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5	at RVAAP-66 Facility-Wide Groundwater, April 2011
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14. ABSTRACT

Groundwater samples were obtained at RVAAP-66 Facility-wide Groundwater from 19 wells from April 4 through April 7, 2011. Results of micropurge and traditional sampling techniques were similar; however, concentrations for some inorganic constituents, explosives, and propellants were greater for traditional sampling methods than micropurge methods. Possible explanations include dilution from a rainfall event prior to micropurge sampling, elevated turbidity in micropurge samples, and (or) relatively small aquifer volumes sampled by micropurge as compared to large aquifer volumes sampled by traditional methods. For selected samples adjacent to or under Areas of Concern, elevated concentrations of several inorganic constituents including arsenic, barium, iron, manganese, and nickel were demonstrated through flow-path analysis. Additional sampling of bis(2-ethylhexyl)phthalate done as part of this study was insufficient to identify the source; however, since plastics were not used to a great degree at this facility, it is reasonable to conclude that elevated concentrations are the result of sampling, processing, or laboratory processing.

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140	USAEC – U.S. Army Environmental Center		

141 142	Table of Contents
143	Executive Summary
144	1.0 Introduction
145	2.0 Purpose and Scope
146	3.0 Methods
147	4.0 Results
148	4.1 Stable isotopes of hydrogen and oxygen in water
149	4.2 Bis(2-ethylhexyl)phthalate30
150	4.3 Water chemistry along groundwater-flow paths
151	4.4 Comparison of purging methods
152	5.0 Discussion and Conclusion
153	6.0 References 44
154	Appendices46
155	APPENDIX A: Summary of water-quality data for groundwater samples 46
156	APPENDIX B: Laboratory analytical reports and data validation reports 63
157	APPENDIX C: Comment Response Table833
158	

159	List of Acronyms	
160		
161	AOC	Area of concern
162	COC	Chemical of concern
163	FWGWMP	Facility-Wide Ground Water Monitoring Program
164	PVC	Polyvinyl chloride
165	RPD	Relative Percent Difference
166	RVAAP	Ravenna Army Ammunition Plant
167	USACE	United States Army Corps of Engineers
168	USGS	United States Geological Survey
169		

List of Tables

171			
172	<u>Table</u>		<u>Page</u>
173			
174	1	Chemical constituents in the Facility-Wide Ground Water Monitoring Plan	13
175	2		1.5
176	2	Well-construction details for wells sampled by the U.S. Geological Survey	17
177	2	Weter evelity above cell as accommente in energy deveter complete	47
178 179	3	Water-quality physical measurements in groundwater samples	4 /
180	4	Selected inorganic constituents in groundwater samples	10
181	7	Selected morganic constituents in groundwater samples	,
182	5	Explosives and propellants in groundwater samples	52
183	S	Emprositives und proponants in ground water samples	2
184	6	Pesticides and polychlorinated biphenyls (PCBs) in groundwater samples	53
185			
186	7	Volatile organic compounds in groundwater samples	55
187			
188	8	Semivolatile organic compounds in groundwater samples	58
189			
190	9	Isotopic ratios of hydrogen and oxygen in groundwater samples	62
191	10		
192	10	Results of cation/anion balance computations and comparison of measured	22
193		and computed specific conductances	22
194 195	11	Concentrations of reduction / oxidation (redox) sensitive constituents,	
196	11	general redox category, and dominant redox processes in groundwater	
197		samples	2.7
198			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
199	12	Concentrations of bis(2-ethylhexyl)phthalate in groundwater samples	30
200			
201	13	Comparison of results between traditional purge sampling and micropurge	
202		sampling where constituents were above reporting level	36
203			
204	14	Ionic ratios for groundwater samples	40
205			
206			
207			
208			
209			

List of Figures

211			
212	Figure		Page
213			
214	1	Monitoring wells sampled during April 2011 at RVAAP-66 Facility-wide	
215		Groundwater	16
216			
217	2	Temperature and precipitation amounts at Akron-Canton Regional Airport	
218		prior to and during groundwater sampling	18
219			
220	3	Piper plots of cation and anion concentrations in groundwater samples	25
221			
222	4	Isotope ratios of hydrogen and oxygen in groundwater samples	29
223			
224	5	Hydrologic section lines along A-A' for RVAAP-09 Load Line 2 and B-	
225		B' for RVAAP-01 Ramsdell Quarry Landfill	32
226			
227	6	Concentrations of selected inorganic constituents at A. RVAAP-09 Load	
228		Line 2, and B. RVAAP-01 Ramsdell Quarry Landfill	34

Executive Summary

Groundwater samples were obtained at the Ravenna Army Ammunition Plant (RVAAP-66 Facility-wide Groundwater) from 19 wells from April 4 through April 7, 2011. Samples were analyzed for a wide variety of constituents to describe geochemical conditions in groundwater, explore whether elevated concentrations of bis(2-ethylhexyl)phthalate in groundwater were an artifact of micropurge sampling methods, and demonstrate the use of flow-path analysis to identify and define points of contamination. Additionally, comparisons of analytical results obtained from micropurge sampling techniques and traditional purge techniques are provided.

Groundwater samples were characterized as calcium-magnesium-sulfate-bicarbonate waters under mixed (oxic-anoxic) conditions. Isotope ratios of hydrogen and oxygen in water indicate that groundwater is derived from local precipitation. For selected samples collected from wells adjacent to or under Areas of Concern, elevated concentrations of several inorganic constituents including arsenic, barium, iron, and manganese were demonstrated through flowpath analysis.

Results from micropurge and traditional sampling techniques were similar; however, concentrations for eight of ten inorganic constituents and seven of eight explosives and propellants were greater for traditional sampling methods than for micropurge methods. Possible explanations for these discrepancies include changes in water quality from a rainfall event during the first day of micropurge sampling, elevated turbidity in micropurge samples, and (or) relatively small aquifer volumes sampled by micropurge as compared to large aquifer volumes sampled by traditional methods. Historically, concentrations of bis(2-ethylhexyl)phthalate were detected in some samples. Additional sampling done as part of this study was insufficient to identify the source of bis(2-ethylhexyl)phthalate; however, because plastics were never used to a

- great degree at this facility, it is reasonable to conclude that elevated concentrations are the result
- of sampling, processing, or laboratory analyses.
- 254

1.0 Introduction

Military activities at the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio, from the late 1930s through the early 1970s led to the contamination of soils and groundwater by solvents, pesticides, explosives, and metals. To understand the nature and extent of contamination at the RVAAP, groundwater sampling has focused on Areas of Concern (AOCs) and Chemicals of Concern (COCs). Table 1 shows a subset of inorganic constituents, consisting of major cations and anions, nutrients, and trace elements analyzed in groundwater samples since 2007 in accordance with the Facility-Wide Ground Water Monitoring Program (FWGWMP) Plan (U.S. Army Corps of Engineers (USACE), 2004).

Prior sampling and chemical analysis of groundwater at RVAAP were done by a contractor for the USACE. Their sampling and analysis protocol, constituent list, and well selection criteria were based on regulatory purposes, not research purposes, and included use of micropurge sampling methods. Even though analyses of most of the constituents listed in table 1 were done at one time or another on groundwater from more than 240 wells at RVAAP, not all samples were analyzed for all constituents on the same date and by means of the same sampling or analytical procedure. The USACE was interested in obtaining a set of samples with full geochemical analysis of anions and cations and consistent techniques that could help define geochemical conditions in aquifers at the site. Additionally, the USACE was interested in investigating occurrences of low concentrations of the plasticizer bis(2-ethylhexyl)phthalate in groundwater, found in many places across the facility even though plastics were not used in manufacturing or processing at RVAAP.

Table 1. Chemical constituents in the Facility-Wide Ground Water Monitoring Plan (U.S. Army Corps of Engineers, 2004) for RVAAP-66 Facility-wide Groundwater, 2007-2011, with constituents added by the U.S. Geological Survey in April 2011 shown in bold.

 $[FWGWMP, Facility-Wide\ Ground\ Water\ Monitoring\ Program;\ RSIL,\ U.S.\ Geological\ Survey\ Reston\ Stable\ Isotope\ Laboratory;\ USEPA,\ U.S.\ Environmental\ Protection\ Agency;\ n/a,\ not\ applicable)$

	Constituent	Included in FWGWMP and analyzed 2007-2011?	USEPA Method Code
Cations, filtered	Calcium Magnesium Sodium Potassium	Yes Yes Yes Yes	6010B 6010B 6010B 6010B
Anions, unfiltered	Bromide Chloride Fluoride Sulfate	No No No No	300.0A 300.0A 300.0A 300.0A
Trace elements, filtered	Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lithium Lead Manganese Mercury Molybdenum Nickel Selenium Silica, as SiO ₂ Silver Thallium Uranium Vanadium Zinc	Yes Yes Yes Yes Yes Yes No Yes Yes Yes Yes Yes Yes No Yes Yes Yes No Yes Yes No Yes Yes No Yes Yes Yes No Yes Yes	6020 6020 6010B 6010B 6020 6010B 6020 6010B 6010B 6010B 6010B 6010B 6010B 6010B 6010B 6010B 6010B 6010B
Nutrients, un-filtered	Nitrate as N Nitrite as N Nitrogen as Ammonia Phosphate as P, Ortho	Yes No No No	353.2 300.0A 350.2 300.0A
Iso- topes, un- filtered	Hydrogen (² H/ ¹ H) Oxygen (¹⁸ O/ ¹⁶ O)	No No	n/a n/a

The geology of Portage County is summarized in Winslow and White (1966). Because the focus of this report and the occurrence of contamination is limited to relatively shallow groundwater, only the rocks and sediments within 150 ft of the surface are described herein. The Pottsville Formation is divided, from oldest to youngest, into the Sharon Member, the Connoquenessing Sandstone, the Mercer Shale, and the Homewood Sandstone Members. The Sharon Conglomerate Member is a heterogeneous unit, consisting predominantly of sandstone that contains several conglomerate deposits and is overlain by shale. For the purposes of this report, the conglomerate deposits will be referred to as the "Sharon conglomerate" and the sandstone unit will be referred to as the "Sharon sandstone." Most of the bedrock in the area is covered with glacial deposits that commonly consist of poorly sorted sand and gravel in a silty clay or clay matrix. For the purposes of this report these deposits will be referred to as "unconsolidated glacial deposits."

2.0 Purpose and Scope

In 2011, the U.S. Geological Survey (USGS), in cooperation with the USACE, undertook a project to sample and analyze groundwater for selected inorganic, organic, and isotopic constituents. This report provides the results of that sampling and analysis. The purposes of this report are the following:

- Describe the geochemical conditions in groundwater at RVAAP based on analyses of inorganic constituents and isotopes of hydrogen and oxygen from 21 samples obtained from 19 wells.
- 2. Explore whether elevated concentrations of bis(2-ethylhexyl)phthalate in two groundwater samples are an artifact of micropurge sampling methods.

3. Demonstrate the use of flow-path analysis to identify and further define points of contamination.

Additionally, this report includes a comparison of water-quality results obtained through micropurge and traditional purge methods. The scope of this report was limited to a one-time sampling event in April 2011 at the RVAAP.

3.0 Methods

During April 4 through 7, 2011, a contractor for the USACE (hereafter termed "the contractor") sampled 42 wells at RVAAP using sampling methods described in the FWGWMP (USACE, 2004) and further described below. The wells were concentrated within and around AOCs (figure 1) and were screened in four different lithologic units: unconsolidated glacial deposits (11 wells), the Homewood Sandstone Member (1 well), the Sharon sandstone (24 wells), and the basal portion of the Sharon conglomerate (6 wells). The selection of the 42 wells was based on a rotational sampling schedule of wells at RVAAP and regulatory requirements of the FWGWMP.

To address objectives of this report, the USGS performed additional chemical analysis on samples from a subset of 19 of the 42 wells that appeared to lie on or along shallow, localized flow paths based on a 2005 bedrock potentiometric-surface map from Ohio Department of Natural Resources (2005; figure 1) and potentiometric-surface maps provided by the contractor in unpublished internal reports. All wells were constructed of 2-inch polyvinyl chloride (PVC)

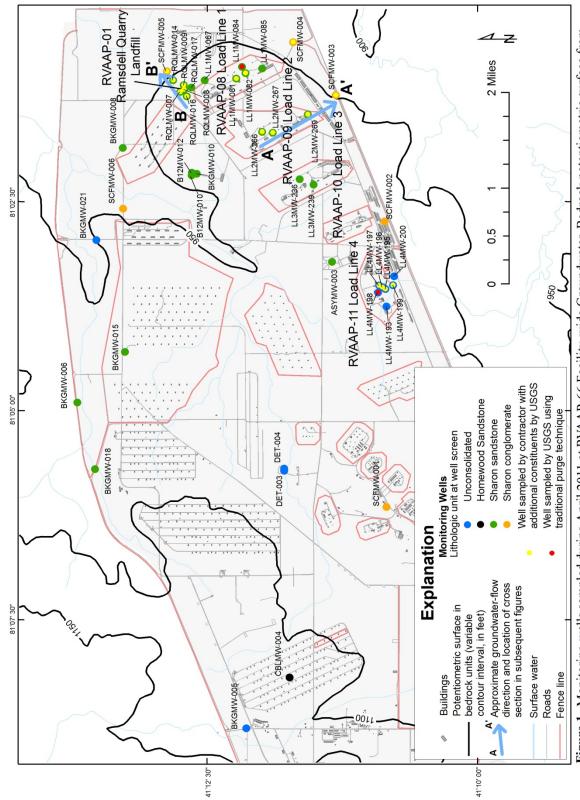


Figure 1. Monitoring wells sampled during April 2011 at RVAAP-66 Facility-wide Groundwater. Bedrock potentiometric surface from Ohio Department of Natural Resources (2005).

well casing and 5 to 10-ft screens. Additional well-construction details are given for the 19 wells in table 2. Two of the 19 wells (LL1MW-084 and LL4MW-198) were resampled by the USGS using methods described below to examine the occurrence of bis(2-ethylhexyl)phthalate. These two wells were selected because they had previous detections of bis(2-ethylhexyl)phthalate. Only two wells were selected for this investigation because of project budget limitations.

Table 2. Well-construction details for wells sampled by the U.S. Geological Survey, April 4-7, 2011 at RVAAP-66 Facility-wide Groundwater.

[NGVD 29, National Geodetic Vertical Datum of 1929; Unc, Unconsolidated glacial deposits; Ss, Sharon Sandstone; Sc, Sharon conglomerate]

Well ID USGS well number USGS site ID (ft above NGVD 29) depth (ft) Top (ft) tom logical unit LL1MW-081 PO-138 411213081010000 996.40 39.4 29.4 38.9 Ss LL1MW-082 PO-139 411208081005600 1,003.70 39.0 28.9 38.5 Ss LL1MW-084 PO-140 411210081005100 996.40 37.0 26.7 36.3 Ss LL2MW-266 PO-141 411159081013800 1,014.09 20.5 9.8 19.8 Ss LL2MW-267 PO-142 411154081013900 1,012.81 20.5 9.8 19.8 Ss LL2MW-269 PO-143 411134081012600 1,009.49 28.0 17.1 27.1 Ss LL4MW-195 PO-144 411052081033200 980.83 21.0 10.3 20.3 Unc LL4MW-196 PO-145 411054081033200 983.79 21.7 10.8 20.8 Unc LL4MW-198 PO-147 411056081033400				Land surface		Scr inte	een rval	
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	LL4MW-199	PO-148	411048081032900	975.20	22.0	10.3	20.3	Unc
DOLLMY 000 DO 170 411242001010000 062 00 10 7 60 160 C	RQLMW-007	PO-149	411244081010900	963.86	18.7	6.0	16.0	Ss
KQLMW-008 PO-150 411242081010800 963.82 18.7 6.0 16.0 Ss	RQLMW-008	PO-150	411242081010800	963.82	18.7	6.0	16.0	Ss
RQLMW-009 PO-151 411242081010400 962.60 18.8 5.9 15.9 Ss	RQLMW-009	PO-151	411242081010400	962.60	18.8	5.9	15.9	Ss
RQLMW-014 PO-152 411248081010100 970.83 29.4 18.6 28.6 Ss	RQLMW-014	PO-152	411248081010100	970.83	29.4	18.6	28.6	Ss
RQLMW-016 PO-153 411240081011200 994.02 39.5 28.5 38.5 Ss		PO-153	411240081011200	994.02	39.5	28.5	38.5	Ss
SCFMW-003 PO-154 411119081011200 956.14 135.5 125.5 135.5 Sc	SCFMW-003	PO-154	411119081011200	956 1 <i>4</i>	135 5	125.5	135 5	Sc
SCFMW-004 PO-155 411142081003300 941.87 110.0 100.0 110.0 Sc								
SCFMW-004 PO-155 411142081005300 941.87 110.0 100.0 110.0 SC SCFMW-005 PO-156 411251081005400 958.43 154.0 139.0 154.0 Sc								

Water samples were collected over 4 days that exhibited a range of weather conditions. Snowfall and rainfall from a weather station at the Akron-Canton Airport, in Akron, OH (approximately 25 miles to the southwest) are shown on figure 2. Air temperatures ranged from a low of 16 degrees F on March 30, 2011 to a high of 64 degrees F on April 5, 2011. Average daily temperatures were above freezing during all four days of sampling.

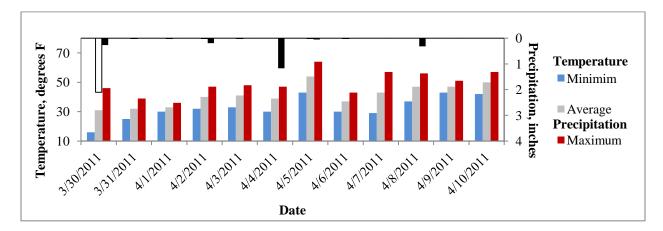


Figure 2. Temperature and precipitation amounts at Akron-Canton Regional Airport prior to and during groundwater sampling at RVAAP-66 Facility-wide Groundwater (National Oceanic and Atmospheric Administration, 2011).

The contractor collected samples from 42 wells shown in figure 1 using the micropurge sampling method or bailers. Only wells sampled with the micropurge sampling method are included in this report. The micropurge sampling method employed an air- or nitrogen-driven bladder pump with dedicated discharge hoses for each of the wells. The contractor obtained measurements of pH, specific conductance, and turbidity using a Horiba U-22¹ water-quality data sonde that was calibrated to standard solutions at the start of each day. The USGS accompanied contractor crews and obtained additional aliquots of water from 19 of the 42 wells

¹ Use of trade or product names is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey

using the contractor's equipment and the micropurge sampling method. The USGS resampled two of the 19 wells two to three days after sampling by the contractor; the USGS used traditional sampling methods described in the USGS National Field Manual (U.S. Geological Survey, variously dated). The USGS obtained field measurements of pH, specific conductance, temperature, dissolved oxygen, and turbidity using a YSI 6920 water-quality data sonde that was calibrated to standard solutions at the start of each day. The USGS determined alkalinity in the field using standard USGS techniques (U.S. Geological Survey, variously dated).

For the purposes of this report, traditional sampling methods are defined as those that employ purging a minimum of three times the volume of water in the well and well screen accompanied by the requirement that field parameters (pH, dissolved oxygen, specific conductance, and temperature) stabilize before sampling. Micropurge sampling methods used by the contractor also require stabilization of field parameters (pH, specific conductance, and temperature (but not dissolved oxygen)) while purging minimal volumes of groundwater from within a small segment of the well screen. The goal behind micropurge sampling is to minimize both turbidity and purge volumes, thereby reducing the amount of investigation derived waste (IDW) while still obtaining a representative sample from the aquifer (Pohlmann and others, 1994; Puls and Barcelona, 1996; ASTM International, 2002).

The groundwater samples collected by the contractor were analyzed for all inorganic and organic constituents listed in the FWGWMP (which, in addition to those inorganic constituents listed in table 1, include about 150 explosives, propellants, solvents, pesticides, and bis(2-ethylhexyl)phthalate). For metals and trace elements, samples were filtered through a capsule filter with 0.45 μ m pore size, acidified with nitric acid to a pH of less than 2, and chilled to below 4°C. As noted above, the USGS accompanied the contractor sampling crews and provided 5 additional bottles to fill with groundwater at 19 of the 42 wells which were analyzed for

bromide, chloride, fluoride, sulfate, boron, lithium, molybdenum, silica, uranium, nitrite, ammonia, orthophosphate, and isotopes of hydrogen and oxygen in water. The constituent list for the two wells included all constituents listed in table 1 plus those listed in the FWGWMP that were analyzed by the contractor.

The USGS-contracted laboratory for Department of Defense projects, Test America Laboratories in Canton, Ohio; West Sacramento, California; and Denver, Colorado performed all chemical analyses for samples collected by the USGS except for the isotopes. The isotopes of hydrogen and oxygen in water were analyzed by the USGS Reston Stable Isotope Laboratory in Reston, Virginia using methods and standard operating procedures as outlined in USGS (2011). Isotope ratios are expressed relative to the Vienna Standard Mean Ocean Water 2 reference water (International Atomic Energy Agency, 2009). For all analyses, the reporting limit was provided by the laboratory and is indicated as a "U" value in this report. Quality-assurance checks by the USGS included one equipment blank obtained during the traditional sampling of the two wells. The contractor also included approximately 25-percent quality-control samples as matrix-spike/matrix-spike duplicates, split/duplicates, and equipment blanks as part of their sampling requirements. Additional quality-assurance steps for analyses were taken at the laboratories. Disposal of IDW was done in coordination with the contractor.

4.0 Results

Water-quality data collected by the contractor and the USGS are included as tables 3 through 9. (Because of their length, these tables have been placed after the References section at the end of this report.) Cation and anion data were evaluated first with regards to electric neutrality. Because water samples do not contain an electrical charge, the sum of all positively charged ions (cations), primarily sodium, potassium, calcium, and magnesium should equal the

sum of all negatively charged ions (anions) primarily chloride, bicarbonate, sulfate, and nitrate. Concentrations were converted to milliequivalents per liter (meq/L) and a cation/anion balance was computed through the geochemical modeling software PHREEQC (Parkhurst and Appelo, 1999) using equation 1:

Cation/Anion Balance = $[(\Sigma_{\text{cations}} - \Sigma_{\text{anions}}) / (\Sigma_{\text{cations}} + \Sigma_{\text{anions}})] * 100$ (1)

If all laboratory analyses are done accurately, the ideal analysis should have a cation/anion balance of zero percent. Positive balances indicate the sum of cations is greater than the sum of anions; negative balances indicate that the sum of anions is greater than the sum of cations.

All samples had cation/anion balances within ± 10 percent (table 10). Of the 21 sets of analyses done on groundwater samples collected at RVAAP (19 samples obtained using micropurge sampling methods with the contractor plus two obtained using traditional sampling methods of the USGS), five had balances between five and ten percent. The analysis from well RQLMW-009 using micropurge sampling methods had the largest balance at 9.5 percent. Other samples with balances greater than or equal to ± 5 percent were RQLMW-016 (-7.3 percent) RQLMW-008 (6.9 percent), LL2MW-269 (5.6 percent), and LL2MW-267 (5.0 percent).

Table 10. Results of cation/anion balance computations and comparison of measured and computed specific conductances in groundwater samples collected at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

[μS/cm, microSiemens per centimeter at 25 degrees Celsius; RPD, relative percent difference]

	Cation/	Sı	pecific conductance	e
	anion balance	Measured	Computed	
Site	(percent)	(µS/cm)	(µS/cm)	RPD
		icropurge sampl		
LL1MW-081	0.3	471	468	0.6
LL1MW-082	1.4	355	335	5.8
LL1MW-084	-0.4	358	324	10.0
LL2MW-266	3.6	158	241	-41.6
LL2MW-267	5.0	564	403	33.3
LL2MW-269	5.6	347	327	5.9
LL4MW-195	-2.1	1,470	1,230	17.8
LL4MW-196	0.6	543	462	16.1
LL4MW-197	-0.5	706	609	14.8
LL4MW-198	3.5	380	305	21.9
LL4MW-199	3.6	675	610	10.1
RQLMW-007	-0.1	420	563	-29.1
RQLMW-008	6.9	742	773	-4.1
RQLMW-009	9.5	219	174	22.9
RQLMW-014	3.2	210	213	-1.4
RQLMW-016	-7.3	2,100	1,900	10.0
SCFMW-003	3.0	710	571	21.7
SCFMW-004	3.7	1,100	1,080	1.8
SCFMW-005	0.2	900	783	13.9
	Tradi	itional purge sar	nples	
LL1MW-084	0.1	290	286	1.4
LL4MW-198	4.8	270	296	-9.2

A second evaluation of the data was done to compare measured field-measured specific conductance to computed specific conductance. Specific conductance is a measure of the ability of water to conduct an electrical current which, in turn, is related to the concentration of ions in solution. Therefore, specific conductance can be computed by summing the product of the molar conductivity and the molar concentration of all the species in solution, and making corrections

for temperature, viscosity, and electrochemical activity coefficient. The PHREEQC software was used to obtain a value for computed specific conductance from data listed in table 3 (at the back of this report) and data collected and analyzed by the contractor. The measured and computed specific conductance values were compared by computing a relative percent difference (equation 2):

Relative percent difference (RPD) = $[(X_1 - X_2) / X_{mean}] \times 100$ (2)

where X_1 is the measured specific conductance, X_2 is the computed specific conductance and $X_{mean} = ((X_1 + X_2) / 2)$. A positive RPD indicates that measured specific conductance was greater than computed specific conductance; a negative RPD indicates that measured specific conductance was less than computed specific conductance.

Measured and computed specific conductances in most instances compare relatively well. Fifteen of the 21 RPDs in table 9 are less than 20 percent and 10 are 10 percent or less. The greatest RPD was -41.6 percent for the sample collected at LL2MW-266. RPDs for 16 of 21 samples were positive and 5 were negative indicating that, for 76 percent of the samples, measured specific conductance was greater than computed specific conductance.

Field measurements of pH ranged from 5.6 to 7.1 with a median of 6.5 and specific conductance ranged from 158 to 2,100 μS/cm with a median of 471 μS/cm (table 3, at the back of this report). Turbidity data obtained during micropurge sampling methods provided values that were much higher (14 turbidity values greater than 100 NTUs with a maximum of 835 NTU) than those collected using traditional purge sampling methods (2 samples with turbidities of 1.3 and 3.8 NTU). Sampling requirements from the FWGWMP (U.S. Army Corps of Engineers, 2004) state that turbidity shall be recorded, but neither a threshold turbidity value nor turbidity stabilization is prerequisite before sampling. Stabilization of turbidity is important for the same

reasons as stabilization of other parameters: to obtain a representative sample of groundwater that is minimally affected by the well construction or by the sampling methodology.

Selected cation and anion data from the 21 samples obtained from 19 wells were plotted on a trilinear diagram (also known as a Piper diagram) to examine water types and determine whether groundwater samples could be discriminated on the basis of AOC or lithologic unit (fig. 3). Some of the supporting data for these plots (including water chemistry and well-construction details) were obtained from the contractor's report and are not reproduced here. Water types were classified as calcium-magnesium-sulfate-bicarbonate waters. The limited number of samples makes it difficult to discern any patterns in the data by AOC but samples from Load Line 1 appear to have greater proportions of sulfate plus chloride and lesser proportions of carbonate plus bicarbonate as compared to samples from other AOCs.

Reduction / oxidation (redox) conditions were evaluated through the use of a spreadsheet program by Jurgens and others (2009) that takes into consideration concentrations of several redox-sensitive constituents; specifically, dissolved oxygen, nitrate, manganese, iron, sulfate, and, if available, hydrogen sulfide. Redox conditions are important towards understanding the mobility, degradation, and solubility of many anthropogenic and natural contaminants. Some contaminants in groundwater at RVAAP may only degrade under aerobic conditions (where oxygen is present and serves as the primary electron acceptor), whereas others may only degrade under anaerobic conditions (where oxygen is absent and other electron acceptors are utilized; Jurgens and others, 2009).

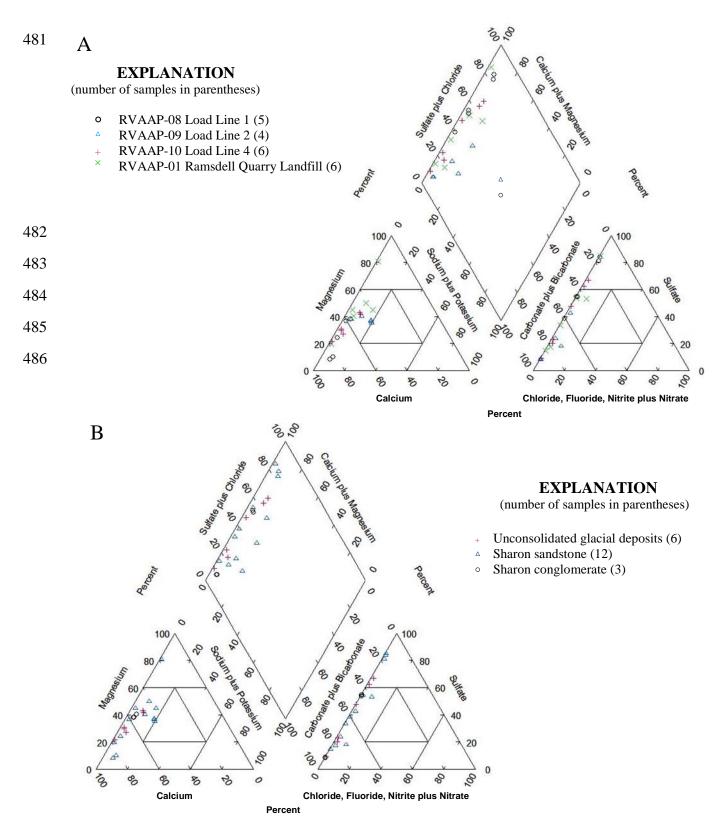


Figure 3. Piper plots of cation and anion concentrations in groundwater samples from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011 by A. area of concern, and B. lithologic unit.

All samples except LL4MW-197 were characterized as mixed (oxic-anoxic) with the primary redox processes being related to oxygen, iron, manganese, and sulfate reduction (table 11). The sample from LL4MW-197 was characterized as oxic with the primary redox process being oxygen reduction. Although hydrogen sulfide was not measured in these samples, the odor of hydrogen sulfide (like that of rotten eggs) was noted at three wells, suggesting reducing conditions: USGS personnel noted the hydrogen sulfide odor at wells SCFMW-003 and SCFMW-005 and the contractor noted the odor at well SCFMW-004. All three of these wells were listed as mixed (oxic-anoxic), but the primary redox processes were oxygen, iron, and sulfate reduction in groundwater samples from SCFMW-003 and SCFMW-005 and oxygen and manganese reduction in well SCFMW-004.

Table 11. Concentrations of reduction / oxidation (redox) sensitive constituents, general redox category, and dominant redox processes in groundwater samples from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

[mg/L, milligrams per liter; B, constituent detected in associated method or trip blank sample; U, less than reporting limit listed]

Site	Oxygen (mg/L)	Nitrate, as N (mg/L)	Manga- nese (mg/L)	Iron (mg/L)	Sulfate (mg/L)	General redox category ¹	Redox process ¹
	(IIIg/L)	(IIIg/L)	(IIIg/L)	(IIIg/L)	(IIIg/L)	category	process
			Mici	opurge san	nnles		
LL1MW-081	4.3	0.1 U	2.17	4.63	129	Mixed (oxic-anoxic)	O ₂ -Fe(III)/S
LL1MW-082	0.6	0.1 U	1.64	5.21	63.7	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
LL1MW-084	8.8	0.86	0.19	0.05	122	Mixed (oxic-anoxic)	O ₂ -Mn(Γ
						,	2 \
LL2MW-266	8.5	0.1 U	0.76	2.47	27.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
LL2MW-267	5.1	0.1 U	0.56	0.43	82	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
LL2MW-269	1.0	0.1 U	1.59	6.80	27.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
LL4MW-195	1.8	0.1 U	3.49	7.32	358	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
LL4MW-196	3.1	0.22	0.06	0.31	54.4	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
LL4MW-197	8.3	1.4	0.01	0.05	30	Oxic	O_2
LL4MW-198	9.0	0.1 U	1.01	4.72	93.4	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
LL4MW-199	6.6	0.1 U	0.84	5.83	64.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
RQLMW-007	3.4	0.04 B	0.02	0.59	101	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
RQLMW-008	0.6	0.1 U	0.30	18.20	62.6	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
RQLMW-009	2.5	0.07 B	0.11	0.89	13.4	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
RQLMW-014	0.7	0.1 U	2.80	15.10	50	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
RQLMW-016	6.0	0.1 U	6.83	11.60	1,120	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
SCFMW-003	3.6	0.1 U	0.26	0.60	25.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
SCFMW-004	3.4	0.1 U	0.73	0.05	334	Mixed (oxic-anoxic)	O_2 -Mn(I
SCFMW-005	3.8	0.1 U	1.62	3.95	232	Mixed (oxic-anoxic)	O ₂ -Fe(III)/
				onal purge s	samples		
LL1MW-084	4.7	0.1 U	0.24	0.05	104	Mixed (oxic-anoxic)	O_2 -Mn(I
LL4MW-198	0.6	0.1 U	1.05	4.69	84.5	Mixed (oxic-anoxic)	O ₂ -Fe(III)/

^{1.} General redox category and redox process after Jurgens and others, 2009.

4.1 Stable isotopes of hydrogen and oxygen in water

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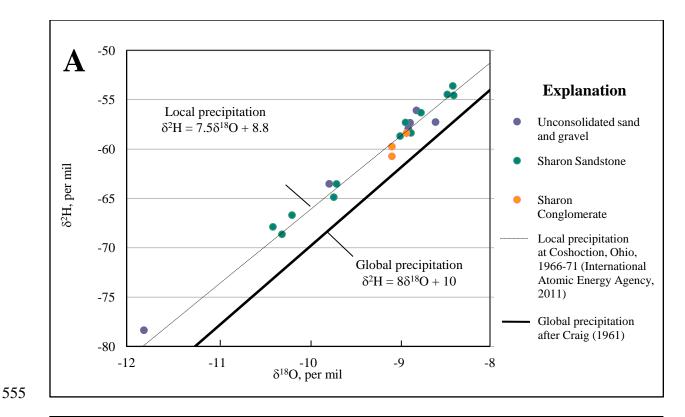
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Measurement of stable hydrogen and oxygen isotopes in water can be a useful tool to examine the recharge history of groundwater because hydrogen and oxygen are part of the water molecule and generally are not affected by processes that may affect dissolved constituents (Kendall and McDonnell, 1998). Isotope ratios of hydrogen and oxygen in groundwater samples from RVAAP (table 9, at the back of this report; fig. 4) were plotted with respect to two reference lines: one for global precipitation (Craig, 1961) and one for local precipitation from Coshocton, Ohio (approximately 70 mi to the south-southwest of RVAAP; International Atomic Energy Agency, 2011). Isotope ratios in groundwater samples that plot along either of these reference lines are assumed to have originated from rainfall or snowmelt and were not affected by other isotope fractionation processes. The results from samples obtained at RVAAP were plotted by lithologic unit (fig. 4A) and by AOC (fig. 4B) to determine whether either of these groupings would show similarities between samples. All of the samples plotted near the local precipitation line and not below or on the global precipitation line, indicating that groundwater at RVAAP mostly originated as rainfall or snowmelt from nearby sources. The most negative (depleted) isotope ratios were determined for groundwater from well LL4MW-197 at RVAAP-11 Load Line 4, shown as the isolated symbol on the low end of the graphs in figure 4.



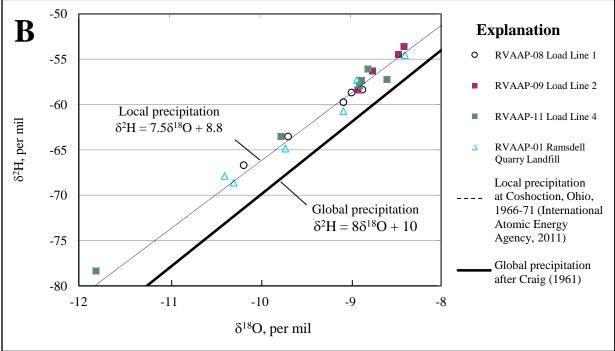


Figure 4. Isotope ratios of hydrogen and oxygen in groundwater samples collected at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011 in relation to global and local precipitation lines plotted by A. lithologic unit, and B. area of concern. (Delta notation, δ , denotes isotope ratio relative to a standard.)

4.2 Bis(2-ethylhexyl)phthalate

The reporting limit for bis(2-ethylhexyl)phthalate was 10 micrograms per liter (µg/L) for all groundwater samples. The results from traditional sampling purge methods from two wells yielded concentrations below the reporting limit; however, the results from micropurge sampling methods were estimated values of 1.4 and 2.2 µg/L for samples from wells LL1MW-08 and LL4MW-198, respectively (table 12). The sample from well LL1MW-084 collected by micropurge sampling methods and the field blank collected by the USGS were both associated with laboratory blank samples that had estimated values below the reporting limit.

Table 12. Concentrations of bis(2-ethylhexyl)phthalate in groundwater samples collected at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

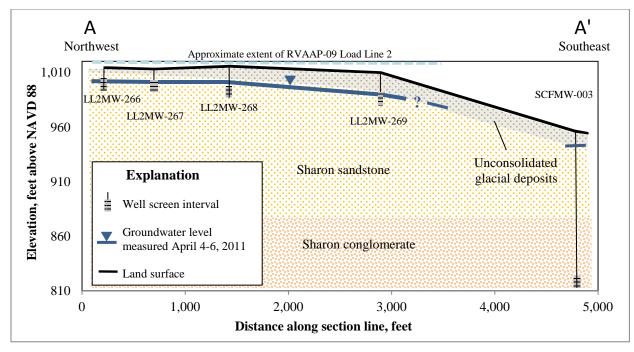
 $[\mu g/L,\,micrograms\,per\,liter;\,U,\,less\,than\,reporting\,limit\,listed;\,J,\,estimated\,value;\,B,\,constituent\,detected\,in\,associated\,method\,or\,trip\,blank\,sample]$

Site	Sampling method	bis- (2-ethyl hexyl) phthalate (µg/L)
LL1MW-084	Micropurge	1.4 JB
LL1MW-084	Traditional Purge	10 U
LL4MW-198	Micropurge	2.2 J
LL4MW-198	Traditional Purge	10 U
Field Blank	Traditional Purge	2.2 JB

4.3 Water chemistry along groundwater-flow paths

To explore differences or patterns in water chemistry along groundwater-flow paths, lines of shallow groundwater-flow paths that included wells sampled during the April 2011 sampling event were drawn on the potentiometric-surface map available from the Ohio Department of Natural Resources (2005) and on potentiometric-surface maps provided by the contractor. It is acknowledged that these maps are at relatively coarse scales and that the flow paths are estimated and may not necessarily include wells that lie precisely along a flow path or within the same lithologic unit that would encounter the same parcel of water when it flows from upgradient to downgradient. Nonetheless, this exercise was done to demonstrate a potential data-analysis tool for the USACE to use in future investigations.

Two groundwater-flow paths near wells sampled in April 2011 are shown on figure 1 at RVAAP-09 Load Line 2 (A-A') and RVAAP-01 Ramsdell Quarry Landfill (B-B'). These two flow paths were selected for these figures because flow directions from the ODNR potentiometric-surface map and the contractor-supplied potentiometric-surface maps agreed well; flow paths at RVAAP-08 Load Line 1 and RVAAP-10 Load Line 3 differed between the two data sources. Figure 5 depicts wells, lithology, and static water levels measured before sampling along the flow paths. Previous data evaluations by a contractor revealed that several COCs were observed at each of the two AOCs, including bis(2-ethylhexyl)phthalate, pentachlorophenol, and manganese at RVAAP-09 Load Line 2 and tetrachloroethene, bis(2-ethylhexyl)phthalate, arsenic, iron, manganese, and nickel at RVAAP-01 Ramsdell Quarry Landfill. Results obtained during the April 2011 sampling round by the contactor and the USGS indicated that concentrations of bis(2-ethylhexyl)phthalate and pentachlorophenol at RVAAP-09 Load Line 2 were at or below the reporting limit; however, manganese was detected above the



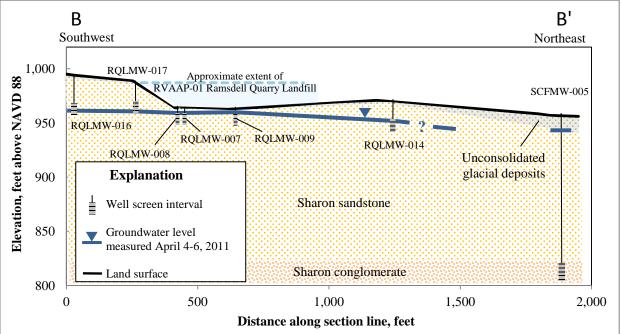
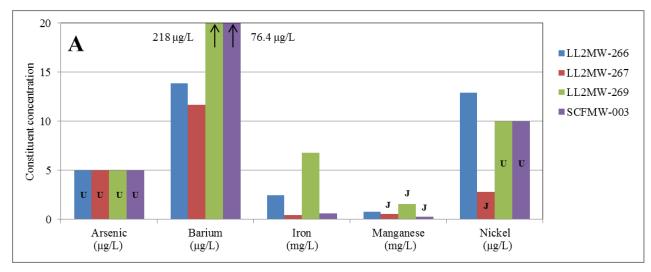


Figure 5. Hydrologic section lines along A-A' for RVAAP-09 Load Line 2 and B-B' for RVAAP-01 Ramsdell Quarry Landfill. Section lines are from figure 1.

reporting limit in all wells. Similarly, tetrachloroethene and bis(2-ethylhexyl)phthalate were at or below the reporting limit at RVAAP-01 Ramsdell Quarry Landfill; however, arsenic, nickel, iron, and manganese were detected above the reporting limit in several wells. Even though some of the elements, such as iron and manganese, are commonly found in groundwater at elevated concentrations in northeast Ohio, they are still considered COCs at RVAAP.

For purposes of comparison, concentrations of the COCs arsenic, barium, iron, manganese, and nickel were plotted as a series of bar charts (figure 6). For each cluster of bars that show concentrations of a single element, upgradient wells are plotted to the left and downgradient wells are plotted to the right. So, for example, the cluster for barium concentrations at Load Line 2 shows the upgradient wells LL2MW-266 and LL2MW-267 as blue and red bars, respectively, the mid-gradient well LL2MW-269 as a green bar, and the furthest downgradient well SCFMW-003 as a purple bar.

For RVAAP-09 Load Line 2, barium, iron, and manganese are at their greatest concentration in well LL2MW-269, indicating a potential source of these elements between this well and the two upgradient wells. If the Sharon Conglomerate well SCFMW-003 is assumed lie along the same flow path (somewhat unlikely based on vertical distance between wells and observations of upward gradients and flowing wells in the area), some physical or geochemical process is responsible for lowering concentrations of barium, iron, and manganese between RVAAP-09 Load Line 2 and the downgradient well.



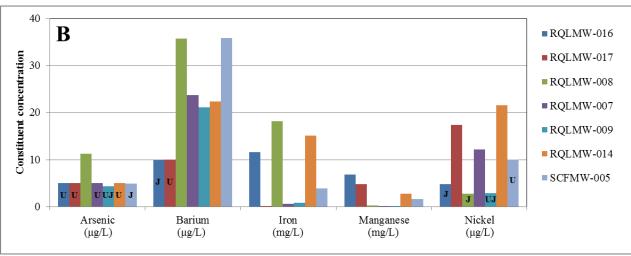


Figure 6. Concentrations of selected inorganic constituents at A. RVAAP-09 Load Line 2, and B. RVAAP-01 Ramsdell Quarry Landfill, April 4 through 7, 2011. (U, The constituent was analyzed for but not detected; UJ, the reported value is considered to an estimated Method Reporting Level; J, the quality-assurance criteria indicate that the quantitative values may be outside the normal expected range of precision; mg/L, milligrams per liter; μ g/l, micrograms per liter).

For RVAAP-01 Ramsdell Quarry Landfill, arsenic, barium, and iron all show higher concentrations in samples from at least one of the wells at or near the landfill than in upgradient wells. As was the case for the RVAAP-09 Load Line 2 flow path, a similar assumption must be considered as those for the previous flow path if well SCFMW-005 is to be included in this flowpath, and if so, concentrations also decrease downgradient of this AOC because of some physical or geochemical process.

4.4 Comparison of purging methods

Among the different inorganic constituents, concentrations in groundwater samples collected from wells LL1MW-084 and LL4MW-198 by micropurge and traditional purge sampling methods exhibited a wide range (table 4, at the back of this report). For most other constituents, including volatile organic compounds, semivolatile organic compounds, pesticides, and PCBs, concentrations were at or below the reporting limit in samples from both purging methods (tables 5 through 9, at the back of this report). For samples that had detections of any constituent, concentrations obtained through the two purging methods were compared by means of the RPD (equation 2, Section 4, where x_1 is traditional purge and x_2 is micropurge; table 13). For these comparisons, positive RPDs indicate that concentrations of constituents collected through traditional sampling purge methods were greater than concentrations of constituents collected through micropurge sampling methods and negative RPDs indicate that traditional sampling purge methods resulted in concentrations that were less than those obtained through micropurge sampling methods.

Table 13. Comparison of results between traditional purge sampling and micropurge sampling where constituents were above reporting level collected in groundwater samples at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011. Results in bold have relative percent differences greater than 10 percent.

[J, estimated value; B, constituent detected in associated method or trip blank sample; PG, percent difference between the original and confirmation analyses is greater than 10 percent]

6701 6711 6712 Constituent (units) Reporting level Site Traditional purge Micropange purge difference 672 673 Lingual Tinorgant Son LL1MW-084 404 246 48.6 675 Barium (µg/L) 50 LL1MW-084 40.4 246 48.6 675 Barium (µg/L) 0.50 LL1MW-084 1.6 1.5 6.5 677 Cadmium (µg/L) 0.50 LL1MW-084 1.6 1.5 6.5 678 Calcium (mg/L) 1 LL1MW-084 42.3 49.1 -14.9 679 Cadnium (µg/L) 5 LL1MW-084 42.3 49.1 -14.9 679 Cobalt (µg/L) 5 LL1MW-084 9.3 9.9 -6.3 681 Copper (µg/L) 5 LL1MW-084 9.3 9.9 -6.3 682 Iron (mg/L) 1 LL1MW-084 3.2 2.9 9.8 684 Manganese (mg/L) 1 LL1MW-084<	669				Sampling method		Relative					
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407												
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Relative percent differences for nine inorganic constituents exceeded ± 10 percent: aluminum, barium, calcium, cobalt, manganese, nickel (2 samples), potassium, sodium, and zinc. It is important to note that, even though RPDs for some of these constituents were greater than 10 percent, the absolute difference between values may be so small that they are within the range of natural variability shown by field duplicates collected by the contractor. For explosives and propellants, eight compounds were detected above the reporting level, but all eight were "J" levels in the micropurge samples, indicating estimated concentrations: 1,3,5-trinitrobenzene, 1,3dinitrobenzene, 2,4,6-trinitrotoluene, 2-4-dinitrotoluene, 2-amino-4,6-dinitrotoluene, 4-amino-2,6-dinitrotoluene, HMX, and RDX. Seven of eight RPD values for explosives and propellants in table 13 were positive indicating that the measured concentrations were greater in traditional purge samples than in micropurge samples. All eight explosives and propellants listed in table 12 were detected in samples from well LL1MW-084 and not in LL4MW-198 and by both sampling methods. Similarly, the fact that no detections above the reporting limit of volatile organic compounds, semivolatile organic compounds, pesticides, or PCBs were determined from analyses of groundwater from wells LL1MW-084 or LL4MW-198 for either sampling method adds some confidence to the results provided by both sampling methods.

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5.0 Discussion and Conclusion

The purposes of the sampling and of this report were to describe the geochemical conditions in shallow groundwater and explore whether concentrations of bis(2-ethylhexyl)phthalate are an artifact of micropurge sampling methods. Additionally, concentrations of selected constituents were examined along groundwater-flow paths to see whether differences could be observed beneath and downgradient of the AOCs.

Water types are calcium-magnesium-sulfate-bicarbonate waters, which is typical of groundwaters in northeast Ohio. All samples (except the one from LL4MW-197, which was oxic) were characterized as mixed (oxic-anoxic) by means of the methodology of Jurgens and others (2009). The sample from LL4MW-197 had the highest nitrate concentration (1.4 mg/L) and the highest uranium concentration (1.5 µg/L) of all groundwater samples collected in this study. This information is important towards the understanding of the fate and transport of contaminants: certain contaminants are relatively insoluble or degrade quickly under oxic conditions, whereas other contaminants are very soluble and may be persistent under these conditions. If monitored natural attenuation is being considered as a remediation strategy at RVAAP, redox conditions in shallow groundwater may enhance or limit attenuation for redoxsensitive contaminants. The isotope ratios of hydrogen and oxygen in groundwater samples collected at RVAAP suggest that groundwater is mostly derived from local precipitation and not from other sources (such as regional groundwater flow or deeper formation fluids). As above, this information is important towards developing remediation strategies. For example, if other sources of water were recharging the shallow groundwater (such as water from deeper geologic formations with regional flow components), contaminant migration could be more complex than would be suggested by following flow lines on a potentiometric surface map. As for the redox conditions described above, the isotopic signature of groundwater from well LL4MW-197 was different from other samples; however, chemical data provided in this report do not reveal any potential causes for this difference. Additional sampling of these isotopes in surface water and groundwater could help refine our understanding of recharge processes, groundwater/surface water interaction, isotope fractionation, and sources of water to wells.

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With respect to the cation/anion balances and comparison of measured and computed specific conductance, several samples provided results that were less than ideal (the ideal being

cation/anion balances of zero and identical measured and computed specific conductances). For the cation/anion balances, 16 of 21 sets of analyses were greater than zero and 5 of 21 were less than zero indicating a high bias for one or more cations or a low bias for one or more anions. Of the five cation/anion balances that exceeded five percent, four of five were greater than zero and one of five was less than zero. For the specific-conductance comparisons, 13 of 21 samples had RPDs equal to or greater than ten percent above or below zero. Of the 13 greater than ten percent above or below zero, eleven samples were greater than zero and two were less than zero indicating that the measured specific conductance was greater more often than the computed specific conductance.

Without further evaluation of field and lab procedures, there were no direct indications as to causes of these deviations from ideal. Although a wide variety of inorganic constituents were analyzed in these samples, it is still possible that additional constituents that were not analyzed contribute to the ionic balance and specific conductance of the sample. Constituents included in these calculations from tables 3 through 9 (at the back of this report) show wide ranges in concentrations and no obvious outliers from visual examination alone. Selected ionic ratios were examined to determine whether any patterns emerged due to systematic high or low variations in constituents; however, the data as listed in table 14 show no particular patterns. For comparison, wells at RVAAP were grouped by aquifer and data from Ohio Environmental Protection Agency's (Ohio EPA; 2011) Ambient Ground Water Monitoring Network from four wells located five to eight miles to the northwest are included. Comparison of these ratios assumes that these ratios should be relatively consistent between samples and that differences in ratios are due

[all units are dimensionless (meq/L / meq/L); green-colored values are more than one standard deviation above the mean; red-colored values are more than one standard deviation below the mean]

Site	HCO ₃ / Cl	Na/ Ca	Na/ Cl	Ca/ Cl	Mg/ Cl	K/ Cl	SO ₄ / Cl	Ca/ Mg	Ca/ SO ₄	Ca/ HCO ₃
Site								1115	504	псоз
	W	ells scr	eened in	unconso	lidated gl	acial de	posits			
Micropurge sample	S									
LL4MW-195	103	0.04	5.07	125	55.2	0.32	94.4	2.27	1.33	1.21
LL4MW-196	82.8	0.03	2.18	70.4	32.5	0.38	25.1	2.17	2.81	0.85
LL4MW-197	218	0.01	2.07	184	51.1	0.92	22.1	3.60	8.31	0.84
LL4MW-198	26.8	0.18	7.24	40.3	34.3	0.45	57.5	1.17	0.70	1.50
LL4MW-199	37.2	0.08	2.67	33.3	13.2	0.24	9.67	2.52	3.44	0.89
Traditional purge sa	amples									
LL4MW-198	30.2	0.16	6.52	40.5	36.2	0.54	52.0	1.12	0.78	1.34
Mean	83.1	0.08	4.29	82.3	37.1	0.48	43.5	2.14	2.89	1.11
Standard deviation	73.2	0.07	2.29	60.4	15.0	0.24	31.0	0.92	2.88	0.28
Moon of noonby my					2011)					
Mean of nearby pul Garrettsville	9.24	- wen sar 0.12	npies (O 1.48	12.1	4.78	0.14	5.42	2.52	2.22	1.30
Mantua	2.13	0.12	0.71	2.68	1.03	0.14	0.64	2.60	4.21	1.26
	2.13	0.27	0.71	2.00	1.03	0.01	0.01	2.00	1.21	1.20
			Wells	screened	in bedro	ck				
Micropurge sample	s									
LL1MW-081	45.1	0.03	2.13	69.0	23.0	1.33	56.0	3.00	1.23	1.53
LL1MW-082	81.1	0.03	2.12	74.7	45.5	1.45	51.7	1.64	1.44	0.92
LL1MW-084	17.1	0.05	4.74	91.4	8.91	2.31	94.8	10.3	0.96	5.36
LL2MW-266	38.9	0.41	9.49	23.1	18.1	0.69	12.6	1.27	1.84	0.59
LL2MW-267	24.2	0.41	8.63	20.9	17.3	0.16	18.9	1.21	1.10	0.87
LL2MW-269	8.31	0.18	0.96	5.47	4.49	0.28	2.01	1.22	2.72	0.66
RQLMW-007	105	0.03	2.69	81.4	69.8	1.63	53.3	1.17	1.53	0.78
RQLMW-008	204	0.06	2.59	45.3	206	1.49	35.5	0.22	1.28	0.22
RQLMW-009	41.8	0.11	2.64	23.5	28.4	2.5	8.99	0.83	2.61	0.56
RQLMW-014	5.47	0.32	1.19	3.72	4.26	0.32	7.38	0.87	0.50	0.68
RQLMW-016	20.7	0.02	1.80	99.3	25.1	0.39	123	3.95	0.80	4.79
SCFMW-003	144	0.09	7.91	93.0	62.5	0.89	13.3	1.49	7.00	0.65
SCFMW-004	97.1	0.07	9.47	127	84.5	1.00	117	1.51	1.08	1.31
SCFMW-005	50.1	0.09	5.32	57.5	42.9	0.68	59.1	1.34	0.97	1.15
Traditional purge sa	amples									
LL1MW-084	14.8	0.06	4.40	68.0	8.49	2.06	69.8	8.02	0.97	4.58
Mean	59.8	0.13	4.40	58.9	43.3	1 15	48.3	2.53	1 74	1 64
Standard deviation	59.8 56.8	0.13	3.06	38.9 37.4	43.3 51.5	1.15 0.76	48.3 39.8	2.53	1.74 1.58	1.64 1.73
						0.70	37.0	2.00	1.30	1./3
Mean of nearby pul										
Shalersville	1.77	0.28	0.78	2.78	1.01	0.03	1.21	2.77	2.30	1.58
Hiram	5.21	0.14	0.82	5.87	3.31	0.09	2.39	1.77	2.46	1.13

to sampling and (or) analytical error alone. The ratios show wide ranges and no obvious patterns from visual examination alone.

Comparison of RPDs for inorganic constituents between samples collected by traditional sampling purge methods and micropurge sampling methods revealed that results for ten samples (including two for nickel) were greater than ten percent: eight of ten RPDs that exceeded ten percent were positive whereas two of ten were negative (table 12). This comparison indicates that either a potential high bias exists for traditional sampling purge methods or a low bias exists for micropurge sampling methods. For eight explosives and propellants detected above the reporting limit in groundwater samples from LL1MW-084, seven resulted in a positive RPD greater than 10 percent and one resulted in a negative RPD.

Three possible explanations may exist for the discrepancy between analytical results obtained through the two different sampling methods: 1. elevation or decrease in constituent concentrations due to a significant rainfall event, 2. elevated turbidity in some of the micropurge samples, and 3. groundwater contributions of from the same aquifer may differ between small-volume micropurge sampling and relatively large volume traditional-purge sampling. Each of these explanations are described in more detail below.

First, during sampling on April 4, field crews noted that more than inch of rain fell at RVAAP. Rain that infiltrates into the ground may alter local groundwater conditions by increasing concentrations of some constituents through leaching of salts in the unsaturated zone or decreasing concentrations of some constituents by dilution. Additionally, changes in groundwater water levels and gradients can result in focused recharge. Therefore, large differences in water-quality results may be due to naturally changing hydrologic conditions between sampling dates (including rainfall or snowmelt events).

Second, the turbidity measured in groundwater samples collected with micropurge sampling methods were quite variable and ranged from 0 to 835 nephelometric turbidity units (NTUs). In the case of wells at RVAAP, elevated turbidity is likely derived from aquifer solids. USGS sampling guidelines state that turbidity should generally be less than five NTUs in most groundwater systems and wells with turbidity greater 25 NTUs may indicate failure of the well construction or a poorly developed well (USGS, variously dated). USGS groundwater sampling criteria recommend that, after purging three casing volumes, turbidity should equilibrate between five successive readings to plus or minus ten percent when turbidity is less than 100 NTUs before sampling can begin. USEPA guidelines published in Yeskis and Zavala (2002) state that "when possible, especially when sampling for contaminants that may be biased by the presence of turbidity, the turbidity reading is desired to stabilize at a value below 10 NTUs." Also, "when samples are collected for metals, semivolatile organic compounds, and pesticides, every effort must be made to reduce turbidity to 10 NTUs or less (not just the stabilization of turbidity) prior to the collection of the water sample."

For groundwater samples collected using the micropurge sampling method during the April 2011 sampling event, 16 of 18 turbidity values were greater than 25 NTU at the time of sampling (turbidity data were not available for one sample). As noted in the contractor's results for explosives and propellants from this sampling event, "due to excessive particulates, LL4MW-195, LL4MW-196, LL4MW-198, LL4MW-199, BKGMW-006, RQLMW-008, RQLMW-007, B12MW-012, LL2MW-269, and ASYMW-003 were filtered in the laboratory." Because micropurge sampling methods depend on wells that are in good hydraulic connection with the aquifer materials and on minimal drawdown and turbidity during sampling, the condition of some wells at RVAAP may be in question.

Third, when samples collected with micropurge sampling methods are compared to samples collected with traditional sampling methods, it may be the case that different segments and volumes of aquifer material contribute water to the well, thereby obscuring meaningful comparisons. Yeskis and Zavala (2002) caution that there are two potential disadvantages of micropurge sampling methods: that the reproducibility of the sampling results may be lower and that the sample may be collected from a relatively small portion of the aquifer volume. When using micropurge sampling alone, reproducibility may vary between sampling rounds because even small changes in the position of the sampling pump intake can result in potentially different zones within the aquifer being sampled.

The two samples collected with traditional sampling purge methods for bis(2-ethylhexyl)phthalate resulted in concentrations below the reporting limit of 10 µg/L. Micropurge sampling methods provided estimated values of 1.4 and 2.2 µg/L for the same two wells. The facts that plasticizers (including bis(2-ethylhexyl)phthalate) were not used at RVAAP and that this compound also was detected in field blanks at similar concentrations reveal non-conclusive results with respect to groundwater impact. These facts also suggest that contamination from sampling, processing, or laboratory analysis is likely and that bis(2-ethylhexyl)phthalate is not a contaminant in groundwater.

To evaluate changes in water chemistry along groundwater flow paths, wells need to be situated in such a way that horizontal and vertical flow components can be verified. The two flow paths examined in this study were only estimates based on coarse-scale maps and did not consider vertical flow components between shallow and deep lithologic units; however, the examination of constituent concentrations along groundwater-flow paths can be a valuable tool in assessing the potential fate of contaminants and off-site contaminant migration. Nests of wells

850	screened in the different lithologic units would allow measurement of vertical and horizontal
851	gradients to better define groundwater flow paths.
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Abbreviations and data qualifiers used throughout following tables Less than Not measured or data unavailable The B flag is used for both organic and inorganic analyses when the constituent is found in the associated method or trip blank as well as in the sample. Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a warning message given by the alkalinity calculation software on the USGS Web site
913 914 Not measured or data unavailable 915 916 B The B flag is used for both organic and inorganic analyses when the constituent is 917 found in the associated method or trip blank as well as in the sample. 918 919 e Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a 920 warning message given by the alkalinity calculation software on the USGS Web site
914 Not measured or data unavailable 915 916 B The B flag is used for both organic and inorganic analyses when the constituent is 917 found in the associated method or trip blank as well as in the sample. 918 919 e Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a 920 warning message given by the alkalinity calculation software on the USGS Web site
915 916 B The B flag is used for both organic and inorganic analyses when the constituent is 917 found in the associated method or trip blank as well as in the sample. 918 919 e Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a 920 warning message given by the alkalinity calculation software on the USGS Web site
916 B The B flag is used for both organic and inorganic analyses when the constituent is found in the associated method or trip blank as well as in the sample. 918 919 e Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a warning message given by the alkalinity calculation software on the USGS Web site
found in the associated method or trip blank as well as in the sample. found in the associated method or trip blank as well as in the sample. Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a warning message given by the alkalinity calculation software on the USGS Web site
918 919 e Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a 920 warning message given by the alkalinity calculation software on the USGS Web site
919 e Estimated value (USGS nomenclature). For alkalinity values with the "e" qualifier, a warning message given by the alkalinity calculation software on the USGS Web site
warning message given by the alkalinity calculation software on the USGS Web site
921 http://or.water.usgs.gov/alk/ indicated that "something significant, other than
hydroxide, carbonate, and bicarbonate, was neutralized in this titration. The computed
values for carbonate and bicarbonate may not represent their true concentrations in the
sample and should be reported only as estimates."
925
926 ft Feet
927 928 J The identification of the constituent is acceptable, but the quality-assurance criteria
929 indicate that the quantitative values may be outside the normal expected range of
930 precision (i.e. the quantitative value is considered estimated).
931
932 mg/L Milligrams per liter
933
934 NTU Nephelometric turbidity units
935
936 per mil Parts per thousand relative to a standard
937
Percent difference between the original and confirmation analyses is greater than 10
939 percent.
940
941 μg/L Micrograms per liter 942
943 μS/cm MicroSiemens per centimeter
944
945 U The constituent was analyzed for but not detected. The value preceding the U is the
946 Method Reporting Limit.
947
948 UJ This flag is a combination of the U and J qualifiers which indicates that the constituent
is not present. The reported value is considered to an estimated Method Reporting
950 Level.
951

Table 3. Water-quality physical measurements in groundwater samples from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

	USGS		Date	Water level (ft below	Temp- erature, water	Specific conduct-
G.	Site	USGS	of	land	(degrees	ance
Site	Number	Site ID	sampling	surface)	Celsius)	(µS/cm)
		Micropur	ge samples			
LL1MW-081	PO-138	411213081010000	04/05/11	30.29	9.2	471
LL1MW-082	PO-139	411208081005600	04/05/11	28.35	8.8	355
LL1MW-084	PO-140	411210081005100	04/05/11	28.30	9.5	358
LL2MW-266	PO-141	411159081013800	04/07/11	10.53	9.8	158
LL2MW-267	PO-142	411154081013900	04/07/11	8.79	8.2	564
LL2MW-269	PO-143	411134081012600	04/07/11	16.25	9.6	337
LL4MW-195	PO-144	411052081033200	04/04/11	10.12	8.7	1,470
LL4MW-196	PO-145	411054081033000	04/04/11	13.25	10.0	543
LL4MW-197	PO-146	411056081032900	04/04/11	14.59	9.7	706
LL4MW-198	PO-147	411056081033400	04/04/11	6.59	8.2	380
LL4MW-199	PO-148	411048081032900	04/04/11	7.05	11.7	675
DOLMW 007	PO-149	411244081010900	04/06/11	5.62	9.0	420
RQLMW-007						
RQLMW-008	PO-150	411242081010800	04/06/11	6.28	7.3	742
RQLMW-009 RQLMW-014	PO-151 PO-152	411242081010400	04/06/11	4.35 20.00	6.4 8.8	219 210
	PO-152 PO-153	411248081010100	04/06/11			
RQLMW-016	PO-155	411240081011200	04/06/11	37.35	9.0	2,100
SCFMW-003	PO-154	411119081011200	04/06/11	8.46	9.0	710
SCFMW-004	PO-155	411142081003300	04/06/11	flowing	8.9	1,100
SCFMW-005	PO-156	411251081005400	04/05/11	10.56	9.6	900
			purge samples			
LL1MW-084	PO-140	411210081005100	04/07/11	26.89	11.1	290
LL4MW-198	PO-147	411056081033400	04/07/11	6.32	10.1	270
Field blank			04/07/11			

Table 3. Water-quality physical measurements in groundwater samples from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011 – continued.

Site	pH (standard units)	Dissolved oxygen (mg/L)	Turbidity (NTU)	Alkalinity, incre- mental (mg/L) as CaCO ₃)	Carbonate, incre- mental (mg/L) as CO ₃ ²⁻)	Bicarbonat incre- mental (mg/L) as HCO ₃ -)
		V	Iicropurge sa	amples		
LL1MW-081	6.3	4.3	805	108	0.0	132
LL1MW-082	6.1	0.6	247	104	0.0	127
LL1MW-084	5.7	8.8	147	22.7	0.0	27.9
LL2MW-266	5.7	8.5	29	87.9	0.0	107
LL2MW-267	6.0	5.1	400	109	0.0	133
LL2MW-269	5.9	1.0	298	118	0.0	143
LL4MW-195	6.6	1.8	621	408	0.6 e	497 e
LL4MW-195 LL4MW-196	7.1	3.1	405	188	0.4 e	228 e
LL4MW-197	7.1	8.3	133	310	0.4 e 0.9 e	226 e 376 e
LL4MW-198	6.1	9.0	431	45.5	0.0	55.4
LL4MW-199	6.9	6.6		258	0.2	314
LL-IVI W-177	0.7	0.0		230	0.2	314
RQLMW-007	6.6	3.4	835	207	0.0	253
RQLMW-008	6.9	0.6	478	376	0.2	457
RQLMW-009	6.5	2.5	109	65.0	0.0	79.2
RQLMW-014	5.6	0.7	156	38.6	0.0	47.1
RQLMW-016	6.5	6.0	133	196.1	0.1	239
SCFMW-003	6.8	3.6	26	284	0.2	346
SCFMW-003	6.9	3.4	0	288	0.3	351
SCFMW-004 SCFMW-005	6.7	3.4	3	205	0.3	250
		π₋]:4: amal			
LL1MW-084	5.8	4.70	ditional purg	e sampies 22.8	0.0 e	28.1 e
LL1MW-084 LL4MW-198	6.0	0.56	3.8	51.0	0.0 6	62.3
Field blank	_					

Table 4. Selected inorganic constituents in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

	Boron (μg/L)	Bromide (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Lithium (µg/L)	Molyb- denum (μg/L)	Nitrate, as N (mg/L)
			Micropur	ge samples			
LL1MW-081	66 J	0.5 U	1.7	0.059 B	10 U	20 U	0.1 U
LL1MW-082	47 J	0.5 U	0.91 B	0.057 B	10 U	20 U	0.1 U
LL1MW-084	83 J	0.5 U	0.91 B	0.001 B	10 U	20 U	0.16
EETWIW-004	033	0.5 0	0.75 D	0.033 D	10 0	20 0	0.00
LL2MW-266	29 J	0.5 U	1.6	0.083 B	23	20 U	0.1 U
LL2MW-267	26 J	0.5 U	3.2	0.29 B	23	20 U	0.1 U
LL2MW-269	120	0.5 U	10	0.16 B	49	20 U	0.1 U
LL4MW-195	41 J	0.5 U	2.8	0.18 B	21	20 U	0.1 U
LL4MW-196	24 J	0.5 U	1.6	0.44 B	5.4 J	20 U	0.22
LL4MW-197	28 J	0.5 U	1	0.24 B	3.8 J	20 U	1.4
LL4MW-198	28 J	0.5 U	1.2	0.24 B	9.3 J	20 U	0.1 U
LL4MW-199	27 J	0.5 U	4.9	0.15 B	11	20 U	0.1 U
RQLMW-007	270	0.5 U	1.4	0.14 B	10 U	5.5 J	0.04 B
RQLMW-008	170	0.5 U	1.3	0.30 B	10 U	6.0 J	0.1 U
RQLMW-009	27 J	0.5 U	1.1	0.11 B	10 U	20 U	0.071 I
RQLMW-014	13 J	0.5 U	5	0.11 B	4.3 J	20 U	0.1 U
RQLMW-016	21 J	0.5 U	6.7	0.37 B	110	20 U	0.1 U
SCFMW-003	29 J	0.5 U	1.4	0.12 B	15	20 U	0.1 U
SCFMW-004	110	0.5 U	2.1	0.039 B	15	20 U	0.1 U
SCFMW-005	28 J	0.5 U	2.9	0.06 B	14	5.8 J	0.1 U
				ourge sampl			
LL1MW-084	79 J	0.5 U	1.1	0.07 B	7.5 J	20 U	0.74
LL4MW-198	26 J	0.5 U	1.2	0.16 B	8.3 J	20 U	0.033 E
FI 1151 1	400 **	0 =	4 **		10.77		0.4.**
Field Blank	100 U	0.5 U	1 U	1 U	10 U	20 U	0.1 U

Table 4. Selected inorganic constituents in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	Nitrite, as N (mg/L)	Nitrogen, as ammonia (mg/L)	Phosphate, as P, ortho- (mg/L)	Silica, as SiO ₂ (mg/L)	Sulfate (mg/L)	Uranium (μg/L)
		Mi	icropurge samp	oles		
LL1MW-081	0.1 U	2 U	0.5 U	9.6	129	0.31 J
LL1MW-082	0.1 U	2 U	0.5 U	18	63.7	0.055 J
LL1MW-084	0.1 U	2 U	0.5 U	10	122	0.47 J
LL2MW-266	0.1 U	2 U	0.5 U	11	27.2	0.043 JE
LL2MW-267	0.1 U	2 U	0.37 B	15	82	0.066 JE
LL2MW-269	0.1 U	2 U	0.5 U	8.8	27.2	1 U
LL4MW-195	0.1 U	2 U	0.45 B	21	358	0.97 JB
LL4MW-196	0.1 U	4.5	0.5 U	15	54.4	0.12 JB
LL4MW-197	0.1 U	2 U	0.5 U	12	30	1.5 B
LL4MW-198	0.1 U	2 U	0.5 U	22	93.4	0.054 JE
LL4MW-199	0.1 U	0.84 B	0.5 U	19	64.2	0.2 JB
RQLMW-007	0.1 U	2 U	0.79	15	101	1.3
RQLMW-008	0.1 U	0.84 B	0.17 B	9.3	62.6	0.37 J
RQLMW-009	0.1 U	2 U	1.3	11	13.4	0.11 J
RQLMW-014	0.1 U	2 U	0.5 U	14	50	1 U
RQLMW-016	0.1 U	2 U	0.19 B	18	1120	0.38 J
SCFMW-003	0.1 U	2 U	0.5 U	12	25.2	0.026 J
SCFMW-004	0.1 U	7.2	0.25 B	13	334	1 U
SCFMW-005	0.1 U	2.8	0.22 B	16	232	0.21 J
		Tradi	tional purge sa	mples		
LL1MW-084	0.1 U	0.84 B	0.18 B	11	104	0.62 JB
LL4MW-198	0.1 U	0.84 B	0.5 U	22	84.5	1 U
Field Blank	0.1 U	2 U	0.5 U	0.5 U	1 U	1 U

Table 4. Selected inorganic constituents in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	Alum- inum (μg/L)	Anti- mony (µg/L)	Ars- enic (µg/L)	Bar- ium (µg/L)	Beryll- ium (µg/L)	Cad- mium (µg/L)	Calc- ium (µg/L)	Chromium (µg/L)
			Microp	urge sampl	es			
LL1MW-084	246	2.0 U	5.0 U	16.7	1 U	1.5	49,100	5.0 U
LL4MW-198	50.0 U	2.0 U	5.0 U	8.7 J	1 U	0.50 U	27,300	5.0 U
		r	Fraditiona	l purge san	nples			
LL1MW-084	404	2.0 U	5.0 U	15.7	1 U	1.6	42,300	5.0 U
LL4MW-198	34.4 B	2.0 U	5.0 U	10.3	1 U	0.50 U	27,500	5.0 U
Field blank	50.0 U	2.0 U	5.0 U	10 U	1 U	0.50 U	1,000 U	5.0
	Cob-	Cop-	Cyan-			Magnes-	Manga-	Merc-
	alt	per-	ide	Iron	Lead	ium	nese	ury
	(μg/L)	μg/L)	(mg/L)	(μg/L)	(µg/L)	(µg/L)	(μg/L)	(μg/L)
	(FB/ =-)	(MB/)	(g/)	(FB /)	(FB/)	(FB/)	(MB/)	(F-8,)
				urge sample				
LL1MW-084	14.6	9.9	0.01 UJ	50.0 U	3.0 U	2,900	192	0.20 U
LL4MW-198	5.0 U	5.0 U	0.01 UJ	4,720	3.0 U	14,100	1010	0.20 U
				l purge san	-			
LL1MW-084	19.6	9.3	0.01 U	50.0 U	3.0 U	3,200	243 J	0.20 U
LL4MW-198	5.0 U	5.0 U	0.01 U	4,690	3.0 U	14,900	1050	0.20 U
Field blank	5.0 U	5.0 U	0.01 U	50.0 U	3.0 U	1,000 U	10 U	0.20 U
		Potass-	Selen-		Sod-	Thall-	Vanad-	
	Nickel	ium	ium	Silver	ium	ium	ium	Zinc
	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$
			ъл:					
I I 1 M W 1 00 1	24.6	2.420	_	urge sample		0.22 11	10.011	40.2
LL1MW-084	24.6	2,420	5 U	5 U	2,920	0.32 U	10.0 U 10.0 U	49.3
LL4MW-198	25.3	591 J	5 U	5 U	5,630	1.0 U	10.0 U	61.6
	o=			l purge san	-	0.775	10077	=2 4 7
LL1MW-084	37	2,500	5 U	5 U	3,140	0.55 B	10.0 U	72.4 J
LL4MW-198	32.2	717 B	5 U	5 U	5,070	1.0 U	10.0 U	64.4

Table 5. Explosives and propellants in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

	1,3,5- Trinitro- benzene (µg/L)	1,3- Dinitro benzene (µg/L)	2,4,6- Trinitro- tolouene (µg/L)		2,6- Dinitro toluene (µg/L)	2-Amino- 4,6- dinitro toluene (µg/L)
		Micro	opurge sample	P C		
LL1MW-084	3.3 J	0.41 J	8.4 J	1.7 J	0.69 J	13 J
LL4MW-198	0.098 U	0.098 U	0.098 U		0.098 U	0.098 U
		Traditio	nal purge san	nples		
LL1MW-084	4.7 PG	0.86	11	2.8	1.1	15
LL4MW-198	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Field blank	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
			4-Amino-			
	2-	3-	2,6-	4-		
	Nitro-	Nitro-	Dinitro	Nitro		Nitro-
	toluene	toluene	toluene	toluene	HMX	benzene
	(µg/L)	(µg/L)	(µg/L)	(μg/L)	(µg/L)	(µg/L)
		Micro	opurge sample	es		
LL1MW-084	0.55 U	0.55 U	26 J	0.55 U	0.79 J	0.096 J
LL4MW-198	0.49 U	0.49 U	0.098 U	0.49 U	0.098 U	0.098 U
			nal purge san			
LL1MW-084	0.5 U	0.5 U	29	0.5 U	0.98 PG	0.11 U
LL4MW-198	0.5 U	0.5 U	0.11 U	0.5 U	0.11 U	0.11 U
Field blank	0.5 U	0.5 U	0.11 U	0.5 U	0.11 U	0.11 U
	Nitro-	Nitro-	Nitro-			
	cellul-	glyc-	guan-			
	ulose	erin	idine	PETN	RDX	Tetryl
	(mg/L)	(µg/L)	(µg/L)	(μg/L)	(μg/L)	(µg/L)
		Micro	opurge sample	es		
LL1MW-084	2.0 U	0.72 U	20 U	0.72 U	0.42 J	0.11 U
LL4MW-198	2.0 U	0.64 U	20 U	0.64 U	0.098 U	0.098 U
			nal purge san	-		_
LL1MW-084	2.0 U	0.69 U	20 U	0.69 U	0.59	0.11 U
LL4MW-198	2.0 U	0.69 U	20 U	0.69 U	0.11 U	0.11 U
Field blank	2.0 U	0.7 U	20 U	0.7 U	0.11 U	0.11 U

Table 6. Pesticides and polychlorinated biphenyls (PCBs) in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

	4,4'- DDD	4,4'- DDE	4,4'- DDT	Aldrin	alpha- BHC	alpha- Chordane
	(μg/L)	(μg/L)	(µg/L)	(μg/L)	(μg/L)	(µg/L)
		Micro	purge sampl	oc.		
LL1MW-084	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ
LL4MW-198	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ
		Tradition	nal purge san	nples		
LL1MW-084	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
LL4MW-198	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Field blank	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
				Endo-	Endo-	Endo-
	Beta-	Delta-	Dield-	sulfan	sulfan	sulfan
	внс	внс	rin	I	II	sulfate
	(μg/L)	(µg/L)	(µg/L)	(μg/L)	(µg/L)	(μg/L)
		Micro	purge sampl	es		
LL1MW-084	0.03 UJ	0.03 UJ	0.03 UJ	0.025 UJ	0.025 UJ	0.03 UJ
LL4MW-198	0.03 U	0.03 UJ	0.03 UJ	0.025 UJ	0.025 UJ	0.03 UJ
		Tradition	nal purge san	nples		
LL1MW-084	0.15 U	0.15 U	0.15 U	0.12 U	0.12 U	0.15 U
LL4MW-198	0.03 U	0.03 U	0.03 U	0.025 U	0.025 U	0.03 U
Field blank	0.01 U7	0.03 U	0.03 U	0.025 U	0.025 U	0.03 U
				Gamma-	Gamma-	
		Endrin	Endrin	BHC	Chlor-	Hepta-
	Endrin	aldehyde	ketone	(Lindane)	dane	chlor
	(μg/L)	(μg/L)	(µg/L)	(μg/L)	(µg/L)	(µg/L)
		Micro	purge sampl	es		
LL1MW-084	0.03 UJ	0.03 U	0.03 U	0.03 UJ	0.03 UJ	0.03 UJ
LL4MW-198	0.03 UJ	0.03 UJ	0.03 U	0.03 UJ	0.03 UJ	0.03 UJ
			nal purge san	-		
LL1MW-084	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
LL4MW-198	0.03 U	0.03 U	0.03 UJ	0.03 U	0.03 U	0.03 U
Field blank	0.03 U	0.03 U	0.03 UJ	0.03 U	0.03 U	0.03 U

Table 6. Pesticides and polychlorinated biphenyls (PCBs) in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	Hepta- chlor epoxide (µg/L)	Methoxy- chlor (µg/L)	Toxa- phene (µg/L)	Aroclor PCB- 1016 (µg/L)	Aroclor PCB- 1221 (μg/L)	Aroclor PCB- 1232 (µg/L)
	•	· · · · · · · · · · · · · · · · · · ·	-	· ·	· ·	•
			purge samples			
LL1MW-084	0.03 UJ	0.10 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.50 U.
LL4MW-198	0.03 UJ	0.10 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.50 UJ
		Tradition	al purge sampl	les		
LL1MW-084	0.15 U	0.5 U	10 U	0.50 U	0.50 U	0.50 U
LL4MW-198	0.03 U	0.10 U	2.0 U	0.50 U	0.50 U	0.50 U
	0.00**	0.40.77	• • • • •	0.70.77	0.70.77	0.70.71
Field blank	0.03 U	0.10 U	2.0 U	0.50 U	0.50 U	0.50 U
	Aroclor PCB-	Aroclor PCB-	Aroclor PCB-	Aroclor PCB-		
	1242	1248	1254	1260		
	(µg/L)	(µg/L)	(µg/L)	(µg/L)		
		Micro	purge samples			
LL1MW-084	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ		
		0.50 UJ	0.50 UJ	0.50 UJ		
LL4MW-198	0.50 UJ	0.50 OJ	0.50 03	0.50 03		
	0.50 UJ					
LL4MW-198		Tradition	al purge sampl	es		
LL4MW-198 LL1MW-084	0.50 U	Tradition 0.50 U	al purge sampl 0.50 U	l es 0.50 U		
LL4MW-198		Tradition	al purge sampl	es		

Table 7. Volatile organic compounds in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

	1,1,1- Tri- chloro-	1,1,2,2- Tetra- chloro-	1,1,2- Tri- chloro-	1,1- Di- chloro-	1,1-Di- chloro- ethene
	ethane (µg/L)	ethane (μg/L)	ethane (µg/L)	ethane (μg/L)	(total) (µg/L)
	(µg /2)	(µg /2)	(µg , 2)	(µg /2)	(MB/ 12)
* * 43 57** 004	4 0 **	_	urge samples	4.0.**	4.0.77
LL1MW-084	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
		Traditiona	l purge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Field blank	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1,2-	1,2-	1,2-Di-	1,2-	
	Ďi-	Ďi-	chloro-	Ďi-	2-
	bromo-	chloro	ethene	chloro	But-
	methane	ethane	(total)	propane	anone
	$(\mu g/L)$	$(\mu g/L)$	(µg/L)	(μg/L)	(µg/L)
LL1MW-084	1.0 U	1.0 U	urge samples 1.0 U	1.0 U	10 U
LL1MW-084 LL4MW-198	1.0 U 1.0 U	1.0 U	1.0 U	1.0 U	10 U
LL4WIW-198	1.0 U	1.0 U	1.0 U	1.0 U	10 0
			l purge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U	1.0 U	10 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	10 U
Field blank	1.0 U	1.0 U	1.0 U	1.0 U	10 U
		435.3.3			
	2 11	4-Methyl-			Bromo-
	2-Hexa-	2-penta	A 4	D	chloro-
	none	none	Acetone	Benzene	methane
	(μg/L)	(µg/L)	(µg/L)	(µg/L)	(μg/L)
		Micropi	urge samples		
LL1MW-084	10 U	10 U	10 U	1.0 U	1.0 U
LL4MW-198	10 U	10 U	10 U	1.0 U	1.0 U
		Traditiona	l purge samples		
	10 U	10 U	10 U	1.0 U	1.0 U
LL1MW-084	10 0	100			
LL1MW-084 LL4MW-198	10 U 10 U	10 U	10 U	1.0 U	1.0 U
			10 U 10 U	1.0 U 1.0 U	1.0 U 1.0 U

Table 7. Volatile organic compounds in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	Bromo- di- chloro methane	Bromo- form	Bromo- methane	Carbon disulfide	Carbon tetra- chloride
	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)
		» «	•		• •
I I 1 M W 00 4	1 0 11		irge samples 1.0 U	1.0.11	1011
LL1MW-084 LL4MW-198	1.0 U 1.0 U	1.0 U 1.0 U	1.0 U	1.0 U 1.0 U	1.0 U 1.0 U
LL4WW-198	1.0 0	1.0 U	1.0 0	1.0 0	1.0 0
			purge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Field blank	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
					cis-1,2
	~	~		~-	-di
	Chloro-	Chloro-	Chloro-	Chloro-	chloro
	benzene	ethane	form	methane	ethene
	(µg/L)	(μg/L)	(μg/L)	(µg/L)	(µg/L)
		Micropu	irge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
		Traditional	purge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Field blank	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	cis-1,3-	Di-			Methyl
	Di-	bromo-			ene
	chloro-	chloro-	Ethyl-	m & p-	chlo-
	propene	methane	benzene	xylenes	ride
	(µg/L)	$(\mu g/L)$	$(\mu g/L)$	(µg/L)	(µg/L)
		Microni	irge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U.
LL4MW-198	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U
I I 1MW 004	1011	Traditional 1.0 U	purge samples	2011	2011
LL1MW-084 LL4MW-198	1.0 U 1.0 U	1.0 U 1.0 U	1.0 U 1.0 U	2.0 U 2.0 U	2.0 U
LL41V1 VV -170	1.0 U	1.0 U	1.0 U	2.U U	2.0 U
Field blank	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U

Table 7. Volatile organic compounds in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	o-xylene (µg/L)	Styrene (µg/L)	Toluene (μg/L)	Total xylenes (µg/L)	trans- 1,2- dichloro- ethene (µg/L)
		N/I:			
LL1MW-084	1.0 U	1.0 U	rge samples 1.0 U	2.0 U	1.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
		Traditional	purge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Field blank	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	trans- 1,3-	Tri-			
	Dichloro	chloro	Vinyl		
	propene	ethene	chloride		
	(µg/L)	(µg/L)	(μg/L)		
		Micropu	rge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U		
T T 43 4337 100	1.0 U	1.0 U	1.0 U		
LL4MW-198					
			purge samples		
LL1MW-084	1.0 U	1.0 U	1.0 U		
	1.0 U 1.0 U				

Table 8. Semivolatile organic compounds in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

	1,2,4- tri- chloro benzene (µg/L)	1,2- di- chloro benzene (µg/L)	1,3- di- chloro benzene (µg/L)	1,4- di- chloro benzene (µg/L)	2,2- oxybis (1-chloro propane) (µg/L)	2,4,5- tri- chloro phenol (µg/L)
		ъл:	1			
LL1MW-084	1.0 U	Micro 1.0 U	purge samples 1.0 U	1.0 U	1.0 U	5.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U
LL-HVI W-170	1.0 0	1.0 C	1.0 C	1.0 C	1.0 C	3.0 0
			al purge samp			
LL1MW-084	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U
LL4MW-198	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U
Field Blank	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U
	2,4,6-	2,4-	2,4-	2,4-	2-Chloro	2-
	Trichloro	Dichloro	Dimethyl	Dinitro	naphtha	Chloro
	phenol	phenol	phenol	phenol	lene	phenol
	μg/L)	(µg/L)	μg/L)	μg/L)	$(\mu g/L)$	μg/L)
		3.41	•			
LL1MW-084	5.0 U	Micro _j 2.0 U	purge samples 2.0 U	5.0 UJ	1.0 U	1.0 U
LL4MW-198	5.0 U	2.0 U	2.0 U	5.0 UJ	1.0 U	1.0 U
LL4WIW-190	3.0 0	2.0 0	2.0 0	3.0 03	1.0 0	1.0 0
		Tradition	al purge samp	oles		
LL1MW-084	5.0 U	2.0 U	2.0 U	5.0 U	1.0 U	1.0 U
LL4MW-198	5.0 U	2.0 U	2.0 U	5.0 U	1.0 U	1.0 U
Field Blank	5.0 U	2.0 U	2.0 U	5.0 U	1.0 U	1.0 U
	2-					
	Methyl-	2-	2-	2-	3, 3-	3-
	naphtha	Methyl	Nitro	Nitro	Dichloro	Nitro
	lene	phenol	aniline	phenol	benzidine	aniline
	(μg/L)	(μg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
		Micro	purge samples			
LL1MW-084	0.20 U	1.0 U	purge samples 2.0 U	2.0 U	5.0 U	2.0 U
LL4MW-198	0.20 U	1.0 U	2.0 U	2.0 U	5.0 U	2.0 U
EE TIM 11 - 1 70	0.20 0	1.0 0	2.0 0	2.0 0	3.00	2.0 0
			al purge samp			
LL1MW-084	0.20 U	1.0 U	2.0 U	2.0 U	5.0 U	2.0 U
LL4MW-198	0.20 U	1.0 U	2.0 U	2.0 U	5.0 U	2.0 U
Field Blank	0.20 U	1.0 U	2.0 U	2.0 U	5.0 U	2.0 U

Table 8. Semivolatile organic compounds in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	4,6-Dinitro- 2-methyl phenol (μg/L)	4- Bromo- phenyl phenyl ether (µg/L)	4- Chloro 3-methyl phenol (µg/L)	4- Chloro aniline (µg/L)	4- Chloro- phenyl phenyl ether (µg/L)	4- Methy phenol (μg/L)
		Micror	ourge samples			
LL1MW-084	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U
LL4MW-198	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U
		Tradition	al purge samp	les		
LL1MW-084	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U
LL4MW-198	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U
Field Blank	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U
	4-	4-	Ace-	Ace-		Benzo(a
	Nitro- analine (µg/L)	Nitro- phenol (µg/L)	naphtha- ene (µg/L)	naphthyl- ene (µg/L)	Anthra- cene (µg/L)	anthra- cene (µg/L)
	N 0 /			\ 6 /	<u> </u>	<u> </u>
			ourge samples			
LL1MW-084	2.0 U	5.0 UJ	0.20 U	0.20 U	0.20 U	0.20 U
LL4MW-198	2.0 U	5.0 U	0.20 U	0.20 U	0.20 U	0.20 U
		Tradition	al purge samp	les		
LL1MW-084	2.0 U	5.0 U	0.20 U	0.20 U	0.20 U	0.20 U
LL4MW-198	2.0 U	5.0 U	0.20 U	0.20 U	0.20 U	0.20 U
Field Blank	2.0 U	5.0 U	0.20 U	0.20 U	0.20 U	0.20 U
		Benzo(b)-	Benzo-	Benzo(k)		
	Benzo(a)	-fluor-	(g,h,i)-	fluor	Benzoic	Benzyl
	pyrene	anthene	perylene	anthene	acid	alcohol
	$(\mu g/L)$	$(\mu g/L)$	$(\mu g/L)$	(µg/L)	$(\mu g/L)$	(µg/L)
		Micron	ourge samples			
LL1MW-084	0.20 U	0.20 U	0.20 Ū	0.20 U	10 U	5.0 U
LL4MW-198	0.20 U	0.20 U	0.20 U	0.20 U	10 U	5.0 U
		Tradition	al purge samp	les		
LL1MW-084	0.20 U	0.20 U	0.20 U	0.20 U	10 U	5.0 U
LL4MW-198	0.20 U	0.20 U	0.20 U	0.20 U	10 U	5.0 U
E: -14 D11-	0.20.11	0.20.11	0.20.11	0.20.11	10.11	5 O I I
Field Blank	0.20 U	0.20 U	0.20 U	0.20 U	10 U	5.0 U

Table 8. Semivolatile organic compounds in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	bis- (2-Chloro- ethoxy) methane (µg/L)	bis- (2-Chloro- ethyl) ether (µg/L)	bis- (2-Ethyl hexyl) phthalate (µg/L)	Butyl benzyl phthalate (µg/L)	Carb- azole (µg/L)	Chrys- ene (µg/L)
		Micro	purge samples	S		
LL1MW-084	1.0 U	1.0 U	1.4 JB	1.0 U	1.0 U	0.20 U
LL4MW-198	1.0 U	1.0 U	2.2 J	1.0 U	1.0 U	0.20 U
		Tradition	al purge sam	ples		
LL1MW-084	1.0 U	1.0 U	10 U	1.0 U	1.0 U	0.20 U
LL4MW-198	1.0 U	1.0 U	10 U	1.0 U	1.0 U	0.20 U
Field Blank	1.0 U	1.0 U	2.2 JB	1.0 U	1.0 U	0.20 U
	Dibenzo-					
	(a,h)-	Di-	Di-	Di-	Di-n-	Di-n-
	anthra-	benzo-	ethyl	methyl	butyl	octyl
	cene	furan	phthalate	phthalate	phthalate	phthalate
	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
		Micro	purge sample			
LL1MW-084	1.0 U	1.0 U	1.4 JB	1.0 U	1.0 U	0.20 U
LL4MW-198	1.0 U	1.0 U	2.2 J	1.0 U	1.0 U	0.20 U
		Tradition	al purge sam	ples		
LL1MW-084	1.0 U	1.0 U	10 U	1.0 U	1.0 U	0.20 U
LL4MW-198	1.0 U	1.0 U	10 U	1.0 U	1.0 U	0.20 U
Field Blank	1.0 U	1.0 U	2.2 JB	1.0 U	1.0 U	0.20 U
				**	Hexa-	
			**	Hexa-	chloro-	TT
	Elmon		Hexa-	chloro-	cyclo-	Hexa-
	Fluor-	Elmanana	chloro-	buta	penta-	chloro
	anthene (µg/L)	Fluorene (µg/L)	benzene (μg/L)	diene (μg/L)	diene (µg/L)	ethane (µg/L)
	(6)				46 /	48 /
LL1MW-084	0.20 U	Micro _] 0.20 U	purge samples 0.20 U	s 1.0 U	10 U	1.0 U
LL1MW-084 LL4MW-198	0.20 U 0.20 U	0.20 U 0.20 U	0.20 U 0.20 U	1.0 U	10 U 10 U	1.0 U
LLTI91 (1 -170	0.20 0				10.0	1.0 0
LL1MW-084	0.20 U	Tradition 0.20 U	al purge sam 0.20 U	ples 1.0 U	10 U	1.0 U
LL1MW-084 LL4MW-198	0.20 U	0.20 U 0.20 U	0.20 U 0.20 U	1.0 U 1.0 U	10 U 10 U	1.0 U
LL+1V1 VV -170	0.20 0	0.20 0	0.20 0	1.0 0	10 0	1.0 0
Field Blank	0.20 U	0.20 U	0.20 U	1.0 U	10 U	1.0 U

Table 8. Semivolatile organic compounds in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011--continued.

