acceptable limits per the required method EPA-8240.

5. (The sample detected methylene chloride and acetone results should be edited to reflect nondetection at either the CRDL or at the originally reported value, whichever is greater.)

In addition, the same edits pertain to reported results for xylene in PZ1(6-10), MW4(8-10), MW3(22-24), MW4(18-20), and MW3(18-20); to 2-butanone in MW4(8-10) and Potwater, and to tetrachloroethene in all soil samples except MW1(6-8).

6. Tentatively Identified Compounds (TICs) which are named siloxanes and/or those flagged as "B" by the laboratory should not be considered sample components ("R" flag).

7. Due to standard responses, the following analyte results in the denoted samples should be considered estimated ("J" flag):

- a. acetone, carbon tetrachloride, and 1,2-dibromo-3-chloropropane in Z6034, Z6035, and Z6036, Z6037
- b. acetone in Z7714 and Z7713

***Semivolatiles***

1. The solids content of MW4(8-10) was just below the action limit of 50%, at 48.9%. Due to possible nonhomogeneity from low solids content, the reported results for this sample should be considered estimated.
2. Semivolatile TICs are misreported for most samples (see attached resubmission communications). In some instances dilution factors were not incorporated, soil values were not corrected for moisture content, improper compounds were reported (i.e. VOA TCLs), none are properly labeled with the "B" flag to indicate contamination rather than sample constituency, "A" flags (to indicate extraction artifacts) were not applied, and some errors exist in values. Per agreement with OBG, the laboratory is supplying, under separate cover, copies of the TIC "report forms", with correction factors indicated for application to sample values. This report does not incorporate those corrections, nor review for application of the "B" or "A" qualifiers. Tentatively Identified Compounds (TICs) which are flagged "A" and/or "B" should be disregarded as sample components. ("R" flag)
3. In keeping with the intent of the required protocol (ASP 91-2), which requires linearity determinations down to the reported detection limits, all sample results should be edited/qualified to meet those CRDLs outlined in the method and project QAPP. The laboratory can provide corrected results for each sample, incorporating dilution factors, moisture content, and weights not evident on the summary report forms.  
In addition, those detected values below the adjusted CRDLs should be considered estimated ("J" flag) because they are below the established linearity.  
These edits do not apply to PAH or TCLP analyses, which are reported with acceptable limits per the required method EPA-8270.
4. Several of the soil samples produced outlying responses for internal standards, and results of associated compounds in those samples should be considered estimated:
  - a. di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene in Z6215DL and Z6214
  - b. benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene in Z6537 and Z6230
  - c. nitrobenzene and hexachlorobutadiene in the TCLP extract Z6481
5. The field duplicate correlation of SB1(6-8) and Blind Dup#1 was poor for detected analytes. Values differed by as much as a factor of ten (naphthalene values were 92,000 ppb and 300,000 ppb; acenaphthene values were 17,000 ppb and 140,000 ppb; etc). Sample nonhomogeneity is suspected. Detected values for these two sample should be considered estimated. All soil semivolatile data should be used with caution in this respect.
6. The first and second round of groundwaters showed poor field duplicate correlation for naphthalene in MW-3. The reported naphthalene result in MW-3 and in the field duplicate should therefore be considered estimated.
7. Due to copresence in the blanks, reported detections of bis(2-ethylhexyl)phthalate are rejected, and results edited to reflect nondetection at the CRDL.

8. Due to standard responses, the following analyte results in the denoted samples should be considered estimated ("J" flag):
- 2,2-oxybis(1-chloropropane) hexachlorobutadiene hexachlorocyclopentadiene 2,4-dinitrophenol, 4-nitrophenol, 4-dinitro-2-methylphenol, pentachlorophenol, and bis(2-ethylhexyl)phthalate in Z6026,Z6027,Z6030,Z6029
  - 2,4-dinitrophenol, bis(2-ethylhexyl)phthalate and di-n-octylphthalate in Z6028RE and Z6031RE
  - indeno(1,2,3-cd)pyrene and benzo(g,h,i)perylene in Z6541,Z6542,Z6543,Z6544 Z6040,Z6043,Z6044,Z6042, Z6039,Z6041,Z6540, and Z6539
  - 2,4,-dinitrophenol in Z6222 and Z6481
  - benzo(g,h,i)perylene in Z6232,Z6235,Z5677,and Z6230
  - benzoic acid, hexachlorocyclopentadiene, 2,4-dinitrophenol, bis(2-ethylhexyl)phthalate and di-n-octylphthalate in Z6230RE
  - hexachlorocyclopentadiene, 2,4-dinitrophenol, benzo(g,h,i)perylene in Z6220, Z6479, and Z6481RE
  - hexachlorocyclopentadiene and di-n-octylphthalate in Z7708,Z7709,Z7710,Z7712 and Z7714
  - 1,2-dichlorobenzene and bis(2-chloroethoxy)methane in B2620,B2617,B2618,B2623 and B2619
  - di-n-octylphthalate in B2622 and B2621

#### ***Pesticide/PCBs***

- The solids content of MW4(8-10) was just below the action limit of 50%, at 48.9%. Due to possible nonhomogeneity from low solids content, the reported results for this sample should be considered estimated.
- Following USEPA Region II guidelines for evaluating identification of pesticides, most reported detections for this project involved %D values greater than 90%D (often greater than 1000%D), and are rejected as sample constituents. Those will not be enumerated herein. The following list outlines those pesticides *not* rejected due to %D, *or due to presence in the associated blank, or due to background/baseline intergration*. **Only those identifications to be retained as reported pesticides will be listed below. All others should be edited to reflect nondetection at either the analyte CRDL or at the originally reported value, whichever is greater:**

<u>Sample ID</u>	<u>Analyte</u>	<u>Additional Qualifier, if applicable</u>
MW1 (1st)	Aroclor 1242	
MW2 (1st)	Endosulfan II	J
	4,4'-DDT	J
MW4 (1st)	Endosulfan II	NJ
	Methoxychlor	NJ
MW-2 (2nd)	a-BHC	NJ
MW-3 (2nd)	4,4'DDE	J
MW-4 (2nd)	Heptachlor epoxide	
	Endosulfan I	J
	Endosulfan II	

<u>Sample ID</u>	<u>Analyte</u>	<u>Additional Qualifier, if applicable</u>
MW-5 (2nd)	Heptachlor Epoxide	
	Endosulfan II	J
	4,4'-DDT	
BlindDupe (2nd) MW2(6-8)	Lindane	
	4,4'-DDE	J
	Endosulfan sulfate (from -DL)	
SS1(0-2)	Endrin	NJ
	4,4'-DDT	
	g-chlordane	NJ
	4,4'-DDE (from -DL)	J
	Endrin ketone (from -DL)	
SS1(0-24)	a-chlordane	J
SS2(0-2)	Lindane	J
	Endosulfan II	NJ
	4,4'-DDD	J
	Methoxychlor	NJ
SS2(0-24)	4,4'-DDD	NJ
	Endosulfan sulfate	J
	Endrin ketone (from -DL)	J
	4,4'-DDT	NJ
MW4(8-10)	Methoxychlor	J
	4,4'-DDD	NJ
SS3(0-2)	4,4'-DDT (from -DL)	
	Methoxychlor	NJ
	Endrin ketone	J
	4,4'-DDE	
SS3(0-24)	4,4'-DDD	
	4,4'-DDT (from -DL)	
	Endrin ketone	J
	Endosulfan II	NJ
	Aldrin	NJ
SS4(0-2)	Endosulfan II	J
	Endrin ketone	NJ
	g-chlordane	
SS4(0-24)	4,4'-DDE	NJ
	Endosulfan II	NJ
	4,4'-DDT	NJ
	Endrin ketone	
	a-chlordane	NJ
	g-chlordane	



<u>Sample ID</u>	<u>Analyte</u>	<u>Additional Qualifier, if applicable</u>
SS5(0-2)	4,4'-DDE	J
	Endosulfan II	NJ
	4,4'-DDT	
	Methoxychlor	
	Endrin ketone	
SS6(0-2)	a-chlordane	NJ
	4,4'-DDE	J
	4,4'-DDD	J
MW5(8-10)	Endosulfan II	NJ
	g-chlordane	
Equipblk	a-BHC	NJ
SB1(6-8)	Dieldrin	J
BlindDup Z6478	4,4'-DDT	J
Potwater	Lindane	J
	Endosulfan I	J

3. Surrogate recoveries for the following samples were low, indicating consideration for all reported results as estimated:  
MW2(6-8), B2619, MW-2 (1st round), MW-3(1st round), MW-4 (1st round), MW-5 (1st round)
4. Surrogate recoveries of MW5(8-10) was elevated, indicating consideration for reported results of **detected** analytes as estimated:
5. Heptachlor epoxide in B2622 (second round MW-4) should not be flagged as "B".

#### ***Metals/CN***

1. The solids content of MW4(8-10) was just below the action limit of 50%, at 48.9%. Due to possible nonhomogeneity from low solids content, the reported results for this sample should be considered estimated.
2. The cyanide fractions of the first round of groundwaters were not preserved until lab receipt the day following collection. These cyanide values should be considered estimated due to possible loss of analyte.
3. Due to copresence in the associated equipment blank/drill water, the following sample detections are at such a level as to be considered contamination and are therefore rejected ("R" flag):  
Zinc in MW3(22-24)
4. Field duplicate correlation outliers indicate that reported results for those analytes for all samples of the same matrix be considered estimated ("J" flag):

<u>Matrix</u>	<u>Analyte</u>
Aqueous-1st round	Copper
TCL Soil	Calcium and cyanide*

\* pertain to samples submitted for full TAL metals. The cyanide correlation for the indicator samples was acceptable.

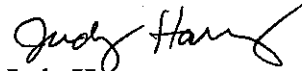
5. Matrix spike recovery values show that the following sample values be considered estimated ("J" flag) (applies to all samples of a given matrix except TCLP leachates):
- | Matrix             | Analyte   |
|--------------------|---|
| Aqueous -1st round | Antimony and mercury                            |
| TCL Soil           | Antimony, lead, nickel, manganese, and thallium |
6. Laboratory duplicate correlation outliers show that the following sample values be considered estimated ("J" flag) (applies to all samples in given SDG):
- | Matrix   | Analyte |
|----------|---------|
| TCL Soil | Calcium |
7. Serial dilution outliers result in the following analytes qualified as "J":
- Iron and zinc in all soil samples
  - Chromium and Manganese in all the first round of groundwater samples.
  - Zinc in all the second round of groundwater samples.

**TCLP**

1. The holding time for the volatile analysis of the leachate of Z6526 was exceeded (performed at 13 days from leaching). The results should therefore be considered estimated.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

  
Judy Harry

Att.

## **DATA QUALIFIER DEFINITIONS**

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process. If the Regions choose to use additional qualifiers, a complete explanation of those qualifiers should accompany the data review.

- U** - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J** - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N** - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ** - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ** - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R** - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

# Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853


Phone and Fax (518) 251-4429

## Facsimile Transmission

TO: Chawn O'Dell

COMPANY: OBG

FAX NUMBER: 315 463 7554

FROM: Judy Harry 

DATE: 9-23-96

No. of pages (including cover): 1

### COMMENTS:

RE: Nimo Fulton Site Project

Review is underway for the abovementioned data packages

Please request that the laboratory forward to me the volatile Instrument Detection Limit summaries (IDLs) which are applicable to the groundwater analyses for this project (method 91-1 with 5 mL purge, on the proper instrument). Those present in the data package are for a different methodology (8260 with 25 mL purge) and cannot be applied to these samples. This is especially important for this project because the laboratory has reported extremely low detection limits (for some compounds) relative to the method and the standards processed.

Thank you.

# Data Validation Services

Cobble Creek Road P. O. Box 208  
North Creek, NY 12853  
Phone and Fax (518) 251-4429

October 22, 1996

Monica Santucci  
O'Brien & Gere Laboratories  
5000 Brittonfield Parkway  
Syracuse, NY 13221

RE: OBG-- Niagara Mohawk Fulton Site (South 1st St.) Project

Dear Monica:

Review of the abovementioned data packages is in progress. As we discussed, there are some issues for which clarification and/or correction is needed prior to completion of the review.

1. As we discussed, the "report forms" submitted for volatile Tentatively Identified Compounds (TICs) do not accurately reflect dilution factors in the values reported for those samples for which dilution was performed.

Please review all reported TIC results for the diluted volatile samples and re-report with the corrected TIC values. Also please edit these "forms" to remove the "CO2-solvent peak" as a reported result (per protocol requirements).

2. Please provide a calculation for the semivolatile results for naphthalene in aqueous sample MW-4 (Z7711). Although the documentation provided by the laboratory does not show final extract volume, the protocol required volume of 1 mL (supported by surrogate recovery calculations) was utilized in my following calculation, which does not match the reported result:

$$\begin{array}{r} 9933061 \\ 1629559 \\ \hline 1612724 \end{array} \times \frac{40 \text{ ng}}{2 \mu\text{L}} \times \frac{5}{1 \text{ L}} \times \frac{1000 \mu\text{L}}{1000 \text{ ng}} = 860 \text{ ng/L}$$

(I.S.) (D.F.) (final volume)

conc.      50 ng

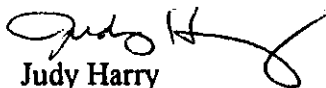
((Lab reported 2000 ng))

3. If there is truly an error in the reported compound value above, please address any corrective action the lab will take to ensure other sample reported results are also not in error. This is critical for this project because full validation is not being performed; only a summary level review was to occur (with no verification of reported results from raw data).
4. No "E" flags are observed on the semivolatile reported results for compounds which exceed the calibration range (80 ppb) of the standards. Please resubmit report forms for any sample compounds which fall into this category. This is necessary in order to reference which compound values are to be either replaced by dilution values, or to be considered estimated (in those cases such as MW-4 where dilution was not properly performed).
5. Please produce the required surrogate summary forms (Forms 2A and 2B) for the volatile and semivolatile samples in this project.

6. The volatile report forms for medium level soil extraction indicate that a sample weight of 5g is used. The prep logs do not indicate sample weight. Protocol requires a 4g weight. Please clarify.
7. Please clarify the notations for the volatile BTEX soil analyses performed on 7/19/96 on G (i.e. Z6535, etc). These were evidently performed as 25 mL purge volumes rather than the 5 mL required for medium level analyses. The instrument log and data files show "25 X", and the reported results indicate a dilution factor of 25. Yet the normal methanol volume of 100 uL was used (into the 25 mL). It is observed that the surrogate values on the quant report do support the five-fold variance in purge, and therefore a 5X dilution factor. Does this "25X" in the sample data therefore also refer to the fact that the instrument is calibrated five times lower (hence fivefold lower detection limits than the five mL purge)?
8. The preparation logs for the TCLP leaching do not show sample weight used. Please provide a statement as to that quantity.
9. Please comment on the fact that the response factor for phenol is only about one-half that for deuterated phenol. These compounds should have almost identical relative responses.

Please provide response at your earliest convenience. Please also forward copies of all communications to Debra Wright at OBG Engineers. Thank you.

Very truly yours,

  
Judy Harry

cc: Debra Wright

# Data Validation Services

Cobble Creek Road P. O. Box 208  
North Creek, NY 12853  
Phone and Fax (518) 251-4429

## Facsimile Transmission

TO: Monica Santucci  
COMPANY: OBG  
FAX NUMBER: 315 463 7554  
FROM: Judy Harry  
DATE: 10-22-96 late pm

No. of pages (including cover): 1

### COMMENTS:

RE: My request of earlier regarding  
Nimo - Fulton

I have observed (since my earlier fax) that multiple dilution runs exist for certain of the BNA samples. These <sup>raw</sup> data explain the observed variance in the naphthalene reported value for MW-4. The required report forms for each analysis (initial + dilution) were not provided - evidently a single combined report has been made. Please therefore provide an explanation/assurance ~~that~~ as to which compound values are used from ~~each~~ each run, (as a generalization for all samples). Thanks  
Judy

# Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

## Facsimile Transmission/Resubmission Request

TO: Monika Santucci

COMPANY: OBG

FAX NUMBER: 315 463 7554

FROM: Judy Harry 

DATE: 10-28-96

No. of pages (including cover): 1

COMMENTS: RE: OBG Niagara Mohawk -Fulton Site

The following observations have been made regarding the Tentatively Identified Compounds (TICs) reported for this project. Please resubmit corrected "Forms 1" for the TICs discussed below:

A. Volatile TICs

1. Values are not corrected for dilution factors (previously requested).
2. Values are not correct in cases where the quant report "multiplier" has been manually corrected (i.e. Z6023 and others).
3. TICs are not flagged with the associated "B" flags
4. Soil values are not corrected for moisture content.
5. VOA and BNA Target analytes (i.e. toluene and naphthalene) should not be reported as TICs of the alternate analysis (per protocol).

B. <sup>BNA</sup> TICs:

1. Soil values do not reflect the matrix (i.e. difference in 1L versus 30g sample volume).
2. Soil values are not corrected for moisture content.
3. TICs are not flagged with the associated "B" flags
4. VOA and BNA Target analytes (i.e. toluene and naphthalene) should not be reported as TICs of the alternate analysis (per protocol).
5. Aldol compounds should be flagged as "A".



# Data Validation Services

Cobble Creek Road P. O. Box 208  
North Creek, NY 12853  
Phone and Fax (518) 251-4429

## Facsimile Transmission/Resubmission Request

TO: Monika Santucci

COMPANY: OBG

FAX NUMBER: 315 463 7554

FROM: Judy Harry

DATE: 11-22-96

No. of pages (including cover): 1

COMMENTS: RE: OBG Niagara Mohawk -Fulton Site

In keeping with the project QAPP requirements and the 91-1 and 91-2 requirements, I will be recommending that the reported CRDLs for the samples processed under those protocols be edited to be consistent with those requirements. This produces detection limits that are at the level of the lowest concentration standard, and are therefore detection and linearity are ensured and defensible. Detected values below those limits will be qualified as J. I will be commenting on the sensitivity of the instruments and your 0.7 ppb benzene standard.

The conversion to adjusted CRDLs will be recommended as, i.e. "10 ug/L x Dilution Factor", or divide by percent solids, etc. With the required ASP Cat. B. deliverables, all information necessary to do those conversions is present on the Forms 1. However, your report "Form 1"s do not show dilution factor, solids content, accurate weights, etc. Therefore I request that you provide a listing to the project engineers that has either the protocol required CRDLs, or a conversion factor for this adjustment (including dilution factor and solids information) for each sample. You may wish to discuss this with Chawn or Debra.

Please call me if you want to talk about this issue. Thanks.

cc: Chawn O'Dell



**O'BRIEN & GERE**  
LABORATORIES, INC.

September 26, 1996

Ms. Judy Harry  
Data Validation Services  
Cobble Creek Road  
P.O. Box 208  
North Creek, NY 12853

Re: Niagara Mohawk-Fulton Site Project  
Volatile Organics-IDL

File: 1118.081.517

Dear Judy:

The purpose of this letter is to respond to your request for Volatile Organic Instrument Detection Limit Summaries (IDLs) which apply to the groundwater analysis for the above referenced program. You stated that the IDL summary provided in the data package which is based on a 25 mL purge volume is not applicable to these samples and you would require IDL summaries based on a 5 mL purge volume. It is not currently the policy of OBG Labs to analyze 5 mL IDLs for the GC/MS Volatile Organics analysis. Our 5 mL IDL is determined by multiplying the 25 mL IDL (which was provided in the data package) by five. Since the purge efficiency for a 25 mL purge is lower than the purge efficiency for a 5 mL purge, our IDLs are biased slightly high. Also, please note that IDLs and MDLs are the same for the volatile organics since there is no prep procedure performed on the sample prior to purging.

If you have any questions concerning the above explanation, please do not hesitate to contact me.

Very truly yours,  
O'BRIEN & GERE LABORATORIES, INC.

Monika Santucci  
Supervisor

C:\PROGRAM\NIMO\DATA\VALI.LET

cc: Deborah Wright-O'Brien & Gere Engineers, Inc.  
Chawn O'Dell-O'Brien & Gere Engineers, Inc.  
Mark Vanderwarker-O'Brien & Gere Laboratories, Inc.  
Coleen Burke-O'Brien & Gere Laboratories, Inc.



**O'BRIEN & GERE**  
LABORATORIES, INC.

October 11, 1996

Ms. Judy Harry  
Data Validation Services  
Cobble Creek Road  
P.O. Box 208  
North Creek, NY 12853

Re: Niagara Mohawk-Fulton Site Project  
Volatile Organics-Benzene Standard

File: 1118.081.517

Dear Judy:

The purpose of this letter is to submit to you the Quant Report, Total Ion Chromatogram and Extracted Ion Current Profile (EICP) of a 0.7 ppb benzene standard as requested. This standard was analyzed using a 5 ml purge volume as required for 91-1 methods. The result of 0.84 ppb should support our report limiting of 0.7 ppb as requested by the client for the Niagara Mohawk Ground Water program. This low reporting limit was requested by the client to meet New York State Ground Water Standards.

If you have any questions or need additional information, please do not hesitate to contact me.

Very truly yours,  
O'BRIEN & GERE LABORATORIES, INC.

Monika Santucci  
Supervisor

C:\PROGRAM\NIMO\BENZENE.LET

cc: Deborah Wright-O'Brien & Gere Engineers, Inc.  
Mark Vanderwarker-O'Brien & Gere Laboratories, Inc.  
Coleen Burke-O'Brien & Gere Laboratories, Inc.

# **Data Validation Services**

**120 Cobble Creek Road P. O. Box 208**

**North Creek, N. Y. 12853**

**Phone 518-251-4429**

**Facsimile 518-251-4428**

October 27, 1999

Deborah Wright  
O'Brien & Gere Engineers  
5000 Brittonfield Parkway  
Syracuse, NY 13221

RE: Data Usability Summary Report for NMPC-Fulton Site Data Package  
OBG Labs data packages for samples collected August 1999

Dear Ms. Wright:

Review has been completed for the data packages generated by O'Brien and Gere Laboratories, pertaining to samples collected 8/04/99 and 8/05/99 at the Niagara Mohawk Rome Fulton Site. Nine aqueous field samples were analysed for BTEX and PAH. Matrix spikes/duplicates, and a trip blank were also processed. Methodologies utilized are those of the 1995 NYSDEC ASP/SW846.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the summary form information, with review of sample raw data, and some review of associated QC raw data. Full validation has not been performed; however, the reported summary tables have been reviewed for application of validation qualifiers, as affects the usability of the sample data. The following items were reviewed:

- \* Laboratory Narrative Discussion
- \* Custody Documentation
- \* Holding Times
- \* Surrogate and Internal Standard Recoveries
- \* Matrix Spike Recoveries/Duplicate Correlations
- \* Field Duplicate Correlations
- \* Preparation/Calibration Blanks
- \* Control Spike/Laboratory Control Samples
- \* Instrumental Tunes
- \* Calibration Standards
- \* Instrument IDLs
- \* Method Compliance

Those items listed above which show deficiency are discussed within the text of this narrative. All other items were determined to be acceptable.

In summary, BTEX sample results were generated with acceptable quality of processing, and are usable as reported. The PAH detected results were initially reported with incorrect quantitative values; resubmitted report forms are attached. The PAH data for two samples are also considered biased slightly low due to extended holding time.

Copies of the laboratory case narrative, laboratory NYSDEC Sample Analytical Requirement Summary Forms, resubmission communications, and revised report forms are attached to this text, and should be reviewed in conjunction with this report. All included in this submission are client tables which have been edited to reflect the validation qualifiers.

The following text discusses quality issues of concern.

## **AQUEOUS SAMPLES**

### **General**

Accuracy and precision determinations were performed on MW-8, and were acceptable for both fractions.

A blind field duplicate of MW-5 showed good correlation for both fractions.

Per NYSDEC ASP Category B deliverables requirements, the case narrative should have included the "verbatim" statement.

### **BTEX Analyses by EPA 8260**

Sample processing was performed in compliance with protocol requirements. No validation qualifications were indicated. Sample results are usable as reported.

The summary Forms 4 and 5 should not have denoted a heated purge for these analyses.

### **PAH Analyses by EPA 8270**

Please see the revised report forms for all samples, which have been edited to lower all detected values by a factor of two.

Samples MW-3 and MW-8 were reextracted one day beyond the allowable technical holding time. Results for these two samples are considered estimated ("J") qualifier. Based upon the characteristics of the target analytes, the level of bias is not expected to be great.

