New York State Department of Environmental Conservation
Department of Environmental Remediation • 625 Broadway • Albany, New York 12233

Site Number 7-54-012

Tioga Castings Site Quarterly Report and Annual Groundwater Monitoring Summary

First Quarter 2011

Foundry Street
Owego, New York

New York State Department of Environmental Conservation Work Assignment D004443-8

Report Prepared By:

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MALCOLM PIRNIE

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1. Introduction

The New York State Department of Environmental Conservation (NYSDEC) has issued a Work Assignment (# D004443-8) to Malcolm Pirnie, Inc. (Malcolm Pirnie) for Operation, Maintenance, and Monitoring at the Tioga Castings Site (NYSDEC site number 7-54-012) in New York State. Malcolm Pirnie has prepared this Quarterly Report in accordance with the NYSDEC-approved Site Management Plan (SMP) to summarize site activities, including the installation of off-site groundwater monitoring well MW-6 and a summary of groundwater sampling results.

2. Site Description

The Tioga Castings site is located on Foundry Street, Owego, Broome County, New York (Figure 2-1). The former foundry buildings have been razed, leaving the concrete slabs in-place. A capped, closed landfill is present at the western end of the site.

3. Operation and Maintenance

Operation and Maintenance (O&M) activities were performed in accordance with the NYSDEC-approved SMP during the fourth quarter 2010. The next O&M event is scheduled to be performed during the second quarter 2011.

4. Off-site Well Installation

Groundwater monitoring well MW-6 was installed on January 6, 2011 at the request of NYSDEC to provide additional information on groundwater quality adjacent to the site. Figure 4-1 shows the location of the well.

4.1. Subsurface Soil Sampling

4.1.1. Soil Sampling Objectives

Soil samples were collected at discrete depth intervals to evaluate the nature and extent of potential contaminants at concentrations greater than 6 NYCRR Subpart 375-6 Commercial Soil Cleanup Objectives (SCOs) in subsurface soil and to document the underlying stratigraphy.

4.1.2. Soil Sampling Procedures

4.1.2.1. Split-barrel (Split-spoon) Soil Sampling

The soil boring for MW-6 (SB-27) was drilled using a truck-mounted hollow-stem auger drill rig. Continuous two-inch inner-diameter (I.D.) split-spoon samples were collected from the ground surface to the water table (approximately 18 feet bgs). Upon collection, each split-spoon sample was opened and the soil was screened for VOCs using a photo ionization detector (PID), visually inspected for indication of contamination (e.g., staining and/or sheens), and classified by the on-site geologist. A soil boring log is presented in Appendix A. As shown in the boring log, subsurface materials at soil boring SB-27 generally consisted of coarse brown sand and gravel with some silt overlain by fill material containing coal, concrete, slag, wood, and sand and gravel. As indicated in the boring log, several intervals were not able to be characterized due to limited or no recovery in the split-spoon sampler. No VOCs were detected by the PID and none of the split-spoon samples contained any indication of staining and/or sheens. .

One soil sample was collected from the zone of fill material at approximately four to six feet bgs. Due to the coarse gravel matrix in the split-spoon sampler collected above the water table, no soil sample was able to be collected from this interval.

Soil samples were submitted to Test America, a NYSDOH ELAP and NYSDEC ASP-certified laboratory, and analyzed for VOCs by USEPA Method 8260B, semi-volatile organic compounds (SVOCs) by USEPA Method 8270C, and metals by USEPA Method 6010B. Analytical reporting forms are provided in Appendix B.

4.1.3. Subsurface Soil Sampling Results

Subsurface soil sample results are summarized in Table 4-1 (VOCs) Table 4-2 (SVOCs), and Table 4-3 (metals). As shown in Tables 4-1, 4-2, and 4-3, sub-surface soil sample SB-27-4-6 did not contain any VOCs, SVOCs, or metals at concentrations greater than the corresponding 6NYCRR Part 375 Commercial SCOs.

4.2. Monitoring Well Installation and Development

4.2.1. Installation Equipment

A truck-mounted rotary drilling rig equipped with 4.25-inch hollow-stem augers was used to create an 8-inch diameter borehole approximately 24 feet bgs. The monitoring well assembly, consisting of two-inch inner diameter (I.D.) schedule-40 PVC casing with 10 feet of continuous 0.01-inch slot schedule-40 PVC screen, was inserted through the augers. A soil boring/well construction log is provided in Appendix A. Clean filter pack sand was poured into the annular space between the augers and the monitoring well assembly as the augers were slowly removed. As shown in the well construction log, filter pack sand was placed to approximately 1.5 feet above the screened interval. An approximately 1.5 foot layer of hydrated bentonite pellets were placed above the filter pack by slowly dropping the pellets along the side of the monitoring well casing. The augers were then removed as the remainder of the annulus was grouted to within two feet of the ground surface with a cement-bentonite grout. Monitoring well MW-6 was completed at the surface with a four-inch diameter stick-up protective casing and concrete pad.

4.2.2. Monitoring Well Development

4.2.2.1. Development Objectives

Monitoring well MW-6 was developed on January 28, 2011 to improve its hydraulic properties by removing sediment from the monitoring well and clearing the monitoring well screen of fine particles.

4.2.2.2. Development Procedures

Monitoring well development was conducted using the following techniques:

- Bailing.
- Inertial Pumping.
- Surge Block.

Prior to developing the monitoring well, the initial water level and total depth were measured. Following well development, the total depth was measured to evaluate the quantity of sediment removed (if any).

All equipment placed into the monitoring well was either decontaminated prior to its introduction into the monitoring well, or it was dedicated. Monitoring well development proceeded with repeated alternating sequences of surging and removal of water from the monitoring well, until the discharge water was relatively sediment free.

The effectiveness of the development procedure was monitored after each well volume has been removed by measurements of field parameters, such as turbidity, pH, ORP, temperature, and conductivity. These field measurements and other observations were recorded on a Well Development/Purging Log (Appendix C). .

In general, monitoring well development was discontinued after a minimum of 10 well volumes have been removed and stabilization of field parameter measurements occurred, and the turbidity of the discharge water reached 50 nephelometric turbidity units (NTUs) or less.

4.3. Monitoring Well Survey

The horizontal positions of all groundwater monitoring wells were measured on February 28, 2011 using a Trimble Global Position System (GPS). Figure 4-1 shows the location of the groundwater monitoring wells. The top of casing elevation of groundwater monitoring well MW-6 was measured using an automatic level with a precision of 0.01 feet. The reference datum for the elevation survey was based on the existing elevation data for monitoring well MW-4. A summary of monitoring well elevation data is presented in Appendix D.

5. Groundwater Monitoring

Groundwater sampling was performed at the direction of the NYSDEC and NYSDOH to evaluate groundwater quality in the vicinity of the site and to support reclassification of the site on the NYSDEC Registry of Inactive Hazardous Waste Sites. This groundwater sampling event was conducted prior to the annual groundwater sampling event scheduled to be completed during the second quarter 2011. Based on discussions with the NYSDEC, no additional groundwater monitoring will be required during 2011. Groundwater sampling was conducted in accordance with the SMP.

5.1. Groundwater Monitoring Well Inspection

The integrity of each well was inspected and the results recorded on a groundwater monitoring well inspection form (Appendix E). As indicated in the inspection forms, the monitoring wells are in acceptable condition and no significant problems were reported.

5.2. Water Level Survey

Prior to collecting groundwater samples, water levels were measured to the nearest hundredth of a foot and recorded on a groundwater level data form (Appendix F).

Table 5-1 summarizes the groundwater levels and elevations from the site. As shown in Table 5-1, groundwater elevations ranged from 793.73 (MW-8) feet above mean sea level (amsl) to 796.42 (MW-4) feet amsl. A potentiometric surface map is presented on Figure 5-1. As shown on Figure 5-1, the direction of groundwater flow in the vicinity of the landfill is generally toward the east. Figure 5-1 also shows that the water table is relatively flat in the eastern portion of the site compared to the area of the landfill and the direction of groundwater flow trends toward the northeast. These data are consistent with groundwater levels measured during the last (fourth quarter 2010) groundwater monitoring event.

5.3. Groundwater Sampling

Groundwater samples were collected from nine groundwater monitoring wells (MW-1R, MW-2, MW-3, MW-3D, MW-4, MW-5, MW-6, MW-7, and MW-8) using low-flow groundwater purging and sampling procedures in accordance with the SMP.

Prior to collecting groundwater samples, pH, conductivity, turbidity, dissolved oxygen (DO), temperature, salinity, total dissolved solids (TDS), and oxidation-reduction potential (REDOX) were measured using a Horiba U-52 water quality meter and

recorded on groundwater sampling purge logs. Groundwater sampling purge logs are presented in Appendix G.

Groundwater samples collected from monitoring well MW-6 were sent to Test America – Connecticut by chain-of-custody procedures and analyzed for volatile organic compounds (VOCs) by USEPA Method 8260B, semi-volatile organic compounds (SVOCs) by USEPA Method 8270C, and Target Analyte List (TAL) metals by USEPA Method 6010B. Based on historical groundwater sample data, and in consultation with NYSDEC, groundwater samples from all of the other wells were submitted and analyzed for metals only. Analytical data packages are provided in Appendix B.

5.4. Groundwater Sampling Results

Groundwater sample results from the October 28, 2010 groundwater sampling event are summarized in Table 5-2 (VOCs), Table 5-3 (SVOCs) and Table 5-4 (metals).

5.4.1. VOCs

As shown in Table 5-2, acetone and methylene chloride were detected in the sample from MW-6 at estimated (based on the "J" qualifier) concentrations of 0.92 micrograms per liter (ug/L) and 0.15 ug/L, respectively. However, as indicated by the additional "B" qualifier, these compounds were also detected in the associated Method Blank. No other VOCs were detected in the sample from MW-6 above the indicated quantitation limits.

5.4.2. SVOCs

As shown in Table 5-3, with the exception of bis(2-ethylhexyl)phthalate, no SVOCs were detected in the sample from MW-6 above the indicated quantitation limits. However, as indicated by the corresponding "J" and "B" qualifiers, the concentration of this compound (2.5 ug/L) was estimated and it was also detected in the associated Method Blank.

5.4.3. Metals

As shown in Table 5-4, sodium was detected in groundwater samples MW-1R (23,300 ug/L), MW-2 (22,000 ug/L), MW-6 (21,900 ug/L), MW-7 (32,700 ug/L), and MW-8 (21,900 ug/L) at concentrations above the corresponding NYSDEC Class GA Standard of 20,000 ug/L. Table 5-4 shows that the concentration of sodium in the sample from MW-6, and the other wells with sodium exceedances, are within the range of sodium results reported in samples from the monitoring well network during previous sampling events. It is anticipated that the elevated concentrations of sodium may be related to the local application of road de-icing agents.

Table 5-4 shows that the iron concentrations in the samples from MW-7 and MW-8 were 457 ug/L and 560 ug/L, respectively. These concentrations exceed the NYSEC Class GA Standard of 300 ug/L. As shown in Table 5-4, the last iron exceedances in the samples

from MW-7 (2,880 ug/L) and MW-8 (4,530 ug/L) were reported in April 2009 samples from these wells. Table 5-4 shows that, since then, the iron concentrations in the samples from these wells decreased significantly, but have been trending upward over time. No other metals were detected at concentrations greater than the applicable NYSDEC Class GA Standards.

6. Conclusion

Based on visual observations, field-screening of soil cores, and analytical data from sub-surface soil samples, sub-surface soil in the vicinity of MW-6 does not exhibit any evidence of significant contamination or impacts related to historic site activities.

Based on water level data, groundwater monitoring well MW-6 is located in a cross-gradient position to the landfill. The direction of groundwater flow across the site is toward the east in the vicinity of the landfill and generally toward the northeast in the eastern portion of the site.

Based on groundwater sampling data, sodium was the only metal that exceeded the applicable groundwater standard in samples from MW-6. Therefore, groundwater in the vicinity of MW-6 has not been significantly impacted by historic site activities. Groundwater data indicate that sodium and iron are present in the vicinity of the site above the respective groundwater standards.

Since no VOCs or SVOCs (other than laboratory contaminants) were reported in the samples from well MW-6, and metals were are the only reported groundwater exceedances in samples from on and off-site wells, future groundwater sampling should be performed in accordance with the SMP and only require laboratory analysis for metals.

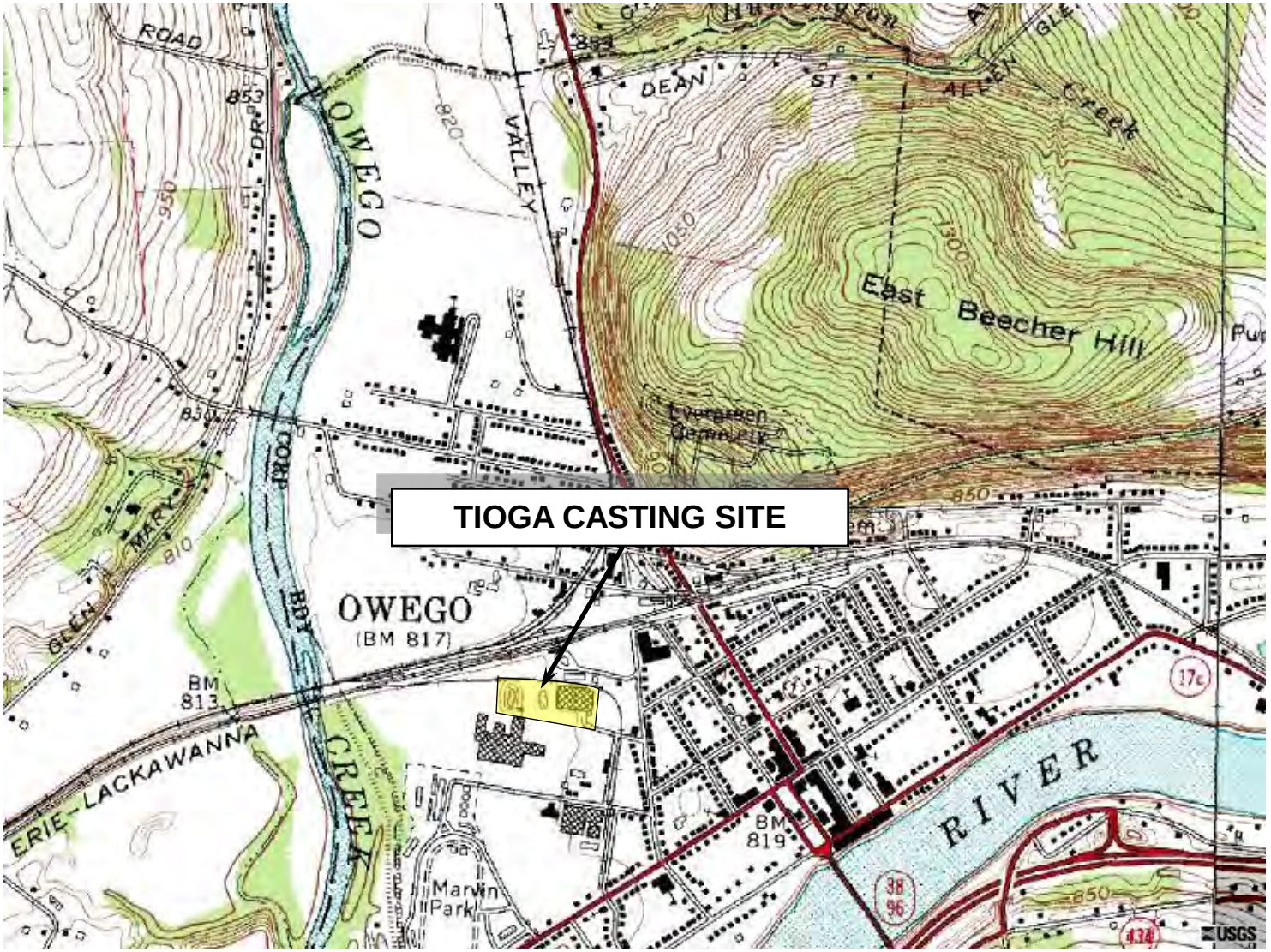
7. Summary

Landfill O&M activities were conducted in accordance with the SMP during the fourth quarter 2010. In accordance with the SMP, the next O&M event is scheduled for the second quarter 2011.

Installation of off-site groundwater monitoring well MW-6 and a supplemental groundwater sampling event was conducted to support reclassification of the site on the NYSDEC Registry of Inactive Hazardous Waste Sites. Subsurface soil observations, field screening, and laboratory sampling data indicate no impacts to sub-surface soil in the vicinity of the soil boring at MW-6. Monitoring well MW-6 was installed using traditional hollow-stem auger techniques with the screened interval set to intercept the water table. The well was developed and the position and the top of casing elevation were surveyed.

Groundwater monitoring wells were reported to be in acceptable condition. The direction of groundwater flow in the vicinity of the landfill is toward the east and the direction of groundwater flow in the eastern portion of the site is toward the northeast. Laboratory contaminants were the only reported VOCs or SVOCs in the samples from MW-6. With the exception of sodium and iron, none of the samples contained concentrations of metals greater than the applicable NYSDEC Class GA Standards. Sodium concentrations exceeded the NYSDEC Class GA Standard in five out of the nine samples collected during the supplemental groundwater monitoring event. The sodium exceedances may be related to the localized application of road de-icing agents. Iron exceedances were reported in samples from MW-7 and MW-8 for the first time since April 2009. The iron exceedances from this event were significantly less than the previous exceedances, but historic groundwater sample data indicate an upward trend in iron concentrations.

Future groundwater monitoring events should be conducted in accordance with the SMP and only require analysis for metals.



SOURCE: U.S.G.S 7.5 MIN. OWEGO QUAD, 1990

F:\PROJECT\0266362\FILE\Reports\2007\3rd qtr 07\Figure 2-1

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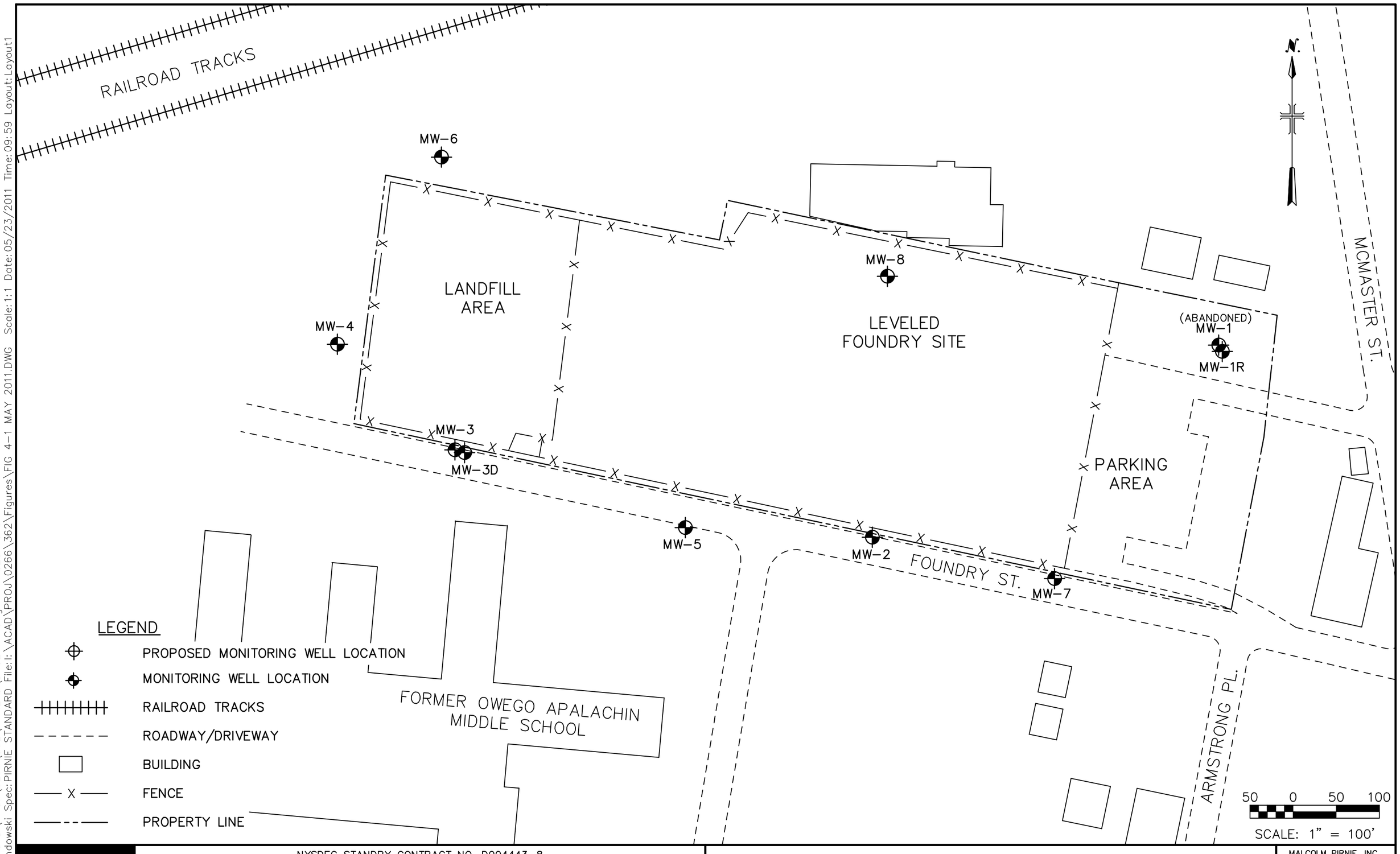
NYSDEC STANDBY CONTRACT NO. D004443
TIOGA CASTING FACILITIES
OWEGO, NEW YORK

TIOGA CASTING SITE LOCATION

FIGURE 2-1



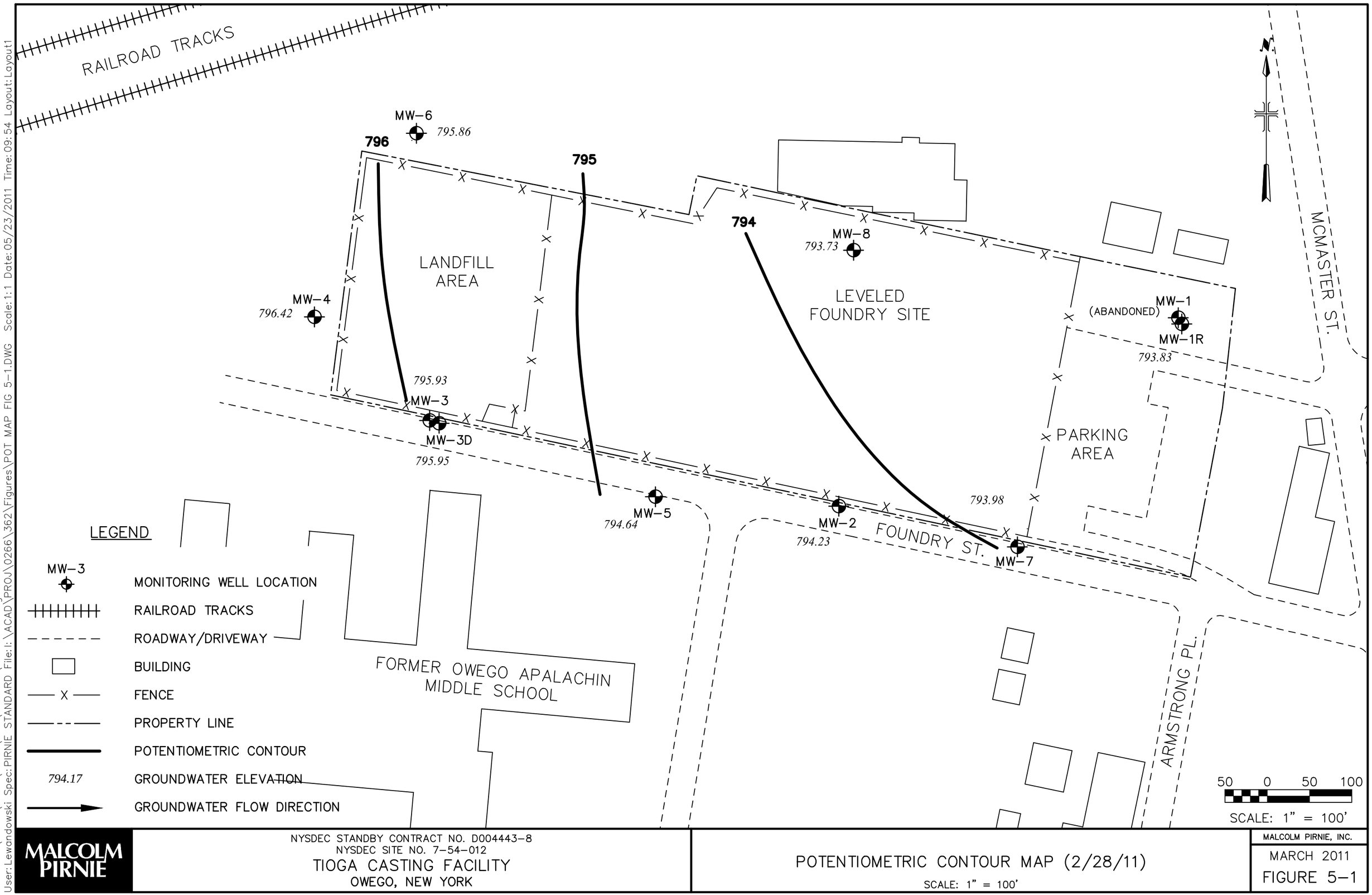
MALCOLM PIRNIE

NYSDEC STANDBY CONTRACT NO. D004443-8
NYSDEC SITE NO. 7-54-012

TIOGA CASTING FACILITY
OWEGO, NEW YORK

MONITORING WELL LOCATIONS
SCALE: 1" = 100'

MALCOLM PIRNIE, INC.
MAY 2011
FIGURE 4-1



MALCOLM PIRNIE

NYSDEC STANDBY CONTRACT NO. D004443-8
NYSDEC SITE NO. 7-54-012
TIOGA CASTING FACILITY
OWEGO, NEW YORK

POTENTIOMETRIC CONTOUR MAP (2/28/11)
SCALE: 1" = 100'

MALCOLM PIRNIE, INC.
MARCH 2011
FIGURE 5-1

Table 4-1
Summary of Soil Sampling Results - VOCs
Tioga Castings
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-01 12-13 7/15/2008 mg/kg		SB-02 17-17.5 7/15/2008 mg/kg		SB-03 19-19.5 7/15/2008 mg/kg		SB-04 14.5-15 7/15/2008 mg/kg	
VOCs									
1,1,1-Trichloroethane	500	0.011	U	0.012	U	0.012	U	0.011	U
1,1,2,2-Tetrachloroethane	NS	0.011	U	0.012	U	0.012	U	0.011	U
1,1,2-Trichloroethane	NS	0.011	U	0.012	U	0.012	U	0.011	U
1,1-Dichloroethane	240	0.011	U	0.012	U	0.012	U	0.011	U
1,1-Dichloroethene	500	0.011	U	0.012	U	0.012	U	0.011	U
1,2-Dichloroethane	30	0.011	U	0.012	U	0.012	U	0.011	U
1,2-Dichloropropane	NS	0.011	U	0.012	U	0.012	U	0.011	U
2-Hexanone	NS	0.011	U	0.012	U	0.012	U	0.011	U
Acetone	500	0.008	J B	0.021	B	0.014	B	0.016	B
Benzene	44	0.001	J	0.002	J	0.001	J	0.005	J
Bromodichloromethane	NS	0.011	U	0.012	U	0.012	U	0.011	U
Bromoform	NS	0.011	U	0.012	U	0.012	U	0.011	U
Bromomethane	NS	0.011	U	0.012	U	0.012	U	0.011	U
Carbon disulfide	NS	0.011	U	0.001	J	0.012	U	0.011	U
Carbon tetrachloride	22	0.011	U	0.012	U	0.012	U	0.011	U
Chlorobenzene	500	0.011	U	0.012	U	0.012	U	0.011	U
Chloroethane	NS	0.011	U	0.012	U	0.012	U	0.011	U
Chloroform	350	0.011	U	0.012	U	0.012	U	0.011	U
Chloromethane	NS	0.011	U	0.012	U	0.012	U	0.011	U
cis-1,2-Dichloroethene	500	0.011	U	0.012	U	0.012	U	0.011	U
cis-1,3-Dichloropropene	NS	0.011	U	0.012	U	0.012	U	0.011	U
Dibromochloromethane	NS	0.011	U	0.012	U	0.012	U	0.011	U
Ethylbenzene	390	0.001	J	0.002	J	0.001	J	0.004	J
Isopropylbenzene	NS	0.011	U	0.012	U	0.012	U	0.011	U
Methyl Ethyl Ketone	500	0.011	U	0.012	U	0.012	U	0.011	U
Methyl isobutyl ketone	NS	0.011	U	0.012	U	0.012	U	0.011	U
Methylene Chloride	500	0.009	J B	0.010	J B	0.002	J B	0.016	B
Styrene	NS	0.011	U	0.012	U	0.012	U	0.011	U
Tetrachloroethene	150	0.011	U	0.012	U	0.012	U	0.011	U
Toluene	500	0.002	J B	0.003	J B	0.003	J B	0.005	J B
trans-1,2-Dichloroethene	500	0.011	U	0.012	U	0.012	U	0.011	U
trans-1,3-Dichloropropene	NS	0.011	U	0.012	U	0.012	U	0.011	U
Trichloroethene	200	0.022		0.023		0.070		0.080	
Vinyl chloride	13	0.011	U	0.012	U	0.012	U	0.011	U
Xylenes, Total	500	0.004	J	0.005	J	0.003	J	0.009	J

Notes

U - Analyte not detected at indicated quantitation limit

J - Estimated value

B - Analyte detected in blank and sample

NS - Not specified.

ppm - Parts per million / mg/kg - milligrams per kilogram

Table 4-1
Summary of Soil Sampling Results - VOCs
Tioga Castings
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-05 14.5-15 7/15/2008 mg/kg		SB-06 7.5-8.5 7/15/2008 mg/kg		SB-06 14-15 7/15/2008 mg/kg		SB-07 14.5-15.5 7/15/2008 mg/kg	
VOCs									
1,1,1-Trichloroethane	500	0.012	U	0.023	U	0.011	U	0.011	U
1,1,2,2-Tetrachloroethane	NS	0.012	U	0.023	U	0.011	U	0.011	U
1,1,2-Trichloroethane	NS	0.012	U	0.023	U	0.011	U	0.011	U
1,1-Dichloroethane	240	0.012	U	0.023	U	0.011	U	0.011	U
1,1-Dichloroethene	500	0.012	U	0.023	U	0.011	U	0.011	U
1,2-Dichloroethane	30	0.012	U	0.023	U	0.011	U	0.011	U
1,2-Dichloropropane	NS	0.012	U	0.023	U	0.011	U	0.011	U
2-Hexanone	NS	0.012	U	0.023	U	0.011	U	0.011	U
Acetone	500	0.075	B	0.250	B	0.006	J B	0.011	U
Benzene	44	0.000	J	0.001	J	0.0003	J	0.011	U
Bromodichloromethane	NS	0.012	U	0.023	U	0.011	U	0.011	U
Bromoform	NS	0.012	U	0.023	U	0.011	U	0.011	U
Bromomethane	NS	0.012	U	0.023	U	0.011	U	0.011	U
Carbon disulfide	NS	0.012	U	0.023	U	0.011	U	0.011	U
Carbon tetrachloride	22	0.012	U	0.023	U	0.011	U	0.011	U
Chlorobenzene	500	0.012	U	0.023	U	0.011	U	0.011	U
Chloroethane	NS	0.012	U	0.023	U	0.011	U	0.011	U
Chloroform	350	0.012	U	0.023	U	0.011	U	0.011	U
Chloromethane	NS	0.012	U	0.023	U	0.011	U	0.011	U
cis-1,2-Dichloroethene	500	0.012	U	0.023	U	0.011	U	0.011	U
cis-1,3-Dichloropropene	NS	0.012	U	0.023	U	0.011	U	0.011	U
Dibromochloromethane	NS	0.012	U	0.023	U	0.011	U	0.011	U
Ethylbenzene	390	0.012	U	0.002	J	0.0003	J	0.011	U
Isopropylbenzene	NS	0.012	U	0.004	J	0.011	U	0.011	U
Methyl Ethyl Ketone	500	0.018		0.023	U	0.011	U	0.011	U
Methyl isobutyl ketone	NS	0.012	U	0.023	U	0.011	U	0.011	U
Methylene Chloride	500	0.007	J B	0.005	J B	0.007	J B	0.003	J B
Styrene	NS	0.012	U	0.023	U	0.011	U	0.011	U
Tetrachloroethene	150	0.012	U	0.023	U	0.011	U	0.011	U
Toluene	500	0.001	J B	0.006	J B	0.001	J B	0.011	U
trans-1,2-Dichloroethene	500	0.012	U	0.023	U	0.011	U	0.011	U
trans-1,3-Dichloropropene	NS	0.012	U	0.023	U	0.011	U	0.011	U
Trichloroethene	200	0.003	J	0.012	J	0.009	J	0.011	U
Vinyl chloride	13	0.012	U	0.023	U	0.011	U	0.011	U
Xylenes, Total	500	0.012	U	0.011	J	0.001	J	0.011	U

Notes

U - Analyte not detected at indicated quantitation limit

J - Estimated value

B - Analyte detected in blank and sample

NS - Not specified.