	Indeno (1,2,3-cd) pyrene (µg/L)	Iso- phorone (µg/L)	Naphtha- lene (µg/L)	Nitro- benzene (µg/L)	N- Nitroso- -di-n- propyl amine (µg/L)	N- Nitroso dipheny amine (µg/L)
		Micro	ourge samples	ı		
LL1MW-084	0.20 U	0.20 U	0.20 U	1.0 U	10 U	1.0 U
LL4MW-198	0.20 U	0.20 U	0.20 U	1.0 U	10 U	1.0 U
		Tradition	al purge samp			
LL1MW-084	0.20 U	0.20 U	0.20 U	1.0 U	10 U	1.0 U
LL4MW-198	0.20 U	0.20 U	0.20 U	1.0 U	10 U	1.0 U
Field Blank	0.20 U	0.20 U	0.20 U	1.0 U	10 U	1.0 U
	Penta-					
	Penta- chloro-	Phenan-				
	chloro- phenol	threne	Phenol	Pyrene		
	chloro-		Phenol (µg/L)	Pyrene (µg/L)		
	chloro- phenol (µg/L)	threne	(µg/L)	•		
LL1MW-084	chloro- phenol (µg/L)	threne (µg/L)	(µg/L)	•		
LL1MW-084 LL4MW-198	chloro- phenol (µg/L) Mic	threne (µg/L) ropurge samp	(μg/L)	(µg/L)		
	chloro- phenol (µg/L) Mic 5.0 U 5.0 U	threne (µg/L) ropurge samp 0.20 U 0.20 U	(μg/L) ples 1.0 U 1.0 U	(μg/L) 0.20 U		
LL4MW-198	chloro- phenol (µg/L) Mic 5.0 U 5.0 U Tradit	threne (µg/L) ropurge samp 0.20 U 0.20 U ional purge sa	(μg/L) ples 1.0 U 1.0 U amples	(μg/L) 0.20 U 0.20 U		
LL4MW-198 LL1MW-084	chloro- phenol (µg/L) Mic 5.0 U 5.0 U Tradit	threne (µg/L) ropurge samp 0.20 U 0.20 U tional purge sa 0.20 U	(μg/L) oles 1.0 U 1.0 U nmples 1.0 U	(μg/L) 0.20 U 0.20 U 0.20 U		
LL4MW-198	chloro- phenol (µg/L) Mic 5.0 U 5.0 U Tradit	threne (µg/L) ropurge samp 0.20 U 0.20 U ional purge sa	(μg/L) ples 1.0 U 1.0 U amples	(μg/L) 0.20 U 0.20 U		

Table 9. Isotopic ratios of hydrogen and oxygen in groundwater samples collected from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

1621		$\delta^2 \mathbf{H}$	$\delta^{18}O$
1622		(per mil)	(per mil)
1623			
1624	Micr	opurge sample	S
1625	LL1MW-081	-63.53	-9.69
1626	LL1MW-082	-66.69	-10.18
1627	LL1MW-084	-58.68	-8.99
1628			
1629	LL2MW-266	-56.31	-8.76
1630	LL2MW-267	-53.60	-8.41
1631	LL2MW-269	-54.46	-8.47
1632			
1633	LL4MW-195	-56.08	-8.81
1634	LL4MW-196	-63.52	-9.77
1635	LL4MW-197	-78.35	-11.81
1636	LL4MW-198	-57.33	-8.88
1637	LL4MW-199	-57.26	-8.60
1638			
1639	RQLMW-007	-68.63	-10.29
1640	RQLMW-008	-67.88	-10.39
1641	RQLMW-009	-64.87	-9.72
1642	RQLMW-014	-54.56	-8.40
1643	RQLMW-016	-57.30	-8.93
1644			
1645	SCFMW-003	-58.38	-8.92
1646	SCFMW-004	-59.75	-9.08
1647	SCFMW-005	-60.73	-9.08
1648			
1649		nal purge samp	
1650	LL1MW-084	-58.36	-8.87
1651	LL4MW-198	-57.93	-8.90
1652			
1 650			

- APPENDIX B: Laboratory analytical reports and data validation reports for groundwater samples collected at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.



ANALYTICAL REPORT

PROJECT NO. GR11NJ00D5WRV00

RAVENNA OH

Lot #: A1D050441

Gary L. Cottrell

U.S. Geological Survey (USGS)
Building 95, MS-407
Denver, CO 80225

TESTAMERICA LABORATORIES, INC.

Mark J. Loeb Project Manager

mark.loeb@testamericainc.com

Approved for release. Mark J. Loeb Project Manager II 6/23/2011 10:03 AM



Laboratory Job No: #10830441

CONTRACT LABORATORY DATA-REVIEW WORKSHEET

1.0 GENERAL INFORMATION
Data reviewer:
Office, Project, & Account #: Dt Rasensu
2.0 DATA DELIVERABLES
Date of Lab analytical report: 6/23/1/ Number of copies: bound 4 unbound
No. of CD copies of raw-data report:Remarks:
Raw-data report reviewed? YesNoElectronic data files on CD? YesNo
EDD file format: QWDATATAL QUA08 _/_ERPIMSOther
Date rec'd data deliverables: 6/27/1/ Date sent deliverables to USGS office 6/27/4/
3.0 INVOICE STATUS FOR LOT: DK
4.0 SAMPLE INFORMATION (Page #'s listed in this worksheet refer to lab analytical report) Sample collection date(s): 4/4/1/ Sample matrix:
No. of sample types in lot: Environmental Trip blank Equip. blank
MS/MSDOther:
Date samples received at laboratory: 4/4/1/
4.1 Were accelerated turn-around times (TATs) requested for analyses? YesNo
4.2 Were analyses on chain-of-custody (COC) form performed by lab? YESNO
If no , list missing or cancelled analyses and reason for non-performance:
4.3 Were the samples properly preserved, labeled, no lab log-in problems, and(or) at
appropriate temperature (<6 deg. C) upon receipt by the laboratory: YesNo
If no , list sample/lab IDs, and associated problems or reference lab report case narrative:

Laboratory Job	No:		
4.4 Were preparation (extraction) and(or) analysis holding times met?	Yes .	No	
If no, list analytical methods and sample/lab IDs for samples that exce			mits:
in no, list analytical methods and sample habit 125 for samples that exce		iding time ii	mic.
4.5 Did surrogate recoveries meet QC acceptance criteria? Yes	No	NA /	
If no , list methods, surrogates, associated sample/lab IDs, lab report p			
in no, not methods, surregated, assessated sample, las report p	ago "o		
		·	
4.6 Were dilution factors greater than 1 for <i>organic</i> analyses? Yes	No	NA	
If yes, list analytical methods and reason for raised dilution factors: dilution		·	
high-analyte levelsmatrix interferencesother			
	· · · · · · · · · · · · · · · · · · ·		 -
		——————————————————————————————————————	
4.7.14	<u></u>	N I A	
4.7 Were dilution factors greater than 1 for inorganic analyses? Yes _		NA	
If yes , list analytical methods and reason for raised dilution factors:			
50, -25-120	·		
		· · · · · · · · · · · · · · · · · · ·	
4.8 Additional comments about sample analyses:	<u> </u>		
	·		
			<u></u>

Laboratory Job No: VIVO) DEST
5.0 QUALITY CONTROL (QC) ANALYSES and RESULTS
5.1 Were any target analytes detected in the Laboratory Method Blanks? YesNo
If yes , list method, analytes, prep batch #, report page #s:
If yes, list method, driarytes, prop bater ii, report page iie.
5.2 Did lab control samples (LCS/LSCD) meet percent recoveries (%R) criteria? Yes No
If no , list method, analytes, LCS/LCSD, prep batch #, report page #s:
Ortho P - High - PES
5.3 Did the MS/MSD results meet %R or RPD acceptance criteria? YesNoNA
Note: matrix spike and matrix spike duplicate (MS/MSD) data are used to evaluate the effect of sample matrix on the analytical process and should be only used in conjunction with other available lab QC data. In some cases, MS samples not directly associated with this lot may be used by the laboratory.
If no , list method, analytes; MS, MSD or RPD; and lab report page #:
Ortho-P-Low and High-P31 Dotho P-Low -P33
0,7hs K - Low - P33
Dr. Bor - High - P35+37
5.4 Did the lab-sample duplicate results meet RPD acceptance criteria? YesNoNA If no , list method, analytes, prep batch #, report page #s,
, , , , , , , , , , , , , , , , , , , ,
5.5 Additional comments about QC results:

	Laboratory Job No:
6.0 ANALYTICAL METHODS USED in this	LABORATORY LOT NUMBER
VOCs by GC/MSmethod 8260B/ 524.2	[water (W) or solids (S) analysis holding-time (HT) of 14 days]
Gasoline Range Organics (GRO)+BTEX-met	hod 8015B(GRO)/ 8021 [W and S: analysis HT 14 days]
Diesel Range Organics-method 8015B-DRO	[W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
Pesticides by GCmethod 8081A	[W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
PCBs by GCmethod 8082	[W: prep HT 7 days: S: prep HT14 days: analysis HT 40 days]
Pesticides by GCmethod 8141A	[W: prep HT 7 days: S: prep HT 14 days: analysis HT 40 days
Herbicides by GCmethod 8151A	[W: prep HT 7 days; S: prep HT14 days, analysis HT 40 days]
SVOCs by GC/MSmethod 8270C	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Dioxins and Furansmethods 8280/ 8290/ 16	[W and S: prep HT 30 days; analysis HT 45 days]
PAHs by HPLC method 8310	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Explosives by HPLC method 8330 or 8321A	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Hexane extractable materials (HEM and SGT	-HEM)-method 1664/ 9071B [W/S: analysis HT 28 days]
Total organic carbon (TOC) or DOCmethod	s 415.1 or 9060 or 5310B [W: analysis HT 28 days]
Perchloratemethods 314.0 or 6850 LC/MS/N	MS or 6860 IC/MS/MS [W: analysis HT 28 days]
Metals by ICPmethod 6010B or 200.7	[W and S: analysis HT 180 days]
Metals by ICP/MSmethod 6020 or 200.8	[W and S: analysis HT 180 days]
Mercury by CVAAmethod 7470A (W) and 74	471A (S) [W and S: analysis HT 28 days]
Inorganic anions-method 3001/9056 [W: analysi	is HT 48 hours- NO ₂ , NO ₃ , ortho-P; HT 28 daysBr,Cl ,F, SO ₄]
Total dissolved solids (TDS)method 2540C	and(or) TSSmethod 2540D [W: analysis HT 7 days]
Alkalinitymethod 310.1 (Total, OH, HCO ₃ , a	nd CO ₃) [W: analysis HT 14 days]
Nitrogen, ammoniamethod 350 T 850. 2	[W analysis HT 28 days]
Nitrogen, TKNmethod 351.2	[W. analysis HT 28 days]
Nitrogen, nitrate + nitritemethod 353.2 [W:	analysis HT 28 days] NO ₃ or NO ₂ only [HT 48 hours]
Nitrogen, nitritemethod 353.2 or 354.1	[W: analysis HT 48 hours]
Phosphorus-method 365.3 and ortho P by 36	5.3 [Phosphorus.: W: analysis HT 28 days, ortho P 48 hours]
Phosphorus-method 365.1 and ortho P by 36	5.1 [Phosphorus: W: analysis HT 28 days, ortho P 48 hours]
Cyanide, total, dissolved, or amenablemetho	ods 9012A/ 335.4 [W and S: analysis HT 14 days]
MBAS surfactants – method 425.1 <i>(HT 48 ho</i>	urs)
Moisture contentmethods D2216 or 160.3M	
BODmethod 405 1 (HT 48 hours) or CODn	nethod 410 4

_Other analyses:__

Turbidity--method 180.1 (HT 48 hours); Hardness 2340B

Physical properties: pH--method 4500 H B; specific conductance—method 2510B



CASE NARRATIVE

CASE NARRATIVE

A1D050441

The following report contains the analytical results for five water samples submitted to TestAmerica North Canton by U.S.Geological Survey (USGS) from the RAVENNA OH Site, project number GR11NJ00D5W2100. The samples were received April 05, 2011, according to documented sample acceptance procedures.

The 6010B Metals (B Li Mo Si) and 6020 Uranium by ICP/MS analyses were performed at the TestAmerica Denver laboratory.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

All parameters were evaluated to the method detection limit and include qualified results where applicable.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Mark J. Loeb, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 1.8°C.

GENERAL CHEMISTRY

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

The matrix spike/matrix spike duplicate(s) for FWG-LL4mw-198C-0100-GW and FWG-LL4mw-197C-0090-GW had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The matrix spike/matrix spike duplicate(s) for batch(es) 1097318 and 1101306 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The LCSD and CCV associated with batch(es) 1101306 exceeded method criteria on the high side for Phosphate as P, Ortho. Since the sample results were below the requested reporting limit the results were accepted.

Sample(s) FWG-LL4mw-195C-0070-GW analyzed by ion chromatography had greater than 10 samples between CCV/CCBs due to analyst error. The CCV/CCB results met criteria and results are reported.

The Phosphate as P, Ortho sample(s) FWG-LL4mw-195C-0070-GW DUP was initially analyzed within hold time. However, a duplicate was also analyzed with the results out of RPD. The sample will be reanalyzed outside of hold time.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data. Program or agency specific requirements take precedence over the requirements listed in this narrative.

OC BATCH

Environmental samples are taken through the testing process in groups called Quality Control Batches (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, a Matrix Spike/Matrix Spike Duplicate (MS/MSD) pair or a Matrix Spike/Sample Duplicate (MS/DU) pair.

For 600 series/CWA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, where appropriate, a Matrix Spike (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch, with the exception of poor performing analytes. A list of these analytes is listed below. No corrective action is taken if these analytes do not meet criteria. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

Poor performers

rooi periorineis	_
Method 8270 Water and Solid:	
4-Nitrophenol	3,3' – Dichlorobenzidine
Benzoic Acid	2,4,6 - Tribromophenol
Phenol	2,4-Dinitrophenol
Phenol-d5	Pentachlorophenol
4,6-Dinitro-2-methylphenol	Hexachlorocyclopentadiene (LCG only)
Benzyl Alcohol	4-Chloroaniline
Method 8151 Solid	
Dinoseb	
Method 8260 Water and Solid	
Dichlorodifluoromethane	Hexachlorobutadiene
Trichlorofluoromethane	Naphthalene
Chloroethane	1,2,3-Trichlorobenzene
Acetone	1,2,4-Trichlorobenzene
Bromomethane	2,2-Dichloropropane
Bromoform	Chloromethane

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be ten fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results do not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate or Matrix Spike/Sample Duplicate.

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater. For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica Certifications and Approvals:

The laboratory is certified for the analytes listed on the documents below. These are available upon request. California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Nevada (#OH-000482008A), OhioVAP (#CL0024), Pennsylvania (#008), West Virginia (#210), Wisconsin (#999518190), DoD ELAP (ADE-1437) USDA Soil Permit (P33-08-00123)



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A1D050441

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
FWG-LL4mw-198C-0100-GW 04/04/11 15:22	001			
Chloride	1.2	1.0	mg/L	MCAWW 300.0A
Sulfate	93.4	1.0	mg/L	MCAWW 300.0A
Fluoride	0.24 B	1.0	mg/L	MCAWW 300.0A
FWG-LL4mw-195C-0070-GW 04/04/11 16:05	003			
Chloride	2.8	1.0	mg/L	MCAWW 300.0A
Sulfate	358	5.0	mg/L	MCAWW 300.0A
Fluoride	0.18 B	1.0	mg/L	MCAWW 300.0A
Phosphate as P, Ortho	0.45 B	0.50	mg/L	MCAWW 300.0A
FWG-LL4mw-196C-0080-GW 04/04/11 14:11	005			
Nitrogen, as Ammonia	4.5	2.0	mg/L	MCAWW 350.2
Chloride	1.6	1.0	mg/L	MCAWW 300.0A
Sulfate	54.4	1.0	mg/L	MCAWW 300.0A
Fluoride	0.44 B	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.22	0.10	mg/L	MCAWW 300.0A
FWG-LL4mw-197C-0090-GW 04/04/11 12:35	007			
Chloride	1.0	1.0	mg/L	MCAWW 300.0A
Sulfate	30.0	1.0	mg/L	MCAWW 300.0A
Fluoride	0.24 B	1.0	mg/L	MCAWW 300.0A
Nitrate as N	1.4	0.10	mg/L	MCAWW 300.0A
FWG-LL4mw-199C-0110-GW 04/04/11 13:33	009			
Nitrogen, as Ammonia	0.84 в	2.0	mg/L	MCAWW 350.2
Chloride	4.9	1.0	mg/L	MCAWW 300.0A
Sulfate	64.2	1.0	mg/L	MCAWW 300.0A
Fluoride	0.15 B	1.0	mg/L	MCAWW 300.0A



METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A1D050441

PARAMETER	ANALYT METHOL	
Ammonia Nitrogen	MCAWW	350.2
Bromide	MCAWW	300.0A
Chloride	MCAWW	300.0A
Fluoride	MCAWW	300.0A
Nitrate as N	MCAWW	300.0A
Nitrite as N	MCAWW	300.0A
Phosphate as P, Ortho	MCAWW	300.0A
Sulfate	MCAWW	300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes",
EPA-600/4-79-020, March 1983 and subsequent revisions.



SAMPLE SUMMARY

SAMPLE SUMMARY

A1D050441

WO # SAMPLE	# CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MGJ2A 001	FWG-LL4mw-198C-0100-GW	04/04/11	15:22
MGJ2Q 003	FWG-LL4mw-195C-0070-GW	04/04/11	16:05
MGJ2X 005	FWG-LL4mw-196C-0080-GW	04/04/11	14:11
MGJ22 007	FWG-LL4mw-197C-0090-GW	04/04/11	12:35
MGJ25 009	FWG-LL4mw-199C-0110-GW	04/04/11	13:33

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



SHIPPING AND RECEIVING DOCUMENTS

TestAmerica Laboratory location:

Can	rou		

Test A r	merica
THE LEADER IN END	(IDONALENTAL TESTING

Client Contact	Regulat 1	ory program:	DW	N	PDES	F	RCRA		Othe	er				Tost Amorica I abouttories Inc
	Cliept-Project N	Anager:		Site C	ontact:			. /		Lab	Contact:			TestAmerica Laboratories, Inc.
U.S. Geological Survey	Kalul	1 Haef	ner	1 7	Bria	رس	Mail	ot		l.	Ken	Kuzio	~	019551
Address:	Telephone:			Telen	hone:					Tele	phone:			of COCs
6480 Doubletree Ave	614-4	f30-7	709	4	14-6	730	-7	747			330 - 9	166-9	1374	or cocs
City/State/Zip: Columbus, OH 43229				,	Analysis	Turner	ound Tim		П					Total vise maly
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Project Name:	Method of Ship				. [<u> </u>	2 weeks				Sert S			Lab sauding
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PO#			Mateix	in the	Contain	ers & Pr	eservatives		M	1 -	3 3			
		ŀ	s = .	7		_	8		E :	Į	Anions/			Sample Specific Notes /
Sample Identification	Sample Date	Sample Time	Aqueo Sedime Other	H2S04	HN03	NaO	ZnAc/ NaOH Unpres	Offe		5 2	4			Special Instructions:
	7 7						3		NC	2	vv			mann, man aith air ann an taile an t-air ann an t-air ann ann an t-air ann ann ann ann ann an t-air ann ann an
FWGLL4mw-198C-010U-GW	4/4/11	15:22	X	1.		\vdash	- 1	-	NC	_	XX			A728
FUGLLY mw-1986-010U-GF	4411	15:22	V	ļ				<u> </u>	Y6	- X				A728
FWGLLY MW-1950-007U-6W	44/11	16:05	X	11					N	5	XX			A728
FUF LLY mw-195C-007U-GF	4411	16:05	χ		(40	5 X				A728
FWGLL4mw-196C-008U-GW	4/4/11	14:11	X	1			1		NC	<u> </u>	XX			A728
FWGLL4mw-196C-008U-GF	4411	14:11	V.		1				1	3 X				A728
FUELL4mw-1976-0090-GW	44/11	12:35	x	1			1		N	ŝ	XX			A728
FWGLL4mw-197C-0090-GF	4/4/11	12:35	X		1				46	} X				A728
FWGLLYMW-199C-011U-GW	4/4/11	13:33	X	-1				!	M	3	XX			A728
FWGLLYMW-199C-011U-GF	4/4/11	13:33	X		1				Y	9 x				A728
Possible Hazard Identification Non-Hazard Flammable Skin	Irritant	Poison B	Unkno	own Sa	mple Dispo	sal (A. fo n to Clie	ee may be nt [assessed Disp	if samp posal By	iles are y Lab	retained longe	r than 1 month chive For	i) Monti	18
Special Instructions/QC Requirements & Comments: Mate	15-60	10 (3.	Li Mas											
Anco	15 nutr	lents -	L; Mas 300.0A	(Br,	CIF	,50	4) N	4419	le,	3	hophos	phate		
Nitr	ogen, a	Lmmoula	<u>-3501(</u>								·			
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©2008, TestAmerica Laboratories, Inc. All rights reserved.						1							1	TAL 0018- 1 (04/10)

TestAmerica Cooler	Receipt Form/Narrative	Lot Number	A1005	944
North Canton Facilit			102	• (******
Client U.S. Geologica	1 Survey Project Ravenna	<u> ბ</u>	the	
	<u>4-5-11</u> Opened on <u>4-5-11</u>		(Signature	
FedEx 🗌 UPS 🗍 DHL [☐ FAS ☐ Stetson ☐ Client Drop Off ☐ Test		☐ Other	
	<u>A 7 26</u> Multiple Coolers ☐ Foam Box ☐] Client Cooler [Other	
 Were custody seals or 	n the outside of the cooler(s)? Yes 👉 No 🗌	Intact? Yes [才 No 🔲 NA	. 🗀
If YES, Quantity	Quantity Unsalvageable			
Were custody seals or	n the outside of cooler(s) signed and dated?	Yes [🛾 No 🗌 NA	. 🗆 🔰
Were custody seals or	n the bottle(s)?	Yes [No □	
If YES, are there any e	exceptions?			
2. Shippers' packing slip	attached to the cooler(s)?	Yes [No □	
Did custody papers ac	company the sample(s)? Yes 🔀 No 🗌	Relinquished	d by client? Yes	☑ No □
4. Were the custody pap	ers signed in the appropriate place?		Z No □	
5. Packing material used	l: Bubble Wrap 🛛 Foam 🔲 None 🔲 0	Other		
6. Cooler temperature up	oon receipt°C See back of form	for multiple coole	rs/temps	,
METHOD: IF		•	,	
COOLANT: Wet lo	e 🛮 Blue Ice 🔲 Dry Ice 🔲 Water 🗍	None		
7. Did all bottles arrive in	good condition (Unbroken)?	Yes	∂ No □	
	be reconciled with the COC?	Yes [= ==	
9. Were sample(s) at the		Yes [. 🖂
	used for the test(s) indicated?	Yes [
11. Were air bubbles >6 m		Yes [= =	D I
	eived to perform indicated analyses?	Yes 1	= =	ا ا
	ent in the cooler(s)? Yes \(\Box\) No \(\box\) Were VO			
	Date by			
Concerning	Date by	via verbar L	_ voice iviali _	
14. CHAIN OF CUSTOD	V			
The following discrepance				
The following discrepance	es occurred.			
· · · · · · · · · · · · · · · · · · ·				
		····		
15. SAMPLE CONDITION	V			
Sample(s)	were received after t	he recommended	holding time ha	d expired
Sample(s)	were received after t		ed in a broken	
Sample(s)	ware received	with bubble >6 mn		
16. SAMPLE PRESERVA		with bubble >0 iiiii	i in diameter. (i	NOUILY PIVI)
	ATION			1 -
Sample(s)	manded all level(a) Altric Acid att 100440 (IAIO	_ were further pres		
	mended pH level(s). <i>Nitric Acid Lot</i> # 100110-HNO₃; DH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydr			
	at time was preservative added to sample(s)?	CANGO GING ZINO AUG	IGIO EOI# 100 100	
Client ID	pH		Date	Initials
1522 GW	/Z		4-5-11	1 A
1605	1 2		1 2-11	
1411	12			
/235	12			
/333	/ Z			
1522 91				
<u> </u>	12			
1605 1:	/2			

TestAmerica Cooler Receipt Form/Narrative North Canton Facility										
North Canton Facili	t y									
Client ID	Hq	Date	Initials							
1235 Gf		4-5-11	23							
1333 -	c 2		1							
·										
		! 								
		·								
		·								
			·							
Cooler#	Temp. °C	<u>Method</u>	Coolant							
Discrepancies Cont'd:		· · · · · · · · · · · · · · · · · · ·								
D.D. Oparioro Oom ar										
										



GENERAL CHEMISTRY DATA

Client Sample ID: FWG-LL4mw-198C-0100-GW

General Chemistry

Lot-Sample #...: A1D050441-001 Work Order #...: MGJ2A Matrix.....: WG

Date Sampled...: 04/04/11 15:22 Date Received..: 04/05/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	UNITS	METHOI)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/05/11	1096316
		Dilution Fact	or: 1				
Chloride	1.2	1.0	mg/L	MCAWW	300.0A	04/05/11	1096314
		Dilution Fact	or: 1				
Fluoride	0.24 B	1.0	mg/L	MCAWW	300.0A	04/05/11	1096312
		Dilution Fact	or: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW	300.0A	04/05/11	1096317
		Dilucion Face	01. 1				
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/05/11	1096315
		Dilution Fact	or: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW	350.2	04/08/11	1098085
5		Dilution Fact	or: 1				
Phosphate as P,	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
Ortho							
		Dilution Fact	or: 1				
Sulfate	93.4	1.0	mg/L	MCAWW	300.0A	04/05/11	1096318
		Dilution Fact	or: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWG-LL4mw-195C-0070-GW

General Chemistry

Lot-Sample #...: A1D050441-003 Work Order #...: MGJ2Q Matrix.....: WG

Date Sampled...: 04/04/11 16:05 Date Received..: 04/05/11

PARAMETER	RESULT	RL	UNITS	METHOD		PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND Di	0.50	mg/L .or: 1	MCAWW (300.0A	04/05/11	1096316
Chloride	2.8	1.0 ilution Fact	mg/L	MCAWW 1	300.0A	04/05/11	1096314
Fluoride	0.18 B	1.0 ilution Fact	mg/L or: 1	MCAWW :	300.0A	04/05/11	1096312
Nitrate as N	ND Di	0.10 ilution Fact	mg/L or: 1	MCAWW 3	300.0A	04/05/11	1096317
Nitrite as N	ND Di	0.10 ilution Fact	mg/L or: 1	MCAWW 3	300.0A	04/05/11	1096315
Nitrogen, as Ammonia		2.0 ilution Fact	mg/L or: 1	MCAWW 3	350.2	04/08/11	1098085
Phosphate as P, Ortho	0.45 в	0.50	mg/L	MCAWW :	300.0A	04/06/11	1097318
OI CHO	Di	ilution Fact	or: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 3	300.0A	04/08/11	1101306
01 0110	Di	ilution Fact	or: 1				
Sulfate	358	5.0 ilution Fact	mg/L or: 5	MCAWW 1	300.0A	04/07/11	1098197

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWG-LL4mw-196C-0080-GW

General Chemistry

Lot-Sample #...: A1D050441-005 Work Order #...: MGJ2X Matrix.....: WG

Date Sampled...: 04/04/11 14:11 Date Received..: 04/05/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	UNITS	METHOI)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/05/11	1096316
	D	oilution Fact	or: 1				
Chloride	1.6	1.0	mq/L	мсашы	300.0A	04/05/11	1096314
Chroride		ilution Fact	3.	MCAWW	300.0A	04/03/11	1090314
Fluoride	0.44 B	1.0	mg/L	MCAWW	300.0A	04/05/11	1096312
	D	Dilution Fact	or: 1				
Nitrate as N	0.22	0.10	mg/L	MCAWW	300.0A	04/05/11	1096317
	D	Dilution Fact	or: 1				
Nitrite as N	ND	0.10	mg/L	мслыы	300.0A	04/05/11	1096315
NICIICE as N		0.10 Dilution Fact	_	MCAWW	300.0A	04/03/11	1070313
Nitrogen, as Ammonia		2.0	mg/L	MCAWW	350.2	04/08/11	1098085
	D	Dilution Fact	or: 1				
Phosphate as P,	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
Ortho							
	D	ilution Fact	or: 1				
Sulfate	54.4	1.0	mq/L	MCAWW	300.0A	04/05/11	1096318
	D	oilution Fact	or: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWG-LL4mw-197C-0090-GW

General Chemistry

Lot-Sample #...: A1D050441-007 Work Order #...: MGJ22 Matrix.....: WG

Date Sampled...: 04/04/11 12:35 Date Received..: 04/05/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	UNITS	<u>METHOI</u>)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/05/11	1096316
	1	Dilution Fact	or: I				
Chloride	1.0	1.0	mg/L	MCAWW	300.0A	04/05/11	1096314
	1	Dilution Fact	or: 1				
Fluoride	0.24 B	1.0 Dilution Fact	mg/L or: 1	MCAWW	300.0A	04/05/11	1096312
Nitrate as N	1.4	0.10 Dilution Fact	mg/L or: 1	MCAWW	300.0A	04/05/11	1096317
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/05/11	1096315
	1	Dilution Fact	or: 1				
Nitrogen, as Ammonia		2.0	mg/L	MCAWW	350.2	04/08/11	1098085
	1	Dilution Fact	or: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
010110	I	Dilution Fact	or: 1				
Sulfate	30.0	1.0 Dilution Fact	mg/L or: 1	MCAWW	300.0A	04/05/11	1096318

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWG-LL4mw-199C-0110-GW

General Chemistry

Lot-Sample #...: A1D050441-009 Work Order #...: MGJ25 Matrix.....: WG

Date Sampled...: 04/04/11 13:33 Date Received..: 04/05/11

						PREPARATION-	PREP
PARAMETER	RESULT	<u>RL</u>	UNITS	METHOI	D	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/05/11	1096316
	D	ilution Fact	or: 1				
Chloride	4.9	1.0	mg/L	MCAWW	300.0A	04/05/11	1096314
	D.	ilution Fact	or: 1				
Fluoride	0.15 B	1.0 Filution Fact	mg/L or: 1	MCAWW	300.0A	04/05/11	1096312
Nitrate as N	ND D	0.10 Fact	mg/L or: 1	MCAWW	300.0A	04/05/11	1096317
Nitrite as N	ND D	0.10 Fact	3 ·	MCAWW	300.0A	04/05/11	1096315
Nitrogen, as Ammonia		2.0 Dilution Fact	mg/L or: 1	MCAWW	350.2	04/08/11	1098085
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
	D	ilution Fact	or: 1				
Sulfate	64.2 D.	1.0 Pilution Fact	mg/L or: 1	MCAWW	300.0A	04/05/11	1096318

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT UNITS	METHOD	PREPARATION- ANALYSIS DATE	
Bromide	ND	Work Order #: MGMEV1AA 0.50 mg/L Dilution Factor: 1			1096316
Chloride	ND	Work Order #: MGMD81AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1096314
Fluoride	ND	Work Order #: MGMD71AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1096312
Nitrate as N	ND	Work Order #: MGMEX1AA 0.10 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1096317
Nitrite as N	ND	Work Order #: MGMER1AA 0.10 mg/L Dilution Factor: 1			1096315
Nitrogen, as Ammor	iia ND	Work Order #: MGQQH1AA 2.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 350.2		1098085
Phosphate as P, Ortho	ND	Work Order #: MGPDG1AA 0.50 mg/L			1097318
Phosphate as P, Ortho		Dilution Factor: 1 Work Order #: MGVPD1AA	MB Lot-Sample #:	A1D110000-306	
	ND	0.50 mg/L Dilution Factor: 1	MCAWW 300.0A	04/08/11	1101306
Sulfate	ND	Work Order #: MGME21AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A	A1D060000-318 04/05/11	1096318
Sulfate	ND	Work Order #: MGQL91AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A	A1D080000-197 04/07/11	1098197

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations are performed before rounding to avoid round-off errors in calculated results}.$

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D050441 Matrix.....: WATER

PARAMETER Bromide	PERCENT RECOVERY	RECOVERY RPD LIMITS RPD LIMITS WO#:MGMEV1AC-LCS/MG			BATCH #
	96	(90 - 110)		04/05/11	1096316
	97	(90 - 110) 0.92 (0-20)	MCAWW 300.0A	04/05/11	1096316
		Dilution Factor: 1			
Chloride		WO#:MGMD81AC-LCS/MG	MD81AD-LCSD LCS	Lot-Sample#: A1D0	60000-314
	99	(90 - 110)	MCAWW 300.0A	04/05/11	1096314
	100	(90 - 110) 0.76 (0-20)	MCAWW 300.0A	04/05/11	1096314
		Dilution Factor: 1			
Fluoride		WO#:MGMD71AC-LCS/MG	MD71AD-LCSD LCS	Lot-Sample#: A1D0	60000-312
	97	(90 - 110)		04/05/11	1096312
	98	(90 - 110) 0.94 (0-20)			1096312
		Dilution Factor: 1			
Nitrate as N		WO#:MGMEX1AC-LCS/MG	MEX1AD-LCSD LCS	Lot-Sample#: A1D0	60000-317
	96	(90 - 110)		04/05/11	
	97	(90 - 110) 0.45 (0-20)	MCAWW 300.0A	04/05/11	1096317
		Dilution Factor: 1			
Nitrite as N		WO#:MGMER1AC-LCS/MG	MER1AD-LCSD LCS	Lot-Sample#: A1D0	60000-315
11101100 00 11	96	(90 - 110)		_	
	96	(90 - 110) 0.66 (0-20)			
		Dilution Factor: 1		. , ,	
Phosphate as Ortho	Ρ,	WO#:MGPDG1AC-LCS/MG		_	
	98	(90 - 110)	MCAWW 300.0A	04/06/11	1097318
	99	(90 - 110) 1.2 (0-20)	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1			
Phosphate as Ortho	Ρ,	WO#:MGVPD1AC-LCS/MG	VPD1AD-LCSD LCS	Lot-Sample#: A1D1	10000-306
	108	(90 - 110)	MCAWW 300.0A	04/08/11	1101306
	111 N	(90 - 110) 2.6 (0-20)	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1			

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D050441 Matrix.....: WATER

	PERCENT	RECOVERY	RPD		PREPARATION-	PREP
PARAMETER	RECOVERY	LIMITS RPD	<u>LIMITS</u>	METHOD	ANALYSIS DATE	BATCH #
Sulfate		WO#:MGME21AC	-LCS/MGM	E21AD-LCSD L	CS Lot-Sample#: A1D0	60000-318
	95	(90 - 110)		MCAWW 300.0A	04/05/11	1096318
	96	(90 - 110) 0.52	(0-20)	MCAWW 300.0A	04/05/11	1096318
		Dilution Fac	tor: 1			
Sulfate		WO#:MGQL91AC	-LCS/MGQ	L91AD-LCSD L	CS Lot-Sample#: A1D0	80000-197
	94	(90 - 110)		MCAWW 300.0A	04/07/11	1098197
	94	(90 - 110) 0.04	(0-20)	MCAWW 300.0A	04/07/11	1098197
		Dilution Fact	tor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D050441 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOI)	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide		WO#	:MGMEV1AC					mple#: A1D06000	
	10.0	9.6	mg/L	96		MCAWW	300.0A	04/05/11	1096316
	10.0	9.7	mg/L	97	0.92	MCAWW	300.0A	04/05/11	1096316
		D	ilution Fact	tor: 1					
Chloride					MD81AI			nple#: A1D06000	
	50.0	49.6	mg/L	99		MCAWW	300.0A	04/05/11	1096314
	50.0	50.0	mg/L	100	0.76	MCAWW	300.0A	04/05/11	1096314
		D	ilution Fact	cor: 1					
Fluoride					MD71AI			nple#: A1D06000	
	2.5	2.4	mg/L	97			300.0A	04/05/11	1096312
	2.5	2.5	mg/L	98	0.94	MCAWW	300.0A	04/05/11	1096312
		D	ilution Fact	tor: 1					
Nitrate as N					MEX1AI			mple#: A1D06000	
	2.5	2.4	mg/L	96			300.0A	04/05/11	1096317
	2.5	2.4	mg/L	97	0.45	MCAWW	300.0A	04/05/11	1096317
		D	ilution Fact	tor: 1					
Nitrite as N		WO#	:MGMER1AC	-LCS/MGN	MER1AI	D-LCSD	LCS Lot-Sam	nple#: A1D06000	0-315
	2.5	2.4	mg/L	96		MCAWW	300.0A	04/05/11	1096315
	2.5	2.4	mg/L	96	0.66	MCAWW	300.0A	04/05/11	1096315
		D	ilution Fact	tor: 1					
Phosphate as Ortho	Ρ,	WO#	:MGPDG1AC	-LCS/MGI	PDG1AI	D-LCSD	LCS Lot-Sam	mple#: A1D07000	0-318
	2.5	2.5	mg/L	98		MCAWW	300.0A	04/06/11	1097318
	2.5	2.5	mg/L	99	1.2	MCAWW	300.0A	04/06/11	1097318
		D	ilution Fact	tor: 1					
Phosphate as Ortho	Ρ,	WO#	:MGVPD1AC	-LCS/MGV	VPD1AI	D-LCSD	LCS Lot-Sam	nple#: A1D11000	0-306
	2.5	2.7	mg/L	108		MCAWW	300.0A	04/08/11	1101306
	2.5	2.8 N	mg/L	111	2.6	MCAWW	300.0A	04/08/11	1101306
		D	ilution Fact	or: 1					

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LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D050441 Matrix.....: WATER

	SPIKE	MEASURED		PERCNT				PREPARATION-	PREP
PARAMETER	<u> TRUOMA</u>	AMOUNT	<u>UNITS</u>	<u>RECVRY</u>	<u>RPD</u>	<u>METHOI</u>	<u> </u>	ANALYSIS DATE	BATCH #
Sulfate		WO#	:MGME21AC	-LCS/MGI	ME21A	D-LCSD	LCS Lot-Sar	mple#: A1D06000	0-318
	50.0	47.7	mg/L	95		MCAWW	300.0A	04/05/11	1096318
	50.0	48.0	mg/L	96	0.52	MCAWW	300.0A	04/05/11	1096318
		D	ilution Fact	tor: 1					
Sulfate		WO#	:MGQL91AC	-LCS/MG	QL91A	D-LCSD	LCS Lot-Sar	mple#: A1D08000	0-197
	50.0	46.8	mg/L	94		MCAWW	300.0A	04/07/11	1098197
	50.0	46.8	mg/L	94	0.04	MCAWW	300.0A	04/07/11	1098197
		D	ilution Fact	or: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WATER

PERCENT RECOVERY PREPARATION- PREP

PARAMETER RECOVERY LIMITS METHOD ANALYSIS DATE BATCH #

Nitrogen, as Ammonia Work Order #: MGQQH1AC LCS Lot-Sample#: A1D080000-085

94 (85 - 114) MCAWW 350.2 04/08/11 1098085

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WATER

	SPIKE	MEASURE	ED	PERCNT			PREPARAT	ION-	PREP
PARAMETER	<u>AMOUNT</u>	AMOUNT	UNITS	RECVRY	METHOD		ANALYSIS	DATE	BATCH #
Nitrogen, as	${\tt Ammonia}$		Work Order	#: MGQQH	1AC LCS	S Lot-Sample	e#: A1D08	0000-08	85
	14	13	mg/L	94	MCAWW 3	350.2	04/08	/11	1098085

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WATER

Date Sampled...: 04/05/11 16:26 Date Received..: 04/06/11

PARAMETER	PERCENT	RECOVERY	RPD LIMITS	METHOD	PREPARATION- PREP ANALYSIS DATE BATCH #	
Nitrogen, as			<u>RPD</u> <u>LIMITS</u> MGAA51AU-MS/M		MS Lot-Sample #: A1C290455-001	1
J ,		(75 - 125)		MCAWW 350.2	04/08/11 1098085	
	97	(75 - 125)	1.2 (0-20)	MCAWW 350.2	04/08/11 1098085	
		Dilut	ion Factor: 1			
Phosphate as Ortho	Ρ,	WO#:	MGLNF1AW-MS/M	GLNF1AX-MSD	MS Lot-Sample #: A1D060449-001	1
	53 N	(80 - 120)		MCAWW 300.0A	04/06/11 1097318	
	60 N	(80 - 120)	10 (0-20)	MCAWW 300.0A	04/06/11 1097318	
		Dilut	ion Factor: 1			
Phosphate as Ortho	Ρ,	WO#:	MGLQ01AW-MS/M	GLQ01AX-MSD	MS Lot-Sample #: A1D060449-009	9
	103	(80 - 120)		MCAWW 300.0A	04/06/11 1097318	
	109		5.7 (0-20)	MCAWW 300.0A	04/06/11 1097318	
		DIIUt	lon Factor: 1			
Phosphate as Ortho	Ρ,	WO#:	MGP5D1AW-MS/M	GP5D1AX-MSD	MS Lot-Sample #: A1D080416-001	1
	119	(80 - 120)		MCAWW 300.0A	04/08/11 1101306	
	121 N	,	1.2 (0-20)	MCAWW 300.0A	04/08/11 1101306	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WATER

Date Sampled...: 04/05/11 16:26 Date Received..: 04/06/11

	SAMPLE	SPIKE	MEASRD		PERCNT				PREPARATION-	PREP
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	<u>RECVRY</u>	RPD_	<u>METHOD</u>)	ANALYSIS DATE	BATCH #
Nitrogen,	as Ammor	nia	WO#:	MGAA51AU-MS	MGAA51	AV-MSI	O MS L	ot-Sampl	e #: A1C290455	-001
	19	4.0	23	mg/L	104		MCAWW	350.2	04/08/11	1098085
	19	4.0	23	mg/L	97	1.2	MCAWW	350.2	04/08/11	1098085
			Diluti	on Factor: 1						
Phosphate Ortho	as P,		WO#:	MGLNF1AW-MS,	MGLNF1	AX-MSI	O MS L	ot-Sampl	e #: A1D060449	-001
	0.25	2.5	1.6 N	mg/L	53		MCAWW	300.0A	04/06/11	1097318
	0.25	2.5	1.7 N	mg/L	60	10	MCAWW	300.0A	04/06/11	1097318
			Diluti	on Factor: 1						
Phosphate Ortho	as P,		WO#:	MGLQ01AW-MS,	MGLQ01	AX-MSI	O MS L	ot-Sampl	e #: A1D060449-	-009
	ND	2.5	2.6	mg/L	103		MCAWW	300.0A	04/06/11	1097318
	ND	2.5	2.7	mg/L	109	5.7	MCAWW	300.0A	04/06/11	1097318
			Diluti	on Factor: 1						
Phosphate Ortho	as P,		WO#:	MGP5D1AW-MS,	MGP5D1	AX-MSI	O MS L	ot-Sampl	e #: A1D080416	-001
	ND	2.5	3.0	mg/L	119		MCAWW	300.0A	04/08/11	1101306
	ND	2.5	3.0 N	mg/L	121	1.2	MCAWW	300.0A	04/08/11	1101306
			Diluti	on Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WATER

Date Sampled...: 03/28/11 15:25 Date Received..: 03/28/11

		Work Order #	MCAWW 350.2	ANZ MS		<u>BATCH #</u> #: A1C290455-001
Phosphate as P, Ortho	53 N		MCAWW 300.0A		_	A1D060449-001
Phosphate as P, Ortho	103		MCAWW 300.0A		Lot-Sample 04/06/11	A1D060449-009
Phosphate as P, Ortho	119		MCAWW 300.0A		Lot-Sample 04/08/11	A1D080416-001
Sulfate	108		MCAWW 300.0A		Lot-Sample 04/05/11	
Sulfate	98		MCAWW 300.0A	MS	Lot-Sample 04/07/11	#: A1D060583-006 1098198

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WATER

Date Sampled...: 03/28/11 15:25 Date Received..: 03/28/11

<u>PARAMETER</u> Sulfate	SAMPLE AMOUNT		MEASUR <u>AMOUNT</u> Work		PERCENT RECOVERY MGAE31AU		PREPARATION- ANALYSIS DATE Sample #: A1C29	
	346	50.0	400	mg/L on Factor: 2	108	MCAWW 300.0A	04/05/11	1096318
			DITUCI	on ractor. 2				
Sulfate			Work	Order #:	MGMJ71AW	MS Lot-S	Sample #: A1D06	0583-006
	10.4	50.0	59.6 Diluti	mg/L on Factor: 1	98	MCAWW 300.0A	04/07/11	1098198

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WG

Date Sampled...: 04/04/11 12:35 Date Received..: 04/05/11

PARAMETER	PERCENT RECOVERY				OD		PREPARATION ANALYSIS DA	
Bromide				AR-MS/MGJ22	1AT-MSD	MS	Lot-Sample #:	A1D050441-007
	106			MCAW	W 300.0A		04/05/11	1096316
	104				W 300.0A		04/05/11	1096316
		D.	lution Factor	r: 1				
Chloride							Lot-Sample #:	
	112	(80 - 1	0)	MCAW	W 300.0A		04/05/11 04/05/11	1096314
	110				W 300.0A		04/05/11	1096314
		D.	lution Facto	r: 1				
Fluoride							Lot-Sample #:	
	109						04/05/11	
	109				W 300.0A		04/05/11	1096312
		D.	lution Factor	r: 1				
Nitrate as N							Lot-Sample #:	
	107	(80 - 1	0)	MCAW	W 300.0A		04/05/11	1096317
	107			0-20) MCAW	W 300.0A		04/05/11	1096317
		D.	lution Factor	r: 1				
Nitrite as N							Lot-Sample #:	
							04/05/11	
	105		0) 1.7 (0 lution Factor		A0.00 W		04/05/11	1096315
Phosphate as	Р,	W	#: MGJ2A1A	AK-MS/MGJ2A	1AL-MSD	MS	Lot-Sample #:	A1D050441-001
Ortho				_				
	152 N	(80 - 1)	0)	MCAW	W 300.0A		04/06/11 04/06/11	1097318
	153 N		U) U.26 (U lution Factor		W 300.0A		04/06/11	1097318
		D.	iution ractor	r: I				
Phosphate as Ortho	Ρ,	M	#: MGJ221A	A0-MS/MGJ22	1A1-MSD	MS	Lot-Sample #:	A1D050441-007
		(80 - 1	0)	MCAW	W 300.0A		04/06/11	1097318
	174 N	(80 - 1	0) 7.5 (0)-20) MCAW	W 300.0A		04/06/11	1097318
		D	lution Factor	r: 1				
Sulfate							Lot-Sample #:	
	114	(80 - 1	0)	MCAW	W 300.0A		04/05/11 04/05/11	1096318
	113	(80 - 1	0) 0.57 (0	0-20) MCAW	W 300.0A		04/05/11	1096318
		D.	lution Factor	r: 1				

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

 $[\]label{eq:N-Spiked} \textbf{N} \quad \text{Spiked analyte recovery is outside stated control limits}.$

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WG

Date Sampled...: 04/04/11 12:35 Date Received..: 04/05/11

	SAMPLE	SPIKE	MEASRD		PERCNT		PREPARATION-	PREP
PARAMETER					RECVRY RPD	METHOD	ANALYSIS DATE	
Bromide		****		_			ole #: A1D050441	
	ND	10.0	10.6	mg/L	106	MCAWW 300.0A		1096316
	ND	10.0	10.4	mg/L	104 1.3			1096316
				ion Factor: 1				
Chloride			WO#:	MGJ221AM-MS	/MGJ221AN-MS	SD MS Lot-Samp	ole #: A1D050441	007
	1.0	50.0	56.8	mg/L	112	MCAWW 300.0A	04/05/11	1096314
	1.0	50.0	56.1	mg/L	110 1.2	MCAWW 300.0A	04/05/11	1096314
			Dilut	ion Factor: 1				
Fluoride							ole #: A1D050441	
	0.24	2.5	3.0	mg/L	109	MCAWW 300.0A		1096312
	0.24	2.5	3.0	mg/L	109 0.47	MCAWW 300.0A	04/05/11	1096312
			Dilut	ion Factor: 1				
Nitrate a	c N		W○#•	MCT221AII_MC	/MCT221717_MC	ID MC Iot_Camp	ole #: A1D050441	-007
NICIALE A	1.4	2.5	4.1	mg/L	107	MCAWW 300.0A		1096317
	1.4	2.5	4.1	mg/L		MCAWW 300.0A MCAWW 300.0A		1096317
	1.1	2.5		ion Factor: 1	107 0.23	MCAWW 500.0A	01/03/11	1000317
			DIIUC	1011 1400011 1				
Nitrite a	s N		WO#:	MGJ221AP-MS	/MGJ221AQ-MS	SD MS Lot-Samp	ole #: A1D050441	007
	ND	2.5	2.7	mg/L	107	MCAWW 300.0A	04/05/11	1096315
	ND	2.5	2.6	mg/L	105 1.7	MCAWW 300.0A	04/05/11	1096315
			Dilut	ion Factor: 1				
Phosphate	as P,		WO#:	MGJ2A1AK-MS	/MGJ2A1AL-MS	SD MS Lot-Samp	ole #: A1D050441	001
Ortho	ND	2.5	3.8 N	mg/L	152	MCAWW 300.0A	04/06/11	1097318
	ND ND	2.5	3.8 N	mg/L		MCAWW 300.0A 5 MCAWW 300.0A	04/06/11	1097318
	ND	4.5		ion Factor: 1	155 0.20	MCAWW 300.0A	04/00/11	109/310
			DITUC	ION FACTOR: 1				
Phosphate	as P.		WO#:	MGJ221A0-MS	/MGJ221A1-MS	SD MS Lot-Samp	ole #: A1D050441	-007
Ortho	,			1100110	, 1100 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	,	112000111	
	ND	2.5	4.0 N	mg/L	162	MCAWW 300.0A	04/06/11	1097318
	ND	2.5	4.4 N	mg/L	174 7.5	MCAWW 300.0A	04/06/11	1097318
				ion Factor: 1				
Sulfate						_	ole #: A1D050441	
	30.0	50.0	87.0	mg/L	114	MCAWW 300.0A	04/05/11	1096318
	30.0	50.0	86.5	mg/L	113 0.57	7 MCAWW 300.0A	04/05/11	1096318
			Dilut	ion Factor: 1				

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441 Matrix.....: WG

Date Sampled...: 04/04/11 15:22 Date Received..: 04/05/11

<u>PARAMETER</u> Bromide	PERCENT RECOVERY	RECOVERY LIMITS METHOD Work Order #: MGJ221AR (80 - 120) MCAWW 300.0A	PREPARATION- PREP ANALYSIS DATE BATCH # MS Lot-Sample #: AlD050441-007 04/05/11 1096316
Chloride	112	Dilution Factor: 1 Work Order #: MGJ221AM (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/05/11 1096314
Fluoride	109	Work Order #: MGJ221AK (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/05/11 1096312
Nitrate as N	107	Work Order #: MGJ221AU (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/05/11 1096317
Nitrite as N	107	Work Order #: MGJ221AP (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/05/11 1096315
Phosphate as P, Ortho	152 N	Work Order #: MGJ2A1AK (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #:
Phosphate as P, Ortho	162 N	Work Order #: MGJ221A0 (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #:
Sulfate	114	Work Order #: MGJ221AW (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/05/11 1096318

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.



DENVER DATA



ANALYTICAL REPORT

Job Number: 280-14464-1

SDG Number: A1D050441

Job Description: USGS- RVAAP

For:

TestAmerica Laboratories, Inc. 4101 Shuffel Street NW North Canton, OH 44720

Attention: Mr. Mark J. Loeb

Approved for release. Dee A Kettula Project Mgmt. Assistant 4/27/2011 5:23 PM

Designee for
DiLea Griego
Project Manager I
dilea.griego@testamericainc.com
04/27/2011

Dee Kettula

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.



CASE NARRATIVEp

Client: TestAmerica Laboratories, Inc.p

Project: USGS-RVAAPp

Report Number: 280-14464-1p

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no j problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established cjntrol j limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the cjnstraints of j the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, j the reporting limits are adjusted relative to the dilution required.j

Calculations are performed before rounding to avoid round-off errors in calculated results.j

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the j individual sections below.j

RECEIPTp

The samples were received on 04/08/2011; the samples arrived in good condition, properly preserved and on ice. The temperatures of j the coolers at receipt were 2.6°C and 3.1°C.j

TOTAL METALS - METHODS SW846 6010B/6020p

Uranium was detected in method blank MB 280-61885/1-A at a level that was above the method detection limit but below the reporting j limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL j and/or RL, the result has been "B" flagged.j

The Sample Duplicate analysis performed on sample FWG-LL4MW-198C-0100-GF (280-14464-1) associated with prep batch 61885 j exhibited RPD data outside the QC control limits. The acceptable LCS analysis data indicated that the analytical system was ojerating j within control; therefore, corrective action is deemed unnecessary.j

No other difficulties were encountered.j

DATA REPORTING QUALIFIERSv

Client: TestAmerica Laboratories, Inc.S Job Number: 280-14464-1S

dg Number: A1D050441S

Lab Sectionv	Qualifierv	Description				
MetalsS						
	BS	Compound was found in the blank and sample.S				
	JS	Result is less than the RL but greater than or equal to the MDL S and the concentration is an approximate value.S				

EXECUTIVE SUMMARY - Detectionsg

Client: TestAmerica Laboratories, Inc.S Job Number: 280-14464-1S

dg Number: A1D050441S

Lab Sample ID Analyteg	Client Sample ID	Result / Qu	ıalifierg	Reporting g Limitg	Unitsg	Methodg				
280-14464-1g	FWG-LL4MW-198C-0100-GFg									
BoronS LithiumS iO2, SilicaS UraniumS		28S 9.3S 22000 0.054S	JS JS J BS	100S 10S 500S 1.0S	ug/LS ug/LS ug/LS ug/LS	6010BS 6010BS 6010BS 6020S				
280-14464-2g	FWG-LL4MW-195C-0	FWG-LL4MW-195C-0070-GFg								
BoronS LithiumS iO2, SilicaS UraniumS		41S 21S 21000 0.97S	JS J BS	100S 10S 500S 1.0S	ug/LS ug/LS ug/LS ug/LS	6010BS 6010BS 6010BS 6020S				
280-14464-3g	FWG-LL4MW-196C-0	080-GFg								
BoronS LithiumS iO2, SilicaS UraniumS		24S 5.4S 15000 0.12S	JS JS J BS	100S 10S 500S 1.0S	ug/LS ug/LS ug/LS ug/LS	6010BS 6010BS 6010BS 6020S				
280-14464-4g	FWG-LL4MW-197C-0	FWG-LL4MW-197C-0090-GFg								
BoronS LithiumS iO2, SilicaS UraniumS		28S 3.8S 12000 1.5S	JS JS BS	100S 10S 500S 1.0S	ug/LS ug/LS ug/LS ug/LS	6010BS 6010BS 6010BS 6020S				
280-14464-5g	FWG-LL4MW-199C-0110-GFg									
BoronS LithiumS iO2, SilicaS UraniumS		27S 11S 19000 0.20S	JS J BS	100S 10S 500S 1.0S	ug/LS ug/LS ug/LS ug/LS	6010BS 6010BS 6010BS 6020S				

METHOD SUMMARYm

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1 Sdg Number: A1D050441S

Lab Locationm	Methodm	Preparation Methodm
AL DEN	SW846 6010BS	
TAL DEN		W846 3010AS
TAL DEN	W846 6020S	
TAL DEN		W846 3020AS
	AL DEN TAL DEN TAL DEN	AL DEN SW846 6010BS TAL DEN W846 6020S

Lab References:m

AL DEN = TestAmerica DenverS

Method References:

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

METHOD / ANALYST SUMMARY

Client: TestAmerica Laboratories, Inc.S Job Number: 280-14464-1S

dg Number: A1D050441S

Method	nalyst	nalyst ID
SW846 6010BS	Harre, John KS	JKH
SW846 6020S	Lill, Thomas ES	EL

SAMPLE SUMMARY

Client: TestAmerica Laboratories, Inc.S Job Number: 280-14464-1

Sdg Number: A1D050441S

			Date/Time	Date/ I ime
Lab Sample ID	Client Sample ID	Client Matrix	Sampled	eceived
280-14464-1S	FWG-LL4MW-198C-0100-GFS	WaterS	04/04/2011 1522S	04/11/2011 1000S
280-14464-1MS	FWG-LL4MW-198C-0100-GFS	WaterS	04/04/2011 1522S	04/11/2011 1000S
280-14464-1DUS	FWG-LL4MW-198C-0100-GFS	WaterS	04/04/2011 1522S	04/11/2011 1000S
280-14464-2S	FWG-LL4MW-195C-0070-GFS	WaterS	04/04/2011 1605S	04/11/2011 1000S
280-14464-3	FWG-LL4MW-196C-0080-GFS	WaterS	04/04/2011 1411S	04/11/2011 1000S
280-14464-4S	FWG-LL4MW-197C-0090-GFS	WaterS	04/04/2011 1235S	04/11/2011 1000S
280-14464-5S	FWG-LL4MW-199C-0110-GFS	WaterS	04/04/2011 1333	04/11/2011 1000S

Job Number: 280-14464-1 Client: TestAmerica Laboratories, Inc.S

Sdg Number: A1D050441S

Client Sample ID:(FWG-LL4MW-198C-0100-GF(

Lab Sample ID:S 280-14464-1S Date Sampled: 04/04/2011 1522S Client Matrix:S WaterS Date Received: 04/11/2011 1000S

Prep Method:S 3010AS Prep Batch:S 280-61884S Lab File ID:S N/. Dilution:S 1.0S Initial Weight/Volume:S 50 Analysis Date:S 04/15/2011 0730S Result (ug/L)S QualifierS MDLS AnalyteS Result (ug/L)S QualifierS MDLS BoronS 28S JS 4.4S LithiumS 9.3S JS 2.6S MolybdenumS NDS 3.1S iO2, SilicaS 22000S 74 6020 Metals (ICP/MS)(Analysis Method:S 6020S Analysis Batch:S 280-62706S Instrument ID:S MT Prep Method:S 3020AS Prep Batch:S 280-61885S Lab File ID:S 21 Dilution:S 1.0S Initial Weight/Volume:S 50 Analysis Date:S 04/16/2011 0452S Final Weight/Volume:S 50 Final Weight/Volume:S 50										
Prep Method:S 3010AS Prep Batch:S 280-61884S Lab File ID:S N// Dilution:S 1.0S Initial Weight/Volume:S 50 Analysis Date:S 04/15/2011 0730S Result (ug/L)S QualifierS MDLS BoronS 28S JS 4.4S LithiumS 9.3S JS 2.6S MolybdenumS NDS 3.1S iO2, SilicaS 22000S 74 6020 Metals (ICP/MS)(Analysis Method:S 6020S Analysis Batch:S 280-62706S Instrument ID:S MT Prep Method:S 3020AS Prep Batch:S 280-61885S Lab File ID:S 21 Dilution:S 1.0S Initial Weight/Volume:S 50 Analysis Date:S 04/16/2011 0452S Final Weight/Volume:S 50 Prep Date:S 04/15/2011 1530S 50	6010B Metals (ICP)(
Dilution:S 1.0S Initial Weight/Volume:S 50	MT_025S	MT_0	rument ID:S	Ins	280-62690S	Analysis Batch:S	6010BS	Analysis Method:S		
Analysis Date:S 04/15/2011 1655S Prep Date:S 04/15/2011 0730S AnalyteS	N/AS	N/AS	File ID:S	Lal	280-61884S	Prep Batch:S	3010AS	Prep Method:S		
Result (ug/L)S QualifierS MDLS	50 mLS	me:S 50 r	al Weight/Volume:S	Init			1.0S	Dilution:S		
AnalyteS Result (ug/L)S QualifierS MDLS BoronS 28S JS 4.4S LithiumS 9.3S JS 2.6S MolybdenumS NDS 3.1S iO2, SilicaS 22000S 74 6020 Metals (ICP/MS)(Analysis Method:S 6020S Analysis Batch:S 280-62706S Instrument ID:S M7 Prep Method:S 3020AS Prep Batch:S 280-61885S Lab File ID:S 21 Dilution:S 1.0S Analysis Date:S 04/16/2011 0452S Prep Date:S 04/15/2011 1530S	50 mLS	ne:S 50 r	al Weight/Volume:S	Fin			04/15/2011 1655S	Analysis Date:S		
BoronS							04/15/2011 0730S	Prep Date:S		
LithiumS MolybdenumS iO2, SilicaS	RLS		MDLS	QualifierS	ı/L)S	Result (ug		AnalyteS		
MolybdenumS iO2, SilicaS NDS 22000S 3.1S 74 6020 Metals (ICP/MS)(Analysis Method:S 6020S Analysis Batch:S 280-62706S Instrument ID:S M ^T Prep Method:S 3020AS Prep Batch:S 280-61885S Lab File ID:S 21 Dilution:S 1.0S Initial Weight/Volume:S 50 Analysis Date:S 04/16/2011 0452S Final Weight/Volume:S 50 Prep Date:S 04/15/2011 1530S Prep Date:S 04/15/2011 1530S	100S		4.4S	JS		28S		BoronS		
iO2, SilicaS 22000S 74 6020 Metals (ICP/MS)(Analysis Method:S 6020S Analysis Batch:S 280-62706S Prep Method:S 3020AS Prep Batch:S 280-61885S Lab File ID:S 21 Initial Weight/Volume:S 50 Analysis Date:S 04/16/2011 0452S Prep Date:S 04/15/2011 1530S	10S		2.6S	JS		9.3S		LithiumS		
## Gozo Metals (ICP/MS)(Analysis Method:S 6020S	20S		3.1S			NDS		MolybdenumS		
Analysis Method:S 6020S Analysis Batch:S 280-62706S Instrument ID:S MTPrep Method:S 3020AS Prep Batch:S 280-61885S Lab File ID:S 21 Initial Weight/Volume:S 50 Analysis Date:S 04/16/2011 0452S Final Weight/Volume:S 50 Prep Date:S 04/15/2011 1530S	500S		74			22000S		iO2, SilicaS		
Prep Method:S 3020AS Prep Batch:S 280-61885S Lab File ID:S 21 Dilution:S 1.0S Initial Weight/Volume:S 50 Analysis Date:S 04/16/2011 0452S Prep Date:S 04/15/2011 1530S					als (ICP/MS)(6020 M et				
Dilution:S 1.0S Initial Weight/Volume:S 50 Analysis Date:S 04/16/2011 0452S Final Weight/Volume:S 50 Prep Date:S 04/15/2011 1530S	MT_024S	MT_	rument ID:S	Ins	280-62706S	Analysis Batch:S	6020S	Analysis Method:S		
Analysis Date:S 04/16/2011 0452S Final Weight/Volume:S 50 Prep Date:S 04/15/2011 1530S	210AREF.DS	210 <i>F</i>	File ID:S	Lal	280-61885S	Prep Batch:S	3020AS	Prep Method:S		
Prep Date:S 04/15/2011 1530S	50 mLS	ne:S 50 r	al Weight/Volume:S	Init			1.0S	Dilution:S		
	50 mLS	ne:S 50 r	al Weight/Volume:S	Fin			04/16/2011 0452S	Analysis Date:S		
AnalyteS Result (ug/L)S QualifierS MDLS							04/15/2011 1530S	Prep Date:S		
,	RLS		MDLS	QualifierS	ı/L)S	Result (ug		AnalyteS		
UraniumS 0.054S J BS 0.020S	1.0S		0.020S	J BS		0.054S		UraniumS		

Job Number: 280-14464-1 Client: TestAmerica Laboratories, Inc.S

Sdg Number: A1D050441S

Client Sample ID:(FWG-LL4MW-195C-0070-GF(

Lab Sample ID:S 280-14464-2S Date Sampled: 04/04/2011 1605S Client Matrix:S WaterS Date Received: 04/11/2011 1000S

		6010B I	Metals (ICP)(
Analysis Method:S	6010BS	Analysis Batch:S	280-62690S		Instrument ID:S	MT_025S
Prep Method:S	3010AS	Prep Batch:S	280-61884S		Lab File ID:S	N/AS
Dilution:S	1.0S				Initial Weight/Volume:S	50 mLS
Analysis Date:S Prep Date:S	04/15/2011 1704S 04/15/2011 0730S				Final Weight/Volume:S	50 mLS
AnalyteS		Result (uç	g/L)S	Qualifier	S MDLS	RLS
BoronS		41S		JS	4.4\$	100S
LithiumS		21S			2.6S	10S
MolybdenumS		NDS			3.1S	20S
iO2, SilicaS		21000S			74	500S
		6020 Met	tals (ICP/MS)(
Analysis Method:S	6020S	Analysis Batch:S	280-62706S		Instrument ID:S	MT_024S
Prep Method:S	3020AS	Prep Batch:S	280-61885S		Lab File ID:S	215SMPL.DS
Dilution:S	1.0S				Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/16/2011 0506S				Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 1530S				-	
AnalyteS		Result (ug	g/L)S	Qualifier	S MDLS	RLS
UraniumS		0.97S		J BS	0.020S	1.0S

Job Number: 280-14464-1 Client: TestAmerica Laboratories, Inc.S

Sdg Number: A1D050441S

Client Sample ID:(FWG-LL4MW-196C-0080-GF(

Lab Sample ID:S 280-14464-3S Date Sampled: 04/04/2011 1411S Client Matrix:S WaterS Date Received: 04/11/2011 1000S

		6010B N	/letals (ICP)(
Analysis Method:S	6010BS	Analysis Batch:S	280-62690S	li	nstrument ID:S	MT_025S
Prep Method:S	3010AS	Prep Batch:S	280-61884S	L	ab File ID:S	N/AS
Dilution:S	1.0S			lı	nitial Weight/Volume:S	50 mLS
Analysis Date:S	04/15/2011 1707S			F	Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 0730S					
AnalyteS		Result (ug	ı/L)S	QualifierS	S MDLS	RLS
BoronS		24S		JS	4.4S	100S
LithiumS		5.4S		JS	2.6S	10S
MolybdenumS		NDS			3.1S	20S
iO2, SilicaS		15000S			74	500S
		6020 Met	als (ICP/MS)(
Analysis Method:S	6020S	Analysis Batch:S	280-62706S	li	nstrument ID:S	MT_024S
Prep Method:S	3020AS	Prep Batch:S	280-61885S	L	ab File ID:S	216SMPL.DS
Dilution:S	1.0S			lı	nitial Weight/Volume:S	50 mLS
Analysis Date:S	04/16/2011 0509S			F	inal Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 1530S				-	
Fieb Date.S						
AnalyteS		Result (ug	ı/L)S	QualifierS	S MDLS	RLS

Job Number: 280-14464-1 Client: TestAmerica Laboratories, Inc.S

Sdg Number: A1D050441S

Client Sample ID:(FWG-LL4MW-197C-0090-GF(

280-14464-4S Lab Sample ID:S Date Sampled: 04/04/2011 1235S Client Matrix:S WaterS Date Received: 04/11/2011 1000S

		6010B M	Metals (ICP)(
Analysis Method:S	6010BS	Analysis Batch:S	280-62690S		Instrument ID:S	MT_025S
Prep Method:S	3010AS	Prep Batch:S	280-61884S		Lab File ID:S	N/AS
Dilution:S	1.0S				Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/15/2011 1718S				Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 0730S				-	
AnalyteS		Result (ug	g/L)S	Qualifier	S MDLS	RLS
BoronS		28S		JS	4.4S	100S
LithiumS		3.8S		JS	2.6S	10S
MolybdenumS		NDS			3.1S	20S
iO2, SilicaS		12000S			74	500S
		6020 Met	tals (ICP/MS)(
Analysis Method:S	6020S	Analysis Batch:S	280-62706S		Instrument ID:S	MT_024S
Prep Method:S	3020AS	Prep Batch:S	280-61885S		Lab File ID:S	219SMPL.DS
Dilution:S	1.0S				Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/16/2011 0517S				Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 1530S				ŭ	
AnalyteS		Result (ug	g/L)S	Qualifier	S MDLS	RLS
UraniumS		1.5S		BS	0.020S	1.0S

Job Number: 280-14464-1 Client: TestAmerica Laboratories, Inc.S

Sdg Number: A1D050441S

Client Sample ID:(FWG-LL4MW-199C-0110-GF(

Lab Sample ID:S 280-14464-5S Date Sampled: 04/04/2011 1333S Client Matrix:S WaterS Date Received: 04/11/2011 1000S

		6010B I	Metals (ICP)(
Analysis Method:S	6010BS	Analysis Batch:S	280-62690S		Instrument ID:S	MT_025S
Prep Method:S	3010AS	Prep Batch:S	280-61884S		Lab File ID:S	N/AS
Dilution:S	1.0S				Initial Weight/Volume:S	50 mLS
Analysis Date:S Prep Date:S	04/15/2011 1720S 04/15/2011 0730S				Final Weight/Volume:S	50 mLS
AnalyteS		Result (ug	g/L)S	Qualifier	S MDLS	RLS
BoronS		27S		JS	4.4\$	100S
_ithiumS		11S			2.6S	10S
MolybdenumS		NDS			3.1S	20S
iO2, SilicaS		19000S			74	500S
		6020 Met	tals (ICP/MS)(
Analysis Method:S	6020S	Analysis Batch:S	280-62706S		Instrument ID:S	MT_024S
Prep Method:S	3020AS	Prep Batch:S	280-61885S		Lab File ID:S	220SMPL.DS
Dilution:S	1.0S				Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/16/2011 0520S				Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 1530S				-	
AnalyteS		Result (ug	g/L)S	Qualifier	S MDLS	RLS
UraniumS		0.20\$		J BS	0.020S	1.0S

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1S

dg Number: A1D050441S

QC Association Summary2

Report2 Basis2 Lab Sample ID2 lient Sample ID2 lient Matrix2 Method2 Prep Batch Metals2 Prep Batch: 280-618842 LCS 280-61884/2-AS Lab Control SampleS WaterS 3010AS WaterS MB 280-61884/1-AS Method BlankS 3010AS 3010AS 280-14464-1S FWG-LL4MW-198C-0100-GF WaterS 280-14464-1DUS **DuplicateS** WaterS 3010AS 280-14464-1MS Matrix SpikeS WaterS 3010AS WaterS 280-14464-2S FWG-LL4MW-195C-0070-GF 3010AS 280-14464-3S FWG-LL4MW-196C-0080-GF WaterS 3010AS 280-14464-4S FWG-LL4MW-197C-0090-GF WaterS 3010AS 280-14464-5S FWG-LL4MW-199C-0110-GF WaterS 3010AS Prep Batch: 280-618852 LCS 280-61885/2-AS Lab Control SampleS WaterS 3020AS MB 280-61885/1-AS Method BlankS WaterS 3020AS 280-14464-1S FWG-LL4MW-198C-0100-GF WaterS 3020AS 280-14464-1DUS WaterS 3020AS **DuplicateS** 280-14464-1MS Matrix SpikeS WaterS 3020AS 280-14464-2S FWG-LL4MW-195C-0070-GF WaterS 3020AS 280-14464-3S FWG-LL4MW-196C-0080-GF WaterS 3020AS 280-14464-4S FWG-LL4MW-197C-0090-GF WaterS 3020AS 280-14464-5S FWG-LL4MW-199C-0110-GF WaterS 3020AS Analysis Batch:280-626902 LCS 280-61884/2-AS Lab Control SampleS WaterS 6010BS 280-61884S MB 280-61884/1-AS WaterS 6010BS 280-61884S Method BlankS FWG-LL4MW-198C-0100-GF WaterS 280-14464-1S 6010BS 280-61884S 280-14464-1DUS **DuplicateS** WaterS 6010BS 280-61884S 280-14464-1MS Matrix SpikeS WaterS 6010BS 280-61884S 280-14464-2S FWG-LL4MW-195C-0070-GF WaterS 6010BS 280-61884S 280-14464-3S FWG-LL4MW-196C-0080-GF WaterS 6010BS 280-61884S 280-14464-4S FWG-LL4MW-197C-0090-GF WaterS 6010BS 280-61884S 280-14464-5S FWG-LL4MW-199C-0110-GF WaterS 6010BS 280-61884S Analysis Batch:280-627062 LCS 280-61885/2-AS Lab Control SampleS WaterS 6020S 280-61885S MB 280-61885/1-AS Method BlankS WaterS 6020S 280-61885S 280-14464-1S FWG-LL4MW-198C-0100-GF WaterS 6020S 280-61885S 280-14464-1DUS **DuplicateS** WaterS 6020S 280-61885S

280-14464-1MS

280-14464-2S

280-14464-3S

280-14464-4S

280-14464-5S

Matrix SpikeS

FWG-LL4MW-195C-0070-GF

FWG-LL4MW-196C-0080-GF

FWG-LL4MW-197C-0090-GF

FWG-LL4MW-199C-0110-GF

WaterS

WaterS

WaterS

WaterS

WaterS

6020S

6020S

6020S

6020S

6020S

280-61885S

280-61885S

280-61885S

280-61885S

280-61885S

Quality Control Results2

Client: TestAmerica Laboratories, Inc.S Job Number: 280-14464-1S

dg Number: A1D050441S

QC Association Summary2

Report2

Lab Sample ID2 lient Sample ID2 Basis2 lient Matrix2 Method2 Prep Batch

Report Basis 2

= TotalS

Quality Control Results3

Client: TestAmerica Laboratories, Inc. Job Number: 280-14464-1S

dg Number: A1D050441S

Method Blank - Batch: 280-618843 Method: 6010B3 Preparation: 3010A3

Lab Sample ID:S	MB 280-61884/1-AS	Analysis Batch:S	280-62690S	Instrument ID:S	MT_025S
Client Matrix:S	WaterS	Prep Batch:S	280-61884S	Lab File ID:S	N/AS
Dilution:S	1.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/15/2011 1651S	Units:S	ug/LS	Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 0730S				