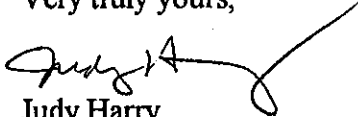
Certain of the samples exhibited elevated concentrations of analytes which required dilution analyses. In some cases, multiple analyses were reported. Reported results for those analytes reported with the "E" flag should be derived from the dilution analysis. Unless noted specifically within this text, all other values can be derived from the initial analysis.

Some of the samples requiring dilution were reported using only the dilution analysis. Therefore, the lower level concentrations of compounds detected in the undiluted analysis were not reported, due to elevated detection limits resulting from the dilution. This information is available in the raw data if it is of concern.

Sample processing (other than holding time and calculation) was compliant.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

  
Judy Harry

Att.

# Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

September 30, 2004

Scott Tucker  
O'Brien & Gere Engineers  
5000 Brittonfield Parkway  
Syracuse, NY 13221

RE: Data Usability Summary Report for NMPC-South First St. Fulton, NY Data Package  
OBG Laboratory SDG Nos. 8186,8187,8208,8280,8294 and 8375,8384,8390

Dear Ms. Wright:

Review has been completed for the data packages generated by O'Brien & Gere Laboratories that pertain to samples collected 6/14/04 through 7/12/04 at the Niagara Mohawk Rome South First St. Fulton, NY site. Thirty-eight soil samples and sixteen aqueous samples (including field duplicates) were analyzed for BTEX by method EPA 8260B and PAH by method 8270C. Twelve additional soil samples were analyzed for PAHs. Equipment/trip blanks and matrix spikes/duplicates were also processed. Analytical methodologies used are those of the 1995 NYSDEC ASP/USEPA SW846.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the QC summary form information, with review of sample raw data, and limited review of associated QC raw data. Full validation has not been performed. However, the reported summary tables have been reviewed for application of validation qualifiers, per the USEPA Region 2 validation SOPs and the USEPA National Functional Guidelines for Data Review, as affects the usability of the sample data. The following items were reviewed:

- \* Laboratory Narrative Discussion
- \* Custody Documentation
- \* Holding Times
- \* Surrogate and Internal Standard Recoveries
- \* Matrix Spike Recoveries/Duplicate Correlations
- \* Field Duplicate Correlation
- \* Preparation/Calibration Blanks
- \* Control Spike/Laboratory Control Samples
- \* Instrumental Tunes
- \* Calibration Standards
- \* Instrument IDLs

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review.

**In summary**, most sample results are usable as reported. However, nondetected PAH analytes are not usable in two samples. The specifics are noted below.

Copies of the laboratory case narratives and laboratory NYSDEC Sample Analytical Requirement Summary Forms are attached to this text, and should be reviewed in conjunction with this report. Also included with this submission are client results tables with validation qualifiers and edits applied in red ink. These tables will be referenced in this report.

The following text discusses quality issues of concern.

### **General**

Blind field duplicate evaluations were performed on aqueous sample MW-12D and soil samples MW-12(0-4), SB-38(4-8), SB-43(0-4), and SS-24A. Correlations were acceptable, with the exception of those for the semivolatiles in MW-12(0-4). Results for detected analytes in that field duplicate are between four and nine times higher than that parent sample. Results for detected PAHs in the sample MW-12(0-4) and DUP-3 are qualified estimated ("J").

### **BTEX Analyses by EPA 8260B**

The three trip blanks submitted with the aqueous samples were dated more than two weeks prior to sample collection. Therefore, holding times for analysis of those blanks were missed, and those results are qualified as estimated, with a possible low bias.

Results for detected compounds in MW-4 and MW-5 are qualified as estimated due to elevated recovery of one surrogate standard (122% for both, above 114% limit). It is noted that the surrogate also produced similarly elevated recoveries in three associated method blanks, indicating that the outliers are not due to matrix.

Equipment, trip, and method blanks show no contamination. Sample holding times were met. Instrumental tunes were compliant. Calibration standards met protocol and validation requirements.

Internal standard d4-1,4-dichlorobenzene responded below the 50% limit in one sample, but there are no target analytes associated with this standard. Sample results are unaffected.

Matrix spikes were performed on aqueous sample MW-12S and low level soil samples SB-39(0-4), SB-46(0-4), and SB-46(4-8). Accuracy and precision were acceptable. There were no medium level soil matrix spikes analyzed.

Nine soil samples (identifications are specified in the laboratory case narrative) were analyzed at dilution due to non-target sample components. Therefore, higher reporting limits were reported.



**PAH Analyses by EPA 8270C**

Samples MW-5 and SB-37(14-16) failed to recover surrogate standard d5-nitrobenzene upon initial extraction. SB-37(14-16) was reextracted successfully, but well beyond the allowable holding time (43 days from VTSR, beyond the allowable 10 days). Sample MW-5 was not reextracted. Results for nondetected analytes in both samples are rejected ("R") and not usable. The detected values for both samples are qualified as estimated ("J"), with a possible low bias. The soil reextraction results should be used preferentially over the initial. The reason for that surrogate failure is not evident chromatographically.

Results for SB-37(18-20) are qualified as estimated ("J" and "UJ") due to low recoveries for two surrogate standards.

Results for analytes initially reported with the "E" flag are to be derived from dilution analyses. They include the following:

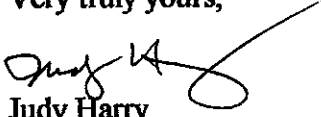
<u>Sample ID</u>	<u>Analyte</u>	<u>Result, ppb</u>
MW-5	Naphthalene	760
MW-12(10-12)	Phenanthrene	8000

Matrix spikes of aqueous sample MW-12S and soil samples SB-39(0-4) and MW-12 (14-16) show acceptable accuracy and precision for all eleven analytes evaluated. The spikes for SB-46(0-4) could not be evaluated due to high sample concentrations and the subsequent required dilution.

Internal standards, instrument tunes, and calibration standards meet protocol/validation requirements.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

  
Judy Harry

# Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

February 18, 2005

Scott Tucker  
O'Brien & Gere Engineers  
5000 Brittonfield Parkway  
Syracuse, NY 13221

RE: Data Usability Summary Report for NMPC-South First St. Fulton, NY Data Package  
OBG Laboratory SDG Nos. 8894, 8925, 8957, 9060/9091, 1240/1254/1264/1303, 1823, and  
5554

Dear Mr. Tucker:

Review has been completed for the data packages generated by O'Brien & Gere Laboratories that pertain to samples collected 5/08/01 through 6/01/01, 2/11/02 through 4/16/02, and 6/06/03 at the Niagara Mohawk Rome South First St. Fulton, NY site. One hundred and ten soil samples (including field duplicates) were analyzed for PAHs. Fifty-one of these were also analyzed for BTEX, and nine of those were processed for TAL metals. Seven aqueous samples were processed for BTEX and PAHs. Equipment/trip blanks and matrix spikes/duplicates were also processed. Analytical methodologies used are those of the 1995 NYSDEC ASP/USEPA SW846 8260B, 8270C, 6010B, and 7471.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the QC summary form information, with review of sample raw data, and limited review of associated QC raw data. Full validation has not been performed. However, the reported summary tables have been reviewed for application of validation qualifiers, per the USEPA Region 2 validation SOPs and the USEPA National Functional Guidelines for Data Review, as affects the usability of the sample data. The following items were reviewed:

- \* Laboratory Narrative Discussion
- \* Custody Documentation
- \* Holding Times
- \* Surrogate and Internal Standard Recoveries
- \* Matrix Spike Recoveries/Duplicate Correlations
- \* Field Duplicate Correlation
- \* Preparation/Calibration Blanks
- \* Control Spike/Laboratory Control Samples
- \* Instrumental Tunes
- \* Calibration Standards
- \* Instrument IDLs

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review.

**In summary**, samples were processed in accordance with protocol/QAPP requirements, and sample results are usable as reported or usable with minor qualification as estimated.

Copies of the laboratory case narratives and laboratory NYSDEC Sample Analytical Requirement Summary Forms are attached to this text, and should be reviewed in conjunction with this report. Also included with this submission are sample report forms with validation qualifiers and edits applied in red ink. These tables will be referenced in this report.

The following text discusses quality issues of concern.

### **General**

Blind field duplicate evaluations were performed on aqueous sample MW-4 and on soil samples SB-18(18-20), SB-19-(12-14), SS-14, SB-22(18-20), SB-30(12-14), and SB-34(2-4). Correlations were acceptable, with the exception of those for the semivolatiles in SS-14. Results for detected analytes in that field duplicate are about twenty times higher than that parent sample. Results for detected PAHs in the sample SS-4 and its associated blind duplicate are qualified estimated ("J").

### **BTEX Analyses by EPA 8260B**

Equipment and trip blanks show no contamination. Method blanks reported in SDG 8925 show low concentrations of xylene, and one of the blanks (5/15/01) also shows a low level of toluene. Associated sample results should have been flagged as "B" by the laboratory. Low level detections in those samples that are within fivefold concentration of the blanks have been edited to nondetection at the CRDL.

Internal standard d4-1,4-dichlorobenzene responded below the 50% limit in three samples, but there are no target analytes associated with this standard. Sample results are unaffected.

Matrix spikes were performed on aqueous sample MW-8 and low level soil samples SB-14(16-18), SS-17, and BK-1. Accuracy and precision were acceptable.

The result for xylene in SB-15(6-8) is qualified as estimated, as the response is below the established linear range for those combined compounds.

Sample holding times were met. Instrumental tunes were compliant. Calibration standards met protocol and validation requirements. Several soil samples were analyzed only at dilution, resulting in higher reporting limits. In some cases, matrix interferences are not apparent on the dilution chromatograms.

### **PAH Analyses by EPA 8270C**

Internal standard d12-perylene responded below the 50% limit in the following samples, and the six associated compounds are therefore qualified as estimated. Initial analyses are preferable unless noted otherwise: SB-15(2-4) and SB-12(8-10), SS-10, SS-11, SS-14 (use reanalysis),

Internal standards d12-chrysene and d12-perylene responded below the 50% limit in the undiluted analysis of SS Blind Duplicate. The dilution analysis was acceptable, and results from that are to be used from the dilution for the six compounds associated with d12-perylene. Results for this sample are already qualified as estimated due to field duplicate correlations.

Results for analytes initially reported with the "E" flag are to be derived from dilution analyses.

Matrix spikes of aqueous sample MW-8 and soil samples SB-14(16-18), SB-18(6-8), SS-17, SB-23(10-12), SB-29(10-12), BK-1, SS-24, and SB-34(14-16) show acceptable accuracy and precision for the sixteen PAHs evaluated.

Calibration standards meet validation guidelines, with the following exceptions of elevated responses, detected results for which are qualified as estimated in the indicated samples:

- Indeno(1,2,3-cd)anthracene and dibenz(a,h)anthracene (21%D and 22%D) (affected detected results are already qualified as estimated due to values below CRDL)
- Dibenz(a,h)anthracene and benzo(g,h,i)perylene (22%D to 23%D) detected values reported in SDG 1823

Detected results for benzo(b)fluoranthene and benzo(k)fluoranthene in samples reported in SDG 1241 are qualified as estimated due to lack of resolution of the isomers.

Holding times were met, and surrogate recoveries are within required limits. Instrument tunes meet protocol/validation requirements.

#### **TAL Metals by 6010B**

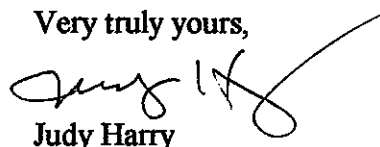
Matrix spikes and duplicate evaluations were performed on SS-17. The following element exhibited matrix spike recoveries outside the validation action ranges, indicating either a matrix effect on recovery of analytes from the samples, or a nonhomogenous matrix. Project sample results are qualified as estimated ("J" or "UP"):

<u>Element</u>	<u>%Recoveries</u>
antimony	39 and 39
arsenic	52 and 66
manganese	142 and 72
selenium	82 and 68 (PDS 69%)

ICP serial dilution evaluation was performed on SS-17, and showed outlying correlations for beryllium (13%D), iron (11%D), and sodium (20%D). Results for these three elements are therefore qualified as estimated in the project samples.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



Judy Harry

## DATA QUALIFIER DEFINITIONS

INORGANIC

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process. If the Regions choose to use additional qualifiers, a complete explanation of those qualifiers should accompany the data review.

- U** - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- J** - The associated value is an estimated quantity.
- R** - The data are unusable. (Note: Analyte may or may not be present.)
- UJ** - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

# Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

February 22, 2006

Scott Tucker  
O'Brien & Gere Engineers  
5000 Brittonfield Parkway  
Syracuse, NY 13221

RE: Data Usability Summary Report for NMPC-South First St. Fulton, NY Data Package  
Life Sciences Laboratory SDG Nos. 510084, 511023/511034, and 512206

Dear Mr. Tucker:

Review has been completed for the data packages generated by O'Brien & Gere Laboratories that pertain to samples collected 10/14/05 through 12/29/05 at the Niagara Mohawk Rome South First St. Fulton, NY site. Twenty-two aqueous and seven soil samples (including a total of three field duplicates) were analyzed for BTEX and PAHs. The aqueous samples were also analyzed for cyanide. Six additional soil samples (including a field duplicate) were processed for PAHs. Equipment/trip blanks and matrix spikes/duplicates were also processed. Analytical methodologies used are those of the 1995 NYSDEC ASP/USEPA SW846 8260B, 8270C, and 9012.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the QC summary form information, with review of sample raw data, and limited review of associated QC raw data. Full validation has not been performed. However, the reported summary tables have been reviewed for application of validation qualifiers, per the USEPA Region 2 validation SOPs and the USEPA National Functional Guidelines for Data Review, as affects the usability of the sample data. The following items were reviewed:

- \* Laboratory Narrative Discussion
- \* Custody Documentation
- \* Holding Times
- \* Surrogate and Internal Standard Recoveries
- \* Matrix Spike Recoveries/Duplicate Correlations
- \* Field Duplicate Correlation
- \* Preparation/Calibration Blanks
- \* Control Spike/Laboratory Control Samples
- \* Instrumental Tunes
- \* Calibration Standards
- \* Instrument IDLs

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review.

**In summary**, samples were primarily processed in accordance with protocol/QAPP requirements, and most sample results are usable as reported or usable with minor qualification as estimated. However, results for non-detected PAH analytes in three aqueous samples are not usable due to surrogate failure. Because those samples were not re-processed by the laboratory, it is not known whether recollection of the samples could result in usable data.

Copies of the laboratory case narratives and laboratory NYSDEC Sample Analytical Requirement Summary Forms are attached to this text, and should be reviewed in conjunction with this report. Also included with this submission are sample report forms with validation qualifiers and edits applied in red ink. These tables will be referenced in this report.

The following text discusses quality issues of concern.

### **General**

Blind field duplicate evaluations were performed on aqueous samples MW-4-110205-(8FT) and MW-3-110305-(8.5 FT), and on soil samples SS-29-122905 and SB-48-101405(2-4). Correlations were acceptable, with the exception of those for the PAHs in SB-48-101495(2-4). Results for detected analytes in that field duplicate are about ten times higher than those in its parent sample. Results for detected PAHs in the sample SB-48-101495(2-4) and its associated blind duplicate are qualified estimated ("J").

The report forms for the equipment and trip blanks incorrectly report soil units of "ug/kg."

### **BTEX Analyses by EPA 8260B**

Due to presence in the associated trip blank, the result for toluene in MW-6-110205 is considered external contamination and edited to be non-detection. Equipment and method blanks show no contamination.

Internal standard d4-1,4-dichlorobenzene responded below the 50% limit in two samples, but there are no target analytes associated with this standard. Sample results are unaffected.

Matrix spikes were performed on soil sample SB-48-101405(0-2) and aqueous samples MW-2-110305 and MW-11-110205. Accuracy and precision were within laboratory and validation guidelines.

Sample holding times were met. Instrumental tunes were compliant. Calibration standards met protocol and validation requirements.

### **PAH Analyses by EPA 8270C**

Samples MW-4-110205 (8 FT), MW-4-110205(12FT), and DUPE-1-110205 produced no recovery of d5-nitrobenzene. The samples were not re-extracted, so it is unknown whether the cause of the failures was due to sample matrix or to laboratory processing. The results for analytes not detected in those three samples are therefore rejected ("R"), and detected values are qualified as estimated, with a probable low bias.

Internal standard d12-perylene responded below the 50% limit in the undiluted analyses of the following samples, and the six associated compounds are therefore qualified as estimated if derived from the undiluted analyses: SB-48-101405(0-2), SS-29-122905, SS-30-122905, SS-31-122905, SS-32-122905, and DUP-1-122905.

Sample SS-32-122905 and DUP-1-122905 also show low responses for internal standard d12-chrysene, and the three associated compounds are also qualified as estimated in those two samples.

Results for analytes initially reported with the "E" flag are to be derived from dilution analyses.

Matrix spikes of aqueous sample MW-11-110205 and soil sample SB-48-101405(0-2) were acceptable, with the exception of the recoveries of indeno(1,2,3-cd)pyrene in the soil. Results for that analyte in parent sample SB-48-101405(0-2) are already qualified as estimated due to internal standard responses.

The matrix spikes (MS/MSD) of SS-28-122905 show inconsistencies in recoveries and were noted during analysis as differing in color and viscosity. Although the chromatograms of the MS and the parent sample look similar, the MS is at much higher concentrations of response, and was analyzed at a tenfold dilution. The chromatogram of the MSD does not resemble those of the parent and MS. All results for the parent sample are qualified as estimated due to potential non-homogenous matrix.

Calibration standards meet validation guidelines. Equipment and method blanks show no contamination. Holding times were met, and instrument tunes meet protocol/validation requirements.

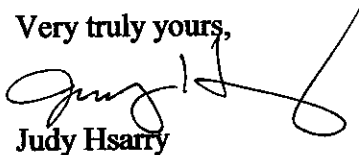
#### **Wet Chemistry Analyses-Cyanide**

Review was conducted for method compliance, transcription, calculations, standard and blank acceptability, accuracy and precision, etc., as applicable to each procedure. All were found acceptable unless noted specifically within this text.

Matrix spikes of MW-11-110205 (5FT) and MW-2-110305 were acceptable.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



Judy Hsarry



## SAMPLE IDENTIFICATION AND ANALYTICAL SUMMARY

5

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE IDENTIFICATION AND

## ANALYTICAL SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		VOA GC/MS Method#	BNA GC/MS Method#	VOA GC Method#	PEST PCBs Method#	METALS	OTHER
MW-7-11105-(7FT)	0511023-001	8260B	8270C				SW9012A
MW-7-11105-(11FT)	0511023-002	8260B	8270C				SW9012A
MW-8-11105	0511023-003	8260B	8270C				SW9012A
MW-10-11105-(11FT)	0511023-004	8260B	8270C				SW9012A
MW-4-110205-(8FT)	0511023-005	8260B	8270C				SW9012A
MW-4-110205-(12FT)	0511023-006	8260B	8270C				SW9012A
MW-5-110205	0511023-007	8260B	8270C				SW9012A
DUPE-1-110205	0511023-008	8260B	8270C				SW9012A
MW-6-110205	0511023-009	8260B	8270C				SW9012A
MW-7D-110205	0511023-010	8260B	8270C				SW9012A
MW-8D-110205	0511023-011	8260B	8270C				SW9012A
MW-9D-110205	0511023-012	8260B	8270C				SW9012A
MW-11-110205-(5FT)	0511023-013	8260B	8270C				SW9012A
MW-11-110205-(5FT)	0511023-013MS/MSD	8260B	8270C				
MW-11-110205-(10FT)	0511023-014	8260B	8270C				SW9012A
MW-12D-110205	0511023-015	8260B	8270C				SW9012A
TB-110205	0511023-016	8260B					
MW-1-110305	0511038-001	8260B	8270C				SW9012A
MW-2-110305	0511038-002	8260B	8270C				SW9012A
MW-2-110305	0511038-002MS/MSD	8260B	8270C				
MW-3-110305 (8.5FT)	0511038-003	8260B	8270C				SW9012A
MW-3-110305 (12FT)	0511038-004	8260B	8270C				SW9012A
MW-9S-110305	0511038-005	8260B	8270C				SW9012A
MW-12S-110305 (8.5FT)	0511038-006	8260B	8270C				SW9012A
MW-12S-110305 (12FT)	0511038-007	8260B	8270C				SW9012A
DUP-2-110305	0511038-008	8260B	8270C				SW9012A
TB-2-110305	0511038-009	8260B					

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**SAMPLE IDENTIFICATION AND**

**ANALYTICAL SUMMARY**

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		VOA GC/MS Method#	BNA GC/MS Method#	VOA GC Method#	PEST PCBs Method#	METALS	OTHER
SS-28-122905	0512206-001A		8270C				
SS-28-122905	0512206-001AMS/MSD		8270C				
SS-29-122905	0512206-002A		8270C				
SS-30-122905	0512206-003A		8270C				
SS-31-122905	0512206-004A		8270C				
SS-32-122905	0512206-005A		8270C				
DUP-1-122905	0512206-006A		8270C				

## NARRATIVE

## INTRODUCTION/ANALYTICAL RESULTS

This report summarizes the laboratory results for O'Brien & Gere Engineers, Inc. samples from the Niagara Mohawk Power Corporation—South First Street—Fulton, NY. New York State Department of Environmental Conservation forms are included in the Laboratory Report Package.

### CONDITION UPON RECEIPT/CHAIN OF CUSTODY

The coolers were received intact. When the coolers were received by the laboratory, the sample custodian(s) opened and inspected the shipments for damage and custody inconsistencies. Chain of custody documenting receipt are presented in the chain of custody section. Each sample was assigned a unique laboratory number and a custody file created. The samples were placed in a secured walk-in cooler and signed in and out by the chemists performing the tests. The sign out record, or lab chronicle, is presented in the chain of custody section.

No discrepancies were noted upon receipt. The cooler temperature was 2.4°C.

## METHODOLOGY

**The following methods were used to perform the analyses:**

PARAMETER	METHOD	REFERENCE
Volatile Organics	8260B	1
Semivolatile Organics	8270C	1
Percent Total Solids	2540-G	2

- 1) New York State Department of Environmental Conservation Analytical Services Protocol, October 1995.
- 2) Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> Edition, 1992

## QUALITY CONTROL

**QA/QC results are summarized in the Laboratory Report Package.**

## RAW DATA

The raw data is organized according to the New York State Department of Environmental Conservation Analytical Services Protocol Category "B" order of data requirements.

QA/QC: g. g. g. g. g.

Date: 12-8-05

Total # of pages in this report: 513

## GC/MS Volatile Organics Case Narrative

Client: OBG  
Project/Order: NIMO -South First St - Fulton, NY  
Work Order #: 0510084  
Methodology: 8260B

Analyzed/Reviewed by (Initials/Date): OBG 11-22-05

Supervisor/Reviewed by (Initials/Date): OBG 11-22-05

QA/QC Review (Initials/Date): agf 11-30-05

File Name: G:\Narratives\MSVoa\0510084msvnr.doc

### GC/MS Volatile Organics

The GC/MS Volatile instruments used a Restek Rtx-VMS, 40 m x 0.18 mm ID capillary column and a Vocab 3000 trap.

### Holding Times and Sample Preservation

All samples were prepared and analyzed within the method and/or QAPP specified holding time requirements.

### Laboratory Control Sample

All spike recoveries met method and/or project specific QC criteria.

### MS/MSD/MSB

All spike recovery and RPD data met method and/or project specific QC criteria.

### Surrogate Standards

All surrogate standard recoveries met method and/or project specific QC criteria.

### Internal Standards

Internal standard 1,4-Dichlorobenzene-d4 exceeded the lower control limit for samples 0510084-002A [SB-47 (0-2')] and 0510084-003A [SB-47 (2-4')]. No compounds of interest are associated with this internal standard, therefore no corrective action is required.

### Calibrations

All initial calibrations and calibration verifications met method and/or project specific QC criteria.

### Preparation Blanks

All preparation blanks met method and/or project specific QC criteria.

### GC/MS Semi-Volatile Organics Case Narrative

Client ID: OBG-MS  
Proj./Ord.: NIMO-South First St-Fulton, NY  
W.O. #: 0510084  
Methodology: 8270C

Analyzed/Reviewed by (Initials/Date): mdf 10-1-05

Supervisor/Reviewed by (Initials/Date): Ca 11-21-05

QA/QC Review (Initials/Date): gjd 11-30-05

File Name: C:\Documents MS5\Templates\0510084svnar.doc

#### GC/MS Semi-Volatile Organics

The GC/MS Semi-volatile instruments used a Zebron ZB-5, 30 m x 0.25 mm ID capillary column.