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Table 4-1
Summary of Soil Sampling Results - VOCs
Tioga Castings
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-08 9.5-10 7/15/2008 mg/kg		SB-09 7.5-8.5 7/16/2008 mg/kg		SGB-11 14-15 7/16/2008 mg/kg		SB-13 4-5 7/16/2008 mg/kg	
VOCs									
1,1,1-Trichloroethane	500	0.012	U	0.012	U	0.012	U	0.012	U
1,1,2,2-Tetrachloroethane	NS	0.012	U	0.012	U	0.012	U	0.012	U
1,1,2-Trichloroethane	NS	0.012	U	0.012	U	0.012	U	0.012	U
1,1-Dichloroethane	240	0.012	U	0.012	U	0.012	U	0.012	U
1,1-Dichloroethene	500	0.012	U	0.012	U	0.012	U	0.012	U
1,2-Dichloroethane	30	0.012	U	0.012	U	0.012	U	0.012	U
1,2-Dichloropropane	NS	0.012	U	0.012	U	0.012	U	0.012	U
2-Hexanone	NS	0.012	U	0.012	U	0.012	U	0.012	U
Acetone	500	0.043	B	0.015	B	0.012	U	0.012	U
Benzene	44	0.002	J	0.012	U	0.012	U	0.012	U
Bromodichloromethane	NS	0.012	U	0.012	U	0.012	U	0.012	U
Bromoform	NS	0.012	U	0.012	U	0.012	U	0.012	U
Bromomethane	NS	0.012	U	0.012	U	0.012	U	0.012	U
Carbon disulfide	NS	0.012	U	0.012	U	0.012	U	0.012	U
Carbon tetrachloride	22	0.012	U	0.012	U	0.012	U	0.012	U
Chlorobenzene	500	0.012	U	0.012	U	0.012	U	0.012	U
Chloroethane	NS	0.012	U	0.012	U	0.012	U	0.012	U
Chloroform	350	0.012	U	0.012	U	0.012	U	0.012	U
Chloromethane	NS	0.012	U	0.012	U	0.012	U	0.012	U
cis-1,2-Dichloroethene	500	0.012	U	0.012	U	0.012	U	0.012	U
cis-1,3-Dichloropropene	NS	0.012	U	0.012	U	0.012	U	0.012	U
Dibromochloromethane	NS	0.012	U	0.012	U	0.012	U	0.012	U
Ethylbenzene	390	0.003	J	0.012	U	0.012	U	0.012	U
Isopropylbenzene	NS	0.012	U	0.012	U	0.012	U	0.012	U
Methyl Ethyl Ketone	500	0.012	U	0.012	U	0.012	U	0.012	U
Methyl isobutyl ketone	NS	0.012	U	0.012	U	0.012	U	0.012	U
Methylene Chloride	500	0.007	J B	0.005	J B	0.005	J B	0.002	J B
Styrene	NS	0.012	U	0.012	U	0.012	U	0.012	U
Tetrachloroethene	150	0.012	U	0.012	U	0.012	U	0.012	U
Toluene	500	0.005	J B	0.012	U	0.001	J B	0.012	U
trans-1,2-Dichloroethene	500	0.012	U	0.012	U	0.012	U	0.012	U
trans-1,3-Dichloropropene	NS	0.012	U	0.012	U	0.012	U	0.012	U
Trichloroethene	200	0.008	J	0.001	J	0.010	J	0.012	U
Vinyl chloride	13	0.012	U	0.012	U	0.012	U	0.012	U
Xylenes, Total	500	0.009	J	0.012	U	0.001	J	0.012	U

Notes

U - Analyte not detected at indicated quantitation limit

J - Estimated value

B - Analyte detected in blank and sample

NS - Not specified.

ppm - Parts per million / mg/kg - milligrams per kilogram

Table 4-1
Summary of Soil Sampling Results - VOCs
Tioga Castings
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-14 7-8 7/16/2008 mg/kg		SB-24 12-16 10/29/2008 mg/kg		SB-25 6-8 10/29/2008 mg/kg		SB-25 18-20 10/29/2008 mg/kg	
VOCs									
1,1,1-Trichloroethane	500	0.012	U	0.012	U	0.012	U	0.011	U
1,1,2,2-Tetrachloroethane	NS	0.012	U	0.012	U	0.012	U	0.011	U
1,1,2-Trichloroethane	NS	0.012	U	0.012	U	0.012	U	0.011	U
1,1-Dichloroethane	240	0.012	U	0.012	U	0.012	U	0.011	U
1,1-Dichloroethene	500	0.012	U	0.012	U	0.012	U	0.011	U
1,2-Dichloroethane	30	0.012	U	0.012	U	0.012	U	0.011	U
1,2-Dichloropropane	NS	0.012	U	0.012	U	0.012	U	0.011	U
2-Hexanone	NS	0.012	U	0.012	U	0.012	U	0.011	U
Acetone	500	0.012	U	0.012	U	0.012	U	0.011	U
Benzene	44	0.001	J	0.012	U	0.012	U	0.011	U
Bromodichloromethane	NS	0.012	U	0.012	U	0.012	U	0.011	U
Bromoform	NS	0.012	U	0.012	U	0.012	U	0.011	U
Bromomethane	NS	0.012	U	0.012	U	0.012	U	0.011	U
Carbon disulfide	NS	0.012	U	0.012	U	0.012	U	0.011	U
Carbon tetrachloride	22	0.012	U	0.012	U	0.012	U	0.011	U
Chlorobenzene	500	0.012	U	0.012	U	0.012	U	0.011	U
Chloroethane	NS	0.012	U	0.012	U	0.012	U	0.011	U
Chloroform	350	0.012	U	0.012	U	0.012	U	0.011	U
Chloromethane	NS	0.012	U	0.012	U	0.012	U	0.011	U
cis-1,2-Dichloroethene	500	0.012	U	0.012	U	0.012	U	0.011	U
cis-1,3-Dichloropropene	NS	0.012	U	0.012	U	0.012	U	0.011	U
Dibromochloromethane	NS	0.012	U	0.012	U	0.012	U	0.011	U
Ethylbenzene	390	0.001	J	0.012	U	0.012	U	0.011	U
Isopropylbenzene	NS	0.001	J	0.012	U	0.012	U	0.011	U
Methyl Ethyl Ketone	500	0.012	U	0.012	U	0.012	U	0.011	U
Methyl isobutyl ketone	NS	0.012	U	0.012	U	0.012	U	0.011	U
Methylene Chloride	500	0.003	J B	0.003	J B	0.003	J B	0.003	J B
Styrene	NS	0.012	U	0.012	U	0.012	U	0.011	U
Tetrachloroethene	150	0.012	U	0.012	U	0.012	U	0.011	U
Toluene	500	0.002	J B	0.012	U	0.012	U	0.011	U
trans-1,2-Dichloroethene	500	0.012	U	0.012	U	0.012	U	0.011	U
trans-1,3-Dichloropropene	NS	0.012	U	0.012	U	0.012	U	0.011	U
Trichloroethene	200	0.012	U	0.012	U	0.012	U	0.011	U
Vinyl chloride	13	0.012	U	0.012	U	0.012	U	0.011	U
Xylenes, Total	500	0.001	J	0.012	U	0.012	U	0.011	U

Notes

U - Analyte not detected at indicated quantitation limit

J - Estimated value

B - Analyte detected in blank and sample

NS - Not specified.

ppm - Parts per million / mg/kg - milligrams per kilogram

Table 4-1
Summary of Soil Sampling Results - VOCs
Tioga Castings
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-26 14-18 10/30/2008 mg/kg		SB-27 4-6 1/6/2011 mg/kg	
VOCs					
1,1,1-Trichloroethane	500	0.011	U	0.006	U
1,1,2,2-Tetrachloroethane	NS	0.011	U	0.006	U
1,1,2-Trichloroethane	NS	0.011	U	0.006	U
1,1-Dichloroethane	240	0.011	U	0.006	U
1,1-Dichloroethene	500	0.011	U	0.006	U
1,2-Dichloroethane	30	0.011	U	0.006	U
1,2-Dichloropropane	NS	0.011	U	0.006	U
2-Hexanone	NS	0.011	U	0.012	U
Acetone	500	0.011	U	0.027	*
Benzene	44	0.011	U	0.006	U
Bromodichloromethane	NS	0.011	U	0.006	U
Bromoform	NS	0.011	U	0.006	U
Bromomethane	NS	0.011	U	0.006	U
Carbon disulfide	NS	0.011	U	0.006	U
Carbon tetrachloride	22	0.011	U	0.006	U
Chlorobenzene	500	0.011	U	0.006	U
Chloroethane	NS	0.011	U	0.006	U
Chloroform	350	0.011	U	0.006	U
Chloromethane	NS	0.011	U	0.006	U
cis-1,2-Dichloroethene	500	0.011	U	0.006	U
cis-1,3-Dichloropropene	NS	0.011	U	0.006	U
Dibromochloromethane	NS	0.011	U	0.006	U
Ethylbenzene	390	0.011	U	0.006	U
Isopropylbenzene	NS	0.011	U	-	
Methyl Ethyl Ketone	500	0.011	U	0.012	U
Methyl isobutyl ketone	NS	0.011	U	0.006	U
Methylene Chloride	500	0.004	J B	0.005	J B
Styrene	NS	0.011	U	0.006	U
Tetrachloroethene	150	0.011	U	0.006	U
Toluene	500	0.011	U	0.001	J
trans-1,2-Dichloroethene	500	0.011	U	0.006	U
trans-1,3-Dichloropropene	NS	0.011	U	0.006	U
Trichloroethene	200	0.011	U	0.006	U
Vinyl chloride	13	0.011	U	0.006	U
Xylenes, Total	500	0.011	U	0.003	J

Notes

U - Analyte not detected at indicated quantitation limit

J - Estimated value

B - Analyte detected in blank and sample

NS - Not specified.

ppm - Parts per million / mg/kg - milligrams per kilogram

Table 4-2
Summary of Soil Sampling Results - SVOCs
Tioga Castings
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring	Commercial	SB-24		SB-25		SB-25		SB-26		SB-27	
Sample Interval (feet bgs)	Soil Cleanup	12-16		6-8		18-20		14-18		4-6	
Date	Objective	10/29/2008		10/29/2008		10/29/2008		10/30/2008		1/6/2011	
Units	ppm	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SVOCs											
2,2-oxybis(1-Chloropropane)		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2,4,5-Trichlorophenol		0.200	U	0.220	U	0.200	U	0.200	U	2.000	U
2,4,6-Trichlorophenol		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2,4-Dichlorophenol		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2,4-Dimethylphenol		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2,4-Dinitrophenol		0.380	U	0.430	U	0.380	U	0.390	U	2.000	U
2,4-Dinitrotoluene		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2,6-Dinitrotoluene		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2-Chloronaphthalene		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2-Chlorophenol		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
2-Methylnaphthalene		0.009	J	0.220	U	0.200	U	0.200	U	0.290	J
2-Methylphenol		0.200	U	0.220	U	0.200	U	0.025	J	0.042	J
2-Nitroaniline		0.380	U	0.430	U	0.380	U	0.390	U	0.790	U
2-Nitrophenol		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
3,3-Dichlorobenzidine		0.200	U	0.220	U	0.200	U	0.200	U	0.390	U
3-Nitroaniline		0.380	U	0.430	U	0.380	U	0.390	U	0.790	U
4,6-Dinitro-2-methylphenol		0.380	U	0.430	U	0.380	U	0.390	U	2.000	U
4-Bromophenyl-phenylether		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
4-Chloro-3-methylphenol		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
4-Chloroaniline		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
4-Chlorophenyl-phenylether		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
4-Nitroaniline		0.380	U	0.430	U	0.380	U	0.390	U	0.320	U
4-Nitrophenol		0.380	U	0.430	U	0.380	U	0.390	U	2.000	U
Acenaphthene	500	0.008	J	0.012	J	0.200	U	0.200	U	0.320	U
Acenaphthylene	500	0.024	J	0.220	U	0.200	U	0.200	U	0.017	J
Anthracene	500	0.028	J	0.016	J	0.200	U	0.200	U	0.018	J
Benzo(a)anthracene	5.6	0.150	J	0.076	J	0.014	J	0.200	U	0.015	J
Benzo(a)pyrene	1.0	0.120	J	0.063	J	0.200	U	0.200	U	0.320	U
Benzo(b)fluoranthene	5.6	0.160	J	0.072	J	0.008	J	0.200	U	0.016	J
Benzo(g,h,i)perylene	500	0.110	J	0.052	J	0.200	U	0.200	U	0.320	U
Benzo(k)fluoranthene	56	0.081	J	0.049	J	0.200	U	0.200	U	0.320	U
Biphenyl		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
bis(2-Chloroethoxy)methane		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
bis(2-Chloroethyl)ether		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
bis(2-Ethylhexyl)phthalate		0.110	J	0.160	J	0.088	J	0.200	U	0.190	J
Butylbenzylphthalate		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Carbazole		0.044	J	0.009	J	0.200	U	0.200	U	0.320	U
Chrysene	56	0.150	J	0.080	J	0.008	J	0.200	U	0.025	J
Dibenz(a,h)anthracene	0.56	0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Dibenzofuran		0.021	J	0.220	U	0.200	U	0.200	U	0.059	J
Diethylphthalate		0.200	U	0.220	U	0.200	U	0.016	J	0.320	U
Dimethylphthalate		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Di-n-butylphthalate		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Di-n-octyl phthalate		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Fluoranthene	500	0.320		0.140	J	0.024	J	0.200	U	0.057	J
Fluorene	500	0.200	U	0.220	U	0.200	U	0.200	U	0.043	J
Hexachlorobenzene		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Hexachlorobutadiene		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Hexachlorocyclopentadiene		0.200	U	0.220	U	0.200	U	0.200	U	0.790	U
Hexachloroethane		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Indeno(1,2,3-cd)pyrene	5.6	0.087	J	0.040	J	0.200	U	0.200	U	0.320	U
Isophorone		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Naphthalene	500	0.015	J	0.220	U	0.200	U	0.200	U	0.330	
Nitrobenzene		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
N-Nitroso-di-n-propylamine		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
N-Nitrosodiphenylamine		0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Pentachlorophenol	6.7	0.380	U	0.430	U	0.380	U	0.390	U	0.790	U
Phenanthrene	500	0.320		0.085	J	0.013	J	0.200	U	0.160	J
Phenol	0.5	0.200	U	0.220	U	0.200	U	0.200	U	0.320	U
Pyrene	500	0.270		0.130	J	0.020	J	0.200	U	0.050	J

Notes
U - Analyte not detected at indicated quantitation limit
J - Estimated value
B - Analyte detected in blank and sample
NS - Not specified.
ppm - Parts per million / mg/kg - milligrams per kilogram

Table 4-3
Summary of Soil Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-01 3.8-18 7/15/2008 mg/kg		SB-02 3.5-17.5 7/15/2008 mg/kg		SB-03 4.5-20 7/15/2008 mg/kg		SB-04 3.5-15 7/15/2008 mg/kg		SB-05 4-15 7/15/2008 mg/kg	
Metals -Total											
Aluminum		5830		4550		4840		5560		5020	
Antimony		0.69	B	0.80	B	1.10	B	0.54	U	1.30	B
Arsenic	16	4.9		3.5		4.8		2.9		4.4	
Barium	400	47.8		62.6		53.1		42.4		47.6	
Beryllium	590	0.44	B	0.36	B	0.29	B	0.52	B	0.34	B
Cadmium	9.3 [10]	0.50	B	0.80		0.80		0.50	B	1.20	
Calcium		19500		15000		11900		18200		17600	
Chromium (hexavalent/trivalent)	400**/1500** [50]	**60.1**		47.6		**50.3**		49.3		43.7	
Cobalt		4.0	B	3.0	B	4.5	B	2.8	B	3.8	B
Copper	270	83.5		43.9		50.0		32.6		56.8	
Iron		27200		28100		37700		23100		28800	
Lead	1000 [500]	142		168		273		196		264	
Magnesium		1840		1570		1620		1680		1880	
Manganese	10,000	985		1180		890		1660		1160	
Mercury	2.8	0.018	B	0.014	B	0.068	B	0.013	B	0.046	B
Nickel	310	51.6		30.4		49.7		23.2		22.7	
Potassium		543	B	394	B	534	B	555	B	500	B
Selenium	1,500	0.59	U	0.59	U	0.59	U	0.59	U	0.59	U
Silver	1,500	0.14	B	0.18	B	0.23	B	0.18	B	0.25	B
Sodium		283	B	189	B	176	B	202	B	124	B
Thallium		0.30	U	0.30	U	0.30	U	0.51	B	0.30	U
Vanadium		7.3		5.3		7.1		7.0		8.1	
Zinc	10,000	84.6		86.1		126.0		92.5		128.0	

Notes
J/B - value greater than or equal to the instrument detection limit, but less than the quanitation limit
E - Estimated or not reported due to interferences
ppm - parts per million / mg/kg - milligrams per kilogram
NA - Not Analyzed
* - Indicates the spike or duplicate analysis not within control limits
**- Total species concentration must be below each SCO
[10] - Site-specific cleanup goal shown in brackets

Table 4-3
Summary of Soil Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-06 7.5-8.5 7/15/2008 mg/kg		SB-07 4-5 7/15/2008 mg/kg		SB-07 14.5-15.5 7/15/2008 mg/kg		SB-08 9.5-10 7/15/2008 mg/kg		SB-08 14.5-15 7/16/2008 mg/kg	
Metals -Total											
Aluminum		21600		7250		8150		9390		3930	
Antimony		0.54	U	0.54	U	0.54	U	0.54	U	1.30	B
Arsenic	16	2.4		2.9		4.0		2.7		6.4	
Barium	400	266.0		74.2		74.3		62.1		189.0	
Beryllium	590	1.40		0.50	B	0.25	B	0.42	B	0.14	B
Cadmium	9.3 [10]	0.04	U	0.04	U	0.04	U	0.05	B	0.20	B
Calcium		80800		30300		1640		1640		2190	
Chromium (hexavalent/trivalent)	400**/1500** [50]	32.3		19.5		8.8		18.9		46.9	
Cobalt		6.9		2.9	B	6.4		8.4		4.3	B
Copper	270	13.2		56.2		11.0		24.6		92.3	
Iron		11900		25100		18200		21500		59600	
Lead	1000 [500]	6		12		5		14		64	
Magnesium		4100		1760		2140		2810		912	
Manganese	10,000	5250		1500		385		246		727	
Mercury	2.8	0.014	B	0.025	B	0.008	U	0.017	B	0.033	B
Nickel	310	5.7		15.8		15.3		27.1		173.0	
Potassium		2970		620		562	B	704		667	
Selenium	1,500	0.59	U	0.59	U	0.59	U	0.59	U	0.59	U
Silver	1,500	0.10	B	0.07	U	0.07	U	0.07	U	0.08	B
Sodium		640		427	B	70	B	155	B	624	
Thallium		1.30	B	0.30	U	0.30	U	0.30	U	0.30	U
Vanadium		35.8		9.5		9.5		12.7		9.5	
Zinc	10,000	14.5		37.2		46.0		59.3		80.1	

Notes
J/B - value greater than or equal to the instrument detection limit, but less than the quanitation limit
E - Estimated or not reported due to interferences
ppm - parts per million / mg/kg - milligrams per kilogram
NA - Not Analyzed
* - Indicates the spike or duplicate analysis not within control limits
**- Total species concentration must be below each SCO
[10] - Site-specific cleanup goal shown in brackets

Table 4-3
Summary of Soil Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-09 4-5 7/16/2008 mg/kg		SB-09 7.5-8.5 7/16/2008 mg/kg		SB-10 17-18 7/16/2008 mg/kg		SB-11 4-5 7/16/2008 mg/kg		SB-12 14-15 7/16/2008 mg/kg	
Metals -Total											
Aluminum		40700		14600		8330		5350		8790	
Antimony		0.54	N,U	0.54	N,U	0.54	N,U	0.54	N,U	0.54	N,U
Arsenic	16	1.9		7.7		3.7		2.3		5.3	
Barium	400	214.0		202.0		54.9		17.6	B	72.4	
Beryllium	590	3.20		0.73		0.33	B	0.22	B	0.34	B
Cadmium	9.3 [10]	0.04	U	0.30	B	0.10	B	0.10	B	0.10	B
Calcium		94800		2820		7570		1560		1320	
Chromium (hexavalent/trivalent)	400**/1500** [50]	32.0		19.3		16.7		7.6		13.0	
Cobalt		5.4		10.9		6.7		1.1	B	6.5	
Copper	270	28.3		19.6		26.2		14.1		12.4	
Iron		15900		27600		19900		18100		19400	
Lead	1000 [500]	6		28		10		42		5	
Magnesium		2070		3320		2960		795		2420	
Manganese	10,000	**12700**	**E,***	1630	E,*	343	E,*	105	E,*	500	E,*
Mercury	2.8	0.008	U	0.052	B	0.008	U	0.008	U	0.020	B
Nickel	310	3.6	B	25.1		17.5		3.1	B	16.9	
Potassium		2570		961		676		688		620	
Selenium	1,500	0.59	U	0.59	U	0.59	U	0.59	U	0.59	U
Silver	1,500	0.33	B	0.07	U	0.07	U	0.07	U	0.07	U
Sodium		528		67	B	59	B	351	B	60	B
Thallium		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
Vanadium		29.9		17.5		11.4		5.9		11.3	
Zinc	10,000	6.1	B	80.0		51.4		18.5		46.5	

Notes
J/B - value greater than or equal to the instrument detection limit, but less than the quanitation limit
E - Estimated or not reported due to interferences
ppm - parts per million / mg/kg - milligrams per kilogram
NA - Not Analyzed
* - Indicates the spike or duplicate analysis not within control limits
**- Total species concentration must be below each SCO
[10] - Site-specific cleanup goal shown in brackets

Table 4-3
Summary of Soil Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-13 4-5 7/16/2008 mg/kg		SB-14 7-8 7/16/2008 mg/kg		SB-15 3-4 7/16/2008 mg/kg		SB-16 4-5 7/16/2008 mg/kg		SB-17 14-15 7/16/2008 mg/kg	
Metals -Total											
Aluminum		10300		11800		5130		4730		8160	
Antimony		0.54	N,U	0.54	N,U	0.85	B,N	1.10	B,N	0.54	N,U
Arsenic	16	4.3		4.1		9.1		7.8		4.2	
Barium	400	71.5		101.0		179.0		48.9		57.9	
Beryllium	590	0.54	B	0.62		0.47	B	0.30	B	0.25	B
Cadmium	9.3 [10]	0.40	B	0.30	B	0.60		3.00		0.08	B
Calcium		16700		11600		4560		2540		3610	
Chromium (hexavalent/trivalent)	400**/1500** [50]	18.0		21.7		12.0		22.5		11.6	
Cobalt		4.9	B	7.0		7.3		5.2	B	6.2	
Copper	270	83.1		**528**		37.8		96.3		17.7	
Iron		27600		39600		42900		60900		18600	
Lead	1000 [500]	18		140		**592**		96		11	
Magnesium		1450		4490		1040		828		2530	
Manganese	10,000	1010	E,*	745	E,*	543	E,*	3100	E,*	409	E,*
Mercury	2.8	0.030	B	0.248		0.271		0.198		0.008	U
Nickel	310	14.5		21.2		14.2		21.5		16.0	
Potassium		1050		926		808		732		611	
Selenium	1,500	0.59	U	0.59	U	0.59	U	0.59	U	0.59	U
Silver	1,500	0.07	U	0.07	U	0.22	B	0.24	B	0.07	U
Sodium		197	B	148	B	133	B	125	B	98	B
Thallium		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
Vanadium		17.5		18.3		23.0		22.1		10.3	
Zinc	10,000	34.1		93.9		197.0		256.0		48.8	

Notes
J/B - value greater than or equal to the instrument detection limit, but less than the quanitation limit
E - Estimated or not reported due to interferences
ppm - parts per million / mg/kg - milligrams per kilogram
NA - Not Analyzed
* - Indicates the spike or duplicate analysis not within control limits
**- Total species concentration must be below each SCO
[10] - Site-specific cleanup goal shown in brackets

Table 4-3
Summary of Soil Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-18 14-15 7/16/2008 mg/kg		SB-19 3.5-4.5 7/16/2008 mg/kg		SB-20 14-15 7/16/2008 mg/kg		SB-24 12-16 10/29/2008 mg/kg		SB-25 6-8 10/29/2008 mg/kg	
Metals -Total											
Aluminum		9660		6040		10800		9740	E	5460	E
Antimony		0.54	N,U	1.80	B,N	0.54	N,U	7.2	NU	30.5	N
Arsenic	16	3.9		6.8		5.6		6.3		19.5	
Barium	400	22.3		89.0		99.9		69.4	E	111	E
Beryllium	590	0.44	B	0.41	B	0.43	B	0.35	B	0.40	B
Cadmium	9.3 [10]	0.10	B	1.30		0.20	B	0.1	B	5.1	
Calcium		2780		12300		1210		4800		4750	
Chromium (hexavalent/trivalent)	400**/1500** [50]	11.6		17.5		14.0		13.4		15.9	
Cobalt		8.6		5.1	B	8.8		7.6		8.5	
Copper	270	14.4		166.0		23.4		68.4		1290	
Iron		19700		38900		24500		21800		56900	
Lead	1000 [500]	11		**2330**		11		40.8	*	**897**	*
Magnesium		3100		1380		3170		3550		1090	
Manganese	10,000	269	E,*	975	E,*	948	E,*	340	*	393	*
Mercury	2.8	0.018	B	0.163		0.014	B	0.022	B	0.162	
Nickel	310	18.4		16.1		22.4		17.6		18.7	
Potassium		619		547	B	670		774	E	703	E
Selenium	1,500	0.59	U	0.59	U	0.59	U	4.2	U	4.9	
Silver	1,500	0.07	U	0.33	B	0.07	U	1.2	U	0.66	B
Sodium		42	B	206	B	55	B	75.3	B	268	B
Thallium		0.30	U	0.30	U	0.30	U	3.0	NU	3.2	NU
Vanadium		11.9		16.2		14.2		14.7		27.7	
Zinc	10,000	46.6		401.0		80.8		103		1750	

Notes
J/B - value greater than or equal to the instrument detection limit, but less than the quanitation limit
E - Estimated or not reported due to interferences
ppm - parts per million / mg/kg - milligrams per kilogram
NA - Not Analyzed
* - Indicates the spike or duplicate analysis not within control limits
**- Total species concentration must be below each SCO
[10] - Site-specific cleanup goal shown in brackets

Table 4-3
Summary of Soil Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site No. 7-54-012

Soil Boring Sample Interval (feet bgs) Date Units	Commercial Soil Cleanup Objective ppm	SB-25 18-20 10/29/2008 mg/kg		SB-26 14-18 10/30/2008 mg/kg		SB-27 4-6 1/6/2011 mg/kg	
Metals -Total							
Aluminum		10900		9410	E	4690	
Antimony		6.9	NU	7.0	NU	4.7	U
Arsenic	16	6.8	N*	6.3		3.3	J
Barium	400	65.8		77.9	E	26.7	
Beryllium	590	0.39	B	0.38	B	0.2	J
Cadmium	9.3 [10]	0.6	U	0.2	B	1.4	U
Calcium		5580	*	2230		3850	
Chromium (hexavalent/trivalent)	400**/1500** [50]	16.3		13.9		31.6	
Cobalt		8.1		7.7		3	
Copper	270	20.8	*	21.8		46.2	
Iron		24800		20900		24800	
Lead	1000 [500]	13.8	N	18.0	*	42.6	
Magnesium		3520		2810		1100	
Manganese	10,000	530		796	*	357	
Mercury	2.8	0.176	N*	0.028	B	0.034	J
Nickel	310	20.8		20.1		22	
Potassium		645		685	E	605	
Selenium	1,500	4.0	U	4.1	U	10.8	U
Silver	1,500	1.1	U	1.2	U	0.34	J
Sodium		572	U	43.7	B	509	
Thallium		2.9	NU	2.9	NU	4.3	U
Vanadium		13.0		12.1		7.5	
Zinc	10,000	68.8	*	60.3		73.7	

Notes
J/B - value greater than or equal to the instrument detection limit,
but less than the quanitation limit
E - Estimated or not reported due to interferences
ppm - parts per million / mg/kg - milligrams per kilogram
NA - Not Analyzed
* - Indicates the spike or duplicate analysis not within control limits
**- Total species concentration must be below each SCO
[10] - Site-specific cleanup goal shown in brackets

Table 5-1
Summary of Groundwater Elevations
Tioga Casting
Owego, New York
NYSDEC Site No. 7-54-012

Well	Measuring Point Elevation (feet)		11/24/2008		5/18/2010		10/28/2010		2/28/2011	
			DTW (feet)	Elevation (feet)	DTW (feet)	Elevation (feet)	DTW (feet)	Elevation (feet)	DTW (feet)	Elevation (feet)
MW-1R	813.82	(2)	20.90		17.03		19.77	794.05	19.99	793.83
MW-2	807.68	(1)	14.56	793.12	10.69	796.99	13.59	794.09	13.45	794.23
MW-3	812.61	(2)	17.51	795.10	14.35	798.26	16.74	795.87	16.68	795.93
MW-3D	812.42	(2)	17.52		14.17		16.58	795.84	16.47	795.95
MW-4	806.33	(1)	10.87	795.46	7.81	798.52	10.04	796.29	9.91	796.42
MW-5	803.89	(1)	10.74	793.15	6.60	797.29	9.72	794.17	9.25	794.64
MW-6	815.53	(3)	10.74		7.60		10.72		19.67	795.86
MW-7	807.12	(2)	14.17		10.30		13.07	794.05	13.14	793.98
MW-8	813.73	(2)	20.98		17.05		20.04	793.69	20.00	793.73

(1) - Source: Monitoring Plan: Tioga Casting (NYSDEC, April 25, 2005)
(2) - From Malcolm Pirnie, Inc. level survey performed 10/28/2010
(3) - From Malcolm Pirnie, Inc. level survey performed 2/28/2011

Table 5-2
Groundwater Sample Results - VOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-1R 4/2/2009 ug/L	MW-1R 10/28/2010 ug/L	MW-2 7/17/2008 ug/L	MW-2 4/2/2009 ug/L
1,1,1-Trichloroethane	5	10 U	0.4 U	10 U	10 U
1,1,2,2,-Tetrachloroethane	5	10 U	0.31 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	NA	0.38 U	10 U	NA
1,1,2-Trichloroethane	1	10 U	0.45 U	10 U	10 U
1,1-Dichloroethane	5	10 U	0.36 U	10 U	10 U
1,1-Dichloroethene	5	10 U	0.47 U	10 U	10 U
1,2-Dichloropropane	1	10 U	0.46 U	10 U	10 U
2-Hexanone	50*	10 U	1.9 U	10 U	10 U
Acetone		15 U	0.5 U	10 U	15 U
Benzene	1	10 U	0.32 U	10 U	10 U
Bromodichloromethane	50	10 U	0.36 U	10 U	10 U
Bromoform	50*	10 U	0.47 U	10 U	10 U
Bromomethane	5	10 U	0.2 U	10 U	10 U
Carbon Disulfide	60	10 U	0.2 U	10 U	10 U
Carbon Tetrachloride	5	10 U	0.2 U	10 U	10 U
Chlorobenzene	5	10 U	0.49 U	10 U	10 U
Chloroethane	5	10 U	0.2 U	10 U	10 U
Chloroform	7	10 U	0.34 U	10 U	10 U
Chloromethane		10 U	0.2 U	10 U	10 U
cis 1,2-Dichloroethene	5	10 U	0.35 U	10 U	10 U
cis-1,3-Dichloropropene	0.4	10 U	0.31 U	10 U	10 U
Dibromochloromethane	5	10 U	0.2 U	10 U	10 U
Ethylbenzene	5	10 U	0.2 U	10 U	10 U
Methyl Ethyl Ketone	50	10 U	1.3 U	10 U	10 U
Methyl isobutyl ketone		10 U	2.1 U	10 U	10 U
Methylene Chloride	5	10 U	0.41 U	10 U	10 U
Methyl-tert butyl ether	10	10 U	0.35 U	10 U	10 U
o-Xylene	5	10 U	0.43 U	NA	10 U
Styrene	5	10 U	0.36 U	10 U	10 U
Tetrachloroethene	5	10 U	0.27 U	10 U	10 U
Toluene	5	10 U	0.37 U	10 U	10 U
trans 1,2-Dichloroethene	5	10 U	0.41 U	10 U	10 U
trans-1,3-Dichloropropene	0.4	10 U	0.29 U	10 U	10 U
Trichloroethene	5	10 U	0.28 U	10 U	10 U
Vinyl Chloride	2	10 U	0.34 U	10 U	10 U
Xylenes, Total		NA	NA	10 U	NA

U - Analyte not detected at indicated quantitation limit.
J - Estimated.
NA - Not Analyzed

Table 5-2
Groundwater Sample Results - VOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-2 10/28/2010 ug/L	MW-3 4/2/2009 ug/L	MW-3 10/28/2010 ug/L	MW-3D 4/2/2009 ug/L
1,1,1-Trichloroethane	5	0.4 U	10 U	0.4 U	10 U
1,1,2,2,-Tetrachloroethane	5	0.31 U	10 U	0.31 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	0.38 U	NA	0.38 U	NA
1,1,2-Trichloroethane	1	0.45 U	10 U	0.45 U	10 U
1,1-Dichloroethane	5	0.36 U	10 U	0.36 U	10 U
1,1-Dichloroethene	5	0.47 U	10 U	0.47 U	10 U
1,2-Dichloropropane	1	0.46 U	10 U	0.46 U	10 U
2-Hexanone	50*	1.9 U	10 U	1.9 U	10 U
Acetone		0.5 U	15 U	0.5 U	15 U
Benzene	1	0.32 U	10 U	0.32 U	10 U
Bromodichloromethane	50	0.36 U	10 U	0.36 U	10 U
Bromoform	50*	0.47 U	10 U	0.47 U	10 U
Bromomethane	5	0.2 U	10 U	0.2 U	10 U
Carbon Disulfide	60	0.2 U	10 U	0.2 U	10 U
Carbon Tetrachloride	5	0.2 U	10 U	0.2 U	10 U
Chlorobenzene	5	0.49 U	10 U	0.49 U	10 U
Chloroethane	5	0.2 U	10 U	0.2 U	10 U
Chloroform	7	0.34 U	10 U	0.34 U	10 U
Chloromethane		0.2 U	10 U	0.2 U	10 U
cis 1,2-Dichloroethene	5	0.35 U	10 U	0.35 U	10 U
cis-1,3-Dichloropropene	0.4	0.31 U	10 U	0.31 U	10 U
Dibromochloromethane	5	0.2 U	10 U	0.2 U	10 U
Ethylbenzene	5	0.2 U	10 U	0.2 U	10 U
Methyl Ethyl Ketone	50	1.3 U	10 U	1.3 U	10 U
Methyl isobutyl ketone		2.1 U	10 U	2.1 U	10 U
Methylene Chloride	5	0.41 U	10 U	0.41 U	10 U
Methyl-tert butyl ether	10	0.35 U	10 U	0.35 U	10 U
o-Xylene	5	0.43 U	10 U	0.43 U	10 U
Styrene	5	0.36 U	10 U	0.36 U	10 U
Tetrachloroethene	5	0.27 U	10 U	0.27 U	10 U
Toluene	5	0.37 U	10 U	0.37 U	10 U
trans 1,2-Dichloroethene	5	0.41 U	10 U	0.41 U	10 U
trans-1,3-Dichloropropene	0.4	0.29 U	10 U	0.29 U	10 U
Trichloroethene	5	0.28 U	10 U	0.28 U	10 U
Vinyl Chloride	2	0.34 U	10 U	0.34 U	10 U
Xylenes, Total		NA	NA	NA	NA

U - Analyte not detected at indicated quantitation limit.
J - Estimated.
NA - Not Analyzed