Leach Date:S N/AS

AnalyteS	ResultS	QualS	MDLS	RLS
BoronS	NDS		4.4S	100S
LithiumS	NDS		2.6S	10S
MolybdenumS	NDS		3.1S	20S
iO2, SilicaS	NDS		74	500S

Lab Control Sample - Batch: 280-618843 Method: 6010B3 Preparation: 3010A3

Lab Sample ID:S	LCS 280-61884/2-AS	Analysis Batch:S	280-62690S	Instrument ID:S	MT_025S
Client Matrix:S	WaterS	Prep Batch:S	280-61884S	Lab File ID:S	N/AS
Dilution:S	1.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/15/2011 1653S	Units:S	ug/LS	Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 0730S				

Leach Date:S N/AS

AnalyteS	pike AmountS	Result	% Rec.S	LimitS	QualS
BoronS	1000S	1010S	101S	86 - 110S	
LithiumS	1000S	1000S	100S	90 - 112S	
MolybdenumS	1000S	987S	99S	90 - 110S	
iO2, SilicaS	21400S	20500S	96S	90 - 110	

Matrix Spike - Batch: 280-618843 Method: 6010B3 Preparation: 3010A3

Lab Sample ID:S	280-14464-1S	Analysis Batch:S	280-62690S	Instrument ID:S	MT_025S
Client Matrix:S	WaterS	Prep Batch:S	280-61884S	Lab File ID:S	N/AS
Dilution:S	1.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/15/2011 1702S	Units:S	ug/LS	Final Weight/Volume:S	50 mLS
Dron Data:C	04/15/2011 07309				

Prep Date:S 04/15/2011 0730S

Leach Date:S N/AS

AnalyteS	ample Result	/QualS	pike Amount	Result	% Rec.S	LimitS	QualS
BoronS	28S	JS	1000S	1060S	103S	87 - 113S	
LithiumS	9.3S	JS	1000S	1030S	102S	89 - 114S	
MolybdenumS	NDS		1000S	1010S	101S	83 - 109S	
iO2, SilicaS	22000S		21400S	41800S	93S	75 - 141	

Quality Control Resultso3

Client: TestAmerica Laboratories, Inc. Job Number: 280-14464-1S

dg Number: A1D050441S

Serial Dilution - Batch: 280-618843 Method: 6010B3 Preparation: 3010A3

Lab Sample ID:S	280-14464-1S	Analysis Batch:S	280-62690S	Instrument ID:S	MT_025S
Client Matrix:S	WaterS	Prep Batch:S	280-61884S	Lab File ID:S	N/AS
Dilution:S	5.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/15/2011 1657S	Units:S	ug/LS	Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 0730S				

Leach Date:S N/AS

Leach Date:S

iO2, SilicaS

N/AS

Analyte	Sample Result/QualS		ResultS	%DiffS	LimitS	QualS
BoronS	28S	JS	33.8S	NCS	10S	JS
LithiumS	9.3S	JS	NDS	NCS	10S	
MolybdenumS	NDS		NDS	NCS	10	
iO2, SilicaS	22000S		21900S	0.47S	10S	

Duplicate - Batch: 280-618843 Method: 6010B3 Preparation: 3010A3

22000S

Lab Sample ID:S	280-14464-1S	Analysis Batch:S	280-62690S	Instrument ID:S	MT_025S
Client Matrix:S	WaterS	Prep Batch:S	280-61884S	Lab File ID:S	N/AS
Dilution:S	1.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/15/2011 1700S	Units:S	ug/LS	Final Weight/Volume:S	50 mLS
Prep Date:S	04/15/2011 0730S				

AnalyteS ample Result/QualS Result **RPDS** LimitS QualS BoronS 28S JS 26.4S 6 25S JS LithiumS 9.3S JS 7.89S 16S 25S JS MolybdenumS NDS NDS NCS 25S

21000S

5S

20

Quality Control Results3

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14464-1S

dg Number: A1D050441S

Method Blank - Batch: 280-618853 Method: 60203 Preparation: 3020A3

280-62706S MT_024S Lab Sample ID:S MB 280-61885/1-AS Analysis Batch:S Instrument ID:S Client Matrix:S WaterS Prep Batch:S 280-61885S Lab File ID:S 208_BLK.DS Dilution:S 1.0S Leach Batch:S N/AS Initial Weight/Volume:S 50 mLS

Analysis Date:S 04/16/2011 0447S Units:S ug/LS Final Weight/Volume:S 50 mLS Prep Date:S 04/15/2011 1530S

Leach Date:S N/AS

 AnalyteS
 ResultS
 QualS
 MDLS
 RLS

 UraniumS
 0.0299S
 JS
 0.020S
 1.0S

Lab Control Sample - Batch: 280-618853 Method: 60203
Preparation: 3020A3

Lab Sample ID:S LCS 280-61885/2-AS Analysis Batch:S 280-62706S Instrument ID:S MT_024S Client Matrix:S WaterS Prep Batch:S 280-61885S Lab File ID:S 209_LCS.DS Dilution:S 1.0S Leach Batch:S N/AS Initial Weight/Volume:S 50 mLS

Analysis Date:S 04/16/2011 0449S Units:S ug/LS Final Weight/Volume:S 50 mLS

Prep Date:S 04/15/2011 1530S

Leach Date:S N/AS

 AnalyteS
 pike AmountS
 Result
 % Rec.S
 LimitS
 QualS

 UraniumS
 40.0S
 43.2S
 108S
 85 - 119S

Quality Control Results3

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14464-1S

dg Number: A1D050441S

Post Digestion Spike - Batch: 280-618853 Method: 60203 Preparation: 3020A3

Lab Sample ID:S	280-14464-1S	Analysis Batch:S	280-62706S	Instrument ID:S	MT_024S
Client Matrix:S	WaterS	Prep Batch:S	280-61885S	Lab File ID:S	212PDS.DS
Dilution:S	1.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/16/2011 0458S	Units:S	ug/LS	Final Weight/Volume:S	50 mLS

Analysis Date:S 04/16/2011 0496S Units:S ug/LS Final Weignt/Vol

Leach Date:S

N/AS

AnalyteS ample Result/QualS pike Amount Result % Rec.S LimitS QualS

UraniumS 0.054S JS 200S 198S 99S 75 - 125S

Matrix Spike - Batch: 280-618853 Method: 60203
Preparation: 3020A3

Lab Sample ID:S	280-14464-1S	Analysis Batch:S	280-62706S	Instrument ID:S	MT_024S
Client Matrix:S	WaterS	Prep Batch:S	280-61885S	Lab File ID:S	214_MS.DS
Dilution:S	1.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mLS
Analysis Date:S	04/16/2011 0503S	Units:S	ug/LS	Final Weight/Volume:S	50 mLS
Draw Data C	04/45/2011 15200				

Prep Date:S 04/15/2011 1530S

Leach Date:S N/AS

 AnalyteS
 ample Result/QualS
 pike Amount
 Result
 % Rec.S
 LimitS
 QualS

 UraniumS
 0.054S
 JS
 40.0S
 46.1S
 115S
 85 - 119S

Quality Control Resultso3

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14464-1S

dg Number: A1D050441S

Serial Dilution - Batch: 280-618853 Method: 60203
Preparation: 3020A3

Analysis Batch:S Lab Sample ID:S 280-14464-1S 280-62706S Instrument ID:S MT_024S Client Matrix:S WaterS Prep Batch:S 280-61885S Lab File ID:S 211SDIL.DS Dilution:S 5.0S Leach Batch:S N/AS Initial Weight/Volume:S 50 mLS 04/16/2011 0455S Analysis Date:S Units:S ug/LS Final Weight/Volume:S 50 mLS

Prep Date:S 04/15/2011 1530S

Leach Date:S N/AS

Analyte Sample Result/QualS ResultS %DiffS LimitS QualS

UraniumS 0.054S JS NDS NCS 10S

Duplicate - Batch: 280-618853 Method: 60203
Preparation: 3020A3

Lab Sample ID:S 280-14464-1S Analysis Batch:S 280-62706S Instrument ID:S MT_024S Client Matrix:S WaterS Prep Batch:S 280-61885S Lab File ID:S 213_DU.DS 1.0S Leach Batch:S N/AS Initial Weight/Volume:S Dilution:S 50 mLS 04/16/2011 0500S Units:S ug/LS Final Weight/Volume:S 50 mLS

Analysis Date:S 04/16/2011 0500S Prep Date:S 04/15/2011 1530S

Leach Date:S N/AS

 AnalyteS
 ample Result/QualS
 Result
 RPDS
 LimitS
 QualS

 UraniumS
 0.054S
 JS
 0.200S
 115S
 20S
 JS

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1

SDG: A1D050441S

Laboratory Chronicle8

Lab ID:8 280-14464-18 lient ID: FWG-LL4MW-198C-0100-GF8

Sample Date/Time:S 04/04/2011 15:22S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-1-AS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DEN	KMN
A:6010BS	280-14464-A-1-AS		280-62690S	280-61884S	04/15/2011 16:55S	1S	AL DEN	JKH
P:3020AS	280-14464-A-1-DS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-1-DS		280-62706S	280-61885S	04/16/2011 04:52S	1S	AL DEN	EL

Lab ID:8 280-14464-18 lient ID: FWG-LL4MW-198C-0100-GF8

Sample Date/Time:S 04/04/2011 15:22S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-1-C MS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DEN	KMN
A:6010BS	280-14464-A-1-C MS		280-62690S	280-61884S	04/15/2011 17:02S	1S	AL DEN	JKH
P:3020AS	280-14464-A-1-F MS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-1-F MS		280-62706S	280-61885S	04/16/2011 05:03S	1S	AL DEN	EL

Lab ID:8 280-14464-18 lient ID: FWG-LL4MW-198C-0100-GF8

Sample Date/Time:S 04/04/2011 15:22S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-1-B DUS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DEN	KMN
A:6010BS	280-14464-A-1-B DUS		280-62690S	280-61884S	04/15/2011 17:00S	1S	AL DEN	JKH
P:3020AS	280-14464-A-1-E DUS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-1-E DUS		280-62706S	280-61885S	04/16/2011 05:00S	1S	AL DEN	EL

Lab ID:8 280-14464-1 SD8 lient ID: FWG-LL4MW-198C-0100-GF8

Sample Date/Time:S 04/04/2011 15:22S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-1-A SD S ^5S		280-62690S	280-61884S	04/15/2011 07:30\$	5S	AL DEN	KMN
A:6010BS	280-14464-A-1-A SD S ^5S		280-62690S	280-61884S	04/15/2011 16:57S	5S	AL DEN	JKH
P:3020AS	280-14464-A-1-D SD S ^5S		280-62706S	280-61885S	04/15/2011 15:30S	5S	AL DEN	JM
A:6020S	280-14464-A-1-D SD S ^5S		280-62706S	280-61885S	04/16/2011 04:55\$	5S	AL DEN	EL
P:3020AS	280-14464-A-1-D S PDS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-1-D S PDS		280-62706S	280-61885S	04/16/2011 04:58S	1S	AL DEN	EL

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1

SDG: A1D050441S

Laboratory Chronicle8

Lab ID:8 280-14464-28 lient ID: FWG-LL4MW-195C-0070-GF8

Sample Date/Time:S 04/04/2011 16:05S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-2-AS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DEN	KMN
A:6010BS	280-14464-A-2-AS		280-62690S	280-61884S	04/15/2011 17:04S	1S	AL DEN	JKH
P:3020AS	280-14464-A-2-BS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-2-BS		280-62706S	280-61885S	04/16/2011 05:06S	1S	AL DEN	EL

Lab ID:8 280-14464-3 lient ID: FWG-LL4MW-196C-0080-GF8

Sample Date/Time:S 04/04/2011 14:11S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-3-AS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DEN	KMN
A:6010BS	280-14464-A-3-AS		280-62690S	280-61884S	04/15/2011 17:07S	1S	AL DEN	JKH
P:3020AS	280-14464-A-3-BS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-3-BS		280-62706S	280-61885S	04/16/2011 05:09S	1S	AL DEN	EL

Lab ID:8 280-14464-48 lient ID: FWG-LL4MW-197C-0090-GF8

Sample Date/Time:S 04/04/2011 12:35S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-4-AS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DEN	KMN
A:6010BS	280-14464-A-4-AS		280-62690S	280-61884S	04/15/2011 17:18S	1S	AL DEN	JKH
P:3020AS	280-14464-A-4-BS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-4-BS		280-62706S	280-61885S	04/16/2011 05:17S	1S	AL DEN	EL

Lab ID:8 280-14464-58 lient ID: FWG-LL4MW-199C-0110-GF8

Sample Date/Time:S 04/04/2011 13:33S Received Date/Time: 04/11/2011 10:00S

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	280-14464-A-5-AS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DEN	KMN
A:6010BS	280-14464-A-5-AS		280-62690S	280-61884S	04/15/2011 17:20S	1S	AL DEN	JKH
P:3020AS	280-14464-A-5-BS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DEN	JM
A:6020S	280-14464-A-5-BS		280-62706S	280-61885S	04/16/2011 05:20S	1S	AL DEN	EL

Quality Control Resultso8

Job Number: 280-14464-1 Client: TestAmerica Laboratories, Inc.S

SDG: A1D050441S

Laboratory Chronicle8

Lab ID:8 MB8 lient ID: N/A8

> ample Date/Time:S N/AS Received Date/Time:S N/AS

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	MB 280-61884/1-AS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DENS	KMNS
A:6010BS	MB 280-61884/1-AS		280-62690S	280-61884S	04/15/2011 16:51S	1S	AL DENS	JKHS
P:3020AS	MB 280-61885/1-AS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DENS	JMS
A:6020S	MB 280-61885/1-AS		280-62706S	280-61885S	04/16/2011 04:47S	1S	AL DENS	ELS

Lab ID:8 LCS8 lient ID: N/A8

> ample Date/Time:S N/AS Received Date/Time:S N/AS

			Analysis 8		Date Prepared / 8			
Method8	Bottle ID8	Run8	Batch8	Prep Batch8	Analyzed8	Dil8	Lab8	Analyst8
P:3010AS	LCS 280-61884/2-AS		280-62690S	280-61884S	04/15/2011 07:30S	1S	AL DENS	KMNS
A:6010BS	LCS 280-61884/2-AS		280-62690S	280-61884S	04/15/2011 16:53S	1S	AL DENS	JKHS
P:3020AS	LCS 280-61885/2-AS		280-62706S	280-61885S	04/15/2011 15:30S	1S	AL DENS	JMS
A:6020S	LCS 280-61885/2-AS		280-62706S	280-61885S	04/16/2011 04:49S	1S	AL DENS	ELS

Lab References:8

AL DEN = TestAmerica DenverS

METALS

COVER PAGEC METALSC

ab Name: cTestAmerica Denverc	Job Number: c280-14464-1c
SDG No.:c A1D050441c	
Project:c USGS- RVAAPc	
Client Sample IDc	ab Sample IDc
FWG-LL4MW-198C-0100-GE	F 280-14464-1
FWG-LL4MW-195C-0070-GE	E 280-14464-2
FWG-LL4MW-196C-0080-GE	E 280-14464-3
FWG-LL4MW-197C-0090-GE	E 280-14464-4
FWG-LL4MW-199C-0110-GE	E 280-14464-5 c

Comments:c

 lient Sample ID:r
 FWG-LL4MW-198C-0100-GFr
 Lab Sample ID: r
 280-14464-1r

 Lab Name:r
 TestAmerica Denver
 Job No.:r
 280-14464-1r

 SDG ID.:r
 A1D050441r

 Matrix:r
 Water
 Date Sampled:r
 04/04/2011 15:22r

 Reporting Basis:r
 WETr
 Date Received:r
 04/11/2011 10:00r

AS No.r	Analyter	Resultr	RLr	MDLr	MDLr Unitsr		Qr	DILr	Methodr
7440-42-8r	Boronr	28r	100r	4.4r	ug/Lr	Jr		1r	6010Br
7439-93-2r	Lithiumr	9.3r	10r	2.6r	ug/Lr	Jr		1r	6010Br
7439-98-7r	Molybdenumr	NDr	20r	3.1r	ug/Lr			1r	6010Br
14808-60-7r	SiO2, Silicar	22000r	500r	74r	ug/Lr			1r	6010Br
7440-61-1r	Uraniumr	0.054r	1.0r	0.020r	ug/Lr	Jr	Br	1r	6020r

lient Sample ID:r FWG-LL4MW-195C-0070-GFr
Lab Name:r TestAmerica Denver

SDG ID.:r A1D050441r

Matrix:r Water

Date Sampled:r 04/04/2011 16:05r

Reporting Basis:r WETr

Lab Sample ID: r 280-14464-2r

Job No.:r 280-14464-1r

Date Sampled:r 04/04/2011 16:05r

AS No.r	Analyter	Resultr	RLr	MDLr	MDLr Unitsr		Qr	DILr	Methodr
7440-42-8r	Boronr	41r	100r	4.4r	ug/Lr	Jr		1r	6010Br
7439-93-2r	Lithiumr	21r	10r	2.6r	ug/Lr			1r	6010Br
7439-98-7r	Molybdenumr	NDr	20r	3.1r	ug/Lr			1r	6010Br
14808-60-7r	SiO2, Silicar	21000r	500r	74r	ug/Lr			1r	6010Br
7440-61-1r	Uraniumr	0.97r	1.0r	0.020r	ug/Lr	Jr	Br	1r	6020r

lient Sample ID:r FWG-LL4MW-196C-0080-GFr
Lab Name:r TestAmerica Denver

SDG ID.:r AlD050441r

Matrix:r Water
Date Sampled:r 04/04/2011 14:11r

Reporting Basis:r WETr

Lab Sample ID: r 280-14464-3r

Job No.:r 280-14464-1r

Date Sampled:r 04/04/2011 10:00r

AS No.r	Analyter	Resultr	RLr	MDLr	Unitsr	nitsr		DILr	Methodr
7440-42-8r	Boronr	24r	100r	4.4r	ug/Lr	Jr		1r	6010Br
7439-93-2r	Lithiumr	5.4r	10r	2.6r	ug/Lr	Jr		1r	6010Br
7439-98-7r	Molybdenumr	NDr	20r	3.1r	ug/Lr			1r	6010Br
14808-60-7r	SiO2, Silicar	15000r	500r	74r	ug/Lr			1r	6010Br
7440-61-1r	Uraniumr	0.12r	1.0r	0.020r	ug/Lr	Jr	Br	1r	6020r

 lient Sample ID:r
 FWG-LL4MW-197C-0090-GFr
 Lab Sample ID: r
 280-14464-4r

 Lab Name:r
 TestAmerica Denver
 Job No.:r
 280-14464-1r

 SDG ID.:r
 A1D050441r

 Matrix:r
 Water
 Date Sampled:r
 04/04/2011 12:35r

 Reporting Basis:r
 WETr
 Date Received:r
 04/11/2011 10:00r

AS No.r	Analyter	Resultr	RLr	MDLr	Unitsr		Qr	DILr	Methodr
7440-42-8r	Boronr	28r	100r	4.4r	ug/Lr	Jr		1r	6010Br
7439-93-2r	Lithiumr	3.8r	10r	2.6r	ug/Lr	Jr		1r	6010Br
7439-98-7r	Molybdenumr	NDr	20r	3.1r	ug/Lr			1r	6010Br
14808-60-7r	SiO2, Silicar	12000r	500r	74r	ug/Lr			1r	6010Br
7440-61-1r	Uraniumr	1.5r	1.0r	0.020r	ug/Lr		Br	1r	6020r

lient Sample ID:r FWG-LL4MW-199C-0110-GFr
Lab Name:r TestAmerica Denver

SDG ID.:r A1D050441r

Matrix:r Water

Reporting Basis:r WETr

Lab Sample ID: r 280-14464-5r

Job No.:r 280-14464-1r

Date Sampled:r 04/04/2011 13:33r

Date Received:r 04/11/2011 10:00r

AS No.r	Analyter	Resultr	RLr	MDLr	Unitsr	Unitsr		DILr	Methodr
7440-42-8r	Boronr	27r	100r	4.4r	ug/Lr	Jr		1r	6010Br
7439-93-2r	Lithiumr	11r	10r	2.6r	ug/Lr			1r	6010Br
7439-98-7r	Molybdenumr	NDr	20r	3.1r	ug/Lr			1r	6010Br
14808-60-7r	SiO2, Silicar	19000r	500r	74r	ug/Lr			1r	6010Br
7440-61-1r	Uraniumr	0.20r	1.0r	0.020r	ug/Lr	Jr	Br	1r	6020r

Lab Name: E TestAmerica DenverE Job No.: E 280-14464-1mE

SDG No.:E A1D050441mE

ICV Source: E ICP ICVL_00049E Concentration Units: E ug/LmE

CCV Source:E ICP CCVL_00151mE

	ICV 04/1	0-62690/8 011 09:39	ICV 04/1	0-62690/9 011 09:42	E	CCV 280-62690/51 04/15/2011 16:44E						
AnalyteE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE
Boron	259E		250E	104E	262E		250E	105E	517E		500E	103E
Lithium	252E		250E	101E	257E		250E	103E	1000E		1000E	100E
Molybdenum	242E		250E	97E	245E		250E	98E	500E		500E	100E
SiO2, Silica	4220E		4280E	99E	4260E		4280E	100E	10300E		10700E	97E

Lab Name:E TestAmerica DenverE	Job No.:E 280-14464-1mE
SDG No.:E A1D050441mE	
ICV Source:E ICP ICVL 00049E	Concentration Units:E ug/LmE

CCV Source:E ICP CCVL_00151mE

			-62690/63 011 17:11	Ξ	CCV 280-62690/76 04/15/2011 17:41E							
AnalyteE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE
Boron	515E		500E	103E	520E		500E	104				
Lithium	999E		1000E	100E	1020E		1000E	102E				
Molybdenum	497E		500E	99E	504E		500E	101E				
SiO2,	10300E		10700E	96E	10400E		10700E	98E				
Silica												

Lab Name:E TestAmerica DenverE	Job No.:E 280-14464-1mE
SDG No.:E A1D050441mE	
ICV Source: E MS ICV 00316E	Concentration Units:E ug/LmE

CCV Source:E MS CCV_00317mE

)-62706/4)11 19:28	E)-62706/6)11 19:33	E	CCV 280-62706/18 04/15/2011 20:06E			
AnalyteE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE
Uranium	39.8E		40.0E	100E	39.6E		40.0E	99E	50.7E		50.0E	101E

Lab Name:E TestAmerica DenverE	Job No.:E 280-14464-1mE
SDG No.:E A1D050441mE	
ICV Source: E MS ICV_00316E	Concentration Units:E ug/LmE

CCV Source: E MS CCV_00317mE

	1		-62706/164 011 04:41				-62706/175 011 05:12		CCV 280-62706/186 04/16/2011 05:42E			
AnalyteE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE	FoundE	CE	TrueE	%RE
Uranium	52.2E		50.0E	104E	51.9E		50.0E	104E	52.1E		50.0E	104E

2B-INMT CRQL CHECK STANDARDMT METALSMT

Lab Name:T estAmerica DenverT Job No.:T 280-14464-1T

SDG No.:T A1D050441T

Method:T 6010BT Instrument ID:T MT_025

Lab Sample ID:T CRI 280-62690/14T Concentration Units:T ug/LT

CRQL Check Standard Source:T ICP RL STD_00348T

	CRQL Check StandardT								
Analyte	rueT	FoundT	QualifiersT	%R(1)T	LimitsT				
BoronT	100T	104T		104T	50-150T				
LithiumT	10.0T	10.7T		107T	50-150T				
MolybdenumT	10.0T	10.2T	JT	102T	50-150T				
SiO2, SilicaT	1070T	1060T	JT	99T	50-150T				

 ${\tt Note!} \ {\tt Calculations} \ {\tt are} \ {\tt performed} \ {\tt before} \ {\tt rounding} \ {\tt to} \ {\tt avoid} \ {\tt round-off} \ {\tt errors} \ {\tt in} \ {\tt calculated} \ {\tt results.mT}$

2B-INMT CRQL CHECK STANDARDMT METALSMT

Lab Name:T estAmerica DenverT	Job No.:T 280-14464-1T
SDG No.:T A1D050441T	
Method:T 6020T	Instrument ID:T MT_024
Lab Sample ID:T <u>CRI 280-62706/10T</u>	Concentration Units:T ug/LT
CROL Check Standard Source: T MS RL STD 00326T	

	CRQL Check StandardT									
Analyte	rueT	FoundT	QualifiersT	%R(1)T	LimitsT					
UraniumT	1.00T	1.01T		101T	50-150T					

 ${\tt Note!} \ {\tt Calculations} \ {\tt are} \ {\tt performed} \ {\tt before} \ {\tt rounding} \ {\tt to} \ {\tt avoid} \ {\tt round-off} \ {\tt errors} \ {\tt in} \ {\tt calculated} \ {\tt results.mT}$

3-IN2 INSTRUMENT BLANKS2 METALS2

Lab Name:2 TestAmerica Denver ob No.:2 80-14464-12

SDG No.:2 A1D0504412

Concentration Units:2 ug/L2

		ICB 280-62690/13 04/15/2011 09:542		CCB 280-62690		CCB 280-62690	•	CCB 280-62690/772 04/15/2011 17:432	
Analyte2	RL2	Found2	C2	Found2	C2	Found2	C2	Found2	C2
Boron	1002	ND2		ND2		ND2		ND2	
Lithium	102	ND2		ND2		ND2		ND2	
Molybdenum	02	ND2		ND2		ND2		ND	
SiO2,	11002	ND2		ND2		ND2		ND2	
Silica									

3-IN2 INSTRUMENT BLANKS2 METALS2

Lab Name:2 TestAmerica Denver ob No.:2 80-14464-12

SDG No.:2 A1D0504412

Concentration Units:2 ug/L2

		ICB 280-62706/9 04/15/2011 19:42		CCB 280-62706		CCB 280-62706 04/16/2011 0		CCB 280-62706/1762 04/16/2011 05:142	
Analyte2	RL2	Found2	C2	Found2	C2	Found2	C2	Found2	C2
Uranium	1.02	ND2		0.04372		0.06902		0.05472	

3-IN2 INSTRUMENT BLANKS2 METALS2

Lab Name:2 TestAmerica Denver ob No.:2 80-14464-12

SDG No.:2 A1D0504412

Concentration Units:2 ug/L2

		CCB 280-62706/1872 04/16/2011 05:452							
Analyte2	RL2	Found2	C2	Found2	C2	Found2	C2	Found2	C2
Uranium	1.02	0.05032							

3-INt METHOD BLANK METALSt

Lab Name:t TestAmerica Denvert b No.:t 280-14464-1t

SDG No.:t A1D050441t

Concentration Units:t ug/Lt Lab Sample ID: tMB 280-61884/1-At

Instrument Code:t MT_025t Batch No.:t 62690t

CAS No.t	Analytet	Concentrationt	Ct	Qt	Methodt
7440-42-8t	Boront	NDt			6010Bt
7439-93-2t	Lithiumt	NDt			6010Bt
7439-98-7t	Molybdenumt	NDt			6010Bt
14808-60-7t	SiO2, Silicat	NDt			6010Bt

3-INt METHOD BLANK METALSt

Lab Name:t TestAmerica Denvert		b No.:	b No.:t 280-14464-1t				
SDG No.:t A1D0)50441t						
Concentration	Lab Samp	Lab Sample ID: tMB 280-61885/1-At					
Instrument Code:t MT_024t Batch No.:t 62706t							
CAS No.t	Analytet	Concentrationt	Ct	Qt	Methodt		
7440-61-1t	Uraniumt	0.0299t			6020t		

Lab Name:v TestAmerica Denverv	Job No.:v 280-14464-1v
SDG No.:v A1D050441v	
Lab Sample ID:v ICSAB 280-62690/16v	Instrument ID:v MT_025v
Lab File ID:v	ICS Source:v ICP ICSAB_00029v
Concentration Units:v ug/Lv	

	Truev	Foundv	
			Percentv
Analytev	Solution ABv	Solution ABv	Recoveryv
Boron	2000	1818	1
Lithium	1000	1032	103
Molybdenum	1000	11	1
SiO2, Silica	21400	20802	7
AluminumL	500000L	507520L	1021
AntimonyL	1000L	965L	971
ArsenicL	20001	1958L	981
BariumL	500L	488L	981
BerylliumL	500L	471L	941
BismuthL	1000L	1059L	1061
CadmiumL	1000L	1023L	1021
CalciumL	500000L	457890L	921
ChromiumL	500L	475L	95.
CobaltL	500L	454L	911
CopperL	500L	534L	107
IronL	200000L	186780L	931
eadL	1000L	891	891
MagnesiumL	500000L	479720L	961
ManganeseL	500L	4841	97.
NickelL	1000L	893L	891
PhosphorusL	2000L	1871L	941
PotassiumL	50000L	50456L	1011
SeleniumL	5000L	4665L	931
SiliconL	10000L	9721L	971
SilverL	1000L	1071L	1071
SodiumL	50000L	52252L	105
StrontiumL	1000L	95 <i>6</i> L	961
ThalliumL	10000L	8279L	83
ThoriumL	2000L	2019L	1011
TinL	10000L	8783L	883
TitaniumL	1000L	969L	97.
VanadiumL	500L	485L	973
ZincL	1000L	938L	941
ZirconiumL	1000L	955L	951

Lab Name:v TestAmerica Denverv	Job No.:v 280-14464-1v
SDG No.:v A1D050441v	
Lab Sample ID:v ICSA 280-62690/17v	Instrument ID:v MT_025v
Lab File ID:v	ICS Source:v ICP ICSA_00035v
Concentration Units:v ug/Lv	

	Truev	Foundv	
Analytev	Solution Av	Solution Av	Percentv Recoveryv
Boron		-1.66	
Lithium		5.09	
Molybdenum		-0.870	
SiO2, Silica		10.4	
AluminumL	500000L	498730L	100L
AntimonyL		-0.0900L	
ArsenicL		5.55L	
BariumL		0.310L	
BerylliumL		-0.0300L	
BismuthL		5.62L	
CadmiumL		0.350L	
CalciumL	500000L	453650L	911
ChromiumL		2.79L	
CobaltL		-1.52L	
CopperL		7.10L	
IronL	200000L	184780L	921
eadL		-5.41	
MagnesiumL	500000L	473400L	951
ManganeseL		2.09L	
NickelL		0.580L	
PhosphorusL		-3.20L	
PotassiumL		-11.1L	
SeleniumL		-0.390L	
SiliconL		4.86L	
SilverL		-0.450L	
SodiumL		69.5L	
StrontiumL		-2.26L	
ThalliumL		-1.82L	
ThoriumL		-20.6L	
TinL		-0.180L	
TitaniumL		1.76L	
VanadiumL		1.98L	
ZincL		6.58L	
ZirconiumL		0.100L	

Lab Name:v TestAmerica Denverv	Job No.:v 280-14464-1v
SDG No.:v A1D050441v	
Lab Sample ID:v <u>ICSA 280-62706/12</u> v	Instrument ID:v MT_024v
Lab File ID:v 013ICSA.Dv	ICS Source:v MS ICSA_00316v
Concentration Units:v ug/Lv	

	Truev	Founds	7
			Percentv
Analytev	Solution Av	Solution Av	Recoveryv
Uranium		0.0066	
AntimonyL		0.286L	
ArsenicL		0.252L	
BariumL		0.169L	
BerylliumL		0.0126L	
CadmiumL		0.370L	
ChromiumL		2.741	
CobaltL		0.0311L	
CopperL		0.235L	
eadL		0.130	
ManganeseL		0.597L	
MolybdenumL	2000L	2213L	111L
NickelL		1.05L	
SeleniumL		0.0647L	
SilverL		0.09291	
ThalliumL		0.0405L	
ThoriumL		0.947L	
TinL		0.168L	
VanadiumL		0.165L	
ZincL		1.50L	

Lab Name:v TestAmerica Denverv	Job No.:v 280-14464-1v
SDG No.:v A1D050441v	
Lab Sample ID:v ICSAB 280-62706/13v	Instrument ID:v MT_024v
Lab File ID:v 014ICSB.Dv	ICS Source:v MS ICSAB_00318v
Concentration Units:v ug/Lv	_

	Truev	Founds	7
Analytev	Solution ABv	Solution ABv	Percentv Recoveryv
Uranium	100	104	104
AntimonyL	100L	98.5L	991
ArsenicL	100L	102L	102L
BariumL	100L	106L	106L
BerylliumL	100L	92.4L	92L
CadmiumL	100L	95.5L	95L
ChromiumL	100L	111L	111L
CobaltL	100L	103L	103L
CopperL	100L	90.4L	90L
eadL	100L	93.2	93L
ManganeseL	100L	103L	102L
MolybdenumL	2100L	2317L	110L
NickelL	100L	95.7L	96L
SeleniumL	100L	103L	103L
SilverL	100L	87.9L	88L
ThalliumL	100L	95.8L	96L
ThoriumL	100L	118L	118L
TinL	100L	104L	104L
VanadiumL	100L	114L	114L
ZincL	100L	96.8L	97L

Lab Name:v TestAmerica Denverv	Job No.:v <u>280-14464-1</u> v
SDG No.:v A1D050441v	
Lab Sample ID:v ICSA 280-62706/66v	Instrument ID:v MT_024v
Lab File ID:v 067ICSA.Dv	ICS Source:v MS ICSA_00316v
Concentration Units:v ug/Lv	

	Truev	Foundv	
			Percentv
Analytev	Solution Av	Solution Av	Recoveryv
Uranium		0.0339	
AntimonyL		0.284L	
ArsenicL		0.337L	
BariumL		0.184L	
BerylliumL		0.0090L	
CadmiumL		0.465L	
ChromiumL		2.68L	
CobaltL		0.0484L	
CopperL		0.293L	
eadL		0.143	
ManganeseL		0.631L	
MolybdenumL	2000L	2178L	109L
NickelL		1.15L	
SeleniumL		-0.0205L	
SilverL		0.104L	
ThalliumL		0.0364L	
TinL		0.342L	
VanadiumL		0.0376L	
ZincL		1.58L	

Lab Name:v TestAmerica Denverv	Job No.:v 280-14464-1v
SDG No.:v A1D050441v	
Lab Sample ID:v ICSAB 280-62706/67v	Instrument ID:v MT_024v
Lab File ID:v 068ICSB.Dv	ICS Source:v MS ICSAB_00318v
Concentration Units:v ug/Lv	

	Truev	Found	v
Analytev	Solution ABv	Solution ABv	Percentv Recoveryv
Uranium	100	103	103
AntimonyL	100L	98.1L	981
ArsenicL	100L	103L	103L
BariumL	100L	105L	105L
BerylliumL	100L	94.6L	95L
CadmiumL	100L	94.4L	94L
ChromiumL	100L	112L	112L
CobaltL	100L	104L	104L
CopperL	100L	92.0L	92L
eadL	100L	92.4	92L
ManganeseL	100L	105L	105L
MolybdenumL	2100L	2346L	112L
NickelL	100L	97.5L	981
SeleniumL	100L	103L	103L
SilverL	100L	86.0L	8 <i>6</i> L
ThalliumL	100L	95.9L	96L
ThoriumL	100L	117L	117L
TinL	100L	102L	102L
VanadiumL	100L	114L	114L
ZincL	100L	96.3L	96L

5A-IN: MATRIX SPIKE SAMPLE RECOVERY: METALS:

Client ID: FWG-LL4MW-198C-0100-GF MS:	Lab ID: 280-14464-1 MS:
Lab Name: TestAmerica Denver:	Job No.: 280-14464-1:
SDG No.: A1D050441:	
Matrix: Water:	Concentration Units: ug/L:
% Solids:	

Analyte:	SSR :	Sample: Result (SR)	C	Spike: Added (SA)	%R:	Control Limit %R:	Q:	Method:
Boron:	1060:	28:	J	1000:	103:	87-113:		6010B:
Lithium:	1030:	9.3:	J	1000:	102:	89-114:		6010B:
Molybdenum:	1010:	ND:		1000:	101:	83-109:		6010B:
SiO2, Silica:	41800:	22000:		21400:	93:	75-141:		6010B:
Uranium:	46.1:	0.054:	J	40.0:	115:	85-119:		6020:

SSR = Spiked Sample Result:

Calculations are performed before rounding to avoid round-off errors in calculated results.:

5B-IN:

OST DIGESTION SPIKE SAMPLE RECOVERY:

METALS:

Client ID: FWG-LL4MW-198C-0100-GF PDS: Lab ID: 280-14464-1 PDS:

Lab Name: TestAmerica Denver: Job No.: 280-14464-1:

SDG No.: A1D050441:

Matrix: Water: Concentration Units: ug/L:

Analyte:	SSR :	Sample: Result (SR)	Spike: : Added (SA)	%R:	Control Limit %R:	Q:	Method:
Uranium:	198:	0.054: J:	200:	99:	75-125:		6020:

SSR = Spiked Sample Result:

Calculations are performed before rounding to avoid round-off errors in calculated results.:

6-INt DUPLICATESt METALSt

lient ID:t FWG-LL4MW-198C-0100-GF DUt	Lab ID:t 280-14464-1 DUt
Lab Name:t TestAmerica Denvert	Job No.:t 280-14464-1t
SDG No.:t 1D050441t	
% Solids for Sample:t	% Solids for Duplicate:t
Matrix:t Watert	oncentration Units:t ug/Lt

nalytet	ontrolt Limit	Sample (S) t		Duplicate (D)	t	RPDt	Qt	Methodt
Boront	100t	28t	Jt	. 26.4t	Jt	: 6t		6010Bt
Lithiumt	10t	9.3t	Jt	7.89t	Jt	: 16t		6010Bt
Molybdenumt	20t	NDt		NDt		NCt		6010Bt
SiO2, Silicat	500t	22000t		21000t		5t		6010Bt
Uraniumt	1.0t	0.054t	Jt	0.200t	Jt	: 115t		6020t

Calculations are performed before rounding to avoid round-off errors in calculated results. At FORM VI-INAt

7A-IN. LAB CONTROL SAMPLE. METALS.

Lab ID:. LCS 280-61884/2-A .

21400.

SiO2, Silica.

Lab Name: TestAmerica Denver.

Sample Matrix: Water.

LCS Source: ICP SPK 2A_00024.

Water(ug/L). Analyte. Limits. True. Found. %R. Q. Method. 1000. 1010. 110. 6010B. Boron 101. 86. Lithium. 1000. 1000. 100. 90. 112. 6010B. Molybdenum. 1000. 987. 99. 90. 110. 6010B.

96.

110.

90.

6010B.

20500.

 $\hbox{\tt Calculations are performed before rounding to avoid round-off errors in calculated results.}\\$

FORM VIIA - INO.

7A-IN. LAB CONTROL SAMPLE. METALS.

Lab ID:. LCS 280-61885/2-A .

Lab Name: TestAmerica Denver. Job No.: 280-14464-1.

Sample Matrix:. Water. LCS Source:. MS CALSTD-1_00037.

	Water(ug/L).							
Analyte.	True.	Found.		%R.	Lim	its.	Q.	Method.
Uranium.	40.0.	43.2.		108.	85.	119.		6020.

Calculations are performed before rounding to avoid round-off errors in calculated results.0

FORM VIIA - INO.

8-IN/ ICP-AES AND ICP-MS SERIAL DILUTIONS/ METALS/

Lab ID:/ 280-14464-1/	
SDG No:/ A1D050441/	
Lab Name:/ TestAmerica Denver/	Job No:/ 280-14464-1/
Matrix:/ Water/	Concentration Units:/ ug/L/

Analyte/	Initial Sampl Result (I)/		Serial/ ilution/ Result (S)/ C/		% ifference/	Q/	Method
Boron/	28/	J/	33.8/	J/	NC/		6010B/
Lithium/	9.3/	J/	ND/		NC/		6010B/
Molybdenum/	ND/		ND/		NC/		6010B/
SiO2, Silica/	22000/		21900/		0.47/		6010B/

 $\hbox{\tt Calculations are performed before rounding to avoid round-off errors in calculated results.:/}$

8-IN/ ICP-AES AND ICP-MS SERIAL DILUTIONS/ METALS/

Lab ID:/ 280-14464-1/

SDG No:/ A1D050441/

Lab Name:/ TestAmerica Denver/ Job No:/ 280-14464-1/

Matrix:/ Water/ Concentration Units:/ ug/L/

Analyte/	Initial Sample/ Result (I)/ C/	Serial/ ilution/ Result (S)/ C/	% ifference/	Q/	Method
Uranium/	0.054/ J/	ND/	NC/		6020/

 $\hbox{\tt Calculations are performed before rounding to avoid round-off errors in calculated results.:/}$

9-INx DETECTION LIMITSX METALS

Lab Name:x TestAmerica Denverx	Job Number:x 280-14464-1x
SDG Number:x A1D050441x	
Matrix:x Waterx	Instrument ID:x MT_025x
Method:x 6010Bx	MDL Date:x 02/23/2011 08:42x
Prep Method:x 3010Ax	

Analytex	Wavelength/ Massx	RLx (ug/L)x	MDLx (ug/L)x
Boronx	208.9x	100x	4.37x
Lithiumx	670.7x	10x	2.61x
Molybdenumx	202x	20x	3.13x
SiO2. Silicax	288 1x	500×	74 3×

9-INX CALIBRATION BLANK DETECTION LIMITSX METALS

Lab Name:x TestAmerica Denverx	Job Number:x 280-14464-1x				
SDG Number:x A1D050441					
Matrix:x Waterx	Instrument ID:x MT_025x				
Method:x 6010Bx	XMDL Date:x 02/23/2011 08:43x				

Analytex	Wavelength/ Massx	XRLx (ug/L)x	XMDLx (ug/L)x
Boronx		100x	4.37x
Lithiumx		10x	2.61x
Molybdenumx		20x	3.13x
SiO2, Silicax		1100x	74.3x

9-INx DETECTION LIMITSX METALS

Lab Name:x TestAmerica Denverx	Job Number:x <u>280-14464-1</u> x
SDG Number:x A1D050441x	
Matrix:x Waterx	Instrument ID:x MT_024x
Method:x 6020x	MDL Date:x 04/26/2010 12:11x
Prep Method:x 3020Ax	

	Analytex	Wavelength/ Massx	RLx (ug/L)x	MDLx (ug/L)x
Ī	Uraniumx	238x	1x	0.02x

9-INx CALIBRATION BLANK DETECTION LIMITSX METALS

Lab Name:x TestAmerica Denverx	Job Number:x 280-14464-1
SDG Number:x A1D050441	
Matrix:x Waterx	Instrument ID:x MT_024x
Method:x 6020	XMDL Date:x 04/26/2010 12:12x

Analytex	Wavelength/	XRLx	XMDLx
	Massx	(ug/L)x	(ug/L)x
Uraniumx		1x	0.02x

Page 65 of 764

60000000

0.000018

0.000146

10-IN ICP-AES INTERELEMENT CORRECTION FACTORS METALSJ

Lab Name: TestAmerica DenverJ

SDG No.: AlD050441

ICP-AES Instrument ID:J MT_025J

03/08/2011J

Date:

ob Number: 280-14464-1J

КJ

FеJ

CuJ

0.0001655

0.001408

0.004302 0.014240 0.002290 -0.002611 CrJ-0.004118 0.070287 0.070287 CoJ CdJ 60000000 0.00000 СаЛ BiJ -0.002169 ВеЛ ВаЛ 0 ВЛ 0.002543 $_{\Box}^{S}$ 0.000023 0.000032 0.000058 17 AgJ 206.833J 228.802J 220.353J 196.090J 818.326 167.079 309.271 455.403 313.042 223.061 208.959 205.552 228.616 202,030 178.284 288.158 Length 189.042 317,933 259.940 670.784 279.079 257.610 231.604 766.490 328.068 589.592 407,771 324.754 271.441 Wave MolybdenumJ PhosphorusJ nalyteJ BerylliumJ MagnesiumJ ManganeseJ PotassiumJ StrontiumJ ChromiumJ luminumJ luminumJ SeleniumJ ntimony BismuthJ SiliconJ rsenicJ CadmiumJ CalciumJ LithiumJ BariumJ CobaltJ CopperJ NickelJ SilverJ SodiumJ SodiumJ BoronJ IronJ IronJ LeadJ

182.034

Sulfur

Page 66 of 764

ICP-AES INTERELEMENT CORRECTION FACTORS METALSJ 10-IN

SDG No.: A1D050441

ob Number: 280-14464-1J

Date: 03/08/2011J ICP-AES Instrument ID:J MT_025J

Mave Mave Mave Baj Baj<									
Mave Mave Mave BaJ BaJ BaJ BiJ CaJ CdJ CcJ CrJ CrJ CuJ iumJ 190.856 a a a a a a a a a c	КJ								
Mave Mave BaJ BaJ BaJ BiJ CaJ CdJ CoJ CrJ iumJ 190.856 AgJ 1J AgJ	Fe J		0.000729			0.000215			
Mave Mave BaJ BaJ BeJ BiJ CaJ CdJ COJ iumJ 190.856 AgJ 1J AgJ	CuJ								
Mave Mave BdJ BdJ BdJ BdJ CdJ CdJ iumJ 190.856 334.904 10 sg 10 sg 10 sg	CrJ		0.000240		0.000169	0.001869	-0.006569	-0.000710	
Mave Mave BdJ BdJ BdJ BdJ CaJ iumJ 190.856 13 53 14 15	CoJ	0.003800							
Wave Mave BdJ BdJ BdJ BiJ iumJ 190.856 10 50 10	CdJ		-0.000516						
Wave Wave 1J sJ BJ BaJ BeJ iumJ 190.856 1	CaJ					0.000107			
Wave Mave Length AgJ lJ SJ BJ BaJ iumJ 190.856	ВiJ								
Mave Mave Length AgJ lJ sJ BJ iumJ 190.856 </td <td>ВеЛ</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	ВеЛ								
Mave Mave lyteJ Length AgJ lJ sJ iumJ 283.730 89 89 iumJ 334.904 870.152 870.152 iumJ 292.402 820.200 839.198 nium 339.198 839.198 839.198	BaJ								
Mave AgJ lJ lumJ 190.856 15 umJ 283.730 189.989 lumJ 334.904 10 lumJ 370.152 10 lumJ 292.402 10 nium 339.198 10	ВЛ					0.001088			
Mave lyteJ Length AgJ iumJ 190.856 umJ 283.730 iumJ 334.904 umJ 370.152 iumJ 292.402 iumJ 206.200 nium 339.198	ъъ								
Mave lyteJ Length iumJ 190.856 umJ 283.730 iumJ 334.904 umJ 370.152 iumJ 292.402 iumJ 206.200 nium 339.198	1.7								
lyteJ iumJ iumJ iumJ iumJ	AgJ								
nalyteJ ThalliumJ ThoriumJ TinJ TitaniumJ UraniumJ VanadiumJ ZincJ	Wave Length	190.856	283.730	189.989	334.904	370.152	292.402	206.200	339.198
	nalyteJ	ThalliumJ	ThoriumJ	TinJ	TitaniumJ	UraniumJ	VanadiumJ	ZincJ	Zirconium

Page 67 of 764

ICP-AES INTERELEMENT CORRECTION FACTORS METALSJ 10-IN

SDG No.: A1D050441

ICP-AES Instrument ID:J MT_025J

03/08/2011J Date:

ob Number: 280-14464-1J

 SrJ SnJ 0.000071 SiJ SeJ SbJ SG PbJ $\mathbb{P} \mathbb{J}$ 0.000151 0.000134 0.000312 Νiυ NaJ -0.000868 0.001045 0.021490 -0.004187 -0.000837 0.000034 -0.005077 -0.001874 0.001805 0.000441 MoJ0 0.000750 0.011200 MnJ 0 0.000894 0.000894 MgJ LiJ 309.271 259.940J 271.441J 220.353J 196.090J 328.068J 182.034J 455.403 223.061 208.959 228.802 317.933 205.552 228.616 202,030 178.284 766.490 288.158 818.326 589.592 Length 167.079 189.042 313.042 670.784 279.079 257.610 231.604 407,771 206.833 324.754 Wave MolybdenumJ PhosphorusJ nalyteJ BerylliumJ MagnesiumJ ManganeseJ PotassiumJ StrontiumJ luminumJ ChromiumJ AluminumJ SeleniumJ Antimony BismuthJ SiliconJ rsenicJ CadmiumJ CalciumJ LithiumJ BariumJ CobaltJ CopperJ NickelJ SilverJ SulfurJ SodiumJ SodiumJ BoronJ IronJ IronJ LeadJ

Page 68 of 764

10-IN ICP-AES INTERELEMENT CORRECTION FACTORS METALSJ

SDG No.: A1D050441

ICP-AES Instrument ID:J MT_025J

Date: 03/08/2011J

ob Number: 280-14464-1J

SrJ								
SnJ								
SiJ								
SeJ								
SbJ								
SJ								
РЪЈ								
ΡJ								
ΝiJ		0.000237						
NaJ								
МоЈ				0.000571				
MnJ	0.001027					0.000497		
МдЛ				0.000003				
LiJ								
wave Length	190.856J	283.730	189.989	334.904J	370.152	292.402J	206.200	339.198
nalyteJ	ThalliumJ	ThoriumJ	TinJ	TitaniumJ	UraniumJ	VanadiumJ	ZincJ	Zirconium

Page 69 of 764

0.015870

10-IN ICP-AES INTERELEMENT CORRECTION FACTORS METALSJ

Lab Name: TestAmerica DenverJ

SDG No.: A1D050441

ICP-AES Instrument ID:J MT_025J

Date: 03/08/2011J

ob Number: 280-14464-1J

0.001154 0.001223 0.000024 0.000476 0.003534 ZrJ ZnJ MΩ -0.209500 0.000656 -0.209500 $\nabla \nabla$ 0.000035 -0.001780 0.001095 -0.010166 -0.002406 0.001256 0.000511 UJ TlJ0.000204 0.001698 -0.000326 0.000719 TiJ -0.012260 0.000058 0.003266 -0.042580 0.000067 -0.000849 $\operatorname{Th}\mathcal{J}$ 223.061J 313.042J 228.616J 324.754J 220.353J 455.403 208.959 317.933 205.552 196.090 818.326 Length 167.079 309.271 206.833 189.042 228.802 279.079 257.610 202.030 766.490 328.068 407,771 259.940 271.441 670.784 231.604 178.284 288.158 589.592 Wave MolybdenumJ PhosphorusJ nalyteJ MagnesiumJ ManganeseJ PotassiumJ StrontiumJ BerylliumJ ChromiumJ luminumJ AluminumJ SeleniumJ Antimony BismuthJ SiliconJ CadmiumJ CalciumJ rsenicJ LithiumJ BariumJ CobaltJ CopperJ NickelJ SilverJ SodiumJ SodiumJ BoronJ IronJ IronJ LeadJ

182.034

SulfurJ

Page 70 of 764

10-IN ICP-AES INTERELEMENT CORRECTION FACTORS METALSJ

SDG No.: A1D050441

ICP-AES Instrument ID:J MT_025J

Date: 03/08/2011J

ob Number: 280-14464-1J

ZrJ		0.007938						
ZnJ								
WJ								
υū	0.000675							
ĹΩ		0.021950		-0.000536		-0.000661		
TIG								
Tiu	0.000398		0.001001		0.005239	0.000574		
ThJ				0.006042		0.001078		0.065805
Wave	190.856J	283.730	189.9891	334.904	370.152J	292.402J	206.200	339.198
nalyteJ	ThalliumJ	ThoriumJ	TinJ	TitaniumJ	UraniumJ	VanadiumJ	ZincJ	Zirconium

11-ING ICP-AES AND ICP-MS LINEAR RANGES METALSG

Lab Name: gTestAmerica Denverg Job No:g 280-14464-1g

SDG No.:g A1D050441g

Instrument ID:g MT_025g Date:g 02/18/2011 13:56g

Analyteg	Integ.g Timeg (Sec.)g	Concentrationg (mg/L)g	Methodg
Borong		100g	6010Bg
Lithiumg		25g	6010Bg
Molybdenumg		20g	6010Bg
SiO2, Silicag		428g	6010Bg

11-INg ICP-AES AND ICP-MS LINEAR RANGES METALSg

Lab Name: gTestAmerica Denverg	Job No:g 280-14464-1g
SDG No.:g A1D050441g	
Instrument ID:g MT_024g	Date:g04/12/2011 16:49g

Analyteg	Integ.g Timeg (Sec.)g	Concentrationg (ug/L)g	Methodg
Uraniumg		4000g	6020g

12-INr PREPARATION LOGR METALSr

Lab Name:r estAmerica Denver Job No.:r 280-14464-1r

SDG No.:r 1D050441r

Prep Method:r 3010Ar

Labr Sampler IDr	Preparationr Dater	Prepr Batchr	Initialr Weightr	Initialr Volumer	Final r Volumer
IDI				(mL)r	(mL)r
MB 280-61884/1-A r	04/15/2011 07:30r	61884r		50r	50r
LCS 280-61884/2-A r	04/15/2011 07:30r	61884r		50r	50r
280-14464-1 r	04/15/2011 07:30r	61884r		50r	50r
280-14464-1 DU r	04/15/2011 07:30r	61884r		50r	50r
280-14464-1 MS r	04/15/2011 07:30r	61884r		50r	50r
280-14464-2 r	04/15/2011 07:30r	61884r		50r	50r
280-14464-3 r	04/15/2011 07:30r	61884r		50r	50r
280-14464-4 r	04/15/2011 07:30r	61884r		50r	50r
280-14464-5 r	04/15/2011 07:30r	61884r		50r	50r

110

12-INr PREPARATION LOGR METALSr

Lab Name:r estAmerica Denver Job No.:r 280-14464-1r

SDG No.:r 1D050441r

Prep Method:r 3020Ar

Labr Sampler IDr	Preparationr Dater	Prepr Batchr	Initialr Weightr	Initialr Volumer (mL)r	Final r Volumer (mL)r
MB 280-61885/1-A r	04/15/2011 15:30r	61885r		50r	50r
LCS 280-61885/2-A r	04/15/2011 15:30r	61885r		50r	50r
280-14464-1 r	04/15/2011 15:30r	61885r		50r	50r
280-14464-1 DU r	04/15/2011 15:30r	61885r		50r	50r
280-14464-1 MS r	04/15/2011 15:30r	61885r		50r	50r
280-14464-2 r	04/15/2011 15:30r	61885r		50r	50r
280-14464-3 r	04/15/2011 15:30r	61885r		50r	50r
280-14464-4 r	04/15/2011 15:30r	61885r		50r	50r
280-14464-5 r	04/15/2011 15:30r	61885r		50r	50r

ICP Data Review Checklist

TALS BATCH NUMBER: 6286-62700	Earli	est du	e date:	4/18/11
Run Date: 4/15/11 Analyst: JKH	Instr	7 -7-		
QC programs/Methods Run: See Zun Locs				
Review Items	Yes	No	N/A	2nd Level
A. Preparation/Matrix-QC	4.000	1773		or side
1. LCS done per prep batch and within QC limits?				
2. Method blank done per prep batch and < 1/2 RL or CRDL (CLP) or < 2.2x MDL 200.7 ?				
3. MS run at required frequency and within limits?				
4. MSD or DU run at required frequency and RPD within SOP limits?				/
5. Serial dilution done per prep batch (of per SDG for CLP)?				1
6. Post digest spike analyzed if required (CLP, DOD & AFCEE only)? NCM Whether needed for DODV3, AFCEE 4.0, 6010c?				
B. Calibration/Instrument Run QC	**************************************		13 1 (19 Mg)	
1. ICV/CCV analyzed at appropriate frequency and within control limits? (6010B: CLP = 90 - 110%; 200.7: ICV = 95 - 105%, CCV 90-110%) If not in control, was the ICV or CCV reanalyzed twice to show return to control as per NELAP?	~			
2. ICB/CCB analyzed at appropriate frequency and < RL or < CRDL (CLP) or < 2X MDL (DOD V3,AFCEE 4.0)? Was it less than the MDLV (6010C)				
3. High Standard (HIGH) reanalyzed before samples and recovered within QC limits? (+-5%)				
4. RL STD run and recovered within QC limits? (± 50% for non-CLP, ± 20% for DoD V3 / AFCEE 4.0 / USACE)	1			
5. Was the LLICV/LLCCV analyzed at appropriate frequency for 6010C and within control (+-30 % or +-20%)				/
6. ICSA/ICSAB run at required frequency and within SOP limits? (ICSA < 2X MDL AFCEE 4.0, DOD V3 or <rl 6010c))<="" <mdlv="" or="" std="" td="" work=""><td>1</td><td></td><td></td><td>/</td></rl>	1			/
C. Sample Results				
1. For 6010B, were samples with concentrations > the linear range for any parameter diluted and reanalyzed? For 200.7, were samples with concentrations within 90% of the linear range diluted and reanalyzed?				
2. Are all reported results bracketed by in control QC?	<i>i</i>			
D. Other				TER X
Are all nonconformances documented appropriately?				
2. Calculations checked for errors?				
Transcriptions checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	/			
4. All client/project specific requirements met?				
5. Date/time of analysis verified as correct?	V	a		
6. PDF attached, verified uncorrupted?				
Analyst: 7KH Date: 2(18/11				
Comments:				
		·		
2100 0 m/4= d \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	,			
2nd Level Reviewer: Wing My Date:	, 			

TestAmerica Denver

62706-6020 Water
62711-Soil TestAmerica

ICP/MS Technical Data Review Checklist

Lab Project ID Number(s): see attached cover sheet Check Method/SOP Used: □6020/DV-MT-0018 □200.8/DV-MT-0002

			Level 1		Level 2	Comments &
	Review Items	Yes-	No.≟	N/A		Samples Affected
Tun	Comment of the commen		\$140,8555			
<u>1.</u>	Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8?	<u>×</u>				
<u>2.</u>	Tune RSD <5%?	_8				
2.	Resolution ≤ 0.9 AMU full width at 10% peak height? NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height	V				i ha
Initi	al Calibration					
1.	Done with a minimum of 3 integrations of a high standard and blank?	X .				
2.	ICV/CCV run at beginning of run, 10% frequency, and end of run? Results with 10% of expected value?	8		,		y en la
3.	ICB/CCB run at beginning of run, 10% frequency, and end of run? Results +/- RL	8		to approximate		
4. ·	ICSA/AB analyzed at beginning of run and every 12 hours and results 80-120% of TV?	8				
5.	RL Std analyzed at beginning of run and results +/- 50% of TV(for AFCEE 4.0, DoD V3 +/- 20% of true value)?	8				
Clie	nt Samples & QC Sample Results					
1.	Were all samples within linear range, ≤ 90% of LDR for 200.8?	8				
2.	Dilutions due to target elements? Dilutions for other reasons?	8		Ì		44, 49-14, 30-14, 30-14, 40-14,
3.	All reported results bracketed by in control QC?	8		!		
4.	All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%?	8		!		
5.	Was a 5X serial dilution analyzed for 6020 and, if so, are results $\pm 10\%$ of original result, if original $\geq 100x$ MDL?	8				
6.	LCS included in batch and within QC limits?	8				
7.	Method blank included and <1/2RL?	V		İ		
8.	MS and MSD included in batch?	1/		1		***************************************
9.	PDS analyzed and recovery 75-125%?	1 ×	1	1		
10.	Manual calculations documented properly and checked?	~		1:	 	
11.	Are non-conformances documented on an NCM?	1			+	
12.	Is the appropriate raw data included?	V		1	 	
13.	Are all results manually entered into LIMS verified? Are all electronic	8				
1.4	data files archived to the appropriate network locations?	1	ļ	1:	Skandistumink kingir (p. 55 gamma)	
14.	Were special client requirements met?	$\perp Y$		<u> </u>		

1st Level Reviewer: 2nd Level Reviewer:

your ming Ly.

Date: 9/ /9///

Date: L/

L:\QA\Edit\FORMS\Data Review\ICPMS

METALS BATCH WORKSHEET

uspg No.: AlD050441

ob No.:6 280-14464-16

Batch Number:6 18846 Batch Method: 6 3010A6

07:30 04/15/11 Batch Start Date:

Batch End Date: 6 04/15/11 12:306

Niman, Katie M

Batch Analyst:

ICP SPK 3A 00026		0.5 mL				0.5 mL									
ICP SPK 2A 000246		0.5 mL6				0.5 mL6									
FinalAmount6	50 mL	50 mL6	50 mL	F C	000	50 mL6		50 mL		50 mL		50 mL		50 mL	
InitialAmount6	50 mL6	50 ml6	50 mL6) H-11	00	50 mL6		50 mL6		50 mL6		50 mL6		50 mL6	
Initial pH6			<26	000	07/	<26		<26		<26		<26		<26	
Basis6			9 I) E	0	9L		9T		T6		T6		T	
Method Chain6	3010A, 6010B6	3010A, 6010B	3010A, 6010B6	740107	SOLUA, SULUBS	3010A, 6010B6		3010A, 6010B6		3010A, 6010B6		3010A, 6010B6		3010A, 6010B6	
Client Sample ID6 Method Chain6 Basis6			FWG-LL4MW-198C-0 3010A, 6010B6	TOO OF OWN 1000 O	100-GF6	FWG-LL4MW-198C-0 3010A, 6010B6	100-GF6	FWG-LL4MW-195C-0 3010A, 6010B6	070-GF6	FWG-LL4MW-196C-0	080-GF6	FWG-LL4MW-197C-0 3010A, 6010B6	090-GF6	FWG-LL4MW-199C-0 3010A, 6010B6	110-GF6
Lab Sample ID6	MB 280-61884/16	LCS 280-61884/26	280-14464-A-16		DU6	280-14464-A-1	MS6	280-14464-A-26		280-14464-A-36		280-14464-A-46		280-14464-A-56	

Batch	Batch Notes6
Lot # of hydrochloric acid6	460376
Lot # of Nitric Acid6	K090416
Hot Block ID number6	026
Oven, Bath or Block Temperature 16	95 Degrees C
Oven, Bath or Block Temperature 26	95 Degrees C
Pipette ID6	MET-0076
Person who witnessed spiking6	KMN 6
ID number of the thermometer6	9080015586
Digestion Tube/Cup Lot #6	10101916
Uncorrected Temperature6	95 Degrees C
Uncorrected Temperature 26	95 Degrees C6

Desci ipci	
DASTS	Total/NA6
Dasta	9 L

Page 761 of 764

Page 762 of 764

METALS BATCH WORKSHEET

ob No.:6 280-14464-16

uspg No.: AlD050441

Batch Start Date: Batch Number:6 18856 Batch Method:6 3020A6

15:30 20:306 04/15/11 Batch End Date: 6 04/15/11

Batch Analyst: Mooney, Joseph C

MS CALSTD-2 00036		0.1 mL			0.1 mL				
MS CALSTD-1 000376		0.1 mL6			0.1 mL6				
FinalAmount6	50 mL	50 mL6	50 mL	50 mL	50 mL6	50 mL	50 mL	50 mL	50 mL
InitialAmount6	50 mL6	50 mL6	50 mL6	50 mL6	50 mL6	50 mL6	50 mL6	50 mL6	50 mL6
Initial pH6			<26	<26	<26	<26	<26	<26	<26
Basis6			J. T. G.	J. L	9 L	J. L	J. L	9 L	H
Method Chain6	3020A, 60206	3020A, 6020	3020A, 60206	3020A, 60206	3020A, 60206	3020A, 60206	3020A, 60206	3020A, 60206	3020A, 60206
Client Sample ID6 Method Chain6 Basis6			FWG-LL4MW-198C-0 3020A, 60206 100-GF6	FWG-LL4MW-198C-0 3020A, 60206 100-GF6	FWG-LL4MW-198C-0 100-GF6	FWG-LL4MW-195C-0 070-GF6	FWG-LL4MW-196C-0 3020A, 60206 080-GF6	FWG-LL4MW-197C-0 3020A, 60206 090-GF6	FWG-LL4MW-199C-0 3020A, 60206 110-GF6
Lab Sample ID6	MB 280-61885/16	LCS 280-61885/26	280-14464-A-16	280-14464-A-1 DU6	280-14464-A-1 MS6	280-14464-A-26	280-14464-A-36	280-14464-A-46	280-14464-A-56

Batch	Batch Notes6
Lot # of Nitric Acid6	K090416
Hot Block ID number6	90
Oven, Bath or Block Temperature 16	94 Degrees C
Oven, Bath or Block Temperature 26	94 Degrees C
Pipette ID6	MET-0156
ID number of the thermometer6	148596
Digestion Tube/Cup Lot #6	10101916

Description	
Basis	Total/NA6
Basis6	9L

Shipping and eceiving Documents

2.6°, 3.1° North aboratory **TestAmerica Denver**

TestAmerica Laboratories, Inc. SAMPLE ANALYSIS REQUISTION

Report Package:

Project Manager:

Expanded Deliverables

4955 Yarrow Street

Lab Request

SR126369

Need Analytical Report

2011-04-19

MARK LOEB

Arvada, CO

Canton

80002

Client Code:

1434673

Sample I.D.	Work Order Number	Client Sample ID
A1D050441-2	MGJ2K	FWG-LL4mw-198C-0100-GF
A1D050441-2	MGJ2K	FWG-LL4mw-198C-0100-GF
A1D050441-4	MGJ2W	FWG-LL4mw-195C-0070-GF
A1D050441-4	MGJ2W	FWG-LL4mw-195C-0070-GF
A1D050441-6	MGJ20	FWG-LL4mw-196C-0080-GF
A1D050441-6	MGJ20	FWG-LL4mw-196C-0080-GF
GA1D050441-8	MGJ24	FWG-LL4mw-197C-0090-GF
A1D050441-8	MGJ24	FWG-LL4mw-197C-0090-GF
A1D050441-10	MGJ26	FWG-LL4mw-199C-0110-GF
A1D050441-10	MGJ26	FWG-LL4mw-199C-0110-GF
		i

Sampling Date Analysis Required 2011-04-04 15:22 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-04 15:22 WATER, 6010B, Metals B Li Mo Si (Denver) 2011-04-04 16:05 WATER, 6010B, Metals B Li Mo Si (Denver) 2011-04-04 16:05 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-04 14:11 WATER, 6020, Uranium by ICP/MS (Denver) WATER, 6010B, Metals B Li Mo Si (Denver) 2011-04-04 14:11 2011-04-04 12:35 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-04 12:35 WATER, 6010B, Metals B Li Mo Si (Denver)

WATER, 6020, Uranium by ICP/MS (Denver)

WATER, 6010B, Metals B Li Mo Si (Denver)

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

at the TAL North Canton Laboratory

Shipping Method:

2011-04-04 13:33

2011-04-04 13:33

FED-EX

Need detection limit and analysis date included in report.

this form with the report at completion of analysis Please send a signed

Relinquished by:

Relinquished by:

Received for lab by

Date/Time:

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION



END OF REPORT

North Canton 802



ANALYTICAL REPORT

PROJECT NO. GR11NJ00D5WRV00

RAVENNA OH

Lot #: A1D060449

Gary L. Cottrell

U.S. Geological Survey (USGS)
Building 95, MS-407
Denver, CO 80225

TESTAMERICA LABORATORIES, INC.

Mark J. Loeb

Project Manager mark.loeb@testamericainc.com

June 23, 2011



Approved for release. Mark J. Loeb Project Manager II 6/23/2011 10:11 AM

Laboratory Job No: A10060449

CONTRACT LABORATORY DATA-REVIEW WORKSHEET

1.0 GENERAL INFORMATION
Data reviewer:
Office, Project, & Account #: Off Rayensa
2.0 DATA DELIVERABLES
Date of Lab analytical report: 6/23/1/ Number of copies: bound unbound
No. of CD copies of raw-data report: 2 Remarks:
Raw-data report reviewed? YesNoElectronic data files on CD? YesNo
EDD file format: OWDATA TAL QUA08 / ERPIMS Other
Date rec'd data deliverables: 6/27/11 Date sent deliverables to USGS office 6/27/11
3.0 INVOICE STATUS FOR LOT: OK
4.0 SAMPLE INFORMATION (Page #'s listed in this worksheet refer to lab analytical report)
Sample collection date(s): 4/5/ // Sample matrix:
No. of sample types in lot: Environmental _ 5 Trip blank Equip. blank
MS/MSDOther:
MS/MSDOther:
4.1 Were accelerated turn-around times (TATs) requested for analyses? YesNo
If yes, list TAT period and if completed:
4.2 Were analyses on chain-of-custody (COC) form performed by lab? YESNO
If no, list missing or cancelled analyses and reason for non-performance:
4.3 Were the samples properly preserved, labeled, no lab log-in problems, and(or) at
appropriate temperature (<6 deg. C) upon receipt by the laboratory: YesNo
If no , list sample/lab IDs, and associated problems or reference lab report case narrative:

Edboratory od	D 110		
4.4 Were preparation (extraction) and(or) analysis holding times me	t? Yes_	<u>No</u>	
If no, list analytical methods and sample/lab IDs for samples that ex	ceeded ho	olding-tin	ne limits:
4.5 Did surrogate recoveries meet QC acceptance criteria? Yes	No	ΝΙΔ	
			<u></u>
If no , list methods, surrogates, associated sample/lab IDs, lab report	i page #s.		
		H 	
			
4.6 Were dilution factors greater than 1 for <i>organic</i> analyses? Yes_	No	NA	
If yes, list analytical methods and reason for raised dilution factors: of	dilution		
high-analyte levelsmatrix interferencesother			
		·.	
		· · · · · · · · · · · · · · · · · · ·	
4.7 Were dilution feators greater than 1 for inorganic analyses? Ver	NIo	NA	
4.7 Were dilution factors greater than 1 for inorganic analyses? Yes		IVA_	
If yes , list analytical methods and reason for raised dilution factors:			
high-analyte levelsotherother			
104 = X2, P19, 20			
4.8 Additional comments about sample analyses:		· · · · · · · · · · · · · · · · · · ·	
	·		

Laboratory Job No: 410060449

5.0 QUALITY CONTROL (QC) ANALYSES and RESULTS
5.1 Were any target analytes detected in the Laboratory Method Blanks? YesNo
If yes, list method, analytes, prep batch #, report page #s:
5.2 Did lab control samples (LCS/LSCD) meet percent recoveries (%R) criteria? YesNo
If no , list method, analytes, LCS/LCSD, prep batch #, report page #s:
5.3 Did the MS/MSD results meet %R or RPD acceptance criteria? YesNo_NA_
Note: matrix spike and matrix spike duplicate (MS/MSD) data are used to evaluate the effect of sample
matrix on the analytical process and should be only used in conjunction with other available lab QC data. In some cases, MS samples not directly associated with this lot may be used by the laboratory.
If no , list method, analytes; MS, MSD or RPD; and lab report page #:
F - Law Recovers - P3 1 + P35
F- Low Recovery - P31+P35 Ortho P- Low Recovery - P32 + P35 Ortho P- High Recovery - P37+P39 U- High Recovery - F58
Ortho P - High Paray 12 - P37 + P39
U - High Recovery - F58
NOTE: Cl spike P34 overwhelmed by Sample Concentration
5.4 Did the lab-sample duplicate results meet RPD acceptance criteria? YesNoNA
If no , list method, analytes, prep batch #, report page #s,
in no, not metrica, analytes, proposition in, report page ins,
5.5 Additional comments about QC results:

	Laboratory Job No:
6.0 ANALYTICAL METHODS USE	in this LABORATORY LOT NUMBER
VOCs by GC/MSmethod 8260B/ 8	[water (W) or solids (S) analysis holding-time (HT) of 14 days
Gasoline Range Organics (GRO)+B	TEX-method 8015B(GRO)/ 8021 [W and S: analysis HT 14 days]
Diesel Range Organics-method 801	5B-DRO [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
Pesticides by GCmethod 8081A	[W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
PCBs by GCmethod 8082	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Pesticides by GCmethod 8141A	[W: prep HT 7 days: S: prep HT 14 days analysis HT 40 days
Herbicides by GCmethod 8151A	[W: prep HT 7 days; S: prep HT14 days. analysis HT 40 days]
SVOCs by GC/MSmethod 8270C	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Dioxins and Furansmethods 8280/	8290/ 1613 [W and S: prep HT 30 days; analysis HT 45 days]
PAHs by HPLC method 8310	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Explosives by HPLC method 8330 c	r 8321A [W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Hexane extractable materials (HEM	and SGT-HEM)-method 1664/ 9071B [W/S: analysis HT 28 days]
Total organic carbon (TOC) or DOC	methods 415.1 or 9060 or 5310B [W: analysis HT 28 days]
Perchloratemethods 314.0 or 6850	LC/MS/MS or 6860 IC/MS/MS [W: analysis HT 28 days]
Metals by ICPmethod 6010B or 20	0.7 [W and S: analysis HT 180 days]
Metals by ICP/MSmethod 6020 or	200.8 [W and S: analysis HT 180 days]
Mercury by CVAAmethod 7470A (N) and 7471A (S) [W and S: analysis HT 28 days]
Inorganic anions-method 300) 9056	[W: analysis HT 48 hours- NO ₂ , NO ₃ , ortho-P; HT 28 daysBr,Cl ,F, SO ₄]
Total dissolved solids (TDS)metho	d 2540C and(or) TSSmethod 2540D [W: analysis HT 7 days]
Alkalinitymethod 310.1 (Total, OH,	HCO ₃ , and CO ₃) [W: analysis HT 14 days]
Nitrogen, ammoniamethod_350.1	330. Z [W analysis HT 28 days]
Nitrogen, TKNmethod 351.2	[W. analysis HT 28 days]
Nitrogen, nitrate + nitritemethod 35	3.2 [W: analysis HT 28 days] NO ₃ or NO ₂ only [HT 48 hours]
Nitrogen, nitritemethod 353.2 or 35	[W: analysis HT 48 hours]
Phosphorus-method 365.3 and orthogonal	P by 365.3 [Phosphorus.: W: analysis HT 28 days, ortho P 48 hours]
Phosphorus-method 365.1 and ortho	P by 365.1 [Phosphorus: W: analysis HT 28 days, ortho P 48 hours]
Cyanide, total, dissolved, or amenat	olemethods 9012A/ 335.4 [W and S: analysis HT 14 days]
MBAS surfactants - method 425.1 (HT 48 hours)
Moisture contentmethods D2216 o	r 160.3M
BODmethod 405.1 (HT 48 hours)	or CODmethod 410.4
Turbiditymethod 180.1 (HT 48 hou	rs); Hardness 2340B
Physical properties: pHmethod 45	00 H B; specific conductance—method 2510B
Other analyses:	



CASE NARRATIVE

CASE NARRATIVE

A1D060449

The following report contains the analytical results for five water samples submitted to TestAmerica North Canton by U.S. Geological Survey (USGS) from the RAVENNA OH Site, project number GR11NJ00D5W2100. The samples were received April 06, 2011, according to documented sample acceptance procedures.

The 6010B Metals (B Li Mo Si) and 6020 Uranium by ICP/MS analyses were performed at the TestAmerica Denver laboratory.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

All parameters were evaluated to the method detection limit and include qualified results where applicable.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Mark J. Loeb, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 1.8°C.

GENERAL CHEMISTRY

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

Matrix spike recovery and relative percent difference (RPD) data were not calculated for some analytes for batch(es) 1097311 due to the sample concentration reading greater than four times the spike amount. See the Matrix Spike Report for the affected analytes which will be flagged with "NC, MSB".

The matrix spike/matrix spike duplicate(s) for FWGSCFMW-004-0180-GW had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The matrix spike/matrix spike duplicate(s) for batch(es) 1097318 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data. Program or agency specific requirements take precedence over the requirements listed in this narrative.

OC BATCH

Environmental samples are taken through the testing process in groups called Quality Control Batches (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, a Matrix Spike/Matrix Spike Duplicate (MS/MSD) pair or a Matrix Spike/Sample Duplicate (MS/DU) pair.

For 600 series/CWA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, where appropriate, a Matrix Spike (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch, with the exception of poor performing analytes. A list of these analytes is listed below. No corrective action is taken if these analytes do not meet criteria. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

Poor performers

rooi periornieis	_
Method 8270 Water and Solid:	
4-Nitrophenol	3,3' – Dichlorobenzidine
Benzoic Acid	2,4,6 - Tribromophenol
Phenol	2,4-Dinitrophenol
Phenol-d5	Pentachlorophenol
4,6-Dinitro-2-methylphenol	Hexachlorocyclopentadiene (LCG only)
Benzyl Alcohol	4-Chloroaniline
Method 8151 Solid	
Dinoseb	
Method 8260 Water and Solid	
Dichlorodifluoromethane	Hexachlorobutadiene
Trichlorofluoromethane	Naphthalene
Chloroethane	1,2,3-Trichlorobenzene
Acetone	1,2,4-Trichlorobenzene
Bromomethane	2,2-Dichloropropane
Bromoform	Chloromethane

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be ten fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results do not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate or Matrix Spike/Sample Duplicate.

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater. For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica Certifications and Approvals:

The laboratory is certified for the analytes listed on the documents below. These are available upon request. California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Nevada (#OH-000482008A), OhioVAP (#CL0024), Pennsylvania (#008), West Virginia (#210), Wisconsin (#999518190), DoD ELAP (ADE-1437) USDA Soil Permit (P33-08-00123)



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A1D060449

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
FWGSCFMW-004-0180-GW 04/05/11 10:02	001			
Nitrogen, as Ammonia	7.2	2.0	mg/L	MCAWW 350.2
Chloride	2.1	1.0	mg/L	MCAWW 300.0A
Sulfate	334	2.0	mg/L	MCAWW 300.0A
Fluoride	0.039 в	1.0	mg/L	MCAWW 300.0A
Phosphate as P,	0.25 B	0.50	mg/L	MCAWW 300.0A
Ortho				
FWGSCFMW-005-0190-GW 04/05/11 15:08	003			
Nitrogen, as Ammonia	2.8	2.0	mq/L	MCAWW 350.2
Chloride	2.9	1.0	mg/L	MCAWW 300.0A
Sulfate	232	2.0	mg/L	MCAWW 300.0A
Fluoride	0.060 в	1.0	mg/L	MCAWW 300.0A
Phosphate as P,	0.22 B	0.50	mg/L	MCAWW 300.0A
Ortho				
FWGLL1MW-081C-0010-GW 04/05/11 11:23	005			
Chloride	1.7	1.0	mg/L	MCAWW 300.0A
Sulfate	129	1.0	mg/L	MCAWW 300.0A
Fluoride	0.059 B	1.0	mg/L	MCAWW 300.0A
FWGLL1MW-082C-0020-GW 04/05/11 09:23	007			
Chloride	0.91 в	1.0	mg/L	MCAWW 300.0A
Sulfate	63.7	1.0	mg/L	MCAWW 300.0A
Fluoride	0.061 B	1.0	mg/L	MCAWW 300.0A
FWGLL1MW-084C-0030-GW 04/05/11 13:25	009			
Chloride	0.95 B	1.0	mg/L	MCAWW 300.0A
Sulfate	122	1.0	mg/L	MCAWW 300.0A
Fluoride	0.033 B	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.86	0.10	mg/L	MCAWW 300.0A
			, c	



METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A1D060449

PARAMETER	ANALYTICAL METHOD
Ammonia Nitrogen	MCAWW 350.2
Bromide	MCAWW 300.0A
Chloride	MCAWW 300.0A
Fluoride	MCAWW 300.0A
Nitrate as N	MCAWW 300.0A
Nitrite as N	MCAWW 300.0A
Phosphate as P, Ortho	MCAWW 300.0A
Sulfate	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes",
EPA-600/4-79-020, March 1983 and subsequent revisions.