#### Holding Times and Sample Preservation

All samples were prepared and analyzed within the method and/or QAPP specified holding time requirements.

#### Laboratory Control Sample

All spike recoveries met method and/or project specific QC criteria.

#### MS/MSD/MSB

The following compound(s) did not meet matrix spike/matrix spike duplicate percent recovery and/or RPD criteria:

Sample Description	Sample #	Compound	% REC	RPD	Corrective Action
SB-48-101405(0-2')	0510084-005B	several	X		1

- 1 The recovery for this compound in the associated LCS and/or MSB was within acceptance limits. The concentration of the analyte in the sample was much greater than the concentration of the analyte spiked, which may bias recoveries. No corrective action was taken.

#### Surrogate Standards

All surrogate standard recoveries met method and/or project specific QC criteria.

#### Internal Standards

The internal standard area for the following sample(s) did not meet abundance criteria:

Sample Description	Sample #	Internal Standard	Corrective Action
SB-48-101405(0-2')	0510084-005B	Perylene-d12	1
SB-48-101405(0-2')MS	0510084-005BMS	Perylene-d12	1
SB-48-101405(0-2')MSD	0510084-005BMSD	Perylene-d12	1

GC/MS Semi-Volatile Organics Case Narrative - Page 2

Client ID: OBG-MS  
Proj./Ord.: NIMO-South First St-Fulton, NY  
W.O.#: 0510084  
Methodology: 8270C

- 1 The recovery was confirmed by similar sample, MS, and MSD results. No corrective action was taken.

**Calibrations**

All initial calibrations and calibration verifications met method and/or project specific QC criteria.

**Preparation Blanks**

All preparation blanks met method and/or project specific QC criteria.

To: Deborah Wright  
From: KA Storne  
Re: Review of Data for the National Grid Vapor Intrusion  
Investigation, Sampling Performed July 2007  
File: 118/35165.002.271  
Date: October 12, 2007

This report addresses review of the soil vapor samples and field duplicate collected for the National Grid Vapor Intrusion Site, in Fulton, New York. Sample collection activities were conducted by O'Brien & Gere on July 27, 2007.

The following table summarizes the analysis performed for this sampling event.

**Table 1-1. Analytical methods and references**

Parameter	Method	Reference
VOCs	USEPA Method TO-15	1
Note: 1. United States Environmental Protection Agency. 1999. <i>Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air</i> . Cincinnati, Ohio.  VOCs indicates volatile organic compounds.		

Columbia Analytical Services of Sumi Valley, California (CAS) performed the analyses.

The laboratory packages generated by CAS contained quality control analysis and supportive raw data.

Full validation was performed on the samples collected for this sampling event.

The analytical data generated for this investigation were evaluated by O'Brien & Gere using the quality assurance/quality control (QA/QC) information presented in the following documents:

- United States Environmental Protection Agency (USEPA). 1999. *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*. Cincinnati, Ohio.
- O'Brien & Gere, 2007. *Soil Vapor Sampling Plan, Revision 1, Former Fulton (South First St.) MGP Fulton, Oswego County, Site No. 7-38-034P*. Syracuse, New York (Sampling Plan).

Data affected by excursions from the previously mentioned QA/QC criteria were qualified using the following USEPA data validation guidance and professional judgment:

- United States Environmental Protection Agency (USEPA). 1994. *Region II Validating Canisters of Volatile Organics in Ambient Air*, HW-18, Revision 0. New York, New York.

Since the USEPA data validation guidelines apply to data generated using CLP methods, the application of these validation guidelines have been modified since a non-CLP method was used in the analysis of samples collected for this sampling event. Qualifiers are applied to data that fail to meet the quality control criteria presented in the USEPA method.



In accordance with the USEPA guidance, and utilizing professional judgment, the following qualifiers are used in this type of data validation:

- “U” Indicates that the analyte was analyzed for, but was not detected. The associated value indicates the approximate sample concentration necessary to be detected.
- “J” Indicates that the detected analyte is present but the reported value may not be accurate or precise. The result should be considered approximate based on excursions from QA/QC criteria.
- “UJ” Indicates that the analyte was not detected and the quantitation limit may be inaccurate or imprecise. The result should be considered approximate based on excursions from QA/QC criteria.
- “R” Indicates that the detection limit or sample result is unreliable and has been rejected due to a major excursion from QA/QC criteria. The analyte may or may not be present in the sample. The data should not be used for qualitative or quantitative purposes.

The validation included checking the following parameters:

- Chain-of-custody records
- Sample collection
- Laboratory compliance with project plans
- Holding times
- Calibrations
- Blank analysis
- Laboratory control sample (LCS) analysis
- Field duplicate analysis
- Internal standards performance
- Gas chromatography/mass spectrometry (GC/MS) instrument performance check
- Target analyte quantitation, identification, and reported detection limits
- Documentation completeness.

The samples that were submitted for data validation are listed in Table 1-2 presented in Attachment A.

The following sections of this memorandum present the results of the comparison of the analytical data to the QA/QC criteria specified above. Based on the QA/QC information review, an overall evaluation of the data's usability is also presented in the final section.

## **VALIDATION APPROACH**

O'Brien & Gere applies the following general approach for application of data validation qualifiers when control limits are exceeded:

- If percent recoveries are less than laboratory control limits but greater than ten percent, non-detected and detected results are qualified as approximate (J, UJ).
- If percent recoveries are greater than laboratory control limits, detected results are qualified as approximate (J).

- If percent recoveries are less than ten percent, detected results are qualified as approximate (J) and non-detected results are qualified as rejected (R).
- If RPDs for field duplicates are outside of validation criteria, detected and non-detected results are qualified as approximate (UJ, J).

The calibration criteria used to evaluate the data generated for this investigation were based on the method criteria.

Laboratory established control limits were used to assess LCS data.

The cumulative effect of the various QA/QC excursions is employed in assigning the final data qualifiers. For example, if a sample result is affected by low LCS recovery for which the "J" qualifier is applied, but severely low internal standard recoveries result in the rejection of the sample result (R), the final qualifier is "R".

Qualification of data associated with field duplicate excursions is limited to the field duplicate pair.

Field duplicate data were evaluated against relative percent difference (RPD) criteria of less than 50 percent for air samples when results were greater than five times the reporting limit. When sample results for field duplicate pairs were less than five times the reporting limit, the data were evaluated using control limits of plus or minus two times the reporting limit.

## **SAMPLE COLLECTION**

Canister blanks were not collected as part of this sampling event.

## **LABORATORY COMPLIANCE WITH PROJECT PLANS**

In addition to the target analytes listed in the Sampling Plan, additional target analytes that were not listed in the Sampling Plan were reported by the laboratory.

The detection limits listed in the Sampling Plan were exceeded; dilutions were performed for samples collected during this sampling event due to the detection of elevated target analyte concentrations.

The Project Manager was informed of the compliance issues.

## **CHAIN-OF-CUSTODY RECORDS**

The courier was not listed on the chain-of-custody record associated with samples collected 7/27/07. The identification of the courier was not included in the data package.

The Project Manager was informed of the chain-of-custody issue.

## **DOCUMENTATION COMPLETENESS**

Supplemental information was requested during validation and was received from the laboratory. The supplemental information was necessary to complete the validation process.

## **VOLATILE ORGANIC COMPOUND IN AIR DATA EVALUATION SUMMARY**

The following QA/QC parameters were found to meet method and validation criteria or did not result in additional qualification of sample results:

- Holding times
- Calibrations
- Blank analysis
- LCS analysis
- Field duplicate analysis
- Internal standards performance
- GC/MS instrument performance check
- Target analyte identification

Excursions from method or validation criteria were not detected during the validation process. Additional observations are described below.

### **I. Target analyte quantitation and reported detection limits**

Sample results were reported to the practical quantitation limit (PQL).

Samples submitted for analysis were analyzed at a dilution. Dilutions were required since elevated target analyte concentrations were detected in the samples. In the case that more than one dilution was performed by the laboratory, the laboratory combined the analyses. For elevated target analytes, the reported concentrations are within the instrument linear range and the lowest dilution is reported for the remaining target analytes.

## **DATA USABILITY**

Overall data usability with respect to completeness for the final sample results reported is 100 percent for the VOC air data. The VOC air data were determined to be usable for qualitative and quantitative purposes. Based on the validation performed, the typical completeness goal of 95 percent was met for these analyses.

**Table 1. National Grid-Fulton Sample Cross Reference Summary Table**

**Samples submitted for data validation**

Laboratory Name	Date Collected	Client Identification	Laboratory Identification	Analysis Requested
CAS	7/27/2007	SV-04-NG-072707	P2702285-001	VOC by TO15
CAS	7/27/2007	SV-05-NG-072707	P2702285-002	VOC by TO15
CAS	7/27/2007	SV-06-NG-072707	P2702285-003	VOC by TO15
CAS	7/27/2007	SV-07-NG-072707	P2702285-004	VOC by TO15
CAS	7/27/2007	SV-08-NG-072707	P2702285-005	VOC by TO15
CAS	7/27/2007	SV-09-NG-072707	P2702285-006	VOC by TO15
CAS	7/27/2007	SV-DUP-NG-072707[SV-08-NG-072707]	P2702285-007	VOC by TO15
CAS	7/27/2007	AMB-01-NG-072707	P2702285-008	VOC by TO15

Note:

CAS indicates Columbia Analytical Services in Simi Valley, California.

VOC indicates volatile organic compounds.

DUP indicates field duplicate collected from location indicated in brackets.

To: Deborah Wright  
From: KA Storne  
Re: DUSR for sampling for the National Grid Vapor Intrusion Investigation, Sampling Performed June 2008  
File: 1118/35165.002.271  
Date: August 22, 2008

cc: Scott Tucker

This data usability summary report (DUSR) memorandum provides the data validation results for the soil vapor samples and field duplicate collected for the National Grid Vapor Intrusion Site, in Fulton, New York. O'Brien & Gere conducted sample collection activities on June 4, 2008.

The following table summarizes the analysis performed for this sampling event.

**Table 1-1. Analytical method and reference**

Parameter	Method	Reference
VOCs	USEPA Method TO-15	1
Note: 1. United States Environmental Protection Agency. 1999. <i>Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air</i> . Cincinnati, Ohio.  VOCs indicates volatile organic compounds.		

TestAmerica Laboratories, Inc. of Knoxville, Tennessee (TA Knoxville) performed the analyses. The laboratory packages generated by TA Knoxville contained quality control analysis and supportive raw data.

Full validation was performed on the samples collected for this sampling event. The analytical data generated for this investigation were evaluated by O'Brien & Gere using the quality assurance/quality control (QA/QC) criteria presented in the following documents:

- United States Environmental Protection Agency. 1999. *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*. Cincinnati, Ohio.
- O'Brien & Gere 2008. *Additional Soil Vapor Evaluation, Former Fulton (South First St.) MGP Fulton (T), Oswego County, Site # 7-38-034P*. Syracuse, New York (Sampling Plan).

Data affected by excursions from these QA/QC criteria were qualified using the following USEPA data validation guidance and professional judgment:

- United States Environmental Protection Agency (USEPA). 1994. *Region II Validating Canisters of Volatile Organics in Ambient Air*, HW-18, Revision 0. New York, New York.

The application of this validation guideline has been modified to reflect the requirements of the method utilized by TA Knoxville.

In accordance with the USEPA guidance, and utilizing professional judgment, the following qualifiers are used in this type of data validation:

"U" Indicates that the analyte was analyzed for, but was not detected. The associated value indicates the approximate sample concentration necessary to be detected.

- “J” Indicates that the detected analyte is present but the reported value may not be accurate or precise. The result should be considered approximate based on excursions from QA/QC criteria.
- “UJ” Indicates that the analyte was not detected and the quantitation limit (QL) may be inaccurate or imprecise. The result should be considered approximate based on excursions from QA/QC criteria.
- “R” Indicates that the QL or sample result is unreliable and has been rejected due to a major excursion from QA/QC criteria. The analyte may or may not be present in the sample. The data should not be used for qualitative or quantitative purposes.

The validation included checking the following parameters:

- Chain-of-custody records
- Sample collection
- Laboratory compliance with project plans
- Holding times
- Calibrations
- Blank analysis
- Laboratory control sample (LCS) analysis
- Field duplicate analysis
- Internal standards performance
- Gas chromatography/mass spectrometry (GC/MS) instrument performance check
- Target analyte quantitation, identification, and quantitation limit (QL)
- Documentation completeness.

The samples that were submitted for data validation are listed in Table 1-2 presented at the end of this memorandum.

The following sections of this memorandum present the results of the comparison of the analytical data to the QA/QC criteria specified above. Based on the QA/QC information review, an overall evaluation of data usability is also presented in the final section.

## **VALIDATION APPROACH**

The following approach is used to evaluate calibration data for USEPA Method TO-15:

- VOC target analytes are evaluated using the criteria of 30 relative standard deviation (RSD) or correlation coefficient criteria of 0.990 for initial calibration curves.
- Calibration verifications were evaluated using a criterion of 30 percent difference (%D) for target analytes.
- Initial calibrations and calibration verifications were evaluated using the criterion of a response factor (RF) value of greater than or equal to 0.05.

In this type of validation, data are qualified using the following approach for evaluation of quality control data:

- Laboratory established control limits are used to assess LCS data.

- If percent recoveries are less than laboratory control limits but greater than ten percent, non-detected and detected results are qualified as approximate (UJ, J).
- If percent recoveries are greater than laboratory control limits, detected results are qualified as approximate (J) to indicate minor excursions. Non-detected results are not qualified.
- If percent recoveries are less than ten percent, detected results are qualified as approximate (J) and non-detected results are qualified as rejected (R) to indicate major excursions.
- Field duplicate data are evaluated against relative percent difference (RPD) criteria of less than 25 percent for air samples when results are greater than five times the quantitation limit (QL). When sample results for field duplicate pairs are less than five times the QL, the data are evaluated using control limits of plus or minus two times the QL. If RPDs for field duplicates are outside of laboratory control limits, detected and non-detected results are qualified as approximate (UJ, J) to indicate minor excursions.
- If RPDs for field duplicates are outside of validation criteria, detected and non-detected results in the field duplicate pair are qualified as approximate (UJ, J).

The cumulative effect of the various QA/QC excursions is employed in assigning the final data qualifiers. For example, if a sample result is affected by low LCS recovery for which the “J” qualifier is applied, but low internal standard recoveries result in the rejection of the sample result (R), the final qualifier is “R”.

## **SAMPLE COLLECTION**

The vacuum gage reading for sample SV-12-NG-060408 after sample collection was recorded at -8.9 inches (in.) of mercury (Hg). Upon receipt at the laboratory, the vacuum reading was -4.6 in. Hg. Sample results were not qualified for this pressure difference since the pressure difference met the validation requirement of within 10 in. Hg.

## **LABORATORY COMPLIANCE WITH PROJECT PLANS**

In addition to the target analytes listed in the Sampling Plan, additional target analytes that were not listed in the Sampling Plan were reported by the laboratory and evaluated during the validation. The Project Manager was informed of the additional analytes.

## **CHAIN-OF-CUSTODY RECORDS**

The chain-of-custody records were completed properly with the following exception:

- The pressures that were listed on the Chain-of-Custody Record were notated incorrectly; the negative sign notation was not listed where appropriate.

## **DOCUMENTATION COMPLETENESS**

Supplemental information was requested during the validation process. This information was necessary to complete the validation process.

## VOLATILE ORGANIC COMPOUND IN AIR DATA EVALUATION SUMMARY

The following QA/QC parameters were found to meet method and validation criteria or did not result in additional qualification of sample results:

- Holding times
- Blank analysis
- Field duplicate analysis
- Internal standards performance
- GC/MS instrument performance check
- Target analyte identification

Excursions from method or validation criteria are summarized in the following section. Additional observations are described below.

### I. Calibrations

The results for target analytes in the samples associated with the initial calibration of June 12, 2008 were qualified as approximate (UJ, J) since the results were outside of the validation criterion of less than 30 RSD. The results for target analytes in the samples associated with the calibration verification of 6/13/08 were qualified as approximate (UJ, J) since the results were outside of the validation criterion of less than 30 %D. The samples qualified due to these calibration excursions are summarized in the following table:

Table1-2. Calibration excursions for VOC analyses				
Calibration ID	Analyte	Excursion	Affected Sample	Action
IC 6/12/08	Ethylbenzene m/p-Xylenes Styrene n-Propyl benzene	30.2 RSD	SV-04R-NG-060408	UJ, J
		30.6 RSD	SV-05R-NG-060408	
		38.1 RSD	SV-06R-NG-060408	
		35.5 RSD	SV-08R-NG-060408	
			SV-10-NG-060408	
			SV-11-NG-060408	
			SV-12-NG-060408	
			SV-13-NG-060408	
			SV-14-NG-060408	
			SV-15-NG-060408	
			SV-16-NG-060408	
			SV-17-NG-060408	
			SV-DUP-NG-060408 [SV-12-NG-060408]	
			AMB-NG-060408	
CV 6/12/08	Toluene 1,2-Dibromoethane	31 %D	SV-10-NG-060408	UJ, J
		32.6 %D	SV-11-NG-060408	
			SV-15-NG-060408	
			SV-16-NG-060408	
			SV-DUP-NG-060408 [SV-12-NG-060408]	
			AMB-NG-060408	
Note: IC indicates initial calibration. CV indicates calibration verification. RSD indicates relative standard deviation %D indicates percent deviation.				



Quantitation of the following results was performed using a single point calibration: thiophene, 1,2,3-trimethylbenzene, indane, indene, 2-methyl naphthalene, 1-methyl naphthalene, 2-methyl thiophene, 3-methyl thiophene, 2-ethyl thiophene, benzo (b) thiophene and 1,2,3-trimethylbenzene. The detected results for these target analytes were qualified as approximate (J) in the samples collected for this sampling event since only a single point calibration was utilized. These target analytes were not listed in the Sampling Plan but were reported by the laboratory and evaluated during the validation. Quantitation for the remaining target analytes was performed using a five-point calibration curve.

## II. LCS analysis

The results for naphthalene, toluene and 1,2-dibromoethane in the samples associated with the LCS analyses were qualified as approximate (UJ, J). The recoveries of the target analytes in the LCS analyses were outside of the laboratory control limits.

The samples qualified due to the LCS recovery excursions are summarized in the following table:

<b>Table1-3. LCS excursions for VOC analyses</b>				
<b>LCS ID</b>	<b>Analyte</b>	<b>Excursion</b>	<b>Affected Sample</b>	<b>Action</b>
LCS 8165229 6/12/08	Naphthalene	69.5 %R	SV-04R-NG-060408 SV-05R-NG-060408 SV-08R-NG-060408 SV-12-NG-060408 SV-13-NG-060408 SV-14-NG-060408 SV-17-NG-060408	UJ, J
LCS 8168165 6/13/08	Toluene 1,2- Dibromoethane	69 %R 67 %R	SV-10-NG-060408 SV-11-NG-060408 SV-15-NG-060408 SV-16-NG-060408 SV-DUP-NG-060408 [SV-12-NG-060408] AMB-NG-060408	UJ, J
Note: %R indicates percent recovery.				

The following target analytes were not included in the LCS spike analysis: thiophene, 1,2,3-trimethylbenzene, indane, indene, 2-methyl naphthalene, 1-methyl naphthalene, 2-methyl thiophene, 3-methyl thiophene, 2-ethyl thiophene, benzo (b) thiophene and 1,2,3-trimethylbenzene. Therefore, evaluation of the recovery for these target analytes for this method could not be performed.

## III. Target analyte quantitation and QLs

Sample results were reported to the QL.

Samples SV-17-NG-060408 and SV-06R-NG-060408 were analyzed at a dilution. Dilutions were required since elevated target analyte concentrations were detected in the samples. In the case that more than one dilution was performed by the laboratory, the laboratory combined the analyses. For elevated target analytes, the concentrations reported that are within the instrument linear range and the concentrations from the lowest dilution are reported for the remaining target analytes.

## **DATA USABILITY**

Overall data usability with respect to completeness for the final sample results reported is 100 percent for the VOC air data. The VOC air data are usable for qualitative and quantitative purposes. Based on the validation performed, the typical completeness goal of 95 percent was met for these analyses.

**Table 2. Sample cross reference list**

**Samples collected and submitted for data validation**

Laboratory Name	Laboratory SDG	Laboratory Identification	Client Identification	Date Collected	Matrix	Analysis Requested
Test America Knoxville	H8F060185	H8F060185-001	SV-04R-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-002	SV-05R-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-003	SV-06R-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-004	SV-08R-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-005	SV-10-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-006	SV-11-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-007	SV-12-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-008	SV-13-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-009	SV-14-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-010	SV-15-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-011	SV-16-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-012	SV-17-NG-060408	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-013	SV-DUP-NG-060408 [SV-12-NG-060408]	6/4/2008	Air	VOCs
Test America Knoxville	H8F060185	H8F060185-014	AMB-NG-060408	6/4/2008	Air	VOCs

Note:

SDG indicates sample delivery group.

VOCs indicates volatile organic compounds.

To: Deborah Wright cc: Scott Tucker  
From: KA Storne  
Re: DUSR for sampling for the National Grid Vapor Intrusion  
Investigation, Sampling Performed December 2008  
File: 1118/35165.002.271  
Date: March 2, 2009

This data usability summary report (DUSR) memorandum provides the data validation results for the soil vapor samples collected for the National Grid Vapor Intrusion Site, in Fulton, New York. O'Brien & Gere conducted sample collection activities on December 23, 2008.

The following table summarizes the analysis performed for this sampling event.

**Table 1-1. Analytical method and reference**

Parameter	Method	Reference
VOCs	USEPA Method TO-15*	1
Note: 1. United States Environmental Protection Agency. 1999. <i>Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air</i> . Cincinnati, Ohio.  VOCs indicates volatile organic compounds. * Expanded target analyte list utilized.		

TestAmerica Laboratories, Inc. of Knoxville, Tennessee (TA Knoxville) performed the analyses. The laboratory packages generated by TA Knoxville contained quality control analysis and supportive raw data.

Full validation was performed on the samples collected for this sampling event. The analytical data generated for this investigation were evaluated by O'Brien & Gere using the quality assurance/quality control (QA/QC) criteria presented in the following documents:

- United States Environmental Protection Agency (USEPA). 1999. *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*. Cincinnati, Ohio.
- O'Brien & Gere 2008. *Additional Soil Vapor Evaluation, Former Fulton (South First St.) MGP Fulton (T), Oswego County, Site # 7-38-034P*. Syracuse, New York (Sampling Plan).

Data affected by excursions from these QA/QC criteria were qualified using the following USEPA data validation guidance and professional judgment:

- USEPA. 1994. *Region II Validating Canisters of Volatile Organics in Ambient Air*, HW-18, Revision 0. New York, New York.

The application of this validation guideline has been modified to reflect the requirements of the method utilized by TA Knoxville.

In accordance with the USEPA guidance, and utilizing professional judgment, the following qualifiers are used in this type of data validation:

"U" Indicates that the analyte was analyzed for, but was not detected. The associated value indicates the approximate sample concentration necessary to be detected.

- “J” Indicates that the detected analyte is present but the reported value may not be accurate or precise. The result should be considered approximate based on excursions from QA/QC criteria.
- “UJ” Indicates that the analyte was not detected and the quantitation limit (QL) may be inaccurate or imprecise. The result should be considered approximate based on excursions from QA/QC criteria.
- “R” Indicates that the QL or sample result is unreliable and has been rejected due to a major excursion from QA/QC criteria. The analyte may or may not be present in the sample. The data should not be used for qualitative or quantitative purposes.

The validation included checking the following parameters:

- Chain-of-custody records
- Sample collection
- Laboratory compliance with project plans
- Holding times
- Calibrations
- Blank analysis
- Laboratory control sample (LCS) analysis
- Field duplicate analysis
- Internal standards performance
- Gas chromatography/mass spectrometry (GC/MS) instrument performance check
- Target analyte quantitation, identification, and quantitation limit (QL)
- Documentation completeness.

The samples that were submitted for data validation are listed in Table 1-2.

The following sections of this memorandum present the results of the comparison of the analytical data to the QA/QC criteria specified above. Based on the QA/QC information review, an overall evaluation of data usability is also presented in the final section.

## **VALIDATION APPROACH**

The following approach is used to evaluate calibration data for USEPA Method TO-15:

- VOC target analytes are evaluated using the criteria of 30% relative standard deviation (RSD) or correlation coefficient criteria of 0.990 for initial calibration curves.
- Calibration verifications were evaluated using a criterion of 30 percent difference (%D) for target analytes.
- Initial calibrations and calibration verifications were evaluated using the criterion of a response factor (RF) value of greater than or equal to 0.05.