Table 5-2
Groundwater Sample Results - VOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-3D 10/28/2010 ug/L	MW-4 7/17/2008 ug/L	MW-4 4/2/2009 ug/L	MW-4 10/28/2010 ug/L
1,1,1-Trichloroethane	5	0.4 U	10 U	10 U	0.4 U
1,1,2,2,-Tetrachloroethane	5	0.31 U	10 U	10 U	0.31 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	0.38 U	10 U	NA	0.38 U
1,1,2-Trichloroethane	1	0.45 U	10 U	10 U	0.45 U
1,1-Dichloroethane	5	0.36 U	10 U	10 U	0.36 U
1,1-Dichloroethene	5	0.47 U	10 U	10 U	0.47 U
1,2-Dichloropropane	1	0.46 U	10 U	10 U	0.46 U
2-Hexanone	50*	1.9 U	10 U	10 U	1.9 U
Acetone		0.5 U	10 U	15 U	0.5 U
Benzene	1	0.32 U	10 U	10 U	0.32 U
Bromodichloromethane	50	0.36 U	10 U	10 U	0.36 U
Bromoform	50*	0.47 U	10 U	10 U	0.47 U
Bromomethane	5	0.2 U	10 U	10 U	0.2 U
Carbon Disulfide	60	0.2 U	10 U	10 U	0.2 U
Carbon Tetrachloride	5	0.2 U	10 U	10 U	0.2 U
Chlorobenzene	5	0.49 U	10 U	10 U	0.49 U
Chloroethane	5	0.2 U	10 U	10 U	0.2 U
Chloroform	7	0.34 U	10 U	10 U	0.34 U
Chloromethane		0.2 U	10 U	10 U	0.2 U
cis 1,2-Dichloroethene	5	0.35 U	10 U	10 U	0.35 U
cis-1,3-Dichloropropene	0.4	0.31 U	10 U	10 U	0.31 U
Dibromochloromethane	5	0.2 U	10 U	10 U	0.2 U
Ethylbenzene	5	0.2 U	10 U	10 U	0.2 U
Methyl Ethyl Ketone	50	1.3 U	10 U	10 U	1.3 U
Methyl isobutyl ketone		2.1 U	10 U	10 U	2.1 U
Methylene Chloride	5	0.41 U	10 U	10 U	0.41 U
Methyl-tert butyl ether	10	0.35 U	10 U	10 U	0.35 U
o-Xylene	5	0.43 U	NA	10 U	0.43 U
Styrene	5	0.36 U	10 U	10 U	0.36 U
Tetrachloroethene	5	0.27 U	10 U	10 U	0.27 U
Toluene	5	0.37 U	10 U	10 U	0.37 U
trans 1,2-Dichloroethene	5	0.41 U	10 U	10 U	0.41 U
trans-1,3-Dichloropropene	0.4	0.29 U	10 U	10 U	0.29 U
Trichloroethene	5	0.28 U	10 U	10 U	0.28 U
Vinyl Chloride	2	0.34 U	10 U	10 U	0.34 U
Xylenes, Total		NA	10 U	NA	NA

U - Analyte not detected at indicated quantitation limit.
J - Estimated.
NA - Not Analyzed

Table 5-2
Groundwater Sample Results - VOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-5 7/17/2008 ug/L	MW-5 4/2/2009 ug/L	MW-5 10/28/2010 ug/L	MW-6 2/28/2011 ug/L
1,1,1-Trichloroethane	5	10 U	10 U	0.4 U	0.5 U
1,1,2,2,-Tetrachloroethane	5	10 U	10 U	0.31 U	0.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	10 U	NA	0.38 U	0.5 U
1,1,2-Trichloroethane	1	10 U	10 U	0.45 U	0.5 U
1,1-Dichloroethane	5	10 U	10 U	0.36 U	0.5 U
1,1-Dichloroethene	5	10 U	10 U	0.47 U	0.5 U
1,2-Dichloropropane	1	10 U	10 U	0.46 U	0.5 U
2-Hexanone	50*	10 U	10 U	1.9 U	2 U
Acetone		10 U	15 U	0.5 U	0.92 J B
Benzene	1	10 U	10 U	0.32 U	0.5 U
Bromodichloromethane	50	10 U	10 U	0.36 U	0.5 U
Bromoform	50*	10 U	10 U	0.47 U	0.5 U
Bromomethane	5	10 U	10 U	0.2 U	1 U
Carbon Disulfide	60	10 U	10 U	0.2 U	0.5 U
Carbon Tetrachloride	5	10 U	10 U	0.2 U	0.5 U
Chlorobenzene	5	10 U	10 U	0.49 U	0.5 U
Chloroethane	5	10 U	10 U	0.2 U	1 U
Chloroform	7	10 U	10 U	0.34 U	0.5 U
Chloromethane		10 U	10 U	0.2 U	0.5 U
cis 1,2-Dichloroethene	5	10 U	10 U	0.35 U	0.5 U
cis-1,3-Dichloropropene	0.4	10 U	10 U	0.31 U	0.5 U
Dibromochloromethane	5	10 U	10 U	0.2 U	0.5 U
Ethylbenzene	5	10 U	10 U	0.2 U	0.5 U
Methyl Ethyl Ketone	50	10 U	10 U	1.3 U	2 U
Methyl isobutyl ketone		10 U	10 U	2.1 U	2 U
Methylene Chloride	5	10 U	10 U	0.41 U	0.15 J B
Methyl-tert butyl ether	10	10 U	10 U	0.35 U	NA
o-Xylene	5	NA	10 U	0.43 U	NA
Styrene	5	10 U	10 U	0.36 U	0.5 U
Tetrachloroethene	5	10 U	10 U	0.27 U	0.5 U
Toluene	5	10 U	10 U	0.37 U	0.5 U
trans 1,2-Dichloroethene	5	10 U	10 U	0.41 U	0.5 U
trans-1,3-Dichloropropene	0.4	10 U	10 U	0.29 U	0.5 U
Trichloroethene	5	10 U	10 U	0.28 U	0.5 U
Vinyl Chloride	2	10 U	10 U	0.34 U	0.5 U
Xylenes, Total		10 U	NA	NA	1 U

U - Analyte not detected at indicated quantitation limit.
J - Estimated.
NA - Not Analyzed

Table 5-2
Groundwater Sample Results - VOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-7 4/2/2009 ug/L	MW-7 10/28/2010 ug/L	MW-8 4/2/2009 ug/L	MW-8 10/28/2010 ug/L
1,1,1-Trichloroethane	5	10 U	0.4 U	10 U	0.4 U
1,1,2,2,-Tetrachloroethane	5	10 U	0.31 U	10 U	0.31 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	NA	0.38 U	NA	0.38 U
1,1,2-Trichloroethane	1	10 U	0.45 U	10 U	0.45 U
1,1-Dichloroethane	5	10 U	0.36 U	10 U	0.36 U
1,1-Dichloroethene	5	10 U	0.47 U	10 U	0.47 U
1,2-Dichloropropane	1	10 U	0.46 U	10 U	0.46 U
2-Hexanone	50*	10 U	1.9 U	10 U	1.9 U
Acetone		15 U	0.5 U	15 U	0.5 U
Benzene	1	10 U	0.32 U	10 U	0.32 U
Bromodichloromethane	50	10 U	0.36 U	10 U	0.36 U
Bromoform	50*	10 U	0.47 U	10 U	0.47 U
Bromomethane	5	10 U	0.2 U	10 U	0.2 U
Carbon Disulfide	60	10 U	0.2 U	10 U	0.2 U
Carbon Tetrachloride	5	10 U	0.2 U	10 U	0.2 U
Chlorobenzene	5	10 U	0.49 U	10 U	0.49 U
Chloroethane	5	10 U	0.2 U	10 U	0.2 U
Chloroform	7	10 U	0.34 U	10 U	0.34 U
Chloromethane		10 U	0.2 U	10 U	0.2 U
cis 1,2-Dichloroethene	5	10 U	0.35 U	10 U	0.35 U
cis-1,3-Dichloropropene	0.4	10 U	0.31 U	10 U	0.31 U
Dibromochloromethane	5	10 U	0.2 U	10 U	0.2 U
Ethylbenzene	5	10 U	0.2 U	10 U	0.2 U
Methyl Ethyl Ketone	50	10 U	1.3 U	10 U	1.3 U
Methyl isobutyl ketone		10 U	2.1 U	10 U	2.1 U
Methylene Chloride	5	10 U	0.41 U	10 U	0.41 U
Methyl-tert butyl ether	10	10 U	0.35 U	10 U	0.35 U
o-Xylene	5	10 U	0.43 U	10 U	0.43 U
Styrene	5	10 U	0.36 U	10 U	0.36 U
Tetrachloroethene	5	10 U	0.27 U	10 U	0.27 U
Toluene	5	4 J	0.37 U	10 U	0.37 U
trans 1,2-Dichloroethene	5	10 U	0.41 U	10 U	0.41 U
trans-1,3-Dichloropropene	0.4	10 U	0.29 U	10 U	0.29 U
Trichloroethene	5	10 U	0.28 U	10 U	0.28 U
Vinyl Chloride	2	10 U	0.34 U	10 U	0.34 U
Xylenes, Total		NA	NA	NA	NA

U - Analyte not detected at indicated quantitation limit.
J - Estimated.
NA - Not Analyzed

Table 5-3
Groundwater Sample Results - SVOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standard	MW-1R 4/2/2009 ug/L	MW-1R 10/28/2010 ug/L	MW-2 4/2/2009 ug/L	MW-2 10/28/2010 ug/L	MW-3 4/2/2009 ug/L	MW-3 10/28/2010 ug/L	MW-3D 4/2/2009 ug/L
2,4,5-trichlorophenol	1	11 U	0.4 U	12 U	0.4 U	11 U	0.39 U	12 U
2,4,6-trichlorophenol	1	11 U	0.55 U	12 U	0.55 U	11 U	0.55 U	12 U
2,4-dichlorophenol	5	11 U	0.65 U	12 U	0.65 U	11 U	0.65 U	12 U
2,4-dimethylphenol	1	11 U	0.7 U	12 U	0.7 U	11 U	0.7 U	12 U
2,4-Dinitrotoluene	5	11 U	1 U	12 U	1 U	11 U	1 U	12 U
2,6-Dinitrotoluene	5	11 U	0.32 U	12 U	0.32 U	11 U	0.31 U	12 U
2-chloronaphthalene	10*	11 U	0.16 U	12 U	0.16 U	11 U	0.16 U	12 U
2-chlorophenol		11 U	0.53 U	12 U	0.53 U	11 U	0.53 U	12 U
2-Methylnaphthalene		11 U	0.32 U	12 U	0.32 U	11 U	0.31 U	12 U
2-methylphenol		11 U	0.24 U	12 U	0.24 U	11 U	0.24 U	12 U
2-nitroaniline	5	23 U	0.49 U	24 U	0.49 U	22 U	0.48 U	24 U
2-nitrophenol		11 U	0.51 U	12 U	0.51 U	11 U	0.51 U	12 U
3,3'-dichlorobenzidine	5	11 U	2 U	12 U	2 U	11 U	2 U	12 U
3-nitroaniline	5	23 U	1.1 U	24 U	1.1 U	22 U	1.1 U	24 U
4,6-dinitro-2-methylphenol		23 U	0.73 U	24 U	0.73 U	22 U	0.73 U	24 U
4-bromophenyl phenyl ether		11 U	0.23 U	12 U	0.23 U	11 U	0.23 U	12 U
4-chloro-3-methylphenol		11 U	0.4 U	12 U	0.4 U	11 U	0.39 U	12 U
4-chloroaniline	5	11 U	2.8 U	12 U	2.8 U	11 U	2.8 U	12 U
4-chlorophenyl phenyl ether		11 U	0.21 U	12 U	0.21 U	11 U	0.21 U	12 U
4-nitroaniline	5	23 U	1.3 U	24 U	1.3 U	22 U	1.3 U	24 U
4-nitrophenol		23 U	2 U	24 U	2 U	22 U	2 U	24 U
acenaphthene	20*	11 U	0.21 U	12 U	0.21 U	11 U	0.21 U	12 U
acenaphthylene		11 U	0.69 U	12 U	0.69 U	11 U	0.69 U	12 U
anthracene	50*	11 U	0.16 U	12 U	0.16 U	11 U	0.16 U	12 U
benzo(a)anthracene	0.002*	11 U	0.16 U	12 U	0.16 U	11 U	0.16 U	12 U
benzo(a)pyrene	ND	11 U	0.14 U	12 U	0.14 U	11 U	0.14 U	12 U
benzo(b)fluoranthene	0.002*	11 U	0.29 U	12 U	0.29 U	11 U	0.28 U	12 U
benzo(g,h,i)perylene		11 U	0.29 U	12 U	0.29 U	11 U	0.28 U	12 U
benzo(k)fluoranthene	0.002*	11 U	0.18 U	12 U	0.18 U	11 U	0.18 U	12 U

* - Guidance Value.
U - Analyte not detected at indicated quantitation limit.
ND - Non-detect.

Table 5-3
Groundwater Sample Results - SVOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standard	MW-1R 4/2/2009 ug/L	MW-1R 10/28/2010 ug/L	MW-2 4/2/2009 ug/L	MW-2 10/28/2010 ug/L	MW-3 4/2/2009 ug/L	MW-3 10/28/2010 ug/L	MW-3D 4/2/2009 ug/L
bis(2-chloroethoxy)methane	5	11 U	0.54 U	12 U	0.54 U	11 U	0.54 U	12 U
bis(2-chloroethyl)ether	1	11 U	0.54 U	12 U	0.54 U	11 U	0.54 U	12 U
bis(2-ethylhexyl)phthalate	5	11 U	0.16 U	12 U	0.16 U	11 U	0.16 U	12 U
butyl benzyl phthalate	50*	11 U	0.19 U	12 U	0.19 U	11 U	0.19 U	12 U
carbazole		11 U	0.22 U	12 U	0.22 U	11 U	0.22 U	12 U
chrysene	0.002*	11 U	0.18 U	12 U	0.18 U	11 U	0.18 U	12 U
dibenzo(a,h)anthracene		11 U	0.42 U	12 U	0.42 U	11 U	0.41 U	12 U
Dibenzofuran		11 U	0.24 U	12 U	0.24 U	11 U	0.24 U	12 U
Diethyl phthalate	50*	11 U	0.38 U	12 U	0.38 U	11 U	0.37 U	12 U
dimethylphthalate	50*	11 U	0.22 U	12 U	0.22 U	11 U	0.22 U	12 U
di-n-butyl phthalate	50	11 U	2 U	12 U	2 U	11 U	2 U	12 U
di-n-octyl phthalate	50*	11 U	0.5 U	12 U	0.5 U	11 U	0.5 U	12 U
fluoranthene	50*	11 U	0.4 U	12 U	0.4 U	11 U	0.39 U	12 U
fluorene	50*	11 U	0.31 U	12 U	0.31 U	11 U	0.3 U	12 U
Hexachlorobenzene	0.04	11 U	0.18 U	12 U	0.18 U	11 U	0.18 U	12 U
Hexachlorobutadiene	0.5	11 U	0.25 U	12 U	0.25 U	11 U	0.25 U	12 U
Hexachlorocyclopentadiene	5	11 U	0.24 U	12 U	0.24 U	11 U	0.24 U	12 U
Hexachloroethane	5	11 U	0.25 U	12 U	0.25 U	11 U	0.25 U	12 U
indeno(1,2,3-cd)pyrene	0.002*	11 U	0.15 U	12 U	0.15 U	11 U	0.15 U	12 U
Isophorone	50*	11 U	0.3 U	12 U	0.3 U	11 U	0.29 U	12 U
Naphthalene	10*	11 U	0.12 U	12 U	0.12 U	11 U	0.12 U	12 U
Nitrobenzene	0.4	11 U	0.67 U	12 U	0.67 U	11 U	0.67 U	12 U
N-nitros-di-n-propylamine		11 U	0.2 U	12 U	0.2 U	11 U	0.2 U	12 U
N-nitrosodiphenylamine	50*	11 U	0.59 U	12 U	0.59 U	11 U	0.59 U	12 U
pentachlorophenol	1	23 U	1.7 U	24 U	1.7 U	22 U	1.7 U	24 U
phenanthrene	50	11 U	0.26 U	12 U	0.26 U	11 U	0.25 U	12 U
phenol	1	11 U	0.21 U	12 U	0.21 U	11 U	0.21 U	12 U
pyrene	50	11 U	0.2 U	12 U	0.2 U	11 U	0.2 U	12 U

* - Guidance Value.
U - Analyte not detected at indicated quantitation limit.
ND - Non-detect.

Table 5-3
Groundwater Sample Results - SVOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standard	MW-3D 10/28/2010 ug/L	MW-4 4/2/2009 ug/L	MW-4 10/28/2010 ug/L	MW-5 4/2/2009 ug/L	MW-5 10/28/2010 ug/L	MW-6 2/28/2011 ug/L
2,4,5-trichlorophenol	1	0.4 U	12 U	0.39 U	11 U	0.39 U	11 U
2,4,6-trichlorophenol	1	0.56 U	12 U	0.54 U	11 U	0.54 U	4.3 U
2,4-dichlorophenol	5	0.66 U	12 U	0.64 U	11 U	0.64 U	4.3 U
2,4-dimethylphenol	1	0.71 U	12 U	0.69 U	11 U	0.69 U	4.3 U
2,4-Dinitrotoluene	5	1 U	12 U	1 U	11 U	1 U	4.3 U
2,6-Dinitrotoluene	5	0.32 U	12 U	0.31 U	11 U	0.31 U	4.3 U
2-chloronaphthalene	10*	0.16 U	12 U	0.16 U	11 U	0.16 U	4.3 U
2-chlorophenol		0.54 U	12 U	0.52 U	11 U	0.52 U	4.3 U
2-Methylnaphthalene		0.32 U	12 U	0.31 U	11 U	0.31 U	4.3 U
2-methylphenol		0.24 U	12 U	0.23 U	11 U	0.23 U	4.3 U
2-nitroaniline	5	0.49 U	24 U	0.48 U	23 U	0.48 U	4.3 U
2-nitrophenol		0.52 U	12 U	0.5 U	11 U	0.5 U	4.3 U
3,3'-dichlorobenzidine	5	2 U	12 U	1.9 U	11 U	1.9 U	4.3 U
3-nitroaniline	5	1.1 U	24 U	1.1 U	23 U	1.1 U	4.3 U
4,6-dinitro-2-methylphenol		0.74 U	24 U	0.72 U	23 U	0.72 U	27 U
4-bromophenyl phenyl ether		0.23 U	12 U	0.22 U	11 U	0.22 U	4.3 U
4-chloro-3-methylphenol		0.4 U	12 U	0.39 U	11 U	0.39 U	5.4 U
4-chloroaniline	5	2.9 U	12 U	2.8 U	11 U	2.8 U	4.3 U
4-chlorophenyl phenyl ether		0.21 U	12 U	0.2 U	11 U	0.2 U	4.3 U
4-nitroaniline	5	1.4 U	24 U	1.3 U	23 U	1.3 U	4.3 U
4-nitrophenol		2 U	24 U	1.9 U	23 U	1.9 U	11 U
acenaphthene	20*	0.21 U	12 U	0.2 U	11 U	0.2 U	4.3 U
acenaphthylene		0.7 U	12 U	0.68 U	11 U	0.68 U	4.3 U
anthracene	50*	0.16 U	12 U	0.16 U	11 U	0.16 U	4.3 U
benzo(a)anthracene	0.002*	0.16 U	12 U	0.16 U	11 U	0.16 U	4.3 U
benzo(a)pyrene	ND	0.14 U	12 U	0.14 U	11 U	0.14 U	4.3 U
benzo(b)fluoranthene	0.002*	0.29 U	12 U	0.28 U	11 U	0.28 U	4.3 U
benzo(g,h,i)perylene		0.29 U	12 U	0.28 U	11 U	0.28 U	4.3 U
benzo(k)fluoranthene	0.002*	0.18 U	12 U	0.17 U	11 U	0.17 U	4.3 U

* - Guidance Value.
U - Analyte not detected at indicated quantitation limit.
ND - Non-detect.

Table 5-3
Groundwater Sample Results - SVOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standard	MW-3D 10/28/2010 ug/L	MW-4 4/2/2009 ug/L	MW-4 10/28/2010 ug/L	MW-5 4/2/2009 ug/L	MW-5 10/28/2010 ug/L	MW-6 2/28/2011 ug/L
bis(2-chloroethoxy)methane	5	0.55 U	12 U	0.53 U	11 U	0.53 U	4.3 U
bis(2-chloroethyl)ether	1	0.55 U	12 U	0.53 U	11 U	0.53 U	4.3 U
bis(2-ethylhexyl)phthalate	5	0.16 U	12 U	0.16 U	11 U	0.16 U	2.6 J B
butyl benzyl phthalate	50*	0.19 U	12 U	0.18 U	11 U	0.18 U	4.3 U
carbazole		0.22 U	12 U	0.21 U	11 U	0.21 U	4.3 U
chrysene	0.002*	0.18 U	12 U	0.17 U	11 U	0.17 U	4.3 U
dibenzo(a,h)anthracene		0.42 U	12 U	0.41 U	11 U	0.41 U	4.3 U
Dibenzofuran		0.24 U	12 U	0.23 U	11 U	0.23 U	4.3 U
Diethyl phthalate	50*	0.38 U	12 U	0.37 U	11 U	0.37 U	4.3 U
dimethylphthalate	50*	0.22 U	12 U	0.21 U	11 U	0.21 U	4.3 U
di-n-butyl phthalate	50	2 U	12 U	1.9 U	11 U	1.9 U	4.3 U
di-n-octyl phthalate	50*	0.51 U	12 U	0.5 U	11 U	0.5 U	4.3 U
fluoranthene	50*	0.4 U	12 U	0.39 U	11 U	0.39 U	4.3 U
fluorene	50*	0.31 U	12 U	0.3 U	11 U	0.3 U	4.3 U
Hexachlorobenzene	0.04	0.18 U	12 U	0.17 U	11 U	0.17 U	4.3 U
Hexachlorobutadiene	0.5	0.25 U	12 U	0.24 U	11 U	0.24 U	4.3 U
Hexachlorocyclopentadiene	5	0.24 U	12 U	0.23 U	11 U	0.23 U	4.3 U
Hexachloroethane	5	0.25 U	12 U	0.24 U	11 U	0.24 U	4.3 U
indeno(1,2,3-cd)pyrene	0.002*	0.15 U	12 U	0.15 U	11 U	0.15 U	4.3 U
Isophorone	50*	0.3 U	12 U	0.29 U	11 U	0.29 U	4.3 U
Naphthalene	10*	0.12 U	12 U	0.12 U	11 U	0.12 U	4.3 U
Nitrobenzene	0.4	0.68 U	12 U	0.66 U	11 U	0.66 U	4.3 U
N-nitros-di-n-propylamine		0.2 U	12 U	0.19 U	11 U	0.19 U	4.3 U
N-nitrosodiphenylamine	50*	0.6 U	12 U	0.58 U	11 U	0.58 U	4.3 U
pentachlorophenol	1	1.7 U	24 U	1.7 U	23 U	1.7 U	27 U
phenanthrene	50	0.26 U	12 U	0.25 U	11 U	0.25 U	4.3 U
phenol	1	0.21 U	12 U	0.2 U	11 U	0.2 U	4.3 U
pyrene	50	0.2 U	12 U	0.19 U	11 U	0.19 U	4.3 U

* - Guidance Value.
U - Analyte not detected at indicated quantitation limit.
ND - Non-detect.

Table 5-3
Groundwater Sample Results - SVOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standard	MW-7 4/2/2009 ug/L	MW-7 10/28/2010 ug/L	MW-8 4/2/2009 ug/L	MW-8 10/28/2010 ug/L
2,4,5-trichlorophenol	1	11 U	0.39 U	11 U	0.39 U
2,4,6-trichlorophenol	1	11 U	0.55 U	11 U	0.55 U
2,4-dichlorophenol	5	11 U	0.65 U	11 U	0.65 U
2,4-dimethylphenol	1	11 U	0.7 U	11 U	0.7 U
2,4-Dinitrotoluene	5	11 U	1 U	11 U	1 U
2,6-Dinitrotoluene	5	11 U	0.31 U	11 U	0.31 U
2-chloronaphthalene	10*	11 U	0.16 U	11 U	0.16 U
2-chlorophenol		11 U	0.53 U	11 U	0.53 U
2-Methylnaphthalene		11 U	0.31 U	11 U	0.31 U
2-methylphenol		11 U	0.24 U	11 U	0.24 U
2-nitroaniline	5	23 U	0.48 U	22 U	0.48 U
2-nitrophenol		11 U	0.51 U	11 U	0.51 U
3,3'-dichlorobenzidine	5	11 U	2 U	11 U	2 U
3-nitroaniline	5	23 U	1.1 U	22 U	1.1 U
4,6-dinitro-2-methylphenol		23 U	0.73 U	22 U	0.73 U
4-bromophenyl phenyl ether		11 U	0.23 U	11 U	0.23 U
4-chloro-3-methylphenol		11 U	0.39 U	11 U	0.39 U
4-chloroaniline	5	11 U	2.8 U	11 U	2.8 U
4-chlorophenyl phenyl ether		11 U	0.21 U	11 U	0.21 U
4-nitroaniline	5	23 U	1.3 U	22 U	1.3 U
4-nitrophenol		23 U	2 U	22 U	2 U
acenaphthene	20*	11 U	0.21 U	11 U	0.21 U
acenaphthylene		11 U	0.69 U	11 U	0.69 U
anthracene	50*	11 U	0.16 U	11 U	0.16 U
benzo(a)anthracene	0.002*	11 U	0.16 U	11 U	0.16 U
benzo(a)pyrene	ND	11 U	0.14 U	11 U	0.14 U
benzo(b)fluoranthene	0.002*	11 U	0.28 U	11 U	0.28 U
benzo(g,h,i)perylene		11 U	0.28 U	11 U	0.28 U
benzo(k)fluoranthene	0.002*	11 U	0.18 U	11 U	0.18 U

* - Guidance Value.
U - Analyte not detected at indicated quantitation limit.
ND - Non-detect.

Table 5-3
Groundwater Sample Results - SVOCs
Tioga Casting Site
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standard	MW-7 4/2/2009 ug/L	MW-7 10/28/2010 ug/L	MW-8 4/2/2009 ug/L	MW-8 10/28/2010 ug/L
bis(2-chloroethoxy)methane	5	11 U	0.54 U	11 U	0.54 U
bis(2-chloroethyl)ether	1	11 U	0.54 U	11 U	0.54 U
bis(2-ethylhexyl)phthalate	5	11 U	0.16 U	11 U	0.16 U
butyl benzyl phthalate	50*	11 U	0.19 U	11 U	0.19 U
carbazole		11 U	0.22 U	11 U	0.22 U
chrysene	0.002*	11 U	0.18 U	11 U	0.18 U
dibenzo(a,h)anthracene		11 U	0.41 U	11 U	0.41 U
Dibenzofuran		11 U	0.24 U	11 U	0.24 U
Diethyl phthalate	50*	11 U	0.37 U	11 U	0.37 U
dimethylphthalate	50*	11 U	0.22 U	11 U	0.22 U
di-n-butyl phthalate	50	11 U	2 U	11 U	2 U
di-n-octyl phthalate	50*	11 U	0.5 U	11 U	0.5 U
fluoranthene	50*	11 U	0.39 U	11 U	0.39 U
fluorene	50*	11 U	0.3 U	11 U	0.3 U
Hexachlorobenzene	0.04	11 U	0.18 U	11 U	0.18 U
Hexachlorobutadiene	0.5	11 U	0.25 U	11 U	0.25 U
Hexachlorocyclopentadiene	5	11 U	0.24 U	11 U	0.24 U
Hexachloroethane	5	11 U	0.25 U	11 U	0.25 U
indeno(1,2,3-cd)pyrene	0.002*	11 U	0.15 U	11 U	0.15 U
Isophorone	50*	11 U	0.29 U	11 U	0.29 U
Naphthalene	10*	11 U	0.12 U	11 U	0.12 U
Nitrobenzene	0.4	11 U	0.67 U	11 U	0.67 U
N-nitros-di-n-propylamine		11 U	0.2 U	11 U	0.2 U
N-nitrosodiphenylamine	50*	11 U	0.59 U	11 U	0.59 U
pentachlorophenol	1	23 U	1.7 U	22 U	1.7 U
phenanthrene	50	11 U	0.25 U	11 U	0.25 U
phenol	1	11 U	0.21 U	11 U	0.21 U
pyrene	50	11 U	0.2 U	11 U	0.2 U

* - Guidance Value.
U - Analyte not detected at indicated quantitation limit.
ND - Non-detect.

Table 5-4
Summary of Groundwater Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-1R 4/13/2009 ug/L		MW-1R 3/18/2010 ug/L		MW-1R 10/28/2010 ug/L		MW-1R 2/28/2011 ug/L		MW-2 8/2/2007 ug/L		MW-2 7/17/2008 ug/L		MW-2 4/13/2009 ug/L		MW-2 3/19/2010 ug/L	
Aluminum		1050		41.0	BE	20.8	J	37.7	J	60.2	B	23.6	U	632		57.8	BE
Antimony	3	6.7	U	6.8	U	8.0	U	15.0	U	5.6	U	5.5	U	6.7	U	6.8	U
Arsenic	25	3.0	U	5.6	U	4.2	U	15.0	U	4.2	U	3.7	U	3.0	U	5.6	U
Barium	1000	59.8	B	51.9	BE	50.7		48.7		61.6	B	54.3	B	102		48.8	BE
Beryllium	3*	0.5	U	0.2	BE	0.7	U	5.0	U	0.40	B	0.3	U	0.5	U	0.2	U
Cadmium	5 [10]	0.3	U	0.6	BE	0.5	U	5.0	U	0.36	U	0.3	U	0.3	U	0.3	BE
Calcium		61200		63700		58900		58700		54500	E	48800		50900		51400	
Chromium	50 [50]	10.4	B	0.9	U	1.1	U	5.0	U	0.84	U	0.9	U	5.8	B	0.9	U
Cobalt		3.8	U	0.6	U	5.8	U	5.0	U	1.1	B	1.1	U	3.8	U	0.6	U
Copper	200	181		1.3	U	2.3	J	10.0	U	1.3	U	1.3	U	105		1.3	U
Iron	300	**1410**		48.9	BE	43.7	J	86.4	J	19.3	U	19	U	**532**		28.6	BE
Lead	25 [25]	1.4	U	3.0	U	4.4	J	15.0	U	2.9	U	2.9	U	1.4	U	3.0	U
Magnesium		11500		12100		10900		11500		8650	E	7670		8320		8290	
Manganese	300	106		16.5		3.9	J	11.3		2.8	B	8.2	B	211		54.2	
Mercury	0.7	NA		0.1	U	0.1	U	0.2	U	0.12	U	0.1	U	NA		0.1	U
Nickel	100	6.9	B	1.4	BE	4.2	U	5.0	U	1.2	U	1.0	U	7.3	B	1.3	U
Potassium		2070	B	1640	BE	1640		1570		4710	BE	3900	B	4550		4550	BE
Selenium	10	11.4	U	8.7	U	4.8	U	38.0	U	6.1	U	6.1	U	11.4	U	8.7	U
Silver	50	2.2	U	1.2	U	1.5	U	5.0	U	1.7	B	1.3	U	2.2	U	1.2	U
Sodium	20000	**25600**		**25100**		**23300**		**23300**		**36100**	**E**	18700		**25200**		**24000**	
Thallium	0.5*	3.0	U	10.2	U	2.4	U	15.0	U	7.0	U	5.9	U	3.0	U	10.2	U
Titanium		8.8	B	NA		NA		NA		NA		NA		5.0	U	NA	
Vanadium		4.7	U	1.1	U	6.1	U	5.0	U	0.80	B	1.0	U	4.7	U	1.1	U
Zinc	2000*	13.5	U	4.1	BE	21.1		25.0	U	3.6	U	3.6	U	13.5	U	2.3	BE

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1 - duplicate sample from MW-6
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MDL - Method detection limit.
RL - Reporting limit.
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[25] - Site-specific cleanup goal.

Table 5-4
Summary of Groundwater Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-2 10/28/2010 ug/L		MW-2 2/28/2011 ug/L		MW-3 4/13/2009 ug/L		MW-3 3/19/2010 ug/L		MW-3 10/28/2010 ug/L		MW-3 2/28/2011 ug/L		MW-3D 4/13/2009 ug/L		MW-3D 3/18/2010 ug/L	
Aluminum		9.2	J	250.0	U	195.0		39.8	U	17.7	J	250.0	U	668		39.8	U
Antimony	3	8.0	U	15.0	U	6.7	U	6.8	U	8.0	U	15.0	U	6.7	U	6.8	U
Arsenic	25	4.2	U	15.0	U	3.0	U	5.6	U	4.2	U	15.0	U	3.0	U	5.6	U
Barium	1000	78.9		45.5		38.3	B	46.5	BE	57.1		44.6		39.2	B	45.3	BE
Beryllium	3*	0.7	U	5.0	U	0.5	U	0.2	U	0.7	U	5.0	U	0.5	U	0.2	U
Cadmium	5 [10]	0.5	U	5.0	U	0.3	U	0.3	U	0.5	U	5.0	U	0.3	U	0.3	U
Calcium		62900		42400		42900		51300		54400		49800		42300		50000	
Chromium	50 [50]	1.1	U	5.0	U	3.5	B	0.9	U	1.1	U	5.0	U	3.8	B	0.9	U
Cobalt		5.8	U	5.0	U	3.8	U	0.6	U	5.8	U	5.0	U	3.8	U	0.6	U
Copper	200	2.0	U	10.0	U	71.3		1.3	U	2.0	U	10.0	U	56.6		1.3	U
Iron	300	29.4	J	125.0	U	144	B	19.3	U	55.6		125.0	U	**558**		19.3	U
Lead	25 [25]	3.3	J	15.0	U	1.5	B	3.0	U	5.1	J	15.0	U	1.4	U	3.0	U
Magnesium		10100		6960		7450		9270		9550		9300		7490		9120	
Manganese	300	5.0	J	3.9	J	14.0	B	0.3	BE	3.0	J	8.0	U	40.3	B	0.9	BE
Mercury	0.7	0.1	U	0.2	U	NA		0.1	U	0.1	U	0.2	U	NA		0.1	U
Nickel	100	4.2	U	5.0	U	4.2	B	1.3	U	4.2	U	5.0	U	3.9	B	1.3	U
Potassium		5830		4450		1430	B	1890	BE	1480		1230		1550	B	1610	BE
Selenium	10	4.8	U	38.0	U	11.4	U	8.7	U	4.8	U	38.0	U	11.4	U	8.7	U
Silver	50	1.5	U	5.0	U	2.2	U	1.2	U	1.5	U	5.0	U	2.2	U	1.2	U
Sodium	20000	**35000**		**22000**		17000		16900		17000		15200		17300		16900	
Thallium	0.5*	2.4	U	15.0	U	3.0	U	10.2	U	2.4	U	15.0	U	3.0	U	10.2	U
Titanium		NA		NA		5.0	U	NA		NA		NA		5.0	U	NA	
Vanadium		6.1	U	5.0	U	4.7	U	1.1	U	6.1	U	5.0	U	4.7	U	1.1	U
Zinc	2000*	12.9	J	25.0	U	13.5	U	1.5	U	44.3		25.0	U	13.5	U	1.5	U

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[25] - Site-specific cleanup goal.