SAMPLE SUMMARY

SAMPLE SUMMARY

A1D060449

WO # SAMPLE# CLIENT SAMPLE ID	SAMPLED SAMP DATE TIME
MGLNF 001 FWGSCFMW-004-0180-GW MGLQQ 003 FWGSCFMW-005-0190-GW MGLQT 005 FWGLL1MW-081C-0010-GW MGLQW 007 FWGLL1MW-082C-0020-GW MGLOO 009 FWGLL1MW-084C-0030-GW	04/05/11 10:02 04/05/11 15:08 04/05/11 11:23 04/05/11 09:23 04/05/11 13:25

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

TestAmerica Laboratory location: Regulatory program: ☐ NPDES Other

1	J.J 17	TI		
			. •	

Client Contact						TestAmerica Laboratories, Inc.
Company Name:	Client Project Manager:		Site Contact:	. , (Lab Contact:	COC No.
U.S. Geological Survey	Ralph Ha	etner	Brian M	ailot	Ken Kuzior Telephone:	019552
6480 Doubletree Ave.	614-430-	_	614-430-	7747	330-966-9374	of COCs
City/State/Zip:	Fmail:			The second of the		
Columbus, OH 43229	rhaefner o	2 USgs. Stor	Analysis Turnarou (in BUS days)	id Time	≺ Analyses	Por lab was ordy
Phone: 614-430-7700		0 0	TAT if different from below	Contract ecks	5.3000	Walayin Cultur
Project Name: Ravenna OH Project Number:	Method of Shipment/Carrier	· \		eeks	25.00	
Kavenna Off	Shipping/Tracking No:	Fup		eek	1 250 p	
1 Tojece : tumbor:	Shipping/Tracking No:		2 d		8 2 1	
GRIINTOODSWZ100	 		1 d	100 M	3 3 1	
PO#	· · · · · · · · · · · · · · · · · · ·	Matrix	Containers & Prese	valives 5	ि ज है	and the second second
		Air Aqueous Sediment Solid Other:	H2SO4 HNO3 HCI NaOH ZnAc/	Unpres Other:	Amis Amis	Sample Specific Notes / Special Instructions:
Sample Identification	Sample Date Sample Tim	Soli Sedi	H H Z Z		441111	Coder
FWG5CFMW-004-018U-GW	4/5/11 10:02	, X	$ \mathbf{x} $	X NG	XX	A300
FUG-SCF mw-004-018U-GF	3 1 1 1		×	y G	x	A300
FWGSCFMW-005-019U-GW	1 1 7 5	3 X	x	X NG	XX	A300
FWGSCFmw-005-019U-GF		X	×	y G	X	A300
LL FWGLL 1 mw-08/C-001U-Gu	1 ' 1 1 1	3 W		1 NG	XX	A300
	1 1 1 1					
FWGLLIMW-081C-001U-GF	1 44 1			YG		A300
FWGLLIMW-0826-002U-GU	1 45/11 09:2	3 X _		1 NG	X X	A300
FWFLLI MW-082C-002U-GF	4/5/11 09:23			YG	 	A300
FWG LLI mw - 084C-003U-Gh	4/411 13:25	1 8	1	1 NG	XX	A300
FWGLLI MW-084C-003U-GF				YG	X	A300
Possible Hazard Identification Non-Hazard Flammable Skit	n Irritant Poison	B Unknown	Sample Disposal (A fee r	nay be assessed if sample: Disposal By I	s are retained longer than 1 month) ab Archive For	Months
Special Instructions/QC Requirements & Comments:	15 -6010 (P	5. Li . No ,51	1 6020 (v)	Altered		
Actor	5 Inutrients -	00.0A (Br.	CI, F SON NO	frite, ortho	phosphate	
1 Alit	rusen ammor	ic -350,1	, , , ,		•	
Relinquished by Tie Wat	15 - COOLD (F. 5 Inwhits -> rosen, ammar Company: USGS	Date/Tim/5	18:33 Received	1 /se	7AL-X1	C 4/5/11 1833
Relinquished by:	Company: 1AL-XIC	Dete/T/me://-	- 1952 Received	oli:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:		in Laboratory by:	Company:	Date/Tiple: /

TAL 0018-1 (04/10)

<u>-</u>	Lot Number: 410060449
North Canton Facility	
Client Us. Geological Servey Project Ravenna	
Cooler Received on 4-6-11 Opened on 4-6-11	· · · /
FedEx D UPS DHL FAS Stetson Client Drop Off TestAm	
TestAmerica Cooler # 4300 Multiple Coolers Foam Box	
	ntact? Yes 🖸 No 🗌 NA 🗍
If YES, QuantityQuantity Unsalvageable	
Were custody seals on the outside of cooler(s) signed and dated?	Yes No NA NA
Were custody seals on the bottle(s)?	Yes 🗌 No 🖵
If YES, are there any exceptions?	
2. Shippers' packing slip attached to the cooler(s)?	Yes No 2
3. Did custody papers accompany the sample(s)? Yes ☑ No ☐	Relinquished by client? Yes 🖸 No 🗍
4. Were the custody papers signed in the appropriate place?	Yes 🗗 No 🗌
5. Packing material used: Bubble Wrap Foam None Oth	
6. Cooler temperature upon receipt °C See back of form for	multiple coolers/temps 📋
METHOD: IR 🛭 Other 🗌	_
	one 🗌
7. Did all bottles arrive in good condition (Unbroken)?	Yes 🔲 No 🗌
Could all bottle labels be reconciled with the COC?	Yes 🔲 No 🗌
Were sample(s) at the correct pH upon receipt?	Yes 🔃 No 🔲 NA 🗍
10. Were correct bottle(s) used for the test(s) indicated?	Yes ☑ No □
11. Were air bubbles >6 mm in any VOA vials?	Yes 🗌 No 🗌 NA 🗗
12. Sufficient quantity received to perform indicated analyses?	Yes No 🗌
13. Was a trip blank present in the cooler(s)? Yes 🔲 No 💆 Were VOA	
Contacted PM Date by	via Verbal 🗌 Voice Mail 🔲 Other 🗌
Concerning	
14. CHAIN OF CUSTODY	
14. CHAIN OF CUSTODY	
14. CHAIN OF CUSTODY The following discrepancies occurred:	
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION	recommended holding time had expired.
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the	recommended holding time had expired. were received in a broken container.
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s)	were received in a broken container.
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with	
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION	were received in a broken container. n bubble >6 mm in diameter. (Notify PM)
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received with 16. SAMPLE PRESERVATION	were received in a broken container. n bubble >6 mm in diameter. (Notify PM) ere further preserved in Sample
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received with 16. Sample(s) sample(s) were received with 16. Sample(s) sample(s) sample(s) sample(s) were received with 16. Sample(s) s	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample Ifuric Acid Lot# 110410-H ₂ SO ₄ ; Sodium
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received with 17. Sample(s) were received with 18. SAMPLE PRESERVATION Sample(s) were received with 19. Nitric Acid Lot# 100110-HNO3; Suffydroxide Lot# 100108 -NaOH; Hydrochloric Acid Lot# 092006-HCI; Sodium Hydroxide	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample Ifuric Acid Lot# 110410-H ₂ SO ₄ ; Sodium
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Were received with 16. SAMPLE PRESERVATION 16. Were received with 16. SAMPLE PRESERVATION 1	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) ere further preserved in Sample lfuric Acid Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108-
The following discrepancies occurred: The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) w	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample and Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108- Date Initials
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Were	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) ere further preserved in Sample lfuric Acid Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108-
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Were received with 16. SAMPLE PRESERVATION Sample(s) were received with 16. SAMPL	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample and Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108- Date Initials
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s). Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received after the 16. SAMPLE PRESERVATION Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were receive	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample and Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108- Date Initials
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) pw. Receiving to meet recommended pH level(s). Nitric Acid Lot# 100110-HNO3; Sur Hydroxide Lot# 100108 -NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxid (CH3COO)2ZN/NaOH. What time was preservative added to sample(s)? Client ID pH (SV GW cz cz coat U cz cac coat U cz coat U cz cac coat U cz cac cac Ca	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample and Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108- Date Initials
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) put 16. SAMPLE PRESERVATION Sample(s) put 16. SAMPLE PRESERVATION Sample(s) put 16. Sample(s). Nitric Acid Lot# 100110-HNO3; Sur Hydroxide Lot# 100108 -NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxide (CH3COO)2ZN/NaOH. What time was preservative added to sample(s)? Client ID ph (VV GW cz cod do d	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample and Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108- Date Initials
14. CHAIN OF CUSTODY The following discrepancies occurred: 15. SAMPLE CONDITION Sample(s) were received after the Sample(s) Sample(s) were received with 16. SAMPLE PRESERVATION Sample(s) pw. Receiving to meet recommended pH level(s). Nitric Acid Lot# 100110-HNO3; Sur Hydroxide Lot# 100108 -NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxid (CH3COO)2ZN/NaOH. What time was preservative added to sample(s)? Client ID pH (SV GW cz cz coat U cz cac coat U cz coat U cz cac coat U cz cac cac Ca	were received in a broken container. In bubble >6 mm in diameter. (Notify PM) were further preserved in Sample and Lot# 110410-H ₂ SO ₄ ; Sodium de and Zinc Acetate Lot# 100108- Date Initials

TestAmerica Coole North Canton Facili	r Receipt Form/Narrative		
Client ID		Dete	In idiala
ooru GF	<u>Hq</u>	<u>Date</u>	<u>Initials</u>
803U +	12	4-60	1
, , , , , , ,		7	1-2
			
			1
 			
			†
			-
		·	
<u>Cooler#</u>	Temp. °C	Method	Coolant
			<u> </u>
			
			<u> </u>
<u> </u>			
Discrepancies Cont'd:	<u> </u>		
	engengengengengengengengengengengengenge		
		<u> </u>	
		 	
·			



GENERAL CHEMISTRY DATA

Client Sample ID: FWGSCFMW-004-0180-GW

General Chemistry

Lot-Sample #...: A1D060449-001 Work Order #...: MGLNF Matrix.....: WG

Date Sampled...: 04/05/11 10:02 Date Received..: 04/06/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	UNITS	<u>METHOI</u>)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097315
	Dil	ution Fact	or: 1				
Chloride	2.1	1.0	mg/L	MCAWW	300.0A	04/06/11	1097311
	Dil	ution Fact	or: 1				
Fluoride	0.039 в	1.0	mg/L	MCAWW	300.0A	04/06/11	1097310
	Dil	ution Fact	or: 1				
Nitrate as N	ND	0.10	_	MCAWW	300.0A	04/06/11	1097317
	Dil	ution Fact	or: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/06/11	1097314
	Dil	ution Fact	or: 1				
Nitrogen, as Ammonia	7 2	2.0	mq/L	MCAWW	350.2	04/08/11	1098085
NICIOGEN, AS AMMONIA		ution Fact	3.	HCAWW	330.2	01/00/11	10,0000
Phosphate as P,	0.25 в	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
Ortho	Dil	ution Fact	or: 1				
	511	acion race	.01 - 1				
Sulfate	334	2.0	mg/L	MCAWW	300.0A	04/07/11	1098197
	Dil	ution Fact	or: 2				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGSCFMW-005-0190-GW

General Chemistry

Lot-Sample #...: A1D060449-003 Work Order #...: MGLQQ Matrix.....: WG

Date Sampled...: 04/05/11 15:08 Date Received..: 04/06/11

RESULT	RL	UNITS	METHOL)	PREPARATION- ANALYSIS DATE	PREP BATCH #
ND Dilu	0.50 tion Facto	mg/L or: 1	MCAWW	300.0A	04/06/11	1097315
2.9	1.0	mg/L or: 1	MCAWW	300.0A	04/06/11	1097311
0.060 B	1.0 ition Facto	mg/L or: 1	MCAWW	300.0A	04/06/11	1097310
ND Dilu	0.10 tion Facto	mg/L or: 1	MCAWW	300.0A	04/06/11	1097317
ND Dilu		J .	MCAWW	300.0A	04/06/11	1097314
2.8 Dilu	2.0 Ition Facto	mg/L or: 1	MCAWW	350.2	04/08/11	1098085
0.22 В	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
232	2.0	mg/L	MCAWW	300.0A	04/07/11	1098207
	ND Dilu 2.9 Dilu 0.060 B Dilu ND Dilu 2.8 Dilu 0.22 B Dilu 232	ND 0.50 Dilution Factor 2.9 1.0 Dilution Factor 0.060 B 1.0 Dilution Factor ND 0.10 Dilution Factor 2.8 2.0 Dilution Factor 0.22 B 0.50 Dilution Factor 232 2.0	ND 0.50 mg/L Dilution Factor: 1 2.9 1.0 mg/L Dilution Factor: 1 0.060 B 1.0 mg/L Dilution Factor: 1 ND 0.10 mg/L Dilution Factor: 1 ND 0.10 mg/L Dilution Factor: 1 2.8 2.0 mg/L Dilution Factor: 1 0.22 B 0.50 mg/L Dilution Factor: 1	ND	ND 0.50 mg/L MCAWW 300.0A Dilution Factor: 1 2.9 1.0 mg/L MCAWW 300.0A Dilution Factor: 1 0.060 B 1.0 mg/L MCAWW 300.0A Dilution Factor: 1 ND 0.10 mg/L MCAWW 300.0A Dilution Factor: 1 ND 0.10 mg/L MCAWW 300.0A Dilution Factor: 1 2.8 2.0 mg/L MCAWW 350.2 Dilution Factor: 1 0.22 B 0.50 mg/L MCAWW 300.0A Dilution Factor: 1	RESULT RL UNITS METHOD ANALYSIS DATE ND 0.50 mg/L MCAWW 300.0A 04/06/11 2.9 1.0 mg/L MCAWW 300.0A 04/06/11 Dilution Factor: 1 MCAWW 300.0A 04/06/11 ND 0.10 mg/L MCAWW 300.0A 04/06/11 ND 0.10 mg/L MCAWW 300.0A 04/06/11 Dilution Factor: 1 MCAWW 350.2 04/08/11 2.8 2.0 mg/L MCAWW 350.2 04/08/11 Dilution Factor: 1 MCAWW 300.0A 04/06/11 Dilution Factor: 1 MCAWW 300.0A 04/06/11

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL1MW-081C-0010-GW

General Chemistry

Lot-Sample #...: A1D060449-005 Work Order #...: MGLQT Matrix.....: WG

Date Sampled...: 04/05/11 11:23 Date Received..: 04/06/11

					_	PREPARATION-	PREP
PARAMETER	RESULT	<u>RL</u>	<u>UNITS</u>	METHOI)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097315
	Di	lution Fact	or: 1				
Chloride	1.7	1.0	mg/L	MCAWW	300.0A	04/06/11	1097311
	Di	lution Fact	or: 1				
Fluoride	0.059 в	1.0	mg/L	MCAWW	300.0A	04/06/11	1097310
	Di	lution Fact	or: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW	300.0A	04/06/11	1097317
	Di	lution Fact	or: 1				
Nitrite as N	ND	0.10	mq/L	MCAWW	300.0A	04/06/11	1097314
	Di	lution Fact	2				
Nitrogen, as Ammonia	. ND	2.0	mg/L	MCAWW	350.2	04/08/11	1098085
		lution Fact	_			-, -,	
Phosphate as P,	ND	0.50	mq/L	MCAWW	300.0A	04/06/11	1097318
Ortho	112	0.50	9 / 12	110111111	300.011	01/00/11	1077310
	Di	lution Fact	or: 1				
Sulfate	129	1.0	mg/L	MCAWW	300.0A	04/06/11	1097320
	Di	lution Fact	or: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL1MW-082C-0020-GW

General Chemistry

Lot-Sample #...: A1D060449-007 Work Order #...: MGLQW Matrix.....: WG

Date Sampled...: 04/05/11 09:23 Date Received..: 04/06/11

PARAMETER	RESULT	RL	UNITS	METHO)	PREPARATION- ANALYSIS DATE	PREP <u>BATCH</u> #
Bromide	ND Dil	0.50 ution Fact	mg/L or: 1	MCAWW	300.0A	04/06/11	1097315
Chloride	0.91 B	1.0 ution Fact	mg/L or: 1	MCAWW	300.0A	04/06/11	1097311
Fluoride	0.061 B	1.0 ution Fact	mg/L or: 1	MCAWW	300.0A	04/06/11	1097310
Nitrate as N	ND Dil	0.10 ution Fact	mg/L .or: 1	MCAWW	300.0A	04/06/11	1097317
Nitrite as N	ND Dil	0.10 ution Fact	mg/L .or: 1	MCAWW	300.0A	04/06/11	1097314
Nitrogen, as Ammonia		2.0 ution Fact	mg/L .or: 1	MCAWW	350.2	04/08/11	1098085
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
	Dil	ution Fact	or: 1				
Sulfate	63.7	1.0 ution Fact	mg/L or: 1	MCAWW	300.0A	04/06/11	1097320

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL1MW-084C-0030-GW

General Chemistry

Lot-Sample #...: A1D060449-009 Work Order #...: MGLQ0 Matrix.....: WG

Date Sampled...: 04/05/11 13:25 Date Received..: 04/06/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	<u>UNITS</u>	<u>METHOI</u>)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097315
	Dil	lution Fact	or: 1				
Chloride	0.95 B	1.0	mq/L	MCAWW	300.0A	04/06/11	1097311
omioriae		lution Fact	J.	110111111	300.011	01,00,11	107,311
Fluoride	0.033 B	1.0 lution Fact	mg/L	MCAWW	300.0A	04/06/11	1097310
	DII	iution fact	.or. I				
Nitrate as N	0.86	0.10	mg/L	MCAWW	300.0A	04/06/11	1097317
	Dil	lution Fact	cor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/06/11	1097314
William ab W		lution Fact		11011	300.011	01/00/11	100,011
Nitrogen, as Ammonia		2.0	mg/L	MCAWW	350.2	04/08/11	1098085
	Dil	lution Fact	or: I				
Phosphate as P,	ND	0.50	mg/L	MCAWW	300.0A	04/06/11	1097318
Ortho							
	Dil	lution Fact	or: 1				
Sulfate	122	1.0	mg/L	MCAWW	300.0A	04/06/11	1097320
	Dil	lution Fact	_				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

PARAMETER	RESULT	REPORTING LIMIT UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	Work Order #: MGPC81AA 0.50 mg/L Dilution Factor: 1			1097315
Chloride	ND	Work Order #: MGPC01AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1097311
Fluoride	ND	Work Order #: MGPCV1AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1097310
Nitrate as N	ND	Work Order #: MGPDC1AA 0.10 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1097317
Nitrite as N	ND	Work Order #: MGPC41AA 0.10 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1097314
Nitrogen, as Ammor	nia ND	Work Order #: MGQQH1AA 2.0 mg/L Dilution Factor: 1	-	A1D080000-085 04/08/11	1098085
Phosphate as P, Ortho		Work Order #: MGPDG1AA	MB Lot-Sample #:	A1D070000-318	
02 0220	ND	0.50 mg/L Dilution Factor: 1	MCAWW 300.0A	04/06/11	1097318
Sulfate	ND	Work Order #: MGPDM1AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1097320
Sulfate	ND	Work Order #: MGQL91AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A		1098197
Sulfate	ND	Work Order #: MGQM41AA 1.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A	A1D080000-207 04/07/11	1098207

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D060449 Matrix.....: WATER

	PERCENT	RECOVERY	RPD			PREPARATION-	PREP
PARAMETER	RECOVERY					ANALYSIS DATE	
Bromide			!-LCS/MGP		CSD LCS	Lot-Sample#: A1D0	
	98	(90 - 110)			300.0A	04/06/11	1097315
	98	(90 - 110) 0.49		MCAWW	300.0A	04/06/11	1097315
		Dilution Fac	tor: 1				
Chloride		WO#:MGPC01AC	-LCS/MGP	C01AD-L	CSD LCS	Lot-Sample#: A1D0	70000-311
	100	(90 - 110)				04/06/11	1097311
	100	(90 - 110) 0.04	(0-20)	MCAWW	300.0A	04/06/11	1097311
		Dilution Fac					
Fluoride						Lot-Sample#: A1D0	70000-310
	95	(90 - 110)				04/06/11	
	95	(90 - 110) 0.04	(0-20)	MCAWW	300.0A	04/06/11	1097310
		Dilution Fac	tor: 1				
Nitrate as N		WO#:MGPDC1AC	-LCS/MGP	DC1AD-L	CSD LCS	Lot-Sample#: A1D0	70000-317
	96					04/06/11	
	96	(90 - 110) 0.12	(0-20)	MCAWW	300.0A	04/06/11	1097317
		Dilution Fac	tor: 1				
Nitrite as N						Lot-Sample#: A1D0	
	98	(90 - 110)					1097314
	98	(90 - 110) 0.73	(0-20)	MCAWW	300.0A	04/06/11	1097314
		Dilution Fac	tor: 1				
Phosphate as Ortho	Ρ,	WO#:MGPDG1AC	-LCS/MGP	DG1AD-L	CSD LCS	Lot-Sample#: A1D0	70000-318
	98	(90 - 110)		MCAWW	300.0A	04/06/11	1097318
	99	(90 - 110) 1.2	(0-20)	MCAWW	300.0A	04/06/11	1097318
		Dilution Fac	tor: 1				
Sulfate						Lot-Sample#: A1D0	
	96					04/06/11	
	95	(90 - 110) 0.79	(0-20)	MCAWW	300.0A	04/06/11	1097320
		Dilution Fac	tor: 1				
Sulfate						Lot-Sample#: A1D0	
	94	(90 - 110)		MCAWW	300.0A	04/07/11	1098197
	94	(90 - 110) 0.04		MCAWW	300.0A	04/07/11	1098197
		Dilution Fac	tor: 1				

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D060449 Matrix.....: WATER

	PERCENT	RECOVERY	RPD		PREPARATION-	PREP
PARAMETER	RECOVERY	LIMITS RPD	LIMITS	METHOD	ANALYSIS DATE	BATCH #
Sulfate		WO#:MGQM41A	C-LCS/MGQ	M41AD-LCSD LCS	Lot-Sample#: A1D0	80000-207
	94	(90 - 110)		MCAWW 300.0A	04/07/11	1098207
	94	(90 - 110) 0.0	4 (0-20)	MCAWW 300.0A	04/07/11	1098207
		Dilution Fac	ctor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D060449 Matrix.....: WATER

	SPIKE	MEASURED	PERCNT	PREPARATION- PREP				
PARAMETER	AMOUNT		RECVRY RPD METHOD					
Bromide		WO#:MGPC81AC	C-LCS/MGPC81AD-LCSD LCS Lot	-Sample#: A1D070000-315				
	10.0	9.8 mg/L	98 MCAWW 300.0A	04/06/11 1097315				
	10.0	9.8 mg/L	98 0.49 MCAWW 300.0A	04/06/11 1097315				
		Dilution Fac	tor: 1					
Chloride		WO#:MGPC01AC	C-LCS/MGPC01AD-LCSD LCS Lot	-Sample#: A1D070000-311				
	50.0	49.9 mg/L	100 MCAWW 300.0A	04/06/11 1097311				
	50.0	49.9 mg/L	100 0.04 MCAWW 300.0A	04/06/11 1097311				
		Dilution Fac	tor: 1					
Fluoride WO#:MGPCV1AC-LCS/MGPCV1AD-LCSD LCS Lot-Sample#: A1D070000-310								
	2.5	2.4 mg/L	95 MCAWW 300.0A	04/06/11 1097310				
	2.5	2.4 mg/L	95 0.04 MCAWW 300.0A	04/06/11 1097310				
		Dilution Fac	tor: 1					
Nitrate as N		WO#:MGPDC1AC	-LCS/MGPDC1AD-LCSD LCS Lot	-Sample#: A1D070000-317				
micrace as n	2.5	2.4 mg/L	96 MCAWW 300.0A	04/06/11 1097317				
	2.5	2.4 mg/L	96 0.12 MCAWW 300.0A	04/06/11 1097317				
		Dilution Fac						
Nitrite as N		HOH • Mapa 41 A	1 1 00 /MODO/13 D 1 00 D 1 00 T o b	Gammala#+ 71D070000 214				
NICTICE as N			-LCS/MGPC41AD-LCSD LCS Lot					
	2.5	2.5 mg/L 2.4 mg/L	98 MCAWW 300.0A 98 0.73 MCAWW 300.0A	04/06/11 1097314 04/06/11 1097314				
	2.5			04/06/11 109/314				
		Dilution Fac	tor: 1					
Phosphate as Ortho	P,	WO#:MGPDG1AC	-LCS/MGPDG1AD-LCSD LCS Lot	-Sample#: A1D070000-318				
	2.5	2.5 mg/L	98 MCAWW 300.0A	04/06/11 1097318				
	2.5	2.5 mg/L	99 1.2 MCAWW 300.0A	04/06/11 1097318				
		Dilution Fac	tor: 1					
Sulfate		WO#:MGPDM1AC	-LCS/MGPDM1AD-LCSD LCS Lot	-Sample#: A1D070000-320				
	50.0	48.0 mg/L	96 MCAWW 300.0A	04/06/11 1097320				
	50.0	47.6 mg/L	95 0.79 MCAWW 300.0A	04/06/11 1097320				
		Dilution Fac						
Sulfate		WO# • MCOT 01 7/	-LCS/MGQL91AD-LCSD LCS Lot	-Sample#: 71D080000_107				
Pullace	50.0	WOH MGQL91AC	94 MCAWW 300.0A	04/07/11 1098197				
	50.0	46.8 mg/L	94 0.04 MCAWW 300.0A	04/07/11 1098197				
	30.0	5,		04/0//11 109019/				
		Dilution Fac	cor. I					

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LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D060449 Matrix....: WATER

	SPIKE	MEASURED		PERCNT				PREPARATION-	PREP
PARAMETER	<u>AMOUNT</u>	AMOUNT	UNITS	<u>RECVRY</u>	<u>RPD</u>	<u>METHOI</u>)	ANALYSIS DATE	BATCH #
Sulfate		WO#	:MGQM41AC-	-LCS/MGQ	QM41AI	D-LCSD	LCS Lot-Sa	mple#: A1D0800	000-207
	50.0	46.8	mg/L	94		MCAWW	300.0A	04/07/11	1098207
	50.0	46.8	mg/L	94	0.04	MCAWW	300.0A	04/07/11	1098207
		D	ilution Foat	om: 1					

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WATER

PERCENT RECOVERY PREPARATION- PREPPARAMETER RECOVERY LIMITS METHOD ANALYSIS DATE BATCH #
Nitrogen, as Ammonia Work Order #: MGQQH1AC LCS Lot-Sample#: A1D080000-085
94 (85 - 114) MCAWW 350.2 04/08/11 1098085

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WATER

 PARAMETER
 AMOUNT
 MOUNT
 UNITS
 RECVRY
 METHOD
 ANALYSIS
 DATE
 BATCH #

 Nitrogen, as 14
 13
 mg/L
 94
 MCAWW 350.2
 04/08/11
 1098085

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix....: WG

Date Sampled...: 04/05/11 13:25 Date Received..: 04/06/11

PARAMETER			RPD LIMITS METHOD	PREPARATION- PREP ANALYSIS DATE BATCH #
Bromide	88 91	(80 - 120) (80 - 120)	MGLNF1AR-MS/MGLNF1AT-MSD MCAWW 300.0A 3.1 (0-20) MCAWW 300.0A ion Factor: 1	MS Lot-Sample #: A1D060449-001 04/06/11 1097315 04/06/11 1097315
Bromide	88 90	(80 - 120) (80 - 120)	MCAWW 300.0A	MS Lot-Sample #: A1D060449-009 04/06/11 1097315 04/06/11 1097315
Chloride	96 99	(80 - 120) (80 - 120)	MCAWW 300.0A	MS Lot-Sample #: A1D060449-001 04/06/11 1097311 04/06/11 1097311
Chloride	94 97	(80 - 120) (80 - 120)		MS Lot-Sample #: A1D060449-009 04/06/11 1097311 04/06/11 1097311
Fluoride	73 N 75 N	(80 - 120) (80 - 120)		MS Lot-Sample #: A1D060449-001 04/06/11 1097310 04/06/11 1097310
Fluoride	85 87	(80 - 120) (80 - 120)		MS Lot-Sample #: A1D060449-009 04/06/11 1097310 04/06/11 1097310
Nitrate as N	89 92	(80 - 120) (80 - 120)		MS Lot-Sample #: A1D060449-001 04/06/11 1097317 04/06/11 1097317
Nitrate as N	90 93	(80 - 120) (80 - 120)	MGLQ01AU-MS/MGLQ01AV-MSD MCAWW 300.0A 2.2 (0-20) MCAWW 300.0A ton Factor: 1	
Nitrite as N	108 109	(80 - 120) (80 - 120)	MGLNF1AP-MS/MGLNF1AQ-MSD MCAWW 300.0A 0.25 (0-20) MCAWW 300.0A Lon Factor: 1	

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MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WG

Date Sampled...: 04/05/11 13:25 Date Received..: 04/06/11

	PERCENT	RECOVERY	RPD		PRE	PARATION-	PREP
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD	ANA	LYSIS DATE	BATCH #
Nitrite as N		WO#	: MGLQ01AP-MS/	MGLQ01AQ-MSD	MS Lot-S	ample #: A1	.D060449-009
	108	(80 - 120)	MCAWW 300.0A		04/06/11	1097314
	109	(80 - 120	0.91 (0-20)	MCAWW 300.0A		04/06/11	1097314
		Dilu	tion Factor: 1				
Phosphate as Ortho	Ρ,	WO#	: MGLNF1AW-MS/	MGLNF1AX-MSD	MS Lot-S	ample #: A1	.D060449-001
	53 N	(80 - 120)	MCAWW 300.0A		04/06/11	1097318
	60 N	(80 - 120) 10 (0-20)	MCAWW 300.0A		04/06/11	1097318
			tion Factor: 1				
Phosphate as Ortho	Р,	WO#	: MGLQ01AW-MS/	MGLQ01AX-MSD	MS Lot-S	ample #: A1	.D060449-009
	103	(80 - 120)	MCAWW 300.0A		04/06/11	1097318
	109			MCAWW 300.0A		04/06/11	
			tion Factor: 1				
Sulfate		WO#	: MGLQQ1AR-MS/	MGLQQ1AT-MSD	MS Lot-S	ample #: A1	.D060449-003
	91	(80 - 120)	MCAWW 300.0A		04/07/11	1098207
	85	(80 - 120	1.0 (0-20)	MCAWW 300.0A		04/07/11	1098207
		Dilı	tion Factor: 1				
Sulfate		WO#	: MGLQ01A0-MS/	MGLQ01A1-MSD	MS Lot-S	ample #: A1	.D060449-009
	107	(80 - 120)	MCAWW 300.0A		04/06/11	1097320
	113	(80 - 120		MCAWW 300.0A		04/06/11	1097320
		Dilu	tion Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix....: WG

Date Sampled...: 04/05/11 13:25 Date Received..: 04/06/11

	SAMPLE	CDIKE	MEASRD		PERCNT			PREPARATION-	PREP
PARAMETER				UNITS			METHOD	ANALYSIS DATE	
Bromide	_ AMOUNI	ANI						ole #: A1D060449	
Diomiac	ND	10.0	8.8	mg/L	88	111 110	MCAWW 300.0A		1097315
	ND	10.0	9.1	mg/L	91	3.1			1097315
				ion Factor: 1	-	3.1	110111111 0001011	01/00/11	107.010
Bromide			WO#:	MGLO01AR-MS	MGL001	AT-MS	D MS Lot-Samp	ole #: A1D060449	-009
	ND	10.0	8.8	mg/L	88		MCAWW 300.0A	04/06/11	1097315
	ND	10.0	9.0	mg/L	90	2.0	MCAWW 300.0A	04/06/11	1097315
			Dilut	ion Factor: 1					
Chloride			WO#:	MGLNF1AM-MS	MGLNF1	AN-MS	D MS Lot-Samp	ole #: A1D060449	-001
	2.1	50.0	50.0	mg/L	96		MCAWW 300.0A	04/06/11	1097311
	2.1	50.0	51.4	mg/L	99	2.9	MCAWW 300.0A	04/06/11	1097311
			Dilut	ion Factor: 1					
			- "						
Chloride				~	~	AN-MS	-	ole #: A1D060449	
	0.95	50.0	48.1	mg/L	94		MCAWW 300.0A	04/06/11	1097311
	0.95	50.0	49.4	mg/L	97	2.7	MCAWW 300.0A	04/06/11	1097311
			Dilut	ion Factor: 1					
Fluoride			W○#•	MCT.NE1 AV_MS	! /MCI.NE1	7.TMC	D MG Lot-Samo	ole #: A1D060449	_001
Fluoride	0.039	2.5	1.9 N	mg/L	73	АП-МЭ	MCAWW 300.0A		1097310
	0.039	2.5	1.9 N	mg/L	75 75	2.5	MCAWW 300.0A		1097310
	0.037	2.5		ion Factor: 1	7.5	2.5	MCAWW 500.0A	04/00/11	1007310
			DIIGC	ion ractors i					
Fluoride			WO#:	MGLO01AK-MS	MGL001	AL-MS	D MS Lot-Samp	ole #: A1D060449	-009
	0.033	2.5	2.2	mg/L	85		MCAWW 300.0A		1097310
	0.033	2.5	2.2	mg/L	87	2.1			1097310
			Dilut	ion Factor: 1					
Nitrate a	s N		WO#:	MGLNF1AU-MS	MGLNF1	AV-MS	D MS Lot-Samp	ole #: A1D060449	-001
	ND	2.5	2.2	mg/L	89		MCAWW 300.0A	04/06/11	1097317
	ND	2.5	2.3	mg/L	92	2.6	MCAWW 300.0A	04/06/11	1097317
			Dilut	ion Factor: 1					
1.			!!		. /			7 " - 1 - 0 - 0 - 1 - 1	
Nitrate a						AV-MS		ole #: A1D060449	
	0.86	2.5	3.1	mg/L	90		MCAWW 300.0A	04/06/11	1097317
	0.86	2.5	3.2	mg/L	93	2.2	MCAWW 300.0A	04/06/11	1097317
			Dilut	ion Factor: 1					
Nitrite a	g N		₩О#•	MGI.NF1AD_MS	S/MGT.NF1	∆∩-M⊂	D MS Lot-Samo	ole #: A1D060449	-001
NICIICE a	ND	2.5	2.7	mg/L	108	מויו איז	MCAWW 300.0A	04/06/11	1097314
	ND	2.5	2.7	mg/L	109	0 25	MCAWW 300.0A	04/06/11	1097314
	TAIL	۷. ۶		ion Factor: 1	107	0.23	MCAWW JUU.UA	04/00/11	TO 7 / 3 T 4
			חדדמב	IOII FACTOR. I					

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MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WG

Date Sampled...: 04/05/11 13:25 Date Received..: 04/06/11

	SAMPLE	SPIKE	MEASRD		PERCNT				PREPARATION-	PREP
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD_	METHO!	D	ANALYSIS DATE	BATCH #
Nitrite as	s N		WO#:	MGLQ01AP-MS	/MGLQ01	AQ-MSI	O MS	Lot-Samp	le #: A1D060449-	-009
	ND	2.5	2.7	mg/L	108		MCAWW	300.0A	04/06/11	1097314
	ND	2.5	2.7	mg/L	109	0.91	MCAWW	300.0A	04/06/11	1097314
			Dilut:	ion Factor: 1						
Phosphate Ortho	as P,		₩О#:	MGLNF1AW-MS,	/MGLNF1	AX-MSI	O MS :	Lot-Samp.	le #: A1D060449-	-001
	0.25	2.5	1.6 N	mg/L	53		MCAWW	300.0A	04/06/11	1097318
	0.25	2.5	1.7 N	mg/L	60	10	MCAWW	300.0A	04/06/11	1097318
			Dilut	ion Factor: 1						
Phosphate Ortho	as P,		WO#:	MGLQ01AW-MS	/MGLQ01	AX-MSI	O MS :	Lot-Sampl	le #: A1D060449-	-009
	ND	2.5	2.6	mg/L	103		MCAWW	300.0A	04/06/11	1097318
	ND	2.5	2.7	mg/L	109	5.7	MCAWW	300.0A	04/06/11	1097318
			Dilut	ion Factor: 1						
Sulfate			W∩#:	MGLOO1AR-MS	/MGT.OO1	IRM-TA) MS	Lot-Samp	le #: A1D060449-	-003
	232	50.0	277	mq/L	91			300.0A	04/07/11	1098207
	232	50.0	274	mg/L	85	1.0		300.0A	04/07/11	1098207
			Dilut	ion Factor: 1					-, -,	
Sulfate			WO#:	MGLQ01A0-MS	/MGLQ01	A1-MSI	O MS	Lot-Samp	le #: A1D060449-	-009
	122	50.0	176	mg/L	107		MCAWW	300.0A	04/06/11	1097320
	122	50.0	179	mg/L	113	1.7	MCAWW	300.0A	04/06/11	1097320
			Dilut	ion Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WG

Date Sampled...: 04/05/11 10:02 Date Received..: 04/06/11

PARAMETER Bromide	PERCENT RECOVERY 88	RECOVERY LIMITS METHOD Work Order #: MGLNF1AR (80 - 120) MCAWW 300.0A Dilution Factor: 1	PREPARATION- PREP ANALYSIS DATE BATCH # MS Lot-Sample #: AlD060449-001 04/06/11 1097315
Bromide	88	Work Order #: MGLQ01AR (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-009 04/06/11 1097315
Chloride	96	Work Order #: MGLNF1AM (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: AlD060449-001 04/06/11 1097311
Chloride	94	Work Order #: MGLQ01AM (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-009 04/06/11 1097311
Fluoride	73 N	Work Order #: MGLNF1AK (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-001 04/06/11 1097310
Fluoride	85	Work Order #: MGLQ01AK (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-009 04/06/11 1097310
Nitrate as N	89	Work Order #: MGLNF1AU (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-001 04/06/11 1097317
Nitrate as N	90	Work Order #: MGLQ01AU (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: AlD060449-009 04/06/11 1097317
Nitrite as N	108	Work Order #: MGLNF1AP (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: AlD060449-001 04/06/11 1097314
Nitrite as N	108	Work Order #: MGLQ01AP (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: AlD060449-009 04/06/11 1097314
Phosphate as P, Ortho	53 N	Work Order #: MGLNF1AW (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: AlD060449-001 04/06/11 1097318

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MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix....: WG

Date Sampled...: 04/05/11 10:02 Date Received..: 04/06/11

	PERCENT	RECOVERY	PREPARATION- PREP
PARAMETER	<u>RECOVERY</u>	<u>LIMITS METHOD</u>	<u> ANALYSIS DATE</u> <u>BATCH #</u>
Phosphate as P,		Work Order #: MGLQ01AW	MS Lot-Sample #:
Ortho			A1D060449-009
	103	(80 - 120) MCAWW 300.0A	04/06/11 1097318
		Dilution Factor: 1	
G1.6-+-		Marsh Order II . MCLOOLAD	MG Tab Games 1 - 11 - 71 70 C0 440 002
Sulfate	91	Work Order #: MGLQQ1AR (80 - 120) MCAWW 300.0A	MS Lot-Sample #: A1D060449-003 04/07/11 1098207
	71	Dilution Factor: 1	04/07/11 10/0207
Sulfate		Work Order #: MGLO01A0	MS Lot-Sample #: A1D060449-009
Sullace	107	(80 - 120) MCAWW 300.0A	04/06/11 1097320
		Dilution Factor: 1	31, 33, 11 103, 1320

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WATER

Date Sampled...: 03/29/11 14:50 Date Received..: 03/31/11

	PERCENT	RECOVERY	RPD		PREPARATION-	PREP
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD	ANALYSIS DAT	E BATCH #
Nitrogen, as	Ammonia	WO#:	MGAA51AU-MS/	MGAA51AV-MSD MS	S Lot-Sample #:	A1C290455-001
	104	(75 - 125)		MCAWW 350.2	04/08/11	1098085
	97	(75 - 125)	1.2 (0-20)	MCAWW 350.2	04/08/11	1098085
		Dilut	ion Factor: 1			
Phosphate as	P,	WO#:	MGJ2A1AK-MS/	MGJ2A1AL-MSD MS	S Lot-Sample #:	A1D050441-001
Ortho						
	152 N	(80 - 120)		MCAWW 300.0A	04/06/11	1097318
	153 N	(80 - 120)	0.26 (0-20)	MCAWW 300.0A	04/06/11	1097318
		Dilut	ion Factor: 1			
Phosphate as	Ρ,	WO#:	MGJ221A0-MS/	MGJ221A1-MSD MS	S Lot-Sample #:	A1D050441-007
Ortho						
	162 N	(80 - 120)		MCAWW 300.0A	04/06/11	
	174 N	(80 - 120)	7.5 (0-20)	MCAWW 300.0A	04/06/11	1097318
		Dilut	ion Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MSB The recovery and RPD may be outside control limits because the sample amount was greater than 4X the spike amount.

N Spiked analyte recovery is outside stated control limits.

NC The recovery and/or RPD were not calculated.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WATER

Date Sampled...: 03/29/11 14:50 Date Received..: 03/31/11

	SAMPLE	SPIKE	MEASRD		PERCNT				PREPARATION-	PREP
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD_	METHOI)	ANALYSIS DATE	BATCH #
Nitrogen,	as Ammo	nia	WO#:	MGAA51AU-MS/	MGAA51	AV-MSI	O MS I	Lot-Sampl	le #: A1C290455	-001
	19	4.0	23	mg/L	104		MCAWW	350.2	04/08/11	1098085
	19	4.0	23	mg/L	97	1.2	MCAWW	350.2	04/08/11	1098085
			Diluti	on Factor: 1						
Phosphate	as P,		WO#:	MGJ2A1AK-MS/	MGJ2A1	AL-MSI	O MS I	Lot-Sampl	le #: A1D050441	-001
Ortho										
	ND	2.5	3.8 N	mg/L	152		MCAWW	300.0A	04/06/11	1097318
	ND	2.5	3.8 N	mg/L	153	0.26	MCAWW	300.0A	04/06/11	1097318
			Diluti	on Factor: 1						
Phosphate	as P,		WO#:	MGJ221A0-MS/	/MGJ221 <i>I</i>	A1-MSI	O MS I	Lot-Sampl	le #: A1D050441	-007
Ortho										
	ND	2.5	4.0 N	mg/L	162		MCAWW	300.0A	04/06/11	1097318
	ND	2.5	4.4 N	mg/L	174	7.5	MCAWW	300.0A	04/06/11	1097318
			Diluti	on Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MSB The recovery and RPD may be outside control limits because the sample amount was greater than 4X the spike amount.

N Spiked analyte recovery is outside stated control limits.

NC The recovery and/or RPD were not calculated.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WATER

Date Sampled...: 04/04/11 15:22 Date Received..: 04/05/11

PARAMETER Chloride	PERCENT RECOVERY 112	RECOVERY LIMITS METHOD Work Order #: MGDVA1AE (80 - 120) MCAWW 300.0A Dilution Factor: 1	PREPARATION- PREP ANALYSIS DATE BATCH # MS Lot-Sample #: A1C300577-001 04/06/11 1097311
Chloride	NC,MSB	Work Order #: MGEVM1AE (80 - 120) MCAWW 300.0A Dilution Factor: 20	MS Lot-Sample #: A1C310476-007 04/07/11 1097311
Nitrogen, as Am	monia 104	Work Order #: MGAA51AU (75 - 125) MCAWW 350.2 Dilution Factor: 1	MS Lot-Sample #: A1C290455-001 04/08/11 1098085
Phosphate as P, Ortho	152 N	Work Order #: MGJ2A1AK (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #:
Phosphate as P, Ortho	162 N	Work Order #: MGJ221A0 (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #:
Sulfate	98	Work Order #: MGDVA1AF (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1C300577-001 04/06/11 1097320
Sulfate	82	Work Order #: MGEVM1AF (80 - 120) MCAWW 300.0A Dilution Factor: 20	MS Lot-Sample #: A1C310476-007 04/07/11 1097320
Sulfate	98	Work Order #: MGMJ71AW (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060583-006 04/07/11 1098198

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

NC The recovery and/or RPD were not calculated.

 $MSB\ The\ recovery\ and\ RPD\ may\ be\ outside\ control\ limits\ because\ the\ sample\ amount\ was\ greater\ than\ 4X\ the\ spike\ amount.$

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D060449 Matrix.....: WATER

Date Sampled...: 03/28/11 09:50 Date Received..: 03/30/11

	SAMPLE	SPIKE	MEASURED	PERCENT		PREPARATION-	PREP
PARAMETER	<u>AMOUNT</u>	AMT	AMOUNT UNIT	RECOVERY	METHOD	ANALYSIS DATE	BATCH #
Chloride			Work Order #.	: MGDVA1AE	MS Lot-S	Sample #: A1C300	577-001
	77.2	50.0	133 mg/I	112	MCAWW 300.0A	04/06/11	1097311
			Dilution Factor:	: 1			
					_		
Chloride						Sample #: A1C310	
	1290	50.0			MCAWW 300.0A	04/07/11	1097311
			Qualifiers: N				
			Dilution Factor:	: 20			
Sulfate			Work Order #	· MCD77717E	MC Tot (Sample #: A1C300	1577 001
Surrace	0 2	50.0				04/06/11	
	9.3	50.0	Dilution Factor:		MCAWW 300.0A	04/06/11	109/320
			Dilution Factor.	· I			
Sulfate			Work Order #.	: MGEVM1AF	MS Lot-9	Sample #: A1C31(0476-007
	53.7	50.0				04/07/11	
			Dilution Factor:			- , - ,	
Sulfate			Work Order #.	: MGMJ71AW	MS Lot-S	Sample #: A1D060	583-006
	10.4	50.0	59.6 mg/I	98	MCAWW 300.0A	04/07/11	1098198
			Dilution Factor:	: 1			

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

MSB The recovery and RPD may be outside control limits because the sample amount was greater than 4X the spike amount.

NC The recovery and/or RPD were not calculated.



DENVER DATA



ANALYTICAL REPORT

Job Number: 280-14463-1

SDG Number: A1D060449

Job Description: USGS RVAAP

For:

TestAmerica Laboratories, Inc. 4101 Shuffel Street NW North Canton, OH 44720

Attention: Mr. Mark J. Loeb

DiLea Griego

Di Lean Greeze

Project Manager I

dilea.griego@testamericainc.com

04/21/2011

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.



DiLea Griego Project Manager I 4/21/2011 9:58 AM

CASE NARRATIVE

Client: TestAmerica Laboratories, Inc.

Project: USGS RVAAP

Report Number: 280-14463-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/08/2011; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 2.6 C and 3.1 C.

TOTAL METALS - METHOD 6010B

No difficulties were encountered.

TOTAL METALS - METHOD 6020

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with prep batch 61784 were performed on FWGSCFMW-004-0180-GF (280-14463-1). The matrix spike (MS) exhibited recoveries outside control limits for Uranium. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

DATA REPORTING QUALIFIERS

Client: TestAmerica Laboratories, Inc. Job Number: 280-14463-1

Sdg Number: A1D060449

Lab Section	Qualifier	Description
Metals		
	F	MS or MSD exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

SAMPLE SUMMARY

Client: TestAmerica Laboratories, Inc. Job Number: 280-14463-1

Sdg Number: A1D060449

			Date/Time	Date/Time
Lab Sample ID	Client Sample ID	Client Matrix	Sampled	Received
280-14463-1	FWGSCFMW-004-0180-GF	Water	04/05/2011 1002	04/08/2011 1000
280-14463-1MS	FWGSCFMW-004-0180-GF	Water	04/05/2011 1002	04/08/2011 1000
280-14463-1DU	FWGSCFMW-004-0180-GF	Water	04/05/2011 1002	04/08/2011 1000
280-14463-2	FWGSCFMW-005-0190-GF	Water	04/05/2011 1508	04/08/2011 1000
280-14463-3	FWGLL1MW-081C-0010-GF	Water	04/05/2011 1123	04/08/2011 1000
280-14463-4	FWGLL1MW-082C-0020-GF	Water	04/05/2011 0923	04/08/2011 1000
280-14463-5	FWGLL1MW-084C-0030-GF	Water	04/05/2011 1325	04/08/2011 1000

EXECUTIVE SUMMARY - Detections

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1 Sdg Number: A1D060449

Boron	Lab Sample ID Analyte	Client Sample ID	Result / Qu	ıalifier	Reporting Limit	Units	Method
Lithium 15 10 ug/L 6010B SiO2, Silica 13000 500 ug/L 6010B 280-14463-2 FWGSCFMW-005-0190-GF Boron 28 J 100 ug/L 6010B Lithium 14 10 ug/L 6010B Molybdenum 5.8 J 20 ug/L 6010B SiO2, Silica 16000 500 ug/L 6010B Uranium 0.21 J 1.0 ug/L 6020 280-14463-3 FWGLL1MW-081C-0010-GF Boron 66 J 100 ug/L 6010B SiO2, Silica 9600 500 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6010B 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 83 J 100 ug/L 6010B SiO2, Silica 6010B SiO3, Silica 6010B SiO4, Silica 6010B SiO5, Silica 6010B SiO	280-14463-1	FWGSCFMW-004-01	80-GF				
Lithium 15 10 ug/L 6010B SiO2, Silica 13000 500 ug/L 6010B 280-14463-2 FWGSCFMW-005-0190-GF Boron 28 J 100 ug/L 6010B Lithium 14 10 ug/L 6010B Molybdenum 5.8 J 20 ug/L 6010B SiO2, Silica 16000 500 ug/L 6010B Uranium 0.21 J 1.0 ug/L 6020 280-14463-3 FWGLL1MW-081C-0010-GF Boron 66 J 100 ug/L 6010B SiO2, Silica 9600 500 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6010B 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 83 J 100 ug/L 6010B SiO2, Silica 6010B SiO3, Silica 6010B SiO4, Silica 6010B SiO5, Silica 6010B SiO	Boron		110		100	ua/L	6010B
SiO2, Silica 13000 500 ug/L 6010B							
Boron	SiO2, Silica		13000		500	-	6010B
Lithium 14 10 ug/L 6010B Molybdenum 5.8 J 20 ug/L 6010B SiO2, Silica 16000 500 ug/L 6010B Uranium 0.21 J 1.0 ug/L 6020 280-14463-3 FWGLL1MW-081C-0010-GF Boron 66 J 100 ug/L 6010B SiO2, Silica 9600 500 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6020 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 1000 500 ug/L 6010B	280-14463-2	FWGSCFMW-005-01	90-GF				
Lithium 14 10 ug/L 6010B Molybdenum 5.8 J 20 ug/L 6010B SiO2, Silica 16000 500 ug/L 6010B Uranium 0.21 J 1.0 ug/L 6020 280-14463-3 FWGLL1MW-081C-0010-GF Boron 66 J 100 ug/L 6010B SiO2, Silica 9600 500 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6020 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 1000 500 ug/L 6010B	Boron		28	J	100	ug/L	6010B
Molybdenum 5.8 J 20 ug/L 6010B	Lithium				10	_	6010B
Uranium 0.21 J 1.0 ug/L 6020 280-14463-3 FWGLL1MW-081C-0010-GF Boron 66 J 100 ug/L 6010B SiO2, Silica 9600 500 ug/L 6020 280-14463-4 FWGLL1MW-082C-0020-GF FWGLL1MW-082C-0020-GF Various SiO2, Silica 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF SiO2, Silica Ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B	Molybdenum		5.8	J		•	
280-14463-3	SiO2, Silica		16000		500	ug/L	6010B
Boron 66 J 100 ug/L 6010B 100 Uranium 9600 500 ug/L 6010B 6020 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B 6020 1000 1000 1000 1000 1000 1000 1000	Uranium		0.21	J	1.0	ug/L	6020
SiO2, Silica 9600 500 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6020 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B	280-14463-3	FWGLL1MW-081C-0	010-GF				
SiO2, Silica 9600 500 ug/L 6010B Uranium 0.31 J 1.0 ug/L 6020 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B	Boron		66	J	100	ug/L	6010B
Uranium 0.31 J 1.0 ug/L 6020 280-14463-4 FWGLL1MW-082C-0020-GF Boron 47 J 100 ug/L 6010B SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B	SiO2, Silica		9600			_	6010B
Boron 47 J 100 ug/L 6010B 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B 10000 500 ug/L 6010B 10000 500 ug/L 6010B			0.31	J	1.0	-	6020
SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B	280-14463-4	FWGLL1MW-082C-0	020-GF				
SiO2, Silica 18000 500 ug/L 6010B Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B	Boron		47	.l	100	ua/l	6010B
Uranium 0.055 J 1.0 ug/L 6020 280-14463-5 FWGLL1MW-084C-0030-GF Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B				Ü		-	
Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B				J		_	
Boron 83 J 100 ug/L 6010B SiO2, Silica 10000 500 ug/L 6010B	280-14463-5	FWGLL1MW-084C-0	030-GF				
SiO2, Silica 10000 500 ug/L 6010B				1	100	ug/l	6010B
				J			
	Uranium		0.47	J	1.0	ug/L	6020

METHOD SUMMARY

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1 Sdg Number: A1D060449

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Metals (ICP) Preparation, Total Metals	TAL DEN TAL DEN	SW846 6010B	SW846 3010A
Metals (ICP/MS) Preparation, Total Metals	TAL DEN TAL DEN	SW846 6020	SW846 3020A

Lab References:

TAL DEN = TestAmerica Denver

Method References:

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

METHOD / ANALYST SUMMARY

Client: TestAmerica Laboratories, Inc. Job Number: 280-14463-1

Sdg Number: A1D060449

Method	Analyst	Analyst ID
SW846 6010B	Bowen, Heidi E	HEB
SW846 6020	Diaz, Luis R	LRD

Job Number: 280-14463-1 Client: TestAmerica Laboratories, Inc.

Sdg Number: A1D060449

Client Sample ID: FWGSCFMW-004-0180-GF

Lab Sample ID: 280-14463-1 Date Sampled: 04/05/2011 1002 Client Matrix: Water Date Received: 04/08/2011 1000

6010B Metals (ICP) Analysis Method: 6010B Analysis Batch: 280-62167 Instrument ID: MT_026 Prep Method: 3010A Prep Batch: 280-61780 Lab File ID: 26b041311.asc 1.0 Dilution: Initial Weight/Volume: 50 mL 04/13/2011 1813 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Qualifier MDL RL Analyte Result (ug/L) Boron 110 4.4 100 Lithium 15 2.6 10 ND 20 Molybdenum 3.1 SiO2, Silica 13000 74 500 6020 Metals (ICP/MS) Analysis Method: 6020 Analysis Batch: 280-62295 Instrument ID: MT_024 Prep Method: 3020A Prep Batch: 280-61784 Lab File ID: 156AREF.D Initial Weight/Volume: Dilution: 1.0 50 mL 04/14/2011 0211 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Analyte Result (ug/L) Qualifier MDL RLUranium ND 0.020 1.0

Job Number: 280-14463-1 Client: TestAmerica Laboratories, Inc.

Sdg Number: A1D060449

Client Sample ID: FWGSCFMW-005-0190-GF

Lab Sample ID: 280-14463-2 Date Sampled: 04/05/2011 1508 Client Matrix: Date Received: 04/08/2011 1000 Water

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62167		Instrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-61780		Lab File ID:	26b041311.asc
Dilution:	1.0				Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1820				Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800					
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		28		J	4.4	100
Lithium		14			2.6	10
Molybdenum		5.8		J	3.1	20
SiO2, Silica		16000			74	500
		6020 Me	tals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62295		Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784		Lab File ID:	159SMPL.D
Dilution:	1.0				Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0219				Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				-	
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Uranium		0.21		J	0.020	1.0

Client: TestAmerica Laboratories, Inc. Job Number: 280-14463-1

Sdg Number: A1D060449

Client Sample ID: FWGLL1MW-081C-0010-GF

Lab Sample ID: 280-14463-3 Date Sampled: 04/05/2011 1123 Client Matrix: Water Date Received: 04/08/2011 1000

6010B Metals (ICP) Analysis Method: 6010B Analysis Batch: 280-62167 Instrument ID: MT_026 Prep Method: 3010A Prep Batch: 280-61780 Lab File ID: 26b041311.asc 1.0 Dilution: Initial Weight/Volume: 50 mL 04/13/2011 1823 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: MDL RL Analyte Result (ug/L) Qualifier Boron 66 4.4 100 Lithium ND 2.6 10 ND 20 Molybdenum 3.1 SiO2, Silica 9600 74 500 6020 Metals (ICP/MS) Analysis Method: 6020 Analysis Batch: 280-62295 Instrument ID: MT_024 Prep Method: 3020A Prep Batch: 280-61784 Lab File ID: 160SMPL.D Initial Weight/Volume: Dilution: 1.0 50 mL 04/14/2011 0222 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Analyte Result (ug/L) Qualifier MDL RLUranium 0.31 0.020 1.0

Job Number: 280-14463-1 Client: TestAmerica Laboratories, Inc.

Sdg Number: A1D060449

Client Sample ID: FWGLL1MW-082C-0020-GF

Lab Sample ID: 280-14463-4 Date Sampled: 04/05/2011 0923 Client Matrix: Water Date Received: 04/08/2011 1000

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62167		Instrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-61780		Lab File ID:	26b041311.asc
Dilution:	1.0				Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1825				Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800					
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		47		J	4.4	100
Lithium		ND			2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		18000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62295		Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784		Lab File ID:	161SMPL.D
Dilution:	1.0				Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0225				Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800					
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Uranium		0.055		J	0.020	1.0

Client: TestAmerica Laboratories, Inc. Job Number: 280-14463-1

Sdg Number: A1D060449

Client Sample ID: FWGLL1MW-084C-0030-GF

Lab Sample ID: 280-14463-5 Date Sampled: 04/05/2011 1325 Client Matrix: Water Date Received: 04/08/2011 1000

6010B Metals (ICP) Analysis Method: 6010B Analysis Batch: 280-62167 Instrument ID: MT_026 Prep Method: 3010A Prep Batch: 280-61780 Lab File ID: 26b041311.asc 1.0 Dilution: Initial Weight/Volume: 50 mL 04/13/2011 1827 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: MDL RL Analyte Result (ug/L) Qualifier Boron 83 4.4 100 Lithium ND 2.6 10 ND 20 Molybdenum 3.1 SiO2, Silica 10000 74 500 6020 Metals (ICP/MS) Analysis Method: 6020 Analysis Batch: 280-62295 Instrument ID: MT_024 Prep Method: 3020A Prep Batch: 280-61784 Lab File ID: 162SMPL.D Initial Weight/Volume: Dilution: 1.0 50 mL 04/14/2011 0227 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Analyte Result (ug/L) Qualifier MDL RLUranium 0.47 0.020 1.0

Client: TestAmerica Laboratories, Inc. Job Number: 280-14463-1

Sdg Number: A1D060449

Method Blank - Batch: 280-61780 Method: 6010B Preparation: 3010A

Lab Sample ID: MB 280-61780/1-A Analysis Batch: 280-62167 Instrument ID: MT_026 Client Matrix: Water Prep Batch: 280-61780 Lab File ID: 26b041311.asc

Leach Batch: Dilution: N/A Initial Weight/Volume: 50 mL 1.0 04/13/2011 1736 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte	Result	Qual	MDL	RL	
Boron	ND		4.4	100	
Lithium	ND		2.6	10	
Molybdenum	ND		3.1	20	
SiO2. Silica	ND		74	500	

Method: 6010B Lab Control Sample - Batch: 280-61780 Preparation: 3010A

Lab Sample ID: Analysis Batch: Instrument ID: MT_026 LCS 280-61780/2-A 280-62167 Client Matrix: Water 280-61780 Lab File ID:

Prep Batch: 26b041311.asc Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL

04/13/2011 1739 Units: Final Weight/Volume: Analysis Date: ug/L 50 mL 04/13/2011 0800 Prep Date:

Leach Date: N/A

Analyte	Spike Amount	Result	% Rec.	Limit	Quai
Boron	1000	999	100	86 - 110	
Lithium	1000	1030	103	90 - 112	
Molybdenum	1000	1100	110	90 - 110	
SiO2, Silica	21400	22100	103	90 - 110	

Matrix Spike - Batch: 280-61780 Method: 6010B Preparation: 3010A

Lab Sample ID: Analysis Batch: 280-62167 Instrument ID: MT_026 280-14463-1 Client Matrix: Water Prep Batch: 280-61780 Lab File ID: 26b041311.asc

Leach Batch: Dilution: 1.0 N/A Initial Weight/Volume: 50 mL 04/13/2011 1818 50 mL

Analysis Date: Units: ug/L Final Weight/Volume: Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Sample Result/Qual Spike Amount Result % Rec. Limit Qual Boron 110 1000 1090 99 87 - 113 Lithium 15 1000 1030 102 89 - 114 ND 1000 1090 109 83 - 109 Molybdenum SiO2, Silica 13000 21400 34900 100 75 - 141

MT_026

26b041311.asc

Client: TestAmerica Laboratories, Inc. Job Number: 280-14463-1

Sdg Number: A1D060449

Serial ilution - Batch: 280-61780 Method: 6010B Preparation: 3010A

Lab Sample ID: 280-14462-A-1-A SD ^5 Analysis Batch: 280-62167 Instrument ID: Client Matrix: Prep Batch: 280-61780 Lab File ID:

Dilution: 5.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/13/2011 1743 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

%Diff Analyte Sample Result/Qual Result Limit Qual Boron 270 271 2.2 10 J Lithium ND ND NC 10 5.5 ND NC Molybdenum J 10 SiO2, Silica 15000 14800 1.2 10

Method: 6010B uplicate - Batch: 280-61780 Preparation: 3010A

Lab Sample ID: Analysis Batch: Instrument ID: MT_026 280-14463-1 280-62167 Client Matrix: Water Prep Batch: 280-61780 Lab File ID: 26b041311.asc

Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/13/2011 1816 Final Weight/Volume: 50 mL Analysis Date: Units: ug/L

04/13/2011 0800 Prep Date:

Leach Date: N/A

Analyte Sample Result/Qual Result **RPD** Limit Qual Boron 110 105 0.2 25 25 Lithium 15 16.5 11 Molybdenum ND ND NC 25 SiO2, Silica 13000 13600 0.7 20

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Method Blank - Batch: 280-61784 Method: 6020 Preparation: 3020A

MT_024 Lab Sample ID: MB 280-61784/1-A Analysis Batch: 280-62295 Instrument ID: Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 141_BLK.D Dilution: Leach Batch: N/A Initial Weight/Volume: 50 mL 1.0 04/14/2011 0129 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Result Qual MDL RL
Uranium ND 0.020 1.0

Lab Control Sample - Batch: 280-61784 Method: 6020
Preparation: 3020A

Lab Sample ID: LCS 280-61784/2-A Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 142_LCS.D Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL Analysis Date: 04/14/2011 0132 Units: Final Weight/Volume: 50 mL ug/L

Prep Date: 04/13/2011 0800

Leach Date: N/A

 Analyte
 Spike Amount
 Result
 % Rec.
 Limit
 Qual

 Uranium
 40.0
 42.0
 105
 85 - 119

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Post igestion Spike - Batch: 280-61784 Method: 6020 Preparation: 3020A

Lab Sample ID: 280-14462-A-1-D PDS Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: Prep Batch: 280-61784 Lab File ID: 145PDS.D Dilution: Leach Batch: Initial Weight/Volume: 1.0 N/A 50 mL 04/14/2011 0140 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Sample Result/Qual Spike Amount Result % Rec. Limit Qual
Uranium 1.3 200 214 107 75 - 125

Matrix Spike - Batch: 280-61784 Method: 6020 Preparation: 3020A

Lab Sample ID: 280-14463-1 Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: Prep Batch: 280-61784 Lab File ID: 158_MS.D Water Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/14/2011 0216 Final Weight/Volume: Analysis Date: Units: ug/L 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

 Analyte
 Sample Result/Qual
 Spike Amount
 Result
 % Rec.
 Limit
 Qual

 Uranium
 ND
 40.0
 48.2
 121
 85 - 119
 F

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Serial ilution - Batch: 280-61784 Method: 6020 Preparation: 3020A

MT_024 Lab Sample ID: 280-14462-A-1-D SD ^5 Analysis Batch: 280-62295 Instrument ID: Client Matrix: Prep Batch: 280-61784 Lab File ID: 144SDIL.D Dilution: 5.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/14/2011 0138 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Sample Result/Qual Result %Diff Limit Qual
Uranium 1.3 1.25 1.7 10 J

uplicate - Batch: 280-61784 Method: 6020
Preparation: 3020A

Lab Sample ID: 280-14463-1 Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 157_DU.D Leach Batch: Initial Weight/Volume: 50 mL Dilution: 1.0 N/A Analysis Date: 04/14/2011 0213 Units: Final Weight/Volume: 50 mL ug/L

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Sample Result/Qual Result RPD Limit Qual
Uranium ND ND NC 20

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					. rep _ute
Prep Batch: 280-61780					
LCS 280-61780/2-A	Lab Control Sample	Т	Water	3010A	
MB 280-61780/1-A	Method Blank	T	Water	3010A	
280-14463-1	FWGSCFMW-004-0180-GF	T	Water	3010A	
280-14463-1DU	Duplicate	T	Water	3010A	
280-14463-1MS	Matrix Spike	T	Water	3010A	
280-14463-2	FWGSCFMW-005-0190-GF	T	Water	3010A	
280-14463-3	FWGLL1MW-081C-0010-GF	T	Water	3010A	
280-14463-4	FWGLL1MW-082C-0020-GF	T .	Water	3010A	
280-14463-5	FWGLL1MW-084C-0030-GF	T	Water	3010A	
200-14400-0	1 WGEE1WW-0040-0030-SI	•	vvalci	3010A	
Prep Batch: 280-61784					
LCS 280-61784/2-A	Lab Control Sample	Т	Water	3020A	
MB 280-61784/1-A	Method Blank	Т	Water	3020A	
280-14463-1	FWGSCFMW-004-0180-GF	Т	Water	3020A	
280-14463-1DU	Duplicate	Т	Water	3020A	
280-14463-1MS	Matrix Spike	Т	Water	3020A	
280-14463-2	FWGSCFMW-005-0190-GF	Т	Water	3020A	
280-14463-3	FWGLL1MW-081C-0010-GF	Т	Water	3020A	
280-14463-4	FWGLL1MW-082C-0020-GF	Т	Water	3020A	
280-14463-5	FWGLL1MW-084C-0030-GF	Т	Water	3020A	
Analysis Batch:280-6216	7				
LCS 280-61780/2-A	Lab Control Sample	Т	Water	6010B	280-61780
MB 280-61780/1-A	Method Blank	Ť	Water	6010B	280-61780
280-14463-1	FWGSCFMW-004-0180-GF	T	Water	6010B	280-61780
280-14463-1DU	Duplicate	Ť	Water	6010B	280-61780
280-14463-1MS	Matrix Spike	T	Water	6010B	280-61780
280-14463-2	FWGSCFMW-005-0190-GF	Ť	Water	6010B	280-61780
280-14463-3	FWGLL1MW-081C-0010-GF	T	Water	6010B	280-61780
280-14463-4	FWGLL1MW-082C-0020-GF	T	Water	6010B	280-61780
280-14463-5	FWGLL1MW-084C-0030-GF	T	Water	6010B	280-61780
Analysis Batch:280-6229		_			
LCS 280-61784/2-A	Lab Control Sample	T _	Water	6020	280-61784
MB 280-61784/1-A	Method Blank	<u>T</u>	Water	6020	280-61784
280-14463-1	FWGSCFMW-004-0180-GF	T	Water	6020	280-61784
280-14463-1DU	Duplicate	T	Water	6020	280-61784
280-14463-1MS	Matrix Spike	Т	Water	6020	280-61784
280-14463-2	FWGSCFMW-005-0190-GF	T	Water	6020	280-61784
280-14463-3	FWGLL1MW-081C-0010-GF	Т	Water	6020	280-61784
280-14463-4	FWGLL1MW-082C-0020-GF	Т	Water	6020	280-61784
280-14463-5	FWGLL1MW-084C-0030-GF	Т	Water	6020	280-61784

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

QC Association Summary

Report

Lab Sample ID Client Sample ID Basis Client Matrix Method Prep Batch

Report Basis

T = Total

Certification Summary

Client: TestAmerica Laboratories, Inc. Project/Site: USGS RVAAP

TestAmerica Denver

TestAmerica Job ID: 280-14463-1 SDG: A1D060449

999615430

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Denver		USDA		P330-08-00036
TestAmerica Denver	A2LA	DoD ELAP	0	2907.01
TestAmerica Denver	A2LA	ISO/IEC 17025	0	2907.01
TestAmerica Denver	Alabama	State Program	4	
TestAmerica Denver	Alaska	Alaska UST	10	UST-30
TestAmerica Denver	Arizona	State Program	9	AZ0713
TestAmerica Denver	Arkansas	State Program	6	88-0687
TestAmerica Denver	California	State Program	9	2513
TestAmerica Denver	Colorado	State Program	8	N/A
TestAmerica Denver	Connecticut	State Program	1	PH-0686
TestAmerica Denver	Florida	NELAC	4	E87667
TestAmerica Denver	Georgia	State Program	4	N/A
TestAmerica Denver	Idaho	State Program	10	CO00026
TestAmerica Denver	Illinois	NELAC	5	200017
TestAmerica Denver	Iowa	State Program	7	370
TestAmerica Denver	Kansas	NELAC	7	E-10166
TestAmerica Denver	Louisiana	NELAC	6	30785
TestAmerica Denver	Maine	State Program	1	CO0002
TestAmerica Denver	Maryland	State Program	3	268
TestAmerica Denver	Minnesota	NELAC	5	8-999-405
TestAmerica Denver	Nevada	State Program	9	CO0026
TestAmerica Denver	New Hampshire	NELAC	1	205310
TestAmerica Denver	New Jersey	NELAC	2	CO004
TestAmerica Denver	New Mexico	State Program	6	N/A
TestAmerica Denver	New York	NELAC	2	11964
TestAmerica Denver	North Carolina	North Carolina DENR	4	358
TestAmerica Denver	North Dakota	State Program	8	R-034
TestAmerica Denver	Oklahoma	State Program	6	8614
TestAmerica Denver	Oregon	NELAC	10	CO200001
TestAmerica Denver	Pennsylvania	NELAC	3	68-00664
TestAmerica Denver	South Carolina	State Program	4	72002
TestAmerica Denver	Tennessee	State Program	4	TN02944
TestAmerica Denver	Texas	NELAC	6	T104704183-08-TX
TestAmerica Denver	Utah	NELAC	8	QUAN5
TestAmerica Denver	Washington	State Program	10	C1284
TestAmerica Denver	West Virginia	West Virginia DEP	3	354

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Wisconsin

State Program

METALS

COVER PAGE METALS

Lab Name:	TestAmerica Denver	Job Number: 280-14463-1
SDG No.:	A1D060449	
Project:	USGS RVAAP	
	Client Sample ID	Lab Sample ID
	FWGSCFMW-004-0180-GF	280-14463-1
	FWGSCFMW-005-0190-GF	280-14463-2
	FWGLL1MW-081C-0010-GF	280-14463-3
	FWGLL1MW-082C-0020-GF	280-14463-4
	FWGLL1MW-084C-0030-GF	280-14463-5

Comments:

Client Sample ID: FWGSCFMW-004-0180-GF Lab Sample ID: 280-14463-1

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG ID.: A1D060449

Matrix: Water Date Sampled: 04/05/2011 10:02

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	110	100	4.4	ug/L			1	6010B
7439-93-2	Lithium	15	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	13000	500	74	ug/L			1	6010B
7440-61-1	Uranium	ND	1.0	0.020	ug/L			1	6020

Client Sample ID: FWGSCFMW-005-0190-GF Lab Sample ID: 280-14463-2

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG ID.: A1D060449

Matrix: Water Date Sampled: 04/05/2011 15:08

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	28	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	14	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	5.8	20	3.1	ug/L	J		1	6010B
14808-60-7	SiO2, Silica	16000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.21	1.0	0.020	ug/L	J		1	6020

Client Sample ID: FWGLL1MW-081C-0010-GF Lab Sample ID: 280-14463-3

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG ID.: A1D060449

Matrix: Water Date Sampled: 04/05/2011 11:23

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	66	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	ND	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	9600	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.31	1.0	0.020	ug/L	J		1	6020

Client Sample ID: FWGLL1MW-082C-0020-GF Lab Sample ID: 280-14463-4

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG ID.: A1D060449

Matrix: Water Date Sampled: 04/05/2011 09:23

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	47	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	ND	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	18000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.055	1.0	0.020	ug/L	J		1	6020

Client Sample ID: FWGLL1MW-084C-0030-GF Lab Sample ID: 280-14463-5

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG ID.: A1D060449

Matrix: Water Date Sampled: 04/05/2011 13:25

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	83	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	ND	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	10000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.47	1.0	0.020	ug/L	J		1	6020

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

ICV Source: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00150

)-62167/7)11 12:36			-62167/106 011 17:30	CCV 280-62167/120 04/13/2011 18:02						
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Boron	261		250	105	487		500	97	490		500	98
Lithium	259		250	104	982		1000	98	992		1000	99
Molybdenum	243		250	97	533		500	107	535		500	107
SiO2,	4300		4280	101	10700		10700	100	10800		10700	101
Silica												

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

ICV Source: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00150

			-62167/133 011 18:32									
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Boron	487		500	97								
Lithium	987		1000	99								
Molybdenum	539		500	108								
SiO2,	10700		10700	100								
Silica												

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

ICV Source: MS ICV_00314 Concentration Units: ug/L

CCV Source: MS CCV_00315

	ICV 280-62295/5 04/13/2011 19:14				CCV 280-62295/17 04/13/2011 19:46				CCV 280-62295/50 04/14/2011 01:21			
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Uranium	40.6		40.0	101	50.0		50.0	100	50.6		50.0	101

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

ICV Source: MS ICV_00314 Concentration Units: ug/L

CCV Source: MS CCV_00315

			-62295/63)11 01:57		CCV 280-62295/75 04/14/2011 02:30							
Analyte	Found	С	True	%R	Found C True %R		Found	С	True	%R		
Uranium	51.0		50.0	102	54.0		50.0	108				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2B-IN CRQL CHECK STANDARD METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Analysis Method: 6010B Instrument ID: MT_026

Lab Sample ID: CRI 280-62167/12 Concentration Units: ug/L

CRQL Check Standard Source: ICP RL STD_00346

	CRQL Check Standard						
Analyte	True	Found	Qualifiers	%R(1)	Limits		
Boron	100	108		108	50-150		
Lithium	10.0	9.61	J	96	50-150		
Molybdenum	10.0	10.1	J	101	50-150		
SiO2, Silica	1070	1120		105	50-150		

2B-IN CRQL CHECK STANDARD METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Analysis Method: 6020 Instrument ID: MT_024

Lab Sample ID: CRI 280-62295/9 Concentration Units: ug/L

CRQL Check Standard Source: MS RL STD_00324

	CRQL Check Standard					
Analyte	True	Found	Qualifiers	%R(1)	Limits	
Uranium	1.00	1.02	-	102	50-150	

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Concentration Units: ug/L

		ICB 280-62167 04/13/2011 1		CCB 280-62167/107 04/13/2011 17:32		CCB 280-62167/121 04/13/2011 18:04		CCB 280-62167/134 04/13/2011 18:34	
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Boron	100	ND		ND		ND		ND	
Lithium	10	ND		ND		ND		ND	
Molybdenum	20	ND		ND		ND		ND	
SiO2,	1100	ND		ND		ND		ND	
Silica									

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Concentration Units: ug/L

		ICB 280-6229 04/13/2011 1		CCB 280-62295		CCB 280-62295		CCB 280-62295 04/14/2011 0	.
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Uranium	1.0	ND		0.0425	J	ND		0.0382	J

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Concentration Units: ug/L

		CCB 280-62295							
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Uranium	1.0	0.0381	J						

3-IN METHOD BLANK METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Concentration Units: ug/L Lab Sample ID: MB 280-61780/1-A

Instrument Code: MT 026 Batch No.: 62167

CAS No.	Analyte	Concentration	С	Q	Method
7440-42-8	Boron	ND			6010B
7439-93-2	Lithium	ND			6010B
7439-98-7	Molybdenum	ND			6010B
14808-60-7	SiO2, Silica	ND			6010B

3-IN METHOD BLANK METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Concentration Units: ug/L Lab Sample ID: MB 280-61784/1-A

Instrument Code: MT_024 Batch No.: 62295

CAS No.	Analyte	Concentration	С	Q	Method
7440-61-1	Uranium	ND			6020

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Lab Sample ID: ICSA 280-62167/13 Instrument ID: MT_026

Lab File ID: 26b041311.asc ICS Source: ICP ICSA 00037

Concentration Units: ug/L

	True	Found	
Analyte	Solution A	Solution A	Percent Recovery
Boron		-0.730	
Lithium		-0.360	
Molybdenum		-1.53	
SiO2, Silica		13.4	
Aluminum	500000	507950	102
Antimony		15.6	
Arsenic		4.05	
Barium		1.10	
Beryllium		-0.0700	
Bismuth		33.1	
Cadmium		-0.460	
Calcium	500000	460710	92
Chromium		2.02	
Cobalt		-1.29	
Copper		4.64	
Iron	200000	186030	93
Lead		-4.82	
Magnesium	500000	498380	100
Manganese		2.32	
Nickel		0.850	
Phosphorus		-0.280	
Potassium		139	
Selenium		2.43	
Silicon		6.24	
Silver		0.0200	
Sodium		137	
Strontium		-2.43	
Thallium		-1.93	
Thorium		19.1	
Tin		-0.340	
Titanium		-2.93	
Vanadium		3.28	
Zinc		5.95	
Zirconium		4.68	

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Lab Sample ID: ICSAB 280-62167/14 Instrument ID: MT_026

Lab File ID: 26b041311.asc ICS Source: ICP ICSAB_00029

Concentration Units: ug/L

	True	Found	
Analyte	Solution AB	Solution AB	Percent Recovery
Boron	2000	1946	97
Lithium	1000	1014	101
Molybdenum	1000	984	98
SiO2, Silica	21400	21582	101
Aluminum	500000	513280	103
Antimony	1000	1033	103
Arsenic	2000	2088	104
Barium	500	501	100
Beryllium	500	486	97
Bismuth	1000	1047	105
Cadmium	1000	1039	104
Calcium	500000	470530	94
Chromium	500	500	100
Cobalt	500	481	96
Copper	500	528	106
Iron	200000	188470	94
Lead	1000	984	98
Magnesium	500000	499350	100
Manganese	500	513	103
Nickel	1000	967	97
Phosphorus	2000	2054	103
Potassium	50000	51462	103
Selenium	5000	4709	94
Silicon	10000	10085	101
Silver	1000	1077	108
Sodium	50000	50149	100
Strontium	1000	976	98
Thallium	10000	9091	91
Thorium	2000	2109	105
Tin	10000	9510	95
Titanium	1000	1013	101
Vanadium	500	513	103
Zinc	1000	1017	102
Zirconium	1000	976	98

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Lab Sample ID: ICSA 280-62295/11 Instrument ID: MT_024

Lab File ID: 011ICSA.D ICS Source: MS ICSA_00314

Concentration Units: ug/L

	True	Found	
			Percent
Analyte	Solution A	Solution A	Recovery
Uranium		0.0064	
Antimony		0.256	
Arsenic		0.216	
Barium		0.173	
Beryllium		0.0044	
Cadmium		0.348	
Chromium		2.71	
Cobalt		0.0280	
Copper		0.219	
Lead		0.127	
Manganese		0.582	
Molybdenum	2000	2209	110
Nickel		1.02	
Selenium		-0.0858	
Silver		0.0921	
Thallium		0.0312	
Thorium		0.375	
Tin		0.206	
Vanadium		0.0980	
Zinc		1.52	

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Lab Sample ID: ICSAB 280-62295/12 Instrument ID: MT_024

Lab File ID: 012ICSB.D ICS Source: MS ICSAB_00316

Concentration Units: ug/L

	True	Found	
Analyte	Solution AB	Solution AB	Percent Recovery
Uranium	100	106	106
Antimony	100	99.6	100
Arsenic	100	102	102
Barium	100	107	106
Beryllium	100	91.8	92
Cadmium	100	95.0	95
Chromium	100	110	110
Cobalt	100	102	102
Copper	100	89.9	90
Lead	100	94.5	94
Manganese	100	103	103
Molybdenum	2100	2313	110
Nickel	100	95.4	95
Selenium	100	104	104
Silver	100	86.5	86
Thallium	100	98.1	98
Thorium	100	117	117
Tin	100	103	103
Vanadium	100	114	114
Zinc	100	95.5	96

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Lab Sample ID: ICSA 280-62295/43 Instrument ID: MT_024

Lab File ID: 103ICSA.D ICS Source: MS ICSA 00314

Concentration Units: ug/L

	True	Found	
			Percent
Analyte	Solution A	Solution A	Recovery
Uranium		0.0243	
Antimony		0.269	
Arsenic		0.337	
Barium		0.164	
Beryllium		0.0072	
Cadmium		0.230	
Chromium		2.62	
Cobalt		0.0591	
Copper		0.300	
Lead		0.127	
Manganese		0.663	
Molybdenum	2000	2204	110
Nickel		1.27	
Selenium		0.302	
Silver		0.0980	
Thallium		0.0263	
Tin		0.332	
Vanadium		0.0639	
Zinc		1.76	

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Lab Sample ID: ICSAB 280-62295/44 Instrument ID: MT_024

Lab File ID: 104ICSB.D ICS Source: MS ICSAB_00316

Concentration Units: ug/L

	True	Found	
Analyte	Solution AB	Solution AB	Percent Recovery
Uranium	100	105	105
Antimony	100	104	104
Arsenic	100	104	104
Barium	100	109	109
Beryllium	100	94.7	95
Cadmium	100	97.5	97
Chromium	100	110	110
Cobalt	100	104	104
Copper	100	88.7	89
Lead	100	93.0	93
Manganese	100	103	103
Molybdenum	2100	2391	114
Nickel	100	97.5	98
Selenium	100	104	104
Silver	100	87.6	88
Thallium	100	98.9	99
Thorium	100	119	119
Tin	100	104	104
Vanadium	100	115	115
Zinc	100	101	101

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: FWGSCFMW-004-0180-GF MS Lab ID: 280-14463-1 MS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Matrix: Water Concentration Units: ug/L

% Solids:

Analyte	SSR	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Boron	1090	110	1000	99	87-113		6010B
Lithium	1030	15	1000	102	89-114		6010B
Molybdenum	1090	ND	1000	109	83-109		6010B
SiO2, Silica	34900	13000	21400	100	75-141		6010B
Uranium	48.2	ND	40.0	121	85-119	F	6020

SSR Spiked Sample Result

5B-IN POST DIGESTION SPIKE SAMPLE RECOVERY METALS

Client ID: Lab ID: 280-14462-A-1-D PDS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Matrix: Water Concentration Units: ug/L

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Uranium	214	1.3	200	107	75-125		6020

SSR Spiked Sample Result

6-IN DUPLICATES METALS

Client ID: FWGSCFMW-004-0180-GF DU Lab ID: 280-14463-1 DU

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: AlD060449

% Solids for Sample: % Solids for Duplicate:

Matrix: Water Concentration Units: ug/L

Analyte	Control Limit	Sample (S)	С	Duplicate (D)	С	RPD	Q	Method
Boron	100	110		105		0.2		6010B
Lithium	10	15		16.5		11		6010B
Molybdenum	20	ND		ND		NC		6010B
SiO2, Silica	500	13000		13600		0.7		6010B
Uranium	1.0	ND		ND		NC		6020

7A-IN LAB CONTROL SAMPLE METALS

Lab ID: LCS 280-61780/2-A

Lab Name: TestAmerica Denver Job No.: 280-14463-1

Sample Matrix: Water LCS Source: ICP SPK 2A_00024

				Wate	r(ug/L)			
Analyte	True	Found	С	%R	Lim	its	Q	Method
Boron	1000	999		100	86	110		6010B
Lithium	1000	1030		103	90	112		6010B
Molybdenum	1000	1100		110	90	110		6010B
SiO2, Silica	21400	22100		103	90	110		6010B

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN LAB CONTROL SAMPLE METALS

Lab ID: LCS 280-61784/2-A

Lab Name: TestAmerica Denver Job No.: 280-14463-1

Sample Matrix: Water LCS Source: MS CALSTD-1_00037

				Wate	r(ug/L)			
Analyte	True	Found	С	%R	Lim	its	Q	Method
Uranium	40.0	42.0		105	85	119		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 280-14462-A-1-A SD ^5

SDG No: A1D060449

Lab Name: TestAmerica Denver Job No: 280-14463-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Samp		Serial Dilution Result (S)	С	% Difference	Q	Method
Boron	270		271	J	2.2		6010B
Lithium	ND		ND		NC		6010B
Molybdenum	5.5	J	ND		NC		6010B
SiO2, Silica	15000		14800		1.2		6010B

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 280-14462-A-1-D SD ^5

SDG No: A1D060449

Lab Name: TestAmerica Denver Job No: 280-14463-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Difference	Q	Method
Uranium	1.3	1.25 J	1.7		6020

9-IN DETECTION LIMITS METALS

Lab Name: TestAmerica Denver Job Number: 280-14463-1

SDG Number: A1D060449

Matrix: Water Instrument ID: MT_026

Analysis Method: 6010B MDL Date: 02/23/2011 08:42

Prep Method: 3010A

Leach Method:

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Boron	208.9	100	4.37
Lithium	670.7	10	2.61
Molybdenum	202	20	3.13
SiO2, Silica	288.1	500	74.3

9-IN CALIBRATION BLANK DETECTION LIMITS METALS

Lab Name: TestAmerica Denver	Job Number: <u>280-14463-1</u>
SDG Number: A1D060449	
Matrix: Water	Instrument ID: MT_026
Analysis Method: 6010B	XMDL Date: 02/23/2011 08:43

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Boron		100	4.37
Lithium		10	2.61
Molybdenum		20	3.13
SiO2, Silica		1100	74.3

9-IN DETECTION LIMITS METALS

Lab Name: TestAmerica Denver Job Number: 280-14463-1

SDG Number: A1D060449

Matrix: Water Instrument ID: MT_024

Analysis Method: 6020 MDL Date: 04/26/2010 12:11

Prep Method: 3020A

Leach Method:

Analyte	Wavelength/	RL	MDL
	Mass	(ug/L)	(ug/L)
Uranium	238	1	0.02

9-IN CALIBRATION BLANK DETECTION LIMITS METALS

Lab Name: TestAmerica Denver	Job Number: 280-14463-1
SDG Number: A1D060449	
Matrix: Water	Instrument ID: MT_024
Analysis Method: 6020	XMDL Date: 04/26/2010 12:12

Analyte	Wavelength/	XRL	XMDL
	Mass	(ug/L)	(ug/L)
Uranium		1	0.02

ICP-AES INTERELEMENT CORRECTION FACTORS
METALS

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ICP-AES INTERELEMENT CORRECTION FACTORS METALS

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Page 60 of 581

ICP-AES INTERELEMENT CORRECTION FACTORS METALS

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ICP-AES INTERELEMENT CORRECTION FACTORS METALS

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ICP-AES INTERELEMENT CORRECTION FACTORS METALS

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ICP-AES INTERELEMENT CORRECTION FACTORS METALS

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11-IN ICP-AES AND ICP-MS LINEAR RANGES METALS

Lab Name: TestAmerica Denver Job No: 280-14463-1

SDG No.: A1D060449

Instrument ID: MT_026 Date: 02/18/2011 13:57

Analyte	Integ. Time (Sec.)	Concentration (mg/L)	Method
Boron		100	6010B
Lithium		25	6010B
Molybdenum		20	6010B
SiO2, Silica		428	6010B

11-IN ICP-AES AND ICP-MS LINEAR RANGES METALS

Lab Name: TestAmerica Denver Job No: 280-14463-1

SDG No.: A1D060449

Instrument ID: MT_024 Date: 04/12/2011 16:49

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Uranium		4000	6020

12-IN PREPARATION LOG METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Preparation Method: 3010A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 280-61780/1-A	04/13/2011 08:00	61780		50	50
LCS 280-61780/2-A	04/13/2011 08:00	61780		50	50
280-14463-1	04/13/2011 08:00	61780		50	50
280-14463-1 DU	04/13/2011 08:00	61780		50	50
280-14463-1 MS	04/13/2011 08:00	61780		50	50
280-14463-2	04/13/2011 08:00	61780		50	50
280-14463-3	04/13/2011 08:00	61780		50	50
280-14463-4	04/13/2011 08:00	61780		50	50
280-14463-5	04/13/2011 08:00	61780		50	50

12-IN PREPARATION LOG METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1

SDG No.: A1D060449

Preparation Method: 3020A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 280-61784/1-A	04/13/2011 08:00	61784		50	50
LCS 280-61784/2-A	04/13/2011 08:00	61784		50	50
280-14463-1	04/13/2011 08:00	61784		50	50
280-14463-1 DU	04/13/2011 08:00	61784		50	50
280-14463-1 MS	04/13/2011 08:00	61784		50	50
280-14463-2	04/13/2011 08:00	61784		50	50
280-14463-3	04/13/2011 08:00	61784		50	50
280-14463-4	04/13/2011 08:00	61784		50	50
280-14463-5	04/13/2011 08:00	61784		50	50

TestAmerica Denver

TestAmerica

ICP/MS Technical Data Review Checklist

Lab Project ID Number(s): see attached cover sheet Check Method/SOP Used:

G020/DV-MT-0018

□200.8/DV-MT-0002

973 (S)	Review Items	Yes	Level 1 No	 N/A	Level 2	Comments & Samples Affected
Tun						
1.	Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8?	8				
2.	Tune RSD <5%?	8				
2.	Resolution ≤ 0.9 AMU full width at 10% peak height? NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height	8				· · · · · · · · · · · · · · · · · · ·
Initia	al Calibration -					
1.	Done with a minimum of 3 integrations of a high standard and blank?	X	L		· /	
2.	ICV/CCV run at beginning of run, 10% frequency, and end of run? Results with 10% of expected value?	8				. 44
3.	ICB/CCB run at beginning of run, 10% frequency, and end of run? Results +/- RL	8				, som i stational and the state of the state
4.	ICSA/AB analyzed at beginning of run and every 12 hours and results 80-120% of TV?	8				·
5.	RL Std analyzed at beginning of run and results +/- 50% of TV(for AFCEE 4.0, DoD V3 +/- 20% of true value)?	Y				
Clie	nt Samples & QC Sample Results					
1.	Were all samples within linear range, ≤ 90% of LDR for 200.8?	8				~
2.	Dilutions due to target elements? Dilutions for other reasons?	8			~	
3.	All reported results bracketed by in control QC?	8				
4.	All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%?	8			/	
5.	Was a 5X serial dilution analyzed for 6020 and, if so, are results $\pm 10\%$ of original result, if original $\geq 100x$ MDL?	V				
6.	LCS included in batch and within QC limits?	8				
7.	Method blank included and <1/2RL?	X				
8.	MS and MSD included in batch?			<u> </u>		
9.	PDS analyzed and recovery 75-125%?			 		
10.	Manual calculations documented properly and checked?	2		 		
11.	Are non-conformances documented on an NCM?	1	 	 	+	-
12.	Is the appropriate raw data included?	1		 	+-	
13.	Are all results manually entered into LIMS verified? Are all electronic data files archived to the appropriate network locations?	8				
14.		17		 		· · · · · · · · · · · · · · · · · · ·

1st Level Reviewer: _ 2nd Level Reviewer:

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Shipping and Receiving Documents

Login Sample Receipt Checklist

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1 SDG Number: A1D060449

Login Number: 14463 List Source: TestAmerica Denver

List Number: 1

Creator: Bindel, Aaron M

Radioactivity either was not measured or, if measured, is at or below background The cooler's custody seal, if present, is intact. The cooler or samples do not appear to have been compromised or tampered with. Samples were received on ice. True Cooler Temperature is acceptable. True Cooler Temperature is recorded. True Cooler Temperature is recorded. True COCI is filled out in ink and legible. COCI is filled out with all pertinent information. Is the Field Sampler's name present on COC? There are no discrepancies between the sample IDs on the containers and the COC. Samples are received within Holding Time. Sample containers have legible labels. True Containers are not broken or leaking. True Sample collection date/times are provided. True Sample collection date/times are provided. True Sample Preservation Verified. True Sample Preservation Verified. True Sample preservation Verified. True Sample vials do not have headspace or bubble is <6mm (1/4") in diameter. Multiphasic samples are not present. Samples do not require splitting or compositing. True Samples do not require splitting or compositing. True Samples do not require splitting or compositing.	Question	Answer	Comment
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and the second s	Multiphasic samples are not present.	True	
Residual Chlorine Checked. N/A	Samples do not require splitting or compositing.	True	
	Residual Chlorine Checked.	N/A	

N C Laboratory

Canton

TestAmerica Denver

26, 3.1°

TestAmerica Laboratories, Inc. SAMPLE ANALYSIS REQUISTION

Lab Request

SR126370

Report Package:

Expanded Deliverables

Need Analytical Report

2011-04-20

Arvada, CO

4955 Yarrow Street

80002

Client Code:

1434673

<u>Sample I.D.</u> A1D060449-2	Work Order Number MGLQM	Client Sample ID FWGSCFMW-004-0180-GF
A1D060449-2	MGLQM	FWGSCFMW-004-0180-GF
A1D060449-4	MGLQR	FWGSCFMW-005-0190-GF
A1D060449-4	MGLQR	FWGSCFMW-005-0190-GF
A1D060449-6	MGLQV	FWGLL1MW-081C-0010-GF
A1D060449-6	MGLQV	FWGLL1MW-081C-0010-GF/
A1D060449-8	MGLQX	FWGLL1MW-082C-0020-GF
∞A1D060449-8	MGLQX	FWGLL1MW-082C-0020-GF/
o hA1D060449-10 ui	MGLQ1	FWGLL1MW-084C-0030-GF
₩ HA1D060449-10	MGLQ1	FWGLL1MW-084C-0030-GF

Project Manager:

MARK LOEB

Sampling Date Analysis Required 2011-04-05 10:02 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-05 10:02 WATER, 6010B, Metals B Li Mo Si (Denver) 2011-04-05 15:08 WATER, 6010B, Metals B Li Mo Si (Denver) 2011-04-05 15:08 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-05 11:23 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-05 11:23 WATER, 6010B, Metals B Li Mo Si (Denver) 2011-04-05 9:23 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-05 9:23 WATER, 6010B, Metals B Li Mo Si (Denver) 2011-04-05 13:25 WATER, 6020, Uranium by ICP/MS (Denver) 2011-04-05 13:25 WATER, 6010B, Metals B Li Mo Si (Denver)

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

at the TAL North Canton Laboratory

Need detection limit and analysis date included in report.