Quality control data were evaluated using the following approach:

- Laboratory established control limits are used to assess LCS data.

- If percent recoveries are less than laboratory control limits but greater than ten percent, non-detected and detected results are qualified as approximate (UJ, J).
- If percent recoveries are greater than laboratory control limits, detected results are qualified as approximate (J) to indicate minor excursions. Non-detected results are not qualified.
- If percent recoveries are less than ten percent, detected results are qualified as approximate (J) and non-detected results are qualified as rejected (R) to indicate major excursions.
- Field duplicate data are evaluated against relative percent difference (RPD) criteria of less than 25 percent for air samples when results are greater than five times the quantitation limit (QL). When sample results for field duplicate pairs are less than five times the QL, the data are evaluated using control limits of plus or minus two times the QL. If RPDs for field duplicates are outside of laboratory control limits, detected and non-detected results are qualified as approximate (UJ, J) to indicate minor excursions.
- If RPDs for field duplicates are outside of validation criteria, detected and non-detected results in the field duplicate pair are qualified as approximate (UJ, J).

Final data qualifiers are assigned based on the cumulative effect of the various QA/QC excursions. For example, if a sample result is affected by low LCS recovery for which the “J” qualifier is applied, but low internal standard recoveries result in the rejection of the sample result (R), the final qualifier is “R”.

## **LABORATORY COMPLIANCE WITH PROJECT PLANS**

In addition to the target analytes listed in the Sampling Plan, additional target analytes that were not listed in the Sampling Plan were reported by the laboratory and evaluated during the validation. The Project Manager was informed of the additional analytes.

## **CHAIN-OF-CUSTODY RECORDS AND SAMPLE COLLECTION**

The chain-of-custody records were completed properly with the following exception:

- Although the Federal Express air bill number was not listed on the chain-of-custody record by the field representative, the laboratory documented the air bill number on the record upon receipt at the laboratory.
- The pressures that were listed on the Chain-of-Custody Record were notated incorrectly; the negative sign notation was not listed where appropriate.

A custody seal was not present on the box used to ship the samples to the laboratory.

A field duplicate was not collected for this sampling event due to equipment failure at the site.

## **DOCUMENTATION COMPLETENESS**

Supplemental information was requested during the validation process. This information was necessary to complete the validation process.

## **VOLATILE ORGANIC COMPOUND IN AIR DATA EVALUATION SUMMARY**

The following QA/QC parameters were found to meet method and validation criteria or did not result in additional qualification of sample results:

- Holding times
- Internal standards performance
- GC/MS instrument performance check
- Target analyte identification

Excursions from method or validation criteria are summarized in the following section. Additional observations are described below.

### **I. Calibrations**

Quantitation of the following results was performed using a single point calibration: thiophene, 1,2,3-trimethylbenzene, indane, indene, 2-methylnaphthalene, 1-methylnaphthalene, 2-methyl thiophene, 3-methyl thiophene, 2-ethyl thiophene, benzo (b) thiophene and 1,2-dimethyl-4-ethylbenzene. The detected results for the following target analytes were qualified as approximate (J) since only a single point calibration was utilized:

- Indane in samples SV-18-NG-122308 and SV-19-NG-122308.
- 1,2,3-trimethylbenzene in samples SV-18-NG-122308, SV-19-NG-122308, and SV-20-NG-122308.

These target analytes were not listed in the Sampling Plan but were reported by the laboratory and evaluated during the validation. Quantitation for the remaining target analytes was performed using a five-point calibration curve.

### **II. Blank analysis**

The results for ethanol in samples SV-18-NG-122308, SV-19-NG-122308, SV-20-NG-122308, and SV-21-NG-122308, associated with method blank MB 1/5/09, were qualified as non-detected (U) due to blank excursions.

### **III. LCS analysis**

The following target analytes were not included in the LCS spike analysis: thiophene, 1,2,3-trimethylbenzene, indane, indene, 2-methyl naphthalene, 1-methyl naphthalene, 2-methyl thiophene, 3-methyl thiophene, 2-ethyl thiophene, benzo (b) thiophene and 1,2-dimethyl-4-ethylbenzene. Therefore, evaluation of the recovery for these target analytes for this method could not be performed.

### **IV. Target analyte quantitation and QLs**

Sample results were reported to the QL.

As part of laboratory policy, air samples submitted to TA Knoxville are routinely pressurized at the time of receipt at the laboratory. This pressurization step allows sufficient sample volume to be available in the case that multiple analyses are necessary for analysis. This step dilutes the sample within the canister which results in an increase in the QL.

## **DATA USABILITY**

Overall data usability with respect to completeness for the final sample results reported is 100 percent for the VOC air data. The VOC air data are usable for qualitative and quantitative purposes. Based on the validation performed, the typical completeness goal of 95 percent was met for these analyses.



**Table 1-2. Sample Cross Reference Table**

Laboratory Name	Laboratory Identification	Client Identification	Date Collected	Matrix	Analysis Requested
TAL Knoxville	H8L240186-001	SV-18-NG-122308	12/23/2008	Soil Vapor	TO15
TAL Knoxville	H8L240186-002	SV-19-NG-122308	12/23/2008	Soil Vapor	TO15
TAL Knoxville	H8L240186-003	SV-20-NG-122308	12/23/2008	Soil Vapor	TO15
TAL Knoxville	H8L240186-004	SV-21-NG-122308	12/23/2008	Soil Vapor	TO15

Note:

TAL Knoxville indicates Test America Laboratories of Knoxville, Tennessee.

**Soil vapor laboratory report**



**Performance Analytical Inc.**  
Air Quality Laboratory

**LABORATORY REPORT**

Client:	O'BRIEN & GERE ENGINEERS, INC.	Date of Report:	07/10/98
Address:	5000 Brittonfield Parkway	Date Received:	06/23/98
	Syracuse, NY 13221	PAI Project No:	P9801041
Contact:	Mr. Tim Eddy	Purchase Order:	Verbal
Client Project ID:	Niagara Mohawk Power Corporation	New York ELAP ID:	#11221

---

Four (4) Tedlar Bag Samples labeled:  
"SV-1"      "SV-2"      "SV-3"      "Blind Duplicate"

Five (5) PUF/XAD-2 Samples labeled:  
"SV-1"      "SV-2"      "SV-3"      "Blind Duplicate"      "Trip Blank"

---

The samples were received at the laboratory under chain of custody on June 23, 1998. The samples were received intact. The dates of analyses are indicated on the attached data sheets.

**BTEX Analysis**

The Tedlar bags were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to modified CARB Method 410 using a gas chromatograph equipped with a photoionization detector.

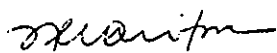
**Polynuclear Aromatic Hydrocarbons Analysis**

The PUF/XAD-2 cartridges were analyzed for polynuclear aromatic hydrocarbons (PAHs) using combined gas chromatography/mass spectrometry (GC/MS) according to the methodology outlined in EPA Method TO-13 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA 600/4-84-041, U.S. Environmental Protection Agency, Research Triangle Park, NC, April, 1984. The analyses were performed using a Hewlett-Packard Model 5890 Series II gas chromatograph/ Model 5971 mass selective detector equipped with a Model 7673A robot arm autoinjector. A 5% Phenyl/95% Dimethylpolysiloxane capillary column (RT<sub>x</sub>-5, Restek Corporation, Bellefonte, PA) was used to achieve chromatographic separation.

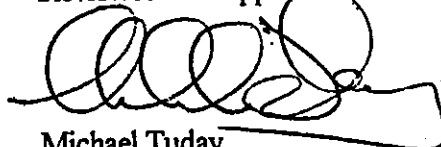
The results of analyses are given on the attached data sheets.

---

Data Release Authorization:

  
Nelyn Quitoviera  
Analytical Chemist

Reviewed and Approved:

  
Michael Tuday  
Laboratory Director



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : SV-1**  
**PAI Sample ID : P9801041-001A**

**Test Code : Modified CARB Method 410**  
**Analyst : J. Dan Taliaferro**  
**Instrument : HP5890/PID #2**  
**Matrix : Tedlar Bag**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Analyzed : 6/23/98**  
**Volume(s) Analyzed : 1.00 ml**

D.F. = 1.00

CAS #	COMPOUND	RESULT mg/m <sup>3</sup>	REPORTING LIMIT mg/m <sup>3</sup>	RESULT ppm	REPORTING LIMIT ppm
71-43-2	Benzene	ND	0.16	ND	0.050
108-88-3	Toluene	ND	0.19	ND	0.050
100-41-4	Ethylbenzene	ND	0.22	ND	0.050
1330-20-7	m- & p-Xylenes	ND	0.22	ND	0.050
95-47-6	o-Xylene	ND	0.22	ND	0.050

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RG

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : SV-2**  
**PAI Sample ID : P9801041-002A**

**Test Code : Modified CARB Method 410**  
**Analyst : J. Dan Taliaferro**  
**Instrument : HP5890/PID #2**  
**Matrix : Tedlar Bag**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Analyzed : 6/23/98**  
**Volume(s) Analyzed : 1.00 ml**

**D.F. = 1.00**

CAS #	COMPOUND	RESULT mg/m <sup>3</sup>	REPORTING LIMIT mg/m <sup>3</sup>	RESULT ppm	REPORTING LIMIT ppm
71-43-2	Benzene	ND	0.16	ND	0.050
108-88-3	Toluene	ND	0.19	ND	0.050
100-41-4	Ethylbenzene	ND	0.22	ND	0.050
1330-20-7	m- & p-Xylenes	ND	0.22	ND	0.050
95-47-6	o-Xylene	ND	0.22	ND	0.050

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RG

Date : 7/9/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : SV-3**  
**PAI Sample ID : P9801041-003A**

**Test Code : Modified CARB Method 410**  
**Analyst : J. Dan Taliaferro**  
**Instrument : HP5890/PID #2**  
**Matrix : Tedlar Bag**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Analyzed : 6/23/98**  
**Volume(s) Analyzed : 1.00 ml**

**D.F. = 1.00**

CAS #	COMPOUND	RESULT mg/m <sup>3</sup>	REPORTING LIMIT mg/m <sup>3</sup>	RESULT ppm	REPORTING LIMIT ppm
71-43-2	Benzene	ND	0.16	ND	0.050
108-88-3	Toluene	ND	0.19	ND	0.050
100-41-4	Ethylbenzene	ND	0.22	ND	0.050
1330-20-7	m- & p-Xylenes	ND	0.22	ND	0.050
95-47-6	o-Xylene	ND	0.22	ND	0.050

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RC

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : Blind Duplicate**  
**PAI Sample ID : P9801041-004A**

**Test Code : Modified CARB Method 410**  
**Analyst : J. Dan Taliaferro**  
**Instrument : HP5890/PID #2**  
**Matrix : Tedlar Bag**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Analyzed : 6/23/98**  
**Volume(s) Analyzed : 1.00 ml**

D.F. = 1.00

CAS #	COMPOUND	RESULT mg/m <sup>3</sup>	REPORTING LIMIT mg/m <sup>3</sup>	RESULT ppm	REPORTING LIMIT ppm
71-43-2	Benzene	ND	0.16	ND	0.050
108-88-3	Toluene	ND	0.19	ND	0.050
100-41-4	Ethylbenzene	ND	0.22	ND	0.050
1330-20-7	m- & p-Xylenes	ND	0.22	ND	0.050
95-47-6	o-Xylene	ND	0.22	ND	0.050

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RG

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : Blind Duplicate**  
**PAI Sample ID : P9801041-004A (Laboratory Duplicate)**

**Test Code : Modified CARB Method 410**  
**Analyst : J. Dan Taliaferro**  
**Instrument : HP5890/PID #2**  
**Matrix : Tedlar Bag**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Analyzed : 6/23/98**  
**Volume(s) Analyzed : 1.00 ml**

D.F. = 1.00

CAS #	COMPOUND	RESULT mg/m <sup>3</sup>	REPORTING LIMIT mg/m <sup>3</sup>	RESULT ppm	REPORTING LIMIT ppm
71-43-2	Benzene	ND	0.16	ND	0.050
108-88-3	Toluene	ND	0.19	ND	0.050
100-41-4	Ethylbenzene	ND	0.22	ND	0.050
1330-20-7	m- & p-Xylenes	ND	0.22	ND	0.050
95-47-6	o-Xylene	ND	0.22	ND	0.050

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RC-

Date : 7/8/98





**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : N/A**  
**PAI Sample ID : PAI Method Blank**

**Test Code : Modified CARB Method 410**  
**Analyst : J. Dan Taliaferro**  
**Instrument : HP5890/PID #2**  
**Matrix : Tedlar Bag**

**Date Sampled : N/A**  
**Date Received : N/A**  
**Date Analyzed : 6/23/98**  
**Volume(s) Analyzed : 1.00 ml**

D.F. = 1.00

CAS #	COMPOUND	RESULT	REPORTING	RESULT	REPORTING
		mg/m <sup>3</sup>	LIMIT mg/m <sup>3</sup>	ppm	LIMIT ppm
71-43-2	Benzene	ND	0.16	ND	0.050
108-88-3	Toluene	ND	0.19	ND	0.050
100-41-4	Ethylbenzene	ND	0.22	ND	0.050
1330-20-7	m- & p-Xylenes	ND	0.22	ND	0.050
95-47-6	o-Xylene	ND	0.22	ND	0.050

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RC

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**

PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : SV-1**

**PAI Sample ID : P9801041-001B**

Test Code : Modified EPA TO-13  
Analyst : Nelyn Quitoviera  
Instrument : HP5890II/MSD  
Matrix : PUF/XAD-2

Date Sampled : 6/22/98  
Date Received : 6/23/98  
Date Extracted : 6/23/98  
Date Analyzed : 6/24/98

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/Sample	REPORTING LIMIT µg/Sample
91-20-3	Naphthalene	ND	0.25
208-96-8	Acenaphthalene	ND	0.25
83-32-9	Acenaphthene	ND	0.25
86-73-7	Fluorene	ND	0.25
85-01-8	Phenanthrene	ND	0.25
120-12-7	Anthracene	ND	0.25
206-44-0	Fluoranthene	ND	0.25
129-00-0	Pyrene	ND	0.25
56-55-3	Benzo(a)anthracene	ND	0.25
218-01-9	Chrysene	ND	0.25
205-99-2	Benzo(b)Fluoranthene	ND	0.25
207-08-9	Benzo(k)Fluoranthene	ND	0.25
50-32-8	Benzo(a)Pyrene	ND	0.25
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.25
53-70-3	Dibenzo(a,h)anthracene	ND	0.25
191-24-2	Benzo(g,h,i)perylene	ND	0.25

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RC

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : SV-2**  
**PAI Sample ID : P9801041-002B**

**Test Code : Modified EPA TO-13**  
**Analyst : Nelyn Quitoviera**  
**Instrument : HP5890II/MSD**  
**Matrix : PUF/XAD-2**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Extracted : 6/25/98**  
**Date Analyzed : 6/26/98**

**D.F. = 1.00**

CAS #	COMPOUND	RESULT µg/Sample	REPORTING LIMIT µg/Sample
91-20-3	Naphthalene	ND	0.25
208-96-8	Acenaphthalene	ND	0.25
83-32-9	Acenaphthene	ND	0.25
86-73-7	Fluorene	ND	0.25
85-01-8	Phenanthrene	ND	0.25
120-12-7	Anthracene	ND	0.25
206-44-0	Fluoranthene	ND	0.25
129-00-0	Pyrene	ND	0.25
56-55-3	Benzo(a)anthracene	ND	0.25
218-01-9	Chrysene	ND	0.25
205-99-2	Benzo(b)Fluoranthene	ND	0.25
207-08-9	Benzo(k)Fluoranthene	ND	0.25
50-32-8	Benzo(a)Pyrene	ND	0.25
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.25
53-70-3	Dibenzo(a,h)anthracene	ND	0.25
191-24-2	Benzo(g,h,i)perylene	ND	0.25

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RCr

Date : 7/9/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**  
PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : SV-3**  
**PAI Sample ID : P9801041-003B**

**Test Code : Modified EPA TO-13**  
**Analyst : Nelyn Quitoviera**  
**Instrument : HP5890II/MSD**  
**Matrix : PUF/XAD-2**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Extracted : 6/25/98**  
**Date Analyzed : 6/26/98**

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/Sample	REPORTING LIMIT µg/Sample
91-20-3	Naphthalene	ND	0.25
208-96-8	Acenaphthalene	ND	0.25
83-32-9	Acenaphthene	ND	0.25
86-73-7	Fluorene	ND	0.25
85-01-8	Phenanthrene	ND	0.25
120-12-7	Anthracene	ND	0.25
206-44-0	Fluoranthene	ND	0.25
129-00-0	Pyrene	ND	0.25
56-55-3	Benzo(a)anthracene	ND	0.25
218-01-9	Chrysene	ND	0.25
205-99-2	Benzo(b)Fluoranthene	ND	0.25
207-08-9	Benzo(k)Fluoranthene	ND	0.25
50-32-8	Benzo(a)Pyrene	ND	0.25
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.25
53-70-3	Dibenzo(a,h)anthracene	ND	0.25
191-24-2	Benzo(g,h,i)perylene	ND	0.25

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RC

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**

PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : Blind Duplicate**  
**PAI Sample ID : P9801041-004B**

**Test Code : Modified EPA TO-13**  
**Analyst : Nelyn Quitoviera**  
**Instrument : HP5890II/MSD**  
**Matrix : PUF/XAD-2**

**Date Sampled : 6/22/98**  
**Date Received : 6/23/98**  
**Date Extracted : 6/25/98**  
**Date Analyzed : 6/26/98**

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/Sample	REPORTING LIMIT µg/Sample
91-20-3	Naphthalene	ND	0.25
208-96-8	Acenaphthalene	ND	0.25
83-32-9	Acenaphthene	ND	0.25
86-73-7	Fluorene	ND	0.25
85-01-8	Phenanthrene	ND	0.25
120-12-7	Anthracene	ND	0.25
206-44-0	Fluoranthene	ND	0.25
129-00-0	Pyrene	ND	0.25
56-55-3	Benzo(a)anthracene	ND	0.25
218-01-9	Chrysene	ND	0.25
205-99-2	Benzo(b)Fluoranthene	ND	0.25
207-08-9	Benzo(k)Fluoranthene	ND	0.25
50-32-8	Benzo(a)Pyrene	ND	0.25
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.25
53-70-3	Dibenzo(a,h)anthracene	ND	0.25
191-24-2	Benzo(g,h,i)perylene	ND	0.25

TR = Detected Below Indicated Reporting Limit

ND = Not Detected

Verified by : RC

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**

PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : Trip Blank**

**PAI Sample ID : P9801041-005**

**Test Code : Modified EPA TO-13**

**Analyst : Nelyn Quitoviera**

**Instrument : HP5890II/MSD**

**Matrix : PUF/XAD-2**

**Date Sampled : 6/22/98**

**Date Received : 6/23/98**

**Date Extracted : 6/25/98**

**Date Analyzed : 6/26/98**

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/Sample	REPORTING LIMIT µg/Sample
91-20-3	Naphthalene	ND	0.25
208-96-8	Acenaphthalene	ND	0.25
83-32-9	Acenaphthene	ND	0.25
86-73-7	Fluorene	ND	0.25
85-01-8	Phenanthrene	ND	0.25
120-12-7	Anthracene	ND	0.25
206-44-0	Fluoranthene	ND	0.25
129-00-0	Pyrene	ND	0.25
56-55-3	Benzo(a)anthracene	ND	0.25
218-01-9	Chrysene	ND	0.25
205-99-2	Benzo(b)Fluoranthene	ND	0.25
207-08-9	Benzo(k)Fluoranthene	ND	0.25
50-32-8	Benzo(a)Pyrene	ND	0.25
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.25
53-70-3	Dibenzo(a,h)anthracene	ND	0.25
191-24-2	Benzo(g,h,i)perylene	ND	0.25

TR = Detected Below Indicated Reporting Limit

ND = Not Detected

Verified by : RC

Date : 7/8/98



**Performance Analytical Inc.**  
Air Quality Laboratory

**RESULTS OF ANALYSIS**

PAGE 1 OF 1

**Client : O'Brien & Gere Engineers, Inc.**

**Client Sample ID : N/A**  
**PAI Sample ID : PAI Method Blank**

**Test Code : Modified EPA TO-13**  
**Analyst : Nelyn Quitoviera**  
**Instrument : HP5890II/MSD**  
**Matrix : PUF/XAD-2**

**Date Sampled : N/A**  
**Date Received : N/A**  
**Date Extracted : 6/23/98**  
**Date Analyzed : 6/24/98**

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/Sample	REPORTING LIMIT µg/Sample
91-20-3	Naphthalene	ND	0.25
208-96-8	Acenaphthalene	ND	0.25
83-32-9	Acenaphthene	ND	0.25
86-73-7	Fluorene	ND	0.25
85-01-8	Phenanthrene	ND	0.25
120-12-7	Anthracene	ND	0.25
206-44-0	Fluoranthene	ND	0.25
129-00-0	Pyrene	ND	0.25
56-55-3	Benzo(a)anthracene	ND	0.25
218-01-9	Chrysene	ND	0.25
205-99-2	Benzo(b)Fluoranthene	ND	0.25
207-08-9	Benzo(k)Fluoranthene	ND	0.25
50-32-8	Benzo(a)Pyrene	ND	0.25
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.25
53-70-3	Dibenzo(a,h)anthracene	ND	0.25
191-24-2	Benzo(g,h,i)perylene	ND	0.25

TR = Detected Below Indicated Reporting Limit  
ND = Not Detected

Verified by : RG

Date : 7/8/98



# Performance Analytical Inc.

Air Quality Laboratory

## RESULTS OF ANALYSIS

PAGE 1 OF 1

Client : O'Brien & Gere Engineers, Inc.

Client Sample ID : N/A

PAI Sample ID : PAI Method Blank

Test Code : Modified EPA TO-13

Analyst : Nelyn Quitoviera

Instrument : HP5890II/MSD

Matrix : PUF/XAD-2

Date Sampled : N/A

Date Received : N/A

Date Extracted : 6/25/98

Date Analyzed : 6/26/98

D.F. = 1.00

CAS #	COMPOUND	RESULT µg/Sample	REPORTING LIMIT µg/Sample
91-20-3	Naphthalene	ND	0.25
208-96-8	Acenaphthalene	ND	0.25
83-32-9	Acenaphthene	ND	0.25
86-73-7	Fluorene	ND	0.25
85-01-8	Phenanthrene	ND	0.25
120-12-7	Anthracene	ND	0.25
206-44-0	Fluoranthene	ND	0.25
129-00-0	Pyrene	ND	0.25
56-55-3	Benzo(a)anthracene	ND	0.25
218-01-9	Chrysene	ND	0.25
205-99-2	Benzo(b)Fluoranthene	ND	0.25
207-08-9	Benzo(k)Fluoranthene	ND	0.25
50-32-8	Benzo(a)Pyrene	ND	0.25
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.25
53-70-3	Dibenzo(a,h)anthracene	ND	0.25
191-24-2	Benzo(g,h,i)perylene	ND	0.25

TR = Detected Below Indicated Reporting Limit

ND = Not Detected

Verified by : RC

Date : 7/8/98



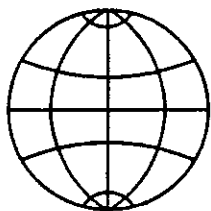


**20954 Osborne St.  
Canoga Park, California 91304  
Phone 818 709-1139  
Fax 818 709-2915**

# Chain of Custody Record Analytical Services Request

Client / Project Name			Address / Phone		ANALYSES		PAL Project No.			
Project Location			Client Project No.		Expected Turnaround Time		Remarks			
O'Brien & Gere Engineers, Inc.			5000 BRITTONFIELD PKWY. SYRACUSE, N.Y. 13221 (315) 437-6100		P9801041					
Project Location NIAGARA MARINE POWER CORP. SOUTH FIRST ST. SITE FULTON, N.Y.			1118.081							
Contact TIM EDDY			Sampler (Signature) Chuan O'Dell		P.O. No.					
Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	BTX					
SV-1	6/22/98	1000	1	GRAB	X	X	Routine	-001		
SV-2 (MS/MSD)		1025	2	GRAB	X	X		-002		
SV-3		1055	3	GRAB	X	X		-003		
BLIND Duplicate			4	GRAB	X	X		-004		
TRIP BLANK			5	GRAB	X	X		-005		
Relinquished by: (Signature) Chuan O'Dell			Date 4/22/98	Time 1700hrs.	Received by: (Signature) Richard D. H.		Date 6-23-98	Time 11:30		
Relinquished by: (Signature)			Date	Time	Received by: (Signature)		Date	Time		
Relinquished by: (Signature)			Date	Time	Received by: (Signature)		Date	Time		
Disposal Method			White Copy : Accompanies Samples							
Disposed by: (Signature)			Date	Time	Yellow Copy : Sampler					

**Worldwide Geosciences, Inc. Report**



**WORLDWIDE  
GEOSCIENCES, INC.**

6100 Corporate Drive  
Suite 320  
Houston, Texas 77036  
Phone: 713 / 988-9401  
FAX: 713 / 988-8784

April 29, 2002

Mr. Chawn O'Dell  
O'Brien & Gere Engineers, Inc.  
5000 Brittonfield Parkway  
Syracuse, NY 15057

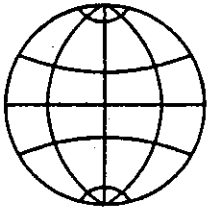
Dear Mr. O'Dell:

Enclosed is our report on the soil sample submitted from your NIMO Fulton site. Please refer to the report summary for a condensed statement of our findings.