Table 5-4
Summary of Groundwater Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-3D 10/28/2010 ug/L		MW-3D 2/28/2011 ug/L		MW-4 8/2/2007 ug/L		MW-4 7/17/2008 ug/L		MW-4 4/13/2009 ug/L		MW-4 3/18/2010 ug/L		MW-4 10/28/2010 ug/L		MW-4 2/28/2011 ug/L	
Aluminum		11.7	J	250.0	U	40.0	U	32.6	B	754		39.8	U	10.6	J	26.6	J
Antimony	3	8.0	U	15.0	U	5.6	U	5.5	U	6.7	U	6.8	U	8.0	U	15.0	U
Arsenic	25	4.2	U	15.0	U	4.2	U	3.7	U	3.0	U	5.6	U	4.2	U	15.0	U
Barium	1000	56.7		43.6		40.0	B	38.3	B	60.9	B	42.6	BE	50.3		40.8	
Beryllium	3*	0.7	U	5.0	U	0.27	U	0.3	U	0.5	U	0.2	U	0.7	U	5.0	U
Cadmium	5 [10]	0.5	U	5.0	U	0.36	U	0.7	B	0.3	U	0.5	BE	0.5	U	1.7	J
Calcium		54000		48600		42700	E	42400		40500		48000		47900		43100	
Chromium	50 [50]	1.1	U	5.0	U	0.84	U	0.9	U	3.4	B	0.9	U	1.1	U	5.0	U
Cobalt		5.8	U	5.0	U	0.89	U	1.1	U	3.8	U	0.6	U	5.8	U	5.0	U
Copper	200	2.3	J	10.0	U	1.4	B	1.3	U	49.7		1.3	U	2.0	U	10.0	U
Iron	300	52.9		24.4	J	47.6	B	34	B	**667**		22.2	BE	33.4	J	57.3	J
Lead	25 [25]	4.6	J	15.0	U	2.9	U	2.9	U	1.4	U	3.0	U	2.6	U	15.0	U
Magnesium		9680		9120		8190	E	7830		7080		8820		8390		8140	
Manganese	300	2.2	J	1.2	J	0.79	B	1.2	B	79.4		1.5	BE	2.0	J	2.2	J
Mercury	0.7	0.1	U	0.2	U	0.12	U	0.1	U	NA		0.1	U	0.1	U	0.2	U
Nickel	100	4.2	U	5.0	U	1.2	U	1.0	U	4.5	B	1.3	U	4.2	U	1.5	J
Potassium		1490		1260		1020	BE	1860	B	1190	B	1130	BE	1230		1330	
Selenium	10	4.8	U	38.0	U	6.1	U	6.1	U	11.4	U	8.7	U	4.8	U	38.0	U
Silver	50	1.5	U	5.0	U	1.0	U	1.3	U	2.2	U	1.2	U	1.5	U	5.0	U
Sodium	20000	17400		15600		12000	E	12800		15200		16100		15000		13900	
Thallium	0.5*	2.4	U	15.0	U	7.0	U	5.9	U	3.0	U	10.2	U	2.4	U	15.0	U
Titanium		NA		NA		NA		NA		5.0	U	NA		NA		NA	
Vanadium		6.1	U	5.0	U	0.78	U	1.0	U	4.7	U	1.1	U	6.1	U	5.0	U
Zinc	2000*	14.5	J	25.0	U	3.6	U	3.6	U	13.5	U	1.5	U	6.5	U	25.0	U

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[25] - Site-specific cleanup goal.

Table 5-4
Summary of Groundwater Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-5 8/2/2007 ug/L		MW-5 7/17/2008 ug/L		MW-5 4/13/2009 ug/L		MW-5 3/18/2010 ug/L		MW-5 10/28/2010 ug/L		MW-5 2/28/2011 ug/L		MW-6 2/28/2011 ug/L		MW-X[1] 2/28/2011 ug/L	
Aluminum		79.0	B	28.9	B	102	B	39.8	U	22.4	J	250.0	U	49.5	J	46.0	J
Antimony	3	5.6	U	5.5	U	6.7	U	6.8	U	8.0	U	15.0	U	15.0	U	15.0	U
Arsenic	25	4.2	U	3.7	U	3.0	U	5.6	U	4.2	U	15.0	U	15.0	U	15.0	U
Barium	1000	56.4	B	55.7	B	47.1	B	47.4	BE	67.3		52.0		53.1		52.5	
Beryllium	3*	0.51	B	0.3	U	0.5	U	0.2	U	0.7	U	5.0	U	5.0	U	5.0	U
Cadmium	5 [10]	0.36	U	0.3	U	0.3	U	0.3	U	0.5	U	5.0	U	5.0	U	5.0	U
Calcium		44400	E	45200		44000		45100		49500		43900		54200		53500	
Chromium	50 [50]	0.84	U	0.9	U	3.9	B	0.9	U	1.1	U	5.0	U	5.0	U	5.0	U
Cobalt		0.89	U	1.1	U	3.8	U	0.6	U	5.8	U	5.0	U	5.0	U	5.0	U
Copper	200	1.3	U	1.3	U	89.3		1.3	U	2.0	U	10.0	U	10.0	U	10.0	U
Iron	300	19.3	U	19	U	246		19.3	U	94.1		52.9	J	98.8	J	95.1	J
Lead	25 [25]	2.9	U	2.9	U	6.0	B	3.0	U	7.2		15.0	U	15.0	U	15.0	U
Magnesium		7600	E	7570		7440		7330		7980		7500		9280		9240	
Manganese	300	0.90	B	0.7	B	10.1	B	0.8	BE	5.6	J	1.8	J	7.5	J	5.6	J
Mercury	0.7	0.12	U	0.1	U	NA		0.1	U	0.1	U	0.2	U	0.2	U	0.2	U
Nickel	100	1.2	U	1.4	B	5.0	B	1.3	U	4.2	U	5.0	U	5.0	U	1.1	J
Potassium		3330	BE	3340	B	2880	B	3530	BE	3620		3210		2090.0		1960.0	
Selenium	10	6.1	U	6.1	U	11.4	U	8.7	U	4.8	U	38.0	U	38.0	U	38.0	U
Silver	50	1.6	B	1.3	U	2.2	U	1.2	U	1.5	U	5.0	U	5	U	5	U
Sodium	20000	14200	E	15400		13300		8320		13600		9080		**21900**		**23500**	
Thallium	0.5*	7.0	U	5.9	U	3.0	U	10.2	U	2.4	U	15.0	U	15.0	U	15.0	U
Titanium		NA		NA		5.0	U	NA		NA		NA		NA		NA	
Vanadium		0.80	B	1.0	U	4.7	U	1.1	U	6.1	U	5.0	U	5	U	5.0	U
Zinc	2000*	3.6	U	3.6	U	13.5	U	3.6	BE	15.3	J	25.0	U	25.0	U	25.0	U

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[25] - Site-specific cleanup goal.

Table 5-4
Summary of Groundwater Sample Results - Metals
Tioga Castings Site
Owego, New York
NYSDEC Site Number 7-54-012

Well Date Units	NYSDEC Class GA Standards	MW-7 4/13/2009 ug/L		MW-7 3/18/2010 ug/L		MW-7 10/28/2010 ug/L		MW-7 2/28/2011 ug/L		MW-8 4/13/2009 ug/L		MW-8 3/18/2010 ug/L		MW-8 10/28/2010 ug/L		MW-8 2/28/2011 ug/L	
Aluminum		1810		140	BE	28.2	J	162.0	J	6190		39.8	U	45.5	J	324.0	
Antimony	3	6.7	U	6.8	U	8.0	U	15.0	U	6.7	U	6.8	U	8.0	U	15.0	U
Arsenic	25	3.0	U	5.6	U	4.2	U	15.0	U	3.0	U	5.6	U	4.2	U	15.0	U
Barium	1000	165		133	BE	96.0		66.8		219		64.6	BE	71.6		67.0	
Beryllium	3*	0.5	U	0.2	U	0.7	U	5.0	U	0.5	U	0.2	U	0.7	U	5.0	U
Cadmium	5 [10]	0.3	U	0.4	BE	0.5	U	5.0	U	0.3	U	0.3	BE	0.5	U	5.0	U
Calcium		64300		85600		60300		45200		52400		52600		52800		50300	
Chromium	50 [50]	10.4	B	0.9	U	1.1	U	0.8	J	8.9	B	0.9	U	1.9	J	5.0	U
Cobalt		5.8	B	0.6	U	5.8	U	5.0	U	3.8	U	0.6	U	5.8	U	5.0	U
Copper	200	178		3.1	BE	3.6	J	4.5	J	66.3		1.3	U	2.3	J	1.6	J
Iron	300	**2880**		192		297.0		**457.0**		**4530**		40.2	BE	104.0		**560.0**	
Lead	25 [25]	**30.2**	**B**	3.0	U	3.1	J	2.9	J	17.3	B	3.0	U	2.6	U	15.0	U
Magnesium		10000		13600		9230		7030		8740		8870		8300		8430	
Manganese	300	**989**		115		474.0		130.0		**524**		2.7	BE	5.0	J	28.9	
Mercury	0.7	NA		0.1	U	0.1	U	0.2	U	NA		0.1	U	0.1	U	0.2	U
Nickel	100	10.6	B	2.8	BE	4.2	U	1.1	J	9.5	B	1.3	U	4.2	U	5.0	U
Potassium		4510		5190		4170		3270		3770		2440	BE	2630		2630	
Selenium	10	11.4	U	8.7	U	4.8	U	38.0	U	11.4	U	8.7	U	4.8	U	38.0	U
Silver	50	2.2	U	1.2	U	1.5	U	5.0	U	2.2	U	1.2	U	1.5	U	5.0	U
Sodium	20000	**57500**		**58900**		**20700**		**32700**		**26700**		**23300**		**21300**		**21900**	
Thallium	0.5*	3.0	U	10.2	U	2.4	U	15.0	U	3.0	U	10.2	U	2.4	U	15.0	U
Titanium		5.0	U	NA		NA		NA		34.4	B	NA		NA		NA	
Vanadium		7.2	B	1.1	U	6.1	U	5.0	U	9.8	B	1.1	U	6.1	U	5.0	U
Zinc	2000*	40.4	B	10.4	BE	18.0	J	18.3	J	40.2	B	3.0	BE	23.8		25.0	U

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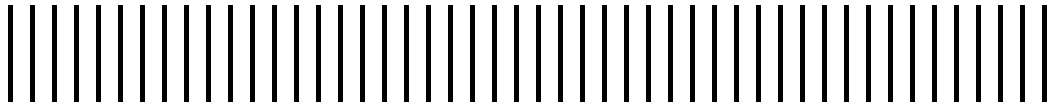
New York State Department of Environmental Conservation
Tioga Castings Site Quarterly Report

Appendix A
Soil Boring / Well Construction Log



0266362 / ALB

MALCOLM PIRNIE

MALCOLM PIRNIE	TEST BORING LOG	BORING No.SB-27/MW-6

PROJECT	Tioga Castings Site	LOCATION	Owego, NY			SHEET 1 OF 2
CLIENT	NYSDEC - 754012					PROJECT No. 0266362
DRILLING CONTRACTOR	Aztech Technologies					MEAS. PT. ELEV.
PURPOSE	Sub-surface Investigation					GROUND ELEV.
WELL MATERIAL						DATUM
DRILLING METHOD(S)	HSA		SAMPLE	CORE	CASING	DATE STARTED 1/6/11
DRILL RIG TYPE	DK	TYPE				DATE FINISHED 1/6/11
GROUND WATER DEPTH	18.0'	DIA.	"			DRILLER B. Gannon
MEASURING POINT		WEIGHT	#			PIRNIE STAFF J. Wyckoff
DATE OF MEASUREMENT		FALL	"			

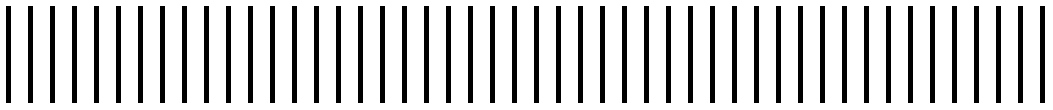
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
	1.2	22 13 12 22	0		Dark brown sand and silt with coal, slag, and concrete (frozen). Black sand and silt with some gravel, coal, and slag. Loose.	1.0		
2	0	23 50 23 22	-		No Recovery. Rock in end of spoon.	2.0		
4	1.5	17 32 13 12	0		Black sand and silt, coal, ash, slag. Loose, moist. Collect sample 4-6 feet bgs.	4.0		
6	1	7 20 34 32	0		Gray silty clay, moist cohesive. Transitions to brown sitly clay then to brown sand and gravel with some silt. Gravel up to 0.5".	6.0		
8	0	12 7 5 4	-		No recovery. Wood in end of spoon.	8.0		
10	.5	6 12 18 23	0		Brown sand and gravel with some silt. Gravel up to 1". Loose, moist.	10.0		11.5
12	.8	28 24 26 23	0		SAA. Gravel up to 1.5".	12.0		12.5
14	.5	45 15 12 12	0		SAA.	14.0		14.0
16	.3	8 7 5 4	0		SAA.	16.0		
18	1	4 4 4 5	0		SAA. Saturated. Not enough matrix in gravel for sample. No sheen, no odors.	18.0		

MALCOLM PIRNIE	TEST BORING LOG	BORING No.SB-27/MW-6
PROJECT **Tioga Castings Site**	LOCATION **Owego, NY**	SHEET **2** OF **2**
CLIENT **NYSDEC - 754012**		PROJECT No. **0266362**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
22						20.0		
24						24.0		

New York State Department of Environmental Conservation
Tioga Castings Site Quarterly Report

Appendix B
Analytical Reporting Forms



0266362 / ALB

MALCOLM PIRNIE

ANALYTICAL REPORT

Job Number: 220-14512-1

Job Description: NYSDEC Standby - Tioga Castings

For:
Malcolm Pirnie, Inc.
855 Route 146
Suite 210
Clifton Park, NY 12065

Attention: Mr. Bruce Nelson

Approved for release.
Cheryl Cascella
Project Mgmt. Assistant
1/21/2011 11:31 AM

Designee for
Johanna Dubauskas
Project Manager I
johanna.dubauskas@testamericainc.com
01/21/2011

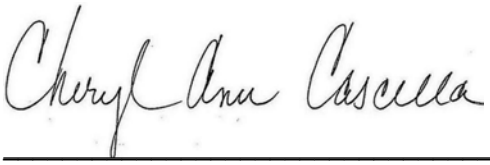
TestAmerica Connecticut Certifications and Approvals: CTDOH PH-047, MADEP CT023, RIDOH A43, NYDOH 10602, NY NELAP 10602, NHDES 2528, NJDEP CT410, ME DOH CT023, UT DOH 2032614458

TestAmerica Laboratories, Inc.
TestAmerica Connecticut 128 Long Hill Cross Road, Shelton, CT 06484
Tel (203) 929-8140 Fax (203) 929-8142 www.testamericainc.com

Job Number: 220-14512-1

Job Description: NYSDEC Standby - Tioga Castings

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed within the body of this report. Release of the data contained in this sample data package and in the electronic data deliverable has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.



Approved for release.
Cheryl Cascella
Project Mgmt. Assistant
1/21/2011 11:31 AM

Designee for
Johanna Dubauskas

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Job Narrative
220-14512-1

Comments
No additional comments.

Receipt
The following sample(s) was received at the laboratory outside the required temperature criteria: SB-27-4-6 (220-14512-1). The client was contacted regarding this issue, and the laboratory was instructed to <<CHOOSE ONE>> proceed with/cancel analysis.

The coc was not complete - no methods documented. The client was contacted and confirmed SW846 methodology is to be used.

A trip blank was received with no labels on the vials. The client was contacted and instructed the lab to cancel analysis for the trip blank as it was sent in error.

All other samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

SAMPLE SUMMARY

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
220-14512-1	SB-27-4-6	Solid	01/06/2011 1125	01/07/2011 0944

EXECUTIVE SUMMARY - Detections

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
220-14512-1	**SB-27-4-6**					
Acetone		27	*	24	ug/Kg	8260B
Methylene Chloride		4.6	J B	24	ug/Kg	8260B
Toluene		1.3	J	5.9	ug/Kg	8260B
Xylenes, Total		2.5	J	5.9	ug/Kg	8260B
2-Methylphenol		42	J	320	ug/Kg	8270C
Methylphenol, 3 & 4		32	J	320	ug/Kg	8270C
Naphthalene		330		320	ug/Kg	8270C
2-Methylnaphthalene		290	J	320	ug/Kg	8270C
Acenaphthylene		17	J	320	ug/Kg	8270C
Dibenzofuran		59	J	320	ug/Kg	8270C
Fluorene		43	J	320	ug/Kg	8270C
Phenanthrene		160	J	320	ug/Kg	8270C
Anthracene		18	J	320	ug/Kg	8270C
Fluoranthene		57	J	320	ug/Kg	8270C
Pyrene		50	J	320	ug/Kg	8270C
Benzo[a]anthracene		15	J	320	ug/Kg	8270C
Chrysene		25	J	320	ug/Kg	8270C
Bis(2-ethylhexyl) phthalate		190	J	320	ug/Kg	8270C
Benzo[b]fluoranthene		16	J	320	ug/Kg	8270C
Silver		0.34	J	1.4	mg/Kg	6010B
Aluminum		4690		71.7	mg/Kg	6010B
Arsenic		3.3	J	6.0	mg/Kg	6010B
Barium		26.7		1.4	mg/Kg	6010B
Beryllium		0.20	J	1.4	mg/Kg	6010B
Calcium		3850		143	mg/Kg	6010B
Cobalt		3.0		1.4	mg/Kg	6010B
Chromium		31.6		1.4	mg/Kg	6010B
Copper		46.2		1.7	mg/Kg	6010B
Iron		24800		35.9	mg/Kg	6010B
Potassium		605		143	mg/Kg	6010B
Magnesium		1100		143	mg/Kg	6010B
Manganese		357		2.2	mg/Kg	6010B
Sodium		509		143	mg/Kg	6010B
Nickel		22.0		1.4	mg/Kg	6010B
Lead		42.6		4.3	mg/Kg	6010B
Vanadium		7.5		1.4	mg/Kg	6010B
Zinc		73.7		7.2	mg/Kg	6010B
Mercury		0.034	J	0.052	mg/Kg	7471A
Percent Moisture		15.4		0.10	%	Moisture
Percent Solids		84.6		0.10	%	Moisture

METHOD SUMMARY

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
Volatile Organic Compounds (GC/MS)	TAL CT	SW846 8260B	
Purge and Trap	TAL CT		SW846 5030B
Semivolatile Organic Compounds (GC/MS)	TAL CT	SW846 8270C	
Automated Soxhlet Extraction	TAL CT		SW846 3541
Metals (ICP)	TAL CT	SW846 6010B	
Preparation, Metals	TAL CT		SW846 3050B
Mercury (CVAA)	TAL CT	SW846 7471A	
Preparation, Mercury	TAL CT		SW846 7471A
Percent Moisture	TAL CT	EPA Moisture	

Lab References:

TAL CT = TestAmerica Connecticut

Method References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Method	Analyst	Analyst ID
SW846 8260B	Humbert, Dave	DH
SW846 8270C	Jonas, Stephan	SJ
SW846 6010B	Voytek, Joseph F	JFV
SW846 7471A	Voytek, Joseph F	JFV
EPA Moisture	Bouthot, Agnieszka	AB

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Client Sample ID: SB-27-4-6

Lab Sample ID: 220-14512-1 Date Sampled: 01/06/2011 1125
Client Matrix: Solid % Moisture: 15.4 Date Received: 01/07/2011 0944

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B Analysis Batch: 220-47038 Instrument ID: MSN
Preparation: 5030B Lab File ID: N0835.D
Dilution: 1.0 Initial Weight/Volume: 5 g
Date Analyzed: 01/11/2011 1656 Final Weight/Volume: 5 mL
Date Prepared: 01/11/2011 1656

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		27	*	2.6	24
Benzene		5.9	U	0.67	5.9
Bromodichloromethane		5.9	U	0.35	5.9
Bromoform		5.9	U	0.72	5.9
Bromomethane		5.9	U	2.5	5.9
Methyl Ethyl Ketone		12	U	1.9	12
Carbon disulfide		5.9	U	0.48	5.9
Carbon tetrachloride		5.9	U	1.1	5.9
Chlorobenzene		5.9	U	0.70	5.9
Chloroethane		5.9	U	1.2	5.9
Chloroform		5.9	U	0.40	5.9
Chloromethane		5.9	U	0.92	5.9
Dibromochloromethane		5.9	U	0.41	5.9
1,1-Dichloroethane		5.9	U	0.35	5.9
1,2-Dichloroethane		5.9	U	0.69	5.9
1,1-Dichloroethene		5.9	U	0.69	5.9
1,2-Dichloropropane		5.9	U	0.79	5.9
cis-1,3-Dichloropropene		5.9	U	0.66	5.9
trans-1,3-Dichloropropene		5.9	U	0.32	5.9
Ethylbenzene		5.9	U	0.83	5.9
2-Hexanone		12	U	1.4	12
Methylene Chloride		4.6	J B	1.3	24
methyl isobutyl ketone		5.9	U	0.65	5.9
Styrene		5.9	U	0.18	5.9
1,1,2,2-Tetrachloroethane		5.9	U	0.61	5.9
Tetrachloroethene		5.9	U	0.96	5.9
Toluene		1.3	J	0.087	5.9
1,1,1-Trichloroethane		5.9	U	0.63	5.9
1,1,2-Trichloroethane		5.9	U	0.44	5.9
Trichloroethene		5.9	U	0.96	5.9
Vinyl chloride		5.9	U	0.27	5.9
Xylenes, Total		2.5	J	0.57	5.9
cis-1,2-Dichloroethene		5.9	U	0.44	5.9
trans-1,2-Dichloroethene		5.9	U	0.46	5.9

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	88		59 - 132
4-Bromofluorobenzene	109		34 - 124
Dibromofluoromethane	84		59 - 123
Toluene-d8 (Surr)	82		50 - 118

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Client Sample ID: SB-27-4-6

Lab Sample ID: 220-14512-1 Date Sampled: 01/06/2011 1125
Client Matrix: Solid % Moisture: 15.4 Date Received: 01/07/2011 0944

8270C Semivolatile Organic Compounds (GC/MS)

Method:	8270C	Analysis Batch: 220-47151		Instrument ID:	MSC
Preparation:	3541	Prep Batch: 220-46975		Lab File ID:	C21458.D
Dilution:	1.0			Initial Weight/Volume:	15.07 g
Date Analyzed:	01/17/2011 1558			Final Weight/Volume:	1.0 mL
Date Prepared:	01/11/2011 1008			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Phenol		320	U	21	320
Bis(2-chloroethyl)ether		320	U	16	320
2-Chlorophenol		320	U	18	320
1,3-Dichlorobenzene		320	U	16	320
1,4-Dichlorobenzene		320	U	19	320
Benzyl alcohol		320	U	30	320
1,2-Dichlorobenzene		320	U	19	320
2,2'-oxybis[1-chloropropane]		320	U	16	320
2-Methylphenol		42	J	19	320
Hexachloroethane		320	U	18	320
N-Nitrosodi-n-propylamine		320	U	21	320
Methylphenol, 3 & 4		32	J	21	320
Nitrobenzene		320	U	20	320
Isophorone		320	U	18	320
2-Nitrophenol		320	U	20	320
2,4-Dimethylphenol		320	U	15	320
Bis(2-chloroethoxy)methane		320	U	15	320
2,4-Dichlorophenol		320	U	17	320
1,2,4-Trichlorobenzene		320	U	21	320
Naphthalene		330		16	320
4-Chloroaniline		320	U	52	320
Hexachlorobutadiene		320	U	24	320
4-Chloro-3-methylphenol		320	U	13	320
2-Methylnaphthalene		290	J	9.1	320
Hexachlorocyclopentadiene		790	U	150	790
2,4,6-Trichlorophenol		320	U	8.7	320
2,4,5-Trichlorophenol		2000	U	16	2000
2-Chloronaphthalene		320	U	14	320
2-Nitroaniline		790	U	19	790
Acenaphthylene		17	J	16	320
Dimethyl phthalate		320	U	18	320
2,6-Dinitrotoluene		320	U	9.3	320
Acenaphthene		320	U	19	320
3-Nitroaniline		790	U	10	790
2,4-Dinitrophenol		2000	U	95	2000
Dibenzofuran		59	J	22	320
2,4-Dinitrotoluene		320	U	25	320
4-Nitrophenol		2000	U	24	2000
Fluorene		43	J	19	320
4-Chlorophenyl phenyl ether		320	U	23	320
Diethyl phthalate		320	U	32	320
4-Nitroaniline		320	U	24	320
4,6-Dinitro-2-methylphenol		2000	U	140	2000
N-Nitrosodiphenylamine		320	U	18	320
4-Bromophenyl phenyl ether		320	U	20	320
Hexachlorobenzene		320	U	22	320

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Client Sample ID: SB-27-4-6

Lab Sample ID: 220-14512-1 Date Sampled: 01/06/2011 1125
Client Matrix: Solid % Moisture: 15.4 Date Received: 01/07/2011 0944

8270C Semivolatile Organic Compounds (GC/MS)

Method:	8270C	Analysis Batch: 220-47151		Instrument ID:	MSC
Preparation:	3541	Prep Batch: 220-46975		Lab File ID:	C21458.D
Dilution:	1.0			Initial Weight/Volume:	15.07 g
Date Analyzed:	01/17/2011 1558			Final Weight/Volume:	1.0 mL
Date Prepared:	01/11/2011 1008			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Pentachlorophenol		790	U	190	790
Phenanthrene		160	J	16	320
Carbazole		320	U	18	320
Anthracene		18	J	12	320
Di-n-butyl phthalate		320	U	46	320
Fluoranthene		57	J	16	320
Pyrene		50	J	15	320
Butyl benzyl phthalate		320	U	18	320
3,3'-Dichlorobenzidine		390	U	65	390
Benzo[a]anthracene		15	J	11	320
Chrysene		25	J	23	320
Bis(2-ethylhexyl) phthalate		190	J	31	320
Di-n-octyl phthalate		320	U	18	320
Benzo[b]fluoranthene		16	J	8.5	320
Benzo[k]fluoranthene		320	U	28	320
Benzo[a]pyrene		320	U	8.6	320
Indeno[1,2,3-cd]pyrene		320	U	21	320
Dibenz(a,h)anthracene		320	U	25	320
Benzo[g,h,i]perylene		320	U	21	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorophenol	55		34 - 120
Phenol-d5	57		36 - 120
Nitrobenzene-d5	55		38 - 120
2-Fluorobiphenyl	63		41 - 120
2,4,6-Tribromophenol	64		37 - 120
Terphenyl-d14	60		32 - 125

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Client Sample ID: SB-27-4-6

Lab Sample ID: 220-14512-1 Date Sampled: 01/06/2011 1125
Client Matrix: Solid % Moisture: 15.4 Date Received: 01/07/2011 0944

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 220-47083		Instrument ID:	ICAP3
Preparation:	3050B	Prep Batch: 220-47003		Lab File ID:	011411d.prn
Dilution:	1.0			Initial Weight/Volume:	2.06 g
Date Analyzed:	01/14/2011 1441			Final Weight/Volume:	250 mL
Date Prepared:	01/11/2011 1251				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Silver		0.34	J	0.072	1.4
Aluminum		4690		2.9	71.7
Arsenic		3.3	J	1.9	6.0
Barium		26.7		0.072	1.4
Beryllium		0.20	J	0.072	1.4
Calcium		3850		14.3	143
Cadmium		1.4	U	0.29	1.4
Cobalt		3.0		0.14	1.4
Chromium		31.6		0.14	1.4
Copper		46.2		0.55	1.7
Iron		24800		4.3	35.9
Potassium		605		14.3	143
Magnesium		1100		2.6	143
Manganese		357		0.072	2.2
Sodium		509		14.3	143
Nickel		22.0		0.29	1.4
Lead		42.6		0.89	4.3
Antimony		4.7	U	1.5	4.7
Selenium		10.8	U	3.6	10.8
Thallium		4.3	U	1.0	4.3
Vanadium		7.5		0.29	1.4
Zinc		73.7		1.4	7.2

7471A Mercury (CVAA)

Method:	7471A	Analysis Batch: 220-47041		Instrument ID:	MERC1
Preparation:	7471A	Prep Batch: 220-47030		Lab File ID:	CV011311.TXT
Dilution:	1.0			Initial Weight/Volume:	0.68 g
Date Analyzed:	01/13/2011 1544			Final Weight/Volume:	50 mL
Date Prepared:	01/13/2011 1047				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.034	J	0.0042	0.052

General Chemistry

Client Sample ID: **SB-27-4-6**

Lab Sample ID: 220-14512-1 Date Sampled: 01/06/2011 1125
Client Matrix: Solid Date Received: 01/07/2011 0944

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	15.4		%	0.10	0.10	1.0	Moisture
Analysis Batch: 220-47035	Date Analyzed: 01/13/2011 1341						DryWt Corrected: N
Percent Solids	84.6		%	0.10	0.10	1.0	Moisture
Analysis Batch: 220-47035	Date Analyzed: 01/13/2011 1341						DryWt Corrected: N

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
220-14512-1	SB-27-4-6	84	88	82	109
MB 220-47038/3		81	85	80	93
LCS 220-47038/2		82	84	77	90

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane	59-123
DCA = 1,2-Dichloroethane-d4 (Surr)	59-132
TOL = Toluene-d8 (Surr)	50-118
BFB = 4-Bromofluorobenzene	34-124

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Surrogate Recovery Report

8270C Semivolatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	2FP %Rec	PHL %Rec	NBZ %Rec	FBP %Rec	TBP %Rec	TPH %Rec
220-14512-1	SB-27-4-6	55	57	55	63	64	60
MB 220-46975/1-A		51	48	52	62	62	74
LCS 220-46975/2-A		66	62	64	75	90	88

Surrogate	Acceptance Limits
2FP = 2-Fluorophenol	34-120
PHL = Phenol-d5	36-120
NBZ = Nitrobenzene-d5	38-120
FBP = 2-Fluorobiphenyl	41-120
TBP = 2,4,6-Tribromophenol	37-120
TPH = Terphenyl-d14	32-125

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Method Blank - Batch: 220-47038

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 220-47038/3
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/11/2011 1235
Date Prepared: 01/11/2011 1235

Analysis Batch: 220-47038
Prep Batch: N/A
Units: ug/Kg

Instrument ID: MSN
Lab File ID: N0826.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 mL

Analyte	Result	Qual	MDL	RL
Acetone	20	U	2.2	20
Benzene	5.0	U	0.57	5.0
Bromodichloromethane	5.0	U	0.30	5.0
Bromoform	5.0	U	0.61	5.0
Bromomethane	5.0	U	2.1	5.0
Methyl Ethyl Ketone	10	U	1.6	10
Carbon disulfide	5.0	U	0.41	5.0
Carbon tetrachloride	5.0	U	0.95	5.0
Chlorobenzene	5.0	U	0.59	5.0
Chloroethane	5.0	U	0.98	5.0
Chloroform	5.0	U	0.34	5.0
Chloromethane	5.0	U	0.78	5.0
Dibromochloromethane	5.0	U	0.35	5.0
1,1-Dichloroethane	5.0	U	0.30	5.0
1,2-Dichloroethane	5.0	U	0.58	5.0
1,1-Dichloroethene	5.0	U	0.58	5.0
1,2-Dichloropropane	5.0	U	0.67	5.0
cis-1,3-Dichloropropene	5.0	U	0.56	5.0
trans-1,3-Dichloropropene	5.0	U	0.27	5.0
Ethylbenzene	5.0	U	0.70	5.0
2-Hexanone	10	U	1.2	10
Methylene Chloride	4.09	J	1.1	20
methyl isobutyl ketone	5.0	U	0.55	5.0
Styrene	5.0	U	0.15	5.0
1,1,2,2-Tetrachloroethane	5.0	U	0.52	5.0
Tetrachloroethene	5.0	U	0.81	5.0
Toluene	5.0	U	0.074	5.0
1,1,1-Trichloroethane	5.0	U	0.53	5.0
1,1,2-Trichloroethane	5.0	U	0.37	5.0
Trichloroethene	5.0	U	0.81	5.0
Vinyl chloride	5.0	U	0.23	5.0
Xylenes, Total	5.0	U	0.49	5.0
cis-1,2-Dichloroethene	5.0	U	0.37	5.0
trans-1,2-Dichloroethene	5.0	U	0.39	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	85	59 - 132
4-Bromofluorobenzene	93	34 - 124
Dibromofluoromethane	81	59 - 123
Toluene-d8 (Surr)	80	50 - 118

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Lab Control Sample - Batch: 220-47038

Method: 8260B
Preparation: 5030B

Lab Sample ID: LCS 220-47038/2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/11/2011 1055
Date Prepared: 01/11/2011 1055

Analysis Batch: 220-47038
Prep Batch: N/A
Units: ug/Kg

Instrument ID: MSN
Lab File ID: N0823.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acetone	20.0	34.1	170	80 - 150	*
Benzene	20.0	17.9	90	80 - 133	
Bromodichloromethane	20.0	18.4	92	74 - 126	
Bromoform	20.0	14.7	74	65 - 120	
Bromomethane	20.0	19.9	99	83 - 150	
Methyl Ethyl Ketone	20.0	24.6	123	80 - 150	
Carbon disulfide	20.0	16.0	80	80 - 142	
Carbon tetrachloride	20.0	20.6	103	80 - 137	
Chlorobenzene	20.0	16.9	85	73 - 120	
Chloroethane	20.0	18.0	90	54 - 150	
Chloroform	20.0	19.8	99	74 - 142	
Chloromethane	20.0	17.7	88	69 - 143	
Dibromochloromethane	20.0	15.8	79	71 - 120	
1,1-Dichloroethane	20.0	17.7	88	78 - 130	
1,2-Dichloroethane	20.0	20.2	101	76 - 130	
1,1-Dichloroethene	20.0	18.0	90	80 - 144	
1,2-Dichloropropane	20.0	17.7	88	78 - 127	
cis-1,3-Dichloropropene	20.0	17.1	85	67 - 125	
trans-1,3-Dichloropropene	20.0	17.0	85	61 - 126	
Ethylbenzene	20.0	17.7	88	72 - 120	
2-Hexanone	20.0	17.3	87	76 - 150	
Methylene Chloride	20.0	19.3	96	68 - 147	J
methyl isobutyl ketone	20.0	16.2	81	74 - 136	
Styrene	20.0	17.0	85	59 - 120	
1,1,2,2-Tetrachloroethane	20.0	16.6	83	76 - 120	
Tetrachloroethene	20.0	16.3	82	67 - 120	
Toluene	20.0	16.7	84	65 - 121	
1,1,1-Trichloroethane	20.0	20.4	102	80 - 136	
1,1,2-Trichloroethane	20.0	19.0	95	59 - 146	
Trichloroethene	20.0	18.5	93	71 - 129	
Vinyl chloride	20.0	16.3	82	70 - 137	
Xylenes, Total	60.0	53.6	89	71 - 120	
cis-1,2-Dichloroethene	20.0	17.6	88	80 - 122	
trans-1,2-Dichloroethene	20.0	17.4	87	50 - 149	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	84	59 - 132
4-Bromofluorobenzene	90	34 - 124
Dibromofluoromethane	82	59 - 123
Toluene-d8 (Surr)	77	50 - 118