Relinquished by:

Relinquished by:

Received for lab by:

1
6
22

Please send a signed copy of this form with the report at completion of analysis

Relinquished by:

Date/Time:

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Shipping Method:

FED-EX



END OF REPORT



ANALYTICAL REPORT

PROJECT NO. GR11NJ00D5WRV00

RAVENNA, OH

Lot #: A1D070566

Gary L. Cottrell

U.S. Geological Survey (USGS)
Building 95, MS-407
Denver, CO 80225

TESTAMERICA LABORATORIES, INC.

Mark J. Loeb

Project Manager mark.loeb@testamericainc.com

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Approved for release. Mark J. Loeb Project Manager II 6/23/2011 2:22 PM

Laboratory Job No: <u>A10 070 566</u>

CONTRACT LABORATORY DATA-REVIEW WORKSHEET

1.0 GENERAL INFORMATION
Data reviewer: 6/26/11 Review date: 6/26/11
Office, Project, & Account #: pft Ravons
2.0 DATA DELIVERABLES
Date of Lab analytical report: 6/23/// Number of copies: bound 6 unbound
No. of CD copies of raw-data report:Remarks:
Raw-data report reviewed? YesNoElectronic data files on CD? YesNo
EDD file format: QWDATATAL QUA08ERPIMSOther
Date rec'd data deliverables: 6/27/1/ Date sent deliverables to USGS office 6/27/1/
3.0 INVOICE STATUS FOR LOT:
4.0 SAMPLE INFORMATION (Page #'s listed in this worksheet refer to lab analytical report)
Sample collection date(s): 4/6/11 Sample matrix: Water
No. of sample types in lot: Environmental Trip blank Equip. blank
MS/MSDOther:
Date samples received at laboratory: 4/ 7/ 1/
4.1 Were accelerated turn-around times (TATs) requested for analyses? YesNo
If yes, list TAT period and if completed:
4.2 Were analyses on chain-of-custody (COC) form performed by lab? YESNO
If no , list missing or cancelled analyses and reason for non-performance:
4.3 Were the samples properly preserved, labeled, no lab log-in problems, and(or) at
appropriate temperature (<6 deg. C) upon receipt by the laboratory: YesNo
If no, list sample/lab IDs, and associated problems or reference lab report case narrative:

Laboratory Job No:
4.4 Were preparation (extraction) and(or) analysis holding times met? YesNo If no, list analytical methods and sample/lab IDs for samples that exceeded holding-time limits:
in no, not analytical methodo and campionab ibe for campios that exceeded holding time limits.
4.5 Did surrogate recoveries meet QC acceptance criteria? YesNoNA
If no, list methods, surrogates, associated sample/lab IDs, lab report page #s:
NOTE: Sa royate LOW-1880 - LES; Low 1997 - MS
4.6 Were dilution factors greater than 1 for <i>organic</i> analyses? YesNoNA
If yes, list analytical methods and reason for raised dilution factors: dilution
high-analyte levelsmatrix interferencesother
4.7 Were dilution factors greater than 1 for inorganic analyses? YesNoNA
If yes , list analytical methods and reason for raised dilution factors:
high-analyte levelsmatrix interferencesother
4.8 Additional comments about sample analyses:

Laboratory Job No: A10070560
5.0 QUALITY CONTROL (QC) ANALYSES and RESULTS
5.1 Were any target analytes detected in the Laboratory Method Blanks? YesNo
If yes, list method, analytes, prep batch #, report page #s:
bes (2-Eth schertal) photologie = 4.0, more RC=10; P57
NOTE: High Surroyate Recovery For This Blank
Zn = 5.9, RL=10; P16; May
5.2 Did lab control samples (LCS/LSCD) meet percent recoveries (%R) criteria? YesNo
If no , list method, analytes, LCS/LCSD, prep batch #, report page #s:
3-5404-1962+65
NOTE: Surroquite out-P104
5.3 Did the MS/MSD results meet %R or RPD acceptance criteria? YesNoNA
Note: matrix spike and matrix spike duplicate (MS/MSD) data are used to evaluate the effect of sample matrix on the analytical process and should be only used in conjunction with other available lab QC data. In some cases, MS samples not directly associated with this lot may be used by the laboratory.
If no, list method, analytes; MS, MSD or RPD; and lab report page #:
mairiple svoc - 168 + 69 - most cow - benzallehall thish
minterple 5000 - 178 (LOW) - Benza (Style (4,95) -179
At Ortho P - P 167 (Double Spikes on 5 9) - P 167
2+3-1968-Low-19170; Maly-High-19189
NOTE: Surroyate out - P108
5.4 Did the lab-sample duplicate results meet RPD acceptance criteria? YesNoNA
If no , list method, analytes, prep batch #, report page #s,
in the, not method, dharytee, prop bator ", report page "e,
5.5 Additional comments about QC results:

3

Revision 5.1 Job worksheet

06/16/10

6.0 ANALYTICAL METHODS USED In this	LABORATORY LOT NUMBER
VOCs by GC/MSmethod 8260B/ 524.2	[water (W) or solids (S) analysis holding-time (HT) of 14 days]
Gasoline Range Organics (GRO)+BTEX-met	hod 8015B(GRO)/ 8021 [W and S: analysis HT 14 days]
Diesel Range Organics-method 8015B-DRO	[W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
Pesticides by GCmethod 8081A	[W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
PCBs by GCmethod 8082	[W: prep HT 7 days: S: prep HT14 days: analysis HT 40 days]
Pesticides by GCmethod 8141A	[W: prep HT 7 days: S: prep HT 14 days analysis HT 40 days
Herbicides by GCmethod 8151A	[W: prep HT 7 days; S: prep HT14 days, analysis HT 40 days]
SVOCs by GC/MSmethod 8270C	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Dioxins and Furansmethods 8280/ 8290/ 16	13 [W and S: prep HT 30 days; analysis HT 45 days]
PAHs by HPLC method 8310	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Explosives by HPLC method 8330 or 8321A	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]
Hexane extractable materials (HEM and SGT	-HEM)-method 1664/ 9071B [W/S: analysis HT 28 days]
Total organic carbon (TOC) or DOCmethod	s 415.1 or 9060 or 5310B [W: analysis HT 28 days]
Perchloratemethods 314.0 or 6850 LC/MS/I	MS or 6860 IC/MS/MS [W: analysis HT 28 days]
Metals by ICPmethod 6010B or 200.7	[W and S: analysis HT 180 days]
Metals by ICP/MSmethod 6020 or 200.8	[W and S: analysis HT 180 days]
Mercury by CVAAmethod 7470A (W) and 74	471A (S) [W and S: analysis HT 28 days]
Inorganic anions-method 300/ 9056 [W: analys	s HT 48 hours- NO ₂ , NO ₃ , ortho-P; HT 28 daysBr,Cl ,F, SO ₄]
Total dissolved solids (TDS)method 2540C	and(or) TSSmethod 2540D [W: analysis HT 7 days]
Alkalinitymethod 310.1 (Total, OH, HCO ₃ , a	nd CO ₃) [W: analysis HT 14 days]
Nitrogen, ammoniamethod 3501 350, 2	[W analysis HT 28 days]
Nitrogen, TKNmethod 351.2	[W: analysis HT 28 days]
Nitrogen, nitrate + nitritemethod 353.2 [W:	analysis HT 28 days] NO ₃ or NO ₂ only [HT 48 hours]
Nitrogen, nitritemethod 353.2 or 354.1	[W: analysis HT 48 hours]
Phosphorus-method 365.3 and ortho P by 36	5.3 [Phosphorus.: W: analysis HT 28 days, ortho P 48 hours]
Phosphorus-method 365.1 and ortho P by 36	5.1 [Phosphorus: W: analysis HT 28 days, ortho P 48 hours]
Cyanide, total, dissolved, or amenablemethod	ods 9012A/ 335.4 [W and S: analysis HT 14 days]
MBAS surfactants – method 425.1 (HT 48 ho	urs)
Moisture contentmethods D2216 or 160.3M	
BODmethod 405.1 (HT 48 hours) or CODr	nethod 410.4
Turbiditymethod 180.1 (HT 48 hours); Hard	lness 2340B
Physical properties: pHmethod 4500 H B; s	pecific conductance—method 2510B
Other analyses: Notre cella lose	



CASE NARRATIVE

CASE NARRATIVE

A1D070566

The following report contains the analytical results for seven water samples submitted to TestAmerica North Canton by U.S. Geological Survey (USGS) from the RAVENNA, OH Site, project number GR11NJ00D5W2100. The samples were received April 07, 2011, according to documented sample acceptance procedures.

The 6010B Metals (B Li Mo Si) and 6020 Uranium by ICP/MS analyses were performed at the TestAmerica Denver laboratory.

The 8330 Explosives and Nitroguanidine analyses were performed at the TestAmerica West Sacramento laboratory. Refer to TestAmerica West Sacramento narrative included in their data package for additional information.

TestAmerica utilizes USEPA approved methods and Louisville Corps Guidelines version 5, where applicable, in all analytical reports. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

All parameters were evaluated to the method detection limit and include qualified results where applicable.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

CASE NARRATIVE (continued)

If you have any questions, please call the Project Manager, Mark J. Loeb, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 0.8 and 1.3°C.

GC/MS VOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for batch(es) 1105156 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The LCS associated with batch(es) 1105156 was recovered high and outside of criteria for methylene chloride and carbon disulfide. Since the analyte was not detected in any of the samples above reporting limits, the results were accepted. Slight positive bias is not believed to have impacted data quality.

GC/MS SEMIVOLATILES

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "B". All target analytes in the Method Blank must be below the reporting limit (RL) or the associated sample(s) must be ND with the exception of common laboratory contaminants.

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

CASE NARRATIVE (continued)

GC/MS SEMIVOLATILES (continued)

The matrix spike/matrix spike duplicate(s) for batch(es) 1098032 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

3-Methylphenol (m-Cresol) and 4-Methylphenol (p-Cresol) co-elute and cannot be reported as separate analytes. When these analytes are requested, the reported result represents a probable combination of the two analytes.

The method blank associated with batch(es) 1098032 was double surrogated.

The LCS associated with batch(es) 1098032 had a Benzoic Acid recovery of 29.37%

PESTICIDES-8081

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

For the LCS associated with batch(es) 1099014, the recovery for one surrogate compound is outside acceptance criteria. Since LCG criterion is that one of two surrogate compounds must meet acceptance criteria, no corrective action was required. (Surrogate was below acceptance limit, but above 10%.)

POLYCHLORINATED BIPHENYLS-8082

The analytical results met the requirements of the laboratory's QA/QC program.

NITROAROMATICS AND NITRAMINES-8330

The analytical results met the requirements of the laboratory's QA/QC program.

CASE NARRATIVE (continued)

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "J". Refer to the sample report pages for the affected analyte(s).

No ICP Trace or ICP MS Form IX was provided for batch(es) 1098019. The serial dilutions were performed on a different sample from the same QC batch(es).

The sample duplicate RPD was outside the acceptance limits for some analytes. The result is less than five times the reporting limit; therefore, no corrective action is required. Refer to the sample duplicate report for RPDS that exceed 20%.

GENERAL CHEMISTRY

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

The matrix spike/matrix spike duplicate(s) for FWGRQLMW-007C-0120-GW, FWGRQLMW-016C-0160-GW, and FWGB12MW-010C-0220-FB had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data. Program or agency specific requirements take precedence over the requirements listed in this narrative.

OC BATCH

Environmental samples are taken through the testing process in groups called Quality Control Batches (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, a Matrix Spike/Matrix Spike Duplicate (MS/MSD) pair or a Matrix Spike/Sample Duplicate (MS/DU) pair.

For 600 series/CWA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, where appropriate, a Matrix Spike (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch, with the exception of poor performing analytes. A list of these analytes is listed below. No corrective action is taken if these analytes do not meet criteria. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

Poor performers

Method 8270 Water and Solid:	
4-Nitrophenol	3,3' – Dichlorobenzidine
Benzoic Acid	2,4,6 - Tribromophenol
Phenol	2,4-Dinitrophenol
Phenol-d5	Pentachlorophenol
4,6-Dinitro-2-methylphenol	Hexachlorocyclopentadiene (LCG only)
Benzyl Alcohol	4-Chloroaniline
Method 8151 Solid	
Dinoseb	
Method 8260 Water and Solid	
Dichlorodifluoromethane	Hexachlorobutadiene
Trichlorofluoromethane	Naphthalene
Chloroethane	1,2,3-Trichlorobenzene
Acetone	1,2,4-Trichlorobenzene
Bromomethane	2,2-Dichloropropane
Bromoform	Chloromethane

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be ten fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results do not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate or Matrix Spike/Sample Duplicate.

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater. For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica Certifications and Approvals:

The laboratory is certified for the analytes listed on the documents below. These are available upon request. California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Nevada (#OH-000482008A), OhioVAP (#CL0024), Pennsylvania (#008), West Virginia (#210), Wisconsin (#999518190), DoD ELAP (ADE-1437) USDA Soil Permit (P33-08-00123)



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A1D070566

		REPORTING		ANALYTICAL
PARAMETER	RESULT	_ LIMIT	UNITS	METHOD
FWGRQLMW-007C-0120-GW 04/06/11 15:19	001			
Chloride	1.4	1.0	mg/L	MCAWW 300.0A
Sulfate	101	1.0	mg/L	MCAWW 300.0A
Fluoride	0.14 в	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.040 B	0.10	mg/L	MCAWW 300.0A
Phosphate as P,	0.79	0.50	mg/L	MCAWW 300.0A
Ortho				
FWGRQLMW-008C-0130-GW 04/06/11 13:09	003			
Nitrogen, as Ammonia	0.84 B	2.0	mg/L	MCAWW 350.2
Chloride	1.3	1.0	mg/L	MCAWW 300.0A
Sulfate	62.6	1.0	mg/L	MCAWW 300.0A
Fluoride	0.30 B	1.0	mg/L	MCAWW 300.0A
Phosphate as P,	0.17 B	0.50	mg/L	MCAWW 300.0A
Ortho				
FWGRQLMW-009C-0140-GW 04/06/11 15:31	005			
Chloride	1.1	1.0	mg/L	MCAWW 300.0A
Sulfate	13.4	1.0	mg/L	MCAWW 300.0A
Fluoride	0.11 B	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.071 B	0.10	mg/L	MCAWW 300.0A
Phosphate as P,	1.3	0.50	mg/L	MCAWW 300.0A
Ortho				
FWGRQLMW-014C-0150-GW 04/06/11 09:16	007			
Chloride	5.0	1.0	mg/L	MCAWW 300.0A
Sulfate	50.0	1.0	mg/L	MCAWW 300.0A
Fluoride	0.11 B	1.0	mg/L	MCAWW 300.0A
FWGRQLMW-016C-0160-GW 04/06/11 11:03	009			
Chloride	6.7	1.0	mg/L	MCAWW 300.0A
Sulfate	1120	10.0	mg/L	MCAWW 300.0A
Fluoride	0.37 B	1.0	mg/L	MCAWW 300.0A
Phosphate as P,	0.19 B	0.50	mg/L	MCAWW 300.0A
Ortho				

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A1D070566

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
FWGB12MW-010C-0220-FB 04/06/11 14:05	011			
<pre>beta-BHC Zinc bis(2-Ethylhexyl) phthalate</pre>	0.017 J 4.3 B,J 2.2 J,B	0.030 10.0 10	ug/L ug/L ug/L	SW846 8081A SW846 6020 SW846 8270C
FWGSCFMW-003C-0170-GW 04/06/11 09:22	013			
Chloride Sulfate Fluoride	1.4 25.2 0.12 B	1.0 1.0 1.0	mg/L mg/L mg/L	MCAWW 300.0A MCAWW 300.0A MCAWW 300.0A



METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A1D070566

PARAMETER	ANALYTICAL METHOD
Ammonia Nitrogen Bromide	MCAWW 350.2 MCAWW 300.0A
Chloride	MCAWW 300.0A
Cyanide, Total	SW846 9012A
Fluoride	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
ICP-MS (6020)	SW846 6020
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A
Nitrate as N	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.2
Nitrite as N	MCAWW 300.0A
Nitroaromatics and Nitramines by HPLC	SW846 8330
Nitrocellulose as N, WS-WC-0050 (Colorimetric)	TAL-SOP WS-WC-0050
Organics by UV/HPLC	SW846 8330 (Modified)
Organochlorine Pesticides	SW846 8081A
Phosphate as P, Ortho	MCAWW 300.0A
PCBs by SW-846 8082	SW846 8082
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Sulfate	MCAWW 300.0A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW	"Methods for Chemical Analysis of Water and Wastes", ${\tt EPA-600/4-79-020}$, March 1983 and subsequent revisions.
SW846	"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.
TAL-SOP	TESTAMERICA LABORATORIES INC., LABORATORY STANDARD OPERATING PROCEDURE



SAMPLE SUMMARY

SAMPLE SUMMARY

A1D070566

<u>WO #</u>	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MGPAF MGPA1 MGPA4 MGPA7 MGPCC MGPCP	001 003 005 007 009 011 013	FWGRQLMW-007C-0120-GW FWGRQLMW-008C-0130-GW FWGRQLMW-009C-0140-GW FWGRQLMW-014C-0150-GW FWGRQLMW-016C-0160-GW FWGB12MW-010C-0220-FB FWGSCFMW-003C-0170-GW	04/06/11 04/06/11 04/06/11 04/06/11 04/06/11 04/06/11	13:09 15:31 09:16 11:03 14:05

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

TestAmerica Laboratory location:

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Client Contact	Regulai	tory program:] DW	NP	DES] RCRA	`) Oth	ier _						TestAmerica Lah	oratories. Inc.
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City/State/Zip: Columbus, OH 43229	Email:	fner e		Analysis Turnaround Time								4	Analyse	For this use only					
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FWGRQLmw-016C-016U-GW	4/6/11	11:03	X		1			<u> </u>	l		N	9	\perp	XX				L81	
FUGRALMW-OLLOC-016U-GF Possible Hazard Identification	4/6/11	11:03	\ x			1					14		X	ained longer th	1			L81	4
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Chain of Custody Record

TestAmerica Laboratory location: Other

Client Contact																							Te	stAmerica Laboratories,	inc.
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©2008, TestAmerica Laboratories, Inc. All rights reserved.										1									-					TAL 0018-1 (04/1	0)

TestAmerica Cooler	Receipt Form/Narrative	Lot Number: 🛆	D670°	566
North Canton Facilit	y	- 1		7-
	ical Survey Project Ravenna	On, By:	人	
Cooler Received on			(Signature)	
	☐ FAS ☐ Stetson ☐ Client Drop Off ☐ Tes		her	
	Multiple Coolers 🖸 Foam Box [ner	
 Were custody seals or 	n the outside of the cooler(s)? Yes 🔎 No 🗌	Intact? Yes 🗗 N	o 🗌 NA 🗀]
If YES, Quantity				
,	n the outside of cooler(s) signed and dated?		o 🗌 NA 🗀] •]
Were custody seals or	·	Yes 🗌 N	o 🗗	
If YES, are there any e		· —		
2. Shippers' packing slip	, · ·	Yes 🗌 N		_
	company the sample(s)? Yes ☑ No ☐	Relinquished by c		No 📋
	ers signed in the appropriate place?	Yes ∕☐ N	∘ ∐	
	• • — — —	Other		
	on receipt°C See back of form	n for multiple coolers/ten	nps 🗹	
METHOD: IR				
COOLANT: Wet Ice		None 🗌		
	good condition (Unbroken)?	Yes 🛭 N	=	
	be reconciled with the COC?	Yes 🛮 N		,
9. Were sample(s) at the	· · ·	Yes N	= -	J
	used for the test(s) indicated?	Yes 🛭 N		,
11. Were air bubbles >6 m		=	NA []
	eived to perform indicated analyses?	Yes N		
	ent in the cooler(s)? Yes \(\bar{\cup} \) No \(\bar{\cup} \) Were V			
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Concerning	/			
14. CHAIN OF CUSTODY				
The following discrepancie	is occurred.			
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15. SAMPLE CONDITION				
Sample(s)	were received after	the recommended holding		
Sample(s)		were received in		
Sample(s)		with bubble >6 mm in di	ameter. (Noti	fy PM)
16. SAMPLE PRESERVA	IION			
Sample(s)		_ were further preserved		
	nended pH level(s). Nitric Acid Lot# 100110-HNO3			ım
	DH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hyd t time was preservative added to sample(s)?	Iroxide and Zinc Acetate Li	л# 100108-	
Client ID	pH		Date I	nitials
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GCMS VOLATILE DATA

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC/MS Volatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1AA Matrix.....: WQ

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11
Prep Date.....: 04/15/11 Analysis Date..: 04/15/11

Prep Batch #...: 1105156

Method....: SW846 8260B

		REPORTING	
PARAMETER	RESULT	LIMIT	<u>UNITS</u>
Bromochloromethane	ND	1.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
o-Xylene	ND	1.0	ug/L
m-Xylene & p-Xylene	ND	2.0	ug/L
Chloromethane	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Methylene chloride	ND	2.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene	ND	1.0	ug/L
(total)			
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L

(Continued on next page)

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC/MS Volatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1AA Matrix.....: WQ

PARAMETER Styrene Xylenes (total)	RESULT ND ND	REPORTING LIMIT 1.0 2.0	UNITS ug/L ug/L
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
Dibromofluoromethane	88	(50 - 150)	
1,2-Dichloroethane-d4	86	(50 - 150)	
Toluene-d8	78	(50 - 150)	
4-Bromofluorobenzene	77	(50 - 150)	

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AA Matrix.....: WATER

MB Lot-Sample #: A1D150000-156

Prep Date.....: 04/15/11 Final Wgt/Vol..: 5 mL

Analysis Date..: 04/15/11 Prep Batch #...: 1105156
Dilution Factor: 1 Initial Wgt/Vol: 5 mL

REPORTING

Bromochloromethane ND 1.0 ug/L SW846 8260B 1,2-Dibromoethane ND 1.0 ug/L SW846 8260B cis-1,2-Dichloroethene ND 1.0 ug/L SW846 8260B trans-1,2-Dichloroethene ND 1.0 ug/L SW846 8260B o-Xylene ND 1.0 ug/L SW846 8260B m-Xylene & p-Xylene ND 2.0 ug/L SW846 8260B Chloromethane ND 1.0 ug/L SW846 8260B Svinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 2.0 ug/L SW846 8260B Acetone ND 10 ug/L SW846 8260B
cis-1,2-Dichloroethene ND 1.0 ug/L SW846 8260B trans-1,2-Dichloroethene ND 1.0 ug/L SW846 8260B o-Xylene ND 1.0 ug/L SW846 8260B m-Xylene & p-Xylene ND 2.0 ug/L SW846 8260B Chloromethane ND 1.0 ug/L SW846 8260B Bromomethane ND 1.0 ug/L SW846 8260B Vinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 1.0 ug/L SW846 8260B
trans-1,2-Dichloroethene ND 1.0 ug/L SW846 8260B o-Xylene ND 1.0 ug/L SW846 8260B m-Xylene & p-Xylene ND 2.0 ug/L SW846 8260B Chloromethane ND 1.0 ug/L SW846 8260B Bromomethane ND 1.0 ug/L SW846 8260B Vinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 2.0 ug/L SW846 8260B
o-Xylene ND 1.0 ug/L SW846 8260B m-Xylene & p-Xylene ND 2.0 ug/L SW846 8260B Chloromethane ND 1.0 ug/L SW846 8260B Bromomethane ND 1.0 ug/L SW846 8260B Vinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 2.0 ug/L SW846 8260B
m-Xylene & p-Xylene ND 2.0 ug/L SW846 8260B Chloromethane ND 1.0 ug/L SW846 8260B Bromomethane ND 1.0 ug/L SW846 8260B Vinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 J 2.0 ug/L SW846 8260B
Chloromethane ND 1.0 ug/L SW846 8260B Bromomethane ND 1.0 ug/L SW846 8260B Vinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 J 2.0 ug/L SW846 8260B
Bromomethane ND 1.0 ug/L SW846 8260B Vinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 2.0 ug/L SW846 8260B
Vinyl chloride ND 1.0 ug/L SW846 8260B Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 J 2.0 ug/L SW846 8260B
Chloroethane ND 1.0 ug/L SW846 8260B Methylene chloride 1.0 J 2.0 ug/L SW846 8260B
Methylene chloride 1.0 J 2.0 ug/L SW846 8260B
Acetone ND 10 ug/L SW846 8260B
Carbon disulfide ND 1.0 ug/L SW846 8260B
1,1-Dichloroethene ND 1.0 ug/L SW846 8260B
1,1-Dichloroethane ND 1.0 ug/L SW846 8260B
1,2-Dichloroethene ND 1.0 ug/L SW846 8260B
(total)
Chloroform ND 1.0 ug/L SW846 8260B
1,2-Dichloroethane ND 1.0 ug/L SW846 8260B
2-Butanone ND 10 ug/L SW846 8260B
1,1,1-Trichloroethane ND 1.0 ug/L SW846 8260B
Carbon tetrachloride ND 1.0 ug/L SW846 8260B
Bromodichloromethane ND 1.0 ug/L SW846 8260B
1,2-Dichloropropane ND 1.0 ug/L SW846 8260B
cis-1,3-Dichloropropene ND 1.0 ug/L SW846 8260B
Trichloroethene ND 1.0 ug/L SW846 8260B
Dibromochloromethane ND 1.0 ug/L SW846 8260B
1,1,2-Trichloroethane ND 1.0 ug/L SW846 8260B
Benzene ND 1.0 ug/L SW846 8260B
trans-1,3-Dichloropropene ND 1.0 ug/L SW846 8260B
Bromoform ND 1.0 ug/L SW846 8260B
4-Methyl-2-pentanone ND 10 ug/L SW846 8260B
2-Hexanone ND 10 ug/L SW846 8260B
Tetrachloroethene ND 1.0 ug/L SW846 8260B
1,1,2,2-Tetrachloroethane ND 1.0 ug/L SW846 8260B
Toluene ND 1.0 ug/L SW846 8260B
Chlorobenzene ND 1.0 ug/L SW846 8260B
Ethylbenzene ND 1.0 ug/L SW846 8260B
Styrene ND 1.0 ug/L SW846 8260B
Xylenes (total) ND 2.0 ug/L SW846 8260B

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #: A1D070566	.: AlD070566 Work Order #: MG3AC1AA Matrix: WATER		Matrix: WATER
PARAMETER	RESULT	REPORTING LIMIT UNITS	METHOD
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	<u>LIMITS</u>	
Dibromofluoromethane	86	(50 - 150)	
1,2-Dichloroethane-d4	82	(50 - 150)	
Toluene-d8	79	(50 - 150)	
4-Bromofluorobenzene	81	(50 - 150)	
NOTE(S):			

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D150000-156

Prep Batch #...: 1105156

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 5 mL

	PERCENT	RECOVERY	
PARAMETER	<u>RECOVERY</u>	LIMITS	METHOD
m-Xylene & p-Xylene	103	(75 - 122)	SW846 8260B
o-Xylene	105	(75 - 118)	SW846 8260B
cis-1,2-Dichloroethene	102	(73 - 133)	SW846 8260B
trans-1,2-Dichloroethene	107	(75 - 134)	SW846 8260B
1,2-Dibromoethane	105	(75 - 127)	SW846 8260B
Bromochloromethane	103	(75 - 127)	SW846 8260B
Chloromethane	99	(58 - 135)	SW846 8260B
Bromomethane	102	(35 - 153)	SW846 8260B
Vinyl chloride	95	(73 - 134)	SW846 8260B
Chloroethane	107	(72 - 129)	SW846 8260B
Methylene chloride	130 a	(69 - 118)	SW846 8260B
Acetone	99	(51 - 157)	SW846 8260B
Carbon disulfide	130 a	(74 - 123)	SW846 8260B
1,1-Dichloroethene	116	(75 - 125)	SW846 8260B
1,1-Dichloroethane	105	(75 - 133)	SW846 8260B
1,2-Dichloroethene	105	(85 - 111)	SW846 8260B
(total)			
Chloroform	104	(74 - 127)	SW846 8260B
1,2-Dichloroethane	106	(67 - 132)	SW846 8260B
2-Butanone	108	(45 - 150)	SW846 8260B
1,1,1-Trichloroethane	104	(70 - 127)	SW846 8260B
Carbon tetrachloride	106	(71 - 132)	SW846 8260B
Bromodichloromethane	108	(70 - 130)	SW846 8260B
1,2-Dichloropropane	106	(75 - 127)	SW846 8260B
cis-1,3-Dichloropropene	105	(73 - 132)	SW846 8260B
Trichloroethene	100	(67 - 128)	SW846 8260B
Dibromochloromethane	106	(74 - 145)	SW846 8260B
1,1,2-Trichloroethane	106	(75 - 136)	SW846 8260B
Benzene	104	(75 - 126)	SW846 8260B
trans-1,3-Dichloropropene	116	(74 - 131)	SW846 8260B
Bromoform	108	(72 - 136)	SW846 8260B
4-Methyl-2-pentanone	116	(59 - 150)	SW846 8260B
2-Hexanone	115	(53 - 139)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D150000-156

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
Tetrachloroethene	94	(75 - 129)	SW846 8260B
1,1,2,2-Tetrachloroethane	100	(68 - 129)	SW846 8260B
Toluene	102	(75 - 125)	SW846 8260B
Chlorobenzene	99	(75 - 127)	SW846 8260B
Ethylbenzene	102	(75 - 120)	SW846 8260B
Styrene	111	(75 - 130)	SW846 8260B
Xylenes (total)	104	(90 - 114)	SW846 8260B
n-Hexane	85	(69 - 129)	SW846 8260B
1,2-Dibromo-3-chloro-	71 a	(75 - 132)	SW846 8260B
propane			
1,2-Dichlorobenzene	98	(73 - 120)	SW846 8260B
1,3-Dichlorobenzene	95	(75 - 122)	SW846 8260B
1,4-Dichlorobenzene	95	(74 - 123)	SW846 8260B
Dichlorodifluoromethane	53 a	(59 - 134)	SW846 8260B
Freon 113	105	(50 - 150)	SW846 8260B
Isopropylbenzene	100	(75 - 126)	SW846 8260B
Methyl acetate	107	(60 - 140)	SW846 8260B
Methylcyclohexane	88	(60 - 140)	SW846 8260B
Methyl tert-butyl ether	104	(59 - 129)	SW846 8260B
(MTBE)			
1,2,4-Trichloro-	57 a	(75 - 130)	SW846 8260B
benzene			
Trichlorofluoromethane	130	(68 - 133)	SW846 8260B
Acrolein	127	(50 - 150)	SW846 8260B
Acrylonitrile	110	(50 - 150)	SW846 8260B
n-Butylbenzene	90	(75 - 126)	SW846 8260B
sec-Butylbenzene	87	(75 - 125)	SW846 8260B
tert-Butylbenzene	85	(75 - 125)	SW846 8260B
2-Chlorotoluene	89	(75 - 121)	SW846 8260B
4-Chlorotoluene	92	(73 - 127)	SW846 8260B
Dibromomethane	109	(76 - 132)	SW846 8260B
1,3-Dichloropropane	105	(75 - 133)	SW846 8260B
2,2-Dichloropropane	103	(62 - 134)	SW846 8260B
1,1-Dichloropropene	101	(75 - 135)	SW846 8260B
Hexachlorobutadiene	54 a	(75 - 133)	SW846 8260B
Iodomethane	137	(50 - 150)	SW846 8260B
p-Isopropyltoluene	92	(75 - 125)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D150000-156

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
Naphthalene	53 a	(65 - 149)	SW846 8260B
n-Propylbenzene	91	(75 - 127)	SW846 8260B
1,1,1,2-Tetrachloroethane	106	(75 - 127)	SW846 8260B
1,2,3-Trichlorobenzene	50 a	(75 - 133)	SW846 8260B
1,2,3-Trichloropropane	96	(65 - 139)	SW846 8260B
1,1,2-Trichloro-	105	(50 - 150)	SW846 8260B
1,2,2-trifluoroethane			
1,2,4-Trimethylbenzene	95	(75 - 123)	SW846 8260B
1,3,5-Trimethylbenzene	90	(75 - 121)	SW846 8260B
Vinyl acetate	135	(30 - 150)	SW846 8260B
Bromobenzene	89	(74 - 123)	SW846 8260B
		PERCENT	RECOVERY
SURROGATE		RECOVERY	<u>LIMITS</u>
Dibromofluoromethane		81	(50 - 150)
1,2-Dichloroethane-d4		81	(50 - 150)
Toluene-d8		82	(50 - 150)
4-Bromofluorobenzene		98	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D150000-156

Prep Batch #...: 1105156

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 5 mL

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	<u>AMOUNT</u>	UNITS	<u>RECOVERY</u>	METHOD
m-Xylene & p-Xylene	20	21	ug/L	103	SW846 8260B
o-Xylene	10	11	ug/L	105	SW846 8260B
cis-1,2-Dichloroethene	10	10	ug/L	102	SW846 8260B
trans-1,2-Dichloroethene	10	11	ug/L	107	SW846 8260B
1,2-Dibromoethane	10	10	ug/L	105	SW846 8260B
Bromochloromethane	10	10	ug/L	103	SW846 8260B
Chloromethane	10	9.9	ug/L	99	SW846 8260B
Bromomethane	10	10	ug/L	102	SW846 8260B
Vinyl chloride	10	9.5	ug/L	95	SW846 8260B
Chloroethane	10	11	ug/L	107	SW846 8260B
Methylene chloride	10	13 a	ug/L	130	SW846 8260B
Acetone	20	20	ug/L	99	SW846 8260B
Carbon disulfide	10	13 a	ug/L	130	SW846 8260B
1,1-Dichloroethene	10	12	ug/L	116	SW846 8260B
1,1-Dichloroethane	10	10	ug/L	105	SW846 8260B
1,2-Dichloroethene	20	21	ug/L	105	SW846 8260B
(total)					
Chloroform	10	10	ug/L	104	SW846 8260B
1,2-Dichloroethane	10	11	ug/L	106	SW846 8260B
2-Butanone	20	22	ug/L	108	SW846 8260B
1,1,1-Trichloroethane	10	10	ug/L	104	SW846 8260B
Carbon tetrachloride	10	11	ug/L	106	SW846 8260B
Bromodichloromethane	10	11	ug/L	108	SW846 8260B
1,2-Dichloropropane	10	11	ug/L	106	SW846 8260B
cis-1,3-Dichloropropene	10	11	ug/L	105	SW846 8260B
Trichloroethene	10	10	ug/L	100	SW846 8260B
Dibromochloromethane	10	11	ug/L	106	SW846 8260B
1,1,2-Trichloroethane	10	11	ug/L	106	SW846 8260B
Benzene	10	10	ug/L	104	SW846 8260B
trans-1,3-Dichloropropene	10	12	ug/L	116	SW846 8260B
Bromoform	10	11	ug/L	108	SW846 8260B
4-Methyl-2-pentanone	20	23	ug/L	116	SW846 8260B
2-Hexanone	20	23	ug/L	115	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D150000-156

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
Tetrachloroethene	10	9.4	ug/L	94	SW846 8260B
1,1,2,2-Tetrachloroethane	10	10	ug/L	100	SW846 8260B
Toluene	10	10	ug/L	102	SW846 8260B
Chlorobenzene	10	9.9	ug/L	99	SW846 8260B
Ethylbenzene	10	10	ug/L	102	SW846 8260B
Styrene	10	11	ug/L	111	SW846 8260B
Xylenes (total)	30	31	ug/L	104	SW846 8260B
n-Hexane	10	8.5	ug/L	85	SW846 8260B
1,2-Dibromo-3-chloro-	10	7.1 a	ug/L	71	SW846 8260B
propane					
1,2-Dichlorobenzene	10	9.8	ug/L	98	SW846 8260B
1,3-Dichlorobenzene	10	9.5	ug/L	95	SW846 8260B
1,4-Dichlorobenzene	10	9.5	ug/L	95	SW846 8260B
Dichlorodifluoromethane	10	5.3 a	ug/L	53	SW846 8260B
Freon 113	10	11	ug/L	105	SW846 8260B
Isopropylbenzene	10	10	ug/L	100	SW846 8260B
Methyl acetate	10	11	ug/L	107	SW846 8260B
Methylcyclohexane	10	8.8	ug/L	88	SW846 8260B
Methyl tert-butyl ether	10	10	ug/L	104	SW846 8260B
(MTBE)					
1,2,4-Trichloro-	10	5.7 a	ug/L	57	SW846 8260B
benzene					
Trichlorofluoromethane	10	13	ug/L	130	SW846 8260B
Acrolein	30	38	ug/L	127	SW846 8260B
Acrylonitrile	30	33	ug/L	110	SW846 8260B
n-Butylbenzene	10	9.0	ug/L	90	SW846 8260B
sec-Butylbenzene	10	8.7	ug/L	87	SW846 8260B
tert-Butylbenzene	10	8.5	ug/L	85	SW846 8260B
2-Chlorotoluene	10	8.9	ug/L	89	SW846 8260B
4-Chlorotoluene	10	9.2	ug/L	92	SW846 8260B
Dibromomethane	10	11	ug/L	109	SW846 8260B
1,3-Dichloropropane	10	10	ug/L	105	SW846 8260B
2,2-Dichloropropane	10	10	ug/L	103	SW846 8260B
1,1-Dichloropropene	10	10	ug/L	101	SW846 8260B
Hexachlorobutadiene	10	5.4 a	ug/L	54	SW846 8260B
Iodomethane	10	14	ug/L	137	SW846 8260B
p-Isopropyltoluene	10	9.2	ug/L	92	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D150000-156

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
Naphthalene	10	5.3 a	ug/L	53	SW846 8260B
n-Propylbenzene	10	9.1	ug/L	91	SW846 8260B
1,1,1,2-Tetrachloroethane	10	11	ug/L	106	SW846 8260B
1,2,3-Trichlorobenzene	10	5.0 a	ug/L	50	SW846 8260B
1,2,3-Trichloropropane	10	9.6	ug/L	96	SW846 8260B
1,1,2-Trichloro-	10	11	ug/L	105	SW846 8260B
1,2,2-trifluoroethane					
1,2,4-Trimethylbenzene	10	9.5	ug/L	95	SW846 8260B
1,3,5-Trimethylbenzene	10	9.0	ug/L	90	SW846 8260B
Vinyl acetate	10	13	ug/L	135	SW846 8260B
Bromobenzene	10	8.9	ug/L	89	SW846 8260B
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS	_	
Dibromofluoromethane		81	(50 - 150)	
1,2-Dichloroethane-d4		81	(50 - 150)	
Toluene-d8		82	(50 - 150)	
4-Bromofluorobenzene		98	(50 - 150)	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date....: 04/15/11 Analysis Date..: 04/15/11

Prep Batch #...: 1105156

Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
cis-1,2-Dichloroethene	101	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.04	(0-30)	SW846 8260B
trans-1,2-Dichloroethene	106	(70 - 130)			SW846 8260B
	105	(70 - 130)	0.99	(0-30)	SW846 8260B
1,2-Dibromoethane	103	(70 - 130)			SW846 8260B
	99	(70 - 130)	3.5	(0-30)	SW846 8260B
Bromochloromethane	103	(70 - 130)			SW846 8260B
	108	(70 - 130)	3.8	(0-30)	SW846 8260B
m-Xylene & p-Xylene	99	(70 - 130)			SW846 8260B
	91	(70 - 130)	7.9	(0-30)	SW846 8260B
o-Xylene	101	(70 - 130)			SW846 8260B
	95	(70 - 130)	6.3	(0-30)	SW846 8260B
Chloromethane	82	(70 - 130)			SW846 8260B
	91	(70 - 130)	11	(0-30)	SW846 8260B
Bromomethane	76	(70 - 130)			SW846 8260B
	69 a	(70 - 130)	9.2	(0-30)	SW846 8260B
Vinyl chloride	100	(70 - 130)			SW846 8260B
	101	(70 - 130)	1.4	(0-30)	SW846 8260B
Chloroethane	109	(70 - 130)			SW846 8260B
	104	(70 - 130)	4.4	(0-30)	SW846 8260B
Methylene chloride	121	(70 - 130)			SW846 8260B
	119	(70 - 130)	1.5	(0-30)	SW846 8260B
Acetone	103	(70 - 130)			SW846 8260B
	107	(70 - 130)	3.5	(0-30)	SW846 8260B
Carbon disulfide	151 a	(70 - 130)			SW846 8260B
	142 a	(70 - 130)	5.8	(0-30)	SW846 8260B
1,1-Dichloroethene	123	(70 - 130)			SW846 8260B
	119	(70 - 130)	3.0	(0-30)	SW846 8260B
1,1-Dichloroethane	103	(70 - 130)			SW846 8260B
	103	(70 - 130)	0.08	(0-30)	SW846 8260B
<pre>1,2-Dichloroethene (total)</pre>	103	(70 - 130)			SW846 8260B
	103	(70 - 130)	0.48	(0-30)	SW846 8260B
Chloroform	102	(70 - 130)			SW846 8260B
	100	(70 - 130)	2.1	(0-30)	SW846 8260B
1,2-Dichloroethane	106	(70 - 130)			SW846 8260B
	104	(70 - 130)	1.8	(0-30)	SW846 8260B
2-Butanone	111	(70 - 130)			SW846 8260B
	115	(70 - 130)	3.1	(0-30)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
	1120012112				
1,1,1-Trichloroethane	104	(70 - 130)			SW846 8260B
	101	(70 - 130)	2.3	(0-30)	SW846 8260B
Carbon tetrachloride	105	(70 - 130)			SW846 8260B
	100	(70 - 130)	5.0	(0-30)	SW846 8260B
Bromodichloromethane	108	(70 - 130)			SW846 8260B
	105	(70 - 130)	3.2	(0-30)	SW846 8260B
1,2-Dichloropropane	102	(70 - 130)			SW846 8260B
	103	(70 - 130)	0.81	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	96	(70 - 130)			SW846 8260B
	98	(70 - 130)	2.8	(0-30)	SW846 8260B
Trichloroethene	99	(70 - 130)			SW846 8260B
	97	(70 - 130)	1.5	(0-30)	SW846 8260B
Dibromochloromethane	104	(70 - 130)			SW846 8260B
	101	(70 - 130)	3.0	(0-30)	SW846 8260B
1,1,2-Trichloroethane	102	(70 - 130)			SW846 8260B
	98	(70 - 130)	4.0	(0-30)	SW846 8260B
Benzene	104	(70 - 130)			SW846 8260B
	102	(70 - 130)	2.0	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	106	(70 - 130)			SW846 8260B
	103	(70 - 130)	2.4	(0-30)	SW846 8260B
Bromoform	102	(70 - 130)			SW846 8260B
	99	(70 - 130)	2.4	(0-30)	SW846 8260B
4-Methyl-2-pentanone	115	(70 - 130)			SW846 8260B
	116	(70 - 130)	1.1	(0-30)	SW846 8260B
2-Hexanone	113	(70 - 130)			SW846 8260B
	114	(70 - 130)	0.93	(0-30)	SW846 8260B
Tetrachloroethene	91	(70 - 130)			SW846 8260B
	82	(70 - 130)	10	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	96	(70 - 130)			SW846 8260B
	95	(70 - 130)	1.2	(0-30)	SW846 8260B
Toluene	98	(70 - 130)			SW846 8260B
	93	(70 - 130)	4.3	(0-30)	SW846 8260B
Chlorobenzene	94	(70 - 130)			SW846 8260B
	91	(70 - 130)	3.6	(0-30)	SW846 8260B
Ethylbenzene	98	(70 - 130)			SW846 8260B
	91	(70 - 130)	7.0	(0-30)	SW846 8260B
Styrene	105	(70 - 130)			SW846 8260B
_	100	(70 - 130)	4.6	(0-30)	SW846 8260B
Xylenes (total)	99	(70 - 130)			SW846 8260B
	92	(70 - 130)	7.4	(0-30)	SW846 8260B
n-Hexane	70	(70 - 130)		-	SW846 8260B
	72	(70 - 130)	3.2	(0-30)	SW846 8260B
		•		•	

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
	TIDOO VIIII		1112		
Cyclohexane	92	(70 - 130)			SW846 8260B
-	86	(70 - 130)	6.8	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro-	76	(70 - 130)			SW846 8260B
propane					
	75	(70 - 130)	0.88	(0-30)	SW846 8260B
1,2-Dichlorobenzene	93	(70 - 130)			SW846 8260B
	92	(70 - 130)	1.7	(0-30)	SW846 8260B
1,3-Dichlorobenzene	89	(70 - 130)			SW846 8260B
	87	(70 - 130)	2.9	(0-30)	SW846 8260B
1,4-Dichlorobenzene	90	(70 - 130)			SW846 8260B
	88	(70 - 130)	1.4	(0-30)	SW846 8260B
Dichlorodifluoromethane	49 a	(70 - 130)			SW846 8260B
	49 a	(70 - 130)	0.20	(0-30)	SW846 8260B
Freon 113	98	(70 - 130)			SW846 8260B
	96	(70 - 130)	2.0	(0-30)	SW846 8260B
Isopropylbenzene	93	(70 - 130)			SW846 8260B
	87	(70 - 130)	6.2	(0-30)	SW846 8260B
Methyl acetate	97	(70 - 130)			SW846 8260B
	98	(70 - 130)	0.83	(0-30)	SW846 8260B
Methylcyclohexane	78	(70 - 130)			SW846 8260B
	75	(70 - 130)	4.1	(0-30)	SW846 8260B
Methyl tert-butyl ether (MTBE)	100	(70 - 130)			SW846 8260B
(MIBE)	102	(70 - 130)	2.5	(0-30)	SW846 8260B
	102	(70 130)	2.5	(0 30)	5W010 0200B
1,2,4-Trichloro-	54 a	(70 - 130)			SW846 8260B
benzene	31 u	(70 130)			54616 62665
201120110	54 a	(70 - 130)	0.40	(0-30)	SW846 8260B
		(10 _00,		() ()	2
Trichlorofluoromethane	124	(70 - 130)			SW846 8260B
	115	(70 - 130)	7.8	(0-30)	SW846 8260B
Acrolein	122	(70 - 130)			SW846 8260B
	125	(70 - 130)	3.0	(0-30)	SW846 8260B
Acrylonitrile	112	(70 - 130)			SW846 8260B
-	112	(70 - 130)	0.09	(0-30)	SW846 8260B
Bromobenzene	85	(70 - 130)		-	SW846 8260B
	82	(70 - 130)	3.2	(0-30)	SW846 8260B
n-Butylbenzene	78	(70 - 130)		-	SW846 8260B
-	76	(70 - 130)	2.6	(0-30)	SW846 8260B
sec-Butylbenzene	80	(70 - 130)		-	SW846 8260B
-	75	(70 - 130)	6.7	(0-30)	SW846 8260B
		•		•	

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
tert-Butylbenzene	79	(70 - 130)			SW846 8260B
•	75	(70 - 130)	5.8	(0-30)	SW846 8260B
2-Chlorotoluene	85	(70 - 130)			SW846 8260B
	82	(70 - 130)	4.1	(0-30)	SW846 8260B
4-Chlorotoluene	87	(70 - 130)			SW846 8260B
	85	(70 - 130)	2.5	(0-30)	SW846 8260B
Dibromomethane	110	(70 - 130)			SW846 8260B
	112	(70 - 130)	1.4	(0-30)	SW846 8260B
trans-1,4-Dichloro-	188 a	(70 - 130)			SW846 8260B
2-butene					
	164 a	(70 - 130)	14	(0-30)	SW846 8260B
1,3-Dichloropropane	101	(70 - 130)			SW846 8260B
	97	(70 - 130)	4.5	(0-30)	SW846 8260B
2,2-Dichloropropane	96	(70 - 130)			SW846 8260B
	95	(70 - 130)	1.3	(0-30)	SW846 8260B
1,1-Dichloropropene	99	(70 - 130)			SW846 8260B
	100	(70 - 130)	0.39	(0-30)	SW846 8260B
Ethyl methacrylate	0.0 a	(70 - 130)			SW846 8260B
	0.0 a	(70 - 130)	0.0	(0-30)	SW846 8260B
Hexachlorobutadiene	49 a	(70 - 130)			SW846 8260B
	4 7 a	(70 - 130)	4.6	(0-30)	SW846 8260B
Iodomethane	143 a	(70 - 130)			SW846 8260B
	139 a	(70 - 130)	2.4	(0-30)	SW846 8260B
p-Isopropyltoluene	85	(70 - 130)			SW846 8260B
	82	(70 - 130)	3.9	(0-30)	SW846 8260B
Naphthalene	49 a	(70 - 130)			SW846 8260B
	56 a	(70 - 130)	13	(0-30)	SW846 8260B
n-Propylbenzene	84	(70 - 130)			SW846 8260B
	81	(70 - 130)	4.5	(0-30)	SW846 8260B
1,1,1,2-Tetrachloroethane		(70 - 130)			SW846 8260B
	99	(70 - 130)	3.1	(0-30)	SW846 8260B
1,2,3-Trichlorobenzene	50 a	(70 - 130)			SW846 8260B
	53 a	(70 - 130)	5.9	(0-30)	SW846 8260B
1,2,3-Trichloropropane	98	(70 - 130)			SW846 8260B
	92	(70 - 130)	6.3	(0-30)	SW846 8260B
1,1,2-Trichloro-	98	(70 - 130)			SW846 8260B
1,2,2-trifluoroethane					
	96	(70 - 130)	2.0	(0-30)	SW846 8260B
1,2,4-Trimethylbenzene	90	(70 - 130)			SW846 8260B
	86	(70 - 130)	5.3	(0-30)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD_	RPD LIMITS	METHOD	
1,3,5-Trimethylbenzene	86	(70 - 130)	6.5	(0.20)	SW846 826	
Vinyl acetate	80 118	(70 - 130) (70 - 130)	6.7	(0-30)	SW846 826 SW846 826	
vinyi decedee	106	(70 - 130)	10	(0-30)	SW846 826	
tert-Butyl alcohol	104	(70 - 130)			SW846 826	0В
	112	(70 - 130)	6.8	(0-30)	SW846 826	0В
		PERCENT		RECOVERY		
SURROGATE	_	RECOVERY		LIMITS	_	
Dibromofluoromethane		86		(50 - 150)	
		84		(50 - 150)	
1,2-Dichloroethane-d4		86		(50 - 150)	
		81		(50 - 150)	
Toluene-d8		80		(50 - 150)	
		81		(50 - 150)	
4-Bromofluorobenzene		98		(50 - 150)	
		95		(50 - 150)	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date.....: 04/15/11 Analysis Date..: 04/15/11

Prep Batch #...: 1105156

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOI	D
cis-1,2-Dichloroethene	ND	10	10	ug/L	101		SW846	8260B
	ND	10	10	ug/L	101	0.04	SW846	
trans-1,2-Dichloroethene	ND	10	11	ug/L	106		SW846	8260B
	ND	10	10	ug/L	105	0.99	SW846	8260B
1,2-Dibromoethane	ND	10	10	ug/L	103			8260B
	ND	10	9.9	ug/L	99	3.5	SW846	8260B
Bromochloromethane	ND	10	10	ug/L	103		SW846	8260B
	ND	10	11	ug/L	108	3.8	SW846	8260B
m-Xylene & p-Xylene	ND	20	20	ug/L	99		SW846	8260B
	ND	20	18	ug/L	91	7.9	SW846	8260B
o-Xylene	ND	10	10	ug/L	101		SW846	8260B
	ND	10	9.5	ug/L	95	6.3	SW846	8260B
Chloromethane	ND	10	8.2	ug/L	82		SW846	8260B
	ND	10	9.1	ug/L	91	11	SW846	8260B
Bromomethane	ND	10	7.6	ug/L	76		SW846	8260B
	ND	10	6.9	ug/L	69 a	9.2	SW846	8260B
Vinyl chloride	ND	10	10	ug/L	100		SW846	8260B
	ND	10	10	ug/L	101	1.4	SW846	8260B
Chloroethane	ND	10	11	ug/L	109		SW846	8260B
	ND	10	10	ug/L	104	4.4	SW846	8260B
Methylene chloride	ND	10	12	ug/L	121		SW846	8260B
	ND	10	12	ug/L	119	1.5	SW846	8260B
Acetone	ND	20	21	ug/L	103		SW846	8260B
	ND	20	21	ug/L	107	3.5	SW846	8260B
Carbon disulfide	ND	10	15	ug/L	151 a		SW846	8260B
	ND	10	14	ug/L	142 a	5.8	SW846	8260B
1,1-Dichloroethene	ND	10	12	ug/L	123		SW846	8260B
	ND	10	12	ug/L	119	3.0	SW846	8260B
1,1-Dichloroethane	ND	10	10	ug/L	103		SW846	8260B
	ND	10	10	ug/L	103	0.08	SW846	8260B
1,2-Dichloroethene	ND	20	21	ug/L	103		SW846	8260B
(total)								
	ND	20	21	ug/L	103	0.48	SW846	8260B
Chloroform	ND	10	10	ug/L	102			8260B
	ND	10	10	ug/L	100	2.1	SW846	8260B
1,2-Dichloroethane	ND	10	11	ug/L	106		SW846	8260B
	ND	10	10	ug/L	104	1.8		8260B
2-Butanone	ND	20	22	ug/L	111			8260B
	ND	20	23	ug/L	115	3.1	SW846	8260в

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GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

	CAMDIE	CDIKE	MEACDD		PERCNT			
	SAMPLE	SPIKE	MEASRD	TINITO	_	חחח	MERTIOD	
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD	
1,1,1-Trichloroethane	ND	10	10	ug/L	104		SW846	8260B
1,1,1 IIIOIIOIOCCIIAIIC	ND	10	10	ug/L	101	2.3	SW846	
Carbon tetrachloride	ND	10	10	ug/L	105	2.5	SW846	
carbon eccraonioriae	ND	10	10	ug/L	100	5.0	SW846	
Bromodichloromethane	ND	10	11	ug/L	108		SW846	
	ND	10	10	ug/L	105	3.2	SW846	
1,2-Dichloropropane	ND	10	10	ug/L	102		SW846	
-,	ND	10	10	ug/L	103	0.81	SW846	
cis-1,3-Dichloropropene	ND	10	9.6	ug/L	96		SW846	
	ND	10	9.8	ug/L	98	2.8	SW846	
Trichloroethene	ND	10	9.9	ug/L	99		SW846	
	ND	10	9.7	ug/L	97	1.5	SW846	
Dibromochloromethane	ND	10	10	ug/L	104		SW846	
	ND	10	10	ug/L	101	3.0	SW846	
1,1,2-Trichloroethane	ND	10	10	ug/L	102		SW846	
. ,	ND	10	9.8	ug/L	98	4.0	SW846	
Benzene	ND	10	10	ug/L	104		SW846	
	ND	10	10	ug/L	102	2.0	SW846	
trans-1,3-Dichloropropene	ND	10	11	ug/L	106		SW846	
	ND	10	10	ug/L	103	2.4	SW846	
Bromoform	ND	10	10	ug/L	102		SW846	8260в
	ND	10	9.9	ug/L	99	2.4	SW846	
4-Methyl-2-pentanone	ND	20	23	ug/L	115		SW846	
	ND	20	23	ug/L	116	1.1	SW846	8260B
2-Hexanone	ND	20	23	ug/L	113		SW846	8260B
	ND	20	23	ug/L	114	0.93	SW846	8260B
Tetrachloroethene	ND	10	9.1	ug/L	91		SW846	8260B
	ND	10	8.2	ug/L	82	10	SW846	8260B
1,1,2,2-Tetrachloroethane	ND	10	9.6	ug/L	96		SW846	8260B
	ND	10	9.5	ug/L	95	1.2	SW846	8260B
Toluene	ND	10	9.8	ug/L	98		SW846	8260B
	ND	10	9.3	ug/L	93	4.3	SW846	8260B
Chlorobenzene	ND	10	9.4	ug/L	94		SW846	8260B
	ND	10	9.1	ug/L	91	3.6	SW846	8260B
Ethylbenzene	ND	10	9.8	ug/L	98		SW846	8260B
	ND	10	9.1	ug/L	91	7.0	SW846	8260B
Styrene	ND	10	10	ug/L	105		SW846	8260B
	ND	10	10	ug/L	100	4.6	SW846	8260B
Xylenes (total)	ND	30	30	ug/L	99		SW846	8260B
	ND	30	28	ug/L	92	7.4	SW846	8260B
n-Hexane	ND	10	7.0	ug/L	70		SW846	8260B
	ND	10	7.2	ug/L	72	3.2	SW846	8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

SAMPLE SPIKE MEASRD PERCNT <u>PARAMETER AMOUNT AMT AMOUNT UNITS RECVRY RPD METHOD</u>	
PARAMETER AMOUNT AMT AMOUNT UNITS RECVRY RPD METHOD	
Cyclohexane ND 10 9.2 ug/L 92 SW846 8260B	
ND 10 8.6 ug/L 86 6.8 SW846 8260B	
1,2-Dibromo-3-chloro- ND 10 7.6 ug/L 76 SW846 8260B	
propane	
ND 10 7.5 ug/L 75 0.88 SW846 8260B	
1,2-Dichlorobenzene ND 10 9.3 ug/L 93 SW846 8260B	
ND 10 9.2 ug/L 92 1.7 SW846 8260B	
1,3-Dichlorobenzene ND 10 8.9 ug/L 89 SW846 8260B	
ND 10 8.7 ug/L 87 2.9 SW846 8260B	
1,4-Dichlorobenzene ND 10 9.0 ug/L 90 SW846 8260B	
ND 10 8.8 ug/L 88 1.4 SW846 8260B	
Dichlorodifluoromethane ND 10 4.9 ug/L 49 a SW846 8260B	
ND 10 4.9 ug/L 49 a 0.20 SW846 8260B	
Freon 113 ND 10 9.8 ug/L 98 SW846 8260B	
ND 10 9.6 ug/L 96 2.0 SW846 8260B	
-	
-	
5.	
Methylcyclohexane ND 10 7.8 ug/L 78 SW846 8260B	
ND 10 7.5 ug/L 75 4.1 SW846 8260B	
Methyl tert-butyl ether ND 10 10 ug/L 100 SW846 8260B (MTBE)	
ND 10 10 ug/L 102 2.5 SW846 8260B	
1,2,4-Trichloro- ND 10 5.4 ug/L 54 a SW846 8260B benzene	
ND 10 5.4 ug/L 54 a 0.40 SW846 8260B	
Trichlorofluoromethane ND 10 12 ug/L 124 SW846 8260B	
ND 10 11 ug/L 115 7.8 SW846 8260B	
Acrolein ND 30 36 ug/L 122 SW846 8260B	
ND 30 38 ug/L 125 3.0 SW846 8260B	
Acrylonitrile ND 30 34 ug/L 112 SW846 8260B	
ND 30 34 ug/L 112 0.09 SW846 8260B	
Bromobenzene ND 10 8.5 ug/L 85 SW846 8260B	
ND 10 8.2 ug/L 82 3.2 SW846 8260B	
n-Butylbenzene ND 10 7.8 ug/L 78 SW846 8260B	
ND 10 7.6 ug/L 76 2.6 SW846 8260B	
sec-Butylbenzene ND 10 8.0 ug/L 80 SW846 8260B	
ND 10 7.5 ug/L 75 6.7 SW846 8260B	

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GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOI	
tert-Butylbenzene	ND	10	7.9	ug/L	79		SW846	8260B
•	ND	10	7.5	ug/L	75	5.8	SW846	
2-Chlorotoluene	ND	10	8.5	ug/L	85		SW846	
	ND	10	8.2	ug/L	82	4.1	SW846	
4-Chlorotoluene	ND	10	8.7	ug/L	87		SW846	8260B
	ND	10	8.5	ug/L	85	2.5	SW846	8260B
Dibromomethane	ND	10	11	ug/L	110		SW846	8260B
	ND	10	11	ug/L	112	1.4	SW846	8260B
trans-1,4-Dichloro-	ND	10	19	ug/L	188 a		SW846	8260B
2-butene								
	ND	10	16	ug/L	164 a	14	SW846	8260B
1,3-Dichloropropane	ND	10	10	ug/L	101		SW846	8260в
,	ND	10	9.7	ug/L	97	4.5	SW846	
2,2-Dichloropropane	ND	10	9.6	ug/L	96		SW846	
-,	ND	10	9.5	ug/L	95	1.3	SW846	
1,1-Dichloropropene	ND	10	9.9	ug/L	99		SW846	
_,	ND	10	10	ug/L	100	0.39	SW846	
Ethyl methacrylate	ND	10	0.0	ug/L	0.0 a		SW846	
//	ND	10	0.0	ug/L	0.0 a	0.0	SW846	
Hexachlorobutadiene	ND	10	4.9	ug/L	49 a		SW846	
	ND	10	4.7	ug/L	47 a	4.6	SW846	
Iodomethane	ND	10	14	ug/L	143 a		SW846	
	ND	10	14	ug/L	139 a	2.4	SW846	
p-Isopropyltoluene	ND	10	8.5	ug/L	85		SW846	
F ====================================	ND	10	8.2	ug/L	82	3.9	SW846	
Naphthalene	ND	10	4.9	ug/L	49 a		SW846	
	ND	10	5.6	ug/L	56 a	13	SW846	
n-Propylbenzene	ND	10	8.4	ug/L	84		SW846	
	ND	10	8.1	ug/L	81	4.5	SW846	
1,1,1,2-Tetrachloroethane		10	10	ug/L	102		SW846	
,,_,	ND	10	9.9	ug/L	99	3.1	SW846	
1,2,3-Trichlorobenzene	ND	10	5.0	ug/L	50 a		SW846	
,,	ND	10	5.3	ug/L	53 a	5.9	SW846	
1,2,3-Trichloropropane	ND	10	9.8	ug/L	98		SW846	
,,	ND	10	9.2	ug/L	92	6.3	SW846	
1,1,2-Trichloro-	ND	10	9.8	ug/L	98		SW846	
1,2,2-trifluoroethane					~ =		2	
, = , = ===============================	ND	10	9.6	ug/L	96	2.0	SW846	8260B
1,2,4-Trimethylbenzene	ND	10	9.0	ug/L	90		SW846	
	ND	10	8.6	ug/L	86	5.3	SW846	8260в

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AD-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS		PERCNT RECVRY	RPD	METHOI)	
1,3,5-Trimethylbenzene	ND	10	8.6	ug/L		86		SW846	8260B	
	ND	10	8.0	ug/L		80	6.7	SW846	8260B	
Vinyl acetate	ND	10	12	ug/L		118		SW846	8260B	
	ND	10	11	ug/L		106	10	SW846	8260B	
tert-Butyl alcohol	ND	200	210	ug/L		104		SW846	8260B	
	ND	200	220	ug/L		112	6.8	SW846	8260B	
SURROGATE			RCENT COVERY			COVERY				
	-						_			
Dibromofluoromethane		86 84			•	0 - 150 0 - 150	•			
1,2-Dichloroethane-d4		86	;		(50	0 - 150)			
		81	•		(50	0 - 150)			
Toluene-d8		80	1		(5)	0 - 150)			
		81	•		(5)	0 - 150)			
4-Bromofluorobenzene		98	}		(50	0 - 150)			
		95	,		(50	0 - 150)			
MOREL (C) •										

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/15/11 Analysis Date..: 04/15/11

Prep Batch #...: 1105156

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
cis-1,2-Dichloroethene	96	(70 - 130)			SW846 8260B
	101	(70 - 130)	4.4	(0-30)	SW846 8260B
trans-1,2-Dichloroethene	103	(70 - 130)			SW846 8260B
	103	(70 - 130)	0.33	(0-30)	SW846 8260B
1,2-Dibromoethane	102	(70 - 130)			SW846 8260B
	103	(70 - 130)	0.89	(0-30)	SW846 8260B
Bromochloromethane	101	(70 - 130)			SW846 8260B
	107	(70 - 130)	6.2	(0-30)	SW846 8260B
m-Xylene & p-Xylene	92	(70 - 130)			SW846 8260B
	93	(70 - 130)	0.66	(0-30)	SW846 8260B
o-Xylene	97	(70 - 130)			SW846 8260B
	96	(70 - 130)	0.63	(0-30)	SW846 8260B
Chloromethane	88	(70 - 130)			SW846 8260B
	90	(70 - 130)	2.2	(0-30)	SW846 8260B
Bromomethane	88	(70 - 130)			SW846 8260B
	89	(70 - 130)	1.9	(0-30)	SW846 8260B
Vinyl chloride	95	(70 - 130)			SW846 8260B
	99	(70 - 130)	4.0	(0-30)	SW846 8260B
Chloroethane	104	(70 - 130)			SW846 8260B
	107	(70 - 130)	2.4	(0-30)	SW846 8260B
Methylene chloride	119	(70 - 130)			SW846 8260B
	120	(70 - 130)	1.4	(0-30)	SW846 8260B
Acetone	102	(70 - 130)			SW846 8260B
	108	(70 - 130)	5.9	(0-30)	SW846 8260B
Carbon disulfide	135 a	(70 - 130)			SW846 8260B
	136 a	(70 - 130)	0.97	(0-30)	SW846 8260B
1,1-Dichloroethene	115	(70 - 130)			SW846 8260B
	116	(70 - 130)	1.7	(0-30)	SW846 8260B
1,1-Dichloroethane	99	(70 - 130)			SW846 8260B
	101	(70 - 130)	1.6	(0-30)	SW846 8260B
<pre>1,2-Dichloroethene (total)</pre>	100	(70 - 130)			SW846 8260B
	102	(70 - 130)	2.0	(0-30)	SW846 8260B
Chloroform	101	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.75	(0-30)	SW846 8260B
1,2-Dichloroethane	103	(70 - 130)	-	· · ·	SW846 8260B
	104	(70 - 130)	1.0	(0-30)	SW846 8260B
2-Butanone	109	(70 - 130)	-	· · ·	SW846 8260B
	113	(70 - 130)	3.8	(0-30)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	<u>RPD</u>	LIMITS	METHOD
	11200 12111				
1,1,1-Trichloroethane	100	(70 - 130)			SW846 8260B
	102	(70 - 130)	2.2	(0-30)	SW846 8260B
Carbon tetrachloride	103	(70 - 130)			SW846 8260B
	101	(70 - 130)	1.9	(0-30)	SW846 8260B
Bromodichloromethane	106	(70 - 130)			SW846 8260B
	105	(70 - 130)	0.48	(0-30)	SW846 8260B
1,2-Dichloropropane	104	(70 - 130)			SW846 8260B
	105	(70 - 130)	0.35	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	95	(70 - 130)			SW846 8260B
	98	(70 - 130)	3.2	(0-30)	SW846 8260B
Trichloroethene	96	(70 - 130)			SW846 8260B
	96	(70 - 130)	0.60	(0-30)	SW846 8260B
Dibromochloromethane	101	(70 - 130)			SW846 8260B
	103	(70 - 130)	1.8	(0-30)	SW846 8260B
1,1,2-Trichloroethane	99	(70 - 130)			SW846 8260B
	103	(70 - 130)	4.1	(0-30)	SW846 8260B
Benzene	100	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.75	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	107	(70 - 130)			SW846 8260B
	108	(70 - 130)	1.4	(0-30)	SW846 8260B
Bromoform	99	(70 - 130)			SW846 8260B
	100	(70 - 130)	1.8	(0-30)	SW846 8260B
4-Methyl-2-pentanone	120	(70 - 130)			SW846 8260B
	123	(70 - 130)	3.1	(0-30)	SW846 8260B
2-Hexanone	119	(70 - 130)			SW846 8260B
	119	(70 - 130)	0.59	(0-30)	SW846 8260B
Tetrachloroethene	85	(70 - 130)			SW846 8260B
	84	(70 - 130)	0.46	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	91	(70 - 130)			SW846 8260B
	98	(70 - 130)	7.0	(0-30)	SW846 8260B
Toluene	94	(70 - 130)			SW846 8260B
	95	(70 - 130)	1.0	(0-30)	SW846 8260B
Chlorobenzene	92	(70 - 130)			SW846 8260B
	92	(70 - 130)	0.42	(0-30)	SW846 8260B
Ethylbenzene	94	(70 - 130)			SW846 8260B
	96	(70 - 130)	2.2	(0-30)	SW846 8260B
Styrene	98	(70 - 130)			SW846 8260B
-	99	(70 - 130)	1.5	(0-30)	SW846 8260B
Xylenes (total)	94	(70 - 130)			SW846 8260B
-	94	(70 - 130)	0.22	(0-30)	SW846 8260B
n-Hexane	72	(70 - 130)		-	SW846 8260B
	74	(70 - 130)	1.7	(0-30)	SW846 8260B
		•		· ·	

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GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY_		RPD_	LIMITS	METHOD
PARAMETER	<u>RECOVERI</u>	<u>LIMITS</u>	<u>KPD</u>	TIMIIS	METHOD
Cyclohexane	87	(70 - 130)			SW846 8260B
o _f or orientatio	84	(70 - 130)	4.0	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro-	72	(70 - 130)	1.0	(0 30)	SW846 8260B
propane	12	(70 130)			5W010 0200B
proparic	71	(70 - 130)	1.5	(0-30)	SW846 8260B
	, _	(70 130)	1.5	(0 30)	5W010 0200B
1,2-Dichlorobenzene	87	(70 - 130)			SW846 8260B
	91	(70 - 130)	3.9	(0-30)	SW846 8260B
1,3-Dichlorobenzene	82	(70 - 130)			SW846 8260B
,	87	(70 - 130)	5.2	(0-30)	SW846 8260B
1,4-Dichlorobenzene	85	(70 - 130)		,	SW846 8260B
,	87	(70 - 130)	3.1	(0-30)	SW846 8260B
Dichlorodifluoromethane	50 a	(70 - 130)		(, , , ,	SW846 8260B
	46 a	(70 - 130)	8.8	(0-30)	SW846 8260B
Freon 113	98	(70 - 130)		(, , , ,	SW846 8260B
	99	(70 - 130)	1.5	(0-30)	SW846 8260B
Isopropylbenzene	87	(70 - 130)		(0 00)	SW846 8260B
-20F10F1-2011-0110	88	(70 - 130)	0.80	(0-30)	SW846 8260B
Methyl acetate	99	(70 - 130)	0.00	(0 30)	SW846 8260B
110011/1 0000000	95	(70 - 130)	4.0	(0-30)	SW846 8260B
Methylcyclohexane	79	(70 - 130)	1.0	(0 30)	SW846 8260B
neen, ro, cronenane	76	(70 - 130)	5.0	(0-30)	SW846 8260B
Methyl tert-butyl ether	103	(70 - 130)	3.0	(0 30)	SW846 8260B
(MTBE)		(10 _00)			
(/	104	(70 - 130)	1.1	(0-30)	SW846 8260B
		(10 _00)		(, , , ,	2
1,2,4-Trichloro-	55 a	(70 - 130)			SW846 8260B
benzene		(10 _00)			2
201120110	55 a	(70 - 130)	0.05	(0-30)	SW846 8260B
		(10 _00)		(, , , ,	2
Trichlorofluoromethane	117	(70 - 130)			SW846 8260B
	118	(70 - 130)	1.4	(0-30)	SW846 8260B
Acrolein	118	(70 - 130)		,	SW846 8260B
	117	(70 - 130)	0.99	(0-30)	SW846 8260B
Acrylonitrile	114	(70 - 130)			SW846 8260B
1	114	(70 - 130)	0.44	(0-30)	SW846 8260B
Bromobenzene	79	(70 - 130)		,	SW846 8260B
	84	(70 - 130)	5.6	(0-30)	SW846 8260B
n-Butylbenzene	74	(70 - 130)		,	SW846 8260B
4	76	(70 - 130)	2.8	(0-30)	SW846 8260B
sec-Butylbenzene	72	(70 - 130)			SW846 8260B
	75	(70 - 130)	3.8	(0-30)	SW846 8260B
	•			/	

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
	RECOVERE	штито	ICL D		
tert-Butylbenzene	72	(70 - 130)			SW846 8260B
	75	(70 - 130)	3.4	(0-30)	SW846 8260B
2-Chlorotoluene	77	(70 - 130)		, ,	SW846 8260B
	81	(70 - 130)	5.1	(0-30)	SW846 8260B
4-Chlorotoluene	81	(70 - 130)			SW846 8260B
	82	(70 - 130)	1.1	(0-30)	SW846 8260B
Dibromomethane	109	(70 - 130)			SW846 8260B
	111	(70 - 130)	1.5	(0-30)	SW846 8260B
trans-1,4-Dichloro- 2-butene	176 a	(70 - 130)			SW846 8260B
2 Succine	185 a	(70 - 130)	4.7	(0-30)	SW846 8260B
1,3-Dichloropropane	96	(70 - 130)			SW846 8260B
1/3 Didniolopropune	100	(70 - 130)	3.6	(0-30)	SW846 8260B
2,2-Dichloropropane	91	(70 - 130)	3.0	(0 00)	SW846 8260B
-,- Jiomiolopiopano	94	(70 - 130)	3.2	(0-30)	SW846 8260B
1,1-Dichloropropene	96	(70 - 130)		(0 00)	SW846 8260B
T/T DIGHTOTOPTOPOM	96	(70 - 130)	0.11	(0-30)	SW846 8260B
Ethyl methacrylate	0.0 a	(70 - 130)	••	(0 00)	SW846 8260B
	0.0 a	(70 - 130)	0.0	(0-30)	SW846 8260B
Hexachlorobutadiene	49 a	(70 - 130)		() ()	SW846 8260B
	52 a	(70 - 130)	6.0	(0-30)	SW846 8260B
Iodomethane	137 a	(70 - 130)			SW846 8260B
	144 a	(70 - 130)	5.4	(0-30)	SW846 8260B
p-Isopropyltoluene	79	(70 - 130)			SW846 8260B
1 11	81	(70 - 130)	2.3	(0-30)	SW846 8260B
Naphthalene	58 a	(70 - 130)			SW846 8260B
-	57 a	(70 - 130)	1.7	(0-30)	SW846 8260B
n-Propylbenzene	77	(70 - 130)			SW846 8260B
	79	(70 - 130)	1.8	(0-30)	SW846 8260B
1,1,1,2-Tetrachloroethane	98	(70 - 130)			SW846 8260B
	100	(70 - 130)	1.2	(0-30)	SW846 8260B
1,2,3-Trichlorobenzene	55 a	(70 - 130)			SW846 8260B
	53 a	(70 - 130)	3.0	(0-30)	SW846 8260B
1,2,3-Trichloropropane	91	(70 - 130)			SW846 8260B
	94	(70 - 130)	4.2	(0-30)	SW846 8260B
1,1,2-Trichloro-	98	(70 - 130)			SW846 8260B
1,2,2-trifluoroethane					
	99	(70 - 130)	1.5	(0-30)	SW846 8260B
1,2,4-Trimethylbenzene	84	(70 - 130)			SW846 8260B
•	86	(70 - 130)	3.1	(0-30)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD_	RPD LIMITS	METHOD
1,3,5-Trimethylbenzene	77	(70 - 130)			SW846 8260B
	81	(70 - 130)	4.9	(0-30)	SW846 8260B
Vinyl acetate	116	(70 - 130)			SW846 8260B
	117	(70 - 130)	1.1	(0-30)	SW846 8260B
tert-Butyl alcohol	115	(70 - 130)			SW846 8260B
	112	(70 - 130)	2.8	(0-30)	SW846 8260B
		PERCENT		RECOVERY	
SURROGATE	_	RECOVERY		LIMITS	_
Dibromofluoromethane		84		(50 - 150)
		84		(50 - 150)
1,2-Dichloroethane-d4		80		(50 - 150)
		79		(50 - 150)
Toluene-d8		82		(50 - 150)
		79		(50 - 150)
4-Bromofluorobenzene		98		(50 - 150)
		95		(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/15/11 Analysis Date..: 04/15/11