If there are any questions please do not hesitate to contact me. We appreciate being of service.

Sincerely yours,

Neil F. Petersen



**WORLDWIDE  
GEOSCIENCES, INC.**

6100 Corporate Drive  
Suite 320  
Houston, Texas 77036  
Phone: 713 / 988-9401  
FAX: 713 / 988-8784

**CHARACTERIZATION OF A SOIL SAMPLE  
NMPC - SOUTH FIRST STREET  
FULTON, NY SITE**

**PREPARED FOR  
O'BRIEN & GERE ENGINEERS, INC.  
APRIL, 2002**

# CHARACTERIZATION OF A SOIL SAMPLE NMPC – SOUTH FIRST STREET – FULTON, NY SITE

## SUMMARY

A soil sample, identified as SB-22 (12-14'), was analyzed by high resolution capillary gas chromatography to determine the type or types of parent products associated with this sample and to provide any indications of parent product age. The signature characteristics of the SB-22 (12-14') sample are indicative of coal tar as the product type.

## INTRODUCTION

Three soil samples from the NMPC Fulton site were received at the offices of Worldwide Geosciences, Inc. on February 25, 2002 via Federal Express delivery. Sample SB-20 (14-16') was contained in a single, eight ounce, glass jar. Each of the remaining two samples was contained in duplicate, four ounce, glass jars. All three samples were packed in an insulated cooler with ice used as a preservative. Sample identifications as per the attached chain of custody form and their assigned laboratory numbers are as follows:

<u>Sample ID</u>	<u>Lab No.</u>
SB-22 (12-14')	20301002
SB-22 (18-20')	20301003
SB-20(14-16')	20301004

Worldwide Geosciences was requested to hold both the SB-22 (18-20') and the SB-20 (14-16') soil samples on a contingency basis and these samples were not analyzed.

Thirty grams of the SB-22 (12-14') soil sample were extracted with 90 milliliters of methylene chloride solvent. The extraction was carried out by sonication. After separating the solvent and the soil, the solvent was reduced in volume to two milliliters to increase the concentration level of the extracted hydrocarbons in the solvent. The solvent was spiked with androstane as an internal standard. The concentration level of the internal standard relative to the weight of soil extracted is 3.4 parts per million. The spiked solvent containing the extracted hydrocarbons was then analyzed by high resolution, capillary gas chromatography using a 30 meter DB1 column and a flame ionization detector. A Perkin-Elmer Autosystem was utilized. The analysis procedure is a modification of ASTM method D-3328. The modifications allow for the analysis of hydrocarbons in solvent and improve the resolution of the lighter hydrocarbons. Two procedural methods are routinely used for product in solvent characterization. One provides better resolution of the gasoline range hydrocarbons but has a more limited carbon number range. This is Method 3 as defined in the

procedural description provided in Appendix II. The second method is routinely used to characterize product in solvents heavier than gasoline. The gasoline range hydrocarbons are compressed as a result of a more rapid increase in column temperature. This is Method 4 as described in Appendix II. The extract obtained on this sample was run under Method 3 conditions on March 1, 2002.

The only difference in operating conditions between Methods 1 and 2, which are used for actual product samples, and between Methods 3 and 4 is in the injection conditions. When products are run neat, or as received, a split injection method is used and if the hydrocarbons are in solvent phase a splitless injection system is used.

Display copies of the chromatograms, both labeled and unlabeled, are incorporated into the report as Appendix I. A full-scale display in which all the peaks have been kept onscale for accurate visualization of the relative proportions of the hydrocarbons present is provided. Also included in Appendix I is a table listing the abbreviations used to identify peaks on the chromatograms and their corresponding names.

## **RESULTS**

In discussing the compositional characteristics of the sample analyzed and analog signatures, the various peaks present in the chromatograms will be referred to in terms of the hydrocarbons they represent. As a general aid to visualizing the types of hydrocarbons involved, Figure 1 is provided to illustrate the structural characteristics of the main classes of hydrocarbons.

Figure 2 compares the chromatographic signature of the SB-22 (12-14') soil sample with the signature of a gasoline. The gasoline signature shown is that of American Petroleum Institute petroleum standard 6 (API PS6). As shown by the API PS6 signature, aromatics and branched chain or isoparaffins with nine carbon atoms or less are the predominant hydrocarbon types in gasoline. Both the overall hydrocarbon distribution of the SB-22 (12-14') soil sample, which extends significantly beyond the limits of gasoline, and the prominence of polynuclear aromatic peaks in the SB-22 (12-14') sample signature indicates the parent product associated with this sample is not gasoline.

The next higher group of standard petroleum products is collectively referred to as middle distillates. Kerosenes, diesels, and fuel oils are the most common middle distillate products. Standard (#2) grade fuel oil and diesel are similar products. Figure 3 provides a comparison of the chromatographic signatures of a kerosene product sample and a diesel/fuel oil product sample. The normal paraffins are the most prominent individual hydrocarbon type in middle distillate products. The normal paraffins are straight chain molecules in which all the carbon atoms are attached to one another in an end to end manner. The structure of normal hexane in Figure

# **FIGURE I** **TYPES OF HYDROCARBONS**

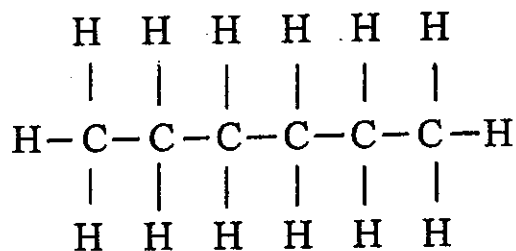
## **SATURATES**

**CARBON ATOMS CONNECTED BY SINGLE BONDS**

**PARAFFINS OR ALKANES**

*NORMAL PARAFFINS OR ALKANES*

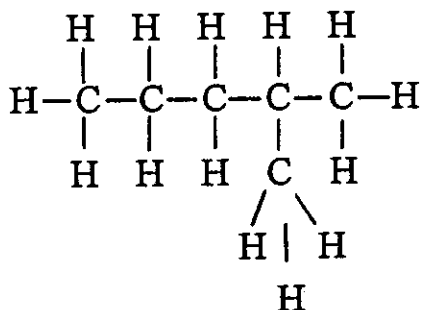
*STRAIGHT CHAINS*



**NORMAL HEXANE (NC6)**

*ISO-PARAFFINS OR ALKANES*

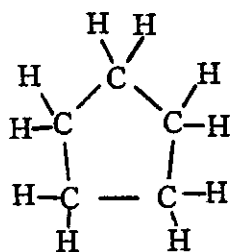
*BRANCHED CHAIN PARAFFINS*



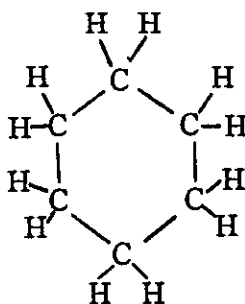
**2METHYL PENTANE (2MP)**

**NAPTHENES OR CYCLOPARAFFINS OR CYCLOALKANES**

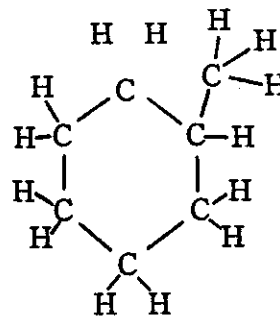
*RING OR CYCLIC STRUCTURE*



**CYCLOPENTANE  
(CCP)**



**CYCLOHEXANE  
(CH)**



**METHYLCYCLOHEXANE  
(MCH)**

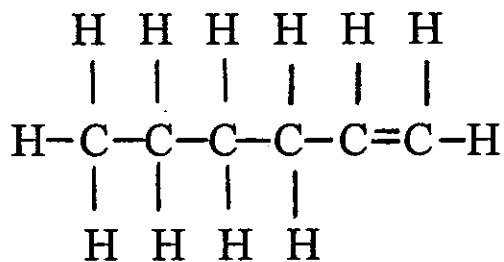
**FIGURE 1 (CONT.)**  
**TYPES OF HYDROCARBONS**

**UNSATURATES**

*HAVE ONE OR MORE CARBON DOUBLE BONDS*

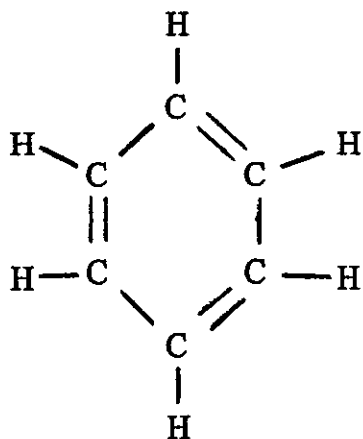
**OLEFINS OR ALKENES**

*CAN BE STRAIGHT CHAIN, BRANCHED CHAIN, OR CYCLIC*

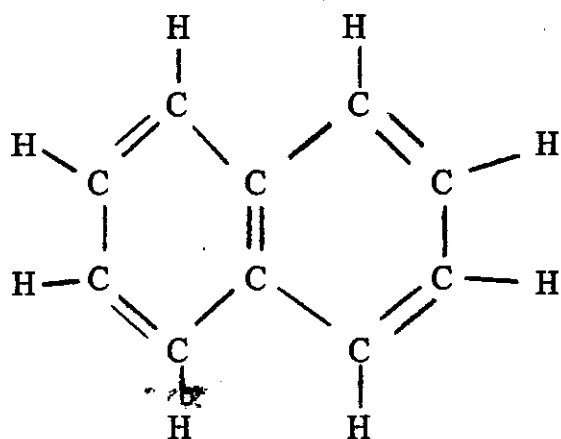


NORMAL HEXENE

**AROMATICS**



BENZENE



NAPHTHALENE



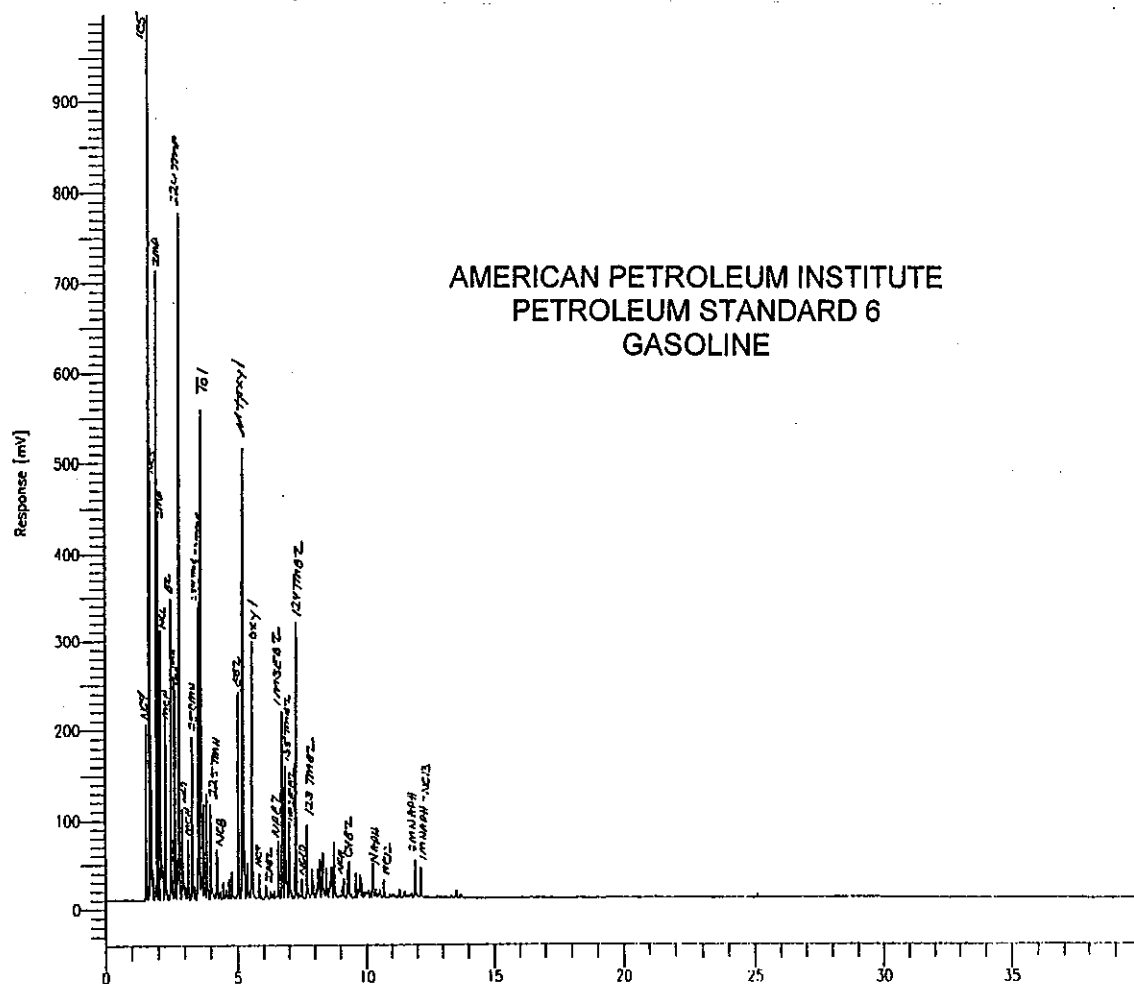
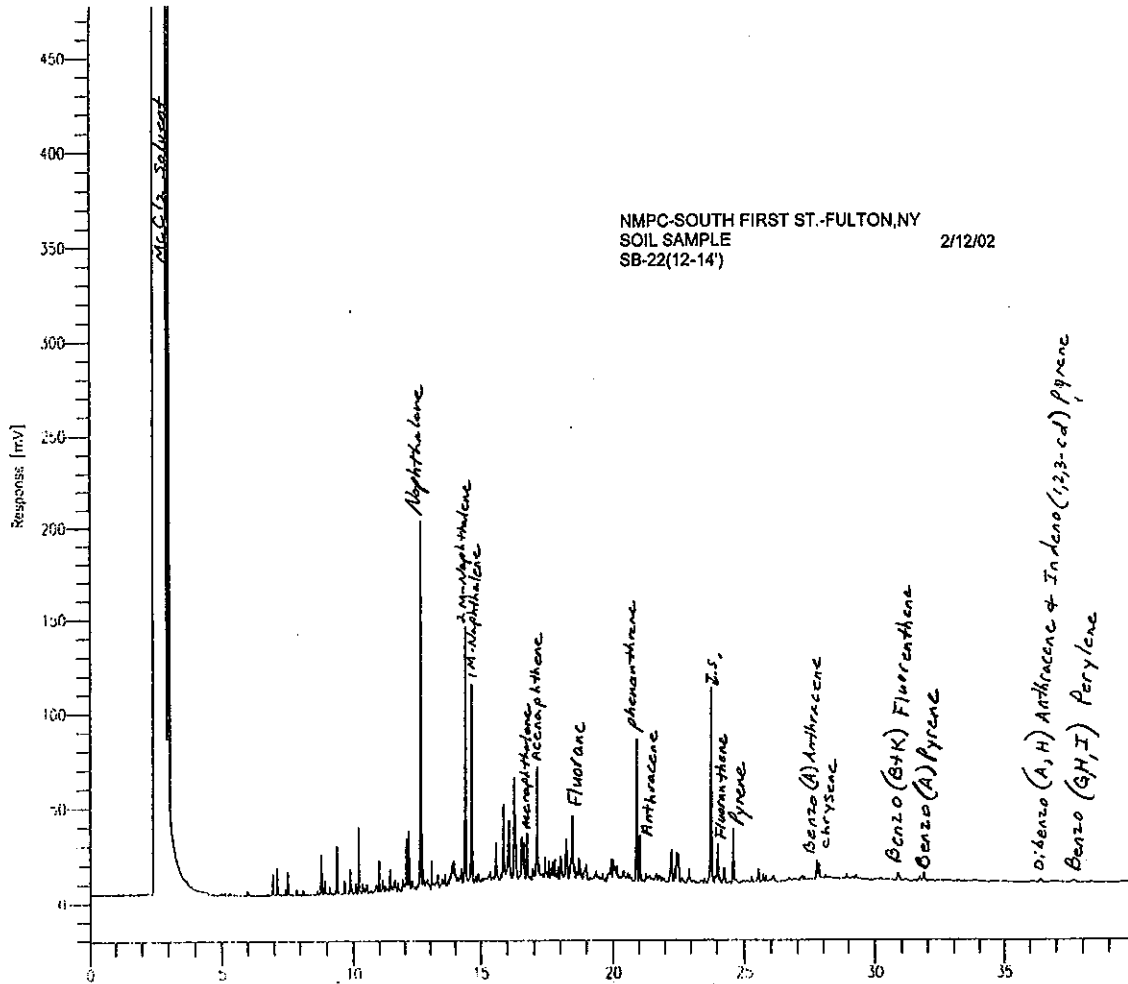