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Method Blank - Batch: 220-46975

Method: 8270C
Preparation: 3541

Lab Sample ID: MB 220-46975/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/14/2011 1505
Date Prepared: 01/11/2011 1008

Analysis Batch: 220-47076
Prep Batch: 220-46975
Units: ug/Kg

Instrument ID: MSU
Lab File ID: U3891.D
Initial Weight/Volume: 15 g
Final Weight/Volume: 1.0 mL
Injection Volume: 1 uL

Analyte	Result	Qual	MDL	RL
Phenol	270	U	18	270
Bis(2-chloroethyl)ether	270	U	14	270
2-Chlorophenol	270	U	16	270
1,3-Dichlorobenzene	270	U	14	270
1,4-Dichlorobenzene	270	U	16	270
Benzyl alcohol	270	U	26	270
1,2-Dichlorobenzene	270	U	16	270
2,2'-oxybis[1-chloropropane]	270	U	14	270
2-Methylphenol	270	U	16	270
Hexachloroethane	270	U	15	270
N-Nitrosodi-n-propylamine	270	U	18	270
Methylphenol, 3 & 4	270	U	18	270
Nitrobenzene	270	U	17	270
Isophorone	270	U	15	270
2-Nitrophenol	270	U	17	270
2,4-Dimethylphenol	270	U	13	270
Bis(2-chloroethoxy)methane	270	U	13	270
2,4-Dichlorophenol	270	U	14	270
1,2,4-Trichlorobenzene	270	U	18	270
Naphthalene	270	U	14	270
4-Chloroaniline	270	U	44	270
Hexachlorobutadiene	270	U	21	270
4-Chloro-3-methylphenol	270	U	11	270
2-Methylnaphthalene	270	U	7.7	270
Hexachlorocyclopentadiene	670	U	130	670
2,4,6-Trichlorophenol	270	U	7.4	270
2,4,5-Trichlorophenol	1700	U	14	1700
2-Chloronaphthalene	270	U	12	270
2-Nitroaniline	670	U	16	670
Acenaphthylene	270	U	13	270
Dimethyl phthalate	270	U	16	270
2,6-Dinitrotoluene	270	U	7.9	270
Acenaphthene	270	U	16	270
3-Nitroaniline	670	U	8.6	670
2,4-Dinitrophenol	1700	U	81	1700
Dibenzofuran	270	U	19	270
2,4-Dinitrotoluene	270	U	22	270
4-Nitrophenol	1700	U	20	1700
Fluorene	270	U	16	270
4-Chlorophenyl phenyl ether	270	U	20	270
Diethyl phthalate	270	U	27	270
4-Nitroaniline	270	U	21	270
4,6-Dinitro-2-methylphenol	1700	U	120	1700

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Method Blank - Batch: 220-46975

Method: 8270C
Preparation: 3541

Lab Sample ID: MB 220-46975/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/14/2011 1505
Date Prepared: 01/11/2011 1008

Analysis Batch: 220-47076
Prep Batch: 220-46975
Units: ug/Kg

Instrument ID: MSU
Lab File ID: U3891.D
Initial Weight/Volume: 15 g
Final Weight/Volume: 1.0 mL
Injection Volume: 1 uL

Analyte	Result	Qual	MDL	RL
N-Nitrosodiphenylamine	270	U	15	270
4-Bromophenyl phenyl ether	270	U	17	270
Hexachlorobenzene	270	U	19	270
Pentachlorophenol	670	U	160	670
Phenanthrene	270	U	13	270
Carbazole	270	U	15	270
Anthracene	270	U	11	270
Di-n-butyl phthalate	270	U	39	270
Fluoranthene	270	U	13	270
Pyrene	270	U	13	270
Butyl benzyl phthalate	270	U	15	270
3,3'-Dichlorobenzidine	330	U	56	330
Benzo[a]anthracene	270	U	9.6	270
Chrysene	270	U	20	270
Bis(2-ethylhexyl) phthalate	270	U	26	270
Di-n-octyl phthalate	270	U	15	270
Benzo[b]fluoranthene	270	U	7.2	270
Benzo[k]fluoranthene	270	U	24	270
Benzo[a]pyrene	270	U	7.3	270
Indeno[1,2,3-cd]pyrene	270	U	18	270
Dibenz(a,h)anthracene	270	U	21	270
Benzo[g,h,i]perylene	270	U	18	270

Surrogate	% Rec	Acceptance Limits
2-Fluorophenol	51	34 - 120
Phenol-d5	48	36 - 120
Nitrobenzene-d5	52	38 - 120
2-Fluorobiphenyl	62	41 - 120
2,4,6-Tribromophenol	62	37 - 120
Terphenyl-d14	74	32 - 125

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Lab Control Sample - Batch: 220-46975

Method: 8270C
Preparation: 3541

Lab Sample ID: LCS 220-46975/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/14/2011 1533
Date Prepared: 01/11/2011 1008

Analysis Batch: 220-47076
Prep Batch: 220-46975
Units: ug/Kg

Instrument ID: MSU
Lab File ID: U3892.D
Initial Weight/Volume: 15 g
Final Weight/Volume: 1.0 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Phenol	2670	1590	60	51 - 120	
Bis(2-chloroethyl)ether	2670	1520	57	52 - 120	
2-Chlorophenol	2670	1800	67	54 - 120	
1,3-Dichlorobenzene	2670	1850	69	51 - 120	
1,4-Dichlorobenzene	2670	1860	70	51 - 120	
Benzyl alcohol	2670	1510	57	54 - 120	
1,2-Dichlorobenzene	2670	1880	71	52 - 120	
2,2'-oxybis[1-chloropropane]	2670	1430	53	51 - 120	
2-Methylphenol	2670	1710	64	53 - 120	
Hexachloroethane	2670	1880	71	52 - 120	
N-Nitrosodi-n-propylamine	2670	1700	64	54 - 120	
Methylphenol, 3 & 4	5330	3620	68	54 - 120	
Nitrobenzene	2670	1670	63	54 - 120	
Isophorone	2670	1810	68	55 - 120	
2-Nitrophenol	2670	2040	77	56 - 120	
2,4-Dimethylphenol	2670	1650	62	49 - 120	
Bis(2-chloroethoxy)methane	2670	1780	67	56 - 120	
2,4-Dichlorophenol	2670	1900	71	54 - 120	
1,2,4-Trichlorobenzene	2670	1990	75	53 - 120	
Naphthalene	2670	1940	73	55 - 120	
4-Chloroaniline	2670	750	28	15 - 120	
Hexachlorobutadiene	2670	2210	83	54 - 120	
4-Chloro-3-methylphenol	2670	1880	71	56 - 120	
2-Methylnaphthalene	2670	1970	74	56 - 120	
Hexachlorocyclopentadiene	2670	1380	52	50 - 120	
2,4,6-Trichlorophenol	2670	2080	78	56 - 120	
2,4,5-Trichlorophenol	2670	2100	79	56 - 120	
2-Chloronaphthalene	2670	1920	72	56 - 120	
2-Nitroaniline	2670	1720	64	57 - 120	
Acenaphthylene	2670	2000	75	57 - 120	
Dimethyl phthalate	2670	2050	77	56 - 120	
2,6-Dinitrotoluene	2670	2100	79	59 - 120	
Acenaphthene	2670	1990	75	57 - 120	
3-Nitroaniline	2670	1280	48	38 - 120	
2,4-Dinitrophenol	2670	1740	65	33 - 120	
Dibenzofuran	2670	1930	72	57 - 120	
2,4-Dinitrotoluene	2670	2030	76	57 - 120	
4-Nitrophenol	2670	1860	70	55 - 120	
Fluorene	2670	2020	76	58 - 120	
4-Chlorophenyl phenyl ether	2670	2050	77	56 - 120	
Diethyl phthalate	2670	2040	76	57 - 120	
4-Nitroaniline	2670	1730	65	53 - 120	
4,6-Dinitro-2-methylphenol	2670	1710	64	48 - 120	
N-Nitrosodiphenylamine	2670	2030	76	59 - 120	

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Lab Control Sample - Batch: 220-46975

Method: 8270C
Preparation: 3541

Lab Sample ID: LCS 220-46975/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/14/2011 1533
Date Prepared: 01/11/2011 1008

Analysis Batch: 220-47076
Prep Batch: 220-46975
Units: ug/Kg

Instrument ID: MSU
Lab File ID: U3892.D
Initial Weight/Volume: 15 g
Final Weight/Volume: 1.0 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
4-Bromophenyl phenyl ether	2670	2070	78	57 - 120	
Hexachlorobenzene	2670	2070	78	56 - 120	
Pentachlorophenol	2670	2060	77	52 - 120	
Phenanthrene	2670	1920	72	58 - 120	
Carbazole	2670	1900	71	58 - 120	
Anthracene	2670	1970	74	58 - 120	
Di-n-butyl phthalate	2670	2040	77	58 - 120	
Fluoranthene	2670	1920	72	57 - 120	
Pyrene	2670	2190	82	54 - 121	
Butyl benzyl phthalate	2670	2020	76	54 - 120	
3,3'-Dichlorobenzidine	2670	1230	46	24 - 120	
Benzo[a]anthracene	2670	1960	74	58 - 120	
Chrysene	2670	2000	75	57 - 120	
Bis(2-ethylhexyl) phthalate	2670	2020	76	56 - 120	
Di-n-octyl phthalate	2670	1650	62	48 - 126	
Benzo[b]fluoranthene	2670	1870	70	54 - 120	
Benzo[k]fluoranthene	2670	1890	71	53 - 120	
Benzo[a]pyrene	2670	2040	77	44 - 120	
Indeno[1,2,3-cd]pyrene	2670	2380	89	37 - 120	
Dibenz(a,h)anthracene	2670	2100	79	39 - 120	
Benzo[g,h,i]perylene	2670	2240	84	37 - 120	

Surrogate	% Rec	Acceptance Limits
2-Fluorophenol	66	34 - 120
Phenol-d5	62	36 - 120
Nitrobenzene-d5	64	38 - 120
2-Fluorobiphenyl	75	41 - 120
2,4,6-Tribromophenol	90	37 - 120
Terphenyl-d14	88	32 - 125

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Method Blank - Batch: 220-47003

Method: 6010B
Preparation: 3050B

Lab Sample ID: MB 220-47003/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/18/2011 0948
Date Prepared: 01/11/2011 1251

Analysis Batch: 220-47180
Prep Batch: 220-47003
Units: mg/Kg

Instrument ID: ICAP3
Lab File ID: 011811d.prn
Initial Weight/Volume: 2.00 g
Final Weight/Volume: 250 mL

Analyte	Result	Qual	MDL	RL
Silver	1.2	U	0.062	1.2
Aluminum	62.5	U	2.5	62.5
Arsenic	5.2	U	1.7	5.2
Barium	1.2	U	0.062	1.2
Beryllium	1.2	U	0.062	1.2
Calcium	125	U	12.5	125
Cadmium	1.2	U	0.25	1.2
Cobalt	1.2	U	0.12	1.2
Chromium	1.2	U	0.12	1.2
Copper	1.5	U	0.48	1.5
Iron	31.2	U	3.8	31.2
Potassium	125	U	12.5	125
Magnesium	125	U	2.3	125
Manganese	1.9	U	0.062	1.9
Sodium	125	U	12.5	125
Nickel	1.2	U	0.25	1.2
Lead	3.8	U	0.78	3.8
Antimony	4.1	U	1.3	4.1
Selenium	9.4	U	3.1	9.4
Thallium	3.8	U	0.88	3.8
Vanadium	1.2	U	0.25	1.2
Zinc	6.2	U	1.2	6.2

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Lab Control Sample - Batch: 220-47003

Method: 6010B
Preparation: 3050B

Lab Sample ID: LCS 220-47003/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/14/2011 1430
Date Prepared: 01/11/2011 1251

Analysis Batch: 220-47083
Prep Batch: 220-47003
Units: mg/Kg

Instrument ID: ICAP3
Lab File ID: 011411d.prn
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 250 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Silver	75.0	76.27	102	80 - 120	
Aluminum	833	817.9	98	80 - 120	
Arsenic	250	251.3	101	80 - 120	
Barium	75.0	76.63	102	80 - 120	
Beryllium	25.0	26.14	105	80 - 120	
Calcium	1670	1702	102	80 - 120	
Cadmium	75.0	76.55	102	80 - 120	
Cobalt	75.0	79.55	106	80 - 120	
Chromium	75.0	76.95	103	80 - 120	
Copper	75.0	79.46	106	80 - 120	
Iron	833	854.1	102	80 - 120	
Potassium	6670	6769	102	80 - 120	
Magnesium	1670	1698	102	80 - 120	
Manganese	50.0	50.34	101	80 - 120	
Sodium	7920	8128	103	80 - 120	
Nickel	75.0	79.80	106	80 - 120	
Lead	250	260.3	104	80 - 120	
Antimony	250	260.5	104	80 - 120	
Selenium	125	126.8	101	80 - 120	
Thallium	250	261.4	105	80 - 120	
Vanadium	75.0	75.67	101	80 - 120	
Zinc	75.0	82.59	110	80 - 120	

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Method Blank - Batch: 220-47030

Method: 7471A
Preparation: 7471A

Lab Sample ID: MB 220-47030/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/13/2011 1524
Date Prepared: 01/13/2011 1047

Analysis Batch: 220-47041
Prep Batch: 220-47030
Units: mg/Kg

Instrument ID: MERC1
Lab File ID: CV011311.TXT
Initial Weight/Volume: 0.60 g
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Mercury	0.050	U	0.0040	0.050

Lab Control Sample - Batch: 220-47030

Method: 7471A
Preparation: 7471A

Lab Sample ID: LCS 220-47030/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 01/13/2011 1525
Date Prepared: 01/13/2011 1047

Analysis Batch: 220-47041
Prep Batch: 220-47030
Units: mg/Kg

Instrument ID: MERC1
Lab File ID: CV011311.TXT
Initial Weight/Volume: 0.60 g
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.425	102	80 - 120	

DATA REPORTING QUALIFIERS

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.
	J	Indicates an estimated value.
	*	LCS or LCSD exceeds the control limits
	B	The analyte was found in an associated blank, as well as in the sample.
GC/MS Semi VOA		
	U	Analyzed for but not detected.
	J	Indicates an estimated value.
Metals		
	U	Indicates analyzed for but not detected.
	J	Sample result is greater than the MDL but below the CRDL

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:220-47038					
LCS 220-47038/2	Lab Control Sample	T	Solid	8260B	
MB 220-47038/3	Method Blank	T	Solid	8260B	
220-14512-1	SB-27-4-6	T	Solid	8260B	
GC/MS Semi VOA					
Prep Batch: 220-46975					
LCS 220-46975/2-A	Lab Control Sample	T	Solid	3541	
MB 220-46975/1-A	Method Blank	T	Solid	3541	
220-14512-1	SB-27-4-6	T	Solid	3541	
Analysis Batch:220-47076					
LCS 220-46975/2-A	Lab Control Sample	T	Solid	8270C	220-46975
MB 220-46975/1-A	Method Blank	T	Solid	8270C	220-46975
Analysis Batch:220-47151					
220-14512-1	SB-27-4-6	T	Solid	8270C	220-46975

Report Basis
T = Total

Report Basis
T = Total

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 220-47003					
LCS 220-47003/2-A	Lab Control Sample	T	Solid	3050B	
MB 220-47003/1-A	Method Blank	T	Solid	3050B	
220-14512-1	SB-27-4-6	T	Solid	3050B	
Prep Batch: 220-47030					
LCS 220-47030/2-A	Lab Control Sample	T	Solid	7471A	
MB 220-47030/1-A	Method Blank	T	Solid	7471A	
220-14512-1	SB-27-4-6	T	Solid	7471A	
Analysis Batch:220-47041					
LCS 220-47030/2-A	Lab Control Sample	T	Solid	7471A	220-47030
MB 220-47030/1-A	Method Blank	T	Solid	7471A	220-47030
220-14512-1	SB-27-4-6	T	Solid	7471A	220-47030
Analysis Batch:220-47083					
LCS 220-47003/2-A	Lab Control Sample	T	Solid	6010B	220-47003
220-14512-1	SB-27-4-6	T	Solid	6010B	220-47003
Analysis Batch:220-47180					
MB 220-47003/1-A	Method Blank	T	Solid	6010B	220-47003

Report Basis
T = Total

General Chemistry

Analysis Batch:220-47035					
220-14512-1	SB-27-4-6	T	Solid	Moisture	

Report Basis
T = Total

Client: Malcolm Pirnie, Inc. Job Number: 220-14512-1

Laboratory Chronicle

Lab ID: 220-14512-1 **Client ID: SB-27-4-6**

Sample Date/Time: 01/06/2011 11:25 Received Date/Time: 01/07/2011 09:44

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	220-14512-A-1		220-47038		01/11/2011 16:56	1	TAL CT	DH
A:8260B	220-14512-A-1		220-47038		01/11/2011 16:56	1	TAL CT	DH
P:3541	220-14512-B-1-A		220-47151	220-46975	01/11/2011 10:08	1	TAL CT	GHP
A:8270C	220-14512-B-1-A		220-47151	220-46975	01/17/2011 15:58	1	TAL CT	SJ
P:3050B	220-14512-B-1-B		220-47083	220-47003	01/11/2011 12:51	1	TAL CT	JFV
A:6010B	220-14512-B-1-B		220-47083	220-47003	01/14/2011 14:41	1	TAL CT	JFV
P:7471A	220-14512-B-1-C		220-47041	220-47030	01/13/2011 10:47	1	TAL CT	JFV
A:7471A	220-14512-B-1-C		220-47041	220-47030	01/13/2011 15:44	1	TAL CT	JFV
A:Moisture	220-14512-B-1		220-47035		01/13/2011 13:41	1	TAL CT	AB

Lab ID: MB **Client ID: N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	MB 220-47038/3		220-47038		01/11/2011 12:35	1	TAL CT	DH
A:8260B	MB 220-47038/3		220-47038		01/11/2011 12:35	1	TAL CT	DH
P:3541	MB 220-46975/1-A		220-47076	220-46975	01/11/2011 10:08	1	TAL CT	GHP
A:8270C	MB 220-46975/1-A		220-47076	220-46975	01/14/2011 15:05	1	TAL CT	SJ
P:3050B	MB 220-47003/1-A		220-47180	220-47003	01/11/2011 12:51	1	TAL CT	JFV
A:6010B	MB 220-47003/1-A		220-47180	220-47003	01/18/2011 09:48	1	TAL CT	NP
P:7471A	MB 220-47030/1-A		220-47041	220-47030	01/13/2011 10:47	1	TAL CT	JFV
A:7471A	MB 220-47030/1-A		220-47041	220-47030	01/13/2011 15:24	1	TAL CT	JFV

Lab ID: LCS **Client ID: N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	LCS 220-47038/2		220-47038		01/11/2011 10:55	1	TAL CT	DH
A:8260B	LCS 220-47038/2		220-47038		01/11/2011 10:55	1	TAL CT	DH
P:3541	LCS 220-46975/2-A		220-47076	220-46975	01/11/2011 10:08	1	TAL CT	GHP
A:8270C	LCS 220-46975/2-A		220-47076	220-46975	01/14/2011 15:33	1	TAL CT	SJ
P:3050B	LCS 220-47003/2-A		220-47083	220-47003	01/11/2011 12:51	1	TAL CT	JFV
A:6010B	LCS 220-47003/2-A		220-47083	220-47003	01/14/2011 14:30	1	TAL CT	JFV
P:7471A	LCS 220-47030/2-A		220-47041	220-47030	01/13/2011 10:47	1	TAL CT	JFV
A:7471A	LCS 220-47030/2-A		220-47041	220-47030	01/13/2011 15:25	1	TAL CT	JFV

Lab References:
TAL CT = TestAmerica Connecticut

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 220-14824-1

Job Description: NYSDEC Standby - Tioga Castings

For:
Malcolm Pirnie, Inc.
855 Route 146
Suite 210
Clifton Park, NY 12065

Attention: Mr. Bruce Nelson

Approved for release.
Joan Widomski
Project Manager I
3/14/2011 1:10 PM

Designee for
Johanna Dubauskas
Project Manager II
johanna.dubauskas@testamericainc.com
03/14/2011

TestAmerica Connecticut Certifications and Approvals: CTDOH PH-047, MADEP CT023, RIDOH A43, NYDOH 10602, NY NELAP 10602, NHDES 2528, NJDEP CT410, ME DOH CT023, UT DOH 2032614458

TestAmerica Laboratories, Inc.
TestAmerica Connecticut 128 Long Hill Cross Road, Shelton, CT 06484
Tel (203) 929-8140 Fax (203) 929-8142 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Job Number: 220-14824-1

Job Description: NYSDEC Standby - Tioga Castings

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed within the body of this report. Release of the data contained in this sample data package and in the electronic data deliverable has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Approved for release.
Joan Widomski
Project Manager I
3/14/2011 1:10 PM

Designee for
Johanna Dubauskas

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Comments
No additional comments.

Receipt
The following field QC sample was received at the laboratory without a sample collection time documented on the chain of custody: Trip Blank (220-14824-11). As a result, a sample collection time of 12:00am, on the date of collection, has been used.

All other samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

FORMULAS FOR NYSDEC SAMPLE CALCULATIONS

Volatiles

(Ax)(IS)(DF)
(AIS)(RRF)(V)(% solids) = C

(AX)(IS)(VT)(1000)(DF)
(AIS)(RRF)(VA)(V)(% solids) = C (for medium level soils)

SemiVolatiles

(AX)(IS)(VE)(DF)(GPC factor is 2 if needed)
(AIS)(RRF)(volume injected)(V)(% solids) = C

Pesticides

(AX)(VE)(DF)
(RRF)(V)(% solids)(volume injected) = C

PCBs for compound/retention time

(AX)(VE)(DF)
(RRF of compound at the stated retention time)(V)(% solids)(volume injected) = C

DRO/CTETPH

(AX)(VE)(DF)
(RRF)(V)(% solids)(volume injected) = C

AX = area of the target Ion
AIS = Area of Internal standard
C = concentration as ug/L or ug/Kg
DF = dilution
IS = Internal standard concentration (ng)
RRF = average RF (from initial cal except CLP methods from continuing cal)
V = sample volume for liquids in mls or sample weight for solids in grams
VA = volume of aliquot for medium level soils
VE = volume of concentrated extract
VT = volume of methanol for volatile medium level soils

SAMPLE SUMMARY

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
220-14824-1	MW-6	Water	02/28/2011 0945	03/01/2011 1000
220-14824-1MS	MW-6	Water	02/28/2011 0945	03/01/2011 1000
220-14824-1MSD	MW-6	Water	02/28/2011 0945	03/01/2011 1000
220-14824-2	MW-7	Water	02/28/2011 1205	03/01/2011 1000
220-14824-3	MW-8	Water	02/28/2011 1425	03/01/2011 1000
220-14824-4	MW-3D	Water	02/28/2011 1540	03/01/2011 1000
220-14824-5	MW-1R	Water	02/28/2011 1035	03/01/2011 1000
220-14824-6	MW-2	Water	02/28/2011 1140	03/01/2011 1000
220-14824-7	MW-5	Water	02/28/2011 1405	03/01/2011 1000
220-14824-8	MW-3	Water	02/28/2011 1525	03/01/2011 1000
220-14824-9	MW-4	Water	02/28/2011 1630	03/01/2011 1000
220-14824-10	MW-X	Water	02/28/2011 1700	03/01/2011 1000
220-14824-11TB	Trip Blank	Water	02/28/2011 0000	03/01/2011 1000

EXECUTIVE SUMMARY - Detections

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
220-14824-1	**MW-6**					
Acetone		0.92	J B	2.0	ug/L	8260B
Methylene Chloride		0.15	J B	2.0	ug/L	8260B
Bis(2-ethylhexyl) phthalate		2.6	J B	4.3	ug/L	8270C
Aluminum		49.5	J	250	ug/L	6010B
Barium		53.1		5.0	ug/L	6010B
Calcium		54200		500	ug/L	6010B
Iron		98.8	J	125	ug/L	6010B
Potassium		2090		500	ug/L	6010B
Magnesium		9280		500	ug/L	6010B
Manganese		7.5	J	8.0	ug/L	6010B
Sodium		21900		500	ug/L	6010B
220-14824-2	**MW-7**					
Aluminum		162	J	250	ug/L	6010B
Barium		66.8		5.0	ug/L	6010B
Calcium		45200		500	ug/L	6010B
Chromium		0.81	J	5.0	ug/L	6010B
Copper		4.5	J	10.0	ug/L	6010B
Iron		457		125	ug/L	6010B
Potassium		3270		500	ug/L	6010B
Magnesium		7030		500	ug/L	6010B
Manganese		130		8.0	ug/L	6010B
Sodium		32700		500	ug/L	6010B
Nickel		1.1	J	5.0	ug/L	6010B
Lead		2.9	J	15.0	ug/L	6010B
Zinc		18.3	J	25.0	ug/L	6010B
220-14824-3	**MW-8**					
Aluminum		324		250	ug/L	6010B
Barium		67.0		5.0	ug/L	6010B
Calcium		50300		500	ug/L	6010B
Copper		1.6	J	10.0	ug/L	6010B
Iron		560		125	ug/L	6010B
Potassium		2630		500	ug/L	6010B
Magnesium		8430		500	ug/L	6010B
Manganese		28.9		8.0	ug/L	6010B
Sodium		21900		500	ug/L	6010B

EXECUTIVE SUMMARY - Detections

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
220-14824-4	**MW-3D**					
Barium		43.6		5.0	ug/L	6010B
Calcium		48600		500	ug/L	6010B
Iron		24.4	J	125	ug/L	6010B
Potassium		1260		500	ug/L	6010B
Magnesium		9120		500	ug/L	6010B
Manganese		1.2	J	8.0	ug/L	6010B
Sodium		15600		500	ug/L	6010B
220-14824-5	**MW-1R**					
Aluminum		37.7	J	250	ug/L	6010B
Barium		48.7		5.0	ug/L	6010B
Calcium		58700		500	ug/L	6010B
Iron		86.4	J	125	ug/L	6010B
Potassium		1570		500	ug/L	6010B
Magnesium		11500		500	ug/L	6010B
Manganese		11.3		8.0	ug/L	6010B
Sodium		23300		500	ug/L	6010B
220-14824-6	**MW-2**					
Barium		45.5		5.0	ug/L	6010B
Calcium		42400		500	ug/L	6010B
Potassium		4450		500	ug/L	6010B
Magnesium		6960		500	ug/L	6010B
Manganese		3.9	J	8.0	ug/L	6010B
Sodium		22000		500	ug/L	6010B
220-14824-7	**MW-5**					
Barium		52.0		5.0	ug/L	6010B
Calcium		43900		500	ug/L	6010B
Iron		52.9	J	125	ug/L	6010B
Potassium		3210		500	ug/L	6010B
Magnesium		7500		500	ug/L	6010B
Manganese		1.8	J	8.0	ug/L	6010B
Sodium		9080		500	ug/L	6010B

EXECUTIVE SUMMARY - Detections

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
220-14824-8	**MW-3**					
Barium		44.6		5.0	ug/L	6010B
Calcium		49800		500	ug/L	6010B
Potassium		1230		500	ug/L	6010B
Magnesium		9300		500	ug/L	6010B
Sodium		15200		500	ug/L	6010B
220-14824-9	**MW-4**					
Aluminum		26.6	J	250	ug/L	6010B
Barium		40.8		5.0	ug/L	6010B
Calcium		43100		500	ug/L	6010B
Cadmium		1.7	J	5.0	ug/L	6010B
Iron		57.3	J	125	ug/L	6010B
Potassium		1330		500	ug/L	6010B
Magnesium		8140		500	ug/L	6010B
Manganese		2.2	J	8.0	ug/L	6010B
Sodium		13900		500	ug/L	6010B
Nickel		1.5	J	5.0	ug/L	6010B
220-14824-10	**MW-X**					
Aluminum		46.0	J	250	ug/L	6010B
Barium		52.5		5.0	ug/L	6010B
Calcium		53500		500	ug/L	6010B
Iron		95.1	J	125	ug/L	6010B
Potassium		1960		500	ug/L	6010B
Magnesium		9240		500	ug/L	6010B
Manganese		5.6	J	8.0	ug/L	6010B
Sodium		23500		500	ug/L	6010B
Nickel		1.1	J	5.0	ug/L	6010B
220-14824-11TB	**TRIP BLANK**					
Acetone		0.78	J B	2.0	ug/L	8260B
Carbon disulfide		2.3		0.50	ug/L	8260B
Methylene Chloride		1.5	J B	2.0	ug/L	8260B

METHOD SUMMARY

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL CT	SW846 8260B	
Purge and Trap	TAL CT		SW846 5030B
Semivolatile Organic Compounds (GC/MS)	TAL CT	SW846 8270C	
Liquid-Liquid Extraction (Separatory Funnel)	TAL CT		SW846 3510C
Metals (ICP)	TAL CT	SW846 6010B	
Preparation, Total Metals	TAL CT		SW846 3010A
Mercury (CVAA)	TAL CT	SW846 7470A	
Preparation, Mercury	TAL CT		SW846 7470A

Lab References:

TAL CT = TestAmerica Connecticut

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Method	Analyst	Analyst ID
SW846 8260B	Kostrzewska, Barbara	BK
SW846 8270C	Jonas, Stephan	SJ
SW846 6010B	Voytek, Joseph F	JFV
SW846 7470A	Voytek, Joseph F	JFV

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-6

Lab Sample ID: 220-14824-1 Date Sampled: 02/28/2011 0945
Client Matrix: Water Date Received: 03/01/2011 1000

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B Analysis Batch: 220-48387 Instrument ID: MSW
Preparation: 5030B Lab File ID: W9671.D
Dilution: 1.0 Initial Weight/Volume: 5 mL
Date Analyzed: 03/01/2011 1717 Final Weight/Volume: 5 mL
Date Prepared: 03/01/2011 1717

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	0.92	J B	0.58	2.0
Benzene	0.50	U	0.14	0.50
Bromodichloromethane	0.50	U	0.078	0.50
Bromoform	0.50	U	0.13	0.50
Bromomethane	1.0	U	0.21	1.0
Methyl Ethyl Ketone	2.0	U	0.32	2.0
Carbon disulfide	0.50	U	0.077	0.50
Carbon tetrachloride	0.50	U	0.10	0.50
Chlorobenzene	0.50	U	0.057	0.50
Chloroethane	1.0	U	0.15	1.0
Chloroform	0.50	U	0.12	0.50
Chloromethane	0.50	U	0.20	0.50
Dibromochloromethane	0.50	U	0.088	0.50
1,1-Dichloroethane	0.50	U	0.13	0.50
1,2-Dichloroethane	0.50	U	0.12	0.50
1,1-Dichloroethene	0.50	U	0.19	0.50
cis-1,2-Dichloroethene	0.50	U	0.21	0.50
trans-1,2-Dichloroethene	0.50	U	0.24	0.50
1,2-Dichloropropane	0.50	U	0.11	0.50
cis-1,3-Dichloropropene	0.50	U	0.13	0.50
trans-1,3-Dichloropropene	0.50	U	0.19	0.50
Ethylbenzene	0.50	U	0.14	0.50
2-Hexanone	2.0	U	0.51	2.0
Methylene Chloride	0.15	J B	0.091	2.0
methyl isobutyl ketone	2.0	U	0.30	2.0
Styrene	0.50	U	0.17	0.50
1,1,2,2-Tetrachloroethane	0.50	U	0.15	0.50
Tetrachloroethene	0.50	U	0.11	0.50
Toluene	0.50	U	0.18	0.50
1,1,1-Trichloroethane	0.50	U	0.16	0.50
1,1,2-Trichloroethane	0.50	U	0.11	0.50
Trichloroethene	0.50	U	0.11	0.50
Vinyl chloride	0.50	U	0.14	0.50
Xylenes, Total	1.0	U	0.30	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	93		57 - 121
4-Bromofluorobenzene	84		57 - 121
Dibromofluoromethane	98		67 - 133
Toluene-d8 (Surr)	91		62 - 121

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: Trip Blank

Lab Sample ID: 220-14824-11TB Date Sampled: 02/28/2011 0000
Client Matrix: Water Date Received: 03/01/2011 1000

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B Analysis Batch: 220-48387 Instrument ID: MSW
Preparation: 5030B Lab File ID: W9669.D
Dilution: 1.0 Initial Weight/Volume: 5 mL
Date Analyzed: 03/01/2011 1627 Final Weight/Volume: 5 mL
Date Prepared: 03/01/2011 1627

Analyte	Result (ug/L)	Qualifier	MDL	RL
Acetone	0.78	J B	0.58	2.0
Benzene	0.50	U	0.14	0.50
Bromodichloromethane	0.50	U	0.078	0.50
Bromoform	0.50	U	0.13	0.50
Bromomethane	1.0	U	0.21	1.0
Methyl Ethyl Ketone	2.0	U	0.32	2.0
Carbon disulfide	2.3		0.077	0.50
Carbon tetrachloride	0.50	U	0.10	0.50
Chlorobenzene	0.50	U	0.057	0.50
Chloroethane	1.0	U	0.15	1.0
Chloroform	0.50	U	0.12	0.50
Chloromethane	0.50	U	0.20	0.50
Dibromochloromethane	0.50	U	0.088	0.50
1,1-Dichloroethane	0.50	U	0.13	0.50
1,2-Dichloroethane	0.50	U	0.12	0.50
1,1-Dichloroethene	0.50	U	0.19	0.50
cis-1,2-Dichloroethene	0.50	U	0.21	0.50
trans-1,2-Dichloroethene	0.50	U	0.24	0.50
1,2-Dichloropropane	0.50	U	0.11	0.50
cis-1,3-Dichloropropene	0.50	U	0.13	0.50
trans-1,3-Dichloropropene	0.50	U	0.19	0.50
Ethylbenzene	0.50	U	0.14	0.50
2-Hexanone	2.0	U	0.51	2.0
Methylene Chloride	1.5	J B	0.091	2.0
methyl isobutyl ketone	2.0	U	0.30	2.0
Styrene	0.50	U	0.17	0.50
1,1,2,2-Tetrachloroethane	0.50	U	0.15	0.50
Tetrachloroethene	0.50	U	0.11	0.50
Toluene	0.50	U	0.18	0.50
1,1,1-Trichloroethane	0.50	U	0.16	0.50
1,1,2-Trichloroethane	0.50	U	0.11	0.50
Trichloroethene	0.50	U	0.11	0.50
Vinyl chloride	0.50	U	0.14	0.50
Xylenes, Total	1.0	U	0.30	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	90		57 - 121
4-Bromofluorobenzene	82		57 - 121
Dibromofluoromethane	96		67 - 133
Toluene-d8 (Surr)	93		62 - 121