Prep Batch #...: 1105156

Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHO	D
cis-1,2-Dichloroethene	ND	10	9.6	ug/L	96		SW846	8260B
	ND	10	10	ug/L	101	4.4	SW846	8260B
trans-1,2-Dichloroethene	ND	10	10	ug/L	103		SW846	8260B
	ND	10	10	ug/L	103	0.33	SW846	8260B
1,2-Dibromoethane	ND	10	10	ug/L	102		SW846	8260B
	ND	10	10	ug/L	103	0.89	SW846	8260B
Bromochloromethane	ND	10	10	ug/L	101		SW846	8260B
	ND	10	11	ug/L	107	6.2	SW846	8260B
m-Xylene & p-Xylene	ND	20	18	ug/L	92		SW846	8260B
	ND	20	19	ug/L	93	0.66	SW846	8260B
o-Xylene	ND	10	9.7	ug/L	97		SW846	8260B
	ND	10	9.6	ug/L	96	0.63	SW846	8260B
Chloromethane	ND	10	8.8	ug/L	88		SW846	8260B
	ND	10	9.0	ug/L	90	2.2	SW846	8260B
Bromomethane	ND	10	8.8	ug/L	88		SW846	8260B
	ND	10	8.9	ug/L	89	1.9	SW846	8260B
Vinyl chloride	ND	10	9.5	ug/L	95		SW846	8260B
	ND	10	9.9	ug/L	99	4.0	SW846	8260B
Chloroethane	ND	10	10	ug/L	104		SW846	8260B
	ND	10	11	ug/L	107	2.4	SW846	8260B
Methylene chloride	ND	10	12	ug/L	119		SW846	8260B
	ND	10	12	ug/L	120	1.4	SW846	8260B
Acetone	ND	20	20	ug/L	102		SW846	8260B
	ND	20	22	ug/L	108	5.9	SW846	8260B
Carbon disulfide	ND	10	14	ug/L	135 a		SW846	8260B
	ND	10	14	ug/L	136 a	0.97	SW846	8260B
1,1-Dichloroethene	ND	10	11	ug/L	115		SW846	8260B
	ND	10	12	ug/L	116	1.7	SW846	8260B
1,1-Dichloroethane	ND	10	9.9	ug/L	99		SW846	8260B
	ND	10	10	ug/L	101	1.6	SW846	8260B
1,2-Dichloroethene	ND	20	20	ug/L	100		SW846	8260B
(total)								
	ND	20	20	ug/L	102	2.0	SW846	8260B
Chloroform	ND	10	10	ug/L	101	_		8260B
	ND	10	10	ug/L	101	0.75	SW846	
1,2-Dichloroethane	ND	10	10	ug/L	103			8260B
	ND	10	10	ug/L	104	1.0		8260B
2-Butanone	ND	20	22	ug/L	109	_		8260B
	ND	20	23	ug/L	113	3.8	SW846	8260B

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GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD_	METHOL)
1,1,1-Trichloroethane	ND	10	10	ug/L	100		SW846	8260B
. ,	ND	10	10	ug/L	102	2.2	SW846	
Carbon tetrachloride	ND	10	10	ug/L	103		SW846	
	ND	10	10	ug/L	101	1.9	SW846	
Bromodichloromethane	ND	10	11	ug/L	106		SW846	
	ND	10	11	ug/L	105	0.48	SW846	8260B
1,2-Dichloropropane	ND	10	10	ug/L	104		SW846	
	ND	10	10	ug/L	105	0.35	SW846	
cis-1,3-Dichloropropene	ND	10	9.5	ug/L	95		SW846	8260B
	ND	10	9.8	ug/L	98	3.2	SW846	8260B
Trichloroethene	ND	10	9.6	ug/L	96		SW846	8260B
	ND	10	9.6	ug/L	96	0.60	SW846	8260B
Dibromochloromethane	ND	10	10	ug/L	101		SW846	8260B
	ND	10	10	ug/L	103	1.8	SW846	8260B
1,1,2-Trichloroethane	ND	10	9.9	ug/L	99		SW846	8260B
	ND	10	10	ug/L	103	4.1	SW846	8260B
Benzene	ND	10	10	ug/L	100		SW846	8260B
	ND	10	10	ug/L	101	0.75	SW846	8260B
trans-1,3-Dichloropropene	ND	10	11	ug/L	107		SW846	8260B
	ND	10	11	ug/L	108	1.4	SW846	8260B
Bromoform	ND	10	9.9	ug/L	99		SW846	8260B
	ND	10	10	ug/L	100	1.8	SW846	8260B
4-Methyl-2-pentanone	ND	20	24	ug/L	120		SW846	8260B
	ND	20	25	ug/L	123	3.1	SW846	8260B
2-Hexanone	ND	20	24	ug/L	119		SW846	8260B
	ND	20	24	ug/L	119	0.59	SW846	8260B
Tetrachloroethene	ND	10	8.5	ug/L	85		SW846	8260B
	ND	10	8.4	ug/L	84	0.46	SW846	8260B
1,1,2,2-Tetrachloroethane	ND	10	9.1	ug/L	91		SW846	8260B
	ND	10	9.8	ug/L	98	7.0	SW846	8260B
Toluene	ND	10	9.4	ug/L	94		SW846	8260B
	ND	10	9.5	ug/L	95	1.0	SW846	8260B
Chlorobenzene	ND	10	9.2	ug/L	92		SW846	8260B
	ND	10	9.2	ug/L	92	0.42	SW846	8260B
Ethylbenzene	ND	10	9.4	ug/L	94		SW846	8260B
	ND	10	9.6	ug/L	96	2.2	SW846	8260B
Styrene	ND	10	9.8	ug/L	98		SW846	
	ND	10	9.9	ug/L	99	1.5	SW846	8260B
Xylenes (total)	ND	30	28	ug/L	94		SW846	8260B
	ND	30	28	ug/L	94	0.22	SW846	8260B
n-Hexane	ND	10	7.2	ug/L	72		SW846	
	ND	10	7.4	ug/L	74	1.7	SW846	8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	<u>METHOI</u>)
Cyclohexane	ND	10	8.7	ug/L	87		SW846	8260B
	ND	10	8.4	ug/L	84	4.0	SW846	8260B
1,2-Dibromo-3-chloro- propane	ND	10	7.2	ug/L	72		SW846	8260B
	ND	10	7.1	ug/L	71	1.5	SW846	8260B
1,2-Dichlorobenzene	ND	10	8.7	ug/L	87		SW846	
	ND	10	9.1	ug/L	91	3.9	SW846	8260B
1,3-Dichlorobenzene	ND	10	8.2	ug/L	82		SW846	8260B
	ND	10	8.7	ug/L	87	5.2	SW846	8260B
1,4-Dichlorobenzene	ND	10	8.5	ug/L	85		SW846	8260B
	ND	10	8.7	ug/L	87	3.1	SW846	8260B
Dichlorodifluoromethane	ND	10	5.0	ug/L	50 a		SW846	8260B
	ND	10	4.6	ug/L	46 a	8.8	SW846	8260B
Freon 113	ND	10	9.8	ug/L	98		SW846	8260B
	ND	10	9.9	ug/L	99	1.5	SW846	8260B
Isopropylbenzene	ND	10	8.7	ug/L	87		SW846	8260B
1 11	ND	10	8.8	ug/L	88	0.80	SW846	
Methyl acetate	ND	10	9.9	ug/L	99		SW846	
	ND	10	9.5	ug/L	95	4.0	SW846	
Methylcyclohexane	ND	10	7.9	ug/L	79		SW846	
110011/10/010110110110	ND	10	7.6	ug/L	76	5.0	SW846	
Methyl tert-butyl ether (MTBE)	ND	10	10	ug/L	103	3.0		8260B
(/	ND	10	10	ug/L	104	1.1	SW846	8260B
1,2,4-Trichloro- benzene	ND	10	5.5	ug/L	55 a		SW846	8260B
	ND	10	5.5	ug/L	55 a	0.05	SW846	8260В
Trichlorofluoromethane	ND	10	12	ug/L	117		SW846	8260в
	ND	10	12	ug/L	118	1.4	SW846	8260B
Acrolein	ND	30	36	ug/L	118		SW846	8260B
	ND	30	35	ug/L	117	0.99	SW846	8260B
Acrylonitrile	ND	30	34	ug/L	114		SW846	
•	ND	30	34	ug/L	114	0.44	SW846	
Bromobenzene	ND	10	7.9	ug/L	79		SW846	
	ND	10	8.4	ug/L	84	5.6	SW846	
n-Butylbenzene	ND	10	7.4	ug/L	74	5.0	SW846	
ii bucy ibchizene	ND	10	7.4	ug/L	7 4 76	2.8	SW846	
sec-Butylbenzene	ND	10	7.0	ug/L	70 72	2.0	SW846	
acc-bucy incline		10			72 75	2 0		
	ND	Τ0	7.5	ug/L	15	3.8	SW846	020UB

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	ממא	METHOI)
FARAMETER	AMOUNT	Anı	AMOUNT	ONTIB	KECVKI	KFD_	METHOL	<i></i>
tert-Butylbenzene	ND	10	7.2	ug/L	72		SW846	8260B
0010 240/120110110	ND	10	7.5	ug/L	75	3.4		
2-Chlorotoluene	ND	10	7.7	ug/L	77		SW846	
	ND	10	8.1	ug/L	81	5.1	SW846	
4-Chlorotoluene	ND	10	8.1	ug/L	81		SW846	
	ND	10	8.2	ug/L	82	1.1	SW846	
Dibromomethane	ND	10	11	ug/L	109		SW846	
	ND	10	11	ug/L	111	1.5	SW846	
trans-1,4-Dichloro-	ND	10	18	ug/L	176 a		SW846	
2-butene				3.				
	ND	10	18	ug/L	185 a	4.7	SW846	8260В
1,3-Dichloropropane	ND	10	9.6	ug/L	96		SW846	8260B
-/- 21011010F10Fullo	ND	10	10	ug/L	100	3.6	SW846	
2,2-Dichloropropane	ND	10	9.1	ug/L	91		SW846	
-/- 210molopiopumo	ND	10	9.4	ug/L	94	3.2	SW846	
1,1-Dichloropropene	ND	10	9.6	ug/L	96	3.2	SW846	
171 Bromforopropene	ND	10	9.6	ug/L	96	0 11	SW846	
Ethyl methacrylate	ND	10	0.0	ug/L	0.0 a	0.11	SW846	
zen/ z meender/ zuee	ND	10	0.0	ug/L	0.0 a	0.0	SW846	
Hexachlorobutadiene	ND	10	4.9	ug/L	49 a	0.0	SW846	
	ND	10	5.2	ug/L	52 a	6.0	SW846	
Iodomethane	ND	10	14	ug/L	137 a	0.0	SW846	
10dome crarie	ND	10	14	ug/L	144 a	5.4	SW846	
p-Isopropyltoluene	ND	10	7.9	ug/L	79	J. 1	SW846	
p ibopropyreoraene	ND	10	8.1	ug/L	81	2.3	SW846	
Naphthalene	ND	10	5.8	ug/L	58 a	2.5	SW846	
NapitellaTelle	ND	10	5.7	ug/L	50 a	1.7	SW846	
n-Propylbenzene	ND	10	7.7	ug/L	77	 ,	SW846	
n 110p/12emene	ND	10	7.9	ug/L	79	1.8	SW846	
1,1,1,2-Tetrachloroethane		10	9.8	ug/L	98	1.0	SW846	
1/1/1/2 1001401101000114110	ND	10	10	ug/L	100	1.2	SW846	
1,2,3-Trichlorobenzene	ND	10	5.5	ug/L	55 a		SW846	
1/2/3 IIIOMIOIOZemene	ND	10	5.3	ug/L	53 a	3.0	SW846	
1,2,3-Trichloropropane	ND	10	9.1	ug/L	91	3.0	SW846	
1/2/3 111011101101101101	ND	10	9.4	ug/L	94	4.2		
1,1,2-Trichloro-	ND	10	9.8	ug/L	98	1.2	SW846	
1,2,2-trifluoroethane	-1		J. U	~5/ 4	70		2010	
1,2,2 crimatocomane	ND	10	9.9	ug/L	99	1.5	SW846	8260B
1,2,4-Trimethylbenzene	ND	10	8.4	ug/L	84		SW846	8260B
1,2,1 IIIIICCIIYIDCIIZCIIC	ND	10	8.6	ug/L ug/L	86	3.1		
	ND	10	0.0	ug/ ц	50	J.I	DMOIO	02000

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GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AD-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS		PERCNT RECVRY	RPD	METHOL)
1,3,5-Trimethylbenzene	ND	10	7.7	ug/L		77		SW846	8260B
	ND	10	8.1	ug/L		81	4.9	SW846	8260B
Vinyl acetate	ND	10	12	ug/L		116		SW846	8260B
	ND	10	12	ug/L		117	1.1	SW846	8260B
tert-Butyl alcohol	ND	200	230	ug/L		115		SW846	8260B
	ND	200	220	ug/L		112	2.8	SW846	8260B
SURROGATE			RCENT COVERY			COVERY			
Dibromofluoromethane	-	84				0 - 150	<u> </u>		
DIDIOMOTICOTOMECHANE		84			•	0 - 150	•		
1,2-Dichloroethane-d4		80			(5)	0 - 150)		
		79			(5)	0 - 150)		
Toluene-d8		82			(5)	0 - 150)		
		79			(5)	0 - 150)		
4-Bromofluorobenzene		98			(5)	0 - 150)		
		95			(5)	0 - 150)		
MOTE (C)									

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

North Canton

Lot/SDG Number: A1D070566 Sample Control Chain of Custody - TAL North Canton

GC/MS Volatiles

Lot Number A1D070566

Sample Work Order 11 MGPCC1AA Analysis Type Volatile Organics, GC/MS (8260B)

04/15/11

Analysis Date

Laura Evans

Analyst



GCMS SEMIVOLATILE DATA

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC/MS Semivolatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1AC Matrix.....: WQ

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11
Prep Date....: 04/08/11 Analysis Date..: 04/19/11

Prep Batch #...: 1098032

Method....: SW846 8270C

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U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC/MS Semivolatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1AC Matrix.....: WQ

PARAMETER			REPORTING	
4,6-Dinitro-	PARAMETER	RESULT		
2-methylphenol				
2,4-Dinitrotoluene ND 5.0 ug/L 2,6-Dinitrotoluene ND 5.0 ug/L 2,6-Dinitrotoluene ND 5.0 ug/L Fluoranthene ND 0.20 ug/L Fluorene ND 0.20 ug/L Hexachlorobenzene ND 0.20 ug/L Hexachlorocyclopenta- ND 1.0 ug/L diene ND 1.0 ug/L Hexachlorocethane ND 1.0 ug/L Indeno(1,2,3-cd)pyrene ND 1.0 ug/L Isophorone ND 1.0 ug/L Indeno(1,2,3-cd)pyrene ND 1.0 ug/L Isophorone ND 1.0 ug/L 2-Methylnaphthalene ND 0.20 ug/L 2-Methylphenol ND 1.0 ug/L 4-Methylphenol ND 1.0 ug/L 4-Methylphenol ND 1.0 ug/L 2-Nitroaniline ND 2.0 ug/L 3-Nitroaniline ND 2.0 ug/L <		1.5		~5 <i>/</i> =
2,4-Dinitrotoluene ND 5.0 ug/L 2,6-Dinitrotoluene ND 5.0 ug/L Fluoranthene ND 0.20 ug/L Fluorene ND 0.20 ug/L Hexachlorobenzene ND 0.20 ug/L Hexachlorobenzene ND 1.0 ug/L Lomethallene ND 0.20 ug/L Lomethylphenol ND 1.0 ug/L Lomethylphenol ND 1.0 ug/L Lomethylphenol ND 1.0 ug/L Lomethylphenol ND 1.0 ug/L Lomethylphenol ND 2.0 <td></td> <td>ND</td> <td>5 0</td> <td>11a / L</td>		ND	5 0	11a / L
2,6-Dinitrotoluene	-			_
Fluoranthene				_
Fluorene				
Hexachlorobenzene				
Hexachlorobutadiene				
Hexachlorocyclopenta-diene				
diene Hexachloroethane ND 1.0 ug/L Indeno(1,2,3-cd)pyrene ND 0.20 ug/L Isophorone ND 1.0 ug/L 2-Methylnaphthalene ND 0.20 ug/L 2-Methylphenol ND 1.0 ug/L 4-Methylphenol ND 1.0 ug/L Naphthalene ND 0.20 ug/L 2-Nitroaniline ND 2.0 ug/L 3-Nitroaniline ND 2.0 ug/L 4-Nitroaniline ND 2.0 ug/L Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 2.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L Phenatchlorophenol ND 5.0 ug/L Phenathrene ND 0.20 ug/L Phenol ND				
Hexachloroethane		ND	10	αg/ 1
Indeno(1,2,3-cd)pyrene		ND	1.0	11 a / T ₁
Isophorone				_
2-Methylnaphthalene ND 0.20 ug/L 2-Methylphenol ND 1.0 ug/L 4-Methylphenol ND 1.0 ug/L Naphthalene ND 0.20 ug/L 2-Nitroaniline ND 2.0 ug/L 3-Nitroaniline ND 2.0 ug/L 4-Nitroaniline ND 2.0 ug/L Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L amine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 0.20 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 5.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L 2,4,6-Trichloro- ND 5.0 ug/L <				_
2-Methylphenol ND 1.0 ug/L 4-Methylphenol ND 1.0 ug/L Naphthalene ND 0.20 ug/L 2-Nitroaniline ND 2.0 ug/L 3-Nitroaniline ND 2.0 ug/L 4-Nitroaniline ND 2.0 ug/L Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- amine ND 1.0 ug/L N-Nitrosodiphenylamine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 0.20 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- benzene ND 5.0 ug/L 2,4,5-Trichloro- phenol ND 5.0 ug/L 2,4,6-Trichloro- phenol ND 5.0 ug/L 2,4,6-Trichloro- phenol ND <td< td=""><td></td><td></td><td></td><td></td></td<>				
4-Methylphenol ND 1.0 ug/L Naphthalene ND 0.20 ug/L 2-Nitroaniline ND 2.0 ug/L 3-Nitroaniline ND 2.0 ug/L 4-Nitroaniline ND 2.0 ug/L Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L amine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenathrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 5.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L 2,4,6-Trichloro- ND 5.0 ug/L phenol 0 0 0 0 2,2,4,6-Trichloro- ND 0 0 0				
Naphthalene ND 0.20 ug/L 2-Nitroaniline ND 2.0 ug/L 3-Nitroaniline ND 2.0 ug/L 4-Nitroaniline ND 2.0 ug/L Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 5.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L pentachlorophenol ND 5.0 ug/L Phenathhrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L 2,4,6-Trichloro- ND 5.0 ug/L phenol 2 2 2 2 Carbazole ND 1.0 ug/L		ND		
2-Nitroaniline ND 2.0 ug/L 3-Nitroaniline ND 2.0 ug/L 4-Nitroaniline ND 2.0 ug/L Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L amine N-Nitrosodiphenylamine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol Pyrene ND 0.20 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L 2,4,5-Trichloro- ND 5.0 ug/L 1.0 ug/L 2,4,6-Trichloro- ND 5.0 ug/L 1.0 ug/L				
3-Nitroaniline	-	ND	2.0	
4-Nitroaniline ND 2.0 ug/L Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- amine ND 1.0 ug/L N-Nitrosodiphenylamine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- benzene ND 5.0 ug/L 2,4,5-Trichloro- phenol ND 5.0 ug/L 2,4,6-Trichloro- phenol ND 5.0 ug/L Carbazole ND 1.0 ug/L	3-Nitroaniline	ND		
Nitrobenzene ND 1.0 ug/L 2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L amine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L phenol 2,4,6-Trichloro- ND 5.0 ug/L phenol Carbazole ND 1.0 ug/L	4-Nitroaniline	ND	2.0	
2-Nitrophenol ND 2.0 ug/L 4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L amine N-Nitrosodiphenylamine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 5.0 ug/L Phenol ND 0.20 ug/L Pyrene ND 1.0 ug/L Pyrene ND 0.20 ug/L 2,4-Trichloro- ND 1.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L phenol ND 5.0 ug/L character S.0 ug/L Carbazole ND 1.0 ug/L	Nitrobenzene	ND		
4-Nitrophenol ND 5.0 ug/L N-Nitrosodi-n-propyl- ND 1.0 ug/L amine ND 1.0 ug/L N-Nitrosodiphenylamine ND 1.0 ug/L Pentachlorophenol ND 0.20 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 0.20 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L 2,4,6-Trichloro- ND 5.0 ug/L phenol ND 1.0 ug/L Carbazole ND 1.0 ug/L		ND	2.0	
N-Nitrosodi-n-propyl- amine N-Nitrosodiphenylamine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 1.0 ug/L Pyrene ND 1.0 ug/L 1,2,4-Trichloro- ND 1.0 benzene 2,4,5-Trichloro- ND 5.0 ug/L Phenol 2,4,6-Trichloro- ND 5.0 ug/L Carbazole ND 1.0 ug/L		ND	5.0	
amine ND 1.0 ug/L N-Nitrosodiphenylamine ND 1.0 ug/L Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 1.0 ug/L 1,2,4-Trichloro- ND 5.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L phenol 2,4,6-Trichloro- ND 5.0 ug/L phenol 0 0 0 0 0 Carbazole ND 1.0 ug/L		ND	1.0	
Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene V 0.20 ug/L 2,4,5-Trichloro- ND 5.0 ug/L phenol 0.0 0.0 ug/L Carbazole ND 1.0 ug/L				<u> </u>
Pentachlorophenol ND 5.0 ug/L Phenanthrene ND 0.20 ug/L Phenol ND 1.0 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene V 0.20 ug/L 2,4,5-Trichloro- ND 5.0 ug/L phenol 0.0 0.0 ug/L Carbazole ND 1.0 ug/L	N-Nitrosodiphenylamine	ND	1.0	uq/L
Phenol ND 1.0 ug/L Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L phenol 2,4,6-Trichloro- ND 5.0 ug/L phenol Carbazole ND 1.0 ug/L	Pentachlorophenol	ND	5.0	ug/L
Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene 2,4,5-Trichloro- ND 5.0 ug/L phenol 5.0 ug/L phenol Carbazole ND 1.0 ug/L	Phenanthrene	ND	0.20	ug/L
Pyrene ND 0.20 ug/L 1,2,4-Trichloro- ND 1.0 ug/L benzene ug/L 2,4,5-Trichloro- ND 5.0 ug/L phenol 5.0 ug/L phenol Carbazole ND 1.0 ug/L	Phenol	ND	1.0	ug/L
1,2,4-Trichloro- benzene 2,4,5-Trichloro- phenol 2,4,6-Trichloro- phenol Carbazole ND 1.0 ug/L ug/L 0 ug/L 0 ug/L 1.0 ug/L 0 ug/L 0 ug/L 0 ug/L 0 ug/L	Pyrene	ND	0.20	
benzene 2,4,5-Trichloro- ND 5.0 ug/L phenol 2,4,6-Trichloro- ND 5.0 ug/L phenol Carbazole ND 1.0 ug/L		ND	1.0	
phenol 2,4,6-Trichloro- phenol Carbazole ND 5.0 ug/L 1.0 ug/L	benzene			
2,4,6-Trichloro- ND 5.0 ug/L phenol Carbazole ND 1.0 ug/L	2,4,5-Trichloro-	ND	5.0	ug/L
phenol Carbazole ND 1.0 ug/L	phenol			
Carbazole ND 1.0 ug/L	2,4,6-Trichloro-	ND	5.0	ug/L
5.	phenol			
2,2'-oxybis ND 1.0 ug/L	Carbazole	ND	1.0	ug/L
	2,2'-oxybis	ND	1.0	ug/L
(1-Chloropropane)	(1-Chloropropane)			

(Continued on next page)

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC/MS Semivolatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1AC Matrix.....: WQ

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Nitrobenzene-d5	64	(50 - 150)
2-Fluorobiphenyl	67	(50 - 150)
Terphenyl-d14	77	(50 - 150)
Phenol-d5	72	(50 - 150)
2-Fluorophenol	70	(50 - 150)
2,4,6-Tribromophenol	64	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AA Matrix.....: WATER

MB Lot-Sample #: A1D080000-032

Prep Date.....: 04/08/11 Final Wgt/Vol..: 2 mL

Analysis Date..: 04/19/11 Prep Batch #...: 1098032 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL

REPORTING

		ICHI OICI II		
PARAMETER	RESULT	LIMIT	UNITS	METHOD
Benzoic acid	ND	10	ug/L	SW846 8270C
Acenaphthene	ND	0.20	ug/L	SW846 8270C
Acenaphthylene	ND	0.20	ug/L	SW846 8270C
Anthracene	ND	0.20	ug/L	SW846 8270C
Benzo(a)anthracene	ND	0.20	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	0.20	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	0.20	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	0.20	ug/L	SW846 8270C
Benzo(a)pyrene	ND	0.20	ug/L	SW846 8270C
Benzyl alcohol	ND	5.0	ug/L	SW846 8270C
bis(2-Chloroethoxy)	ND	1.0	ug/L	SW846 8270C
methane				
bis(2-Chloroethyl)-	ND	1.0	ug/L	SW846 8270C
ether				
bis(2-Ethylhexyl)	4.0 J	10	ug/L	SW846 8270C
phthalate				
4-Bromophenyl phenyl	ND	2.0	ug/L	SW846 8270C
ether				
Butyl benzyl phthalate	ND	1.0	ug/L	SW846 8270C
4-Chloroaniline	ND	2.0	ug/L	SW846 8270C
4-Chloro-3-methylphenol	ND	2.0	ug/L	SW846 8270C
2-Chloronaphthalene	ND	1.0	ug/L	SW846 8270C
2-Chlorophenol	ND	1.0	ug/L	SW846 8270C
4-Chlorophenyl phenyl	ND	2.0	ug/L	SW846 8270C
ether				
Chrysene	ND	0.20	ug/L	SW846 8270C
Dibenz(a,h)anthracene	ND	0.20	ug/L	SW846 8270C
Dibenzofuran	ND	1.0	ug/L	SW846 8270C
Di-n-butyl phthalate	ND	1.0	ug/L	SW846 8270C
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8270C
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8270C
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8270C
3,3'-Dichlorobenzidine	ND	5.0	ug/L	SW846 8270C
2,4-Dichlorophenol	ND	2.0	ug/L	SW846 8270C
Diethyl phthalate	ND	1.0	ug/L	SW846 8270C
2,4-Dimethylphenol	ND	2.0	ug/L	SW846 8270C
Dimethyl phthalate	ND	1.0	ug/L	SW846 8270C
Di-n-octyl phthalate	ND	1.0	ug/L	SW846 8270C
4,6-Dinitro-	ND	5.0	ug/L	SW846 8270C
2-methylphenol				
2,4-Dinitrophenol	ND	5.0	ug/L	SW846 8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #: A1D070566	Work Order #: MGPXW1AA	Matrix: WATER
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		REPORTII	NG	
PARAMETER	RESULT	LIMIT	UNITS	METHOD
2,4-Dinitrotoluene	ND	5.0	ug/L	SW846 8270C
2,6-Dinitrotoluene	ND	5.0	ug/L	SW846 8270C
Fluoranthene	ND	0.20	ug/L	SW846 8270C
Fluorene	ND	0.20	ug/L	SW846 8270C
Hexachlorobenzene	ND	0.20	ug/L	SW846 8270C
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8270C
Hexachlorocyclopenta- diene	ND	10	ug/L	SW846 8270C
Hexachloroethane	ND	1.0	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L	SW846 8270C
Isophorone	ND	1.0	ug/L	SW846 8270C
2-Methylnaphthalene	ND	0.20	ug/L	SW846 8270C
2-Methylphenol	ND	1.0	ug/L	SW846 8270C
4-Methylphenol	ND	1.0	ug/L	SW846 8270C
Naphthalene	ND	0.20	ug/L	SW846 8270C
2-Nitroaniline	ND	2.0	ug/L	SW846 8270C
3-Nitroaniline	ND	2.0	ug/L	SW846 8270C
4-Nitroaniline	ND	2.0	ug/L	SW846 8270C
Nitrobenzene	ND	1.0	ug/L	SW846 8270C
2-Nitrophenol	ND	2.0	ug/L	SW846 8270C
4-Nitrophenol	ND	5.0	ug/L	SW846 8270C
N-Nitrosodi-n-propyl- amine	ND	1.0	ug/L	SW846 8270C
N-Nitrosodiphenylamine	ND	1.0	ug/L	SW846 8270C
Pentachlorophenol	ND	5.0	ug/L	SW846 8270C
Phenanthrene	ND	0.20	ug/L	SW846 8270C
Phenol	ND	1.0	ug/L	SW846 8270C
Pyrene	ND	0.20	ug/L	SW846 8270C
1,2,4-Trichloro- benzene	ND	1.0	ug/L	SW846 8270C
2,4,5-Trichloro- phenol	ND	5.0	ug/L	SW846 8270C
2,4,6-Trichloro- phenol	ND	5.0	ug/L	SW846 8270C
Carbazole	ND	1.0	ug/L	SW846 8270C
2,2'-oxybis	ND	1.0	ug/L	SW846 8270C
(1-Chloropropane)			<u> </u>	
	PERCENT	RECOVER	Y	
SURROGATE	RECOVERY	LIMITS		
Nitrobenzene-d5	144	(50 - 1		
2-Fluorobiphenyl	146	(50 - 1	50)	
Terphenyl-d14	171 *	(50 - 1	50)	
Phenol-d5	163 *	(50 - 1	50)	
2-Fluorophenol	155 *	(50 - 1	50)	

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AA Matrix....: WATER

REPORTING

PARAMETER
RESULT LIMIT UNITS METHOD

2,4,6-Tribromophenol 169 * (50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

- J Estimated result. Result is less than RL.
- * Surrogate recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D080000-032

Prep Batch #...: 1098032

Dilution Factor: 1 Final Wgt/Vol..: 2 mL

Initial Wgt/Vol: 1000 mL

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
1,2,4-Trichloro-	73	(30 - 120)	SW846 8270C
benzene			
Acenaphthene	79	(31 - 120)	SW846 8270C
2,4-Dinitrotoluene	83	(34 - 151)	SW846 8270C
Pyrene	77	(35 - 139)	SW846 8270C
N-Nitrosodi-n-propyl- amine	72	(30 - 132)	SW846 8270C
1,4-Dichlorobenzene	78	(30 - 115)	SW846 8270C
Pentachlorophenol	49	(30 - 150)	SW846 8270C
Phenol	84	(30 - 115)	SW846 8270C
2-Chlorophenol	82	(30 - 120)	SW846 8270C
4-Chloro-3-methylphenol	85	(31 - 121)	SW846 8270C
4-Nitrophenol	87	(30 - 138)	SW846 8270C
1,2-Dichlorobenzene	78	(30 - 120)	SW846 8270C
1,3-Dichlorobenzene	74	(30 - 120)	SW846 8270C
2,4,5-Trichloro-	80	(36 - 135)	SW846 8270C
phenol			
4-Methylphenol	81	(31 - 115)	SW846 8270C
4-Nitroaniline	72	(30 - 140)	SW846 8270C
Acenaphthylene	78	(37 - 115)	SW846 8270C
Anthracene	79	(45 - 118)	SW846 8270C
Benzo(a)anthracene	74	(43 - 138)	SW846 8270C
Benzo(a)pyrene	66	(38 - 144)	SW846 8270C
Benzo(b)fluoranthene	70	(31 - 146)	SW846 8270C
Benzo(ghi)perylene	79	(35 - 129)	SW846 8270C
Benzo(k)fluoranthene	91	(40 - 127)	SW846 8270C
bis(2-Chloroethoxy)	82	(30 - 115)	SW846 8270C
methane			
bis(2-Chloroethyl)-	78	(30 - 115)	SW846 8270C
ether			
bis(2-Chloroisopropyl)	78	(50 - 150)	SW846 8270C
ether			
bis(2-Ethylhexyl)	55	(30 - 154)	SW846 8270C
phthalate			

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D080000-032

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
2,4,6-Trichloro-	81	(39 - 115)	SW846 8270C
phenol			
2,4-Dichlorophenol	82	(34 - 115)	SW846 8270C
2,4-Dimethylphenol	65	(31 - 120)	SW846 8270C
2,4-Dinitrophenol	36	(29 - 146)	SW846 8270C
2,6-Dinitrotoluene	82	(43 - 122)	SW846 8270C
2-Chloronaphthalene	77	(35 - 115)	SW846 8270C
2-Methylnaphthalene	91	(32 - 115)	SW846 8270C
2-Methylphenol	81	(30 - 116)	SW846 8270C
2-Nitroaniline	72	(36 - 140)	SW846 8270C
2-Nitrophenol	86	(33 - 115)	SW846 8270C
3,3'-Dichlorobenzidine	46	(30 - 160)	SW846 8270C
3-Nitroaniline	66	(30 - 138)	SW846 8270C
4,6-Dinitro-	76	(42 - 144)	SW846 8270C
2-methylphenol			
4-Bromophenyl phenyl	86	(43 - 118)	SW846 8270C
ether			
4-Chloroaniline	62	(30 - 133)	SW846 8270C
4-Chlorophenyl phenyl	79	(40 - 115)	SW846 8270C
ether			
Butyl benzyl phthalate	78	(37 - 136)	SW846 8270C
Carbazole	79	(49 - 126)	SW846 8270C
Chrysene	79	(42 - 142)	SW846 8270C
Dibenz(a,h)anthracene	74	(38 - 130)	SW846 8270C
Dibenzofuran	77	(40 - 115)	SW846 8270C
Diethyl phthalate	80	(43 - 132)	SW846 8270C
Dimethyl phthalate	80	(42 - 116)	SW846 8270C
Di-n-octyl phthalate	49	(36 - 151)	SW846 8270C
Fluoranthene	81	(47 - 132)	SW846 8270C
Fluorene	77	(41 - 115)	SW846 8270C
Hexachlorobenzene	85	(42 - 123)	SW846 8270C
Hexachlorobutadiene	74	(30 - 120)	SW846 8270C
Hexachloroethane	74	(30 - 120)	SW846 8270C
Isophorone	78	(33 - 115)	SW846 8270C
Naphthalene	77	(30 - 119)	SW846 8270C
Nitrobenzene	81	(31 - 115)	SW846 8270C
N-Nitrosodiphenylamine	70	(35 - 124)	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D080000-032

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
Phenanthrene	79	(45 - 117)	SW846 8270C
Indeno(1,2,3-cd)pyrene	76	(37 - 130)	SW846 8270C
Di-n-butyl phthalate	82	(46 - 123)	SW846 8270C
Hexachlorocyclopenta-	41	(30 - 115)	SW846 8270C
diene			
Benzoic acid	29 a	(30 - 136)	SW846 8270C
Benzyl alcohol	83	(29 - 115)	SW846 8270C
Atrazine	84	(30 - 120)	SW846 8270C
Acetophenone	81	(30 - 120)	SW846 8270C
1,1'-Biphenyl	78	(30 - 120)	SW846 8270C
Caprolactam	80	(30 - 120)	SW846 8270C
Benzaldehyde	181 a	(30 - 120)	SW846 8270C
Aniline	56	(30 - 127)	SW846 8270C
N-Nitrosodimethylamine	75	(30 - 115)	SW846 8270C
Pyridine	21 a	(50 - 150)	SW846 8270C
1,2-Diphenylhydrazine	81	(50 - 150)	SW846 8270C
		PERCENT	RECOVERY
SURROGATE		RECOVERY	LIMITS
Nitrobenzene-d5		76	(50 - 150)
2-Fluorobiphenyl		77	(50 - 150)
Terphenyl-d14		90	(50 - 150)
Phenol-d5		85	(50 - 150)
2-Fluorophenol		82	(50 - 150)
2,4,6-Tribromophenol		88	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER

MEASURED

PERCENT

LCS Lot-Sample#: A1D080000-032

SPIKE

Prep Batch #...: 1098032

Dilution Factor: 1 Final Wgt/Vol..: 2 mL

Initial Wgt/Vol: 1000 mL

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
1,2,4-Trichloro-	20	15	ug/L	73	SW846 8270C
benzene					
Acenaphthene	20	16	ug/L	79	SW846 8270C
2,4-Dinitrotoluene	20	17	ug/L	83	SW846 8270C
Pyrene	20	15	ug/L	77	SW846 8270C
N-Nitrosodi-n-propyl- amine	20	14	ug/L	72	SW846 8270C
1,4-Dichlorobenzene	20	16	ug/L	78	SW846 8270C
Pentachlorophenol	20	9.7	ug/L	49	SW846 8270C
Phenol	20	17	ug/L	84	SW846 8270C
2-Chlorophenol	20	16	ug/L	82	SW846 8270C
4-Chloro-3-methylphenol	20	17	ug/L	85	SW846 8270C
4-Nitrophenol	20	17	ug/L	87	SW846 8270C
1,2-Dichlorobenzene	20	16	ug/L	78	SW846 8270C
1,3-Dichlorobenzene	20	15	ug/L	74	SW846 8270C
2,4,5-Trichloro-	20	16	ug/L	80	SW846 8270C
phenol					
4-Methylphenol	40	33	ug/L	81	SW846 8270C
4-Nitroaniline	20	14	ug/L	72	SW846 8270C
Acenaphthylene	20	16	ug/L	78	SW846 8270C
Anthracene	20	16	ug/L	79	SW846 8270C
Benzo(a)anthracene	20	15	ug/L	74	SW846 8270C
Benzo(a)pyrene	20	13	ug/L	66	SW846 8270C
Benzo(b)fluoranthene	20	14	ug/L	70	SW846 8270C
Benzo(ghi)perylene	20	16	ug/L	79	SW846 8270C
Benzo(k)fluoranthene	20	18	ug/L	91	SW846 8270C
<pre>bis(2-Chloroethoxy) methane</pre>	20	16	ug/L	82	SW846 8270C
<pre>bis(2-Chloroethyl)- ether</pre>	20	16	ug/L	78	SW846 8270C
<pre>bis(2-Chloroisopropyl) ether</pre>	20	16	ug/L	78	SW846 8270C
<pre>bis(2-Ethylhexyl) phthalate</pre>	20	11	ug/L	55	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D080000-032

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
2,4,6-Trichloro-	20	16	ug/L	81	SW846 8270C
phenol					
2,4-Dichlorophenol	20	16	ug/L	82	SW846 8270C
2,4-Dimethylphenol	20	13	ug/L	65	SW846 8270C
2,4-Dinitrophenol	20	7.2	ug/L	36	SW846 8270C
2,6-Dinitrotoluene	20	16	ug/L	82	SW846 8270C
2-Chloronaphthalene	20	15	ug/L	77	SW846 8270C
2-Methylnaphthalene	20	18	ug/L	91	SW846 8270C
2-Methylphenol	20	16	ug/L	81	SW846 8270C
2-Nitroaniline	20	14	ug/L	72	SW846 8270C
2-Nitrophenol	20	17	ug/L	86	SW846 8270C
3,3'-Dichlorobenzidine	20	9.2	ug/L	46	SW846 8270C
3-Nitroaniline	20	13	ug/L	66	SW846 8270C
4,6-Dinitro-	20	15	ug/L	76	SW846 8270C
2-methylphenol					
4-Bromophenyl phenyl	20	17	ug/L	86	SW846 8270C
ether					
4-Chloroaniline	20	12	ug/L	62	SW846 8270C
4-Chlorophenyl phenyl	20	16	ug/L	79	SW846 8270C
ether					
Butyl benzyl phthalate	20	16	ug/L	78	SW846 8270C
Carbazole	20	16	ug/L	79	SW846 8270C
Chrysene	20	16	ug/L	79	SW846 8270C
Dibenz(a,h)anthracene	20	15	ug/L	74	SW846 8270C
Dibenzofuran	20	15	ug/L	77	SW846 8270C
Diethyl phthalate	20	16	ug/L	80	SW846 8270C
Dimethyl phthalate	20	16	ug/L	80	SW846 8270C
Di-n-octyl phthalate	20	9.9	ug/L	49	SW846 8270C
Fluoranthene	20	16	ug/L	81	SW846 8270C
Fluorene	20	15	ug/L	77	SW846 8270C
Hexachlorobenzene	20	17	ug/L	85	SW846 8270C
Hexachlorobutadiene	20	15	ug/L	74	SW846 8270C
Hexachloroethane	20	15	ug/L	74	SW846 8270C
Isophorone	20	16	ug/L	78	SW846 8270C
Naphthalene	20	15	ug/L	77	SW846 8270C
Nitrobenzene	20	16	ug/L	81	SW846 8270C
N-Nitrosodiphenylamine	20	14	ug/L	70	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D080000-032

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
Phenanthrene	20	16	ug/L	79	SW846 8270C
Indeno(1,2,3-cd)pyrene	20	15	ug/L	76	SW846 8270C
Di-n-butyl phthalate	20	16	ug/L	82	SW846 8270C
Hexachlorocyclopenta-	20	8.3	ug/L	41	SW846 8270C
diene					
Benzoic acid	20	a	ug/L	29	SW846 8270C
Benzyl alcohol	20	17	ug/L	83	SW846 8270C
Atrazine	20	17	ug/L	84	SW846 8270C
Acetophenone	20	16	ug/L	81	SW846 8270C
1,1'-Biphenyl	20	16	ug/L	78	SW846 8270C
Caprolactam	20	16	ug/L	80	SW846 8270C
Benzaldehyde	20	36 a	ug/L	181	SW846 8270C
Aniline	20	11	ug/L	56	SW846 8270C
N-Nitrosodimethylamine	20	15	ug/L	75	SW846 8270C
Pyridine	20	4.2 a	ug/L	21	SW846 8270C
1,2-Diphenylhydrazine	20	16	ug/L	81	SW846 8270C
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		76	(50 - 150)	-	
2-Fluorobiphenyl		77	(50 - 150)		
Terphenyl-d14		90	(50 - 150)		
Phenol-d5		85	(50 - 150)		
2-Fluorophenol		82	(50 - 150)		
2,4,6-Tribromophenol		88	(50 - 150)		
Z, I, O III ZI OMOPIICIIOI			(30 130)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date.....: 04/08/11 Analysis Date..: 04/19/11

Prep Batch #...: 1098032

Dilution Factor: 1 Initial Wgt/Vol: 490 mL Final Wgt/Vol..: 2 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	<u>LIMITS</u>	<u>RPD</u>	LIMITS	METHOD
1,2,4-Trichloro-	66	(45 - 135)			SW846 8270C
benzene					
	69	(45 - 135)	4.5	(0-40)	SW846 8270C
Acenaphthene	74	(45 - 135)			SW846 8270C
_	75	(45 - 135)	2.0	(0-40)	SW846 8270C
2,4-Dinitrotoluene	76	(45 - 135)			SW846 8270C
	79	(45 - 135)	3.8	(0-40)	SW846 8270C
Pyrene	71	(45 - 135)			SW846 8270C
	72	(45 - 135)	1.7	(0-40)	SW846 8270C
N-Nitrosodi-n-propyl- amine	67	(45 - 135)			SW846 8270C
	69	(45 - 135)	3.0	(0-40)	SW846 8270C
1,4-Dichlorobenzene	71	(45 - 135)			SW846 8270C
,	75	(45 - 135)	5.3	(0-40)	SW846 8270C
Pentachlorophenol	50	(45 - 135)			SW846 8270C
-	47	(45 - 135)	6.6	(0-40)	SW846 8270C
Phenol	77	(45 - 135)			SW846 8270C
	81	(45 - 135)	5.1	(0-40)	SW846 8270C
2-Chlorophenol	76	(45 - 135)			SW846 8270C
	79	(45 - 135)	3.8	(0-40)	SW846 8270C
4-Chloro-3-methylphenol	76	(45 - 135)			SW846 8270C
	79	(45 - 135)	3.9	(0-40)	SW846 8270C
4-Nitrophenol	80	(45 - 135)			SW846 8270C
	78	(45 - 135)	1.4	(0-40)	SW846 8270C
Acenaphthylene	72	(45 - 135)			SW846 8270C
	74	(45 - 135)	3.4	(0-40)	SW846 8270C
Anthracene	71	(45 - 135)			SW846 8270C
	75	(45 - 135)	4.8	(0-40)	SW846 8270C
Benzo(a)anthracene	67	(45 - 135)			SW846 8270C
	68	(45 - 135)	1.8	(0-40)	SW846 8270C
Benzo(b)fluoranthene	68	(45 - 135)			SW846 8270C
	66	(45 - 135)	4.2	(0-40)	SW846 8270C
Benzo(k)fluoranthene	78	(45 - 135)			SW846 8270C
	91	(45 - 135)	15	(0-40)	SW846 8270C
Benzo(ghi)perylene	7 4	(45 - 135)			SW846 8270C
_ , ,	75 	(45 - 135)	1.6	(0-40)	SW846 8270C
Benzo(a)pyrene	59	(45 - 135)			SW846 8270C
	64	(45 - 135)	7.4	(0-40)	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	<u>RECOVERY</u>	LIMITS	<u>RPD</u>	LIMITS	METHOD
bis(2-Chloroethoxy) methane	75	(45 - 135)			SW846 8270C
	76	(45 - 135)	1.2	(0-40)	SW846 8270C
<pre>bis(2-Chloroethyl)- ether</pre>	71	(45 - 135)			SW846 8270C
	79	(45 - 135)	9.4	(0-40)	SW846 8270C
<pre>bis(2-Chloroisopropyl) ether</pre>	71	(45 - 135)			SW846 8270C
	76	(45 - 135)	5.8	(0-40)	SW846 8270C
<pre>bis(2-Ethylhexyl) phthalate</pre>	77	(45 - 135)			SW846 8270C
	78	(45 - 135)	1.9	(0-40)	SW846 8270C
4-Bromophenyl phenyl ether	77	(45 - 135)			SW846 8270C
	82	(45 - 135)	6.6	(0-40)	SW846 8270C
Butyl benzyl phthalate	74	(45 - 135)			SW846 8270C
	74	(45 - 135)	0.11	(0-40)	SW846 8270C
Carbazole	73	(45 - 135)			SW846 8270C
	76	(45 - 135)	4.2	(0-40)	SW846 8270C
4-Chloroaniline	57	(45 - 135)			SW846 8270C
	58	(45 - 135)	2.6	(0-40)	SW846 8270C
2-Chloronaphthalene	73	(45 - 135)			SW846 8270C
	74	(45 - 135)	2.0	(0-40)	SW846 8270C
4-Chlorophenyl phenyl ether	75	(45 - 135)			SW846 8270C
	78	(45 - 135)	4.4	(0-40)	SW846 8270C
Chrysene	75	(45 - 135)			SW846 8270C
-	72	(45 - 135)	4.9	(0-40)	SW846 8270C
Dibenz(a,h)anthracene	73	(45 - 135)			SW846 8270C
	76	(45 - 135)	4.3	(0-40)	SW846 8270C
Dibenzofuran	72	(45 - 135)			SW846 8270C
	75	(45 - 135)	4.2	(0-40)	SW846 8270C
Di-n-butyl phthalate	76	(45 - 135)	-	*	SW846 8270C
	78	(45 - 135)	3.0	(0-40)	SW846 8270C
1,2-Dichlorobenzene	73	(45 - 135)		,	SW846 8270C
, =====================================	76	(45 - 135)	4.0	(0-40)	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

 Client Lot #...:
 A1D070566
 Work Order #...:
 MGM7Q1AF-MS
 Matrix.....:
 WATER

 MS Lot-Sample #:
 A1D070402-016
 MGM7Q1AG-MSD
 MGM7Q1AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	<u>RPD</u>	RPD LIMITS	METHOD
TIMMETER	_ KHCOVHKI		<u>KLD</u>	DIMITO	PHILIOD
1,3-Dichlorobenzene	68	(45 - 135)			SW846 8270C
•	71	(45 - 135)	4.3	(0-40)	SW846 8270C
3,3'-Dichlorobenzidine	29 a	(45 - 135)			SW846 8270C
	27 a	(45 - 135)	6.3	(0-40)	SW846 8270C
2,4-Dichlorophenol	76	(45 - 135)			SW846 8270C
	78	(45 - 135)	3.3	(0-40)	SW846 8270C
Diethyl phthalate	75	(45 - 135)			SW846 8270C
	78	(45 - 135)	4.3	(0-40)	SW846 8270C
2,4-Dimethylphenol	61	(45 - 135)			SW846 8270C
	60	(45 - 135)	1.7	(0-40)	SW846 8270C
Dimethyl phthalate	73	(45 - 135)			SW846 8270C
	76	(45 - 135)	4.2	(0-40)	SW846 8270C
4,6-Dinitro-	71	(45 - 135)			SW846 8270C
2-methylphenol					
	71	(45 - 135)	0.04	(0-40)	SW846 8270C
2,4-Dinitrophenol	35 a	(45 - 135)			SW846 8270C
	35 a	(45 - 135)	0.90	(0-40)	SW846 8270C
2,6-Dinitrotoluene	76	(45 - 135)			SW846 8270C
	79	(45 - 135)	3.8	(0-40)	SW846 8270C
Di-n-octyl phthalate	69	(45 - 135)			SW846 8270C
	71	(45 - 135)	2.6	(0-40)	SW846 8270C
Fluoranthene	75	(45 - 135)			SW846 8270C
	78	(45 - 135)	4.5	(0-40)	SW846 8270C
Fluorene	71	(45 - 135)			SW846 8270C
	75	(45 - 135)	4.9	(0-40)	SW846 8270C
Hexachlorobenzene	76	(45 - 135)			SW846 8270C
	80	(45 - 135)	5.3	(0-40)	SW846 8270C
Hexachlorobutadiene	66	(45 - 135)			SW846 8270C
	69	(45 - 135)	5.1	(0-40)	SW846 8270C
Hexachlorocyclopenta- diene	38 a	(45 - 135)			SW846 8270C
	41 a	(45 - 135)	9.2	(0-40)	SW846 8270C
Hexachloroethane	66	(45 - 135)			SW846 8270C
	70	(45 - 135)	5.2	(0-40)	SW846 8270C
Indeno(1,2,3-cd)pyrene	71	(45 - 135)		,	SW846 8270C
	74	(45 - 135)	4.3	(0-40)	SW846 8270C
Isophorone	71	(45 - 135)	-		SW846 8270C
-	73	(45 - 135)	3.5	(0-40)	SW846 8270C
2-Methylnaphthalene	83	(45 - 135)		,	SW846 8270C
	87	(45 - 135)	4.9	(0-40)	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
PARAMETER	KECOVEKI_	птиттр	<u>KPD</u>	TIMIIS	MEIHOD
2-Methylphenol	74	(45 - 135)			SW846 8270C
	76	(45 - 135)	2.9	(0-40)	SW846 8270C
4-Methylphenol	75	(45 - 135)		, ,	SW846 8270C
1 1 1	78	(45 - 135)	4.3	(0-40)	SW846 8270C
Naphthalene	70	(45 - 135)		,	SW846 8270C
	71	(45 - 135)	2.2	(0-40)	SW846 8270C
2-Nitroaniline	66	(45 - 135)		,	SW846 8270C
	69	(45 - 135)	4.1	(0-40)	SW846 8270C
3-Nitroaniline	64	(45 - 135)		(= = ,	SW846 8270C
	65	(45 - 135)	1.5	(0-50)	SW846 8270C
4-Nitroaniline	67	(45 - 135)		(0 00)	SW846 8270C
	69	(45 - 135)	3.1	(0-40)	SW846 8270C
Nitrobenzene	72	(45 - 135)	3.1	(0 10)	SW846 8270C
	75	(45 - 135)	3.7	(0-40)	SW846 8270C
2-Nitrophenol	75	(45 - 135)	J.,	(0 10)	SW846 8270C
2 Microphenor	81	(45 - 135)	7.8	(0-40)	SW846 8270C
N-Nitrosodiphenylamine	61	(45 - 135)		(0 10)	SW846 8270C
N NICIOSOCIPICAL ICALIA	62	(45 - 135)	2.1	(0-40)	SW846 8270C
Phenanthrene	73	(45 - 135)	2.1	(0 10)	SW846 8270C
THEHAITEHE CHC	75 75	(45 - 135)	3.0	(0-40)	SW846 8270C
2,4,5-Trichloro-	76	(45 - 135)	3.0	(0 10)	SW846 8270C
phenol	, 0	(15 155)			5.1010 02700
piiciioi	75	(45 - 135)	1.3	(0-40)	SW846 8270C
	.5	(13 133)	1.5	(0 10)	5.0010 02700
2,4,6-Trichloro-	70	(45 - 135)			SW846 8270C
phenol		(= = = = 7			2
F	74	(45 - 135)	6.0	(0-40)	SW846 8270C
		(= = = = 7		(0 _0,	2
Benzoic acid	25 a	(45 - 135)			SW846 8270C
	29 a	(45 - 135)	15	(0-40)	SW846 8270C
Benzyl alcohol	80	(45 - 135)		. ,	SW846 8270C
	76	(45 - 135)	5.2	(0-40)	SW846 8270C
Atrazine	76	(45 - 135)		,	SW846 8270C
	81	(45 - 135)	6.1	(0-40)	SW846 8270C
Benzaldehyde	159 a	(45 - 135)		. ,	SW846 8270C
1	168 a	(45 - 135)	5.4	(0-40)	SW846 8270C
Acetophenone	75	(45 - 135)		,	SW846 8270C
-	79	(45 - 135)	6.0	(0-40)	SW846 8270C
1,1'-Biphenyl	73	(45 - 135)		,	SW846 8270C
	75	(45 - 135)	2.8	(0-40)	SW846 8270C
Caprolactam	73	(45 - 135)		,	SW846 8270C
•	72	(45 - 135)	1.6	(0-40)	SW846 8270C
		/		,	

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

SURROGATERECOVERYLIMITSNitrobenzene-d569(50 - 150)
FO (FO 1FO)
70 (50 - 150)
2-Fluorobiphenyl 72 (50 - 150)
72 (50 - 150)
Terphenyl-d14 81 (50 - 150)
83 (50 - 150)
Phenol-d5 77 (50 - 150)
79 (50 - 150)
2-Fluorophenol 75 (50 - 150)
76 (50 - 150)
2,4,6-Tribromophenol 79 (50 - 150)
80 (50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date....: 04/08/11 Analysis Date..: 04/19/11

Prep Batch #...: 1098032

Dilution Factor: 1 Initial Wgt/Vol: 490 mL Final Wgt/Vol..: 2 mL

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD
1,2,4-Trichloro- benzene	ND	41	27	ug/L	66		SW846 8270C
	ND	41	28	ug/L	69	4.5	SW846 8270C
Acenaphthene	ND	41	30	ug/L	74		SW846 8270C
	ND	41	31	ug/L	75	2.0	SW846 8270C
2,4-Dinitrotoluene	ND	41	31	ug/L	76		SW846 8270C
	ND	41	32	ug/L	79	3.8	SW846 8270C
Pyrene	ND	41	29	ug/L	71		SW846 8270C
	ND	41	30	ug/L	72	1.7	SW846 8270C
N-Nitrosodi-n-propyl- amine	ND	41	27	ug/L	67		SW846 8270C
	ND	41	28	ug/L	69	3.0	SW846 8270C
1,4-Dichlorobenzene	ND	41	29	ug/L	71		SW846 8270C
,	ND	41	31	ug/L	75	5.3	SW846 8270C
Pentachlorophenol	ND	41	21	ug/L	50		SW846 8270C
	ND	41	19	ug/L	47	6.6	SW846 8270C
Phenol	ND	41	31	ug/L	77		SW846 8270C
	ND	41	33	ug/L	81	5.1	SW846 8270C
2-Chlorophenol	ND	41	31	ug/L	76		SW846 8270C
	ND	41	32	ug/L	79	3.8	SW846 8270C
4-Chloro-3-methylphenol	ND	41	31	ug/L	76		SW846 8270C
1 1 1 1	ND	41	32	ug/L	79	3.9	SW846 8270C
4-Nitrophenol	ND	41	32	ug/L	80		SW846 8270C
-	ND	41	32	ug/L	78	1.4	SW846 8270C
Acenaphthylene	ND	41	29	ug/L	72		SW846 8270C
	ND	41	30	ug/L	74	3.4	SW846 8270C
Anthracene	ND	41	29	ug/L	71		SW846 8270C
	ND	41	30	ug/L	75	4.8	SW846 8270C
Benzo(a)anthracene	ND	41	27	ug/L	67		SW846 8270C
• •	ND	41	28	ug/L	68	1.8	SW846 8270C
Benzo(b)fluoranthene	ND	41	28	ug/L	68		SW846 8270C
• •	ND	41	27	ug/L	66	4.2	SW846 8270C
Benzo(k)fluoranthene	ND	41	32	ug/L	78	•	SW846 8270C
	ND	41	37	ug/L	91	15	SW846 8270C
Benzo(ghi)perylene	ND	41	30	ug/L	74		SW846 8270C
.5 /1 1	ND	41	30	ug/L	75	1.6	SW846 8270C
Benzo(a)pyrene	ND	41	24	ug/L	59		SW846 8270C
V/L2	ND	41	26	ug/L	64	7.4	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD_	METHOD
bis(2-Chloroethoxy) methane	ND	41	31	ug/L	75		SW846 8270C
	ND	41	31	ug/L	76	1.2	SW846 8270C
bis(2-Chloroethyl)- ether	ND	41	29	ug/L	71		SW846 8270C
	ND	41	32	ug/L	79	9.4	SW846 8270C
<pre>bis(2-Chloroisopropyl) ether</pre>	ND	41	29	ug/L	71		SW846 8270C
	ND	41	31	ug/L	76	5.8	SW846 8270C
<pre>bis(2-Ethylhexyl) phthalate</pre>	ND	41	31	ug/L	77		SW846 8270C
F	ND	41	32	ug/L	78	1.9	SW846 8270C
4-Bromophenyl phenyl ether	ND	41	31	ug/L	77		SW846 8270C
	ND	41	34	ug/L	82	6.6	SW846 8270C
Butyl benzyl phthalate	ND	41	30	ug/L	74		SW846 8270C
	ND	41	30	ug/L	74	0.11	SW846 8270C
Carbazole	ND	41	30	ug/L	73		SW846 8270C
	ND	41	31	ug/L	76	4.2	SW846 8270C
4-Chloroaniline	ND	41	23	ug/L	57		SW846 8270C
	ND	41	24	ug/L	58	2.6	SW846 8270C
2-Chloronaphthalene	ND	41	30	ug/L	73		SW846 8270C
_	ND	41	30	ug/L	74	2.0	SW846 8270C
4-Chlorophenyl phenyl ether	ND	41	30	ug/L	75		SW846 8270C
	ND	41	32	ug/L	78	4.4	SW846 8270C
Chrysene	ND	41	31	ug/L	75		SW846 8270C
	ND	41	29	ug/L	72	4.9	SW846 8270C
Dibenz(a,h)anthracene	ND	41	30	ug/L	73		SW846 8270C
	ND	41	31	ug/L	76	4.3	SW846 8270C
Dibenzofuran	ND	41	29	ug/L	72		SW846 8270C
	ND	41	31	ug/L	75	4.2	SW846 8270C
Di-n-butyl phthalate	ND	41	31	ug/L	76		SW846 8270C
	ND	41	32	ug/L	78	3.0	SW846 8270C
1,2-Dichlorobenzene	ND	41	30	ug/L	73		SW846 8270C
	ND	41	31	ug/L	76	4.0	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

	_	_	_		_		
	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	<u>AMT</u>	_ AMOUNT_	UNITS	RECVRY	RPD_	METHOD
1,3-Dichlorobenzene	ND	41	28	ug/L	68		SW846 8270C
	ND	41	29	ug/L	71	4.3	SW846 8270C
3,3'-Dichlorobenzidine	ND	41	12	ug/L	29 a		SW846 8270C
	ND	41	11	ug/L	27 a	6.3	SW846 8270C
2,4-Dichlorophenol	ND	41	31	ug/L	76		SW846 8270C
	ND	41	32	ug/L	78	3.3	SW846 8270C
Diethyl phthalate	ND	41	31	ug/L	75		SW846 8270C
	ND	41	32	ug/L	78	4.3	SW846 8270C
2,4-Dimethylphenol	ND	41	25	ug/L	61		SW846 8270C
	ND	41	24	ug/L	60	1.7	SW846 8270C
Dimethyl phthalate	ND	41	30	ug/L	73		SW846 8270C
	ND	41	31	ug/L	76	4.2	SW846 8270C
4,6-Dinitro-	ND	41	29	ug/L	71		SW846 8270C
2-methylphenol							
	ND	41	29	ug/L	71	0.04	SW846 8270C
2,4-Dinitrophenol	ND	41	14	ug/L	35 a		SW846 8270C
_	ND	41	14	ug/L	35 a	0.90	SW846 8270C
2,6-Dinitrotoluene	ND	41	31	ug/L	76		SW846 8270C
	ND	41	32	ug/L	79	3.8	SW846 8270C
Di-n-octyl phthalate	ND	41	28	ug/L	69		SW846 8270C
1 1	ND	41	29	ug/L	71	2.6	SW846 8270C
Fluoranthene	ND	41	31	ug/L	75		SW846 8270C
	ND	41	32	ug/L	78	4.5	SW846 8270C
Fluorene	ND	41	29	ug/L	71		SW846 8270C
	ND	41	31	ug/L	75	4.9	SW846 8270C
Hexachlorobenzene	ND	41	31	ug/L	76		SW846 8270C
nendonioi obembene	ND	41	33	ug/L	80	5.3	SW846 8270C
Hexachlorobutadiene	ND	41	27	ug/L	66	3.3	SW846 8270C
nexaciiror obacaarene	ND	41	28	ug/L ug/L	69	5.1	SW846 8270C
Hexachlorocyclopenta-	ND	41	15	ug/L ug/L	38 a	J.1	SW846 8270C
diene	ND	41	13	ug/II	30 a		SW040 02/0C
arene	ND	41	17	ug /T	41 a	9.2	SW846 8270C
	ND	41	17	ug/L	41 a	9.4	SW040 02/0C
Hexachloroethane	ND	41	27	ug /T	66		SW846 8270C
HexaciiToroechane				ug/L		F 2	
Tudous/1 2 2 -3\	ND	41	29	ug/L	70 71	5.2	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	41	29	ug/L	71	4 3	SW846 8270C
~ 1.	ND	41	30	ug/L	74	4.3	SW846 8270C
Isophorone	ND	41	29	ug/L	71	a -	SW846 8270C
	ND	41	30	ug/L	73	3.5	SW846 8270C
2-Methylnaphthalene	ND	41	34	ug/L	83	_	SW846 8270C
	ND	41	35	ug/L	87	4.9	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

SAMPLE SPIKE MEASRD PERCNT
2-Methylphenol ND 41 30 ug/L 74 SW846 8270C ND 41 31 ug/L 76 2.9 SW846 8270C Ug/L 75 SW846 8270C ND 82 61 ug/L 75 SW846 8270C ND 82 64 ug/L 78 4.3 SW846 8270C ND 41 28 ug/L 70 SW846 8270C ND 41 29 ug/L 71 2.2 SW846 8270C Ug/L 71 2.2 SW846 8270C ND 41 27 ug/L 66 SW846 8270C SW846 8270C ND 41 28 ug/L 69 4.1 SW846 8270C ND 41 28 ug/L 69 4.1 SW846 8270C Ug/L 64 SW846 8270C Ug/L 64 SW846 8270C Ug/L 65 1.5 SW846 8270C Ug/L 65 1.5 SW846 8270C Ug/L 65 1.5 SW846 8270C Ug/L 67 SW846 8270C Ug/L 69 3.1 SW846 Ug/L 69
ND 41 31 ug/L 76 2.9 SW846 8270C 4-Methylphenol ND 82 61 ug/L 75 SW846 8270C ND 82 64 ug/L 78 4.3 SW846 8270C Naphthalene ND 41 28 ug/L 70 SW846 8270C ND 41 29 ug/L 71 2.2 SW846 8270C 2-Nitroaniline ND 41 27 ug/L 66 SW846 8270C 3-Nitroaniline ND 41 28 ug/L 69 4.1 SW846 8270C 3-Nitroaniline ND 41 26 ug/L 64 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 65 1.5 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 67 SW846 8270C ND 41 28 ug/L 69 3.1 SW846 8270C Nitrobenzene ND 41 30 ug/L 72 SW846 8270C Nitrophenol ND 41 31 ug/L 75 3.7 SW846 8270C N-Nitrosodiphenylamine ND 41 33 ug/L 81 7.8 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C ND ND ND ND ND ND ND N
ND 41 31 ug/L 76 2.9 SW846 8270C 4-Methylphenol ND 82 61 ug/L 75 SW846 8270C ND 82 64 ug/L 78 4.3 SW846 8270C Naphthalene ND 41 28 ug/L 70 SW846 8270C ND 41 29 ug/L 71 2.2 SW846 8270C 2-Nitroaniline ND 41 27 ug/L 66 SW846 8270C 3-Nitroaniline ND 41 28 ug/L 69 4.1 SW846 8270C 3-Nitroaniline ND 41 26 ug/L 64 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 65 1.5 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 67 SW846 8270C ND 41 28 ug/L 69 3.1 SW846 8270C Nitrobenzene ND 41 30 ug/L 72 SW846 8270C Nitrophenol ND 41 31 ug/L 75 3.7 SW846 8270C N-Nitrosodiphenylamine ND 41 33 ug/L 81 7.8 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C ND ND ND ND ND ND ND N
4-Methylphenol ND 82 61 ug/L 75 SW846 8270C ND 82 64 ug/L 78 4.3 SW846 8270C Naphthalene ND 41 28 ug/L 70 SW846 8270C ND 41 29 ug/L 71 2.2 SW846 8270C 2-Nitroaniline ND 41 27 ug/L 66 SW846 8270C 3-Nitroaniline ND 41 26 ug/L 64 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 65 1.5 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 65 1.5 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 67 SW846 8270C Nitrobenzene ND 41 30 ug/L 72 SW846 8270C 2-Nitrophenol ND 41 30 ug/L 75 SW846 8270C
ND 82 64 ug/L 78 4.3 SW846 8270C
Naphthalene ND 41 28 ug/L 70 SW846 8270C 2-Nitroaniline ND 41 29 ug/L 71 2.2 SW846 8270C 2-Nitroaniline ND 41 27 ug/L 66 SW846 8270C 3-Nitroaniline ND 41 26 ug/L 64 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 65 1.5 SW846 8270C 4-Nitrobenzene ND 41 28 ug/L 67 SW846 8270C Nitrobenzene ND 41 30 ug/L 72 SW846 8270C 2-Nitrophenol ND 41 30 ug/L 75 3.7 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
2-Nitroaniline ND 41 27 ug/L 66 SW846 8270C ND 41 28 ug/L 69 4.1 SW846 8270C 3-Nitroaniline ND 41 26 ug/L 64 SW846 8270C ND 41 27 ug/L 65 1.5 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 67 SW846 8270C ND 41 28 ug/L 67 SW846 8270C ND 41 28 ug/L 69 3.1 SW846 8270C NITrobenzene ND 41 30 ug/L 72 SW846 8270C ND 41 31 ug/L 75 3.7 SW846 8270C ND 41 31 ug/L 75 SW846 8270C ND 41 30 ug/L 75 SW846 8270C ND 41 30 ug/L 75 SW846 8270C ND 41 30 ug/L 75 SW846 8270C ND 41 33 ug/L 81 7.8 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
ND 41 28 ug/L 69 4.1 SW846 8270C
3-Nitroaniline ND 41 26 ug/L 64 SW846 8270C ND 41 27 ug/L 65 1.5 SW846 8270C 4-Nitroaniline ND 41 27 ug/L 67 SW846 8270C ND 41 28 ug/L 69 3.1 SW846 8270C NITrobenzene ND 41 30 ug/L 72 SW846 8270C ND 41 31 ug/L 72 SW846 8270C ND 41 31 ug/L 75 3.7 SW846 8270C ND 41 31 ug/L 75 SW846 8270C ND 41 30 ug/L 75 SW846 8270C ND 41 33 ug/L 75 SW846 8270C ND 41 33 ug/L 75 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
ND 41 27 ug/L 65 1.5 SW846 8270C
4-Nitroaniline ND 41 27 ug/L 67 SW846 8270C ND 41 28 ug/L 69 3.1 SW846 8270C Nitrobenzene ND 41 30 ug/L 72 SW846 8270C 2-Nitrophenol ND 41 30 ug/L 75 3.7 SW846 8270C N-Nitrosodiphenylamine ND 41 33 ug/L 81 7.8 SW846 8270C
ND 41 28 ug/L 69 3.1 SW846 8270C Nitrobenzene ND 41 30 ug/L 72 SW846 8270C ND 41 31 ug/L 75 3.7 SW846 8270C 2-Nitrophenol ND 41 30 ug/L 75 SW846 8270C ND 41 33 ug/L 75 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
Nitrobenzene ND 41 30 ug/L 72 SW846 8270C ND 41 31 ug/L 75 3.7 SW846 8270C 2-Nitrophenol ND 41 30 ug/L 75 SW846 8270C ND 41 33 ug/L 81 7.8 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
ND 41 31 ug/L 75 3.7 SW846 8270C 2-Nitrophenol ND 41 30 ug/L 75 SW846 8270C ND 41 33 ug/L 81 7.8 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
2-Nitrophenol ND 41 30 ug/L 75 SW846 8270C ND 41 33 ug/L 81 7.8 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
ND 41 33 ug/L 81 7.8 SW846 8270C N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
N-Nitrosodiphenylamine ND 41 25 ug/L 61 SW846 8270C
ND 41 OF/T CO 0.1 0004C 0000C
ND 41 25 ug/L 62 2.1 SW846 8270C
Phenanthrene ND 41 30 ug/L 73 SW846 8270C
ND 41 31 ug/L 75 3.0 SW846 8270C
2,4,5-Trichloro- ND 41 31 ug/L 76 SW846 8270C
phenol
ND 41 31 ug/L 75 1.3 SW846 8270C
2,4,6-Trichloro- ND 41 28 ug/L 70 SW846 8270C
phenol
ND 41 30 ug/L 74 6.0 SW846 8270C
Benzoic acid ND 41 10 ug/L 25 a SW846 8270C
ND 41 12 ug/L 29 a 15 SW846 8270C
Benzyl alcohol ND 41 33 ug/L 80 SW846 8270C
ND 41 31 ug/L 76 5.2 SW846 8270C
Atrazine ND 41 31 ug/L 76 SW846 8270C
ND 41 33 ug/L 81 6.1 SW846 8270C
Benzaldehyde ND 41 65 ug/L 159 a SW846 8270C
ND 41 68 ug/L 168 a 5.4 SW846 8270C
Acetophenone ND 41 31 ug/L 75 SW846 8270C
ND 41 32 ug/L 79 6.0 SW846 8270C
1,1'-Biphenyl ND 41 30 ug/L 73 SW846 8270C
ND 41 31 ug/L 75 2.8 SW846 8270C
Caprolactam ND 41 30 ug/L 73 SW846 8270C
ND 41 29 ug/L 72 1.6 SW846 8270C

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GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	<u>LIMITS</u>
Nitrobenzene-d5	69	(50 - 150)
	70	(50 - 150)
2-Fluorobiphenyl	72	(50 - 150)
	72	(50 - 150)
Terphenyl-d14	81	(50 - 150)
	83	(50 - 150)
Phenol-d5	77	(50 - 150)
	79	(50 - 150)
2-Fluorophenol	75	(50 - 150)
	76	(50 - 150)
2,4,6-Tribromophenol	79	(50 - 150)
	80	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/08/11 Analysis Date..: 04/19/11

Prep Batch #...: 1098032

Dilution Factor: 1 Initial Wgt/Vol: 490 mL Final Wgt/Vol..: 2 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
1,2,4-Trichloro-	68	(45 - 135)			SW846 8270C
benzene					
	68	(45 - 135)	1.1	(0-40)	SW846 8270C
Acenaphthene	76	(45 - 135)			SW846 8270C
	75	(45 - 135)	0.78	(0-40)	SW846 8270C
2,4-Dinitrotoluene	80	(45 - 135)			SW846 8270C
	78	(45 - 135)	1.9	(0-40)	SW846 8270C
Pyrene	72	(45 - 135)			SW846 8270C
	73	(45 - 135)	1.8	(0-40)	SW846 8270C
N-Nitrosodi-n-propyl- amine	67	(45 - 135)			SW846 8270C
	68	(45 - 135)	1.5	(0-40)	SW846 8270C
1,4-Dichlorobenzene	73	(45 - 135)			SW846 8270C
_,	72	(45 - 135)	0.73	(0-40)	SW846 8270C
Pentachlorophenol	71	(45 - 135)	••••	(0 10)	SW846 8270C
- 000-000	70	(45 - 135)	1.9	(0-40)	SW846 8270C
Phenol	78	(45 - 135)	,	(0 10)	SW846 8270C
	78	(45 - 135)	0.11	(0-40)	SW846 8270C
2-Chlorophenol	78	(45 - 135)		(= = ,	SW846 8270C
	77	(45 - 135)	0.30	(0-40)	SW846 8270C
4-Chloro-3-methylphenol	81	(45 - 135)		(= = ,	SW846 8270C
	83	(45 - 135)	2.7	(0-40)	SW846 8270C
4-Nitrophenol	83	(45 - 135)		(= = ,	SW846 8270C
	85	(45 - 135)	2.1	(0-40)	SW846 8270C
Acenaphthylene	74	(45 - 135)		(= = ,	SW846 8270C
	73	(45 - 135)	1.7	(0-40)	SW846 8270C
Anthracene	73	(45 - 135)		,	SW846 8270C
	72	(45 - 135)	1.5	(0-40)	SW846 8270C
Benzo(a)anthracene	67	(45 - 135)		,	SW846 8270C
	69	(45 - 135)	3.6	(0-40)	SW846 8270C
Benzo(b)fluoranthene	63	(45 - 135)			SW846 8270C
	67	(45 - 135)	6.7	(0-40)	SW846 8270C
Benzo(k)fluoranthene	78	(45 - 135)		,	SW846 8270C
• •	79	(45 - 135)	0.98	(0-40)	SW846 8270C
Benzo(ghi)perylene	70	(45 - 135)		,	SW846 8270C
.5 /1 1	72	(45 - 135)	2.9	(0-40)	SW846 8270C
Benzo(a)pyrene	59	(45 - 135)		· ·	SW846 8270C
-	61	(45 - 135)	3.9	(0-40)	SW846 8270C
		•			

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GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	<u>RPD</u>	RPD LIMITS	METHOD
bis(2-Chloroethoxy) methane	76	(45 - 135)			SW846 8270C
inc criaric	76	(45 - 135)	0.38	(0-40)	SW846 8270C
bis(2-Chloroethyl)- ether	77	(45 - 135)			SW846 8270C
	74	(45 - 135)	2.7	(0-40)	SW846 8270C
<pre>bis(2-Chloroisopropyl) ether</pre>	73	(45 - 135)			SW846 8270C
	73	(45 - 135)	0.05	(0-40)	SW846 8270C
<pre>bis(2-Ethylhexyl) phthalate</pre>	67	(45 - 135)			SW846 8270C
	73	(45 - 135)	7.8	(0-40)	SW846 8270C
4-Bromophenyl phenyl ether	80	(45 - 135)			SW846 8270C
	77	(45 - 135)	3.7	(0-40)	SW846 8270C
Butyl benzyl phthalate	76	(45 - 135)			SW846 8270C
	80	(45 - 135)	5.2	(0-40)	SW846 8270C
Carbazole	76	(45 - 135)			SW846 8270C
	75	(45 - 135)	1.2	(0-40)	SW846 8270C
4-Chloroaniline	53	(45 - 135)			SW846 8270C
	54	(45 - 135)	1.4	(0-40)	SW846 8270C
2-Chloronaphthalene	75	(45 - 135)			SW846 8270C
	74	(45 - 135)	0.98	(0-40)	SW846 8270C
4-Chlorophenyl phenyl ether	79	(45 - 135)			SW846 8270C
	77	(45 - 135)	1.8	(0-40)	SW846 8270C
Chrysene	70	(45 - 135)			SW846 8270C
	72	(45 - 135)	3.4	(0-40)	SW846 8270C
Dibenz(a,h)anthracene	70	(45 - 135)			SW846 8270C
	72	(45 - 135)	2.3	(0-40)	SW846 8270C
Dibenzofuran	75	(45 - 135)			SW846 8270C
	75	(45 - 135)	0.46	(0-40)	SW846 8270C
Di-n-butyl phthalate	79	(45 - 135)			SW846 8270C
	78	(45 - 135)	1.6	(0-40)	SW846 8270C
1,2-Dichlorobenzene	74	(45 - 135)		-	SW846 8270C
	75	(45 - 135)	1.2	(0-40)	SW846 8270C

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GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
1,3-Dichlorobenzene	69	(45 - 135)			SW846 8270C
-	70	(45 - 135)	1.3	(0-40)	SW846 8270C
3,3'-Dichlorobenzidine	20 a	(45 - 135)			SW846 8270C
	21 a	(45 - 135)	1.5	(0-40)	SW846 8270C
2,4-Dichlorophenol	80	(45 - 135)			SW846 8270C
_	80	(45 - 135)	0.15	(0-40)	SW846 8270C
Diethyl phthalate	79	(45 - 135)			SW846 8270C
	76	(45 - 135)	2.6	(0-40)	SW846 8270C
2,4-Dimethylphenol	67	(45 - 135)			SW846 8270C
	69	(45 - 135)	2.4	(0-40)	SW846 8270C
Dimethyl phthalate	78	(45 - 135)			SW846 8270C
	75	(45 - 135)	3.0	(0-40)	SW846 8270C
4,6-Dinitro-	73	(45 - 135)			SW846 8270C
2-methylphenol					
	75	(45 - 135)	2.1	(0-40)	SW846 8270C
2,4-Dinitrophenol	52	(45 - 135)			SW846 8270C
_	52	(45 - 135)	1.0	(0-40)	SW846 8270C
2,6-Dinitrotoluene	80	(45 - 135)			SW846 8270C
	79	(45 - 135)	1.3	(0-40)	SW846 8270C
Di-n-octyl phthalate	60	(45 - 135)			SW846 8270C
	62	(45 - 135)	3.9	(0-40)	SW846 8270C
Fluoranthene	77	(45 - 135)			SW846 8270C
	77	(45 - 135)	0.13	(0-40)	SW846 8270C
Fluorene	76	(45 - 135)			SW846 8270C
	75	(45 - 135)	2.3	(0-40)	SW846 8270C
Hexachlorobenzene	76	(45 - 135)			SW846 8270C
	78	(45 - 135)	2.2	(0-40)	SW846 8270C
Hexachlorobutadiene	69	(45 - 135)			SW846 8270C
	69	(45 - 135)	0.08	(0-40)	SW846 8270C
Hexachlorocyclopenta-	44 a	(45 - 135)		, ,	SW846 8270C
diene					
	46	(45 - 135)	4.8	(0-40)	SW846 8270C
Hexachloroethane	69	(45 - 135)			SW846 8270C
	68	(45 - 135)	1.1	(0-40)	SW846 8270C
Indeno(1,2,3-cd)pyrene	69	(45 - 135)			SW846 8270C
	72	(45 - 135)	4.0	(0-40)	SW846 8270C
Isophorone	72	(45 - 135)			SW846 8270C
	74	(45 - 135)	2.6	(0-40)	SW846 8270C
2-Methylnaphthalene	86	(45 - 135)			SW846 8270C
	86	(45 - 135)	0.07	(0-40)	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
PARAMETER	<u>KECOVEKI</u>	TIMII?	KPD_	птиттр	METHOD
2-Methylphenol	75	(45 - 135)			SW846 8270C
	76	(45 - 135)	1.2	(0-40)	SW846 8270C
4-Methylphenol	78	(45 - 135)			SW846 8270C
	77	(45 - 135)	0.96	(0-40)	SW846 8270C
Naphthalene	71	(45 - 135)			SW846 8270C
	72	(45 - 135)	0.83	(0-40)	SW846 8270C
2-Nitroaniline	68	(45 - 135)			SW846 8270C
	69	(45 - 135)	1.1	(0-40)	SW846 8270C
3-Nitroaniline	65	(45 - 135)			SW846 8270C
	60	(45 - 135)	8.5	(0-50)	SW846 8270C
4-Nitroaniline	70	(45 - 135)			SW846 8270C
	67	(45 - 135)	4.4	(0-40)	SW846 8270C
Nitrobenzene	75	(45 - 135)			SW846 8270C
	76	(45 - 135)	1.4	(0-40)	SW846 8270C
2-Nitrophenol	79	(45 - 135)			SW846 8270C
	79	(45 - 135)	0.57	(0-40)	SW846 8270C
N-Nitrosodiphenylamine	66	(45 - 135)			SW846 8270C
	65	(45 - 135)	1.9	(0-40)	SW846 8270C
Phenanthrene	75	(45 - 135)			SW846 8270C
	74	(45 - 135)	0.82	(0-40)	SW846 8270C
2,4,5-Trichloro- phenol	82	(45 - 135)			SW846 8270C
-	78	(45 - 135)	4.6	(0-40)	SW846 8270C
2,4,6-Trichloro- phenol	79	(45 - 135)			SW846 8270C
	77	(45 - 135)	2.1	(0-40)	SW846 8270C
Benzoic acid	64	(45 - 135)			SW846 8270C
	62	(45 - 135)	2.8	(0-40)	SW846 8270C
Benzyl alcohol	80	(45 - 135)			SW846 8270C
•	82	(45 - 135)	2.9	(0-40)	SW846 8270C
Atrazine	79	(45 - 135)			SW846 8270C
	79	(45 - 135)	0.08	(0-40)	SW846 8270C
Benzaldehyde	160 a	(45 - 135)			SW846 8270C
_	147 a	(45 - 135)	8.4	(0-40)	SW846 8270C
Acetophenone	77	(45 - 135)			SW846 8270C
	76	(45 - 135)	1.4	(0-40)	SW846 8270C
1,1'-Biphenyl	75	(45 - 135)			SW846 8270C
•	74	(45 - 135)	1.2	(0-40)	SW846 8270C
Caprolactam	74	(45 - 135)			SW846 8270C
	75	(45 - 135)	1.5	(0-40)	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	<u>LIMITS</u>
Nitrobenzene-d5	70	(50 - 150)
	70	(50 - 150)
2-Fluorobiphenyl	76	(50 - 150)
	73	(50 - 150)
Terphenyl-d14	81	(50 - 150)
	82	(50 - 150)
Phenol-d5	79	(50 - 150)
	78	(50 - 150)
2-Fluorophenol	76	(50 - 150)
	75	(50 - 150)
2,4,6-Tribromophenol	86	(50 - 150)
	83	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/08/11 Analysis Date..: 04/19/11