FIGURE 2: COMPARISON OF THE CHROMATOGRAPHIC SIGNATURES OF THE SB-22 (12-14') SOIL SAMPLE AND API PS6 GASOLINE

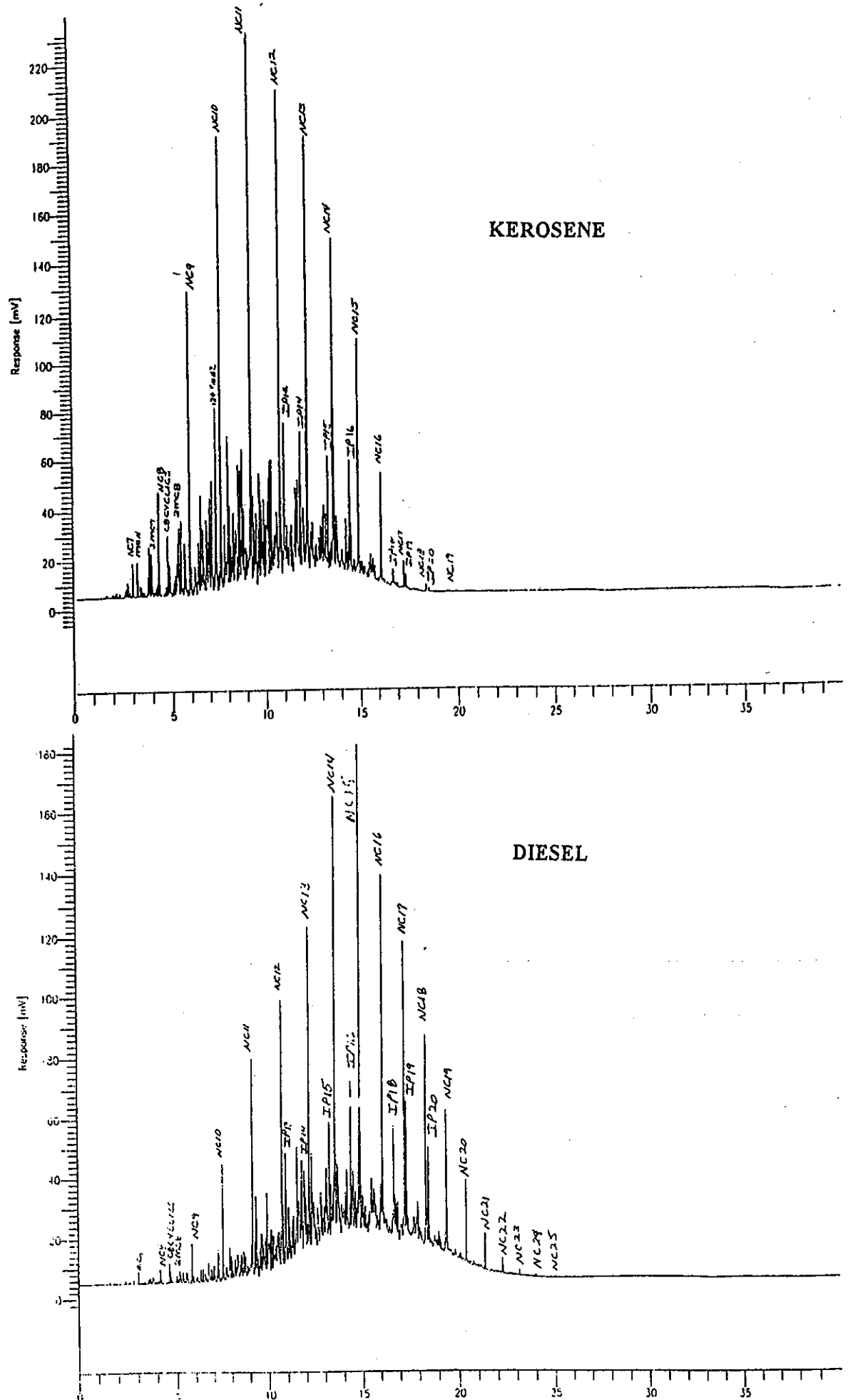


FIGURE 3: COMPARISON OF THE CHROMATOGRAPHIC SIGNATURES OF A KEROSENE SAMPLE AND A DIESEL PRODUCT SAMPLE

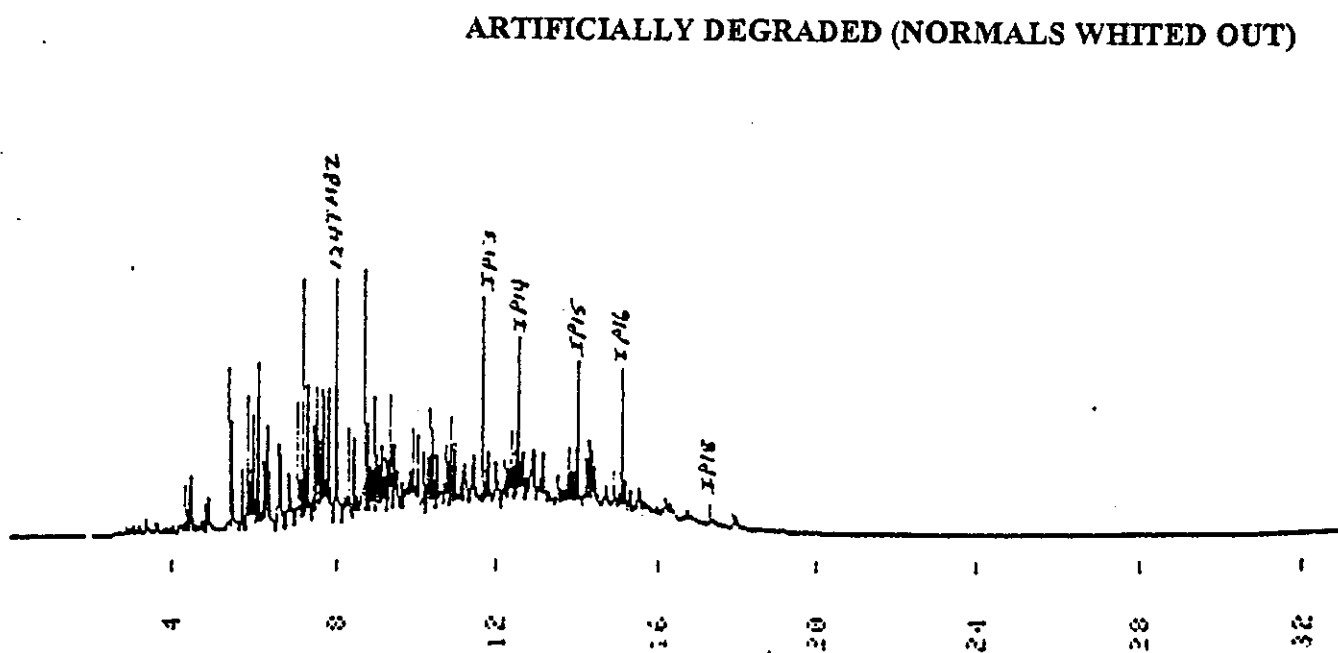
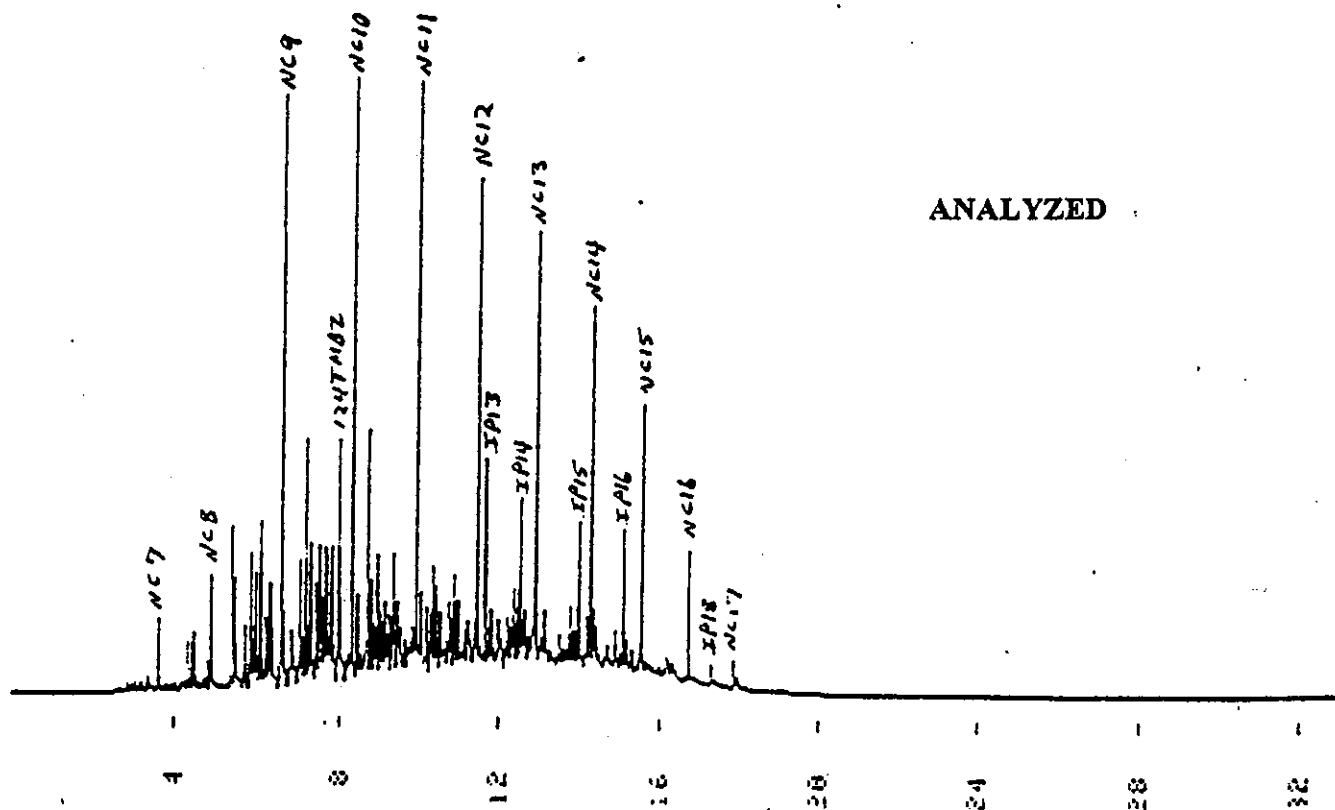
1 is an example of a normal paraffin. The normal paraffins are annotated on the chromatograms with a NP designation followed by the number of carbon atoms in the molecule. The overall carbon number range and normal paraffin distribution of diesels and fuel oils extends to higher carbon numbers than in kerosenes.

Diesels and fuel oils also can be differentiated from kerosene products on the basis of their isoprenoid proportions. The isoprenoids are the second most prominent individual hydrocarbon type in middle distillate products. The isoprenoids are a unique type of branched chain or isoparaffin in which a side methyl (CH<sub>3</sub>) group is attached to every fourth carbon atom of the main carbon chain. The structure of methylpentane in Figure 1 is an example of an isoparaffin with a single, side, methyl group. The isoprenoids are annotated on the chromatograms with an IP designation followed by the number of carbon atoms in the molecule. In kerosenes, the lower carbon number isoprenoids (IP13, IP14, IP15, and IP16) significantly exceed the higher carbon number isoprenoids (IP18, IP19, and IP20). In diesels and fuel oils, the higher carbon number isoprenoids are present at more comparable proportions to the lower carbon number isoprenoids, and in some instances may exceed the lower carbon number isoprenoids.

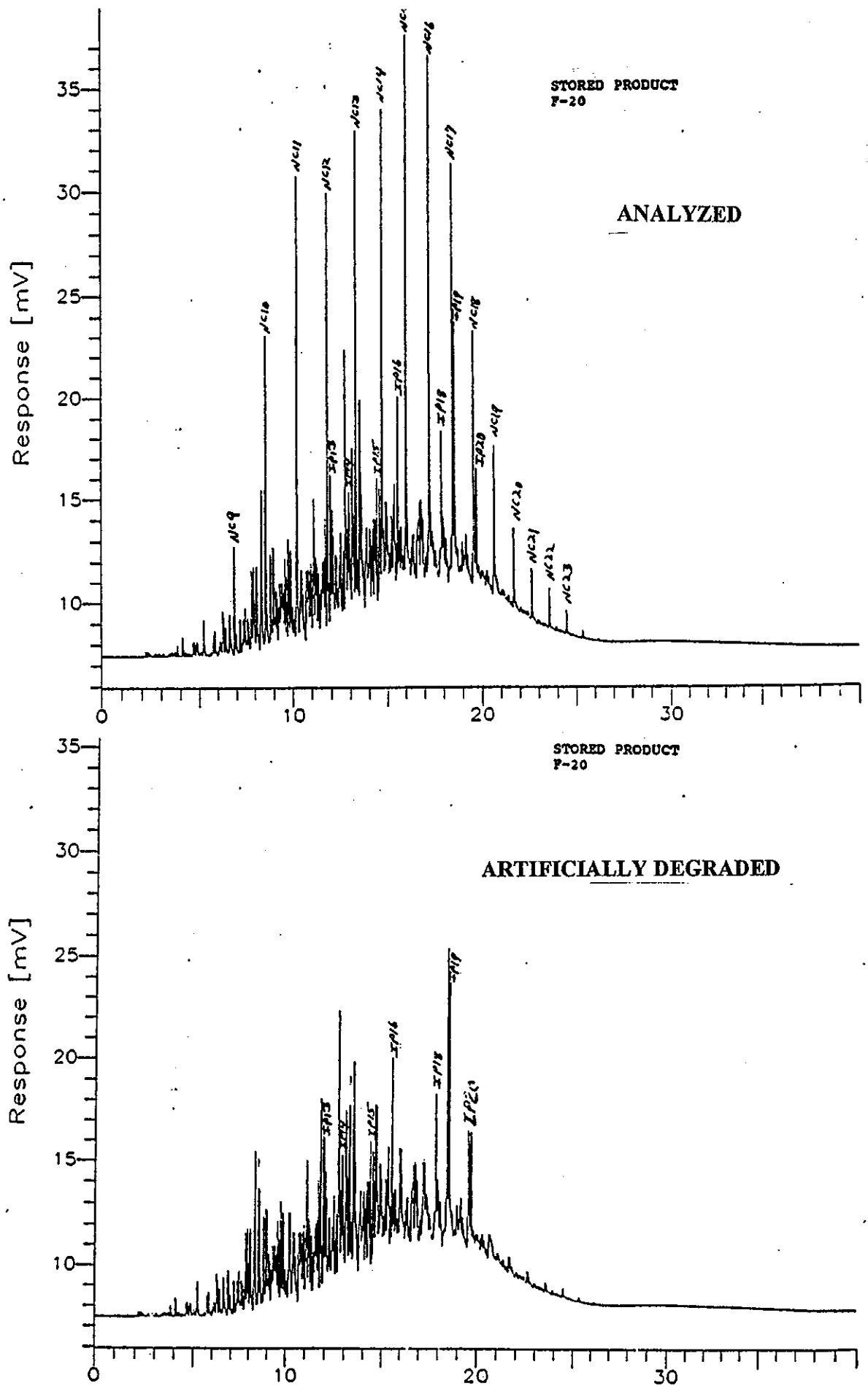
With increasing exposure time, the normal paraffins are preferentially reduced compared to the isoprenoid peaks and ultimately lost as a result of biodegradation. Figure 4 illustrates the effects of biodegradation on a kerosene product sample. In Figure 4, the chromatogram of a kerosene product sample is shown. The same signature is then shown artificially biodegraded by whitening out the normal paraffins. Figure 5 provides a similar comparison for a diesel/fuel oil product sample. As the vertically prominent normal paraffin peaks are lost, the underlying baseline rise or hump becomes an increasingly prominent feature of the chromatographic signature. The baseline rise or hump represents a complex mixture of individual hydrocarbons, which are not present in sufficient individual abundance to elute as discrete peaks. Biodegraded diesels and fuel oils can be distinguished from biodegraded kerosene products on the basis of the carbon number limits of baseline rise or hump and the proportions of the isoprenoids.

Figure 6 compares the chromatographic signature of the SB-22 (12-14') soil sample with the signature of a kerosene product sample. Figure 7 provides a similar comparison with a diesel/fuel oil product sample. The absence of a baseline rise, a sequence of normal paraffin peaks, and a sequence of isoprenoid peaks in the SB-22 (12-14') signature indicates this hydrocarbon assemblage is not related to either a kerosene or a diesel/fuel oil product, either fresh or biodegraded.

Heavy or residual grade, such as #6 grade, fuel oils have more extensive carbon number distributions than #2 grade fuel oil or diesel. Figure 8 compares the chromatographic signature of the SB-22 (12-14') soil sample with a residual grade fuel oil signature. Residual grade fuel oil signatures also are characterized by a baseline rise or hump underlying the



**FIGURE 4: CHROMATOGRAPHIC SIGNATURE OF A KEROSENE PRODUCT AS ANALYZED AND ARTIFICIALLY DEGRADED (NORMALS WHITED OUT)**



**FIGURE 5: CHROMATOGRAPHIC SIGNATURE OF THE STORED DIESEL AS ANALYZED AND ARTIFICIALLY DEGRADED**

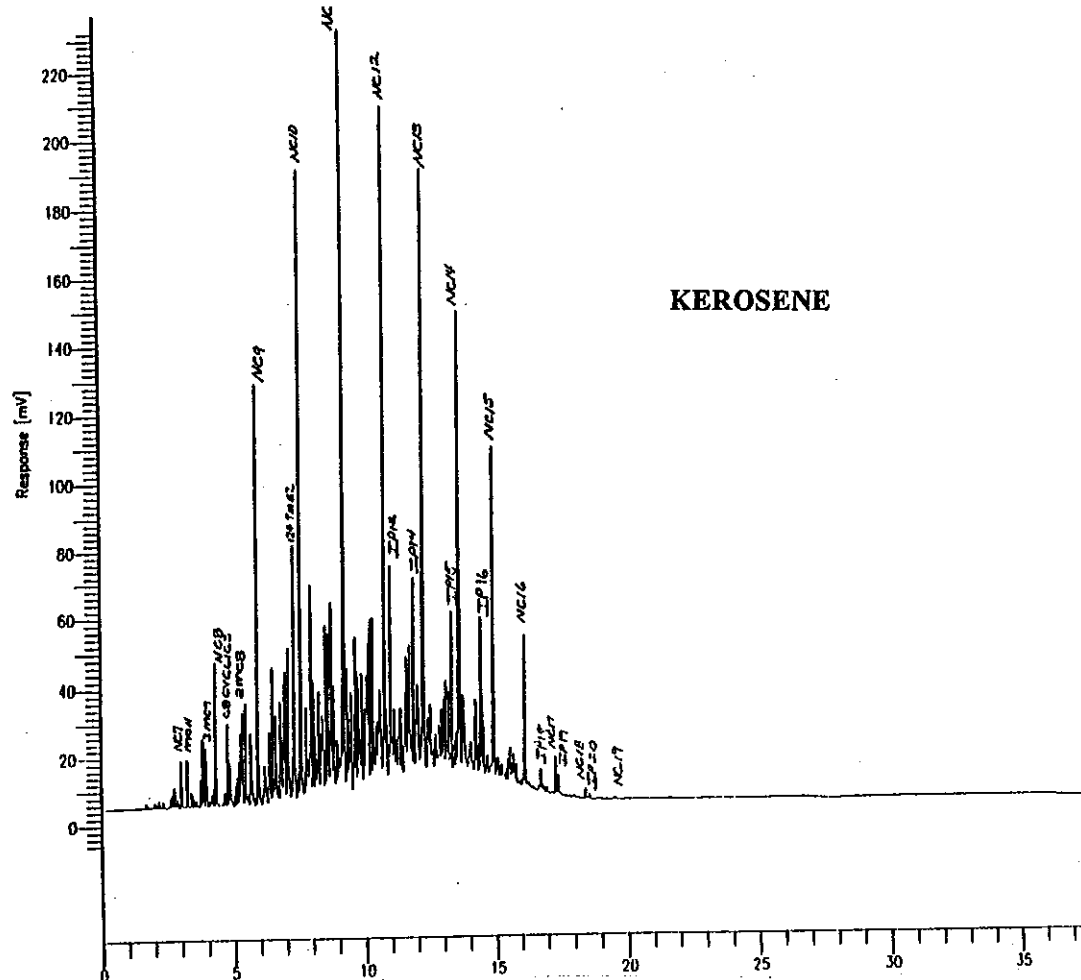
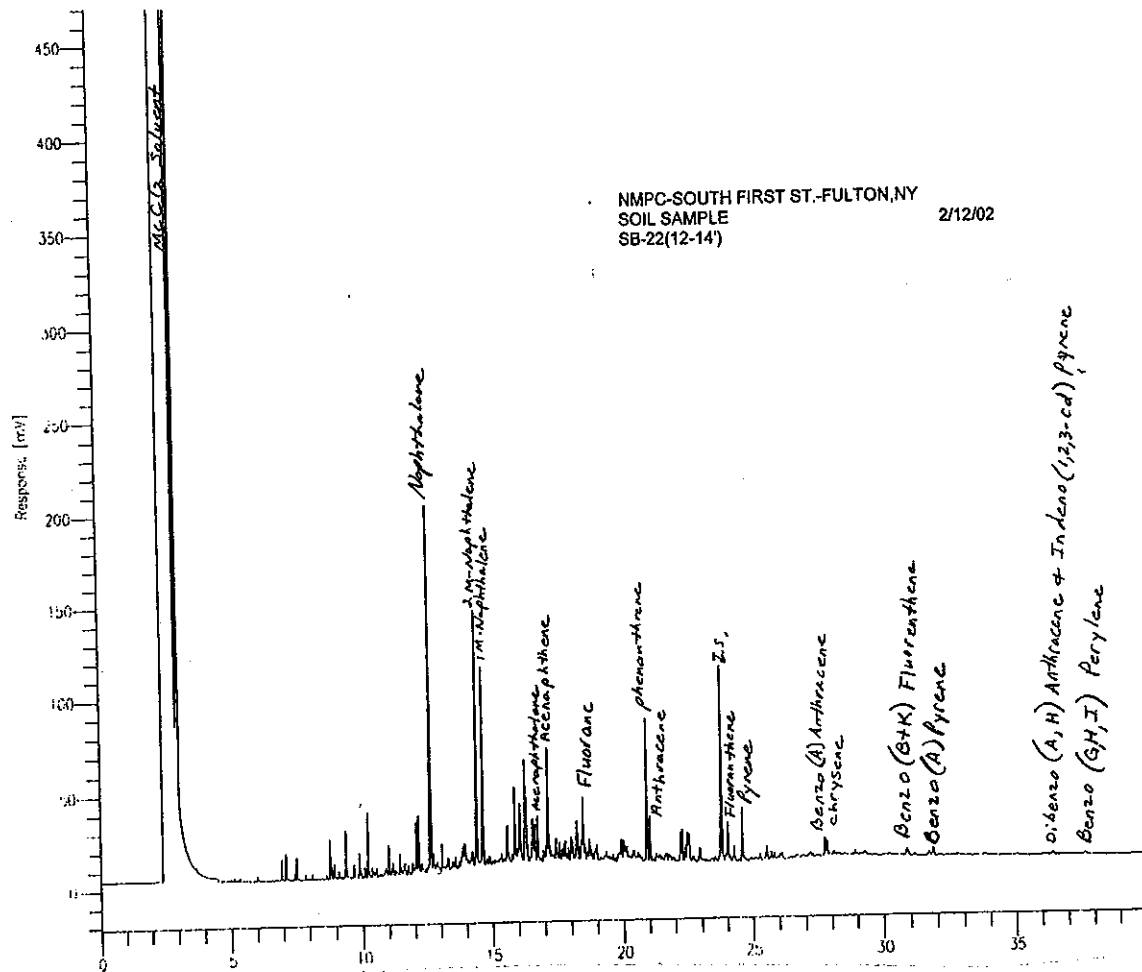


FIGURE 6: COMPARISON OF THE CHROMATOGRAPHIC SIGNATURES OF THE SB-22 (12-14') SOIL SAMPLE AND A KEROSENE PRODUCT SAMPLE

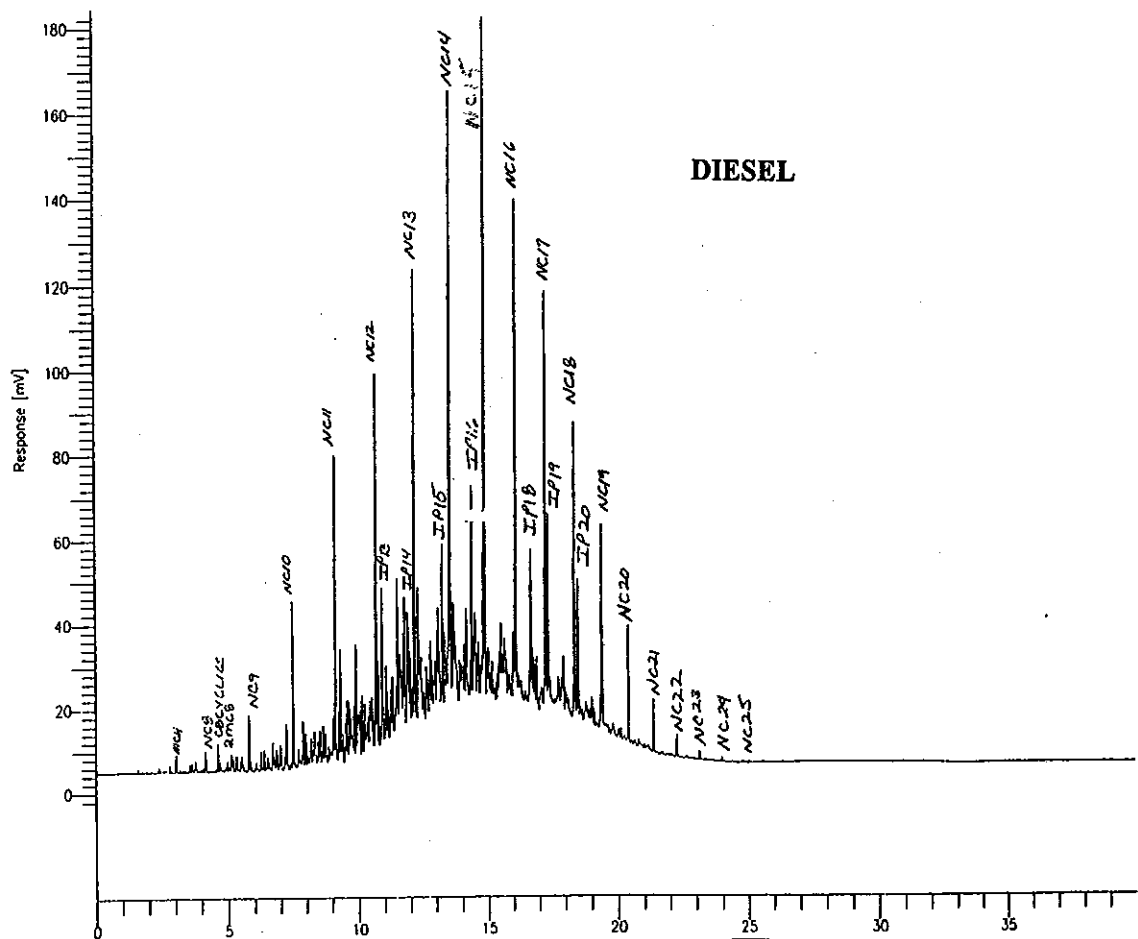
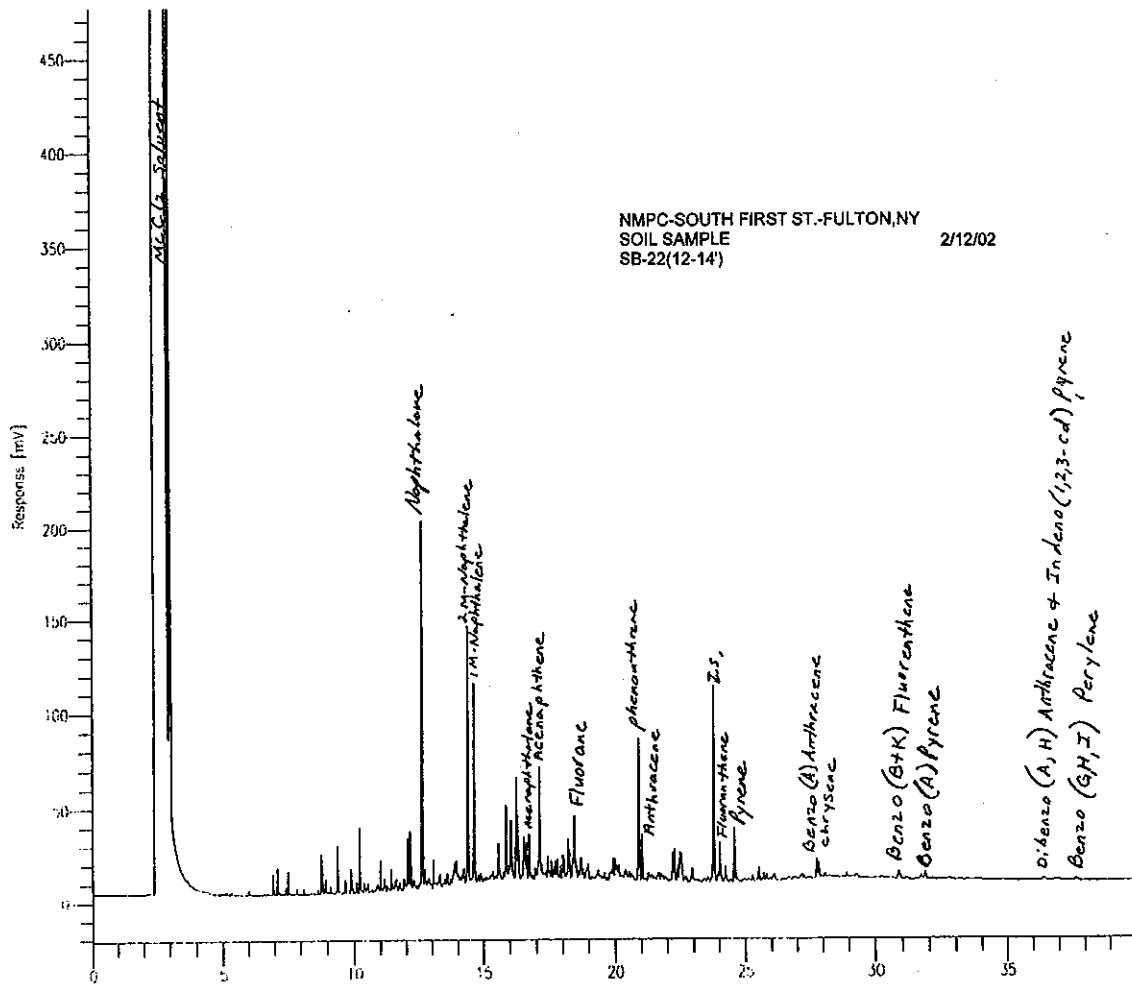