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-6

Lab Sample ID: 220-14824-1 Date Sampled: 02/28/2011 0945
Client Matrix: Water Date Received: 03/01/2011 1000

8270C Semivolatile Organic Compounds (GC/MS)

Method:	8270C	Analysis Batch: 220-48486		Instrument ID:	MSC
Preparation:	3510C	Prep Batch: 220-48399		Lab File ID:	C22019.D
Dilution:	1.0			Initial Weight/Volume:	930 mL
Date Analyzed:	03/03/2011 1619			Final Weight/Volume:	1 mL
Date Prepared:	03/02/2011 0941			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Phenol	4.3	U	0.20	4.3
Bis(2-chloroethyl)ether	4.3	U	0.31	4.3
2-Chlorophenol	4.3	U	0.25	4.3
1,3-Dichlorobenzene	4.3	U	0.27	4.3
1,4-Dichlorobenzene	4.3	U	0.33	4.3
Benzyl alcohol	4.3	U	0.44	4.3
1,2-Dichlorobenzene	4.3	U	0.33	4.3
2,2'-oxybis[1-chloropropane]	4.3	U	0.27	4.3
2-Methylphenol	4.3	U	0.26	4.3
Hexachloroethane	4.3	U	0.40	4.3
N-Nitrosodi-n-propylamine	4.3	U	0.35	4.3
Methylphenol, 3 & 4	4.3	U	0.31	4.3
Nitrobenzene	4.3	U	0.30	4.3
Isophorone	4.3	U	0.33	4.3
2-Nitrophenol	4.3	U	0.29	4.3
2,4-Dimethylphenol	4.3	U	0.35	4.3
Bis(2-chloroethoxy)methane	4.3	U	0.33	4.3
2,4-Dichlorophenol	4.3	U	0.35	4.3
1,2,4-Trichlorobenzene	4.3	U	0.39	4.3
Naphthalene	4.3	U	0.32	4.3
4-Chloroaniline	4.3	U	0.31	4.3
Hexachlorobutadiene	4.3	U	0.22	4.3
4-Chloro-3-methylphenol	5.4	U	0.37	5.4
2-Methylnaphthalene	4.3	U	0.29	4.3
Hexachlorocyclopentadiene	4.3	U	0.38	4.3
2,4,6-Trichlorophenol	4.3	U	0.40	4.3
2,4,5-Trichlorophenol	11	U	0.30	11
2-Chloronaphthalene	4.3	U	0.42	4.3
2-Nitroaniline	4.3	U	0.37	4.3
Acenaphthylene	4.3	U	0.37	4.3
Dimethyl phthalate	4.3	U	0.41	4.3
2,6-Dinitrotoluene	4.3	U	0.28	4.3
Acenaphthene	4.3	U	0.33	4.3
3-Nitroaniline	4.3	U	0.25	4.3
2,4-Dinitrophenol	27	U	0.46	27
Dibenzofuran	4.3	U	0.46	4.3
2,4-Dinitrotoluene	4.3	U	0.43	4.3
4-Nitrophenol	11	U	1.6	11
Fluorene	4.3	U	0.28	4.3
4-Chlorophenyl phenyl ether	4.3	U	0.38	4.3
Diethyl phthalate	4.3	U	0.46	4.3
4-Nitroaniline	4.3	U	0.22	4.3
4,6-Dinitro-2-methylphenol	27	U	2.0	27
N-Nitrosodiphenylamine	4.3	U	0.35	4.3
4-Bromophenyl phenyl ether	4.3	U	0.47	4.3
Hexachlorobenzene	4.3	U	0.35	4.3

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-6

Lab Sample ID: 220-14824-1 Date Sampled: 02/28/2011 0945
Client Matrix: Water Date Received: 03/01/2011 1000

8270C Semivolatile Organic Compounds (GC/MS)

Method:	8270C	Analysis Batch: 220-48486		Instrument ID:	MSC
Preparation:	3510C	Prep Batch: 220-48399		Lab File ID:	C22019.D
Dilution:	1.0			Initial Weight/Volume:	930 mL
Date Analyzed:	03/03/2011 1619			Final Weight/Volume:	1 mL
Date Prepared:	03/02/2011 0941			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Pentachlorophenol	27	U	0.33	27
Phenanthrene	4.3	U	0.30	4.3
Carbazole	4.3	U	0.35	4.3
Anthracene	4.3	U	0.31	4.3
Di-n-butyl phthalate	4.3	U	0.38	4.3
Fluoranthene	4.3	U	0.33	4.3
Pyrene	4.3	U	0.35	4.3
Butyl benzyl phthalate	4.3	U	0.38	4.3
3,3'-Dichlorobenzidine	4.3	U	0.39	4.3
Benzo[a]anthracene	4.3	U	0.32	4.3
Chrysene	4.3	U	0.27	4.3
Bis(2-ethylhexyl) phthalate	2.6	J B	0.58	4.3
Di-n-octyl phthalate	4.3	U	0.41	4.3
Benzo[b]fluoranthene	4.3	U	0.39	4.3
Benzo[k]fluoranthene	4.3	U	0.43	4.3
Benzo[a]pyrene	4.3	U	0.38	4.3
Indeno[1,2,3-cd]pyrene	4.3	U	0.30	4.3
Dibenz(a,h)anthracene	4.3	U	0.41	4.3
Benzo[g,h,i]perylene	4.3	U	0.39	4.3

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorophenol	47		13 - 120
Phenol-d5	33		10 - 120
Nitrobenzene-d5	74		40 - 120
2-Fluorobiphenyl	74		39 - 120
2,4,6-Tribromophenol	81		36 - 120
Terphenyl-d14	72		10 - 120

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-6

Lab Sample ID: 220-14824-1 Date Sampled: 02/28/2011 0945
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 220-48568		Instrument ID:	ICAP3
Preparation:	3010A	Prep Batch: 220-48458		Lab File ID:	030811d.prn
Dilution:	1.0			Initial Weight/Volume:	100 mL
Date Analyzed:	03/08/2011 1125			Final Weight/Volume:	50 mL
Date Prepared:	03/03/2011 1214				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	49.5	J	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	53.1		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	54200		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	98.8	J	15.0	125
Potassium	2090		50.0	500
Magnesium	9280		5.0	500
Manganese	7.5	J	0.25	8.0
Sodium	21900		50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 220-48543		Instrument ID:	MERC1
Preparation:	7470A	Prep Batch: 220-48534		Lab File ID:	CV030711.TXT
Dilution:	1.0			Initial Weight/Volume:	25 mL
Date Analyzed:	03/07/2011 1450			Final Weight/Volume:	50 mL
Date Prepared:	03/07/2011 1028				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-7

Lab Sample ID: 220-14824-2 Date Sampled: 02/28/2011 1205
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 220-48568		Instrument ID:	ICAP3
Preparation:	3010A	Prep Batch: 220-48458		Lab File ID:	030811d.prn
Dilution:	1.0			Initial Weight/Volume:	100 mL
Date Analyzed:	03/08/2011 1143			Final Weight/Volume:	50 mL
Date Prepared:	03/03/2011 1214				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	162	J	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	66.8		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	45200		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	0.81	J	0.50	5.0
Copper	4.5	J	1.5	10.0
Iron	457		15.0	125
Potassium	3270		50.0	500
Magnesium	7030		5.0	500
Manganese	130		0.25	8.0
Sodium	32700		50.0	500
Nickel	1.1	J	1.0	5.0
Lead	2.9	J	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	18.3	J	5.0	25.0

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 220-48543		Instrument ID:	MERC1
Preparation:	7470A	Prep Batch: 220-48534		Lab File ID:	CV030711.TXT
Dilution:	1.0			Initial Weight/Volume:	25 mL
Date Analyzed:	03/07/2011 1455			Final Weight/Volume:	50 mL
Date Prepared:	03/07/2011 1028				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-8

Lab Sample ID: 220-14824-3 Date Sampled: 02/28/2011 1425
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method: 6010B Analysis Batch: 220-48568 Instrument ID: ICAP3
Preparation: 3010A Prep Batch: 220-48458 Lab File ID: 030811d.prn
Dilution: 1.0 Initial Weight/Volume: 100 mL
Date Analyzed: 03/08/2011 1146 Final Weight/Volume: 50 mL
Date Prepared: 03/03/2011 1214

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	324		10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	67.0		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	50300		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	1.6	J	1.5	10.0
Iron	560		15.0	125
Potassium	2630		50.0	500
Magnesium	8430		5.0	500
Manganese	28.9		0.25	8.0
Sodium	21900		50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method: 7470A Analysis Batch: 220-48543 Instrument ID: MERC1
Preparation: 7470A Prep Batch: 220-48534 Lab File ID: CV030711.TXT
Dilution: 1.0 Initial Weight/Volume: 25 mL
Date Analyzed: 03/07/2011 1456 Final Weight/Volume: 50 mL
Date Prepared: 03/07/2011 1028

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-3D

Lab Sample ID: 220-14824-4 Date Sampled: 02/28/2011 1540
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 220-48568		Instrument ID:	ICAP3
Preparation:	3010A	Prep Batch: 220-48458		Lab File ID:	030811d.prn
Dilution:	1.0			Initial Weight/Volume:	100 mL
Date Analyzed:	03/08/2011 1200			Final Weight/Volume:	50 mL
Date Prepared:	03/03/2011 1214				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	250	U	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	43.6		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	48600		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	24.4	J	15.0	125
Potassium	1260		50.0	500
Magnesium	9120		5.0	500
Manganese	1.2	J	0.25	8.0
Sodium	15600		50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 220-48543		Instrument ID:	MERC1
Preparation:	7470A	Prep Batch: 220-48534		Lab File ID:	CV030711.TXT
Dilution:	1.0			Initial Weight/Volume:	25 mL
Date Analyzed:	03/07/2011 1457			Final Weight/Volume:	50 mL
Date Prepared:	03/07/2011 1028				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-1R

Lab Sample ID: 220-14824-5 Date Sampled: 02/28/2011 1035
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 220-48568		Instrument ID:	ICAP3
Preparation:	3010A	Prep Batch: 220-48458		Lab File ID:	030811d.prn
Dilution:	1.0			Initial Weight/Volume:	100 mL
Date Analyzed:	03/08/2011 1203			Final Weight/Volume:	50 mL
Date Prepared:	03/03/2011 1214				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	37.7	J	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	48.7		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	58700		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	86.4	J	15.0	125
Potassium	1570		50.0	500
Magnesium	11500		5.0	500
Manganese	11.3		0.25	8.0
Sodium	23300		50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 220-48543		Instrument ID:	MERC1
Preparation:	7470A	Prep Batch: 220-48534		Lab File ID:	CV030711.TXT
Dilution:	1.0			Initial Weight/Volume:	25 mL
Date Analyzed:	03/07/2011 1457			Final Weight/Volume:	50 mL
Date Prepared:	03/07/2011 1028				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-2

Lab Sample ID: 220-14824-6 Date Sampled: 02/28/2011 1140
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method: 6010B Analysis Batch: 220-48568 Instrument ID: ICAP3
Preparation: 3010A Prep Batch: 220-48458 Lab File ID: 030811d.prn
Dilution: 1.0 Initial Weight/Volume: 100 mL
Date Analyzed: 03/08/2011 1206 Final Weight/Volume: 50 mL
Date Prepared: 03/03/2011 1214

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	250	U	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	45.5		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	42400		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	125	U	15.0	125
Potassium	4450		50.0	500
Magnesium	6960		5.0	500
Manganese	3.9	J	0.25	8.0
Sodium	22000		50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method: 7470A Analysis Batch: 220-48543 Instrument ID: MERC1
Preparation: 7470A Prep Batch: 220-48534 Lab File ID: CV030711.TXT
Dilution: 1.0 Initial Weight/Volume: 25 mL
Date Analyzed: 03/07/2011 1458 Final Weight/Volume: 50 mL
Date Prepared: 03/07/2011 1028

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-5

Lab Sample ID: 220-14824-7 Date Sampled: 02/28/2011 1405
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method:	6010B	Analysis Batch: 220-48568		Instrument ID:	ICAP3
Preparation:	3010A	Prep Batch: 220-48458		Lab File ID:	030811d.prn
Dilution:	1.0			Initial Weight/Volume:	100 mL
Date Analyzed:	03/08/2011 1209			Final Weight/Volume:	50 mL
Date Prepared:	03/03/2011 1214				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	250	U	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	52.0		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	43900		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	52.9	J	15.0	125
Potassium	3210		50.0	500
Magnesium	7500		5.0	500
Manganese	1.8	J	0.25	8.0
Sodium	9080		50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method:	7470A	Analysis Batch: 220-48543		Instrument ID:	MERC1
Preparation:	7470A	Prep Batch: 220-48534		Lab File ID:	CV030711.TXT
Dilution:	1.0			Initial Weight/Volume:	25 mL
Date Analyzed:	03/07/2011 1459			Final Weight/Volume:	50 mL
Date Prepared:	03/07/2011 1028				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-3

Lab Sample ID: 220-14824-8 Date Sampled: 02/28/2011 1525
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method: 6010B Analysis Batch: 220-48568 Instrument ID: ICAP3
Preparation: 3010A Prep Batch: 220-48458 Lab File ID: 030811d.prn
Dilution: 1.0 Initial Weight/Volume: 100 mL
Date Analyzed: 03/08/2011 1212 Final Weight/Volume: 50 mL
Date Prepared: 03/03/2011 1214

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	250	U	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	44.6		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	49800		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	125	U	15.0	125
Potassium	1230		50.0	500
Magnesium	9300		5.0	500
Manganese	8.0	U	0.25	8.0
Sodium	15200		50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method: 7470A Analysis Batch: 220-48543 Instrument ID: MERC1
Preparation: 7470A Prep Batch: 220-48534 Lab File ID: CV030711.TXT
Dilution: 1.0 Initial Weight/Volume: 25 mL
Date Analyzed: 03/07/2011 1502 Final Weight/Volume: 50 mL
Date Prepared: 03/07/2011 1028

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-4

Lab Sample ID: 220-14824-9 Date Sampled: 02/28/2011 1630
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method: 6010B Analysis Batch: 220-48568 Instrument ID: ICAP3
Preparation: 3010A Prep Batch: 220-48458 Lab File ID: 030811d.prn
Dilution: 1.0 Initial Weight/Volume: 100 mL
Date Analyzed: 03/08/2011 1216 Final Weight/Volume: 50 mL
Date Prepared: 03/03/2011 1214

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	26.6	J	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	40.8		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	43100		50.0	500
Cadmium	1.7	J	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	57.3	J	15.0	125
Potassium	1330		50.0	500
Magnesium	8140		5.0	500
Manganese	2.2	J	0.25	8.0
Sodium	13900		50.0	500
Nickel	1.5	J	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method: 7470A Analysis Batch: 220-48543 Instrument ID: MERC1
Preparation: 7470A Prep Batch: 220-48534 Lab File ID: CV030711.TXT
Dilution: 1.0 Initial Weight/Volume: 25 mL
Date Analyzed: 03/07/2011 1503 Final Weight/Volume: 50 mL
Date Prepared: 03/07/2011 1028

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Client Sample ID: MW-X

Lab Sample ID: 220-14824-10 Date Sampled: 02/28/2011 1700
Client Matrix: Water Date Received: 03/01/2011 1000

6010B Metals (ICP)

Method: 6010B Analysis Batch: 220-48568 Instrument ID: ICAP3
Preparation: 3010A Prep Batch: 220-48458 Lab File ID: 030811d.prn
Dilution: 1.0 Initial Weight/Volume: 100 mL
Date Analyzed: 03/08/2011 1219 Final Weight/Volume: 50 mL
Date Prepared: 03/03/2011 1214

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	46.0	J	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	52.5		0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	53500		50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	95.1	J	15.0	125
Potassium	1960		50.0	500
Magnesium	9240		5.0	500
Manganese	5.6	J	0.25	8.0
Sodium	23500		50.0	500
Nickel	1.1	J	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

7470A Mercury (CVAA)

Method: 7470A Analysis Batch: 220-48543 Instrument ID: MERC1
Preparation: 7470A Prep Batch: 220-48534 Lab File ID: CV030711.TXT
Dilution: 1.0 Initial Weight/Volume: 25 mL
Date Analyzed: 03/07/2011 1504 Final Weight/Volume: 50 mL
Date Prepared: 03/07/2011 1028

Analyte	Result (ug/L)	Qualifier	MDL	RL
Mercury	0.20	U	0.060	0.20

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
220-14824-1	MW-6	98	93	91	84
220-14824-11	Trip Blank	96	90	93	82
MB 220-48387/3		101	95	93	83
LCS 220-48387/2		100	94	94	86
220-14824-1 MS	MW-6 MS	99	93	92	82
220-14824-1 MSD	MW-6 MSD	98	92	92	84

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane	67-133
DCA = 1,2-Dichloroethane-d4 (Surr)	57-121
TOL = Toluene-d8 (Surr)	62-121
BFB = 4-Bromofluorobenzene	57-121

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Surrogate Recovery Report

8270C Semivolatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	2FP %Rec	PHL %Rec	NBZ %Rec	FBP %Rec	TBP %Rec	TPH %Rec
220-14824-1	MW-6	47	33	74	74	81	72
MB 220-48399/1-A		42	28	66	65	73	70
LCS 220-48399/2-A		47	32	74	73	80	77
220-14824-1 MS	MW-6 MS	49	34	75	74	83	77
220-14824-1 MSD	MW-6 MSD	51	36	79	77	87	78

Surrogate	Acceptance Limits
2FP = 2-Fluorophenol	13-120
PHL = Phenol-d5	10-120
NBZ = Nitrobenzene-d5	40-120
FBP = 2-Fluorobiphenyl	39-120
TBP = 2,4,6-Tribromophenol	36-120
TPH = Terphenyl-d14	10-120

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Method Blank - Batch: 220-48387

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 220-48387/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/01/2011 1245
Date Prepared: 03/01/2011 1245

Analysis Batch: 220-48387
Prep Batch: N/A
Units: ug/L

Instrument ID: MSW
Lab File ID: W9660.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result	Qual	MDL	RL
Acetone	2.90		0.58	2.0
Benzene	0.50	U	0.14	0.50
Bromodichloromethane	0.50	U	0.078	0.50
Bromoform	0.50	U	0.13	0.50
Bromomethane	1.0	U	0.21	1.0
Methyl Ethyl Ketone	2.0	U	0.32	2.0
Carbon disulfide	0.50	U	0.077	0.50
Carbon tetrachloride	0.50	U	0.10	0.50
Chlorobenzene	0.50	U	0.057	0.50
Chloroethane	1.0	U	0.15	1.0
Chloroform	0.50	U	0.12	0.50
Chloromethane	0.50	U	0.20	0.50
Dibromochloromethane	0.50	U	0.088	0.50
1,1-Dichloroethane	0.50	U	0.13	0.50
1,2-Dichloroethane	0.50	U	0.12	0.50
1,1-Dichloroethene	0.50	U	0.19	0.50
cis-1,2-Dichloroethene	0.50	U	0.21	0.50
trans-1,2-Dichloroethene	0.50	U	0.24	0.50
1,2-Dichloropropane	0.50	U	0.11	0.50
cis-1,3-Dichloropropene	0.50	U	0.13	0.50
trans-1,3-Dichloropropene	0.50	U	0.19	0.50
Ethylbenzene	0.50	U	0.14	0.50
2-Hexanone	2.0	U	0.51	2.0
Methylene Chloride	1.76	J	0.091	2.0
methyl isobutyl ketone	2.0	U	0.30	2.0
Styrene	0.50	U	0.17	0.50
1,1,2,2-Tetrachloroethane	0.50	U	0.15	0.50
Tetrachloroethene	0.50	U	0.11	0.50
Toluene	0.50	U	0.18	0.50
1,1,1-Trichloroethane	0.50	U	0.16	0.50
1,1,2-Trichloroethane	0.50	U	0.11	0.50
Trichloroethene	0.50	U	0.11	0.50
Vinyl chloride	0.50	U	0.14	0.50
Xylenes, Total	1.0	U	0.30	1.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	95	57 - 121
4-Bromofluorobenzene	83	57 - 121
Dibromofluoromethane	101	67 - 133
Toluene-d8 (Surr)	93	62 - 121

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Control Sample - Batch: 220-48387

Method: 8260B
Preparation: 5030B

Lab Sample ID: LCS 220-48387/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/01/2011 1127
Date Prepared: 03/01/2011 1127

Analysis Batch: 220-48387
Prep Batch: N/A
Units: ug/L

Instrument ID: MSW
Lab File ID: W9657.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acetone	10.0	12.2	122	33 - 150	
Benzene	10.0	10.3	103	72 - 123	
Bromodichloromethane	10.0	10.2	102	71 - 128	
Bromoform	10.0	9.40	94	66 - 120	
Bromomethane	10.0	10.7	107	35 - 150	
Methyl Ethyl Ketone	10.0	10.1	101	30 - 150	
Carbon disulfide	10.0	9.43	94	51 - 140	
Carbon tetrachloride	10.0	10.7	107	67 - 134	
Chlorobenzene	10.0	9.58	96	68 - 120	
Chloroethane	10.0	12.5	125	35 - 150	
Chloroform	10.0	10.2	102	72 - 131	
Chloromethane	10.0	10.8	108	30 - 150	
Dibromochloromethane	10.0	9.69	97	66 - 120	
1,1-Dichloroethane	10.0	9.97	100	74 - 127	
1,2-Dichloroethane	10.0	9.69	97	64 - 136	
1,1-Dichloroethene	10.0	10.3	103	70 - 134	
cis-1,2-Dichloroethene	10.0	10.4	104	70 - 120	
trans-1,2-Dichloroethene	10.0	10.4	104	63 - 120	
1,2-Dichloropropane	10.0	10.1	101	71 - 120	
cis-1,3-Dichloropropene	10.0	10.6	106	66 - 120	
trans-1,3-Dichloropropene	10.0	10.7	107	70 - 120	
Ethylbenzene	10.0	9.72	97	63 - 120	
2-Hexanone	10.0	9.70	97	29 - 150	
Methylene Chloride	10.0	9.14	91	47 - 150	
methyl isobutyl ketone	10.0	9.12	91	52 - 137	
Styrene	10.0	9.32	93	52 - 120	
1,1,2,2-Tetrachloroethane	10.0	9.78	98	62 - 129	
Tetrachloroethene	10.0	9.88	99	55 - 120	
Toluene	10.0	9.67	97	64 - 120	
1,1,1-Trichloroethane	10.0	11.6	116	70 - 134	
1,1,2-Trichloroethane	10.0	10.8	108	73 - 126	
Trichloroethene	10.0	10.6	106	66 - 120	
Vinyl chloride	10.0	12.8	128	48 - 150	
Xylenes, Total	30.0	29.3	98	61 - 120	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	94	57 - 121
4-Bromofluorobenzene	86	57 - 121
Dibromofluoromethane	100	67 - 133
Toluene-d8 (Surr)	94	62 - 121

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48387

Method: 8260B
Preparation: 5030B

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/01/2011 1742
Date Prepared: 03/01/2011 1742

Analysis Batch: 220-48387
Prep Batch: N/A

Instrument ID: MSW
Lab File ID: W9672.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/01/2011 1807
Date Prepared: 03/01/2011 1807

Analysis Batch: 220-48387
Prep Batch: N/A

Instrument ID: MSW
Lab File ID: W9673.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acetone	78	73	33 - 150	7	20		
Benzene	105	99	72 - 123	6	20		
Bromodichloromethane	107	100	71 - 128	7	20		
Bromoform	104	95	66 - 120	10	20		
Bromomethane	64	73	35 - 150	14	20		
Methyl Ethyl Ketone	87	82	30 - 150	6	20		
Carbon disulfide	89	85	51 - 140	5	20		
Carbon tetrachloride	111	105	67 - 134	5	20		
Chlorobenzene	99	94	68 - 120	5	20		
Chloroethane	118	127	35 - 150	7	20		
Chloroform	105	97	72 - 131	7	20		
Chloromethane	97	107	30 - 150	10	20		
Dibromochloromethane	101	94	66 - 120	8	20		
1,1-Dichloroethane	105	99	74 - 127	6	20		
1,2-Dichloroethane	101	95	64 - 136	7	20		
1,1-Dichloroethene	101	97	70 - 134	4	20		
cis-1,2-Dichloroethene	106	97	70 - 120	8	20		
trans-1,2-Dichloroethene	103	99	63 - 120	4	20		
1,2-Dichloropropane	105	99	71 - 120	5	20		
cis-1,3-Dichloropropene	108	101	66 - 120	6	20		
trans-1,3-Dichloropropene	109	104	70 - 120	5	20		
Ethylbenzene	104	97	63 - 120	6	20		
2-Hexanone	91	84	29 - 150	8	20		
Methylene Chloride	79	75	47 - 150	5	20		
methyl isobutyl ketone	91	85	52 - 137	6	20		
Styrene	98	92	52 - 120	6	20		
1,1,2,2-Tetrachloroethane	100	94	62 - 129	6	20		
Tetrachloroethene	102	95	55 - 120	7	20		
Toluene	99	93	64 - 120	6	20		
1,1,1-Trichloroethane	118	111	70 - 134	6	20		
1,1,2-Trichloroethane	113	108	73 - 126	5	20		
Trichloroethene	110	104	66 - 120	6	20		

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48387

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	220-14824-1	Analysis Batch:	220-48387	Instrument ID:	MSW
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	W9672.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Date Analyzed:	03/01/2011 1742			Final Weight/Volume:	5 mL
Date Prepared:	03/01/2011 1742				

MSD Lab Sample ID:	220-14824-1	Analysis Batch:	220-48387	Instrument ID:	MSW
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	W9673.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Date Analyzed:	03/01/2011 1807			Final Weight/Volume:	5 mL
Date Prepared:	03/01/2011 1807				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Vinyl chloride	121	130	48 - 150	7	20		
Xylenes, Total	101	96	61 - 120	5	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	93	92	57 - 121
4-Bromofluorobenzene	82	84	57 - 121
Dibromofluoromethane	99	98	67 - 133
Toluene-d8 (Surr)	92	92	62 - 121

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48387

Method: 8260B
Preparation: 5030B

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/01/2011 1742
Date Prepared: 03/01/2011 1742

Units: ug/L

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/01/2011 1807
Date Prepared: 03/01/2011 1807

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Acetone	0.92	J	20.0	20.0	16.6	15.4
Benzene	0.50	U	20.0	20.0	21.1	19.9
Bromodichloromethane	0.50	U	20.0	20.0	21.4	20.1
Bromoform	0.50	U	20.0	20.0	20.8	18.9
Bromomethane	1.0	U	20.0	20.0	12.7	14.7
Methyl Ethyl Ketone	2.0	U	20.0	20.0	17.4	16.3
Carbon disulfide	0.50	U	20.0	20.0	17.9	17.0
Carbon tetrachloride	0.50	U	20.0	20.0	22.2	21.0
Chlorobenzene	0.50	U	20.0	20.0	19.9	18.8
Chloroethane	1.0	U	20.0	20.0	23.5	25.3
Chloroform	0.50	U	20.0	20.0	21.0	19.5
Chloromethane	0.50	U	20.0	20.0	19.3	21.3
Dibromochloromethane	0.50	U	20.0	20.0	20.2	18.7
1,1-Dichloroethane	0.50	U	20.0	20.0	21.1	19.8
1,2-Dichloroethane	0.50	U	20.0	20.0	20.2	18.9
1,1-Dichloroethene	0.50	U	20.0	20.0	20.1	19.3
cis-1,2-Dichloroethene	0.50	U	20.0	20.0	21.1	19.5
trans-1,2-Dichloroethene	0.50	U	20.0	20.0	20.6	19.7
1,2-Dichloropropane	0.50	U	20.0	20.0	20.9	19.8
cis-1,3-Dichloropropene	0.50	U	20.0	20.0	21.5	20.2
trans-1,3-Dichloropropene	0.50	U	20.0	20.0	21.8	20.8
Ethylbenzene	0.50	U	20.0	20.0	20.7	19.5
2-Hexanone	2.0	U	20.0	20.0	18.1	16.7
Methylene Chloride	0.15	J	20.0	20.0	16.0	15.2
methyl isobutyl ketone	2.0	U	20.0	20.0	18.2	17.1
Styrene	0.50	U	20.0	20.0	19.6	18.4
1,1,2,2-Tetrachloroethane	0.50	U	20.0	20.0	19.9	18.8
Tetrachloroethene	0.50	U	20.0	20.0	20.4	19.1
Toluene	0.50	U	20.0	20.0	19.8	18.6
1,1,1-Trichloroethane	0.50	U	20.0	20.0	23.6	22.3
1,1,2-Trichloroethane	0.50	U	20.0	20.0	22.7	21.6
Trichloroethene	0.50	U	20.0	20.0	22.0	20.8
Vinyl chloride	0.50	U	20.0	20.0	24.2	26.0
Xylenes, Total	1.0	U	60.0	60.0	60.8	57.6

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Method Blank - Batch: 220-48399

Method: 8270C
Preparation: 3510C

Lab Sample ID: MB 220-48399/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1347
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399
Units: ug/L

Instrument ID: MSC
Lab File ID: C22014.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	Result	Qual	MDL	RL
Phenol	4.0	U	0.19	4.0
Bis(2-chloroethyl)ether	4.0	U	0.29	4.0
2-Chlorophenol	4.0	U	0.23	4.0
1,3-Dichlorobenzene	4.0	U	0.25	4.0
1,4-Dichlorobenzene	4.0	U	0.31	4.0
Benzyl alcohol	4.0	U	0.41	4.0
1,2-Dichlorobenzene	4.0	U	0.31	4.0
2,2'-oxybis[1-chloropropane]	4.0	U	0.25	4.0
2-Methylphenol	4.0	U	0.24	4.0
Hexachloroethane	4.0	U	0.37	4.0
N-Nitrosodi-n-propylamine	4.0	U	0.33	4.0
Methylphenol, 3 & 4	4.0	U	0.29	4.0
Nitrobenzene	4.0	U	0.28	4.0
Isophorone	4.0	U	0.31	4.0
2-Nitrophenol	4.0	U	0.27	4.0
2,4-Dimethylphenol	4.0	U	0.33	4.0
Bis(2-chloroethoxy)methane	4.0	U	0.31	4.0
2,4-Dichlorophenol	4.0	U	0.33	4.0
1,2,4-Trichlorobenzene	4.0	U	0.36	4.0
Naphthalene	4.0	U	0.30	4.0
4-Chloroaniline	4.0	U	0.29	4.0
Hexachlorobutadiene	4.0	U	0.20	4.0
4-Chloro-3-methylphenol	5.0	U	0.34	5.0
2-Methylnaphthalene	4.0	U	0.27	4.0
Hexachlorocyclopentadiene	4.0	U	0.35	4.0
2,4,6-Trichlorophenol	4.0	U	0.37	4.0
2,4,5-Trichlorophenol	10	U	0.28	10
2-Chloronaphthalene	4.0	U	0.39	4.0
2-Nitroaniline	4.0	U	0.34	4.0
Acenaphthylene	4.0	U	0.34	4.0
Dimethyl phthalate	4.0	U	0.38	4.0
2,6-Dinitrotoluene	4.0	U	0.26	4.0
Acenaphthene	4.0	U	0.31	4.0
3-Nitroaniline	4.0	U	0.23	4.0
2,4-Dinitrophenol	25	U	0.43	25
Dibenzofuran	4.0	U	0.43	4.0
2,4-Dinitrotoluene	4.0	U	0.40	4.0
4-Nitrophenol	10	U	1.4	10
Fluorene	4.0	U	0.26	4.0
4-Chlorophenyl phenyl ether	4.0	U	0.35	4.0
Diethyl phthalate	4.0	U	0.43	4.0
4-Nitroaniline	4.0	U	0.20	4.0
4,6-Dinitro-2-methylphenol	25	U	1.9	25

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Method Blank - Batch: 220-48399

Method: 8270C
Preparation: 3510C

Lab Sample ID: MB 220-48399/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1347
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399
Units: ug/L

Instrument ID: MSC
Lab File ID: C22014.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	Result	Qual	MDL	RL
N-Nitrosodiphenylamine	4.0	U	0.33	4.0
4-Bromophenyl phenyl ether	4.0	U	0.44	4.0
Hexachlorobenzene	4.0	U	0.33	4.0
Pentachlorophenol	25	U	0.31	25
Phenanthrene	4.0	U	0.28	4.0
Carbazole	4.0	U	0.33	4.0
Anthracene	4.0	U	0.29	4.0
Di-n-butyl phthalate	4.0	U	0.35	4.0
Fluoranthene	4.0	U	0.31	4.0
Pyrene	4.0	U	0.33	4.0
Butyl benzyl phthalate	4.0	U	0.35	4.0
3,3'-Dichlorobenzidine	4.0	U	0.36	4.0
Benzo[a]anthracene	4.0	U	0.30	4.0
Chrysene	4.0	U	0.25	4.0
Bis(2-ethylhexyl) phthalate	2.45	J	0.54	4.0
Di-n-octyl phthalate	4.0	U	0.38	4.0
Benzo[b]fluoranthene	4.0	U	0.36	4.0
Benzo[k]fluoranthene	4.0	U	0.40	4.0
Benzo[a]pyrene	4.0	U	0.35	4.0
Indeno[1,2,3-cd]pyrene	4.0	U	0.28	4.0
Dibenz(a,h)anthracene	4.0	U	0.38	4.0
Benzo[g,h,i]perylene	4.0	U	0.36	4.0

Surrogate	% Rec	Acceptance Limits
2-Fluorophenol	42	13 - 120
Phenol-d5	28	10 - 120
Nitrobenzene-d5	66	40 - 120
2-Fluorobiphenyl	65	39 - 120
2,4,6-Tribromophenol	73	36 - 120
Terphenyl-d14	70	10 - 120

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Control Sample - Batch: 220-48399

Method: 8270C
Preparation: 3510C

Lab Sample ID: LCS 220-48399/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1417
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399
Units: ug/L