Prep Batch #...: 1098032

Dilution Factor: 1 Initial Wgt/Vol: 490 mL Final Wgt/Vol..: 2 mL

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHO!	D
1,2,4-Trichloro-	ND	41	28	ug/L	68		SW846	8270C
benzene								
	ND	41	28	ug/L	68	1.1	SW846	8270C
Acenaphthene	ND	41	31	ug/L	76		SW846	8270C
	ND	41	31	ug/L	75	0.78	SW846	8270C
2,4-Dinitrotoluene	ND	41	32	ug/L	80		SW846	8270C
	ND	41	32	ug/L	78	1.9	SW846	8270C
Pyrene	ND	41	29	ug/L	72		SW846	8270C
	ND	41	30	ug/L	73	1.8	SW846	8270C
N-Nitrosodi-n-propyl- amine	ND	41	27	ug/L	67		SW846	8270C
	ND	41	28	ug/L	68	1.5	SW846	8270C
1,4-Dichlorobenzene	ND	41	30	ug/L	73		SW846	8270C
_,	ND	41	30	ug/L	72	0.73	SW846	
Pentachlorophenol	ND	41	29	ug/L	71	••••		8270C
	ND	41	29	ug/L	70	1.9		8270C
Phenol	ND	41	32	ug/L	78	_,,		8270C
	ND	41	32	ug/L	78	0.11	SW846	
2-Chlorophenol	ND	41	32	ug/L	78			8270C
	ND	41	32	ug/L	77	0.30	SW846	
4-Chloro-3-methylphenol	ND	41	33	ug/L	81			8270C
	ND	41	34	ug/L	83	2.7		8270C
4-Nitrophenol	ND	41	34	ug/L	83			8270C
_	ND	41	35	ug/L	85	2.1	SW846	8270C
Acenaphthylene	ND	41	30	ug/L	74		SW846	8270C
	ND	41	30	ug/L	73	1.7	SW846	8270C
Anthracene	ND	41	30	ug/L	73		SW846	8270C
	ND	41	29	ug/L	72	1.5	SW846	8270C
Benzo(a)anthracene	ND	41	27	ug/L	67		SW846	8270C
	ND	41	28	ug/L	69	3.6	SW846	8270C
Benzo(b)fluoranthene	ND	41	26	ug/L	63		SW846	8270C
	ND	41	27	ug/L	67	6.7	SW846	8270C
Benzo(k)fluoranthene	ND	41	32	ug/L	78		SW846	8270C
	ND	41	32	ug/L	79	0.98	SW846	8270C
Benzo(ghi)perylene	ND	41	29	ug/L	70		SW846	8270C
	ND	41	29	ug/L	72	2.9	SW846	8270C
Benzo(a)pyrene	ND	41	24	ug/L	59		SW846	8270C
	ND	41	25	ug/L	61	3.9	SW846	8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

	CAMPIE	aptun	MEXCDD				
PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	ממם	METHOD
PARAMETER	AMOUNT	AMI	AMOUNI	UNIIS	RECVRI	KPD_	METHOD
<pre>bis(2-Chloroethoxy) methane</pre>	ND	41	31	ug/L	76		SW846 8270C
	ND	41	31	ug/L	76	0.38	SW846 8270C
<pre>bis(2-Chloroethyl)- ether</pre>	ND	41	31	ug/L	77		SW846 8270C
	ND	41	30	ug/L	74	2.7	SW846 8270C
<pre>bis(2-Chloroisopropyl) ether</pre>	ND	41	30	ug/L	73		SW846 8270C
	ND	41	30	ug/L	73	0.05	SW846 8270C
<pre>bis(2-Ethylhexyl) phthalate</pre>	1.2	41	29	ug/L	67		SW846 8270C
	1.2	41	31	ug/L	73	7.8	SW846 8270C
4-Bromophenyl phenyl ether	ND	41	32	ug/L	80		SW846 8270C
	ND	41	31	ug/L	77	3.7	SW846 8270C
Butyl benzyl phthalate	ND	41	31	ug/L	76		SW846 8270C
	ND	41	33	ug/L	80	5.2	SW846 8270C
Carbazole	ND	41	31	ug/L	76		SW846 8270C
	ND	41	31	ug/L	75	1.2	SW846 8270C
4-Chloroaniline	ND	41	22	ug/L	53		SW846 8270C
	ND	41	22	ug/L	54	1.4	SW846 8270C
2-Chloronaphthalene	ND	41	31	ug/L	75		SW846 8270C
-	ND	41	30	ug/L	74	0.98	SW846 8270C
4-Chlorophenyl phenyl ether	ND	41	32	ug/L	79		SW846 8270C
Coller	ND	41	32	ug/L	77	1.8	SW846 8270C
Chrysene	ND	41	29	ug/L	70		SW846 8270C
	ND	41	29	ug/L	72	3.4	SW846 8270C
Dibenz(a,h)anthracene	ND	41	29	ug/L	70		SW846 8270C
	ND	41	29	ug/L	72	2.3	SW846 8270C
Dibenzofuran	ND	41	31	ug/L	75		SW846 8270C
	ND	41	31	ug/L	75	0.46	SW846 8270C
Di-n-butyl phthalate	ND	41	32	ug/L	79		SW846 8270C
	ND	41	32	ug/L	78	1.6	SW846 8270C
1,2-Dichlorobenzene	ND	41	30	ug/L	74		SW846 8270C
	ND	41	30	ug/L	75	1.2	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD_	METHOD
1 2 Pi-bl	NTD.	41	20	/T	60		GW0.4.C. 0.07.0.C
1,3-Dichlorobenzene	ND	41	28	ug/L	69	1 2	SW846 8270C
2 21 5	ND	41	29	ug/L	70	1.3	SW846 8270C
3,3'-Dichlorobenzidine	ND	41	8.4	ug/L	20 a	1 -	SW846 8270C
0.4 5 1 1 1	ND	41	8.5	ug/L	21 a	1.5	SW846 8270C
2,4-Dichlorophenol	ND	41	32	ug/L	80	0 15	SW846 8270C
-1 .1 1 1.1 1 .	ND	41	33	ug/L	80	0.15	SW846 8270C
Diethyl phthalate	ND	41	32	ug/L	79		SW846 8270C
	ND	41	31	ug/L	76	2.6	SW846 8270C
2,4-Dimethylphenol	ND	41	28	ug/L	67		SW846 8270C
	ND	41	28	ug/L	69	2.4	SW846 8270C
Dimethyl phthalate	ND	41	32	ug/L	78		SW846 8270C
	ND	41	31	ug/L	75	3.0	SW846 8270C
4,6-Dinitro-	ND	41	30	ug/L	73		SW846 8270C
2-methylphenol							
	ND	41	31	ug/L	75	2.1	SW846 8270C
2,4-Dinitrophenol	ND	41	21	ug/L	52		SW846 8270C
_	ND	41	21	ug/L	52	1.0	SW846 8270C
2,6-Dinitrotoluene	ND	41	33	ug/L	80		SW846 8270C
•	ND	41	32	ug/L	79	1.3	SW846 8270C
Di-n-octyl phthalate	ND	41	24	ug/L	60	_,_	SW846 8270C
	ND	41	25	ug/L	62	3.9	SW846 8270C
Fluoranthene	ND	41	31	ug/L	77		SW846 8270C
	ND	41	31	ug/L	77	0.13	SW846 8270C
Fluorene	ND	41	31	ug/L	76	0.120	SW846 8270C
114010110	ND	41	31	ug/L	75	2.3	SW846 8270C
Hexachlorobenzene	ND	41	31	ug/L	76	2.5	SW846 8270C
nexaciiror openzene	ND	41	32	ug/L	78	2.2	SW846 8270C
Hexachlorobutadiene	ND	41	28	ug/L ug/L	69	2.2	SW846 8270C
nexaciiioiobucadiene	ND	41	28	_	69	0 00	SW846 8270C
Horroghlowegralopento				ug/L		0.00	
Hexachlorocyclopenta-	ND	41	18	ug/L	44 a		SW846 8270C
diene		4.1	1.0		4.0	4.0	
	ND	41	19	ug/L	46	4.8	SW846 8270C
		4.7	00	-			
Hexachloroethane	ND	41	28	ug/L	69		SW846 8270C
	ND	41	28	ug/L	68	1.1	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	41	28	ug/L	69		SW846 8270C
	ND	41	30	ug/L	72	4.0	SW846 8270C
Isophorone	ND	41	29	ug/L	72		SW846 8270C
	ND	41	30	ug/L	74	2.6	SW846 8270C
2-Methylnaphthalene	ND	41	35	ug/L	86		SW846 8270C
	ND	41	35	ug/L	86	0.07	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT			
				INITEG	_	DDD	MEMILOD	
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	<u>RPD</u>	METHOD	_
2-Methylphenol	ND	41	31	ug/L	75		SW846 8270C	
2 neen, ipnenoi	ND	41	31	ug/L	76	1.2	SW846 8270C	
4-Methylphenol	ND	82	63	ug/L	78		SW846 8270C	
1 Meeny iphenoi	ND	82	63	ug/L	77	0 96	SW846 8270C	
Naphthalene	ND	41	29	ug/L	71	0.50	SW846 8270C	
NapitellaTelle	ND	41	29	ug/L	72	0 83	SW846 8270C	
2-Nitroaniline	ND	41	28	ug/L	68	0.05	SW846 8270C	
Z MICIOGNIIIIC	ND	41	28	ug/L	69	1.1	SW846 8270C	
3-Nitroaniline	ND	41	27	ug/L	65		SW846 8270C	
5 NICIOMILITIC	ND	41	25	ug/L	60	8.5	SW846 8270C	
4-Nitroaniline	ND	41	28	ug/L	70	0.5	SW846 8270C	
1 MICIOANIIIIC	ND	41	27	ug/L	67	4.4		
Nitrobenzene	ND	41	31	ug/L	75	1.1	SW846 8270C	
NTCTODENZENE	ND	41	31	ug/L ug/L	75 76	1.4	SW846 8270C	
2-Nitrophenol	ND	41	32	ug/L ug/L	70 79	1.1	SW846 8270C	
z Microphenor	ND	41	32	ug/L ug/L	79	0 57	SW846 8270C	
N-Nitrosodiphenylamine	ND	41	27	ug/L ug/L	66	0.57	SW846 8270C	
N-NICIOSOGIPHENYIAMINE	ND	41	27		65	1.9	SW846 8270C	
Phenanthrene	ND ND	41	31	ug/L	75	1.9	SW846 8270C	
Phenancimene		41	30	ug/L	75 74	0 02	SW846 8270C	
2,4,5-Trichloro-	ND		33	ug/L	82	0.62	SW846 8270C	
phenol	ND	41	33	ug/L	04		5W040 02/0C	
phenor	ND	41	32	ug/L	78	4.6	SW846 8270C	
	ND	41	32	ug/II	70	1.0	5W040 02/0C	
2,4,6-Trichloro-	ND	41	32	ug/L	79		SW846 8270C	
phenol			_	5, -				
1	ND	41	32	ug/L	77	2.1	SW846 8270C	
			_	-5, -				
Benzoic acid	ND	41	26	ug/L	64		SW846 8270C	
	ND	41	25	ug/L	62	2.8	SW846 8270C	
Benzyl alcohol	ND	41	33	ug/L	80		SW846 8270C	
	ND	41	34	ug/L	82	2.9	SW846 8270C	
Atrazine	ND	41	32	ug/L	79		SW846 8270C	
	ND	41	32	ug/L	79	0.08	SW846 8270C	
Benzaldehyde	ND	41	65	ug/L	160 a		SW846 8270C	
	ND	41	60	ug/L	147 a	8.4	SW846 8270C	
Acetophenone	ND	41	32	ug/L	77		SW846 8270C	
	ND	41	31	ug/L	76	1.4	SW846 8270C	
1,1'-Biphenyl	ND	41	31	ug/L	75		SW846 8270C	
_ -	ND	41	30	ug/L	74	1.2		
Caprolactam	ND	41	30	ug/L	74		SW846 8270C	
_	ND	41	31	ug/L	75	1.5		
				-				

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	<u>LIMITS</u>
Nitrobenzene-d5	70	(50 - 150)
	70	(50 - 150)
2-Fluorobiphenyl	76	(50 - 150)
	73	(50 - 150)
Terphenyl-d14	81	(50 - 150)
	82	(50 - 150)
Phenol-d5	79	(50 - 150)
	78	(50 - 150)
2-Fluorophenol	76	(50 - 150)
	75	(50 - 150)
2,4,6-Tribromophenol	86	(50 - 150)
	83	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

North Canton

Lot/SDG Number: A1D070566

Sample Control Chain of Custody - TAL North Canton GC/MS Semivolatiles

					Date of			
Lot Number	Work Order	Analysis Type	Prep Date	Prep Analyst	Transfer	Transferred By	Analysis Date	Analyst
A1D070566-011	MGPCC1AC	Base/Neutrals and Acids (8270C)	04/08/11	Steve Earle	04/08/11	Steve Earle	04/19/11	John Gruber



PESTICIDE DATA

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC Semivolatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1CM Matrix.....: WQ

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11 Prep Date....: 04/09/11 Analysis Date..: 04/17/11

Prep Batch #...: 1099014

Method....: SW846 8081A

		REPORTIN	REPORTING		
PARAMETER	RESULT	<u>LIMIT</u>	UNITS		
alpha-BHC	ND	0.030	ug/L		
beta-BHC	0.017 J	0.030	ug/L		
delta-BHC	ND	0.030	ug/L		
gamma-BHC (Lindane)	ND	0.030	ug/L		
Heptachlor	ND	0.030	ug/L		
Aldrin	ND	0.030	ug/L		
Heptachlor epoxide	ND	0.030	ug/L		
Endosulfan I	ND	0.025	ug/L		
Dieldrin	ND	0.030	ug/L		
4,4'-DDE	ND	0.030	ug/L		
Endrin	ND	0.030	ug/L		
Endosulfan II	ND	0.025	ug/L		
4,4'-DDD	ND	0.030	ug/L		
Endosulfan sulfate	ND	0.030	ug/L		
4,4'-DDT	ND	0.030	ug/L		
Methoxychlor	ND	0.10	ug/L		
Endrin ketone	ND	0.030	ug/L		
Endrin aldehyde	ND	0.030	ug/L		
alpha-Chlordane	ND	0.030	ug/L		
gamma-Chlordane	ND	0.030	ug/L		
Toxaphene	ND	2.0	ug/L		
	PERCENT	RECOVERY	-		
SURROGATE	RECOVERY	LIMITS			
Tetrachloro-m-xylene	85	(50 - 15	0)		
Decachlorobiphenyl	65	(50 - 15	0)		

NOTE(S):

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9L1AA Matrix.....: WATER

MB Lot-Sample #: A1D090000-014

Prep Date.....: 04/09/11 Final Wgt/Vol..: 5 mL

Analysis Date..: 04/17/11 Prep Batch #...: 1099014 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL

REPORTING

PARAMETER	RESULT	LIMIT	UNITS	METHOD
alpha-BHC	ND	0.030	ug/L	SW846 8081A
beta-BHC	ND	0.030	ug/L	SW846 8081A
delta-BHC	ND	0.030	ug/L	SW846 8081A
gamma-BHC (Lindane)	ND	0.030	ug/L	SW846 8081A
Heptachlor	ND	0.030	ug/L	SW846 8081A
Aldrin	ND	0.030	ug/L	SW846 8081A
Heptachlor epoxide	ND	0.030	ug/L	SW846 8081A
Endosulfan I	ND	0.025	ug/L	SW846 8081A
Dieldrin	ND	0.030	ug/L	SW846 8081A
4,4'-DDE	ND	0.030	ug/L	SW846 8081A
Endrin	ND	0.030	ug/L	SW846 8081A
Endosulfan II	ND	0.025	ug/L	SW846 8081A
4,4'-DDD	ND	0.030	ug/L	SW846 8081A
Endosulfan sulfate	ND	0.030	ug/L	SW846 8081A
4,4'-DDT	ND	0.030	ug/L	SW846 8081A
Methoxychlor	ND	0.10	ug/L	SW846 8081A
Endrin ketone	ND	0.030	ug/L	SW846 8081A
Endrin aldehyde	ND	0.030	ug/L	SW846 8081A
alpha-Chlordane	ND	0.030	ug/L	SW846 8081A
gamma-Chlordane	ND	0.030	ug/L	SW846 8081A
Toxaphene	ND	2.0	ug/L	SW846 8081A
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Tetrachloro-m-xylene	81	(50 - 150)	
Decachlorobiphenyl	72	(50 - 150)	

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \textbf{are} \ \textbf{performed} \ \textbf{before} \ \textbf{rounding} \ \textbf{to} \ \textbf{avoid} \ \textbf{round-off} \ \textbf{errors} \ \textbf{in} \ \textbf{calculated} \ \textbf{results}.$

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9L1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-014

Prep Batch #...: 1099014

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
alpha-BHC	96	(44 - 137)	SW846 8081A
beta-BHC	92	(50 - 135)	SW846 8081A
delta-BHC	96	(58 - 160)	SW846 8081A
gamma-BHC (Lindane)	98	(58 - 127)	SW846 8081A
Heptachlor	89	(48 - 150)	SW846 8081A
Aldrin	88	(53 - 128)	SW846 8081A
Heptachlor epoxide	90	(50 - 127)	SW846 8081A
Endosulfan I	54	(50 - 160)	SW846 8081A
Dieldrin	91	(50 - 124)	SW846 8081A
4,4'-DDE	92	(50 - 130)	SW846 8081A
Endrin	91	(50 - 137)	SW846 8081A
Endosulfan II	61	(50 - 144)	SW846 8081A
4,4'-DDD	100	(50 - 137)	SW846 8081A
Endosulfan sulfate	91	(50 - 160)	SW846 8081A
4,4'-DDT	92	(50 - 145)	SW846 8081A
Methoxychlor	94	(50 - 160)	SW846 8081A
Endrin ketone	87	(50 - 150)	SW846 8081A
Endrin aldehyde	72	(30 - 160)	SW846 8081A
alpha-Chlordane	89	(50 - 122)	SW846 8081A
gamma-Chlordane	92	(50 - 130)	SW846 8081A
		PERCENT	RECOVERY
SURROGATE		RECOVERY	<u>LIMITS</u>
Tetrachloro-m-xylene		86	(50 - 150)
Decachlorobiphenyl		40 *	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9L1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-014

Prep Batch #...: 1099014

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	<u>AMOUNT</u>	UNITS	RECOVERY	METHOD
alpha-BHC	1.0	0.96	ug/L	96	SW846 8081A
beta-BHC	1.0	0.92	ug/L	92	SW846 8081A
delta-BHC	1.0	0.96	ug/L	96	SW846 8081A
gamma-BHC (Lindane)	1.0	0.98	ug/L	98	SW846 8081A
Heptachlor	1.0	0.89	ug/L	89	SW846 8081A
Aldrin	1.0	0.88	ug/L	88	SW846 8081A
Heptachlor epoxide	1.0	0.90	ug/L	90	SW846 8081A
Endosulfan I	1.0	0.54	ug/L	54	SW846 8081A
Dieldrin	1.0	0.91	ug/L	91	SW846 8081A
4,4'-DDE	1.0	0.92	ug/L	92	SW846 8081A
Endrin	1.0	0.91	ug/L	91	SW846 8081A
Endosulfan II	1.0	0.61	ug/L	61	SW846 8081A
4,4'-DDD	1.0	1.0	ug/L	100	SW846 8081A
Endosulfan sulfate	1.0	0.91	ug/L	91	SW846 8081A
4,4'-DDT	1.0	0.92	ug/L	92	SW846 8081A
Methoxychlor	1.0	0.94	ug/L	94	SW846 8081A
Endrin ketone	1.0	0.87	ug/L	87	SW846 8081A
Endrin aldehyde	1.0	0.72	ug/L	72	SW846 8081A
alpha-Chlordane	1.0	0.89	ug/L	89	SW846 8081A
gamma-Chlordane	1.0	0.92	ug/L	92	SW846 8081A
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS	_	
Tetrachloro-m-xylene		86	(50 - 150)		
Decachlorobiphenyl		40 *	(50 - 150)		

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \textbf{are} \ \textbf{performed} \ \textbf{before} \ \textbf{rounding} \ \textbf{to} \ \textbf{avoid} \ \textbf{round-off} \ \textbf{errors} \ \textbf{in} \ \textbf{calculated} \ \textbf{results}.$

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099014

Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	<u>RECOVERY</u>	LIMITS	RPD_	LIMITS	METHOD
alpha-BHC	101	(50 - 150)			SW846 8081A
_	94	(50 - 150)	6.8	(0-50)	SW846 8081A
beta-BHC	99	(50 - 150)			SW846 8081A
	91	(50 - 150)	7.6	(0-50)	SW846 8081A
delta-BHC	102	(50 - 150)			SW846 8081A
	95	(50 - 150)	7.2	(0-50)	SW846 8081A
gamma-BHC (Lindane)	101	(50 - 150)			SW846 8081A
	95	(50 - 150)	7.0	(0-50)	SW846 8081A
Heptachlor	94	(50 - 150)			SW846 8081A
	90	(50 - 150)	4.5	(0-50)	SW846 8081A
Aldrin	92	(50 - 150)			SW846 8081A
	87	(50 - 150)	6.5	(0-50)	SW846 8081A
Heptachlor epoxide	92	(50 - 150)			SW846 8081A
	86	(50 - 150)	6.2	(0-50)	SW846 8081A
Endosulfan I	61	(50 - 150)			SW846 8081A
	57	(50 - 150)	6.3	(0-50)	SW846 8081A
Dieldrin	98	(50 - 150)			SW846 8081A
	91	(50 - 150)	6.8	(0-50)	SW846 8081A
4,4'-DDE	100	(50 - 150)			SW846 8081A
	94	(50 - 150)	6.2	(0-50)	SW846 8081A
Endrin	98	(50 - 150)			SW846 8081A
	92	(50 - 150)	6.4	(0-50)	SW846 8081A
Endosulfan II	67	(50 - 150)			SW846 8081A
	65	(50 - 150)	4.3	(0-50)	SW846 8081A
4,4'-DDD	106	(50 - 150)			SW846 8081A
	101	(50 - 150)	4.4	(0-50)	SW846 8081A
Endosulfan sulfate	98	(50 - 150)			SW846 8081A
	94	(50 - 150)	4.0	(0-50)	SW846 8081A
4,4'-DDT	103	(50 - 150)			SW846 8081A
	99	(50 - 150)	3.4	(0-50)	SW846 8081A
Methoxychlor	104	(50 - 150)			SW846 8081A
	103	(50 - 150)	0.91	(0-50)	SW846 8081A
Endrin ketone	94	(50 - 150)			SW846 8081A
	91	(50 - 150)	3.2	(0-50)	SW846 8081A
Endrin aldehyde	78	(50 - 150)			SW846 8081A
	75	(50 - 150)	4.4	(0-50)	SW846 8081A
alpha-Chlordane	95	(50 - 150)			SW846 8081A
	89	(50 - 150)	6.6	(0-50)	SW846 8081A
gamma-Chlordane	98	(50 - 150)			SW846 8081A
	91	(50 - 150)	7.3	(0-50)	SW846 8081A

(Continued on next page)

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AT-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Tetrachloro-m-xylene	91	(50 - 150)
	85	(50 - 150)
Decachlorobiphenyl	81	(50 - 150)
	86	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date.....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099014

Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD
alpha-BHC	ND	2.0	2.0	ug/L	101		SW846 8081A
_	ND	2.0	1.9	ug/L	94	6.8	SW846 8081A
beta-BHC	ND	2.0	2.0	ug/L	99		SW846 8081A
	ND	2.0	1.8	ug/L	91	7.6	SW846 8081A
delta-BHC	ND	2.0	2.0	ug/L	102		SW846 8081A
	ND	2.0	1.9	ug/L	95	7.2	SW846 8081A
gamma-BHC (Lindane)	ND	2.0	2.0	ug/L	101		SW846 8081A
	ND	2.0	1.9	ug/L	95	7.0	SW846 8081A
Heptachlor	ND	2.0	1.9	ug/L	94		SW846 8081A
	ND	2.0	1.8	ug/L	90	4.5	SW846 8081A
Aldrin	ND	2.0	1.8	ug/L	92		SW846 8081A
	ND	2.0	1.7	ug/L	87	6.5	SW846 8081A
Heptachlor epoxide	ND	2.0	1.8	ug/L	92		SW846 8081A
	ND	2.0	1.7	ug/L	86	6.2	SW846 8081A
Endosulfan I	ND	2.0	1.2	ug/L	61		SW846 8081A
	ND	2.0	1.1	ug/L	57	6.3	SW846 8081A
Dieldrin	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.8	ug/L	91	6.8	SW846 8081A
4,4'-DDE	ND	2.0	2.0	ug/L	100		SW846 8081A
	ND	2.0	1.9	ug/L	94	6.2	SW846 8081A
Endrin	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.8	ug/L	92	6.4	SW846 8081A
Endosulfan II	ND	2.0	1.3	ug/L	67		SW846 8081A
	ND	2.0	1.3	ug/L	65	4.3	SW846 8081A
4,4'-DDD	ND	2.0	2.1	ug/L	106		SW846 8081A
	ND	2.0	2.0	ug/L	101	4.4	SW846 8081A
Endosulfan sulfate	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.9	ug/L	94	4.0	SW846 8081A
4,4'-DDT	ND	2.0	2.1	ug/L	103		SW846 8081A
	ND	2.0	2.0	ug/L	99	3.4	SW846 8081A
Methoxychlor	ND	2.0	2.1	ug/L	104		SW846 8081A
	ND	2.0	2.1	ug/L	103	0.91	SW846 8081A
Endrin ketone	ND	2.0	1.9	ug/L	94		SW846 8081A
	ND	2.0	1.8	ug/L	91	3.2	SW846 8081A
Endrin aldehyde	ND	2.0	1.6	ug/L	78		SW846 8081A
	ND	2.0	1.5	ug/L	75	4.4	SW846 8081A
alpha-Chlordane	ND	2.0	1.9	ug/L	95		SW846 8081A
	ND	2.0	1.8	ug/L	89	6.6	SW846 8081A
gamma-Chlordane	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.8	ug/L	91	7.3	SW846 8081A

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GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Tetrachloro-m-xylene	91	(50 - 150)
	85	(50 - 150)
Decachlorobiphenyl	81	(50 - 150)
	86	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/17/11

Prep Batch #...: 1099014

Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	<u>LIMITS</u>	RPD_	LIMITS	METHOD
alpha-BHC	97	(50 - 150)			SW846 8081A
_	92	(50 - 150)	5.1	(0-50)	SW846 8081A
beta-BHC	96	(50 - 150)			SW846 8081A
	87	(50 - 150)	9.1	(0-50)	SW846 8081A
delta-BHC	99	(50 - 150)			SW846 8081A
	92	(50 - 150)	7.8	(0-50)	SW846 8081A
gamma-BHC (Lindane)	102	(50 - 150)			SW846 8081A
	96	(50 - 150)	6.7	(0-50)	SW846 8081A
Heptachlor	85	(50 - 150)			SW846 8081A
	81	(50 - 150)	5.2	(0-50)	SW846 8081A
Aldrin	86	(50 - 150)			SW846 8081A
	82	(50 - 150)	4.7	(0-50)	SW846 8081A
Heptachlor epoxide	95	(50 - 150)			SW846 8081A
	89	(50 - 150)	6.5	(0-50)	SW846 8081A
Endosulfan I	61	(50 - 150)			SW846 8081A
	55	(50 - 150)	9.6	(0-50)	SW846 8081A
Dieldrin	98	(50 - 150)			SW846 8081A
	89	(50 - 150)	9.4	(0-50)	SW846 8081A
4,4'-DDE	91	(50 - 150)			SW846 8081A
	84	(50 - 150)	8.1	(0-50)	SW846 8081A
Endrin	100	(50 - 150)			SW846 8081A
	90	(50 - 150)	11	(0-50)	SW846 8081A
Endosulfan II	66	(50 - 150)			SW846 8081A
	61	(50 - 150)	8.2	(0-50)	SW846 8081A
4,4'-DDD	106	(50 - 150)			SW846 8081A
	95	(50 - 150)	11	(0-50)	SW846 8081A
Endosulfan sulfate	100	(50 - 150)			SW846 8081A
	89	(50 - 150)	11	(0-50)	SW846 8081A
4,4'-DDT	98	(50 - 150)			SW846 8081A
	87	(50 - 150)	12	(0-50)	SW846 8081A
Methoxychlor	103	(50 - 150)			SW846 8081A
	92	(50 - 150)	12	(0-50)	SW846 8081A
Endrin ketone	96	(50 - 150)			SW846 8081A
	86	(50 - 150)	10	(0-50)	SW846 8081A
Endrin aldehyde	78	(50 - 150)			SW846 8081A
	71	(50 - 150)	9.6	(0-50)	SW846 8081A
alpha-Chlordane	92	(50 - 150)			SW846 8081A
	84	(50 - 150)	9.0	(0-50)	SW846 8081A
gamma-Chlordane	95	(50 - 150)	_		SW846 8081A
	88	(50 - 150)	7.8	(0-50)	SW846 8081A

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GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AT-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	<u>LIMITS</u>
Tetrachloro-m-xylene	82	(50 - 150)
	80	(50 - 150)
Decachlorobiphenyl	31 *	(50 - 150)
	28 *	(50 - 150)

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \textbf{are} \ \textbf{performed} \ \textbf{before} \ \textbf{rounding} \ \textbf{to} \ \textbf{avoid} \ \textbf{round-off} \ \textbf{errors} \ \textbf{in} \ \textbf{calculated} \ \textbf{results}.$

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/17/11

Prep Batch #...: 1099014

Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol.: 5 mL

PARAMETER AMOUNT AMT AMOUNT UNITS RECVRY RPD METHOD MID Alpha - BHC ND 2.0 1.9 ug/L 97 SW846 8081A MID 2.0 1.8 ug/L 92 5.1 SW846 8081A MID 2.0 1.9 ug/L 96 SW846 8081A MID 2.0 1.7 ug/L 87 9.1 SW846 8081A MID 2.0 1.8 ug/L 99 SW846 8081A MID 2.0 1.8 ug/L 99 SW846 8081A MID 2.0 1.8 ug/L 92 7.8 SW846 8081A MID 2.0 1.8 ug/L 92 7.8 SW846 8081A MID 2.0 2.0 ug/L 102 SW846 8081A MID 2.0 1.7 ug/L 85 SW846 8081A MID 2.0 1.7 ug/L 85 SW846 8081A MID 2.0 1.7 ug/L 85 SW846 8081A MID 2.0 1.6 ug/L 81 5.2 SW846 8081A MID 2.0 1.6 ug/L 81 5.2 SW846 8081A MID 2.0 1.6 ug/L 82 4.7 SW846 8081A MID 2.0 1.6 ug/L 82 4.7 SW846 8081A MID 2.0 1.8 ug/L 82 4.7 SW846 8081A MID 2.0 1.8 ug/L 89 6.5 SW846 8081A MID 2.0 1.8 ug/L 98 SW846 8081A MID 2.0 1.8 ug/L 98 SW846 8081A MID 2.0 1.8 ug/L 98 SW846 8081A MID 2.0 1.8 ug/L 91 SW846 8081A MID 2.0 1.8 ug/L 91 SW846 8081A MID 2.0 1.8 ug/L 91 SW846 8081A MID 2.0 1.8 ug/L 90 11 SW846 8081A MID 2.0 1.8 ug/L 95 11 SW846 8081A MID 3.0 3		SAMPLE	SPIKE	MEASRD		PERCNT		
alpha-BHC ND 2.0 1.9 ug/L 97 SW846 8081A beta-BHC ND 2.0 1.8 ug/L 92 5.1 SW846 8081A beta-BHC ND 2.0 1.7 ug/L 87 9.1 SW846 8081A delta-BHC ND 2.0 2.0 ug/L 99 SW846 8081A gamma-BHC (Lindane) ND 2.0 1.8 ug/L 92 7.8 SW846 8081A gamma-BHC (Lindane) ND 2.0 1.9 ug/L 92 7.8 SW846 8081A Heptachlor ND 2.0 1.9 ug/L 96 6.7 SW846 8081A Heptachlor ND 2.0 1.6 ug/L 81 5.2 SW846 8081A Aldrin ND 2.0 1.7 ug/L 86 7 SW846 8081A Beptachlor ND 2.0 1.2 ug/L <td>PARAMETER</td> <td>AMOUNT</td> <td>AMT</td> <td>AMOUNT</td> <td>UNITS</td> <td>RECVRY</td> <td>RPD</td> <td>METHOD</td>	PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD
beta-BHC ND 2.0 1.9 ug/L 96 SW846 8081A delta-BHC ND 2.0 1.7 ug/L 87 9.1 SW846 8081A delta-BHC ND 2.0 2.0 ug/L 92 7.8 SW846 8081A gamma-BHC (Lindane) ND 2.0 1.9 ug/L 102 SW846 8081A Heptachlor ND 2.0 1.9 ug/L 85 SW846 8081A Heptachlor ND 2.0 1.7 ug/L 85 SW846 8081A Aldrin ND 2.0 1.6 ug/L 86 SW846 8081A Aldrin ND 2.0 1.6 ug/L 86 SW846 8081A Aldrin ND 2.0 1.7 ug/L 86 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 89 6.5 SW846 8081A	alpha-BHC	ND	2.0	1.9	ug/L			
ND 2.0 1.7 ug/L 87 9.1 SW846 8081A delta=BHC ND 2.0 2.0 ug/L 99 SW846 8081A delta=BHC ND 2.0 2.0 ug/L 92 7.8 SW846 8081A gamma=BHC (Lindane) ND 2.0 2.0 ug/L 102 SW846 8081A mb 2.0 1.9 ug/L 96 6.7 SW846 8081A Heptachlor ND 2.0 1.7 ug/L 85 SW846 8081A Heptachlor ND 2.0 1.6 ug/L 81 5.2 SW846 8081A Aldrin ND 2.0 1.7 ug/L 86 SW846 8081A Heptachlor epoxide ND 2.0 1.6 ug/L 82 4.7 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 82 4.7 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 89 6.5 SW846 8081A Heptachlor epoxide ND 2.0 1.8 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.1 ug/L 55 9.6 SW846 8081A Dieldrin ND 2.0 1.1 ug/L 55 9.6 SW846 8081A A,4'-DDE ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.8 ug/L 91 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.2 ug/L 61 8.2 SW846 8081A Endosulfan II ND 2.0 1.2 ug/L 61 8.2 SW846 8081A Endosulfan Sulfate ND 2.0 2.1 ug/L 95 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan Sulfate ND 2.0 2.0 ug/L 87 12 SW846 8081A Endosulfan Sulfate ND 2.	_	ND	2.0	1.8	ug/L	92	5.1	SW846 8081A
delta-BHC ND 2.0 2.0 ug/L 99 SW846 8081A gamma-BHC (Lindane) ND 2.0 1.8 ug/L 92 7.8 SW846 8081A gamma-BHC (Lindane) ND 2.0 2.0 ug/L 96 6.7 SW846 8081A Heptachlor ND 2.0 1.7 ug/L 85 SW846 8081A Aldrin ND 2.0 1.6 ug/L 86 SW846 8081A Aldrin ND 2.0 1.7 ug/L 86 SW846 8081A Aldrin ND 2.0 1.7 ug/L 86 SW846 8081A Heptachlor epoxide ND 2.0 1.8 ug/L 89 6.5 SW846 8081A Heptachlor epoxide ND 2.0 1.8 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.8 ug/L 89 6.5	beta-BHC	ND	2.0	1.9	ug/L	96		SW846 8081A
gamma-BHC (Lindane) ND 2.0 1.8 ug/L 92 7.8 SW846 8081A gamma-BHC (Lindane) ND 2.0 2.0 ug/L 102 5W846 8081A Heptachlor ND 2.0 1.7 ug/L 85 5W846 8081A Heptachlor ND 2.0 1.6 ug/L 86 5.2 5W846 8081A Aldrin ND 2.0 1.7 ug/L 86 5W846 8081A Aldrin ND 2.0 1.6 ug/L 86 5W846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 82 4.7 5W846 8081A Heptachlor epoxide ND 2.0 1.8 ug/L 89 6.5 5W846 8081A Heptachlor epoxide ND 2.0 1.8 ug/L 89 6.5 5W846 8081A Heptachlor epoxide ND 2.0 1.2 ug/L		ND	2.0	1.7	ug/L	87	9.1	SW846 8081A
gamma-BHC (Lindane) ND 2.0 2.0 ug/L 102 SW846 8081A Heptachlor ND 2.0 1.9 ug/L 96 6.7 SW846 8081A Heptachlor ND 2.0 1.7 ug/L 85 SW846 8081A Aldrin ND 2.0 1.6 ug/L 81 5.2 SW846 8081A Aldrin ND 2.0 1.6 ug/L 86 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 95 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 95 SW846 8081A Heptachlor epoxide ND 2.0 1.2 ug/L 89 6.5 SW846 8081A Heptachlor epoxide ND 2.0 1.2 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.2 ug/L 89 <t< td=""><td>delta-BHC</td><td>ND</td><td>2.0</td><td>2.0</td><td>ug/L</td><td>99</td><td></td><td>SW846 8081A</td></t<>	delta-BHC	ND	2.0	2.0	ug/L	99		SW846 8081A
ND 2.0 1.9 ug/L 96 6.7 SW846 8081A Heptachlor ND 2.0 1.7 ug/L 85 SW846 8081A ND 2.0 1.6 ug/L 81 5.2 SW846 8081A Aldrin ND 2.0 1.6 ug/L 86 SW846 8081A ND 2.0 1.6 ug/L 82 4.7 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 89 6.5 SW846 8081A Heptachlor epoxide ND 2.0 1.8 ug/L 89 6.5 SW846 8081A ND 2.0 1.8 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.2 ug/L 61 SW846 8081A Dieldrin ND 2.0 1.1 ug/L 55 9.6 SW846 8081A Dieldrin ND 2.0 1.8 ug/L 89 9.4 SW846 8081A A,4'-DDE ND 2.0 1.8 ug/L 89 9.4 SW846 8081A Endrin ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.2 ug/L 66 SW846 8081A Endosulfan sulfate ND 2.0 2.1 ug/L 61 8.2 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 58846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 58846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 58846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 38846 38846 38846 Endosulfan sulfate ND 2.0 2.0 ug/L 387 38846 38846		ND	2.0	1.8	ug/L	92	7.8	SW846 8081A
Heptachlor	gamma-BHC (Lindane)	ND	2.0	2.0	ug/L	102		SW846 8081A
Aldrin ND 2.0 1.6 ug/L 81 5.2 SW846 8081A Aldrin ND 2.0 1.7 ug/L 86 SW846 8081A ND 2.0 1.6 ug/L 82 4.7 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 85 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.8 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.1 ug/L 55 9.6 SW846 8081A Dieldrin ND 2.0 1.1 ug/L 55 9.6 SW846 8081A Dieldrin ND 2.0 1.8 ug/L 89 9.4 SW846 8081A A,4'-DDE ND 2.0 1.8 ug/L 89 9.4 SW846 8081A Endrin ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A A,4'-DDD ND 2.0 1.2 ug/L 106 SW846 8081A A,4'-DDD ND 2.0 1.9 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 1.8 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 1.8 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 1.8 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 1.8 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 98 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 89 11 SW846 8081A		ND	2.0	1.9	ug/L	96	6.7	SW846 8081A
Aldrin ND 2.0 1.7 ND 2.0 1.6 ND 2.0 1.6 ND 2.0 1.6 ND 2.0 1.9 ND 2.0 1.8 ND 2.0 1.1 ND 2.0 1.2 ND 2.0 1.2 ND 2.0 1.1 ND 2.0 1.8 ND 2.0 1.7 ND 2.0 1.8 ND 2.0 1.7 ND 2.0 1.7 ND 2.0 1.8 ND 2.0	Heptachlor	ND	2.0	1.7	ug/L	85		SW846 8081A
ND 2.0 1.6 ug/L 82 4.7 SW846 8081A Heptachlor epoxide ND 2.0 1.9 ug/L 95 SW846 8081A ND 2.0 1.8 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.2 ug/L 61 SW846 8081A ND 2.0 1.1 ug/L 55 9.6 SW846 8081A ND 2.0 1.1 ug/L 98 SW846 8081A ND 2.0 1.8 ug/L 89 9.4 SW846 8081A A,4'-DDE ND 2.0 1.8 ug/L 89 9.4 SW846 8081A A,4'-DDE ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A A,4'-DDD ND 2.0 2.1 ug/L 61 8.2 SW846 8081A A,4'-DDD ND 2.0 2.1 ug/L 100 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 89 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 89 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 89 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 89 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 89 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 87 12 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 87 12 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 87 12 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 87 25 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 87 25 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 87 25 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 87 25 SW846 80		ND	2.0	1.6	ug/L	81	5.2	SW846 8081A
Heptachlor epoxide ND 2.0 1.9 ug/L 89 6.5 SW846 8081A Endosulfan I ND 2.0 1.2 ug/L 61 SW846 8081A Endosulfan I ND 2.0 1.1 ug/L 55 9.6 SW846 8081A Dieldrin ND 2.0 2.0 1.1 ug/L 55 9.6 SW846 8081A Dieldrin ND 2.0 1.8 ug/L 89 9.4 SW846 8081A A,4'-DDE ND 2.0 1.8 ug/L 89 9.4 SW846 8081A Endrin ND 2.0 1.8 ug/L 81 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 90 11 SW846 8081A A,4'-DDD 1.2 ug/L 100 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A A,4'-DDD 1.2 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 1.8 ug/L 95 11 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 95 11 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 99 11 SW846 8081A A,4'-DDT SW846 8081A A,4'-DDT SW846 8081A BRIA SW846	Aldrin	ND	2.0	1.7	ug/L	86		SW846 8081A
ND 2.0 1.8 ug/L 89 6.5 SW846 8081A		ND	2.0	1.6	ug/L	82	4.7	SW846 8081A
Endosulfan I ND 2.0 1.2 ug/L 61 SW846 8081A Dieldrin ND 2.0 2.0 ug/L 98 SW846 8081A Dieldrin ND 2.0 1.8 ug/L 89 9.4 SW846 8081A 4,4'-DDE ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 1.8 ug/L 90 11 SW846 8081A Endrin ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A 4,4'-DDD 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 1.9 ug/L 106 SW846 8081A Endosulfan Sulfate ND 2.0 1.9 ug/L 106 SW846 8081A Endosulfan Sulfate ND 2.0 1.8 ug/L 95 11 SW846 8081A Endosulfan Sulfate ND 2.0 1.8 ug/L 95 11 SW846 8081A 4,4'-DDT ND 2.0 1.8 ug/L 95 11 SW846 8081A 4,4'-DDT SW846 8081A ND 2.0 1.8 ug/L 95 11 SW846 8081A 4,4'-DDT SW846 8081A ND 2.0 1.8 ug/L 98 SW846 8081A	Heptachlor epoxide	ND	2.0	1.9	ug/L	95		SW846 8081A
ND 2.0 1.1 ug/L 55 9.6 SW846 8081A Dieldrin ND 2.0 2.0 ug/L 98 SW846 8081A ND 2.0 1.8 ug/L 89 9.4 SW846 8081A 4,4'-DDE ND 2.0 1.8 ug/L 91 SW846 8081A ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 2.0 ug/L 100 SW846 8081A Endrin ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A Endosulfan II ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 87 12 SW846 8081A 5		ND	2.0	1.8	ug/L	89	6.5	SW846 8081A
Dieldrin ND 2.0 2.0 ug/L 98 SW846 8081A ND 2.0 1.8 ug/L 89 9.4 SW846 8081A 4,4'-DDE ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 1.8 ug/L 100 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A 4,4'-DDD ND 2.0 1.2 ug/L 61 8.2 SW846 8081A Endosulfan sulfate ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A 4,4'-DDT ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 98 SW846	Endosulfan I	ND	2.0	1.2	ug/L	61		SW846 8081A
ND 2.0 1.8 ug/L 89 9.4 SW846 8081A 4,4'-DDE ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 2.0 ug/L 100 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A A,4'-DDD ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 95 11 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 89 11 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 89 11 SW846 8081A		ND	2.0	1.1	ug/L	55	9.6	SW846 8081A
ND 2.0 1.8 ug/L 89 9.4 SW846 8081A 4,4'-DDE ND 2.0 1.8 ug/L 91 SW846 8081A Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 2.0 ug/L 100 SW846 8081A Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A A,4'-DDD ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 95 11 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 89 11 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 89 11 SW846 8081A	Dieldrin	ND	2.0	2.0		98		SW846 8081A
4,4'-DDE ND 2.0 1.8 ug/L 91 SW846 8081A ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 87 12 SW846 8081A		ND	2.0			89	9.4	SW846 8081A
Endrin ND 2.0 1.7 ug/L 84 8.1 SW846 8081A Endrin ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A 4,4'-DDT ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 1.7 ug/L 87 12 SW846 8081A	4,4'-DDE	ND	2.0	1.8				SW846 8081A
Endrin ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A A,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 2.1 ug/L 106 SW846 8081A Endosulfan sulfate ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A A,4'-DDT ND 2.0 1.8 ug/L 89 11 SW846 8081A A,4'-DDT ND 2.0 1.7 ug/L 87 12 SW846 8081A		ND		1.7		84	8.1	SW846 8081A
Endosulfan II ND 2.0 1.8 ug/L 90 11 SW846 8081A Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 11 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A	Endrin	ND	2.0	2.0		100		SW846 8081A
Endosulfan II ND 2.0 1.3 ug/L 66 SW846 8081A ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 11 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A		ND				90	11	
ND 2.0 1.2 ug/L 61 8.2 SW846 8081A 4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 89 11 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A	Endosulfan II	ND	2.0			66		SW846 8081A
4,4'-DDD ND 2.0 2.1 ug/L 106 SW846 8081A ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 98 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A		ND		1.2		61	8.2	SW846 8081A
ND 2.0 1.9 ug/L 95 11 SW846 8081A Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 98 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A	4,4'-DDD	ND	2.0	2.1		106		SW846 8081A
Endosulfan sulfate ND 2.0 2.0 ug/L 100 SW846 8081A ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 98 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A		ND	2.0	1.9		95	11	SW846 8081A
ND 2.0 1.8 ug/L 89 11 SW846 8081A 4,4'-DDT ND 2.0 2.0 ug/L 98 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A	Endosulfan sulfate	ND	2.0	2.0		100		SW846 8081A
4,4'-DDT ND 2.0 2.0 ug/L 98 SW846 8081A ND 2.0 1.7 ug/L 87 12 SW846 8081A		ND				89	11	SW846 8081A
3 ·	4,4'-DDT	ND	2.0	2.0	ug/L	98		SW846 8081A
Methoxychlor ND 2.0 2.1 ug/L 103 SW846 8081A		ND	2.0	1.7	ug/L	87	12	SW846 8081A
	Methoxychlor	ND	2.0	2.1	ug/L	103		SW846 8081A
ND 2.0 1.8 ug/L 92 12 SW846 8081A	_	ND	2.0	1.8	ug/L	92	12	SW846 8081A
Endrin ketone ND 2.0 1.9 ug/L 96 SW846 8081A	Endrin ketone	ND	2.0	1.9	ug/L	96		SW846 8081A
ND 2.0 1.7 ug/L 86 10 SW846 8081A		ND	2.0	1.7	ug/L	86	10	SW846 8081A
Endrin aldehyde ND 2.0 1.6 ug/L 78 SW846 8081A	Endrin aldehyde	ND	2.0	1.6		78		SW846 8081A
ND 2.0 1.4 ug/L 71 9.6 SW846 8081A		ND	2.0	1.4	ug/L	71	9.6	SW846 8081A
alpha-Chlordane ND 2.0 1.8 ug/L 92 SW846 8081A	alpha-Chlordane	ND	2.0			92		SW846 8081A
ND 2.0 1.7 ug/L 84 9.0 SW846 8081A		ND				84	9.0	
gamma-Chlordane ND 2.0 1.9 ug/L 95 SW846 8081A	gamma-Chlordane	ND				95		
ND 2.0 1.8 ug/L 88 7.8 SW846 8081A		ND			ug/L	88	7.8	

(Continued on next page)

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AT-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	<u>LIMITS</u>
Tetrachloro-m-xylene	82	(50 - 150)
	80	(50 - 150)
Decachlorobiphenyl	31 *	(50 - 150)
	28 *	(50 - 150)

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

North Canto

Lot/SDG Number: A1D070566

Sample Control Chain of Custody - TAL North Canton GC Semivolatiles

					Date of			
Lot Number	Work Order	Analysis Type	Prep Date	Prep Analyst	Transfer	Transferred By	Analysis Date	Analyst
A1D070566-011	MGPCC1CM	Pesticides (8081A)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/17/11	Carolynne Roach



POLYCHLORINATED BIPHENYLS DATA

Client Sample ID: FWGB12MW-010C-0220-FB

GC Semivolatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1AF Matrix.....: WQ

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11
Prep Date.....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099015

Method....: SW846 8082

		DEDODETNO	
PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	0.50	ug/L
Aroclor 1221	ND	0.50	ug/L
Aroclor 1232	ND	0.50	ug/L
Aroclor 1242	ND	0.50	ug/L
Aroclor 1248	ND	0.50	ug/L
Aroclor 1254	ND	0.50	ug/L
Aroclor 1260	ND	0.50	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	_
Tetrachloro-m-xylene	83	(50 - 150)	
Decachlorobiphenyl	55	(50 - 150)	

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9M1AA Matrix.....: WATER

MB Lot-Sample #: A1D090000-015

Prep Date.....: 04/09/11 Final Wgt/Vol..: 5 mL

Analysis Date..: 04/16/11 Prep Batch #...: 1099015 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL

REPORTING

PARAMETER	RESULT	LIMIT	UNITS	METHOD
Aroclor 1016	ND	0.50	ug/L	SW846 8082
Aroclor 1221	ND	0.50	ug/L	SW846 8082
Aroclor 1232	ND	0.50	ug/L	SW846 8082
Aroclor 1242	ND	0.50	ug/L	SW846 8082
Aroclor 1248	ND	0.50	ug/L	SW846 8082
Aroclor 1254	ND	0.50	ug/L	SW846 8082
Aroclor 1260	ND	0.50	ug/L	SW846 8082
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Tetrachloro-m-xylene	81	(50 - 150))	
Decachlorobiphenyl	70	(50 - 150))	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9M1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-015

Prep Batch #...: 1099015

Dilution Factor: 2 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

PERCENT RECOVERY

 PARAMETER
 RECOVERY
 LIMITS
 METHOD

 Aroclor 1016
 84
 (58 - 141)
 SW846 8082

 Aroclor 1260
 83
 (71 - 143)
 SW846 8082

 SURROGATE
 PERCENT
 RECOVERY

 Tetrachloro-m-xylene
 77
 (50 - 150)

 Decachlorobiphenyl
 39 *
 (50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9M1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-015

Prep Batch #...: 1099015

Dilution Factor: 2 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

PARAMETER Aroclor 1016 Aroclor 1260	SPIKE AMOUNT 10 10	MEASURED AMOUNT 8.4 8.3	UNITS ug/L ug/L	PERCENT RECOVERY 84 83	METHOD SW846 8082 SW846 8082
SURROGATE Tetrachloro-m-xylene Decachlorobiphenyl		PERCENT RECOVERY 77 39 *	RECOVERY <u>LIMITS</u> (50 - 150) (50 - 150)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AW-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/15/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	<u>RECOVERY</u>	LIMITS	<u>RPD</u>	LIMITS	METHOD
Aroclor 1016	90	(50 - 150)			SW846 8082
	89	(50 - 150)	0.78	(0-50)	SW846 8082
Aroclor 1260	89	(50 - 150)			SW846 8082
	91	(50 - 150)	2.2	(0-50)	SW846 8082
		PERCENT		RECOVERY	
SURROGATE		RECOVERY		LIMITS	_
Tetrachloro-m-xylene		85		(50 - 150)
		87		(50 - 150)
Decachlorobiphenyl		72		(50 - 150)
		74		(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AW-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

Prep Date....: 04/09/11 Analysis Date..: 04/15/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	SAMPLE	SPIKE	MEASRD			PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS		RECVRY	RPD	METHOI)
Aroclor 1016	ND	20	18	ug/L		90		SW846	8082
	ND	20	18	ug/L		89	0.78	SW846	8082
Aroclor 1260	ND	20	18	ug/L		89		SW846	8082
	ND	20	18	ug/L		91	2.2	SW846	8082
		PE	RCENT		RE	COVERY			
SURROGATE		RE	COVERY		LI	MITS	_		
Tetrachloro-m-xylene		85			(5	0 - 150)		
		87			(5	0 - 150)		
Decachlorobiphenyl		72			(5	0 - 150)		
		74			(5	0 - 150)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AW-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	<u>RECOVERY</u>	LIMITS	<u>RPD</u>	LIMITS	METHOD
Aroclor 1016	91	(50 - 150)			SW846 8082
	91	(50 - 150)	0.0	(0-50)	SW846 8082
Aroclor 1260	81	(50 - 150)			SW846 8082
	81	(50 - 150)	0.0	(0-50)	SW846 8082
		PERCENT		RECOVERY	
SURROGATE		RECOVERY		LIMITS	_
Tetrachloro-m-xylene		88		(50 - 150)
		88		(50 - 150)
Decachlorobiphenyl		45 *		(50 - 150)
		45 *		(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AW-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	SAMPLE	SPIKE	MEASRD			PERCNT				
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS		RECVRY	RPD	METHOI)	
Aroclor 1016	ND	20	18	ug/L		91		SW846	8082	
	ND	20	18	ug/L		91	0.0	SW846	8082	
Aroclor 1260	ND	20	16	ug/L		81		SW846	8082	
	ND	20	16	ug/L		81	0.0	SW846	8082	
		P	ERCENT		RE	COVERY				
SURROGATE	•	<u>R</u>	ECOVERY		<u>LI</u>	MITS	_			
Tetrachloro-m-xylene		8	8		(5	0 - 150)			
		8	8		(5	0 - 150)			
Decachlorobiphenyl		4	:5 *		(5	0 - 150)			
		4	:5 *		(5	0 - 150)			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

North Canto

Lot/SDG Number: A1D070566 Sample Control Chain of Custody - TAL North Canton GC Semivolatiles

Lot Number	Work Order	Analysis Type	Prep Date	Prep Analyst	Transfer	Transferred By	Analysis Date	Analyst
A1D070566-011	MGPCC1AF	PCBs (8082)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/16/11	Lori Hass



METALS DATA

Client Sample ID: FWGB12MW-010C-0220-FB

TOTAL Metals

Lot-Sample #...: A1D070566-011 **Matrix.....:** WQ

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11

		REPORTING			PREPARATION- WORK
PARAMETER	RESULT	LIMIT	<u>UNITS</u>	METHOD	ANALYSIS DATE ORDER #
Prep Batch #	.: 1098019				
Silver	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11 MGPCC1A4
		Dilution Fact	or: 1	Analysis Time: 18	:55 Analyst ID: 002260
		Instrument ID	: 15		
Aluminum	ND	50.0	uq/L	SW846 6020	04/08-04/11/11 MGPCC1AG
		Dilution Fact	or: 1	Analysis Time: 20	:24 Analyst ID: 000079
		Instrument ID	: 18		
Arsenic	ND	5.0	uq/L	SW846 6010B	04/08-04/14/11 MGPCC1AQ
		Dilution Fact	or: 1	Analysis Time: 18	:55 Analyst ID: 002260
		Instrument ID	: 15		
Barium	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11 MGPCC1AU
		Dilution Fact	or: 1	Analysis Time: 18	:55 Analyst ID: 002260
		Instrument ID	: 15		
Beryllium	ND	1.0	ug/L	SW846 6020	04/08-04/11/11 MGPCC1AJ
		Dilution Fact	or: 1	Analysis Time: 20	:24 Analyst ID: 000079
		Instrument ID	: I8		
Calcium	ND	1000	ug/L	SW846 6010B	04/08-04/14/11 MGPCC1AV
		Dilution Fact	or: 1	Analysis Time: 18	:55 Analyst ID: 002260
		Instrument ID	: I5		
Cadmium	ND	0.50	ug/L	SW846 6020	04/08-04/11/11 MGPCC1AK
		Dilution Fact	or: 1	Analysis Time: 20	:24 Analyst ID: 000079
		Instrument ID	: I8		
Cobalt	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11 MGPCC1AW
		Dilution Fact	or: 1	Analysis Time: 18	:55 Analyst ID: 002260
		Instrument ID	: 15		
Chromium	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11 MGPCC1A6
		Dilution Fact	or: 1	Analysis Time: 18	:55 Analyst ID: 002260
		Instrument ID	: 15		
Copper	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11 MGPCC1AX
		Dilution Fact		Analysis Time: 18	:55 Analyst ID: 002260
		Instrument ID	: I5		

(Continued on next page)

Client Sample ID: FWGB12MW-010C-0220-FB

TOTAL Metals

Lot-Sample #...: A1D070566-011 **Matrix**.....: WQ

PARAMETER	RESULT	REPORTING LIMIT UNITS	METHOD	PREPARATION- WORK ANALYSIS DATE ORDER #
Iron	ND	50.0 ug/L Dilution Factor: 1 Instrument ID.:: 18	SW846 6020 Analysis Time: 20:24	04/08-04/11/11 MGPCC1AL Analyst ID: 000079
Mercury	ND	0.20 ug/L Dilution Factor: 1 Instrument ID: H1	SW846 7470A Analysis Time: 13:57	04/08-04/11/11 MGPCC1A7 Analyst ID: 002260
Potassium	ND	1000 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 18:55	04/08-04/14/11 MGPCC1A3 Analyst ID: 002260
Magnesium	ND	1000 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 18:55	04/08-04/14/11 MGPCC1A0 Analyst ID: 002260
Manganese	ND	10.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 18:55	04/08-04/14/11 MGPCC1A1 Analyst ID: 002260
Sodium	ND	1000 ug/L Dilution Factor: 1 Instrument ID: 18	SW846 6020 Analysis Time: 20:24	04/08-04/11/11 MGPCC1AM Analyst ID: 000079
Nickel	ND	10.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 18:55	04/08-04/14/11 MGPCC1A2 Analyst ID: 002260
Lead	ND	3.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 18:55	04/08-04/14/11 MGPCC1AR Analyst ID: 002260
Antimony	ND	2.0 ug/L Dilution Factor: 1 Instrument ID: 18	SW846 6020 Analysis Time: 20:24	04/08-04/11/11 MGPCC1AH Analyst ID: 000079
Selenium	ND	5.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 18:55	04/08-04/14/11 MGPCC1AT Analyst ID: 002260

(Continued on next page)

Client Sample ID: FWGB12MW-010C-0220-FB

TOTAL Metals

Lot-Sample #...: A1D070566-011 Matrix.....: WQ

		REPORTING	}		PREPARATION- WORK
PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE ORDER #
Thallium	ND	1.0	ug/L	SW846 6020	04/08-04/11/11 MGPCC1AN
		Dilution Facto	or: 1	Analysis Time: 20:	24 Analyst ID: 000079
		Instrument ID	: 18		
Vanadium	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11 MGPCC1A5
		Dilution Facto	or: 1	Analysis Time: 18:	55 Analyst ID: 002260
		Instrument ID	: 15		
Zinc	4.3 B,J	10.0	ug/L	SW846 6020	04/08-04/11/11 MGPCC1AP
		Dilution Facto	or: 1	Analysis Time: 20:	24 Analyst ID: 000079
		Instrument ID	: 18		

NOTE(S):

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

		REPORTING			PREPARATION-	WORK
PARAMETER	RESULT	LIMIT U	NITS	METHOD	ANALYSIS DATE	ORDER #
MR Lot-Sample	#• <u>71</u> D08000	0-019 Prep Batc	h# •	1008010		
Aluminum	ND	_	g/L	SW846 6020	04/08-04/11/11	MGPWP1AE
		Dilution Factor:	_		,,,	
		Analysis Time:	18:09	Analyst ID: 00007	9 Instrument ID.	: 18
Antimony	ND	2.0 u	g/L	SW846 6020	04/08-04/11/11	MGPWP1AJ
		Dilution Factor:				
		Analysis Time:	18:09	Analyst ID: 00007	9 Instrument ID	: 18
Arsenic	ND	5.0 u	g/L	SW846 6010B	04/08-04/15/11	MGPWP1AN
		Dilution Factor:				
		Analysis Time:	07:19	Analyst ID: 00226	0 Instrument ID	: I5
Barium	ND	10.0 u	g/L	SW846 6010B	04/08-04/14/11	MGPWP1AT
		Dilution Factor:	1			
		Analysis Time:	16:15	Analyst ID: 00226	0 Instrument ID.	: I5
Beryllium	ND	1.0 u	g/L	SW846 6020	04/08-04/11/11	MGPWP1AF
		Dilution Factor:				
		Analysis Time:	18:09	Analyst ID: 00007	9 Instrument ID	: 18
Cadmium	ND	0.50 u	g/L	SW846 6020	04/08-04/11/11	MGPWP1AG
		Dilution Factor:	1			
		Analysis Time:	18:09	Analyst ID: 00007	9 Instrument ID	: 18
Calcium	ND	1000 u	g/L	SW846 6010B	04/08-04/14/11	MGPWP1AU
		Dilution Factor:	1			
		Analysis Time:	16:15	Analyst ID: 00226	0 Instrument ID.	: 15
Chromium	ND	5.0 u	g/L	SW846 6010B	04/08-04/14/11	MGPWP1AW
		Dilution Factor:	1			
		Analysis Time:	16:15	Analyst ID: 00226	0 Instrument ID.	: 15
Cobalt	ND	5.0 u	g/L	SW846 6010B	04/08-04/14/11	MGPWP1AV
		Dilution Factor:	1			
		Analysis Time:	16:15	Analyst ID: 00226	0 Instrument ID.	: 15
Copper	ND	5.0 u	g/L	SW846 6010B	04/08-04/14/11	MGPWP1AX
		Dilution Factor:	1			
		Analysis Time:	16:15	Analyst ID: 00226	0 Instrument ID.	: 15
Iron	ND	50.0 u	g/L	SW846 6020	04/08-04/11/11	MGPWP1AH
		Dilution Factor:	_			

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

		REPORTING		PREPARATION- WORK
PARAMETER	RESULT	LIMIT UNITS	METHOD	ANALYSIS DATE ORDER #
Lead	ND	$\frac{\text{BIMII}}{3.0} \frac{\text{ONIIS}}{\text{ug/L}}$	SW846 6010B	04/08-04/14/11 MGPWP1AP
БСССС	ND	Dilution Factor: 1	5W010 0010B	01/00 01/11/11 MOIWITAL
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
		Analysis lime 10.13	Analyst ID 002200	Instrument ID 13
Magnesium	ND	1000 ug/L	SW846 6010B	04/08-04/14/11 MGPWP1A1
Magnesian	ND	Dilution Factor: 1	5W010 0010B	01/00 01/11/11 MOIWITAL
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
		1111017515 11111011 10 13	111101720 12 002200	11101 4110110 12 15
Manganese	ND	10.0 ug/L	SW846 6010B	04/08-04/14/11 MGPWP1A2
3		Dilution Factor: 1		
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
		_	-	
Mercury	ND	0.20 ug/L	SW846 7470A	04/08-04/11/11 MGPWP1AD
		Dilution Factor: 1		
		Analysis Time: 13:36	Analyst ID: 002260	Instrument ID: H1
Nickel	ND	10.0 ug/L	SW846 6010B	04/08-04/14/11 MGPWP1AA
		Dilution Factor: 1		
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
Potassium	ND	1000 ug/L	SW846 6010B	04/08-04/14/11 MGPWP1A0
		Dilution Factor: 1		
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
Galanium	NID	F 0/T	GNO 46 CO 10D	04/00 04/14/11 MGDUD170
Selenium	ND	5.0 ug/L	SW846 6010B	04/08-04/14/11 MGPWP1AQ
		Dilution Factor: 1	7m-1-m+ TD . 000060	Trackmank ID . IF
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
Silver	ND	5.0 ug/L	SW846 6010B	04/08-04/14/11 MGPWP1AR
511761	112	Dilution Factor: 1	5.0010 00105	01/ 00 01/ 11/ 11 1101 WI 11IIC
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
Sodium	ND	1000 ug/L	SW846 6020	04/08-04/11/11 MGPWP1AM
		Dilution Factor: 1		
		Analysis Time: 18:09	Analyst ID: 000079	Instrument ID: 18
Thallium	ND	1.0 ug/L	SW846 6020	04/08-04/11/11 MGPWP1AL
		Dilution Factor: 1		
		Analysis Time: 18:09	Analyst ID: 000079	Instrument ID: 18
Vanadium	ND	10.0 ug/L	SW846 6010B	04/08-04/14/11 MGPWP1AC
		Dilution Factor: 1		
		Analysis Time: 16:15	Analyst ID: 002260	Instrument ID: I5
7	F 0 5	10.0 /7	GT40.4.C. C.0.0.0	04/00 04/11/11 warrent
Zinc	5.9 B	10.0 ug/L	SW846 6020	04/08-04/11/11 MGPWP1AK
		Dilution Factor: 1	Purchase TP - 000000	Turk T2 72
		Analysis Time: 18:09	Analyst ID: 000079	Instrument ID: 18

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

TOTAL Metals

Client Lot #:	A1D070566			Matrix: WAT	ER
PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS		PREPARATION- ANALYSIS DATE WORK ORDER	#
LCS Lot-Sample#: Nickel		(80 - 120)	r: 1 Analysis	04/08-04/14/11 MGPWP1A3 Time: 16:21 Analyst ID:	002260
Vanadium	99		r: 1 Analysis	04/08-04/14/11 MGPWP1A4 Time: 16:21 Analyst ID:	002260
Mercury	96		r: 1 Analysis	04/08-04/11/11 MGPWP1A5 Time: 13:37 Analyst ID:	002260
Aluminum	99		r: 1 Analysis	04/08-04/11/11 MGPWP1A6 Time: 18:14 Analyst ID:	000079
Beryllium	101		r: 1 Analysis	04/08-04/11/11 MGPWP1A7 Time: 18:14 Analyst ID:	000079
Cadmium	106		r: 1 Analysis	04/08-04/11/11 MGPWP1A8 Time: 18:14 Analyst ID:	000079
Iron	101		r: 1 Analysis	04/08-04/11/11 MGPWP1A9 Time: 18:14 Analyst ID:	000079
Antimony	104		r: 1 Analysis	04/08-04/11/11 MGPWP1CA Time: 18:14 Analyst ID:	000079
Zinc	113	(80 - 120) Dilution Factor Instrument ID	r: 1 Analysis	04/08-04/11/11 MGPWP1CC Time: 18:14 Analyst ID:	000079
Thallium	100	(80 - 120) Dilution Factor Instrument ID	r: 1 Analysis	04/08-04/11/11 MGPWP1CD Time: 18:14 Analyst ID:	000079

(Continued on next page)

TOTAL Metals

Client Lot #: A1D070566	Matrix: WATER
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<u>PARAMETER</u> Sodium	PERCENT RECOVERY 114	RECOVERY PREPARATION- LIMITS METHOD ANALYSIS DATE WORK ORDER # (80 - 120) SW846 6020 04/08-04/11/11 MGPWP1CE
		Dilution Factor: 1 Analysis Time: 18:14 Analyst ID: 000079 Instrument ID: 18
Arsenic	97	(80 - 120) SW846 6010B 04/08-04/15/11 MGPWP1CF Dilution Factor: 1 Analysis Time: 07:25 Analyst ID: 002260 Instrument ID: I5
Lead	104	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CG Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: I5
Selenium	106	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CH Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: I5
Silver	90	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CJ Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: I5
Barium	100	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CK Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: 15
Calcium	97	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CL Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: 15
Cobalt	98	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CM Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: I5
Chromium	96	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CN Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: I5
Copper	98	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CP Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: I5
Potassium	93	(80 - 120) SW846 6010B 04/08-04/14/11 MGPWP1CQ Dilution Factor: 1 Analysis Time: 16:21 Analyst ID: 002260 Instrument ID: I5

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

<u>PARAMETER</u> Magnesium	PERCENT RECOVERY 99	RECOVERY LIMITS METHOD (80 - 120) SW846 6010B Dilution Factor: 1 Analysis	PREPARATION- ANALYSIS DATE WORK ORDER # 04/08-04/14/11 MGPWP1CR Time: 16:21 Analyst ID: 002260
Manganese	105	Instrument ID.:: 15 (80 - 120) SW846 6010B Dilution Factor: 1 Analysis Instrument ID.:: 15	04/08-04/14/11 MGPWP1CT Time: 16:21 Analyst ID: 002260

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #	: A1D	070566			1	Matrix:	WATER
PARAMETER	SPIKE AMOUNT	MEASUR AMOUNT		PERCNT RECVRY		PREPARATION- ANALYSIS DATE	
LCS Lot-Samp Nickel	ole#: A1D 500	0080000- 497	019 Prep Bate ug/L Dilution Factor Instrument ID	99 : 1	: 1098019 SW846 6010B Analysis Time: 1		
Vanadium	500	493	ug/L Dilution Factor Instrument ID	: 1	SW846 6010B Analysis Time: 1	04/08-04/14/11 6:21 Analyst ID.	
Mercury	5.0	4.8	ug/L Dilution Factor Instrument ID	: 1	SW846 7470A Analysis Time: 1	04/08-04/11/11 3:37 Analyst ID.	
Aluminum	10000	9920	ug/L Dilution Factor Instrument ID	: 1	SW846 6020 Analysis Time: 1	04/08-04/11/11 8:14 Analyst ID.	
Beryllium	100	101	ug/L Dilution Factor Instrument ID	: 1	SW846 6020 Analysis Time: 1	04/08-04/11/11 8:14 Analyst ID.	
Cadmium	100	106	ug/L Dilution Factor Instrument ID	: 1	SW846 6020 Analysis Time: 1	04/08-04/11/11 8:14 Analyst ID.	
Iron	10000	10100	ug/L Dilution Factor Instrument ID	: 1	SW846 6020 Analysis Time: 1	04/08-04/11/11 8:14 Analyst ID.	
Antimony	100	104	ug/L Dilution Factor Instrument ID		SW846 6020 Analysis Time: 1	04/08-04/11/11 8:14 Analyst ID.	
Zinc	100	113	ug/L Dilution Factor Instrument ID		SW846 6020 Analysis Time: 1	04/08-04/11/11 8:14 Analyst ID.	MGPWP1CC: 000079
Thallium	100	99.8	ug/L Dilution Factor Instrument ID		SW846 6020 Analysis Time: 1	04/08-04/11/11 8:14 Analyst ID.	MGPWP1CD: 000079

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

	SPIKE	MEASUR	ED	PERCNT		PREPARATION- WO	RK
PARAMETER	AMOUNT	AMOUNT	UNITS	RECVRY	METHOD	ANALYSIS DATE OR	DER #
Sodium	10000	11400	 uq/L	114	SW846 6020	04/08-04/11/11 MG:	PWP1CE
			Dilution Factor	·: 1	Analysis Time : 18	14 Analyst ID	
			Instrument ID		Intaly DID Time 10	inaryse is	000075
			Instrument ib	. 10			
Arsenic	2000	1940	ug/L	97	SW846 6010B	04/08-04/15/11 MG	PWP1CF
			Dilution Factor	: 1	Analysis Time: 07	25 Analyst ID	.: 002260
			Instrument ID	: I5	-	-	
Lead	500	522	ug/L	104	SW846 6010B	04/08-04/14/11 MG	PWP1CG
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	.: 002260
			Instrument ID	: 15			
Selenium	2000	2110	uq/L	106	SW846 6010B	04/08-04/14/11 MG	PWP1CH
Detellian	2000	2110	Dilution Factor		Analysis Time: 16		
			Instrument ID		Analysis lime 10	ZI AMATYSC ID	002200
			Instrument ib	• 13			
Silver	50.0	45.2	uq/L	90	SW846 6010B	04/08-04/14/11 MG	PWP1CJ
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	
			Instrument ID		2		
Barium	2000	2000	ug/L	100	SW846 6010B	04/08-04/14/11 MG:	PWP1CK
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	.: 002260
			Instrument ID	: I5	-	-	
Calcium	50000	48600	ug/L	97	SW846 6010B	04/08-04/14/11 MG	PWP1CL
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	.: 002260
			Instrument ID	: 15			
Cobalt	500	490	ug/L	98	SW846 6010B	04/08-04/14/11 MG	PWP1CM
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	.: 002260
			Instrument ID	: 15			
Chromium	200	193	ug/L	96	SW846 6010B	04/08-04/14/11 MG	PWP1CN
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	.: 002260
			Instrument ID	: I5	-	-	
Copper	250	244	ug/L	98	SW846 6010B	04/08-04/14/11 MG:	PWP1CP
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	.: 002260
			Instrument ID	: 15		-	
Potassium	50000	46400	ug/L	93	SW846 6010B	04/08-04/14/11 MG	PWP1CQ
			Dilution Factor	: 1	Analysis Time: 16	21 Analyst ID	.: 002260
			Instrument ID	: I5			

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

PARAMETER Magnesium	SPIKE AMOUNT 50000	MEASURE AMOUNT 49700	UNITS ug/L	PERCNT RECVRY 99	METHOD SW846 6010B	PREPARATION- ANALYSIS DATE 04/08-04/14/11	
			Dilution Factor	: 1	Analysis Time: 16	:21 Analyst ID.	: 002260
			Instrument ID	: 15			
Manganese	500	524	ug/L	105	SW846 6010B	04/08-04/14/11	MGPWP1CT
			Dilution Factor	: 1	Analysis Time: 16	:21 Analyst ID.	: 002260
			Instrument ID	: I5			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D070566 Matrix....: WATER Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11 PERCENT RECOVERY PREPARATION-<u>LIMITS</u> METHOD RECOVERY ANALYSIS DATE WORK ORDER # MS Lot-Sample #: A1D070402-017 Prep Batch #...: 1098019 (75 - 125) SW846 6020 04/08-04/11/11 MGM7R1AM Dilution Factor: 1 Instrument ID..: 18 Analysis Time..: 19:06 Analyst ID....: 000079 Antimony 102 (75 - 125) SW846 6020 04/08-04/11/11 MGM7R1A2 Dilution Factor: 1 Analysis Time..: 19:06 Instrument ID..: 18 Analyst ID....: 000079 (75 - 125) SW846 6010B Arsenic 101 04/08-04/14/11 MGM7R1CF Dilution Factor: 1 Analysis Time..: 17:20 Instrument ID..: I5 Analyst ID....: 002260 107 Barium (75 - 125) SW846 6010B 04/08-04/14/11 MGM7R1CU Dilution Factor: 1 Analysis Time..: 17:20 Instrument ID..: I5 Analyst ID....: 002260 99 (75 - 125) SW846 6020 Beryllium 04/08-04/11/11 MGM7R1AQ Dilution Factor: 1 Analysis Time..: 19:06 Instrument ID..: 18 Analyst ID....: 000079 Cadmium 102 (75 - 125) SW846 6020 04/08-04/11/11 MGM7R1AU Dilution Factor: 1 Analysis Time..: 19:06 Instrument ID..: 18 Analyst ID....: 000079 Calcium 107 (75 - 125) SW846 6010B 04/08-04/14/11 MGM7R1CX Dilution Factor: 1 Analysis Time..: 17:20 Instrument ID..: I5 Analyst ID....: 002260 Chromium 103 (75 - 125) SW846 6010B 04/08-04/14/11 MGM7R1C5 Dilution Factor: 1 Analysis Time..: 17:20 Instrument ID..: I5 Analyst ID....: 002260 Cobalt 105 (75 - 125) SW846 6010B 04/08-04/14/11 MGM7R1C2 Dilution Factor: 1 Analysis Time..: 17:20 Instrument ID..: I5 Analyst ID....: 002260 105 (75 - 125) SW846 6010B 04/08-04/14/11 MGM7R1C8 Copper Analysis Time..: 17:20 Dilution Factor: 1 Instrument ID..: I5 Analyst ID....: 002260

North Canton

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124

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

	PERCENT		PREPARATION-
PARAMETER	<u>RECOVERY</u> 98		ANALYSIS DATE WORK ORDER #
Iron	90	·	04/08-04/11/11 MGM7R1AX
		Dilution Factor: 1 Analysis T Analyst ID: 000079	'ime: 19:06 Instrument ID: I8
Lead	110	(75 - 125) SW846 6010B 0	04/08-04/14/11 MGM7R1CJ
		Dilution Factor: 1 Analysis T Analyst ID: 002260	ime: 17:20 Instrument ID: I5
Magnesium	111	(75 - 125) SW846 6010B 0	04/08-04/14/11 MGM7R1DF
_		Dilution Factor: 1 Analysis T	'ime: 17:20 Instrument ID: I5
		Analyst ID: 002260	
Manganese	114	(75 - 125) SW846 6010B 0	04/08-04/14/11 MGM7R1DJ
		Dilution Factor: 1 Analysis T	ime: 17:20 Instrument ID: I5
		Analyst ID: 002260	
Mercury	97	(80 - 120) SW846 7470A 0	04/08-04/11/11 MGM7R1AJ
		Dilution Factor: 1 Analysis T Analyst ID: 002260	'ime: 14:00 Instrument ID: H1
Nickel	108	(75 - 125) SW846 6010B 0	04/08-04/14/11 MGM7R1AC
		Dilution Factor: 1 Analysis T	ime: 17:20 Instrument ID: I5
		Analyst ID: 002260	
Potassium	103	(75 - 125) SW846 6010B 0	04/08-04/14/11 MGM7R1DC
		Dilution Factor: 1 Analysis T Analyst ID: 002260	'ime: 17:20 Instrument ID: I5
Selenium	112	(75 - 125) SW846 6010B 0	04/08-04/14/11 MGM7R1CM
		Dilution Factor: 1 Analysis T	ime: 17:20 Instrument ID: I5
		Analyst ID: 002260	
Silver	98	(75 - 125) SW846 6010B 0	04/08-04/14/11 MGM7R1CQ
		Dilution Factor: 1 Analysis T Analyst ID: 002260	'ime: 17:20 Instrument ID: I5
Sodium	103	(75 - 125) SW846 6020 0	04/08-04/11/11 MGM7R1CC
_ 5 0 _ 0	200	,	'ime: 19:06 Instrument ID: 18
		Analyst ID: 000079	
Thallium	102	(75 - 125) SW846 6020 0	04/08-04/11/11 MGM7R1A8
		Dilution Factor: 1 Analysis T	ime: 19:06 Instrument ID: I8
		Analyst ID: 000079	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

<u>PARAMETER</u> Vanadium	PERCENT RECOVERY 106	RECOVERY LIMITS (75 - 125) Dilution Fact Analyst ID	tor: 1 Ar	ANAL	PARATION- LYSIS DATE 08-04/14/11 : 17:20	WORK ORDER # MGM7R1AF Instrument ID: I5
Zinc	96	(75 - 125) Dilution Fact Analyst ID		04/0 nalysis Time.	08-04/11/11	MGM7R1A5 Instrument ID: I8

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT	UNITS	PERCENT RECOVER	Y METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Samp	le #: AlI ND	0070402 10000	9680 Dilution	Batch # ug/L Factor: 1	97 Analy	SW846 6020 ysis Time: 19:06	04/08-04/11/11 Instrument ID:	
Antimony	ND	100	Dilution 1	ug/L Factor: 1 D: 000	Analy	SW846 6020 Vsis Time: 19:06	04/08-04/11/11 Instrument ID:	
Arsenic	ND	2000				SW846 6010B	04/08-04/14/11 Instrument ID:	
Barium	76.4	2000		ug/L Factor: 1 D: 002	-	SW846 6010B	04/08-04/14/11 Instrument ID:	
Beryllium	ND	100		ug/L Factor: 1 D: 000	-	SW846 6020 vsis Time: 19:06	04/08-04/11/11 Instrument ID:	~
Cadmium	ND	100		_	_	SW846 6020 ysis Time: 19:06	04/08-04/11/11 Instrument ID:	
Calcium	73600	50000		ug/L Factor: 1 D: 002		SW846 6010B	04/08-04/14/11 Instrument ID:	
Chromium	ND	200		ug/L Factor: 1 D: 002	Analy	SW846 6010B	04/08-04/14/11 Instrument ID:	
Cobalt	ND	500		ug/L Factor: 1 D: 002		SW846 6010B	04/08-04/14/11 Instrument ID:	
Copper	ND	250	263 Dilution 1	ug/L Factor: 1 D: 002		SW846 6010B	04/08-04/14/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT UNI	PEI ITS REC	RCENT COVERY METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	599		10400 ug, Dilution Facto Analyst ID	'L 98	SW846 6020 Analysis Time: 19:06	04/08-04/11/11 Instrument ID:	MGM7R1AX
Lead	ND	500	551 ug, Dilution Facto Analyst ID	r: 1		04/08-04/14/11 Instrument ID:	
Magnesium	30000	50000	85300 ug, Dilution Facto Analyst ID	r: 1		04/08-04/14/11 Instrument ID:	
Manganese	258	500	829 ug, Dilution Facto Analyst ID	r: 1	SW846 6010B Analysis Time: 17:20	04/08-04/14/11 Instrument ID:	
Mercury	ND	1.0	0.97 ug, Dilution Facto Analyst ID	r: 1	SW846 7470A Analysis Time: 14:00	04/08-04/11/11 Instrument ID:	
Nickel	ND	500	541 ug, Dilution Facto Analyst ID	r: 1	3 SW846 6010B Analysis Time: 17:20	04/08-04/14/11 Instrument ID:	
Potassium	1370	50000	52800 ug, Dilution Facto Analyst ID	r: 1	3 SW846 6010B Analysis Time: 17:20	04/08-04/14/11 Instrument ID:	
Selenium	ND	2000	2230 ug, Dilution Facto Analyst ID	r: 1		04/08-04/14/11 Instrument ID:	
Silver	ND	50.0	49.0 ug, Dilution Facto Analyst ID	r: 1	SW846 6010B Analysis Time: 17:20	04/08-04/14/11 Instrument ID:	
Sodium	7180	10000	17500 ug, Dilution Facto Analyst ID	r: 1	3 SW846 6020 Analysis Time: 19:06	04/08-04/11/11 Instrument ID:	
Thallium	ND	100	102 ug, Dilution Facto Analyst ID	r: 1	2 SW846 6020 Analysis Time: 19:06	04/08-04/11/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

<u>PARAMETER</u> Vanadium	SAMPLE AMOUNT ND	SPIKE AMT 500	MEASURED AMOUNT 529	<u>UNITS</u> ug/L	PERCENT RECOVERY 106	METHOD SW846 6010B	PREPARATION- ANALYSIS DATE 04/08-04/14/11	WORK ORDER # MGM7R1AF
			Dilution H	Factor: 1 D: 0022	-	is Time: 17:20	Instrument ID:	I5
			Allalyst II	D 0022	00			
Zinc	8.0	100	104	ug/L	96	SW846 6020	04/08-04/11/11	MGM7R1A5
			Dilution H	Factor: 1	Analys	is Time: 19:06	<pre>Instrument ID:</pre>	18
			Analyst II	D: 0000	79			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D070566 Matrix....: WATER Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11 PERCENT RECOVERY PREPARATION-<u>LIMITS</u> METHOD RECOVERY ANALYSIS DATE WORK ORDER # MS Lot-Sample #: A1D070402-031 Prep Batch #...: 1098019 96 (75 - 125) SW846 6020 04/08-04/11/11 MGM9D1AM Dilution Factor: 1 Analysis Time..: 20:02 Instrument ID..: 18 Analyst ID....: 000079 Antimony 101 (75 - 125) SW846 6020 04/08-04/11/11 MGM9D1A2 Dilution Factor: 1 Analysis Time..: 20:02 Instrument ID..: 18 Analyst ID....: 000079 (75 - 125) SW846 6010B Arsenic 97 04/08-04/14/11 MGM9D1CF Dilution Factor: 1 Analysis Time..: 18:25 Instrument ID..: I5 Analyst ID....: 002260 109 Barium (75 - 125) SW846 6010B 04/08-04/14/11 MGM9D1CU Dilution Factor: 1 Analysis Time..: 18:25 Instrument ID..: I5 Analyst ID....: 002260 (75 - 125) SW846 6020 Beryllium 95 04/08-04/11/11 MGM9D1AQ Dilution Factor: 1 Analysis Time..: 20:02 Instrument ID..: 18 Analyst ID....: 000079 Cadmium 101 (75 - 125) SW846 6020 04/08-04/11/11 MGM9D1AU Dilution Factor: 1 Analysis Time..: 20:02 Instrument ID..: 18 Analyst ID....: 000079 Calcium 98 (75 - 125) SW846 6010B 04/08-04/14/11 MGM9D1CX Dilution Factor: 1 Analysis Time..: 18:25 Instrument ID..: I5 Analyst ID....: 002260 Chromium 100 (75 - 125) SW846 6010B 04/08-04/14/11 MGM9D1C5 Dilution Factor: 1 Analysis Time..: 18:25 Instrument ID..: I5 Analyst ID....: 002260 Cobalt 101 (75 - 125) SW846 6010B 04/08-04/14/11 MGM9D1C2 Dilution Factor: 1 Analysis Time..: 18:25 Instrument ID..: I5 Analyst ID....: 002260 106 (75 - 125) SW846 6010B 04/08-04/14/11 MGM9D1C8 Copper Analysis Time..: 18:25 Dilution Factor: 1 Instrument ID..: I5 Analyst ID....: 002260