FIGURE 7: COMPARISON OF THE CHROMATOGRAPHIC SIGNATURES OF THE SB-22 (12-14') SOIL SAMPLE AND A DIESEL/FUEL OIL PRODUCT SAMPLE

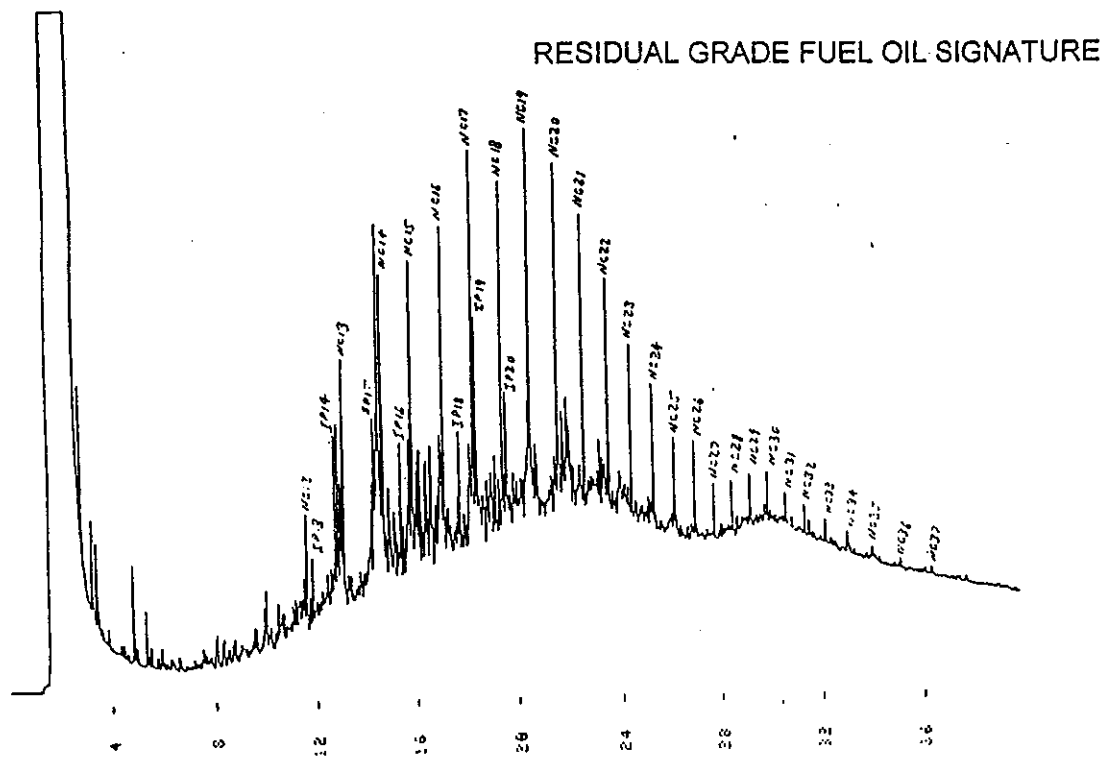
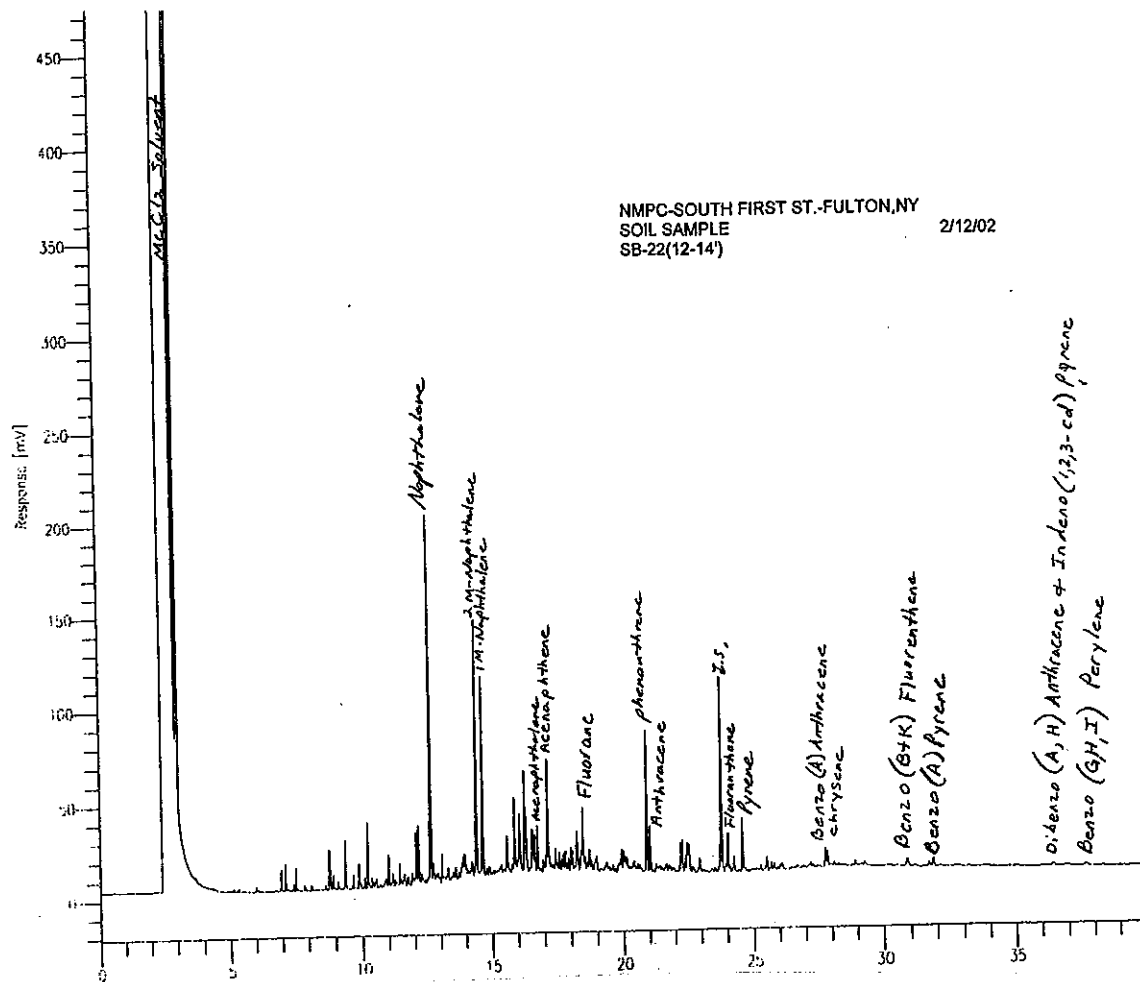


FIGURE 8: COMPARISON OF THE CHROMATOGRAPHIC SIGNATURES OF THE SB-22 (12-14') SOIL SAMPLE AND A RESIDUAL GRADE FUEL OIL



resolved peaks, and a peak sequence that consists predominantly of normal paraffins and isoprenoids. The absence of a baseline rise, a sequence of normal paraffin peaks, and a sequence of isoprenoid peaks in the SB-22 (12-14') signature indicates this hydrocarbon assemblage is not related to a residual grade fuel oil product, either fresh or biodegraded.

The dominant signature characteristic of lubricant type products is a pronounced baseline rise or hump. The dominant carbon number range of the baseline rise or hump is between twenty and forty carbon atoms. Figure 9 compares the chromatographic signature of the SB-22 (12-14') soil sample with a motor oil, which is used as a lubricant type product example. The absence of a baseline rise or hump in the C20 to C40 range, and the predominance of resolved peaks in the less than C20 range of the SB-22 (14-16') sample signature indicates the hydrocarbon assemblage associated with this sample is not lubricant related.

Figure 10 compares the chromatographic signature of the SB-22 (14-16') soil sample with the signature of a coal tar sample. The SB-22 (14-16') and the coal tar signature show similar dominances of individual polynuclear aromatic peaks and do not show a prominent baseline rise or hump. Neither the SB-22 (14-16') sample signature nor the coal tar signature show sequences of normal paraffin or isoprenoid peaks either.

The signature characteristics of the SB-22 (14-16') soil sample are indicative of coal tar as the parent product.

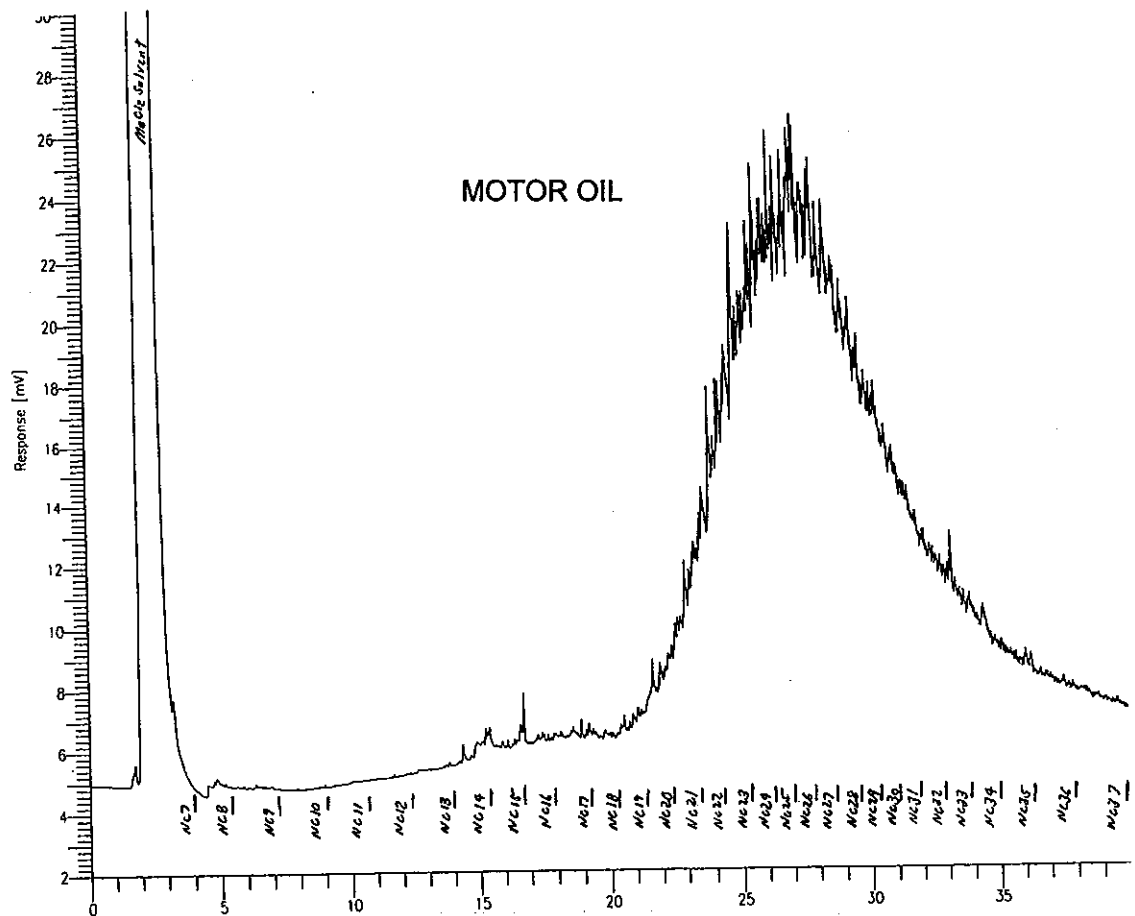
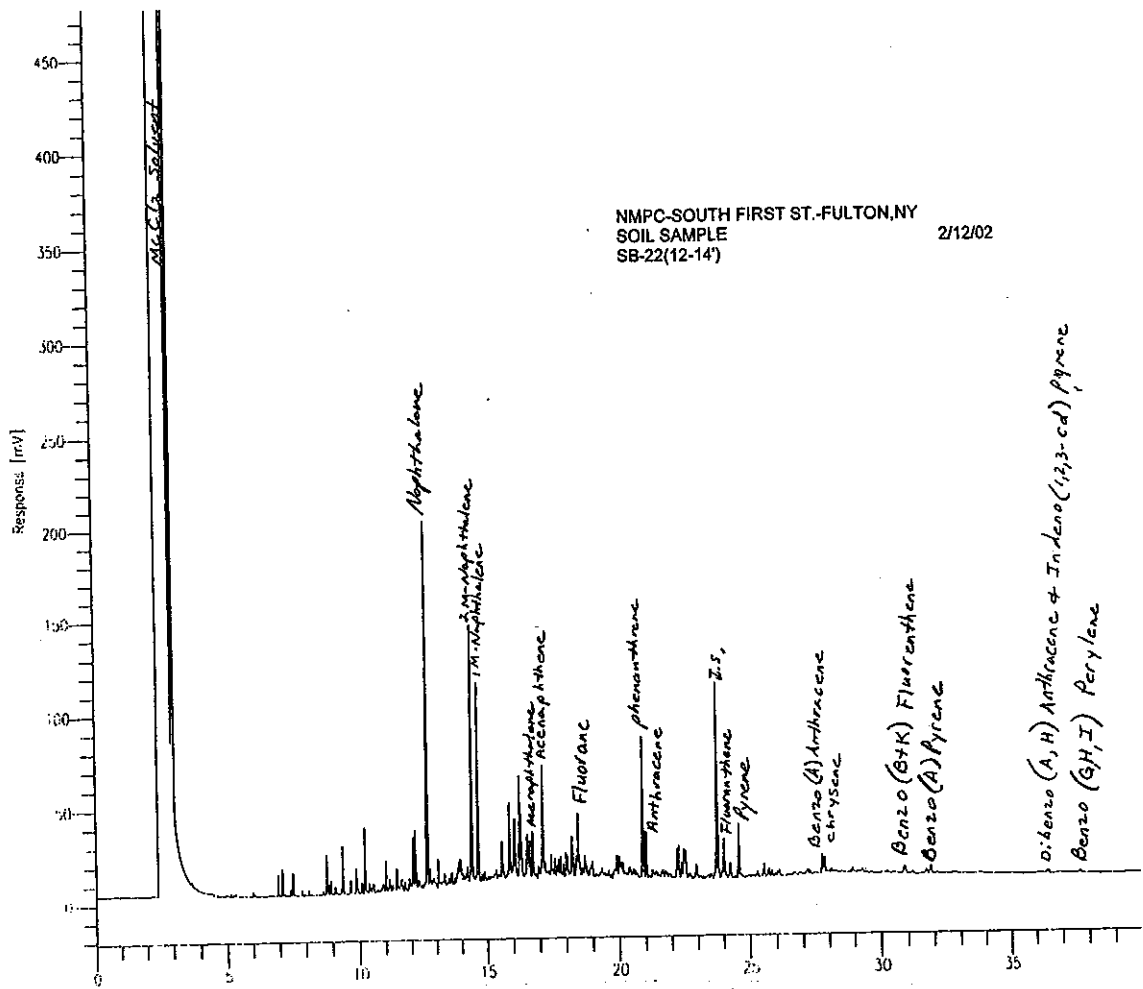


FIGURE 9: COMPARISON OF THE CHROMATOGRAPHIC SIGNATURES OF THE SB-22 (12-14') SOIL SAMPLE AND A MOTOR OIL

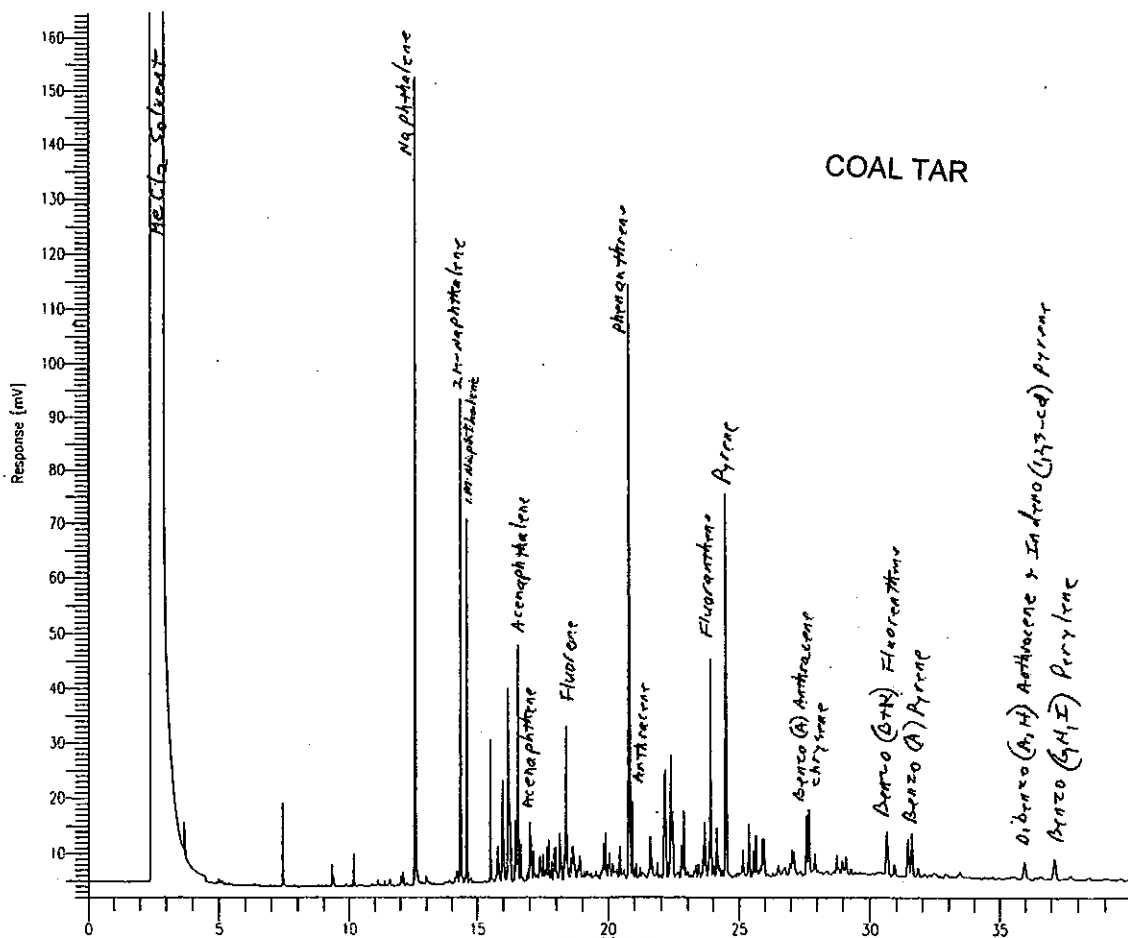
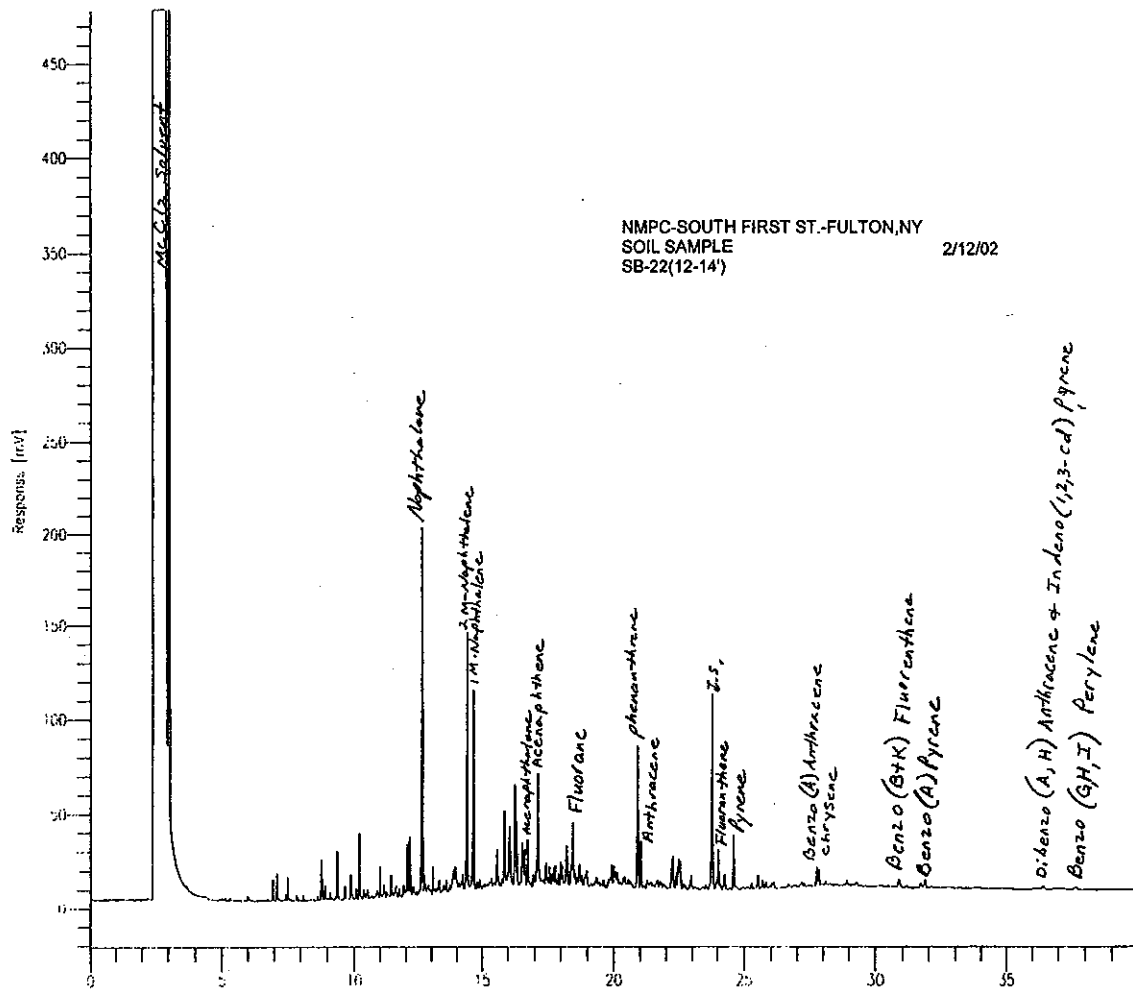


FIGURE 10: COMPARISON OF THE CHROMATOGRAPHIC SIGNATURES OF THE SB-22 (12-14') SOIL SAMPLE AND A COAL TAR



**APPENDIX I**  
**DISPLAY CHROMATOGRAMS**

## ABBREVIATIONS USED TO IDENTIFY PEAKS

<u>ABBREVIATION</u>	<u>HYDROCARBON</u>
C1	METHANE
C2	ETHANE
C3	PROPANE
IC4	ISOBUTANE
NC4	NORMAL BUTANE
ETH	ETHANOL
22C3	2 2 DIMETHYL PROPANE
IC5	ISOPENTANE
NC5	NORMAL PENTANE
MeCl2	METHYLENE CHLORIDE
22DMB	2 2 DIMETHYL BUTANE
23DMB	2 3 DIMETHYL BUTANE
2MP	2 METHYLPENTANE
3MP	3 METHYLPENTANE
NC6	NORMAL HEXANE
22DMP	2,2 DIMETHYLPENTANE
MCP	METHYLCYCLOPENTANE
24DMP	2,4 DIMETHYLPENTANE
BZ	BENZENE
CH	CYCLOHEXANE
2MH	2 METHYLHEXANE
23DMP	2,3 DIMETHYLPENTANE
3MH	3 METHYLHEXANE
T13DMCP	T13DIMETHYLCYCLOPENTANE
C13DMCP	C13DIMETHYLCYCLOPENTANE
224TMP	2,2,4 TRIMETHYLPENTANE (PRINCIPAL ISO-OCTANE)
NC7	NORMAL HEPTANE
234TMP	2,3,4 TRIMETHYLPENTANE (ISO-OCTANE)
233TMP	2,3,3 TRIMETHYLPENTANE (ISO-OCTANE)
MCH	METHYLCYCLOHEXANE
TOL	TOLUENE
23DMH	2,3,DIMETHYLHEXANE
2MC7	2METHYLHEPTANE
3MC7	3METHYLHEPTANE
224TMH	2,2,4 TRIMETHYLHEXANE
223TMH	2,2,3 TRIMETHYLHEXANE
NC8	NORMAL OCTANE
EBZ	ETHYL BENZENE
M+P XYL	META AND PARA XYLENES
2MC8	2METHYLOCTANE
3MC8	3METHYLOCTANE
O XYL	ORTHO XYLENE
NC9	NORMAL NONANE
IPBZ	ISOPROPYLBENZENE
NPBZ	NORMAL PROPYL BENZENE
1M3EBZ	1METHYL3ETHYLBENZENE
135TMBZ	1,3,5 TRIMETHYLBENZENE