Instrument ID: MSC
Lab File ID: C22015.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Phenol	40.0	13.5	34	10 - 120	
Bis(2-chloroethyl)ether	40.0	27.3	68	46 - 120	
2-Chlorophenol	40.0	28.7	72	18 - 120	
1,3-Dichlorobenzene	40.0	24.4	61	33 - 120	
1,4-Dichlorobenzene	40.0	24.8	62	34 - 120	
Benzyl alcohol	40.0	22.3	56	31 - 120	
1,2-Dichlorobenzene	40.0	25.5	64	35 - 120	
2,2'-oxybis[1-chloropropane]	40.0	28.7	72	45 - 120	
2-Methylphenol	40.0	26.4	66	25 - 120	
Hexachloroethane	40.0	24.4	61	29 - 120	
N-Nitrosodi-n-propylamine	40.0	29.9	75	49 - 120	
Methylphenol, 3 & 4	80.0	52.5	66	21 - 120	
Nitrobenzene	40.0	29.7	74	46 - 120	
Isophorone	40.0	30.5	76	47 - 120	
2-Nitrophenol	40.0	31.2	78	36 - 120	
2,4-Dimethylphenol	40.0	28.3	71	26 - 120	
Bis(2-chloroethoxy)methane	40.0	30.2	76	48 - 120	
2,4-Dichlorophenol	40.0	30.5	76	18 - 120	
1,2,4-Trichlorobenzene	40.0	27.0	67	37 - 120	
Naphthalene	40.0	29.0	73	42 - 120	
4-Chloroaniline	40.0	26.8	67	33 - 120	
Hexachlorobutadiene	40.0	26.2	65	30 - 120	
4-Chloro-3-methylphenol	40.0	30.9	77	32 - 120	
2-Methylnaphthalene	40.0	29.4	74	44 - 120	
Hexachlorocyclopentadiene	40.0	27.7	69	15 - 120	
2,4,6-Trichlorophenol	40.0	31.4	79	18 - 125	
2,4,5-Trichlorophenol	40.0	31.3	78	23 - 123	
2-Chloronaphthalene	40.0	31.7	79	46 - 120	
2-Nitroaniline	40.0	32.0	80	57 - 120	
Acenaphthylene	40.0	31.1	78	52 - 120	
Dimethyl phthalate	40.0	31.1	78	49 - 120	
2,6-Dinitrotoluene	40.0	33.1	83	63 - 120	
Acenaphthene	40.0	31.4	78	52 - 120	
3-Nitroaniline	40.0	29.8	74	54 - 120	
2,4-Dinitrophenol	40.0	32.3	81	17 - 128	
Dibenzofuran	40.0	31.2	78	56 - 120	
2,4-Dinitrotoluene	40.0	32.7	82	46 - 124	
4-Nitrophenol	40.0	15.5	39	12 - 120	
Fluorene	40.0	32.1	80	61 - 120	
4-Chlorophenyl phenyl ether	40.0	31.6	79	58 - 120	
Diethyl phthalate	40.0	32.6	81	57 - 120	
4-Nitroaniline	40.0	29.7	74	54 - 120	
4,6-Dinitro-2-methylphenol	40.0	34.8	87	50 - 120	
N-Nitrosodiphenylamine	40.0	33.4	83	62 - 120	

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Control Sample - Batch: 220-48399

Method: 8270C
Preparation: 3510C

Lab Sample ID: LCS 220-48399/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1417
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399
Units: ug/L

Instrument ID: MSC
Lab File ID: C22015.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
4-Bromophenyl phenyl ether	40.0	32.2	80	60 - 120	
Hexachlorobenzene	40.0	32.2	80	59 - 120	
Pentachlorophenol	40.0	35.6	89	50 - 120	
Phenanthrene	40.0	33.2	83	63 - 120	
Carbazole	40.0	32.3	81	62 - 120	
Anthracene	40.0	33.0	83	60 - 120	
Di-n-butyl phthalate	40.0	35.0	87	61 - 120	
Fluoranthene	40.0	34.8	87	56 - 120	
Pyrene	40.0	32.2	81	62 - 120	
Butyl benzyl phthalate	40.0	33.4	84	53 - 122	
3,3'-Dichlorobenzidine	40.0	17.8	45	39 - 120	
Benzo[a]anthracene	40.0	34.2	85	60 - 120	
Chrysene	40.0	35.3	88	59 - 120	
Bis(2-ethylhexyl) phthalate	40.0	32.0	80	57 - 120	
Di-n-octyl phthalate	40.0	29.2	73	57 - 120	
Benzo[b]fluoranthene	40.0	34.2	86	59 - 120	
Benzo[k]fluoranthene	40.0	34.6	86	58 - 120	
Benzo[a]pyrene	40.0	35.2	88	51 - 120	
Indeno[1,2,3-cd]pyrene	40.0	33.2	83	48 - 120	
Dibenz(a,h)anthracene	40.0	34.1	85	47 - 120	
Benzo[g,h,i]perylene	40.0	33.7	84	48 - 120	

Surrogate	% Rec	Acceptance Limits
2-Fluorophenol	47	13 - 120
Phenol-d5	32	10 - 120
Nitrobenzene-d5	74	40 - 120
2-Fluorobiphenyl	73	39 - 120
2,4,6-Tribromophenol	80	36 - 120
Terphenyl-d14	77	10 - 120

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48399

Method: 8270C
Preparation: 3510C

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1649
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399

Instrument ID: MSC
Lab File ID: C22020.D
Initial Weight/Volume: 930 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1719
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399

Instrument ID: MSC
Lab File ID: C22021.D
Initial Weight/Volume: 920 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Phenol	36	38	10 - 120	7	42		
Bis(2-chloroethyl)ether	69	74	46 - 120	9	30		
2-Chlorophenol	75	75	18 - 120	2	40		
1,3-Dichlorobenzene	69	68	33 - 120	1	30		
1,4-Dichlorobenzene	68	68	34 - 120	0	28		
Benzyl alcohol	58	58	31 - 120	0	30		
1,2-Dichlorobenzene	69	70	35 - 120	2	30		
2,2'-oxybis[1-chloropropane]	75	77	45 - 120	4	30		
2-Methylphenol	66	71	25 - 120	8	30		
Hexachloroethane	69	67	29 - 120	1	30		
N-Nitrosodi-n-propylamine	77	80	49 - 120	5	38		
Methylphenol, 3 & 4	65	69	21 - 120	8	30		
Nitrobenzene	81	82	46 - 120	2	30		
Isophorone	79	82	47 - 120	5	30		
2-Nitrophenol	81	83	36 - 120	3	30		
2,4-Dimethylphenol	73	76	26 - 120	5	30		
Bis(2-chloroethoxy)methane	78	81	48 - 120	5	30		
2,4-Dichlorophenol	79	82	18 - 120	4	30		
1,2,4-Trichlorobenzene	75	75	37 - 120	2	28		
Naphthalene	78	79	42 - 120	3	30		
4-Chloroaniline	67	68	33 - 120	3	30		
Hexachlorobutadiene	73	74	30 - 120	2	30		
4-Chloro-3-methylphenol	80	82	32 - 120	4	42		
2-Methylnaphthalene	78	80	44 - 120	5	30		
Hexachlorocyclopentadiene	79	78	15 - 120	1	30		
2,4,6-Trichlorophenol	81	84	18 - 125	4	30		
2,4,5-Trichlorophenol	81	83	23 - 123	4	30		
2-Chloronaphthalene	84	86	46 - 120	3	30		
2-Nitroaniline	83	86	57 - 120	4	30		
Acenaphthylene	82	84	52 - 120	4	30		
Dimethyl phthalate	80	82	49 - 120	3	30		
2,6-Dinitrotoluene	87	90	63 - 120	4	30		

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48399

Method: 8270C
Preparation: 3510C

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1649
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399

Instrument ID: MSC
Lab File ID: C22020.D
Initial Weight/Volume: 930 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1719
Date Prepared: 03/02/2011 0941

Analysis Batch: 220-48486
Prep Batch: 220-48399

Instrument ID: MSC
Lab File ID: C22021.D
Initial Weight/Volume: 920 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	81	83	52 - 120	3	31		
3-Nitroaniline	75	75	54 - 120	1	30		
2,4-Dinitrophenol	80	86	17 - 128	9	30		
Dibenzofuran	81	83	56 - 120	4	30		
2,4-Dinitrotoluene	86	86	46 - 124	1	38		
4-Nitrophenol	43	45	12 - 120	5	50		
Fluorene	84	85	61 - 120	3	30		
4-Chlorophenyl phenyl ether	83	84	58 - 120	3	30		
Diethyl phthalate	85	87	57 - 120	3	30		
4-Nitroaniline	83	84	54 - 120	3	30		
4,6-Dinitro-2-methylphenol	88	90	50 - 120	4	30		
N-Nitrosodiphenylamine	84	86	62 - 120	4	30		
4-Bromophenyl phenyl ether	84	84	60 - 120	2	30		
Hexachlorobenzene	83	84	59 - 120	2	30		
Pentachlorophenol	93	97	50 - 120	6	50		
Phenanthrene	84	85	63 - 120	2	30		
Carbazole	84	85	62 - 120	2	30		
Anthracene	83	86	60 - 120	5	30		
Di-n-butyl phthalate	90	91	61 - 120	2	30		
Fluoranthene	88	89	56 - 120	2	30		
Pyrene	83	84	62 - 120	2	31		
Butyl benzyl phthalate	90	90	53 - 122	1	30		
3,3'-Dichlorobenzidine	70	70	39 - 120	1	30		
Benzo[a]anthracene	88	89	60 - 120	2	30		
Chrysene	92	92	59 - 120	1	30		
Bis(2-ethylhexyl) phthalate	79	81	57 - 120	3	30		
Di-n-octyl phthalate	76	80	57 - 120	6	30		
Benzo[b]fluoranthene	91	90	59 - 120	1	30		
Benzo[k]fluoranthene	87	90	58 - 120	4	30		
Benzo[a]pyrene	92	92	51 - 120	1	30		
Indeno[1,2,3-cd]pyrene	85	87	48 - 120	3	30		
Dibenz(a,h)anthracene	86	90	47 - 120	5	30		

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48399

Method: 8270C
Preparation: 3510C

MS Lab Sample ID:	220-14824-1	Analysis Batch:	220-48486	Instrument ID:	MSC
Client Matrix:	Water	Prep Batch:	220-48399	Lab File ID:	C22020.D
Dilution:	1.0			Initial Weight/Volume:	930 mL
Date Analyzed:	03/03/2011 1649			Final Weight/Volume:	1 mL
Date Prepared:	03/02/2011 0941			Injection Volume:	1 uL

MSD Lab Sample ID:	220-14824-1	Analysis Batch:	220-48486	Instrument ID:	MSC
Client Matrix:	Water	Prep Batch:	220-48399	Lab File ID:	C22021.D
Dilution:	1.0			Initial Weight/Volume:	920 mL
Date Analyzed:	03/03/2011 1719			Final Weight/Volume:	1 mL
Date Prepared:	03/02/2011 0941			Injection Volume:	1 uL

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Benzo[g,h,i]perylene	88	89	48 - 120	2	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorophenol	49	51	13 - 120
Phenol-d5	34	36	10 - 120
Nitrobenzene-d5	75	79	40 - 120
2-Fluorobiphenyl	74	77	39 - 120
2,4,6-Tribromophenol	83	87	36 - 120
Terphenyl-d14	77	78	10 - 120

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48399

Method: 8270C
Preparation: 3510C

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1649
Date Prepared: 03/02/2011 0941

Units: ug/L

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1719
Date Prepared: 03/02/2011 0941

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Phenol	4.3	U	43.0	43.5	15.4	16.6
Bis(2-chloroethyl)ether	4.3	U	43.0	43.5	29.5	32.2
2-Chlorophenol	4.3	U	43.0	43.5	32.1	32.7
1,3-Dichlorobenzene	4.3	U	43.0	43.5	29.5	29.4
1,4-Dichlorobenzene	4.3	U	43.0	43.5	29.4	29.5
Benzyl alcohol	4.3	U	43.0	43.5	24.9	25.0
1,2-Dichlorobenzene	4.3	U	43.0	43.5	29.7	30.3
2,2'-oxybis[1-chloropropane]	4.3	U	43.0	43.5	32.1	33.5
2-Methylphenol	4.3	U	43.0	43.5	28.4	30.8
Hexachloroethane	4.3	U	43.0	43.5	29.7	29.3
N-Nitrosodi-n-propylamine	4.3	U	43.0	43.5	33.2	35.0
Methylphenol, 3 & 4	4.3	U	86.0	87.0	56.0	60.4
Nitrobenzene	4.3	U	43.0	43.5	34.7	35.5
Isophorone	4.3	U	43.0	43.5	33.8	35.6
2-Nitrophenol	4.3	U	43.0	43.5	34.7	35.9
2,4-Dimethylphenol	4.3	U	43.0	43.5	31.5	33.2
Bis(2-chloroethoxy)methane	4.3	U	43.0	43.5	33.3	35.1
2,4-Dichlorophenol	4.3	U	43.0	43.5	34.2	35.6
1,2,4-Trichlorobenzene	4.3	U	43.0	43.5	32.1	32.5
Naphthalene	4.3	U	43.0	43.5	33.5	34.4
4-Chloroaniline	4.3	U	43.0	43.5	28.7	29.5
Hexachlorobutadiene	4.3	U	43.0	43.5	31.5	32.0
4-Chloro-3-methylphenol	5.4	U	43.0	43.5	34.3	35.7
2-Methylnaphthalene	4.3	U	43.0	43.5	33.4	35.0
Hexachlorocyclopentadiene	4.3	U	43.0	43.5	34.2	33.8
2,4,6-Trichlorophenol	4.3	U	43.0	43.5	35.0	36.4
2,4,5-Trichlorophenol	11	U	43.0	43.5	34.8	36.0
2-Chloronaphthalene	4.3	U	43.0	43.5	36.2	37.3
2-Nitroaniline	4.3	U	43.0	43.5	35.8	37.4
Acenaphthylene	4.3	U	43.0	43.5	35.1	36.6
Dimethyl phthalate	4.3	U	43.0	43.5	34.5	35.7
2,6-Dinitrotoluene	4.3	U	43.0	43.5	37.4	39.1
Acenaphthene	4.3	U	43.0	43.5	34.9	35.9
3-Nitroaniline	4.3	U	43.0	43.5	32.4	32.8
2,4-Dinitrophenol	27	U	43.0	43.5	34.3	37.5
Dibenzofuran	4.3	U	43.0	43.5	34.9	36.1
2,4-Dinitrotoluene	4.3	U	43.0	43.5	37.2	37.5
4-Nitrophenol	11	U	43.0	43.5	18.5	19.5
Fluorene	4.3	U	43.0	43.5	35.9	37.1
4-Chlorophenyl phenyl ether	4.3	U	43.0	43.5	35.7	36.6
Diethyl phthalate	4.3	U	43.0	43.5	36.8	37.8

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48399

Method: 8270C
Preparation: 3510C

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1649
Date Prepared: 03/02/2011 0941

Units: ug/L

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/03/2011 1719
Date Prepared: 03/02/2011 0941

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
4-Nitroaniline	4.3	U	43.0	43.5	35.5	36.5
4,6-Dinitro-2-methylphenol	27	U	43.0	43.5	37.8	39.3
N-Nitrosodiphenylamine	4.3	U	43.0	43.5	36.0	37.4
4-Bromophenyl phenyl ether	4.3	U	43.0	43.5	36.0	36.5
Hexachlorobenzene	4.3	U	43.0	43.5	35.7	36.4
Pentachlorophenol	27	U	43.0	43.5	39.8	42.3
Phenanthrene	4.3	U	43.0	43.5	36.2	37.1
Carbazole	4.3	U	43.0	43.5	36.3	37.0
Anthracene	4.3	U	43.0	43.5	35.8	37.5
Di-n-butyl phthalate	4.3	U	43.0	43.5	38.7	39.5
Fluoranthene	4.3	U	43.0	43.5	37.8	38.7
Pyrene	4.3	U	43.0	43.5	35.8	36.5
Butyl benzyl phthalate	4.3	U	43.0	43.5	38.5	38.9
3,3'-Dichlorobenzidine	4.3	U	43.0	43.5	30.2	30.6
Benzo[a]anthracene	4.3	U	43.0	43.5	37.9	38.7
Chrysene	4.3	U	43.0	43.5	39.4	39.8
Bis(2-ethylhexyl) phthalate	2.6	J	43.0	43.5	36.7	37.7
Di-n-octyl phthalate	4.3	U	43.0	43.5	32.9	35.0
Benzo[b]fluoranthene	4.3	U	43.0	43.5	38.9	39.2
Benzo[k]fluoranthene	4.3	U	43.0	43.5	37.4	39.0
Benzo[a]pyrene	4.3	U	43.0	43.5	39.5	39.9
Indeno[1,2,3-cd]pyrene	4.3	U	43.0	43.5	36.6	37.9
Dibenz(a,h)anthracene	4.3	U	43.0	43.5	37.0	39.1
Benzo[g,h,i]perylene	4.3	U	43.0	43.5	37.9	38.8

Client: Malcolm Pirnie, Inc.

Job Number: 220-14824-1

Method Blank - Batch: 220-48458

Method: 6010B
Preparation: 3010A

Lab Sample ID: MB 220-48458/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/08/2011 1122
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458
Units: ug/L

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Silver	5.0	U	0.25	5.0
Aluminum	250	U	10.0	250
Arsenic	15.0	U	4.0	15.0
Barium	5.0	U	0.25	5.0
Beryllium	5.0	U	0.25	5.0
Calcium	500	U	50.0	500
Cadmium	5.0	U	1.0	5.0
Cobalt	5.0	U	0.50	5.0
Chromium	5.0	U	0.50	5.0
Copper	10.0	U	1.5	10.0
Iron	125	U	15.0	125
Potassium	500	U	50.0	500
Magnesium	500	U	5.0	500
Manganese	8.0	U	0.25	8.0
Sodium	500	U	50.0	500
Nickel	5.0	U	1.0	5.0
Lead	15.0	U	2.5	15.0
Antimony	15.0	U	5.0	15.0
Selenium	38.0	U	12.5	38.0
Thallium	15.0	U	3.5	15.0
Vanadium	5.0	U	1.0	5.0
Zinc	25.0	U	5.0	25.0

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Control Sample - Batch: 220-48458

Method: 6010B
Preparation: 3010A

Lab Sample ID: LCS 220-48458/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/08/2011 1150
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458
Units: ug/L

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Silver	300	294.4	98	80 - 120	
Aluminum	3330	3372	101	80 - 120	
Arsenic	1000	1023	102	80 - 120	
Barium	300	302.2	101	80 - 120	
Beryllium	100	106.2	106	80 - 120	
Calcium	6670	6617	99	80 - 120	
Cadmium	300	307.1	102	80 - 120	
Cobalt	300	314.8	105	80 - 120	
Chromium	300	309.5	103	80 - 120	
Copper	300	316.6	106	80 - 120	
Iron	3330	3239	97	80 - 120	
Potassium	26700	26240	98	80 - 120	
Magnesium	16700	16560	99	80 - 120	
Manganese	200	206.3	103	80 - 120	
Sodium	31700	31150	98	80 - 120	
Nickel	300	319.0	106	80 - 120	
Lead	1000	1033	103	80 - 120	
Antimony	1000	1043	104	80 - 120	
Selenium	500	540.2	108	80 - 120	
Thallium	1000	1051	105	80 - 120	
Vanadium	300	297.9	99	80 - 120	
Zinc	300	315.4	105	80 - 120	

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Post Digestion Spike - Batch: 220-48458

Method: 6010B
Preparation: 3010A

Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/08/2011 1137
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458
Units: ug/L

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Silver	5.0	U	5.00	4.42	88	75 - 125	J
Aluminum	49.5	J	1720	1620	91	75 - 125	
Arsenic	15.0	U	100	94.67	95	75 - 125	
Barium	53.1		50.0	104.2	102	75 - 125	
Beryllium	5.0	U	50.0	51.75	103	75 - 125	
Cadmium	5.0	U	50.0	49.39	99	75 - 125	
Cobalt	5.0	U	50.0	49.21	98	75 - 125	
Chromium	5.0	U	50.0	48.92	98	75 - 125	
Copper	10.0	U	50.0	53.42	107	75 - 125	
Iron	98.8	J	1720	1549	84	75 - 125	
Potassium	2090		3330	5506	103	75 - 125	
Magnesium	9280		3330	12720	103	75 - 125	
Manganese	7.5	J	50.0	56.66	98	75 - 125	
Nickel	5.0	U	50.0	50.48	101	75 - 125	
Lead	15.0	U	50.0	44.05	88	75 - 125	
Antimony	15.0	U	150	145.1	97	75 - 125	
Selenium	38.0	U	150	137.1	91	75 - 125	
Thallium	15.0	U	150	154.3	103	75 - 125	
Vanadium	5.0	U	50.0	48.81	98	75 - 125	
Zinc	25.0	U	150	149.3	100	75 - 125	

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48458

Method: 6010B
Preparation: 3010A

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/08/2011 1131
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/08/2011 1134
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Silver	98	96	75 - 125	3	20		
Aluminum	104	99	75 - 125	5	20		
Arsenic	100	99	75 - 125	2	20		
Barium	102	96	75 - 125	3	20		
Beryllium	104	103	75 - 125	1	20		
Calcium	131	153	75 - 125	1	20	4	4
Cadmium	100	97	75 - 125	3	20		
Cobalt	101	98	75 - 125	3	20		
Chromium	101	97	75 - 125	4	20		
Copper	108	106	75 - 125	2	20		
Iron	96	105	75 - 125	9	20		
Potassium	103	98	75 - 125	4	20		
Magnesium	104	109	75 - 125	1	20		
Manganese	99	97	75 - 125	1	20		
Sodium	485	571	75 - 125	7	20	4	4
Nickel	102	98	75 - 125	4	20		
Lead	100	98	75 - 125	3	20		
Antimony	99	96	75 - 125	3	20		
Selenium	86	86	75 - 125	1	20		
Thallium	97	97	75 - 125	0	20		
Vanadium	99	96	75 - 125	3	20		
Zinc	93	91	75 - 125	3	20		

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48458

Method: 6010B
Preparation: 3010A

MS Lab Sample ID: 220-14824-1 Units: ug/L MSD Lab Sample ID: 220-14824-1
Client Matrix: Water Client Matrix: Water
Dilution: 1.0 Dilution: 1.0
Date Analyzed: 03/08/2011 1131 Date Analyzed: 03/08/2011 1134
Date Prepared: 03/03/2011 1214 Date Prepared: 03/03/2011 1214

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Silver	5.0	U	60.0	60.0	58.89		57.36	
Aluminum	49.5	J	1670	1670	1777		1697	
Arsenic	15.0	U	200	200	200.9		197.6	
Barium	53.1		60.0	60.0	114.4		110.9	
Beryllium	5.0	U	20.0	20.0	20.81		20.54	
Calcium	54200		3330	3330	58590	4	59320	4
Cadmium	5.0	U	60.0	60.0	60.23		58.34	
Cobalt	5.0	U	60.0	60.0	60.51		58.73	
Chromium	5.0	U	60.0	60.0	60.38		58.30	
Copper	10.0	U	60.0	60.0	65.02		63.60	
Iron	98.8	J	1670	1670	1700		1856	
Potassium	2090		7330	7330	9674		9279	
Magnesium	9280		3330	3330	12760		12920	
Manganese	7.5	J	40.0	40.0	46.88		46.22	
Sodium	21900		3330	3330	38060	4	40920	4
Nickel	5.0	U	60.0	60.0	61.38		58.88	
Lead	15.0	U	200	200	200.6		195.6	
Antimony	15.0	U	200	200	198.0		192.4	
Selenium	38.0	U	100	100	86.47		85.58	
Thallium	15.0	U	200	200	194.5		193.7	
Vanadium	5.0	U	60.0	60.0	59.37		57.81	
Zinc	25.0	U	60.0	60.0	55.98		54.50	

Duplicate - Batch: 220-48458

Method: 6010B
Preparation: 3010A

Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/08/2011 1128
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458
Units: ug/L

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Silver	5.0	U	5.0	NC	20	U
Aluminum	49.5	J	48.14	3	20	J
Arsenic	15.0	U	15.0	NC	20	U
Barium	53.1		52.59	1	20	
Beryllium	5.0	U	5.0	NC	20	U
Calcium	54200		54420	0.3	20	
Cadmium	5.0	U	5.0	NC	20	U
Cobalt	5.0	U	5.0	NC	20	U
Chromium	5.0	U	5.0	NC	20	U
Copper	10.0	U	10.0	NC	20	U
Iron	98.8	J	98.52	0.2	20	J
Potassium	2090		2046	2	20	
Magnesium	9280		9274	0.07	20	
Manganese	7.5	J	7.38	1	20	J
Sodium	21900		22090	1	20	
Nickel	5.0	U	5.0	NC	20	U
Lead	15.0	U	15.0	NC	20	U
Antimony	15.0	U	15.0	NC	20	U
Selenium	38.0	U	38.0	NC	20	U
Thallium	15.0	U	15.0	NC	20	U
Vanadium	5.0	U	5.0	NC	20	U
Zinc	25.0	U	25.0	NC	20	U

Serial Dilution - Batch: 220-48458

Method: 6010B
Preparation: 3010A

Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 03/08/2011 1140
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458
Units: ug/L

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Result	%Diff	Limit	Qual
Silver	5.0	U	25.0	NC	10	U
Aluminum	49.5	J	77.09	NC	10	J
Arsenic	15.0	U	75.0	NC	10	U
Barium	53.1		53.91	1.5	10	
Beryllium	5.0	U	25.0	NC	10	U

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Serial Dilution - Batch: 220-48458

Method: 6010B
Preparation: 3010A

Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 03/08/2011 1140
Date Prepared: 03/03/2011 1214

Analysis Batch: 220-48568
Prep Batch: 220-48458
Units: ug/L

Instrument ID: ICAP3
Lab File ID: 030811d.prn
Initial Weight/Volume: 100 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Result	%Diff	Limit	Qual
Calcium	54200		54380	0.28	10	
Cadmium	5.0	U	25.0	NC	10	U
Cobalt	5.0	U	25.0	NC	10	U
Chromium	5.0	U	25.0	NC	10	U
Copper	10.0	U	50.0	NC	10	U
Iron	98.8	J	99.81	NC	10	J
Potassium	2090		2016	NC	10	J
Magnesium	9280		9366	0.92	10	
Manganese	7.5	J	7.80	NC	10	J
Sodium	21900		22030	0.72	10	
Nickel	5.0	U	25.0	NC	10	U
Lead	15.0	U	75.0	NC	10	U
Antimony	15.0	U	75.0	NC	10	U
Selenium	38.0	U	190	NC	10	U
Thallium	15.0	U	75.0	NC	10	U
Vanadium	5.0	U	25.0	NC	10	U
Zinc	25.0	U	125	NC	10	U

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Method Blank - Batch: 220-48534

Method: 7470A
Preparation: 7470A

Lab Sample ID: MB 220-48534/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/07/2011 1438
Date Prepared: 03/07/2011 1028

Analysis Batch: 220-48543
Prep Batch: 220-48534
Units: ug/L

Instrument ID: MERC1
Lab File ID: CV030711.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Mercury	0.20	U	0.060	0.20

Lab Control Sample - Batch: 220-48534

Method: 7470A
Preparation: 7470A

Lab Sample ID: LCS 220-48534/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/07/2011 1438
Date Prepared: 03/07/2011 1028

Analysis Batch: 220-48543
Prep Batch: 220-48534
Units: ug/L

Instrument ID: MERC1
Lab File ID: CV030711.TXT
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	5.00	4.93	99	80 - 120	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48534

Method: 7470A
Preparation: 7470A

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/07/2011 1452
Date Prepared: 03/07/2011 1028

Analysis Batch: 220-48543
Prep Batch: 220-48534

Instrument ID: MERC1
Lab File ID: CV030711.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/07/2011 1453
Date Prepared: 03/07/2011 1028

Analysis Batch: 220-48543
Prep Batch: 220-48534

Instrument ID: MERC1
Lab File ID: CV030711.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 50 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Mercury	99	102	75 - 125	3	25		

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 220-48534

Method: 7470A
Preparation: 7470A

MS Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/07/2011 1452
Date Prepared: 03/07/2011 1028

Units: ug/L

MSD Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/07/2011 1453
Date Prepared: 03/07/2011 1028

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Mercury	0.20	U	2.00	2.00	1.99	2.04

Duplicate - Batch: 220-48534

Method: 7470A
Preparation: 7470A

Lab Sample ID: 220-14824-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/07/2011 1451
Date Prepared: 03/07/2011 1028

Analysis Batch: 220-48543
Prep Batch: 220-48534
Units: ug/L

Instrument ID: MERC1
Lab File ID: CV030711.TXT
Initial Weight/Volume: 25 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.20	U	0.20	NC	20	U

DATA REPORTING QUALIFIERS

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.
	J	Indicates an estimated value.
	B	The analyte was found in an associated blank, as well as in the sample.
GC/MS Semi VOA		
	U	Analyzed for but not detected.
	J	Indicates an estimated value.
	B	The analyte was found in an associated blank, as well as in the sample.
Metals		
	U	Indicates analyzed for but not detected.
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
	J	Sample result is greater than the MDL but below the CRDL

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:220-48387					
LCS 220-48387/2	Lab Control Sample	T	Water	8260B	
MB 220-48387/3	Method Blank	T	Water	8260B	
220-14824-1	MW-6	T	Water	8260B	
220-14824-1MS	Matrix Spike	T	Water	8260B	
220-14824-1MSD	Matrix Spike Duplicate	T	Water	8260B	
220-14824-11TB	Trip Blank	T	Water	8260B	

Report Basis
T = Total

GC/MS Semi VOA					
Prep Batch: 220-48399					
LCS 220-48399/2-A	Lab Control Sample	T	Water	3510C	
MB 220-48399/1-A	Method Blank	T	Water	3510C	
220-14824-1	MW-6	T	Water	3510C	
220-14824-1MS	Matrix Spike	T	Water	3510C	
220-14824-1MSD	Matrix Spike Duplicate	T	Water	3510C	
Analysis Batch:220-48486					
LCS 220-48399/2-A	Lab Control Sample	T	Water	8270C	220-48399
MB 220-48399/1-A	Method Blank	T	Water	8270C	220-48399
220-14824-1	MW-6	T	Water	8270C	220-48399
220-14824-1MS	Matrix Spike	T	Water	8270C	220-48399
220-14824-1MSD	Matrix Spike Duplicate	T	Water	8270C	220-48399

Report Basis
T = Total

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 220-48458					
LCS 220-48458/2-A	Lab Control Sample	T	Water	3010A	
MB 220-48458/1-A	Method Blank	T	Water	3010A	
220-14824-1	MW-6	T	Water	3010A	
220-14824-1DU	Duplicate	T	Water	3010A	
220-14824-1MS	Matrix Spike	T	Water	3010A	
220-14824-1MSD	Matrix Spike Duplicate	T	Water	3010A	
220-14824-2	MW-7	T	Water	3010A	
220-14824-3	MW-8	T	Water	3010A	
220-14824-4	MW-3D	T	Water	3010A	
220-14824-5	MW-1R	T	Water	3010A	
220-14824-6	MW-2	T	Water	3010A	
220-14824-7	MW-5	T	Water	3010A	
220-14824-8	MW-3	T	Water	3010A	
220-14824-9	MW-4	T	Water	3010A	
220-14824-10	MW-X	T	Water	3010A	
Prep Batch: 220-48534					
LCS 220-48534/2-A	Lab Control Sample	T	Water	7470A	
MB 220-48534/1-A	Method Blank	T	Water	7470A	
220-14824-1	MW-6	T	Water	7470A	
220-14824-1DU	Duplicate	T	Water	7470A	
220-14824-1MS	Matrix Spike	T	Water	7470A	
220-14824-1MSD	Matrix Spike Duplicate	T	Water	7470A	
220-14824-2	MW-7	T	Water	7470A	
220-14824-3	MW-8	T	Water	7470A	
220-14824-4	MW-3D	T	Water	7470A	
220-14824-5	MW-1R	T	Water	7470A	
220-14824-6	MW-2	T	Water	7470A	
220-14824-7	MW-5	T	Water	7470A	
220-14824-8	MW-3	T	Water	7470A	
220-14824-9	MW-4	T	Water	7470A	
220-14824-10	MW-X	T	Water	7470A	

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:220-48543					
LCS 220-48534/2-A	Lab Control Sample	T	Water	7470A	220-48534
MB 220-48534/1-A	Method Blank	T	Water	7470A	220-48534
220-14824-1	MW-6	T	Water	7470A	220-48534
220-14824-1DU	Duplicate	T	Water	7470A	220-48534
220-14824-1MS	Matrix Spike	T	Water	7470A	220-48534
220-14824-1MSD	Matrix Spike Duplicate	T	Water	7470A	220-48534
220-14824-2	MW-7	T	Water	7470A	220-48534
220-14824-3	MW-8	T	Water	7470A	220-48534
220-14824-4	MW-3D	T	Water	7470A	220-48534
220-14824-5	MW-1R	T	Water	7470A	220-48534
220-14824-6	MW-2	T	Water	7470A	220-48534
220-14824-7	MW-5	T	Water	7470A	220-48534
220-14824-8	MW-3	T	Water	7470A	220-48534
220-14824-9	MW-4	T	Water	7470A	220-48534
220-14824-10	MW-X	T	Water	7470A	220-48534
Analysis Batch:220-48568					
LCS 220-48458/2-A	Lab Control Sample	T	Water	6010B	220-48458
MB 220-48458/1-A	Method Blank	T	Water	6010B	220-48458
220-14824-1	MW-6	T	Water	6010B	220-48458
220-14824-1DU	Duplicate	T	Water	6010B	220-48458
220-14824-1MS	Matrix Spike	T	Water	6010B	220-48458
220-14824-1MSD	Matrix Spike Duplicate	T	Water	6010B	220-48458
220-14824-2	MW-7	T	Water	6010B	220-48458
220-14824-3	MW-8	T	Water	6010B	220-48458
220-14824-4	MW-3D	T	Water	6010B	220-48458
220-14824-5	MW-1R	T	Water	6010B	220-48458
220-14824-6	MW-2	T	Water	6010B	220-48458
220-14824-7	MW-5	T	Water	6010B	220-48458
220-14824-8	MW-3	T	Water	6010B	220-48458
220-14824-9	MW-4	T	Water	6010B	220-48458
220-14824-10	MW-X	T	Water	6010B	220-48458

Report Basis
T = Total

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Laboratory Chronicle

Lab ID: 220-14824-1 **Client ID: MW-6**

Sample Date/Time: 02/28/2011 09:45 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	220-14824-A-1		220-48387		03/01/2011 17:17	1	TAL CT	BK
A:8260B	220-14824-A-1		220-48387		03/01/2011 17:17	1	TAL CT	BK
P:3510C	220-14824-E-1-A		220-48486	220-48399	03/02/2011 09:41	1	TAL CT	GHP
A:8270C	220-14824-E-1-A		220-48486	220-48399	03/03/2011 16:19	1	TAL CT	SJ
P:3010A	220-14824-D-1-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-D-1-A		220-48568	220-48458	03/08/2011 11:25	1	TAL CT	JFV
P:7470A	220-14824-D-1-E		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-D-1-E		220-48543	220-48534	03/07/2011 14:50	1	TAL CT	JFV

Lab ID: 220-14824-1 **Client ID: MW-6**

Sample Date/Time: 02/28/2011 09:45 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	220-14824-B-1 MS		220-48387		03/01/2011 17:42	1	TAL CT	BK
A:8260B	220-14824-B-1 MS		220-48387		03/01/2011 17:42	1	TAL CT	BK
P:3510C	220-14824-E-1-B MS		220-48486	220-48399	03/02/2011 09:41	1	TAL CT	GHP
A:8270C	220-14824-E-1-B MS		220-48486	220-48399	03/03/2011 16:49	1	TAL CT	SJ
P:3010A	220-14824-D-1-C MS		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-D-1-C MS		220-48568	220-48458	03/08/2011 11:31	1	TAL CT	JFV
P:7470A	220-14824-D-1-G MS		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-D-1-G MS		220-48543	220-48534	03/07/2011 14:52	1	TAL CT	JFV