## ABBREVIATIONS USED TO IDENTIFY PEAKS (cont.)

<u>ABBREVIATION</u>	<u>HYDROCARBON</u>
1M2EBZ	1METHYL2ETHYLBENZENE
124TMBZ	1,2,4 TRIMETHYLBENZENE
NC10	NORMAL DECANE
123TMBZ	1,2,3 TRIMETHYLBENZENE (TERT BUTYL BENZENE CO-ELUTES AT THIS POSITION)
C4BZ	TETRAMETHYLBENZENE
NAPH	NAPHTHALENE
2M. NAPH	2METHYL NAPHTHALENE
1M. NAPH	1METHYL NAPHTHALENE

NC ( )      Normal paraffin with number of carbon atoms in molecule shown  
IP ( )      Isoprenoid iso-paraffin with number of C atoms in molecule shown

# WWG I - 10 SL

Sample Name : J-2019 SB-22(12-14')

FileName : .\45WW169.raw

Method : WWG1\_10

Start Time : 0.00 min

Scale Factor: -1.0

End Time : 40.00 min

Plot Offset: -21 mV

Sample #: 20301002

Date : 3/11/02 01:55 PM

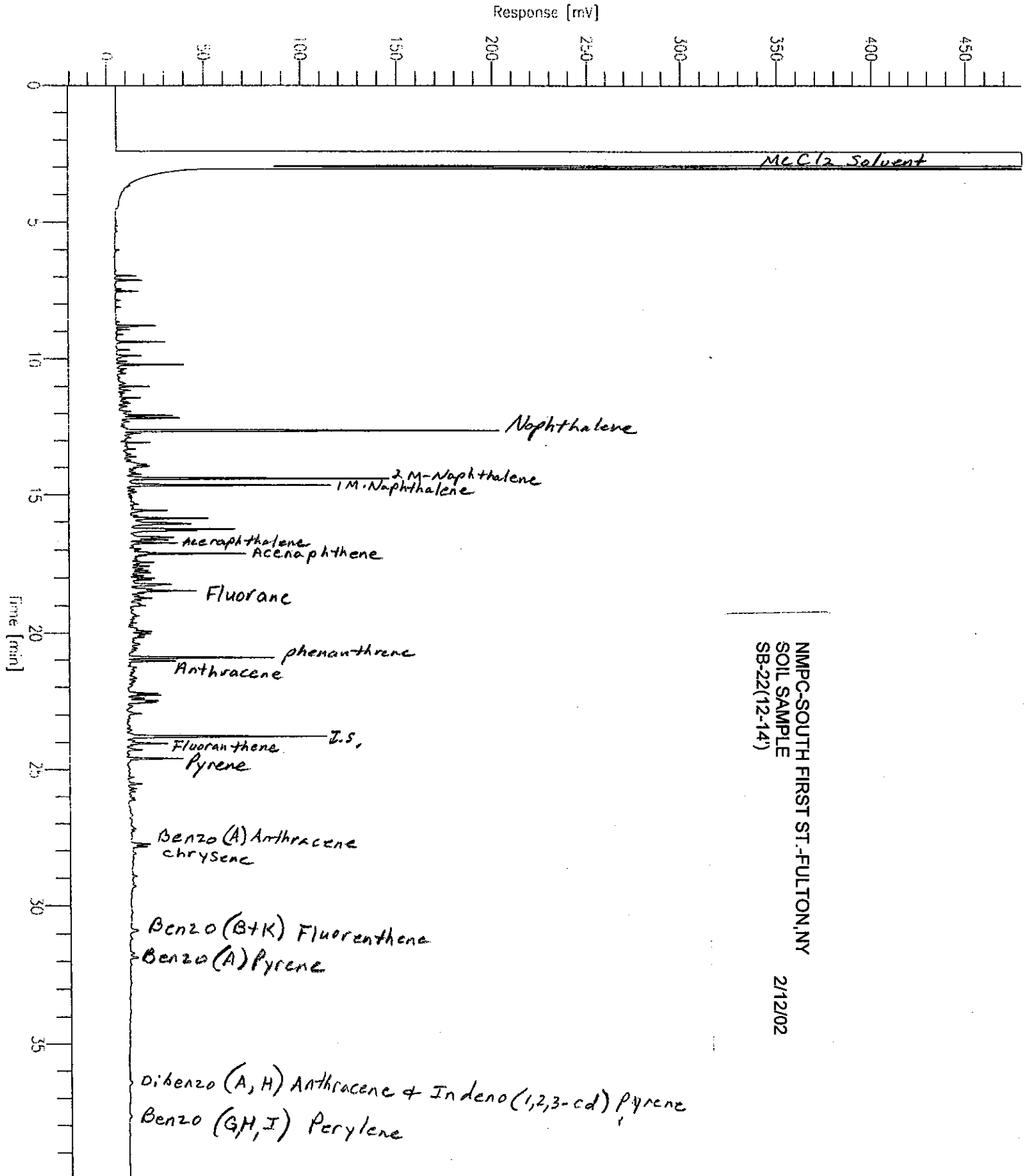
Time of Injection: 3/1/02 07:16 PM

Low Point : -20.92 mV

Plot Scale: 500.0 mV

Page 1 of 1

High Point : 479.08 mV



NMPC-SOUTH FIRST ST.-FULTON, NY  
SOIL SAMPLE  
SB-22(12-14')  
2/12/02



# WWG I - 10 SL

Sample Name : J-2019 SB-22(14'-16')

FileName : .\45WW169.raw

Method : WWG1\_10

Start Time : 0.00 min

Scale Factor: -1.0

End Time : 40.00 min

Plot Offset: -21 mV

Sample #: 20301002

Date : 3/11/02 01:55 PM

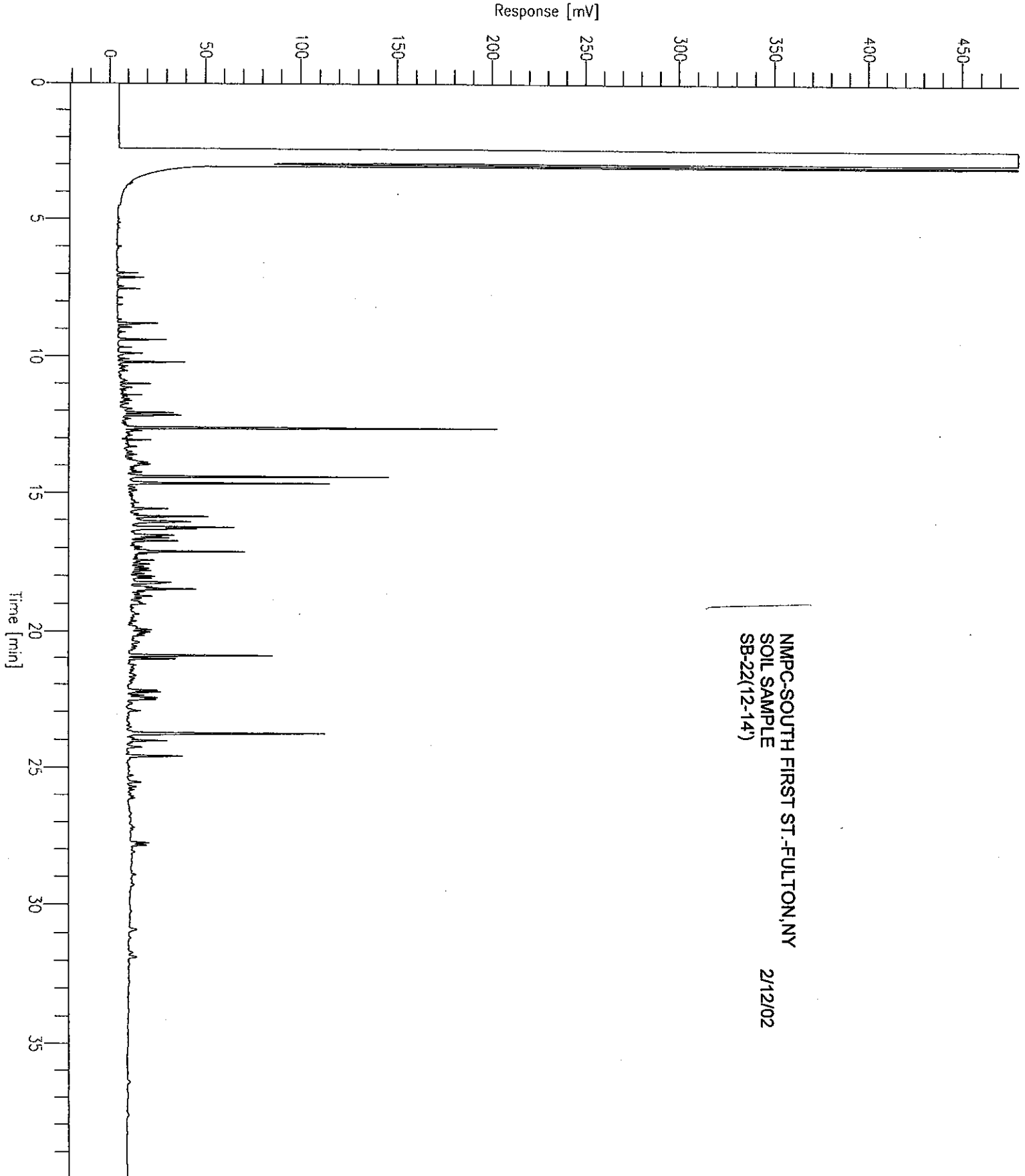
Time of Injection: 3/1/02 07:16 PM

Low Point : -20.92 mV

Plot Scale: 500.0 mV

Page 1 of 1

High Point : 479.08 mV



**APPENDIX II**  
**OPERATING CONDITIONS**

## GC OPERATING CONDITIONS

Instrument: Perkin-Elmer Autosystem

Column: 30m\*0.25mm ID\*0.25u Methyl Silicon, Restek Rtx-1  
(Cat# 10138, Fused Silica Column; Bonded,  
Non-Polar, Silicone Based Polymer Liquid Phase)

Carrier Gas: Helium  
Linear Velocity = 30 cm/sec  
Column Pressure 16.9 psig.

Injection Port: Split/Splitless Type  
Temperature 300 deg C

Detector: Flame Ionization Type  
Temperature 300 deg C  
Range 1, Attn.4

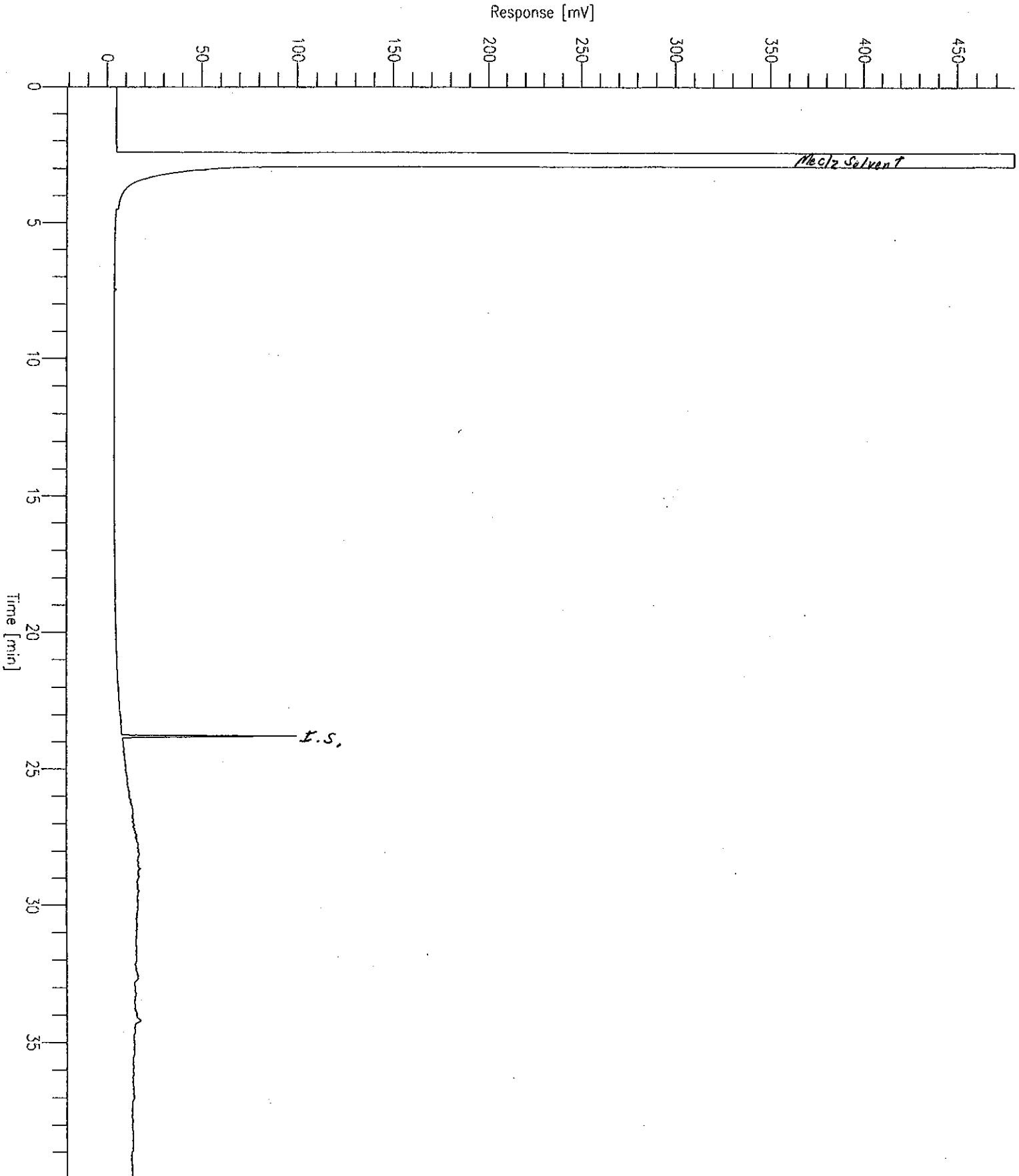
	<u>Method 1</u>	<u>Method 2</u>	<u>Method 3</u>	<u>Method 4</u>
Injection Type	Split	Split	Splitless	Splitless
Acronym	5/s	10/s	5/sl	10/sl
Split Vent	On	On	Off	Off
Split Vent Time,min	---	---	0.5	0.5
Split Rate ml/min	100	100	100	100
Initial Temp, deg C	30	30	30	30
Initial Time, min	5	1	5	1
Ramp Rate, deg C/min	5	10	5	10
Final Temp, deg C	300	300	300	300
Final Time, min	0	15	0	15
Run Time, min	40	40	40	40

# WWG I - 10 SL

Sample Name : METHOD BLANK  
FileName : .\45WW167.raw  
Method : WWG1\_10  
Start Time : 0.00 min  
Scale Factor: -1.0

Sample #: BLANK  
Date : 3/11/02 01:55 PM  
Time of Injection: 3/1/02 05:31 PM  
Low Point : -21.07 mV  
Plot Scale: 500.0 mV  
End Time : 40.00 min  
Plot Offset: -21 mV  
High Point : 478.93 mV

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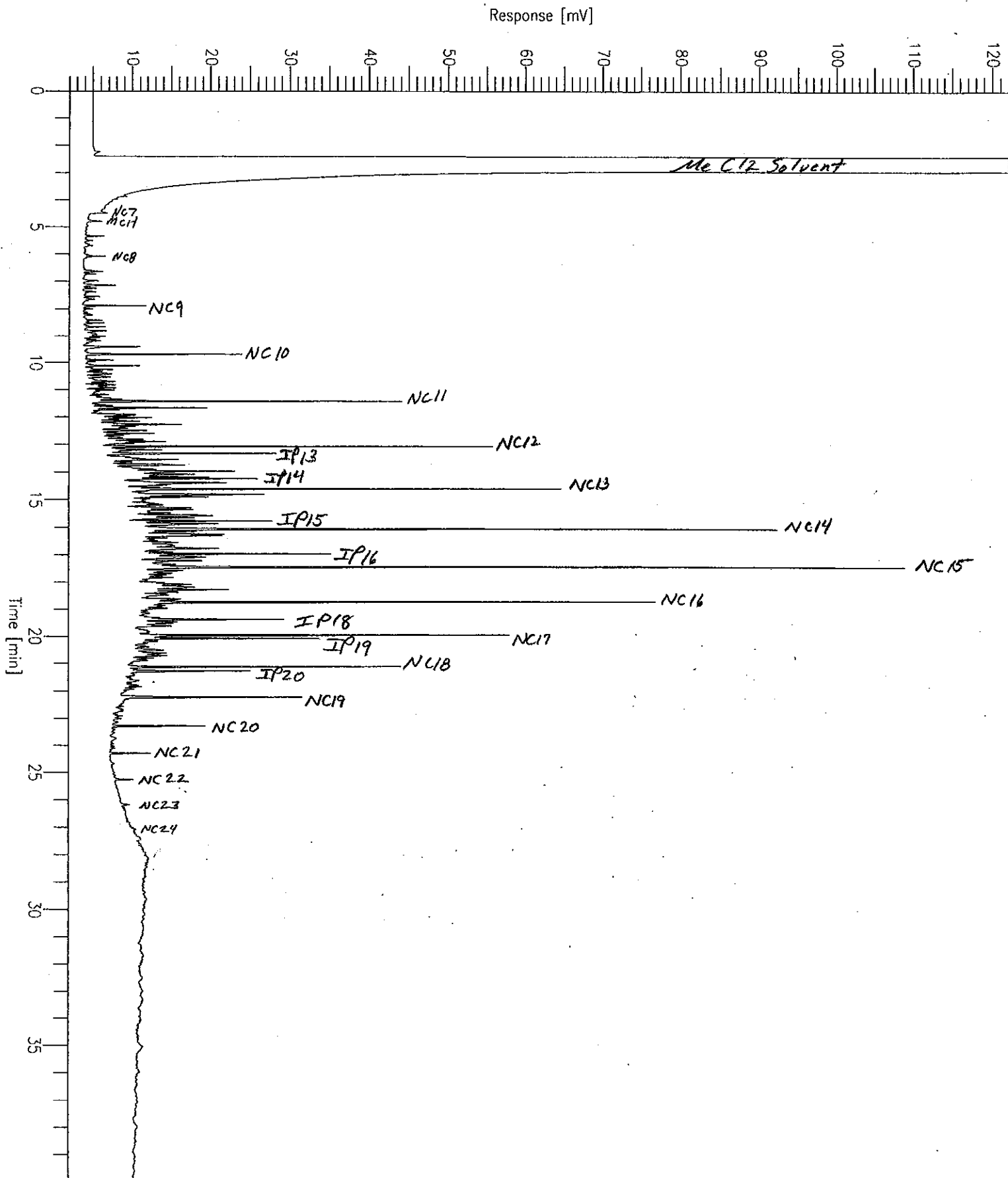


# WORLD WIDE GEOSCIENCES - I

Sample Name : D2 DIESEL  
 FileName : C:\TC4\45WW\45WW168.RAW  
 Method : WWG.MTH  
 Start Time : 0.00 min  
 Scale Factor: 0.0

Sample #: STANDARD  
 Date : 3/11/02 02:10 PM  
 Time of Injection: 3/1/02 06:24 PM  
 Low Point : 2.00 mV  
 Plot Scale: 120.0 mV

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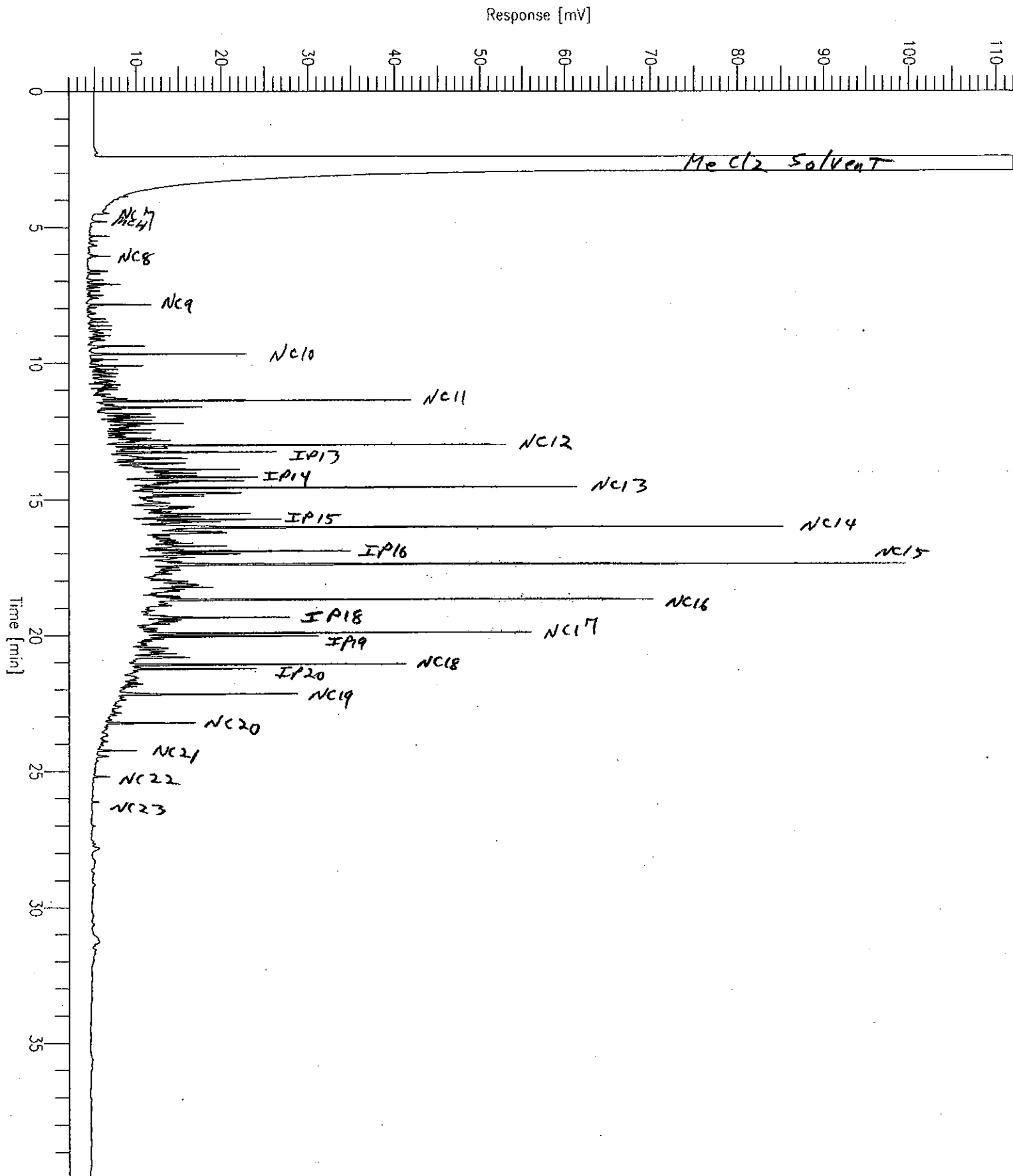
# WORLD WIDE GEOSCIENCES - I

Sample Name : D-2 DIESEL STANDARD  
 FileName : C:\TC4\45WW\45WW149.RAW  
 Method : WWG.MTH  
 Start Time : 0.00 min  
 Scale Factor: 0.0

End Time : 40.00 min  
 Plot Offset: 2 mV

Sample #: STANDARD  
 Date : 3/4/02 09:49 AM  
 Time of Injection: 2/27/02 05:53 PM  
 Low Point : 2.00 mV  
 Plot Scale: 110.0 mV

Page 1 of 1



# WORLD WIDE GEOSCIENCES - I

Sample Name : PAH STANDARD  
 FileName : C:\TC4\45WW\45WW148.RAW  
 Method : WWG.MTH  
 Start Time : 0.00 min  
 Scale Factor: 0.0

End Time : 40.00 min  
 Plot Offset: 2 mV

Sample #: STANDARD  
 Date : 3/4/02 09:49 AM  
 Time of Injection: 2/27/02 05:02 PM  
 Low Point : 2.00 mV  
 Plot Scale: 170.0 mV

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High Point : 172.00 mV