Lab ID: 220-14824-1 **Client ID: MW-6**

Sample Date/Time: 02/28/2011 09:45 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	220-14824-A-1 MSD		220-48387		03/01/2011 18:07	1	TAL CT	BK
A:8260B	220-14824-A-1 MSD		220-48387		03/01/2011 18:07	1	TAL CT	BK
P:3510C	220-14824-F-1-A MSD		220-48486	220-48399	03/02/2011 09:41	1	TAL CT	GHP
A:8270C	220-14824-F-1-A MSD		220-48486	220-48399	03/03/2011 17:19	1	TAL CT	SJ
P:3010A	220-14824-D-1-D MSD		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-D-1-D MSD		220-48568	220-48458	03/08/2011 11:34	1	TAL CT	JFV
P:7470A	220-14824-D-1-H MSD		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-D-1-H MSD		220-48543	220-48534	03/07/2011 14:53	1	TAL CT	JFV

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Laboratory Chronicle

Lab ID: 220-14824-1 DU **Client ID: MW-6**

Sample Date/Time: 02/28/2011 09:45 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-D-1-B DU		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-D-1-B DU		220-48568	220-48458	03/08/2011 11:28	1	TAL CT	JFV
P:7470A	220-14824-D-1-F DU		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-D-1-F DU		220-48543	220-48534	03/07/2011 14:51	1	TAL CT	JFV

Lab ID: 220-14824-1 PDS **Client ID: MW-6**

Sample Date/Time: 02/28/2011 09:45 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-D-1-A PDS		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-D-1-A PDS		220-48568	220-48458	03/08/2011 11:37	1	TAL CT	JFV
P:3010A	220-14824-D-1-A SD ^5		220-48568	220-48458	03/03/2011 12:14	5	TAL CT	JFV
A:6010B	220-14824-D-1-A SD ^5		220-48568	220-48458	03/08/2011 11:40	5	TAL CT	JFV

Lab ID: 220-14824-2 **Client ID: MW-7**

Sample Date/Time: 02/28/2011 12:05 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-D-2-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-D-2-A		220-48568	220-48458	03/08/2011 11:43	1	TAL CT	JFV
P:7470A	220-14824-D-2-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-D-2-B		220-48543	220-48534	03/07/2011 14:55	1	TAL CT	JFV

Lab ID: 220-14824-3 **Client ID: MW-8**

Sample Date/Time: 02/28/2011 14:25 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-A-3-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-A-3-A		220-48568	220-48458	03/08/2011 11:46	1	TAL CT	JFV
P:7470A	220-14824-A-3-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-A-3-B		220-48543	220-48534	03/07/2011 14:56	1	TAL CT	JFV

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Laboratory Chronicle

Lab ID: 220-14824-4 **Client ID: MW-3D**

Sample Date/Time: 02/28/2011 15:40 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-A-4-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-A-4-A		220-48568	220-48458	03/08/2011 12:00	1	TAL CT	JFV
P:7470A	220-14824-A-4-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-A-4-B		220-48543	220-48534	03/07/2011 14:57	1	TAL CT	JFV

Lab ID: 220-14824-5 **Client ID: MW-1R**

Sample Date/Time: 02/28/2011 10:35 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-A-5-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-A-5-A		220-48568	220-48458	03/08/2011 12:03	1	TAL CT	JFV
P:7470A	220-14824-A-5-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-A-5-B		220-48543	220-48534	03/07/2011 14:57	1	TAL CT	JFV

Lab ID: 220-14824-6 **Client ID: MW-2**

Sample Date/Time: 02/28/2011 11:40 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-A-6-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-A-6-A		220-48568	220-48458	03/08/2011 12:06	1	TAL CT	JFV
P:7470A	220-14824-A-6-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-A-6-B		220-48543	220-48534	03/07/2011 14:58	1	TAL CT	JFV

Lab ID: 220-14824-7 **Client ID: MW-5**

Sample Date/Time: 02/28/2011 14:05 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-A-7-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-A-7-A		220-48568	220-48458	03/08/2011 12:09	1	TAL CT	JFV
P:7470A	220-14824-A-7-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-A-7-B		220-48543	220-48534	03/07/2011 14:59	1	TAL CT	JFV

Lab ID: 220-14824-8 **Client ID: MW-3**

Sample Date/Time: 02/28/2011 15:25 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-A-8-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-A-8-A		220-48568	220-48458	03/08/2011 12:12	1	TAL CT	JFV
P:7470A	220-14824-A-8-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-A-8-B		220-48543	220-48534	03/07/2011 15:02	1	TAL CT	JFV

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Laboratory Chronicle

Lab ID: 220-14824-9 **Client ID: MW-4**

Sample Date/Time: 02/28/2011 16:30 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-A-9-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-A-9-A		220-48568	220-48458	03/08/2011 12:16	1	TAL CT	JFV
P:7470A	220-14824-A-9-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-A-9-B		220-48543	220-48534	03/07/2011 15:03	1	TAL CT	JFV

Lab ID: 220-14824-10 **Client ID: MW-X**

Sample Date/Time: 02/28/2011 17:00 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3010A	220-14824-D-10-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	220-14824-D-10-A		220-48568	220-48458	03/08/2011 12:19	1	TAL CT	JFV
P:7470A	220-14824-D-10-B		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	220-14824-D-10-B		220-48543	220-48534	03/07/2011 15:04	1	TAL CT	JFV

Lab ID: 220-14824-11 **Client ID: Trip Blank**

Sample Date/Time: 02/28/2011 00:00 Received Date/Time: 03/01/2011 10:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	220-14824-C-11		220-48387		03/01/2011 16:27	1	TAL CT	BK
A:8260B	220-14824-C-11		220-48387		03/01/2011 16:27	1	TAL CT	BK

Lab ID: MB **Client ID: N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	MB 220-48387/3		220-48387		03/01/2011 12:45	1	TAL CT	BK
A:8260B	MB 220-48387/3		220-48387		03/01/2011 12:45	1	TAL CT	BK
P:3510C	MB 220-48399/1-A		220-48486	220-48399	03/02/2011 09:41	1	TAL CT	GHP
A:8270C	MB 220-48399/1-A		220-48486	220-48399	03/03/2011 13:47	1	TAL CT	SJ
P:3010A	MB 220-48458/1-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	MB 220-48458/1-A		220-48568	220-48458	03/08/2011 11:22	1	TAL CT	JFV
P:7470A	MB 220-48534/1-A		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	MB 220-48534/1-A		220-48543	220-48534	03/07/2011 14:38	1	TAL CT	JFV

Client: Malcolm Pirnie, Inc. Job Number: 220-14824-1

Laboratory Chronicle

Lab ID: LCS **Client ID: N/A**

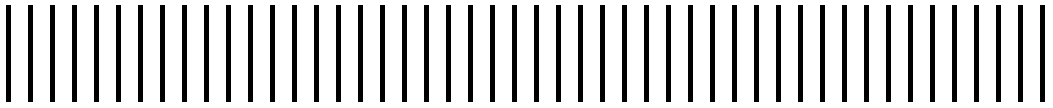
Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	LCS 220-48387/2		220-48387		03/01/2011 11:27	1	TAL CT	BK
A:8260B	LCS 220-48387/2		220-48387		03/01/2011 11:27	1	TAL CT	BK
P:3510C	LCS 220-48399/2-A		220-48486	220-48399	03/02/2011 09:41	1	TAL CT	GHP
A:8270C	LCS 220-48399/2-A		220-48486	220-48399	03/03/2011 14:17	1	TAL CT	SJ
P:3010A	LCS 220-48458/2-A		220-48568	220-48458	03/03/2011 12:14	1	TAL CT	JFV
A:6010B	LCS 220-48458/2-A		220-48568	220-48458	03/08/2011 11:50	1	TAL CT	JFV
P:7470A	LCS 220-48534/2-A		220-48543	220-48534	03/07/2011 10:28	1	TAL CT	JFV
A:7470A	LCS 220-48534/2-A		220-48543	220-48534	03/07/2011 14:38	1	TAL CT	JFV

Lab References:
TAL CT = TestAmerica Connecticut

New York State Department of Environmental Conservation
Tioga Castings Site Quarterly Report

Appendix C
Well Development Log



0266362 / ALB

MALCOLM PIRNIE

MALCOLM PIRNIE

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: MW-6 DATE: 1/28/11

PROJECT NAME: Tioga Castings
PROJECT NUMBER: 0266362
SAMPLERS: J. Wyckoff

A: Total Casing and Screen Length: Flush mount 22.91 / stickup 27.22

B: Casing Internal Diameter: 2

C: Water Level Below Top of Casing: 17.41 (Flush mount)

D: Volume of Water in Casing: .94 gallons.

v = 0.0408 $(B)^2$ x (A-C) = D

v = 0.0408 ( )^2 x (-) = _____ gal.

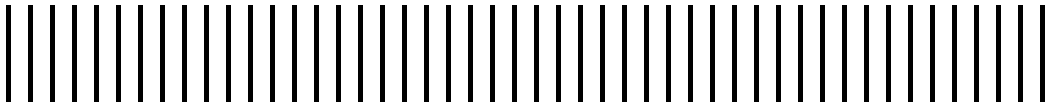
Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	1020	1030	1240	1250	1300	1310	1320	1330	1335	1340			
Gallons													
Depth to Water	0		2			7				10			
pH	6.82	6.83	6.87	6.85	6.86	6.87	6.88	6.86	6.84	6.83			
Conductivity (mohm/cm	.686	.671	.633	.623	.630	.636	.637	.625	.629	.628			
Turbidity (ntu)	>999	>999	297	175	109	75	71.5	50.8	35.4	33.2			
Disolved Oxygen (mg/l)	5.91	5.02	6.57	6.76	6.15	5.67	5.29	5.06	5.35	4.96			
Temperature (°C)	11.32	11.82	11.09	11.28	11.34	11.43	11.43	11.42	11.21	11.24			
Salinity	—	—	—	—	—								
TDS	.437	.430	.404	.399	.403	.407	.408	.400	.404	.403			
Redox (mV)	157	164	163	175	168	167	167	169	171	172			
Reduce Purge rate. TO Low/Flow limits								X					

Notes: 1000 - Begin Development w/ Bailer purged ~ 4 gallons. [redacted] very silty
1020 - Switch to Peristaltic pump. STOP @ 1030 TO ALLOW ARTECH to repair well. Resume @ 1230
134 - Finish purge - Purged ~ 10 gallons, TOTAL development volume = 14 gallons.

New York State Department of Environmental Conservation
Tioga Castings Site Quarterly Report

Appendix D
Well Elevation Data



0266362 / ALB

MALCOLM PIRNIE

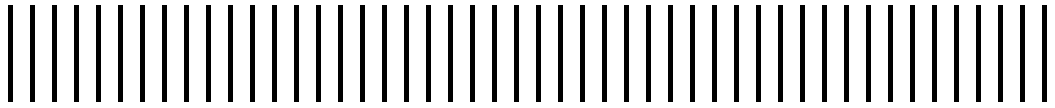
Appendix D
Well Elevation Data
Tioga Casting
Owego, New York
NYSDEC Site No. 7-54-012

Well	Measuring Point Elevation (feet)	
MW-1R	813.82	(2)
MW-2	807.68	(1)
MW-3	812.61	(2)
MW-3D	812.42	(2)
MW-4	806.33	(1)
MW-5	803.89	(1)
MW-6	815.53	(3)
MW-7	807.12	(2)
MW-8	813.73	(2)

(1) - Source: Monitoring Plan: Tioga Casting (NYSDEC, April 25, 2005)
(2) - From Malcolm Pirnie, Inc. level survey performed 10/28/2010
(3) - From Malcolm Pirnie, Inc. level survey performed 2/28/2011

New York State Department of Environmental Conservation
Tioga Castings Site Quarterly Report

Appendix E
Well Inspection Forms



0266362 / ALB

MALCOLM PIRNIE

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/28/11 INSPECTOR: ~~JRW~~ JN

WELL DESIGNATION: MW-1R

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	_____ inches	N/A [ ]	
Approximate Stickup Height	3 feet	N/A [ ]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [✓]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	4 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: _____		
Surface Drainage	Away from Wellhead [ ]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [ ]	Describe: _____
Well ID. Visible?	Yes [ ]	No [ ]	Describe: _____
Lock Present and Functional?	Yes [ ]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [ ]	Describe: _____

snow cover

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: _____		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [ ]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	_____ ppm		
Depth to Water (to top of casing)	19.89 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	26.30 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: soft		

Additional Comments:

Snow cover makes hard to do outer visuals

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/25/11 INSPECTOR: ~~JRW~~ JW

WELL DESIGNATION: MW-2

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	____ inches	N/A [ ]	
Approximate Stickup Height	2½ feet	N/A [ ]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	4 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: _____		
Surface Drainage	Away from Wellhead [ ]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [ ]	Describe: _____
Well ID. Visible?	Yes [ ]	No [ ]	Describe: _____
Lock Present and Functional?	Yes [ ]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [ ]	Describe: _____

Snow cover

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [X]	Expansion Plug [ ] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [ ]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	____ ppm		
Depth to Water (to top of casing)	13.45 feet (nearest 0.01)	Depth to LNAPL	____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	19.76 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: Soft		

Additional Comments: Snow Cover hard to do visual inspection

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/28/11 INSPECTOR: ~~JRW~~ JN

WELL DESIGNATION: MW-3

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	____ inches	N/A [ ]	
Approximate Stickup Height	2½ feet	N/A [ ]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	4 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [X] Other _____
Integrity of Surface Seal/Apron	Describe: _____		
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [ ]	Describe: _____
Well ID. Visible?	Yes [X]	No [ ]	Describe: _____
Lock Present and Functional?	Yes [X]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [ ]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [X]	Expansion Plug [ ] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [ ]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	16.1 ppm		
Depth to Water (to top of casing)	16.65 feet (nearest 0.01)	Depth to LNAPL	____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	19.10 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: _____		

Additional Comments:

_____

_____

_____

_____

_____

_____

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/28/11 INSPECTOR: JRW

WELL DESIGNATION: mw-3D

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	_____ inches	N/A [ ]	
Approximate Stickup Height	3 feet	N/A [ ]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	4 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: Good		
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [X]	Describe: _____
Well ID. Visible?	Yes [X]	No [ ]	Describe: _____
Lock Present and Functional?	Yes [X]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [X]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	0.0 ppm		
Depth to Water (to top of casing)	16.47 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	_____ feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: Hard.		

Additional Comments:

_____

_____

_____

_____

_____

_____

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/25/11 INSPECTOR: ~~JRW~~ JN

WELL DESIGNATION: MW-4

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	8 inches	N/A [ ]	
Approximate Stickup Height	_____ feet	N/A [ ]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	_____ inches		
Weep Hole in Protective Casing	Yes [ ]	No [ ]	
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [X] Other _____
Integrity of Surface Seal/Apron	Describe: _____		
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [ ]	Describe: _____
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____
Lock Present and Functional?	Yes [X]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [ ]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [X]	No [ ]	Describe: _____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [ ]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	_____ ppm		
Depth to Water (to top of casing)	9.91 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	16.05 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: _____		

Additional Comments: Snow cover in area.

H:\PROJECT\0266352\FILE\Work Plan\GW Monitoring Well Inspection Form.xls

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/28/11 INSPECTOR: ~~JRW~~ JN

WELL DESIGNATION: MW-5

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	12 inches	N/A [ ]	
Approximate Stickup Height	_____ feet	N/A [ ]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	12 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: _____		
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [X]	Describe: _____
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____
Lock Present and Functional?	Yes [X]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [X]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [X]	No [ ]	Describe: Not above PVC
Well Casing Diameter	2" inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [ ]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	_____ ppm		
Depth to Water (to top of casing)	9.25 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	16.45 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: _____		

Additional Comments:

_____

_____

_____

_____

_____

_____

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/28/11 INSPECTOR: JRW

WELL DESIGNATION: MW-6

WELL LOCATION:

Outward Appearance

Flushmount Diameter	____ inches	N/A [X]	
Approximate Stickup Height	3.5 feet	N/A [ ]	
Integrity of Protective Casing	Describe: New		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other ____
Protective Casing Width or Dia.	4 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ] Other ____
Integrity of Surface Seal/Apron	Describe: New		
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [X]	Describe: ____
Well ID. Visible?	Yes [X]	No [ ]	Describe: ____
Lock Present and Functional?	Yes [X]	No [ ]	Describe: ____
Photograph Taken? Photo #	Yes [ ]	No [X]	Describe: ____

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: ____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: ____

Downhole

Odor	Yes [ ]	No [X]	Describe: ____
PID Reading	NM ppm		
Depth to Water (to top of casing)	19.67 feet (nearest 0.01)	Depth to LNAPL	____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	____ feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: Hard		

Additional Comments:

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/28/11 INSPECTOR: JRW

WELL DESIGNATION: MW-7

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	6 inches	N/A [ ]	
Approximate Stickup Height	_____ feet	N/A [X]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [ ]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	_____ inches		
Weep Hole in Protective Casing	Yes [ ]	No [ ]	
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: Good		
Surface Drainage	Away from Wellhead [ ]	Toward Wellhead [ ]	over well head
Bollards Present?	Yes [ ]	No [X]	Describe: _____
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____
Lock Present and Functional?	Yes [ ]	No [X]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [X]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: water found in when removed cover.
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	NM ppm		
Depth to Water (to top of casing)	_____ feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	_____ feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: _____		

Additional Comments:

_____

_____

_____

_____

_____

_____

MALCOLM PIRNIE

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Tioga Castings PROJECT NUMBER: 0266362

DATE OF INSPECTION: 2/28/11 INSPECTOR: JRW

WELL DESIGNATION: mw-8

WELL LOCATION: _____

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]	
Approximate Stickup Height	3 feet	N/A [ ]	
Integrity of Protective Casing	Describe: Good		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	4 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: Good		
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [X]	Describe: _____
Well ID. Visible?	Yes [X]	No [ ]	Describe: _____
Lock Present and Functional?	Yes [X]	No [ ]	Describe: _____
Photograph Taken? Photo #	Yes [ ]	No [X]	Describe: _____

Inner Appearance

Integrity of Well Casing	Describe: Good		
Integrity of Cap Seal	Describe: Good		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [X]	None [ ]
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	NM ppm		
Depth to Water (to top of casing)	20.00 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [ ]
Total Well Depth (to top of casing)	27.56 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: Hard.		

Additional Comments:

_____

_____

_____

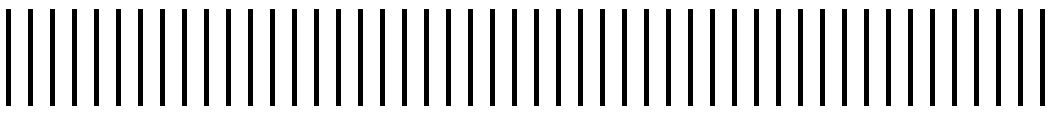
_____

_____

_____

New York State Department of Environmental Conservation
Tioga Castings Site Quarterly Report

Appendix F
Groundwater Level Data Form



0266362 / ALB

MALCOLM PIRNIE

GROUNDWATER LEVEL DATA FORM

PROJECT NAME: Tioga Casting
PROJECT NUMBER: 0266362
DATE: 2/28/2011
PERSONNEL: Jeremy Wyckoff

WELL ID	Date	Time	Headspace VOCs (ppm)	Depth to LNAPL (feet)	Depth to Water (feet)	Reference Point
MW-1R	2/28/2011	09:45	NM	-	19.99	TOC
MW-2	2/28/2011	11:00	NM	-	13.45	TOC
MW-3	2/28/2011	14:30	NM	-	16.68	TOC
MW-3D	2/28/2011	14:40	NM	-	16.47	TOC
MW-4	2/28/2011	15:40	NM	-	9.91	TOC
MW-5	2/28/2011	13:30	NM	-	9.25	TOC
MW-6	2/28/2011	08:15	NM	-	19.67	TOC
MW-7	2/28/2011	11:40	NM	-	13.14	TOC
MW-8	2/28/2011	13:35	NM	-	20.00	TOC

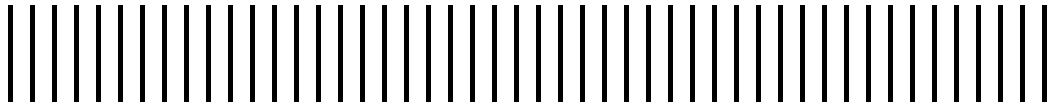
Notes:

NM - Not Measured

TOC - Top of Casing

New York State Department of Environmental Conservation
Tioga Castings Site Quarterly Report

Appendix G
Groundwater Sampling Purge Logs



0266362 / ALB

MALCOLM PIRNIE

MALCOLM PIRNIE

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: MW-1R DATE: 2/28/11

PROJECT NAME: Tioga Casing

PROJECT NUMBER: 7-54-012 DEC / 0266362 MP #

SAMPLERS: JN

A: Total Casing and Screen Length: 26'.30"

B: Casing Internal Diameter: 2"

C: Water Level Below Top of Casing: 19.99

D: Volume of Water in Casing: _____

$v = 0.0408 (B)^2 \times (A-C) = D$

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED													
Time	9:50	10:00	10:10	10:15	10:22	10:35								
Gallons	—	—	—	11.5	—	39								
Depth to Water	19.99	19.99	19.99	19.99	19.99	19.99								
Temperature (°C)	10.14	10.25	10.30	10.31	10.30	10.53								
pH	8.12	8.22	8.22	8.21	8.20	8.19								
ORP Redox (mV) ORP	59	68	83	89	94	97								
ms/cm Conductivity ~~(mohm)~~/cm	0.414	0.390	0.384	0.379	0.375	0.375								
Turbidity (ntu)	67.7	41.2	30.2	18.1	10.0	2.2								
Disolved Oxygen (mg/l)	4.48	4.39	3.59	3.34	3.25	3.09								
TDS	0.267	0.253	0.249	0.246	0.244	0.245								
ppt Salinity	0.2	0.2	0.2	0.2	0.2	0.2								

Notes: Start @ 9:45 am

Sample @ 10:35 am

MALCOLM PIRNIE

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: MW-2 DATE: 2/28/11

PROJECT NAME: Tioga Cosmos

PROJECT NUMBER: 0266362 - MP#

SAMPLERS: JN

A: Total Casing and Screen Length: 19.78

B: Casing Internal Diameter: 2"

C: Water Level Below Top of Casing: 13.45

D: Volume of Water in Casing: _____

v = 0.0408 $(B)^2$ x (A-C) = D

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	11:05	11:11	11:16	11:21	11:26	11:33	11:40						
Gallons	—	—	—	—	2½	—	3½						
Depth to Water	13.65	13.65	13.65	13.66	13.65	13.66	13.65						
Temperature (°C)	9.45	9.12	9.04	9.01	8.97	8.93	8.95						
pH	7.25	7.54	7.39	7.31	7.33	7.35	7.40						
ORP Redox (mV)	117	140	152	159	160	162	160						
Conductivity (~~mohm~~ mS/cm	0.302	0.266	0.255	0.251	0.278	0.277	0.275						
Turbidity (ntu)	11.3	1.3	0.0	4.6	0.0	0.0	0.0						
Disolved Oxygen (mg/l)	7.64	7.35	7.32	7.19	7.20	7.02	6.93						
TDS	0.195	0.187	0.185	0.182	0.181	0.180	0.179						
Salinity PPT	0.1	0.1	0.1	0.1	0.1	0.1	0.1						

Notes: Started @ 11:00am

Sampled @ 11:40 am

WELL DEVELOPMENT/ PURGING LOG

MALCOLM PIRNIE

WELL NUMBER: MW-3 DATE: 2/28/11

PROJECT NAME: Tioga Downs

PROJECT NUMBER: 02663682 MP #

SAMPLERS: JN

A: Total Casing and Screen Length: 18.70

B: Casing Internal Diameter: 2"

C: Water Level Below Top of Casing: 16.16

D: Volume of Water in Casing: _____

$v = 0.0408 (B)^2 \times (A-C) = D$

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	2:35	2:41	2:45	2:50	2:55	3:01	3:07	3:13	3:19	3:25			
Gallons	—	—	—	—	—	—	—	—	—	—	3½ gal.		
Depth to Water	16.71	16.71	16.71	16.71	16.70	16.70	16.71	16.71	16.71	16.71			
Temperature (°C)	8.64	8.74	8.73	8.69	8.62	8.61	8.56	8.54	8.51	8.45			
pH	10.65	10.53	10.45	10.34	10.20	10.10	9.99	9.91	9.81	9.76			
Redox (mV) ORP	-2	5	10	17	24	29	35	42	48	56			
Conductivity (~~mOhm~~/cm) mS/cm	0.297	0.297	0.297	0.297	0.298	0.298	0.298	0.298	0.298	0.298			
Turbidity (ntu)	10.1	9.0	3.3	2.2	2.2	1.9	2.2	2.3	1.5	1.0			
Disolved Oxygen (mg/l)	6.64	6.95	6.67	6.30	6.21	6.25	5.92	5.66	6.01	5.91			
TDS	0.193	0.193	0.193	0.193	0.193	0.192	0.194	0.194	0.194	0.194			
Salinity PPT	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			

Notes:

Start up @ 2:30 pM

Sample @ 3:25 pM

WELL DEVELOPMENT/ PURGING LOG

MALCOLM PIRNIE

WELL NUMBER: MW-3D **DATE:** 2/28/11

PROJECT NAME: Tioga Castmp.
PROJECT NUMBER: 0266362
SAMPLERS: J. Wyckoff.

A: Total Casing and Screen Length: 24.94

B: Casing Internal Diameter: 2

C: Water Level Below Top of Casing: 16.47

D: Volume of Water in Casing: _____

v = 0.0408 $(B)^2$ x (A-C) = D

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	1440	1445	1450	1455	1500	1505	1510	1515	1520	1525	1530	1535	1540
Gallons	0												
Depth to Water	16.47	16.47	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	16.48	
Temperature (°C)	10.41	10.37	10.29	10.24	10.29	10.32	10.37	10.36	10.33	10.36	10.38	10.38	10.36
pH	6.81	6.74	6.72	6.72	6.72	6.72	6.72	6.73	6.72	6.72	6.72	6.72	6.72
Redox (mV)	176	185	187	188	189	190	191	191	192	193	193	194	194
Conductivity (mohm/cm	.302	.303	.304	.304	.304	.305	.303	.303	.302	.302	.302	.302	.302
Turbidity (ntu)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Disolved Oxygen (mg/l)	6.46	2.07	1.04	1.34	3.74	2.29	1.80	1.66	1.57	1.43	1.36	1.27	1.22
TDS	.197	.197	.198	.197	.197	.197	.197	.197	.197	.196	.196	.197	.197
Salinity	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Notes: 1440 - Initiate Purge
1540 - Finish purge, collect samples
- purged ~ 6 gallons.
- NO Sheen, NO odor.

Good for U52

WELL DEVELOPMENT/ PURGING LOG

MALCOLM PIRNIE

WELL NUMBER: MW-4 DATE: 2/25/11

PROJECT NAME: Tioga Casings

PROJECT NUMBER: 0268362 MP #

SAMPLERS: JN

A: Total Casing and Screen Length: 16.05

B: Casing Internal Diameter: 2"

C: Water Level Below Top of Casing: 9.91

D: Volume of Water in Casing: _____

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$v = 0.0408 (B)^2 \times (A-C) = D$

$v = 0.0408 (\quad)^2 \times (\quad - \quad) =$ _____ gal.

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	3:40	3:46	3:52	3:59	4:05	4:10	4:15	4:20	4:25				
Gallons	—	—	—	—	—	—	—	—	—				
Depth to Water	9.97	9.91	9.91	9.90	9.91	9.91	9.91	9.91	9.91				
Temperature (°C)	7.80	7.85	7.96	7.99	7.93	7.94	7.97	7.92	7.94				
pH	9.93	9.24	8.79	8.60	8.48	8.39	8.27	8.18	8.16				
Redox (mV) ORP	3	10	22	41	62	81	95	112	116				
mS/cm Conductivity (~~mohm~~/cm	0.226	0.230	0.242	0.245	0.241	0244	0.257	0.261	0.261				
Turbidity (ntu)	26	5.2	23.2	1.9	0.6	0.0	0.0	0.0	0.0				
Disolved Oxygen (mg/l)	6.61	5.67	5.40	5.38	5.31	5.23	5.16	5.16	5.12				
TDS	0.145	0.150	0.157	0.159	0.157	0.159	0.167	0.170	0.170				
Salinity ppt	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				

Notes: Start up @ 3:39pm

Sample @ 4:30pm

WELL DEVELOPMENT/ PURGING LOG

MALCOLM PIRNIE

WELL NUMBER: MW-5 **DATE:** 2/28/11

PROJECT NAME: Tioga Casings
PROJECT NUMBER: 026362 MP #
SAMPLERS: JN

A: Total Casing and Screen Length: 16.45

B: Casing Internal Diameter: 2"

C: Water Level Below Top of Casing: 9.25

D: Volume of Water in Casing: _____

$v = 0.0408 (B)^2 \times (A-C) = D$

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	1:37	1:43	1:47	1:52	1:57	2:05							
Gallons	—	—	—	—	—	3½9							
Depth to Water	9.75	9.91	9.85	9.83	9.83	9.84							
Temperature (°C)	8.19	7.90	7.88	7.86	7.85	7.84							
pH	7.14	7.21	7.32	7.37	7.41	7.39							
Redox (mV) ORP	152	159	157	157	157	158							
Conductivity (~~mohm/cm~~ mS/cm)	0.243	0.242	0.243	0.244	0.245	0.246							
Turbidity (ntu)	23.2	15.2	9.3	0.0	0.0	0.7							
Disolved Oxygen (mg/l)	11.00	8.27	7.70	7.45	7.03	6.99							
TDS	0.158	0.157	0.158	0.159	0.159	0.160							
Salinity PPT	0.1	0.1	0.1	0.1	0.1	0.1							

Notes: Start up @ 1:30pm

Sample @ 2:05pm

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: MW-6 DATE: 2/28/11

PROJECT NAME: Tiosa Castings
PROJECT NUMBER: 0266362
SAMPLERS: JRW

A: Total Casing and Screen Length: 27.10

B: Casing Internal Diameter: 2

C: Water Level Below Top of Casing: 19.67

D. Volume of Water in Casing: _____

v = 0.0408 (B)^2 x (A-C) = D

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	0820	0830	0835	0840	0845	0850	0900	0930	0935	0940	0945		
Gallons	0												
Depth to Water	19.67			19.95	19.94	19.94	19.94	19.92	19.92	19.91	19.91		
pH	6.82	6.66	6.69	6.67	6.70	6.67	6.65	6.65	6.65	6.66	6.65		
Conductivity (mohm/cm	.345	.348	.352	.358	.363	.351	.346	.345	.344	.347	.345		
Turbidity (ntu)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Dissolved Oxygen (mg/l)	4.00	5.93	4.11	4.45	2.73	2.71	2.75	3.15	2.98	2.91	2.91		
Temperature (°C)	10.9	11.06	11.04	10.33	10.23	10.31	10.36	10.95	10.85	10.90	10.88		
Salinity ppt	-	-	-	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		
TDS g/L	.225	.226	.229	.233	.236	.228	.225	.224	.224	.226	.224		
Redox (mV) 168	168	161	168	169	169	171	173	180	180	180	180		

Notes: 0815 - Initiate Purge.
0945 - Finish purge - purged ~ 8 gallons.
- Collect samples (VOCs, SVOCs, metals) + MS/MSD.
- NO Sheen, NO odors.

MALCOLM PIRNIE

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: MW-7 DATE: 2/28/11

PROJECT NAME: Tioga Castings
PROJECT NUMBER: 0266362
SAMPLERS: J. Wyckoff

A: Total Casing and Screen Length: 24.25 (+2') 2.01 = 22.24

B: Casing Internal Diameter: 2

C: Water Level Below Top of Casing: 15.15 (+2') 2.01 = 13.14

D: Volume of Water in Casing: _____

v = 0.0408 $(B)^2$ x (A-C) = D

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	1140	1145	1150	1155	1200	1205							
Gallons													
Depth to Water	15.15	15.15	15.15	15.15	15.15	15.15							
pH	6.34	6.31	6.30	6.31	6.32	6.31							
Conductivity (mohm/cm	.346	.345	.343	.341	.337	.336							
Turbidity (ntu)	0.0	0.0	0.0	0.0	0.0	0.0							
Disolved Oxygen (mg/l)	2.18	0.0	0.0	0.0	0.0	0.0							
Temperature (°C)	10.29	10.34	10.37	10.39	10.42	10.43							
Salinity ppb	0.2	0.2	0.2	0.2	0.2	0.2							
TDS g/L	.225	.225	.223	.221	.219	.219							
Redox (mV)	100	111	120	122	123	123							

Notes: Flush mt. was flooded. Add 2' to River w/ FERNCO AND 2" PVC PIPE
Water Level measurements adj (+2') Need to subtract 2' from all readings.
1140 Initiate purge
1205 - Finish purge, collect sample (metals) NO sheen, NO odor.
- purged ~ 4.5 gallons

Actual Pipe length = 2.01'

MALCOLM PIRNIE

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: MW-8 DATE: 2/28/11

PROJECT NAME: Tioga Castings
PROJECT NUMBER: 0266362
SAMPLERS: J. Wrenn

A: Total Casing and Screen Length: 27.56

B: Casing Internal Diameter: 2

C: Water Level Below Top of Casing: 20.00

D: Volume of Water in Casing: _____

v = 0.0408 $(B)^2$ x (A-C) = D

v = 0.0408 ( )^2 x (-) = _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED												
Time	1335	1340	1345	1350	1355	1400	1405	1410	1415	1420	1425		
Gallons	0												
Depth to Water	20.00	20.00	19.99	19.99	19.99	19.98	19.98	19.97	19.97	19.97	19.97		
pH	6.46	6.31	6.30	6.30	6.31	6.30	6.31	6.31	6.31	6.31	6.31		
Conductivity (mohm/cm	.379	.334	.328	.328	.327	.326	.325	.325	.325	.324	.324		
Turbidity (ntu)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Disolved Oxygen (mg/l)	0.46	2.32	2.77	2.15	1.70	1.35	1.29	1.05	0.0	0.0	0.0		
Temperature (°C)	10.96	11.70	11.97	11.88	11.99	11.96	11.98	11.96	11.97	11.95	11.94		
Salinity	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		
TDS	.243	.217	.213	.213	.212	.212	.211	.211	.211	.211	.211		
Redox (mV)	151	171	178	183	186	189	193	194	195	197	199		

Notes: 1335 - Initiate purge.
1425 - Finish Purge, collect sample (metals)
- Purged ~ 5.5 gallons. No Sheen, No Odors.