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TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11

PARAMETER	PERCENT RECOVERY		PREPARATION- ANALYSIS DATE WORK ORDER #
Iron	96		04/08-04/11/11 MGM9D1AX
Lead	105	(75 - 125) SW846 6010B 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/14/11 MGM9D1CJ ime: 18:25 Instrument ID: I5
Magnesium	98	(75 - 125) SW846 6010B 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/14/11 MGM9D1DF Time: 18:25 Instrument ID: I5
Manganese	109	(75 - 125) SW846 6010B 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/14/11 MGM9D1DJ Time: 18:25 Instrument ID: I5
Mercury	102	(80 - 120) SW846 7470A 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/11/11 MGM9D1AJ Time: 13:39 Instrument ID: H1
Nickel	104	(75 - 125) SW846 6010B 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/14/11 MGM9D1AC Time: 18:25 Instrument ID: I5
Potassium	107	(75 - 125) SW846 6010B 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/14/11 MGM9D1DC Time: 18:25 Instrument ID: I5
Selenium	107	(75 - 125) SW846 6010B 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/14/11 MGM9D1CM Time: 18:25 Instrument ID: I5
Silver	98	(75 - 125) SW846 6010B 0 Dilution Factor: 1 Analysis T Analyst ID: 002260	04/08-04/14/11 MGM9D1CQ Time: 18:25 Instrument ID: I5
Sodium	111		04/08-04/11/11 MGM9D1CC ime: 20:02 Instrument ID: I8
Thallium	102		04/08-04/11/11 MGM9D1A8 ime: 20:02 Instrument ID: I8

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11

<u>PARAMETER</u> Vanadium	PERCENT RECOVERY 104	RECOVERY LIMITS (75 - 125) Dilution Fact	tor: 1 Analysis	PREPARATION- ANALYSIS DATE 04/08-04/14/11 Time: 18:25	WORK ORDER # MGM9D1AF Instrument ID: I5
Zinc	100	Analyst ID (75 - 125) Dilution Fact Analyst ID	SW846 6020 tor: 1 Analysis	04/08-04/11/11 Time: 20:02	MGM9D1A5 Instrument ID: I8

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT UNIT		CENT OVERY METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sampl Aluminum	l e #: Ald ND	0070402 10000	-031 Prep Bato 9640 ug/I Dilution Factor: Analyst ID:	96 1	1098019 SW846 6020 Analysis Time: 20:02	04/08-04/11/11 Instrument ID:	
Antimony	ND	100	101 ug/I Dilution Factor: Analyst ID:	1	SW846 6020 Analysis Time: 20:02	04/08-04/11/11 Instrument ID:	
Arsenic	11.3	2000	1960 ug/I Dilution Factor: Analyst ID:	1	SW846 6010B Analysis Time: 18:25	04/08-04/14/11 Instrument ID:	
Barium	35.7	2000	2220 ug/I Dilution Factor: Analyst ID:	1	SW846 6010B Analysis Time: 18:25	04/08-04/14/11 Instrument ID:	
Beryllium	ND	100	94.6 ug/I Dilution Factor: Analyst ID:	1	SW846 6020 Analysis Time: 20:02	04/08-04/11/11 Instrument ID:	-
Cadmium	ND	100	101 ug/I Dilution Factor: Analyst ID	1	SW846 6020 Analysis Time: 20:02	04/08-04/11/11 Instrument ID:	
Calcium	33300	50000	82500 ug/I Dilution Factor: Analyst ID	1	SW846 6010B Analysis Time: 18:25	04/08-04/14/11 Instrument ID:	
Chromium	ND	200	200 ug/I Dilution Factor: Analyst ID:	1	SW846 6010B Analysis Time: 18:25	04/08-04/14/11 Instrument ID:	
Cobalt	1.5	500	506 ug/I Dilution Factor: Analyst ID:	1	SW846 6010B Analysis Time: 18:25	04/08-04/14/11 Instrument ID:	
Copper	ND	250	265 ug/I Dilution Factor: Analyst ID	1	SW846 6010B Analysis Time: 18:25	04/08-04/14/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT UN	PI ITS RI	ERCENT ECOVERY METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	18200		27800 ug Dilution Facto Analyst ID	/L 96 r: 1	SW846 6020	04/08-04/11/11	MGM9D1AX
Lead	ND	500	524 ug Dilution Facto Analyst ID	r: 1			
Magnesium	92000	50000	141000 ug Dilution Facto Analyst ID	r: 1			
Manganese	296	500	842 ug Dilution Facto Analyst ID	r: 1	9 SW846 6010E Analysis Time: 18:2		
Mercury	ND	1.0	1.0 ug Dilution Facto Analyst ID	r: 1	O2 SW846 7470A Analysis Time: 13:3		
Nickel	2.8	500	522 ug Dilution Facto Analyst ID	r: 1	04 SW846 6010E Analysis Time: 18:2		
Potassium	2130	50000	55900 ug Dilution Facto Analyst ID	r: 1	07 SW846 6010E Analysis Time: 18:2		
Selenium	ND	2000	2150 ug Dilution Facto Analyst ID	r: 1	07 SW846 6010E Analysis Time: 18:2		
Silver	ND	50.0	49.1 ug Dilution Facto Analyst ID	r: 1		- , , ,	
Sodium	2180	10000	13200 ug Dilution Facto Analyst ID	r: 1	SW846 6020 Analysis Time: 20:0	04/08-04/11/11 Instrument ID	
Thallium	ND	100	102 ug Dilution Facto Analyst ID	r: 1	02 SW846 6020 Analysis Time: 20:0	04/08-04/11/11 Instrument ID	

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11

<u>PARAMETER</u> Vanadium	SAMPLE AMOUNT ND	SPIKE AMT 500	MEASURED AMOUNT 518	<u>UNITS</u> ug/L	PERCENT RECOVERY 104	METHOD SW846 6010B	PREPARATION- ANALYSIS DATE 04/08-04/14/11	WORK ORDER # MGM9D1AF
			Dilution I	Factor: 1 D: 0022	-	is Time: 18:25	Instrument ID:	I5
			-					
Zinc	5.5	100	106 Dilution 1	ug/L Factor: 1	100 Analysi	SW846 6020 is Time: 20:02	04/08-04/11/11 Instrument ID:	
			Analyst II	D: 0000	79			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals

Client Lot #...: A1D070566 Work Order #...: MGM7R-SMP Matrix.....: WATER

MGM7R-DUP

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

PARAM RESULT	DUPLICATE RESULT	UNITS RPD	RPD LIMIT METHOD	PREPARATION- PREP ANALYSIS DATE BATCH #
Lead ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: I5	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Selenium ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: 15	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Silver ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: I5	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Barium 76.4	78.2	ug/L 2.4 Dilution Factor: 1 Instrument ID: 15	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Calcium 73600	74900	ug/L 1.8 Dilution Factor: 1 Instrument ID: I5	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Potassium 1370	1380	ug/L 0.74 Dilution Factor: 1 Instrument ID: I5	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Magnesium 30000	30500	ug/L 1.7 Dilution Factor: 1 Instrument ID: I5	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Manganese 258	262	ug/L 1.8 Dilution Factor: 1 Instrument ID: I5	SD Lot-Sample #: (0-20) SW846 6010B Analysis Time: 17:20	A1D070402-017 04/08-04/14/11 1098019 Analyst ID: 002260
Antimony ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: 18	SD Lot-Sample #: (0-20) SW846 6020 Analysis Time: 19:06	A1D070402-017 04/08-04/11/11 1098019 Analyst ID: 000079

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Metals

Lot-Sample #:	A1D070566-	000 Work Order	#: MGM7R-SMP Matr	ix WATER
	DUPLICATE		RPD	PREPARATION- PREP
PARAM RESULT	RESULT	<u>UNITS</u> RPD	LIMIT METHOD	ANALYSIS DATE BATCH #
Zinc			SD Lot-Sample #:	A1D070402-017
8.0 B,J	4.1 B	ug/L 65	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 19:06	Analyst ID: 000079
		Instrument ID: 18		
Thallium			SD Lot-Sample #:	
ND	ND	ug/L 0	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 19:06	Analyst ID: 000079
		Instrument ID: 18		
				-1-050400 015
Nickel		/-	SD Lot-Sample #:	
ND	ND	ug/L 0	(0-20) SW846 6010B	04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 17:20	Analyst ID: 002260
		Instrument ID: I5		
Vanadium			SD Lot-Sample #:	31D070402 017
Vanadium ND	ND	ug/L 0	(0-20) SW846 6010B	04/08-04/14/11 1098019
ND	ND	Dilution Factor: 1	Analysis Time: 17:20	Analyst ID: 002260
		Instrument ID: I5	Analysis lime 17.20	Analyst ID 002200
		Instrument ib is		
Mercury			SD Lot-Sample #:	A1D070402-017
ND	ND	ug/L 0	(0-20) SW846 7470A	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 14:00	Analyst ID: 002260
		Instrument ID: H1	-	-
Aluminum			SD Lot-Sample #:	A1D070402-017
ND	ND	ug/L 0	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 19:06	Analyst ID: 000079
		Instrument ID: 18		
Beryllium			SD Lot-Sample #:	
ND	ND	ug/L 0	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 19:06	Analyst ID: 000079
		Instrument ID: 18		
Cadmium			SD Lot-Sample #:	
ND	ND	ug/L 0	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 19:06	Analyst ID: 000079
		Instrument ID: 18		
Twon			CD Ist Commits !!	710070402 017
Iron	610	110 /T 2 2	SD Lot-Sample #:	
599	612	ug/L 2.2	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis lime 19:06	Analyst ID: 000079
		Instrument ID: 18		

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Metals

Lot-Sample #:	A1D070566-	000 Work	Order		M7R-SMP Matr M7R-DUP	ix WAT	ER
	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Cobalt					SD Lot-Sample #:	A1D070402-017	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fa	ctor: 1	Ana	alysis Time: 17:20	Analyst ID:	002260
		Instrument	ID: 15				
Chromium					SD Lot-Sample #:	A1D070402-017	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fa	ctor: 1	Ana	alysis Time: 17:20	Analyst ID:	002260
		Instrument	ID: I5				
Copper					SD Lot-Sample #:	A1D070402-017	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fa	ctor: 1	Ana	alysis Time: 17:20	Analyst ID:	002260
		Instrument	ID: 15				
Sodium					SD Lot-Sample #:	A1D070402-017	
7180	7440	ug/L	3.5	(0-20)	SW846 6020	04/08-04/11/11	1098019
		Dilution Fa	ctor: 1	Ana	alysis Time: 19:06	Analyst ID:	000079
		Instrument	ID: 18				
Arsenic					SD Lot-Sample #:	A1D070402-017	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fa	ctor: 1	Ana	alysis Time: 17:20	Analyst ID:	002260
		Instrument	ID: I5				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

 $[\]label{eq:definition} J \ \ \mbox{Method blank contains the target analyte at a reportable level}.$

Metals

Client Lot #...: A1D070566 Work Order #...: MGM9D-SMP Matrix.....: WATER

MGM9D-DUP

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11

	DUPLICATE		RPD PREPARATION- PREP
PARAM RESULT	RESULT	<u>UNITS</u> RPD	LIMIT METHOD ANALYSIS DATE BATCH
Mercury			SD Lot-Sample #: A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 7470A 04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 13:39 Analyst ID: 002260
		Instrument ID: H	
Aluminum	175	/= 0	SD Lot-Sample #: A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6020 04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 20:02 Analyst ID: 000079
		Instrument ID: I	
Beryllium			SD Lot-Sample #: A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6020 04/08-04/11/11 1098019
ND	ND	Dilution Factor: 1	Analysis Time: 20:02 Analyst ID: 000079
		Instrument ID: I	
		Instrument ID 18	
Cadmium			SD Lot-Sample #: A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6020 04/08-04/11/11 1098019
140	IVD	Dilution Factor: 1	Analysis Time: 20:02 Analyst ID: 000079
		Instrument ID: I	-
		instrument ib it	
Iron			SD Lot-Sample #: A1D070402-031
18200	16800	ug/L 8.0	(0-20) SW846 6020 04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 20:02 Analyst ID: 000079
		Instrument ID: I	
Cobalt			SD Lot-Sample #: A1D070402-031
1.5 B	2.1 B	ug/L 33	(0-20) SW846 6010B 04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25 Analyst ID: 002260
		Instrument ID: I	
Chromium			SD Lot-Sample #: A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6010B 04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25 Analyst ID: 002260
		Instrument ID: I	
Copper			SD Lot-Sample #: A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6010B 04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25 Analyst ID: 002260
		Instrument ID: I	
C = d :			OD 1 of Commis # . 717070400 001
Sodium	2000	/T	SD Lot-Sample #: A1D070402-031
2180	2000	ug/L 8.4	(0-20) SW846 6020 04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 20:02 Analyst ID: 000079
		Instrument ID: I	

(Continued on next page)

Metals

Lot-Sample #:	A1D070566-	000 Work Order	#: MGM9D-SMP Matr MGM9D-DUP	ix: WATER
	DUPLICATE		RPD	PREPARATION- PREP
PARAM RESULT	RESULT	UNITS RPD	LIMIT METHOD	ANALYSIS DATE BATCH #
Arsenic			SD Lot-Sample #:	A1D070402-031
11.3	13.8	ug/L 20	(0-20) SW846 6010B	04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25	Analyst ID: 002260
		Instrument ID: I5		
Antimony			SD Lot-Sample #:	
ND	ND	ug/L 0	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 20:02	Analyst ID: 000079
		Instrument ID: 18		
- ·				717070400 021
Zinc	7 4 D	/T 20	SD Lot-Sample #:	
5.5 B,J	7.4 B	ug/L 29	(0-20) SW846 6020	04/08-04/11/11 1098019
		Dilution Factor: 1	Analysis Time: 20:02	Analyst ID: 000079
		Instrument ID: 18		
Thallium			SD Lot-Sample #:	A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6020	04/08-04/11/11 1098019
112	110	Dilution Factor: 1	Analysis Time: 20:02	Analyst ID: 000079
		Instrument ID: 18		
Nickel			SD Lot-Sample #:	A1D070402-031
2.8 B	2.5 B	ug/L 10	(0-20) SW846 6010B	04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25	Analyst ID: 002260
		Instrument ID: I5		
Vanadium			SD Lot-Sample #:	
ND	ND	ug/L 0	(0-20) SW846 6010B	04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25	Analyst ID: 002260
		Instrument ID: I5		
Lead			SD Lot-Sample #:	31D070402_021
ND	ND	ug/L 0	-	04/08-04/14/11 1098019
ND	ND	5	Analysis Time: 18:25	
		Instrument ID: I5	Analysis lime 10.23	Analyst ID 002200
		Instrument ib 15		
Selenium			SD Lot-Sample #:	A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6010B	04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25	Analyst ID: 002260
		Instrument ID: I5		
Silver			SD Lot-Sample #:	A1D070402-031
ND	ND	ug/L 0	(0-20) SW846 6010B	04/08-04/14/11 1098019
		Dilution Factor: 1	Analysis Time: 18:25	Analyst ID: 002260
		Instrument ID: I5		

(Continued on next page)

Metals

Lot-Sample #:	A1D070566-	000 Work	Order	#: MG MG	M9D-SMP Matr : M9D-DUP	ix WAT	ER
	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	<u>UNITS</u>	RPD_	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Barium					SD Lot-Sample #:	A1D070402-031	
35.7	33.6	ug/L	6.1	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fac	ctor: 1	Ana	lysis Time: 18:25	Analyst ID:	002260
		Instrument :	ID: I5				
Calcium					SD Lot-Sample #:	A1D070402-031	
33300	31000	ug/L	7.3	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fac	ctor: 1	Ana	lysis Time: 18:25	Analyst ID:	002260
		Instrument :	ID: I5				
Potassium					SD Lot-Sample #:	A1D070402-031	
2130	2050	ug/L	3.8	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fac	ctor: 1	Ana	lysis Time: 18:25	Analyst ID:	002260
		Instrument :	ID: I5				
Magnesium					SD Lot-Sample #:	A1D070402-031	
92000	85500	ug/L	7.3	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fac	ctor: 1	Ana	lysis Time: 18:25	Analyst ID:	002260
		Instrument :	ID: I5				
Manganese					SD Lot-Sample #:	A1D070402-031	
296	274	ug/L	7.5	(0-20)	SW846 6010B	04/08-04/14/11	1098019
		Dilution Fac	ctor: 1	Ana	lysis Time: 18:25	Analyst ID:	002260
		Instrument :	ID: I5				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

 $[\]label{eq:definition} J \ \ \mbox{Method blank contains the target analyte at a reportable level}.$

Metals Internal Chain of Custody

Date Prepared: 04/08/	11 Prep Analyst:	Lisa Mcgall
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Laboratory S	ample ID	Lab ID	Method	Analysis Date	Analyst	Instrument
A1D070566	11	MGPCC	SW846 6010B	04/14/11	Brian Davies	15
A1D070566	11	MGPCC	SW846 6020	04/11/11	Natalie Bucklew	18
A1D070566	11	MGPCC	SW846 7470A	04/11/11	Brian Davies	H1



GENERAL CHEMISTRY DATA

Client Sample ID: FWGRQLMW-007C-0120-GW

General Chemistry

Lot-Sample #...: A1D070566-001 Work Order #...: MGPAF Matrix.....: WG

Date Sampled...: 04/06/11 15:19 Date Received..: 04/07/11

	_					PREPARATION-	PREP
PARAMETER	RESULT	RL	<u>UNITS</u>	METHOI	D	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101109
	D	ilution Fact	or: 1				
Chloride	1.4	1.0	mg/L	MCAWW	300.0A	04/08/11	1101106
	D	ilution Fact	or: 1				
Fluoride	0.14 B	1.0	mg/L	MCAWW	300.0A	04/08/11	1101103
	D	ilution Fact	or: 1				
Nitrate as N	0.040 B	0.10 Fact	mg/L or: 1	MCAWW	300.0A	04/08/11	1101114
Nitrite as N	ND D	0.10 dilution Fact	_	MCAWW	300.0A	04/08/11	1101108
Nitrogen, as Ammonia		2.0 ilution Fact	mg/L or: 1	MCAWW	350.2	04/08/11	1098085
Phosphate as P, Ortho	0.79	0.50	mg/L	MCAWW	300.0A	04/08/11	1101116
	D	ilution Fact	or: 1				
Sulfate	101	1.0 ilution Fact	mg/L or: 1	MCAWW	300.0A	04/08/11	1101119

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGRQLMW-008C-0130-GW

General Chemistry

Lot-Sample #...: A1D070566-003 Work Order #...: MGPAR Matrix.....: WG

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11

PARAMETER	RESULT	RL	UNITS	METHOI)	PREPARATION- ANALYSIS DATE	PREP BATCH #
	1110011		011110			111111111111111111111111111111111111111	<u> </u>
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101109
	Di	lution Fact	or: 1				
Chloride	1.3	1.0	mg/L	MCAWW	300.0A	04/08/11	1101106
	Di	lution Fact	cor: 1				
Fluoride	0.30 в	1.0	_	MCAWW	300.0A	04/13/11	1104302
	DI	lution Fact	.or · 1				
Nitrate as N	ND	0.10	_	MCAWW	300.0A	04/08/11	1101114
	Di	lution Fact	cor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/08/11	1101108
	Di	lution Fact	cor: 1				
Nitrogen, as Ammonia	о.84 в	2.0	mg/L	MCAWW	350.2	04/08/11	1098085
	Di	lution Fact	or: 1				
Phosphate as P, Ortho	0.17 в	0.50	mg/L	MCAWW	300.0A	04/08/11	1101116
OI CHO	Di	lution Fact	or: 1				
Sulfate	62.6 Di	1.0 lution Fact	mg/L cor: 1	MCAWW	300.0A	04/08/11	1101119

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGRQLMW-009C-0140-GW

General Chemistry

Lot-Sample #...: A1D070566-005 Work Order #...: MGPA1 Matrix.....: WG

Date Sampled...: 04/06/11 15:31 Date Received..: 04/07/11

						PREPARATION-	PREP
PARAMETER	RESULT	<u>RL</u>	UNITS	METHOI)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101109
	Dil	lution Fact	or: 1				
Chloride	1.1	1.0	mq/L	MCAWW	300.0A	04/08/11	1101106
	Dil	lution Fact	J .				
Fluoride	0.11 B	1.0	ma /T	MCDUIJ	300.0A	04/08/11	1101103
riuoriae		ution Fact	mg/L or: 1	MCAWW	300.UA	04/06/11	1101103
Nitrate as N	0.071 B	0.10	mg/L	MCAWW	300.0A	04/08/11	1101114
	Dil	lution Fact	or: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/08/11	1101108
	Dil	lution Fact	or: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW	350.2	04/08/11	1098085
Tilologoli, ab immolila		Lution Fact	_	110111111	33312	01,00,11	
_, ,			-			04/00/44	
Phosphate as P, Ortho	1.3	0.50	mg/L	MCAWW	300.0A	04/08/11	1101116
or eno	Dil	lution Fact	or: 1				
Sulfate	13.4	1.0	mg/L	мсары	300.0A	04/08/11	1101119
Dullucc		lution Fact	_	FICANN	J00.UA	01/00/11	1101117

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGRQLMW-014C-0150-GW

General Chemistry

Lot-Sample #...: A1D070566-007 Work Order #...: MGPA4 Matrix.....: WG

Date Sampled...: 04/06/11 09:16 Date Received..: 04/07/11

PARAMETER	RESULT	RL	UNITS	METHOI)	PREPARATION- ANALYSIS DATE	PREP <u>BATCH</u> #
Bromide	ND Di	0.50	mg/L or: 1		300.0A	04/08/11	1101109
Chloride	5.0	1.0 lution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101106
Fluoride	0.11 B	1.0 lution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101103
Nitrate as N	ND Di	0.10	mg/L or: 1	MCAWW	300.0A	04/08/11	1101114
Nitrite as N	ND Di	0.10	mg/L or: 1	MCAWW	300.0A	04/08/11	1101108
Nitrogen, as Ammonia		2.0 lution Facto	mg/L or: 1	MCAWW	350.2	04/08/11	1098085
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101116
	Di	lution Facto	or: 1				
Sulfate	50.0	1.0 lution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101119

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGRQLMW-016C-0160-GW

General Chemistry

Lot-Sample #...: A1D070566-009 Work Order #...: MGPA7 Matrix.....: WG

Date Sampled...: 04/06/11 11:03 Date Received..: 04/07/11

PARAMETER	RESULT	RL	UNITS	METHOI)	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND Di	0.50	3 ·	MCAWW	300.0A	04/08/11	1101109
Chloride	6.7	1.0 lution Fact	mg/L	MCAWW	300.0A	04/08/11	1101106
Fluoride	0.37 B	1.0 lution Fact	_	MCAWW	300.0A	04/08/11	1101103
Nitrate as N	ND Di	0.10 lution Fact	_	MCAWW	300.0A	04/08/11	1101114
Nitrite as N	ND Di	0.10	3 ·	MCAWW	300.0A	04/08/11	1101108
Nitrogen, as Ammonia		2.0 lution Fact	_	MCAWW	350.2	04/08/11	1098085
Phosphate as P, Ortho	0.19 в	0.50	mg/L	MCAWW	300.0A	04/08/11	1101116
	Di	lution Fact	cor: 1				
Sulfate	1120 Di	10.0 lution Fact	mg/L cor: 10	MCAWW	300.0A	04/08/11	1101119

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGB12MW-010C-0220-FB

General Chemistry

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC Matrix.....: WQ

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11

D1D11/EEED	D D GIII	D.T.		MERILOR	PREPARATION-	PREP
PARAMETER	RESULT	<u>RL</u>	UNITS	METHOD	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
	Di	lution Facto	or: 1			
Chloride	ND	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
	Di.	lution Facto	or: 1			
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/13/11	1103349
	Di.	lution Facto	or: 1			
Fluoride	ND	1.0	mg/L	MCAWW 300.0A	04/13/11	1104302
	DI.	IUCION FACEC)r. 1			
Nitrate as N	ND	0.10	_	MCAWW 300.0A	04/08/11	1101114
	DI.	racion race	JI - I			
Nitrate-Nitrite	ND	0.1 lution Facto	mg/L	MCAWW 353.2	04/12/11	1102391
	DI.	rucion racco)ı. ı			
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
	DI.	rution facto	or. I			
Nitrocellulose	ND	2.0	5, —	TAL-SOP WS-WC-00	5 04/12-04/13/11	1102167
	DI.	rucion racco)ı. ı			
Nitrogen, as Ammonia		2.0 lution Facto	9/ =	MCAWW 350.2	04/08/11	1098085
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
	Di	lution Facto	or: 1			
Sulfate	ND	1.0	mg/L	MCAWW 300.0A	04/08/11	1101119
	Di	lution Facto	or: 1			

Client Sample ID: FWGSCFMW-003C-0170-GW

General Chemistry

Lot-Sample #...: A1D070566-013 Work Order #...: MGPCP Matrix.....: WG

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

PARAMETER	RESULT	RL	UNITS	METHOI	<u> </u>	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND Di	0.50 lution Fact	mg/L or: 1	MCAWW	300.0A	04/08/11	1101109
Chloride	1.4	1.0 lution Fact	mg/L or: 1	MCAWW	300.0A	04/08/11	1101106
Fluoride	0.12 B	1.0 lution Fact	mg/L or: 1	MCAWW	300.0A	04/13/11	1104302
Nitrate as N	ND Di	0.10 lution Fact	mg/L or: 1	MCAWW	300.0A	04/08/11	1101114
Nitrite as N	ND Di	0.10 lution Fact	3 ·	MCAWW	300.0A	04/08/11	1101108
Nitrogen, as Ammonia		2.0 lution Fact	mg/L or: 1	MCAWW	350.2	04/08/11	1098085
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101116
	Di	lution Fact	or: 1				
Sulfate	25.2 Di	1.0 lution Fact	mg/L or: 1	MCAWW	300.0A	04/08/11	1101119

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WATER

PARAMETER Bromide	RESULT ND	REPORTING LIMIT UNITS Work Order #: MGT1H1AA 0.50 mg/L Dilution Factor: 1			PREP BATCH # 1101109
Chloride	ND	Work Order #: MGT061AA 1.0 mg/L Dilution Factor: 1		A1D110000-106 04/08/11	1101106
Cyanide, Total	ND	Work Order #: MGOMK1AA 0.010 mg/L Dilution Factor: 1	MB Lot-Sample #: SW846 9012A	A1D130000-349 04/13/11	1103349
Fluoride	ND	Work Order #: MGT031AA 1.0 mg/L Dilution Factor: 1		A1D110000-103 04/08/11	1101103
Fluoride	ND	Work Order #: MG2FD1AA 1.0 mg/L Dilution Factor: 1		A1D140000-302 04/13/11	1104302
Nitrate as N	ND	Work Order #: MGT1N1AA 0.10 mg/L Dilution Factor: 1	-	A1D110000-114 04/08/11	1101114
Nitrate-Nitrite	ND	Work Order #: MGXCN1AA 0.1 mg/L Dilution Factor: 1		G1D120000-391 04/12/11	1102391
Nitrite as N	ND	Work Order #: MGT1E1AA 0.10 mg/L Dilution Factor: 1		A1D110000-108 04/08/11	1101108
Nitrocellulose	ND	Work Order #: MGWA31AA 2.0 mg/L Dilution Factor: 1	MB Lot-Sample #: TAL-SOP WS-WC-005		1102167
Nitrogen, as Ammon	nia ND	Work Order #: MGQQH1AA 2.0 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 350.2	A1D080000-085 04/08/11	1098085
Phosphate as P, Ortho	ND	Work Order #: MGT1R1AA 0.50 mg/L Dilution Factor: 1	MB Lot-Sample #: MCAWW 300.0A	A1D110000-116 04/08/11	1101116

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METHOD BLANK REPORT

General Chemistry

Client Lot #:	A1D070566		Matrix: WATER				
PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #	
Sulfate	ND	Work Order 1.0 Dilution Factor	mg/L	MB Lot-Sample #: MCAWW 300.0A	A1D110000-119 04/08/11	1101119	
NOTE(S):							

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D070566 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY		RPD	METHOD		PREPARATION- ANALYSIS DATE	PREP
Bromide	RECOVERT					Lot-Sample#: A1D1	
DIOMITAC	93			MCAWW 300		04/08/11	1101109
	94	(90 - 110) 0.47					
	7 1	Dilution Facto		110111111 500	. 011	01/00/11	1101107
		511401011 14000					
Chloride		WO#:MGT061AC-	LCS/MGT0	61AD-LCSD	LCS	Lot-Sample#: A1D1	10000-106
	100	(90 - 110)		MCAWW 300	0.0A	04/08/11	1101106
	100	(90 - 110) 0.34	(0-20)	MCAWW 300	0.0A	04/08/11 04/08/11	1101106
		Dilution Facto	or: 1				
Fluoride				31AD-LCSD	LCS	Lot-Sample#: A1D1	10000-103
	92	(90 - 110)		MCAWW 300		04/08/11	1101103
	93	(90 - 110) 0.86	(0-20)	MCAWW 300	0.0A	04/08/11	1101103
		Dilution Facto	or: 1				
		550 H : 1500 = 1.1.0	- 00 /200-	-1			40000 000
Fluoride	94					Lot-Sample#: A1D1	
	94			MCAWW 300		04/13/11 04/13/11	1104302
	94	(90 - 110) 0.0 Dilution Facto		MCAWW 300).UA	04/13/11	1104302
		DITULION FACE	or. I				
Nitrate as N		WO#:MGT1N1AC-	LCS/MGT1	N1AD-LCSE	LCS	Lot-Sample#: A1D1	10000-114
	95	(90 - 110)		MCAWW 300	0.0A	04/08/11	
	95	(90 - 110) 0.38	(0-20)	MCAWW 300	0.0A	04/08/11	1101114
		Dilution Facto				, , , , ,	
Nitrite as N				E1AD-LCSD	LCS	Lot-Sample#: A1D1	10000-108
	101	(90 - 110)				04/08/11	1101108
	101	(90 - 110) 0.27	(0-20)	MCAWW 300	.0A	04/08/11	1101108
		Dilution Facto	or: 1				
Phosphate as Ortho	Ρ,					Lot-Sample#: A1D1	10000-116
	100					04/08/11	1101116
	102			MCAWW 300	0.0A	04/08/11	1101116
		Dilution Facto	or: 1				
g.,16.+-		LIOU . MORT 1 1 7 C	T GG /MGE-1	1130 1000	т с с	Tot Committee 3151	10000 110
Sulfate	0.5	WO#:MGTIIIAC- (90 - 110)				Lot-Sample#: A1D1	
	95 96	(90 - 110) (90 - 110) 0.66				04/08/11 04/08/11	1101119 1101119
	70	(90 - 110) 0.66 Dilution Factor		MCAWW 300	.UA	04/U8/II	TT0TTT3
		Dilution Facto	or: 1				

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D070566 Matrix.....: WATER

PERCENT RECOVERY RPD PREPARATION- PREP

PARAMETER RECOVERY LIMITS RPD LIMITS METHOD ANALYSIS DATE BATCH #

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D070566 Matrix.....: WATER

	SPIKE	MEASURED		PERCNT				PREPARATION-	PREP
PARAMETER	AMOUNT)	ANALYSIS DATE	
Bromide		WO#:	MGT1H1AC	-LCS/MGT	г1н1аі			nple#: A1D11000	0-109
	10.0		mg/L	93		MCAWW	300.0A	04/08/11	1101109
	10.0	9.4	mg/L	94	0.47	MCAWW	300.0A	04/08/11	1101109
		Di	lution Fact	tor: 1					
Chloride		WO#:	MGT061AC	-LCS/MGT	Г061AI			nple#: A1D11000	0-106
	50.0		mg/L	100		MCAWW	300.0A	04/08/11	1101106
	50.0	50.1	mg/L	100	0.34	MCAWW	300.0A	04/08/11	1101106
		Di	lution Fact	tor: 1					
Fluoride		WO#:	MGT031AC	-LCS/MGT	г031AI	D-LCSD	LCS Lot-Sam	nple#: A1D11000	0-103
	2.5		mg/L	92			300.0A	04/08/11	1101103
	2.5		mq/L	93	0.86	MCAWW	300.0A	04/08/11	1101103
			lution Fact	tor: 1					
Fluoride		WO#:	MG2FD1AC	-LCS/MG3	ומ 1 מד	D-1.CSD	I.CS I.ot-San	nple#: A1D14000	0-302
11401140	2.5		mg/L	94			300.0A	04/13/11	1104302
	2.5		mg/L	94	0 0		300.0A	04/13/11	1104302
	2.5		lution Fact		0.0	11011111	300.011	01/13/11	1101302
		21	Tucton ruc	201 - 1					
Nitrate as N		WO#:	MGT1N1AC	-LCS/MGT	r1N1AI	D-LCSD	LCS Lot-San	nple#: A1D11000	0-114
	2.5	2.4	mg/L	95		MCAWW	300.0A	04/08/11	1101114
	2.5	2.4	mg/L	95	0.38	MCAWW	300.0A	04/08/11	1101114
		Di	lution Fact	tor: 1					
Nitrite as N		WO#:	MGT1E1AC	-LCS/MGT	Γ1E1AI	D-LCSD	LCS Lot-San	nple#: A1D11000	0-108
	2.5	2.5	mg/L	101		MCAWW	300.0A	04/08/11	1101108
	2.5	2.5	mg/L	101	0.27	MCAWW	300.0A	04/08/11	1101108
		Di	lution Fact	tor: 1					
Phosphate as	P,	WO#:	MGT1R1AC	-LCS/MG	Γ1R1AI	D-LCSD	LCS Lot-Sam	mple#: A1D11000	0-116
Ortho	0 5	0 5	/-	100			200 07	04/00/11	1101116
	2.5		mg/L	100	0 5		300.0A	04/08/11	1101116
	2.5		mg/L	102	2.7	MCAWW	300.0A	04/08/11	1101116
		Di	lution Fact	tor: 1					
Sulfate			MGT111AC		г111А			nple#: A1D11000	0-119
	50.0	47.7	mg/L	95		MCAWW	300.0A	04/08/11	1101119
	50.0	48.0	mg/L	96	0.66	MCAWW	300.0A	04/08/11	1101119
		Di	lution Fact	tor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D070566 Matrix.....: WATER

SPIKE MEASURED PERCNT PREPARATION- PREP

PARAMETER AMOUNT AMOUNT UNITS RECVRY RPD METHOD ANALYSIS DATE BATCH #

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WATER

<u>PARAMETER</u> Cyanide, Total	PERCENT RECOVERY 101	RECOVERY LIMITS Work Order (80 - 120) Dilution Fact	SW846 9012A	PREPARATION- ANALYSIS DATE ot-Sample#: A1D130000- 04/13/11	PREP <u>BATCH #</u> -349 1103349
Nitrate-Nitrite	100		MCAWW 353.2	ot-Sample#: G1D120000- 04/12/11	-391 1102391
Nitrocellulose	90		TAL-SOP WS-WC-005	ot-Sample#: G1D120000- 04/12-04/13/11	
Nitrogen, as Am	monia 94		MCAWW 350.2	ot-Sample#: A1D080000 04/08/11	-085 1098085

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WATER

PARAMETER Cyanide, Tot		MEASUR AMOUNT 0.33	UNITS	: MG0MK1	1AC I	OD LCS Lot-Sample 6 9012A	ANA	EPARATION- ALYSIS DATE AlD130000-3 04/13/11	
Nitrate-Nitr	ite 1.0	1	Work Order # mg/L Dilution Factor	100		LCS Lot-Sample W 353.2		G1D120000-3 04/12/11	91 1102391
Nitrocellulo	se 5.1	4.6	Work Order # mg/L Dilution Factor	90		LCS Lot-Sample SOP WS-WC-005			
Nitrogen, as	Ammonia 14	13	Work Order # mg/L Dilution Factor	94		LCS Lot-Sample W 350.2		A1D080000-0 04/08/11	85 1098085

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

	PERCENT	RECOVERY	RPD		PREPARATION- PREP
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD	ANALYSIS DATE BATCH #
Cyanide, Tota	al	WO#:	MGM891AM-MS/	MGM891AN-MSD	MS Lot-Sample #: A1D070402-030
	99	(80 - 120)		SW846 9012A	04/13/11 1103349
	90	(80 - 120)	8.7 (0-20)	SW846 9012A	04/13/11 1103349
		Dilut	ion Factor: 1		
Cyanide, Tota	al	WO#:	MGP1D1AM-MS/	MGP1D1AN-MSD	MS Lot-Sample #: A1D080405-002
_	92				04/13/11 1103349
	97	(80 - 120)	5.8 (0-20)	SW846 9012A	04/13/11 1103349
		Dilut	ion Factor: 1		
Cyanide, Tota	al	WO#:	MGP131AM-MS/	MGP131AN-MSD	MS Lot-Sample #: A1D080405-018
	103	(80 - 120)		SW846 9012A	04/13/11 1103349
	98	(80 - 120)	4.5 (0-20)	SW846 9012A	04/13/11 1103349
		Dilut	ion Factor: 1		
Nitrocellulo	se	WO#:	MGLKA1AF-MS/	MGLKA1AG-MSD	MS Lot-Sample #: A1D060428-014
	80	(26 - 144)		TAL-SOP WS-W	C-005 04/12-04/13/11 1102167
	79	(26 - 144)	0.99 (0-45)	TAL-SOP WS-W	C-005 04/12-04/13/11 1102167
		Dilut	ion Factor: 1		
Nitrogen, as	Ammonia	WO#:	MGAA51AU-MS/	MGAA51AV-MSD	MS Lot-Sample #: A1C290455-001
, , , , , , , , , , , , , , , , , , , ,					04/08/11 1098085
	97	,		MCAWW 350.2	
			ion Factor: 1	-	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

	SAMPLE	SPIKE	MEASRD		PERCNT			PREPARATION-	PREP
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	<u>RPD</u>	METHOD	ANALYSIS DATE	BATCH #
Cyanide,	Total		WO#:	MGM891AM-MS	/MGM891	AN-MSI	MS Lot-Samp	le #: A1D070402	-030
	ND	0.040	0.041	mg/L	99		SW846 9012A	04/13/11	1103349
	ND	0.040	0.037	mg/L	90	8.7	SW846 9012A	04/13/11	1103349
			Dilut	ion Factor: 1					
Cyanide,	Total		WO#:	MGP1D1AM-MS	/MGP1D1	AN-MSI	D MS Lot-Samp	le #: A1D080405	-002
	ND	0.040	0.037	mg/L	92		SW846 9012A	04/13/11	1103349
	ND	0.040	0.039	mg/L	97	5.8	SW846 9012A	04/13/11	1103349
			Dilut	ion Factor: 1					
Cyanide,	Total		WO#:	MGP131AM-MS	/MGP131	AN-MSI	D MS Lot-Samp	le #: A1D080405	-018
	ND	0.040	0.043	mg/L	103		SW846 9012A	04/13/11	1103349
	ND	0.040	0.041	mg/L	98	4.5	SW846 9012A	04/13/11	1103349
			Dilut	ion Factor: 1					
Nitrocell	ulose		WO#:	MGLKA1AF-MS	/MGLKA1	AG-MSI	D MS Lot-Samp	le #: A1D060428	-014
	ND	5.1	4.1	mg/L	80		TAL-SOP WS-WC	04/12-04/13/11	1102167
	ND	5.1	4.0	mg/L	79	0.99	TAL-SOP WS-WC	04/12-04/13/11	1102167
			Dilut	ion Factor: 1					
Nitrogen,	as Ammo	nia	WO#:	MGAA51AU-MS	/MGAA51	AV-MSI	D MS Lot-Samp	le #: A1C290455	-001
	19	4.0	23	mg/L	104		MCAWW 350.2	04/08/11	1098085
	19	4.0	23	mg/L	97	1.2	MCAWW 350.2	04/08/11	1098085
			Dilut	ion Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WATER

Date Sampled...: 03/28/11 13:42 Date Received..: 03/29/11

	PERCENT	RECOVERY		PRI	EPARATION-	PREP
PARAMETER	RECOVERY	LIMITS	METHOD	ANZ	ALYSIS DATE	BATCH #
Cyanide, Total		Work Order	#: MGM891AM	MS	Lot-Sample	#: A1D070402-030
	99	(80 - 120)	SW846 9012A		04/13/11	1103349
		Dilution Fac	ctor: 1			
Cyanide, Total		Work Order	#: MGP1D1AM	MS	Lot-Sample	#: A1D080405-002
	92	(80 - 120)	SW846 9012A		04/13/11	1103349
		Dilution Fac	ctor: 1			
Cyanide, Total		Work Order	#: MGP131AM	MS	Lot-Sample	#: A1D080405-018
	103	(80 - 120)	SW846 9012A		04/13/11	1103349
		Dilution Fac	ctor: 1			
Nitrocellulose		Work Order	#: MGLKA1AF	MS	Lot-Sample	#: A1D060428-014
	80	(26 - 144)	TAL-SOP WS-WC-005	04	/12-04/13/11	1102167
		Dilution Fac	ctor: 1			
Nitrogen, as Am	monia	Work Order	#: MGAA51AU	MS	Lot-Sample	#: A1C290455-001
	104	(75 - 125)	MCAWW 350.2		04/08/11	1098085
		Dilution Fac	ctor: 1			

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WG

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

PARAMETER			RPD LIMITS METHOD	PREPARATION- PREP ANALYSIS DATE BATCH #
Bromide		WO#:	MGPAF1AR-MS/MGPAF1AT-MSD	MS Lot-Sample #: A1D070566-001
	95 95	(80 - 120)	MCAWW 300.0A	04/08/11 1101109 04/08/11 1101109
	95		0.21 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101109
Bromide				MS Lot-Sample #: A1D070566-009
		(80 - 120)	MCAWW 300.0A	04/08/11 1101109 04/08/11 1101109
	93		0.82 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101109
Chloride				MS Lot-Sample #: A1D070566-001
		(80 - 120)	MCAWW 300.0A	04/08/11 1101106
	100		1.4 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101106
Chloride				MS Lot-Sample #: A1D070566-009
	105	(80 - 120)	MCAWW 300.0A	04/08/11 1101106
	104		0.71 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101106
Fluoride				MS Lot-Sample #: A1D070566-001
		(80 - 120)	MCAWW 300.0A	04/08/11 1101103 04/08/11 1101103
	98		0.53 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101103
Fluoride				MS Lot-Sample #: A1D070566-009
		(80 - 120)	MCAWW 300.0A	04/08/11 1101103
	93		0.95 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101103
Nitrate as N		WO#:	MGPAF1AU-MS/MGPAF1AV-MSD	MS Lot-Sample #: A1D070566-001 04/08/11 1101114 04/08/11 1101114
	94	(80 - 120)	MCAWW 300.0A	04/08/11 1101114
	94		0.50 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101114
Nitrate as N		WO#:	MGPA71A0-MS/MGPA71A1-MSD	MS Lot-Sample #: A1D070566-009
	95	(80 - 120)	MCAWW 300.0A	
	94		0.76 (0-20) MCAWW 300.0A ion Factor: 1	04/08/11 1101114
Nitrite as N		WO#:	MGPAF1AP-MS/MGPAF1AQ-MSD	MS Lot-Sample #: A1D070566-001
	115	(80 - 120)	MCAWW 300.0A	
	113		1.5 (0-20) MCAWW 300.0A	04/08/11 1101108
		Dilut	ion Factor: 1	

(Continued on next page)

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WG

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

	PERCENT	RECOVERY	RPD		PREPARATION-	PREP
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD	ANALYSIS DATE	BATCH #
Nitrite as N		WO#:	MGPA71AR-MS/	MGPA71AT-MSD MS	Lot-Sample #: A	A1D070566-009
	113	(80 - 120)		MCAWW 300.0A	04/08/11	1101108
	111	(80 - 120)	1.9 (0-20)	MCAWW 300.0A	04/08/11	1101108
		Dilut	tion Factor: 1			
Phosphate as Ortho	Ρ,	WO#:	MGPAF1AW-MS/	MGPAF1AX-MSD MS	Lot-Sample #: A	A1D070566-001
	200 N	(80 - 120)		MCAWW 300.0A	04/08/11	1101116
	205 N	(80 - 120)	2.2 (0-20)	MCAWW 300.0A	04/08/11	1101116
		Dilut	ion Factor: 1			
Phosphate as Ortho	Ρ,	WO#:	MGPA71A3-MS/	MGPA71A4-MSD MS	Lot-Sample #: A	A1D070566-009
	0.0 N	(80 - 120)		MCAWW 300.0A	04/08/11	1101116
	0.0 N	(80 - 120)	0.0 (0-20)	MCAWW 300.0A	04/08/11	1101116
		Dilut	tion Factor: 1			
Sulfate				MGPAF1A1-MSD MS		
	113	(80 - 120)			04/08/11	
	112	•	0.57 (0-20)	MCAWW 300.0A	04/08/11	1101119

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D070566 Matrix....: WG

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

	SAMPLE	CDIKE	MEASRD		PERCNT			PREPARATION-	PREP
PARAMETER				UNITS		מסא	METHOD	ANALYSIS DATE	
Bromide	AMOUNI	Arii						le #: A1D070566	
DIOMITAC	ND	10.0	9.5		95	111 110	MCAWW 300.0A		1101109
	ND	10.0	9.5	_	95	0 21	MCAWW 300.0A		1101109
				ion Factor: 1	, ,	***	110111111 5001011	01,00,11	
Bromide			WO#:	MGPA71AV-MS	/MGPA71	AW-MS	D MS Lot-Samp	le #: A1D070566	-009
	ND	10.0	9.4	mg/L	94		MCAWW 300.0A	04/08/11	1101109
	ND	10.0	9.3	mg/L	93	0.82	MCAWW 300.0A	04/08/11	1101109
			Dilut	ion Factor: 1					
~1.1. '.1					/2405251			1 " - 15050566	0.01
Chloride	1 4	F0 0				AN-MS		le #: A1D070566	
	1.4	50.0	52.3	mg/L	102	1 4	MCAWW 300.0A	04/08/11	1101106
	1.4	50.0	51.6	mg/L	100	1.4	MCAWW 300.0A	04/08/11	1101106
			Dilut	ion Factor: 1					
Chloride			WO#:	MGPA71AN-MS	/MGPA71	AP-MS	D MS Lot-Samp	le #: A1D070566	-009
	6.7	50.0	59.4	mg/L	105		MCAWW 300.0A	04/08/11	1101106
	6.7	50.0	58.9	mg/L	104	0.71	MCAWW 300.0A	04/08/11	1101106
			Dilut	ion Factor: 1					
Fluoride			₩O#:	MGPAF1AK-MS	/MGPAF1	ATMS	D MS Lot-Samp	le #: A1D070566	-001
rracriae	0.14	2.5	2.6		99	110	MCAWW 300.0A		1101103
	0.14	2.5	2.6	_	98	0.53	MCAWW 300.0A		1101103
				ion Factor: 1				-, -,	
Fluoride			WO#:	MGPA71AK-MS	/MGPA71	AL-MS	D MS Lot-Samp	le #: A1D070566	-009
	0.37	2.5	2.7	mg/L	94		MCAWW 300.0A	04/08/11	1101103
	0.37	2.5	2.7	mg/L	93	0.95	MCAWW 300.0A	04/08/11	1101103
			Dilut	ion Factor: 1					
Nitrate a	s N		WO#:	MGPAF1AU-MS	/MGPAF1	AV-MS	D MS Lot-Samp	le #: A1D070566	-001
	0.040	2.5	2.4	mg/L	94		MCAWW 300.0A		1101114
	0.040	2.5	2.4	_	94	0.50	MCAWW 300.0A		1101114
			Dilut	ion Factor: 1					
Nitrate a	s N					A1-MS		le #: A1D070566	
	ND	2.5	2.4	mg/L	95		MCAWW 300.0A		1101114
	ND	2.5	2.4	mg/L	94	0.76	MCAWW 300.0A	04/08/11	1101114
			Dilut	ion Factor: 1					
Nitrite a	s N		WO#:	MGPAF1AP-MS	/MGPAF1	AQ-MS	D MS Lot-Samp	le #: A1D070566	-001
	ND	2.5	2.9	mg/L	115		MCAWW 300.0A	04/08/11	1101108
	ND	2.5	2.8	mg/L	113	1.5	MCAWW 300.0A	04/08/11	1101108
			Dilut	ion Factor: 1					

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WG

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

	SAMPLE	SPIKE	MEASRD		PERCNT			PI	REPARATION-	PREP
PARAMETER	AMOUNT	<u>AMT</u>	AMOUNT	UNITS	RECVRY	RPD_	METHOD	<u>Al</u>	NALYSIS DATE	BATCH #
Nitrite as	s N		WO#:	MGPA71AR-MS	/MGPA71	AT-MSI	MS Lot-	Sample	#: A1D070566	5-009
	ND	2.5	2.8	mg/L	113		MCAWW 300	.0A	04/08/11	1101108
	ND	2.5	2.8	mg/L	111	1.9	MCAWW 300	.0A	04/08/11	1101108
			Diluti	on Factor: 1						
Phosphate Ortho	as P,		WO#:	MGPAF1AW-MS,	/MGPAF1	AX-MSI	MS Lot-	Sample	#: A1D070566	5-001
	0.79	2.5	5.8 N	mg/L	200		MCAWW 300	.0A	04/08/11	1101116
	0.79	2.5	5.9 N	mg/L	205	2.2	MCAWW 300	.0A	04/08/11	1101116
			Diluti	on Factor: 1						
Phosphate Ortho	as P,		WO#:	MGPA71A3-MS	/MGPA71	A4-MSI	MS Lot-S	Sample	#: A1D070566	5-009
	0.19	2.5	0.096 N	I mg/L	0.0		MCAWW 300	.0A	04/08/11	1101116
	0.19	2.5	0.058 N	Mg/L	0.0	0.0	MCAWW 300	.0A	04/08/11	1101116
			Diluti	on Factor: 1						
Sulfate			WO#:	MGPAF1A0-MS	/MGPAF1	A1-MSI	D MS Lot-	Sample	#: A1D070566	5-001
	101	50.0	158	mg/L	113		MCAWW 300	.0A	04/08/11	1101119
	101	50.0	157	mg/L	112	0.57	MCAWW 300	.0A	04/08/11	1101119
			Diluti	on Factor: 1						

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

N Spiked analyte recovery is outside stated control limits.

General Chemistry

Client Lot #...: A1D070566 Matrix....: WG

Date Sampled...: 04/06/11 15:19 Date Received..: 04/07/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS METHOD	PREPARATION- PREP ANALYSIS DATE BATCH #
Bromide	95	Work Order #: MGPAF1AR (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-001 04/08/11 1101109
Bromide	94	Work Order #: MGPA71AV (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-009 04/08/11 1101109
Chloride	102	Work Order #: MGPAF1AM (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-001 04/08/11 1101106
Chloride	105	Work Order #: MGPA71AN (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-009 04/08/11 1101106
Fluoride	99	Work Order #: MGPAF1AK (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-001 04/08/11 1101103
Fluoride	94	Work Order #: MGPA71AK (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-009 04/08/11 1101103
Fluoride	100	Work Order #: MGPCP1AR (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-013 04/13/11 1104302
Nitrate as N	94	Work Order #: MGPAF1AU (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-001 04/08/11 1101114
Nitrate as N	95	Work Order #: MGPA71A0 (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-009 04/08/11 1101114
Nitrite as N	115	Work Order #: MGPAF1AP (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-001 04/08/11 1101108
Nitrite as N	113	Work Order #: MGPA71AR (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-009 04/08/11 1101108

(Continued on next page)

General Chemistry

Client Lot #...: A1D070566 Matrix....: WG

Date Sampled...: 04/06/11 15:19 Date Received..: 04/07/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD		EPARATION- ALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho		Work Order	#: MGPAF1AW		Lot-Sample	
	200 N	(80 - 120) Dilution Fac	MCAWW 300.0A		04/08/11	1101116
Phosphate as P, Ortho		Work Order	#: MGPA71A3	MS	Lot-Sample	#: A1D070566-009
	0.0 N	(80 - 120) Dilution Fac	MCAWW 300.0A		04/08/11	1101116
Sulfate	113		#: MGPAF1A0 MCAWW 300.0A	MS	Lot-Sample 04/08/11	#: AlD070566-001 1101119

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

General Chemistry

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11

	PERCENT	RECOVERY	RPD		PREPARATION-	PREP
PARAMETER	RECOVERY	LIMITS R	PD LIMITS METHO)D	ANALYSIS DAT	CE BATCH #
Bromide			GPCC1CU-MS/MGPCC		Lot-Sample #:	A1D070566-011
	89	•			04/08/11	
	94	(80 - 120) 4	.6 (0-20) MCAW	7 300.0A	04/08/11	1101109
		Dilution	Factor: 1			
Chloride		WO#: M	GPCC1CP-MS/MGPCC	CO-MSD MS 1	Lot-Sample #:	A1D070566-011
	95	(80 - 120)			04/08/11	
	96		.1 (0-20) MCAW			
		Dilution	Factor: 1			
Nitrate as N			GPCC1CW-MS/MGPCC			
		(80 - 120)		7 300.0A	04/08/11	
	94		.5 (0-20) MCAW	7 300.0A	04/08/11	1101114
		Dilution	Factor: 1			
Nitrate-Nitr	ite	WO#: M	GPCC1C4-MS/MGPCC	LC5-MSD MS 1	Lot-Sample #:	A1D070566-011
	87 N	(90 - 110)		V 353.2	_	
	89 N	(90 - 110) 1	.7 (0-20) MCAW			1102391
		Dilution	Factor: 1			
Nitrite as N		TAOH • M	GPCC1CR-MS/MGPCC	CE MOD MO	Tat Campla #:	315070566 011
NICIILE AS N			.MCAW		04/08/11	
	110		.5 (0-20) MCAW			
	110		Factor: 1	. 300.011	01/00/11	1101100
Phosphate as	P,	WO#: M	GPCC1C0-MS/MGPCC	LC1-MSD MS	Lot-Sample #:	A1D070566-011
Ortho	89	(80 - 120)	MCAW	7 300.0A	04/08/11	1101116
	95		.8 (0-20) MCAW		04/08/11	
		Dilution	Factor: 1			
G., 1 f = + =		T-10-11 - 3-4	andalaa wa /wanaa	G2 MGD MG	Tob Committee !!	31D070FCC 011
Sulfate	90	WO#: M	GPCC1C2-MS/MGPCC		Lot-Sample #: 04/08/11	
	90	·	MCAW .3 (0-20) MCAW		04/08/11	
	<i>)</i> <u>८</u>		.3 (U-2U) MCAW .Factor: 1	V 300.0A	04/00/II	TT0TT7
		חדדמנדטו	ractor. I			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11

PARAMETER	SAMPLE		MEASRD	UNITS	PERCNT	חמש	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	_ AMOUNI	AMI						le #: A1D070566	
	ND	10.0	8.9	mg/L	89		MCAWW 300.0A	04/08/11	1101109
	ND	10.0	9.4	mg/L	94	4.6	MCAWW 300.0A	04/08/11	1101109
			Dilut	ion Factor: 1					
Chloride			WO#:	MGPCC1CP-MS	/MGPCC1	CQ-MS	D MS Lot-Samp	le #: A1D070566	-011
	ND	50.0	47.5	mg/L	95		MCAWW 300.0A	04/08/11	1101106
	ND	50.0	48.0	mg/L	96	1.1	MCAWW 300.0A	04/08/11	1101106
			Dilut	ion Factor: 1					
Nitrate a	s N		WO#:	MGPCC1CW-MS	/MGPCC1	CX-MS	D MS Lot-Samp	le #: A1D070566	-011
	ND	2.5	2.3	mg/L	92		MCAWW 300.0A	04/08/11	1101114
	ND	2.5	2.3	mg/L	94	2.5	MCAWW 300.0A	04/08/11	1101114
			Dilut	ion Factor: 1					
Nitrate-N	itrite		WO#:	MGPCC1C4-MS	/MGPCC1	C5-MS	D MS Lot-Samp	le #: A1D070566	-011
	ND	1.0	0.9 N	mg/L	87		MCAWW 353.2	04/12/11	1102391
	ND	1.0	0.9 N	mg/L	89	1.7	MCAWW 353.2	04/12/11	1102391
			Dilut	ion Factor: 1					
Nitrite a	s N		WO#:	MGPCC1CR-MS	/MGPCC1	CT-MS	D MS Lot-Samp	le #: A1D070566	-011
	ND	2.5	2.7	mg/L	107		MCAWW 300.0A	04/08/11	1101108
	ND	2.5	2.7	mg/L	110	2.5	MCAWW 300.0A	04/08/11	1101108
			Dilut	ion Factor: 1					
Phosphate Ortho	as P,		WO#:	MGPCC1C0-MS	/MGPCC1	C1-MS	D MS Lot-Samp	le #: A1D070566	-011
	ND	2.5	2.2	mg/L	89		MCAWW 300.0A	04/08/11	1101116
	ND	2.5	2.4	mg/L	95	6.8	MCAWW 300.0A	04/08/11	1101116
			Dilut	ion Factor: 1					
Sulfate			WO#:	MGPCC1C2-MS	/MGPCC1	C3-MS	D MS Lot-Samp	le #: A1D070566	-011
	ND	50.0	45.2	mg/L	90		MCAWW 300.0A	04/08/11	1101119
	ND	50.0	45.8	mg/L	92	1.3	MCAWW 300.0A	04/08/11	1101119
			Dilut	ion Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

General Chemistry

Client Lot #...: A1D070566 Matrix.....: WQ

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS METHOD	PREPARATION- PREP ANALYSIS DATE BATCH #
Bromide	89	Work Order #: MGPCC1CU (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11 1101109
Chloride	95	Work Order #: MGPCC1CP (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11 1101106
Nitrate as N	92	Work Order #: MGPCC1CW (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11 11011114
Nitrate-Nitrite	87 N	Work Order #: MGPCC1C4 (90 - 110) MCAWW 353.2 Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/12/11 1102391
Nitrite as N	107	Work Order #: MGPCC1CR (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11 1101108
Phosphate as P, Ortho		Work Order #: MGPCC1C0	MS Lot-Sample #: A1D070566-011
02 0220	89	(80 - 120) MCAWW 300.0A Dilution Factor: 1	04/08/11 11011116
Sulfate	90	Work Order #: MGPCC1C2 (80 - 120) MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11 1101119

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D070566 Matrix....: WG

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11

 PARAMETER
 SAMPLE SPIKE
 MEASURED
 PERCENT
 PREPARATION
Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

North Canton 171



DENVER DATA

North Canton 172



ANALYTICAL REPORT

Job Number: 280-14462-1

SDG Number: A1D070566

Job Description: USGS RVAAP

For:

TestAmerica Laboratories, Inc. 4101 Shuffel Street NW North Canton, OH 44720

Attention: Mr. Mark J. Loeb

DiLea Griego

Di Lean Greeze

Project Manager I

dilea.griego@testamericainc.com

04/21/2011

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

Page 1 of 586

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.



DiLea Griego Project Manager I 4/21/2011 10:07 AM

CASE NARRATIVE

Client: TestAmerica Laboratories, Inc.

Project: USGS RVAAP

Report Number: 280-14462-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/08/2011; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 3.1 C and 2.6 C.

TOTAL METALS - METHOD 6010B

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 62167 were performed on FWGRQLMW-007C-0120-GFMS (280-14462-1). The matrix spike (MS) exhibited recoveries outside control limits for Molybdenum.

No other difficulties were encountered.

TOTAL METALS - METHOD 6020

No difficulties were encountered.

DATA REPORTING QUALIFIERS

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Lab Section	Qualifier	Description
Metals		
	F	MS or MSD exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

SAMPLE SUMMARY

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

			Date/Time	Date/Time
Lab Sample ID	Client Sample ID Client Matrix		Sampled	Received
280-14462-1	FWGRQLMW-007C-0120-GF	Water	04/06/2011 1519	04/08/2011 1000
280-14462-1MS	FWGRQLMW-007C-0120-GF	Water	04/06/2011 1519	04/08/2011 1000
280-14462-1DU	FWGRQLMW-007C-0120-GF	Water	04/06/2011 1519	04/08/2011 1000
280-14462-2	FWGRQLMW-008C-0130-GF	Water	04/06/2011 1309	04/08/2011 1000
280-14462-3	FWGRQLMW-009C-0140-GF	Water	04/06/2011 1531	04/08/2011 1000
280-14462-4	FWGRQLMW-014C-0150-GF	Water	04/06/2011 0916	04/08/2011 1000
280-14462-5	FWGRQLMW-016C-0160-GF	Water	04/06/2011 1103	04/08/2011 1000
280-14462-6	FWGB12MW-010C-0220-FB	Water	04/06/2011 1405	04/08/2011 1000
280-14462-7	FWGSCFMW-003C-0170-GF	Water	04/06/2011 0922	04/08/2011 1000

EXECUTIVE SUMMARY - Detections

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1 Sdg Number: A1D070566

Lab Sample ID Analyte	Client Sample ID	Result / Qu	alifier	Reporting Limit	Units	Method	
280-14462-1	FWGRQLMW-007C-0	0120-GF					
Boron		270		100	ug/L	6010B	
Molybdenum		5.5	J	20	ug/L	6010B	
SiO2, Silica		15000		500	ug/L	6010B	
Uranium		1.3		1.0	ug/L	6020	
280-14462-2	FWGRQLMW-008C-0)130-GF					
Boron		170		100	ug/L	6010B	
Molybdenum		6.0	J	20	ug/L	6010B	
SiO2, Silica		9300		500	ug/L	6010B	
Uranium		0.37	J	1.0	ug/L	6020	
280-14462-3	FWGRQLMW-009C-0)140-GF					
Boron		27	J	100	ug/L	6010B	
SiO2, Silica		11000	-	500	ug/L	6010B	
Uranium		0.11	J	1.0	ug/L	6020	
280-14462-4	FWGRQLMW-014C-0)150-GF					
Boron		13	J	100	ug/L	6010B	
Lithium		4.3	J	10	ug/L	6010B	
SiO2, Silica		14000	Ü	500	ug/L	6010B	
280-14462-5	FWGRQLMW-016C-0	1460 CE					
	I WORQLWW-0100-0			400		00400	
Boron		21	J	100	ug/L	6010B	
Lithium SiO2, Silica		110 18000		10 500	ug/L	6010B 6010B	
Uranium		0.38	J	1.0	ug/L ug/L	6020	
Oranium		0.30	J	1.0	ug/L	0020	
280-14462-7	FWGSCFMW-003C-0	170-GF					
Boron		29	J	100	ug/L	6010B	
Lithium		15		10	ug/L	6010B	
SiO2, Silica		12000		500	ug/L	6010B	
Uranium		0.026	J	1.0	ug/L	6020	

METHOD SUMMARY

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1 Sdg Number: A1D070566

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Metals (ICP) Preparation, Total Metals	TAL DEN TAL DEN	SW846 6010B	SW846 3010A
Metals (ICP/MS) Preparation, Total Metals	TAL DEN TAL DEN	SW846 6020	SW846 3020A

Lab References:

TAL DEN = TestAmerica Denver

Method References:

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

METHOD / ANALYST SUMMARY

Client: TestAmerica Laboratories, Inc. Job Number: 280-14462-1

Sdg Number: A1D070566

Method	Analyst	Analyst ID
SW846 6010B	Bowen, Heidi E	HEB
SW846 6020	Diaz, Luis R	LRD

Job Number: 280-14462-1 Client: TestAmerica Laboratories, Inc.

Sdg Number: A1D070566

Client Sample ID: FWGRQLMW-007C-0120-GF

Lab Sample ID: 280-14462-1 Date Sampled: 04/06/2011 1519 Client Matrix: Date Received: 04/08/2011 1000 Water

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62167	li	nstrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-61780	L	ab File ID:	26b041311.asc
Dilution:	1.0			li	nitial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1741			F	Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				Ţ.	
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		270			4.4	100
Lithium		ND			2.6	10
Molybdenum		5.5		J	3.1	20
SiO2, Silica		15000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62295	I	nstrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784	L	ab File ID:	143AREF.D
Dilution:	1.0			l:	nitial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0135				Final Weight/Volume:	50 mL
	04/13/2011 0800				-	
Prep Date:	04/10/2011 0000					
•	04/10/2011 0000	Result (u	g/L)	Qualifier	MDL	RL

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Client Sample ID: FWGRQLMW-008C-0130-GF

 Lab Sample ID:
 280-14462-2
 Date Sampled: 04/06/2011 1309

 Client Matrix:
 Water
 Date Received: 04/08/2011 1000

6010B Metals (ICP) Analysis Method: 6010B Analysis Batch: 280-62167 Instrument ID: MT_026 Prep Method: 3010A Prep Batch: 280-61780 Lab File ID: 26b041311.asc 1.0 Dilution: Initial Weight/Volume: 50 mL 04/13/2011 1750 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Qualifier MDL RL Analyte Result (ug/L) Boron 170 4.4 100 Lithium ND 2.6 10 J 20 Molybdenum 6.0 3.1 SiO2, Silica 9300 74 500 6020 Metals (ICP/MS) Analysis Method: 6020 Analysis Batch: 280-62295 Instrument ID: MT_024 Prep Method: 3020A Prep Batch: 280-61784 Lab File ID: 148SMPL.D Initial Weight/Volume: Dilution: 1.0 50 mL 04/14/2011 0149 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Analyte Result (ug/L) Qualifier MDL RLUranium 0.37 0.020 1.0

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Client Sample ID: FWGRQLMW-009C-0140-GF

 Lab Sample ID:
 280-14462-3
 Date Sampled: 04/06/2011 1531

 Client Matrix:
 Water
 Date Received: 04/08/2011 1000

6010B Metals (ICP) Analysis Method: 6010B Analysis Batch: 280-62167 Instrument ID: MT_026 Prep Method: 3010A Prep Batch: 280-61780 Lab File ID: 26b041311.asc 1.0 Dilution: Initial Weight/Volume: 50 mL 04/13/2011 1752 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: MDL RL Analyte Result (ug/L) Qualifier Boron 27 4.4 100 Lithium ND 2.6 10 ND 20 Molybdenum 3.1 SiO2, Silica 11000 74 500 6020 Metals (ICP/MS) Analysis Method: 6020 Analysis Batch: 280-62295 Instrument ID: MT_024 Prep Method: 3020A Prep Batch: 280-61784 Lab File ID: 149SMPL.D Initial Weight/Volume: Dilution: 1.0 50 mL 04/14/2011 0151 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Analyte Result (ug/L) Qualifier MDL RLUranium 0.11 0.020 1.0

Job Number: 280-14462-1 Client: TestAmerica Laboratories, Inc.

Sdg Number: A1D070566

Client Sample ID: FWGRQLMW-014C-0150-GF

Lab Sample ID: 280-14462-4 Date Sampled: 04/06/2011 0916 Client Matrix: Date Received: 04/08/2011 1000 Water

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62167	1	Instrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-61780	1	Lab File ID:	26b041311.asc
Dilution:	1.0			1	Initial Weight/Volume:	50 mL
Analysis Date: Prep Date:	04/13/2011 1755 04/13/2011 0800			I	Final Weight/Volume:	50 mL
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		13		J	4.4	100
Lithium		4.3		J	2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		14000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62295	I	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784	1	Lab File ID:	150SMPL.D
Dilution:	1.0			1	Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0154			1	Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				-	
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Uranium		ND			0.020	1.0

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Client Sample ID: FWGRQLMW-016C-0160-GF

 Lab Sample ID:
 280-14462-5
 Date Sampled: 04/06/2011 1103

 Client Matrix:
 Water
 Date Received: 04/08/2011 1000

					2410	
		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62167		Instrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-61780		Lab File ID:	26b041311.asc
Dilution:	1.0				Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1757				Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				-	
Analyte		Result (u	ıg/L)	Qualifier	MDL	RL
Boron		21		J	4.4	100
Lithium		110			2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		18000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62295		Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784		Lab File ID:	153SMPL.D
Dilution:	1.0				Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0202				Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				-	
Analyte		Result (u	ıg/L)	Qualifier	MDL	RL
Uranium		0.38		J	0.020	1.0

Job Number: 280-14462-1 Client: TestAmerica Laboratories, Inc.

Sdg Number: A1D070566

Client Sample ID: FWGB12MW-010C-0220-FB

Lab Sample ID: 280-14462-6 Date Sampled: 04/06/2011 1405 Client Matrix: Water Date Received: 04/08/2011 1000

6010B Metals (ICP) Analysis Method: 6010B Analysis Batch: 280-62167 Instrument ID: MT_026 Prep Method: 3010A Prep Batch: 280-61780 Lab File ID: 26b041311.asc Dilution: 1.0 Initial Weight/Volume: 50 mL 04/13/2011 1809 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Qualifier RL Analyte Result (ug/L) MDL Boron ND 4.4 100 Lithium ND 2.6 10 ND 20 Molybdenum 3.1 SiO2, Silica ND 500 74 6020 Metals (ICP/MS) Analysis Method: 6020 Analysis Batch: 280-62295 Instrument ID: MT_024 Prep Method: 3020A Prep Batch: 280-61784 Lab File ID: 154SMPL.D Initial Weight/Volume: Dilution: 1.0 50 mL 04/14/2011 0205 Analysis Date: Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date: Analyte Result (ug/L) Qualifier MDL RLUranium ND 0.020 1.0

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Client Sample ID: FWGSCFMW-003C-0170-GF

 Lab Sample ID:
 280-14462-7
 Date Sampled: 04/06/2011 0922

 Client Matrix:
 Water
 Date Received: 04/08/2011 1000

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62167	I	nstrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-61780	l	_ab File ID:	26b041311.asc
Dilution:	1.0			I	nitial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1811			F	Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800					
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		29		J	4.4	100
Lithium		15			2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		12000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62295	I	nstrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784	l	_ab File ID:	155SMPL.D
Dilution:	1.0			I	nitial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0208			F	Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				-	
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Uranium		0.026		J	0.020	1.0

Client: TestAmerica Laboratories, Inc. Job Number: 280-14462-1

Sdg Number: A1D070566

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Method Blank - Batch: 280-61780 Method: 6010B Preparation: 3010A

Lab Sample ID: MB 280-61780/1-A Analysis Batch: 280-62167 Instrument ID: MT_026 Client Matrix: Water Prep Batch: 280-61780 Lab File ID: 26b041311.asc

Leach Batch: Dilution: N/A Initial Weight/Volume: 50 mL 1.0 04/13/2011 1736 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte	Result	Qual	MDL	RL
Boron	ND		4.4	100
Lithium	ND		2.6	10
Molybdenum	ND		3.1	20
SiO2, Silica	ND		74	500

Method: 6010B Lab Control Sample - Batch: 280-61780 Preparation: 3010A

Lab Sample ID: Analysis Batch: Instrument ID: MT_026 LCS 280-61780/2-A 280-62167 Client Matrix: Water 280-61780 Lab File ID:

Prep Batch: 26b041311.asc Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL

04/13/2011 1739 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL 04/13/2011 0800 Prep Date:

Leach Date: N/A

Analyte % Doc Limit Snike Amount Regult

Analyte	Opine Amount	resuit	70 TCC.	LIIII	Quai
Boron	1000	999	100	86 - 110	
Lithium	1000	1030	103	90 - 112	
Molybdenum	1000	1100	110	90 - 110	
SiO2, Silica	21400	22100	103	90 - 110	

Matrix Spike - Batch: 280-61780 Method: 6010B Preparation: 3010A

Lab Sample ID: Analysis Batch: 280-62167 Instrument ID: MT_026 280-14462-1

Client Matrix: Water Prep Batch: 280-61780 Lab File ID: 26b041311.asc Leach Batch: Dilution: 1.0 N/A Initial Weight/Volume: 50 mL

Analysis Date: 04/13/2011 1748 Units: ug/L Final Weight/Volume: 50 mL Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Sample Result/Qual Spike Amount Result % Rec. Limit Qual Boron 270 1000 1270 100 87 - 113 Lithium ND 1000 1040 104 89 - 114 1000 1100 83 - 109 F Molybdenum 5.5 J 110 SiO2, Silica 15000 21400 37500 107 75 - 141

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

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Serial ilution - Batch: 280-61780 Method: 6010B Preparation: 3010A

MT_026 Lab Sample ID: 280-14462-1 Analysis Batch: 280-62167 Instrument ID: Client Matrix: Water Prep Batch: 280-61780 Lab File ID: 26b041311.asc Dilution: Leach Batch: N/A Initial Weight/Volume: 50 mL 5.0 04/13/2011 1743 Final Weight/Volume: Analysis Date: Units: ug/L 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

%Diff Analyte Sample Result/Qual Result Limit Qual Boron 270 271 2.2 10 J Lithium ND ND NC 10 Molybdenum 5.5 ND NC J 10 SiO2, Silica 15000 14800 1.2 10

uplicate - Batch: 280-61780 Method: 6010B Preparation: 3010A

Lab Sample ID: 280-14462-1 Analysis Batch: 280-62167 Instrument ID: MT_026 Client Matrix: Water Prep Batch: 280-61780 Lab File ID: 26b041311.asc Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/13/2011 1746 Units: Final Weight/Volume: 50 mL Analysis Date: ug/L

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Boron	270		263	0.9	25	
Lithium	ND		ND	NC	25	
Molybdenum	5.5	J	ND	NC	25	
SiO2, Silica	15000		14600	0.1	20	

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Method Blank - Batch: 280-61784 Method: 6020 Preparation: 3020A

MT_024 Lab Sample ID: MB 280-61784/1-A Analysis Batch: 280-62295 Instrument ID: Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 141_BLK.D Dilution: Leach Batch: N/A Initial Weight/Volume: 50 mL 1.0 04/14/2011 0129 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Result Qual MDL RL
Uranium ND 0.020 1.0

Lab Control Sample - Batch: 280-61784 Method: 6020
Preparation: 3020A

Lab Sample ID: LCS 280-61784/2-A Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 142_LCS.D Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/14/2011 0132 Units: Final Weight/Volume: 50 mL ug/L

Analysis Date: 04/14/2011 0132 Prep Date: 04/13/2011 0800

Leach Date: N/A

 Analyte
 Spike Amount
 Result
 % Rec.
 Limit
 Qual

 Uranium
 40.0
 42.0
 105
 85 - 119

Client: TestAmerica Laboratories, Inc. Job Number: 280-14462-1

Sdg Number: A1D070566

Post igestion Spike - Batch: 280-61784 Method: 6020 Preparation: 3020A

Lab Sample ID: 280-14462-1 Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 145PDS.D Dilution: Leach Batch: Initial Weight/Volume: 1.0 N/A 50 mL 04/14/2011 0140 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Sample Result/Qual Spike Amount Qual Analyte Result % Rec. Limit Uranium 1.3 200 214 107 75 - 125

Matrix Spike - Batch: 280-61784 Method: 6020 Preparation: 3020A

Lab Sample ID: 280-14462-1 Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: 280-61784 Lab File ID: 147_MS.D Water Prep Batch: Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/14/2011 0146 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Sample Result/Qual Spike Amount Result % Rec. Limit Qual Uranium 1.3 40.0 43.3 105 85 - 119

Client: TestAmerica Laboratories, Inc. Job Number: 280-14462-1

Sdg Number: A1D070566

Serial ilution - Batch: 280-61784 Method: 6020 Preparation: 3020A

MT_024 Lab Sample ID: 280-14462-1 Analysis Batch: 280-62295 Instrument ID: Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 144SDIL.D Dilution: Leach Batch: N/A Initial Weight/Volume: 50 mL 5.0 04/14/2011 0138 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/13/2011 0800

Leach Date: N/A

Analyte Sample Result/Qual Result %Diff Limit Qual Uranium 1.3 1.25 1.7 10 J

uplicate - Batch: 280-61784 Method: 6020 Preparation: 3020A

Lab Sample ID: 280-14462-1 Analysis Batch: 280-62295 Instrument ID: MT_024 Client Matrix: Water Prep Batch: 280-61784 Lab File ID: 146_DU.D Leach Batch: Initial Weight/Volume: Dilution: 1.0 N/A 50 mL

Analysis Date: 04/14/2011 0143 Units: Final Weight/Volume: 50 mL ug/L

04/13/2011 0800 Prep Date: Leach Date:

N/A

RPD Analyte Sample Result/Qual Result Limit Qual Uranium 1.3 1.44 13 20

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals	·				•
Prep Batch: 280-61780					
LCS 280-61780/2-A	Lab Control Sample	Т	Water	3010A	
MB 280-61780/1-A	Method Blank	Т	Water	3010A	
280-14462-1	FWGRQLMW-007C-0120-GF	Т	Water	3010A	
280-14462-1DU	Duplicate	Т	Water	3010A	
280-14462-1MS	Matrix Spike	Т	Water	3010A	
280-14462-2	FWGRQLMW-008C-0130-GF	Т	Water	3010A	
280-14462-3	FWGRQLMW-009C-0140-GF	Т	Water	3010A	
280-14462-4	FWGRQLMW-014C-0150-GF	Т	Water	3010A	
280-14462-5	FWGRQLMW-016C-0160-GF	Т	Water	3010A	
280-14462-6	FWGB12MW-010C-0220-FB	Т	Water	3010A	
280-14462-7	FWGSCFMW-003C-0170-GF	T	Water	3010A	
Prep Batch: 280-61784					
LCS 280-61784/2-A	Lab Control Sample	Т	Water	3020A	
MB 280-61784/1-A	Method Blank	Ť	Water	3020A	
280-14462-1	FWGRQLMW-007C-0120-GF	T	Water	3020A	
280-14462-1DU	Duplicate	Ť	Water	3020A	
280-14462-1MS	Matrix Spike	T	Water	3020A	
280-14462-2	FWGRQLMW-008C-0130-GF	T.	Water	3020A	
280-14462-3	FWGRQLMW-009C-0140-GF	Ť	Water	3020A	
280-14462-4	FWGRQLMW-014C-0150-GF	Ť	Water	3020A	
280-14462-5	FWGRQLMW-016C-0160-GF	T.	Water	3020A	
280-14462-6	FWGB12MW-010C-0220-FB	T.	Water	3020A	
280-14462-7	FWGSCFMW-003C-0170-GF	T	Water	3020A	
Analysis Batch:280-62167					
LCS 280-61780/2-A	Lab Control Sample	Т	Water	6010B	280-61780
MB 280-61780/1-A	Method Blank	T.	Water	6010B	280-61780
280-14462-1	FWGRQLMW-007C-0120-GF	T.	Water	6010B	280-61780
280-14462-1DU	Duplicate	Ť	Water	6010B	280-61780
280-14462-1MS	Matrix Spike	Ť	Water	6010B	280-61780
280-14462-2	FWGRQLMW-008C-0130-GF	Ť	Water	6010B	280-61780
280-14462-3	FWGRQLMW-009C-0140-GF	T.	Water	6010B	280-61780
280-14462-4	FWGRQLMW-014C-0150-GF	T.	Water	6010B	280-61780
280-14462-5	FWGRQLMW-016C-0160-GF	T.	Water	6010B	280-61780
280-14462-6	FWGB12MW-010C-0220-FB	T.	Water	6010B	280-61780
280-14462-7	FWGSCFMW-003C-0170-GF	Ť	Water	6010B	280-61780

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

QC Association Summary

Report

Lab Sample ID	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:280-6229	95				
LCS 280-61784/2-A	Lab Control Sample	Т	Water	6020	280-61784
/IB 280-61784/1-A	Method Blank	Т	Water	6020	280-61784
280-14462-1	FWGRQLMW-007C-0120-GF	Т	Water	6020	280-61784
80-14462-1DU	Duplicate	Т	Water	6020	280-61784
80-14462-1MS	Matrix Spike	Т	Water	6020	280-61784
80-14462-2	FWGRQLMW-008C-0130-GF	Т	Water	6020	280-61784
80-14462-3	FWGRQLMW-009C-0140-GF	Т	Water	6020	280-61784
280-14462-4	FWGRQLMW-014C-0150-GF	Т	Water	6020	280-61784
280-14462-5	FWGRQLMW-016C-0160-GF	Т	Water	6020	280-61784
80-14462-6	FWGB12MW-010C-0220-FB	Т	Water	6020	280-61784
280-14462-7	FWGSCFMW-003C-0170-GF	Т	Water	6020	280-61784

Report Basis

T = Total

Certification Summary

Client: TestAmerica Laboratories, Inc. Project/Site: USGS RVAAP

TestAmerica Denver

TestAmerica Denver

TestAmerica Job ID: 280-14462-1 SDG: A1D070566

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999615430

Laboratory Authority **Program EPA Region Certification ID** TestAmerica Denver **USDA** P330-08-00036 A2LA DoD ELAP 0 2907.01 TestAmerica Denver TestAmerica Denver A2LA ISO/IEC 17025 0 2907.01 4 TestAmerica Denver Alabama State Program TestAmerica Denver Alaska UST 10 UST-30 Alaska TestAmerica Denver Arizona State Program 9 AZ0713 6 TestAmerica Denver Arkansas State Program 88-0687 TestAmerica Denver California State Program 9 2513 Colorado 8 N/A TestAmerica Denver State Program PH-0686 TestAmerica Denver Connecticut State Program **NELAC** TestAmerica Denver Florida 4 E87667 TestAmerica Denver State Program 4 N/A Georgia TestAmerica Denver Idaho State Program 10 CO00026 TestAmerica Denver Illinois **NELAC** 5 200017 7 TestAmerica Denver Iowa State Program 370 TestAmerica Denver **NELAC** E-10166 Kansas TestAmerica Denver Louisiana **NELAC** 6 30785 TestAmerica Denver Maine CO0002 State Program 1 TestAmerica Denver State Program 3 Maryland 268 5 TestAmerica Denver Minnesota **NELAC** 8-999-405 TestAmerica Denver Nevada State Program 9 CO0026 **NELAC** 205310 TestAmerica Denver New Hampshire TestAmerica Denver **NELAC** 2 CO004 New Jersey TestAmerica Denver New Mexico State Program 6 N/A 2 TestAmerica Denver New York **NELAC** 11964 TestAmerica Denver North Carolina North Carolina DENR 4 358 North Dakota 8 R-034 TestAmerica Denver State Program 6 TestAmerica Denver Oklahoma State Program 8614 TestAmerica Denver **NELAC** 10 Oregon CO200001 TestAmerica Denver Pennsylvania **NELAC** 3 68-00664 4 TestAmerica Denver South Carolina State Program 72002 TestAmerica Denver State Program 4 TN02944 Tennessee TestAmerica Denver Texas **NELAC** 6 T104704183-08-TX **NELAC** 8 TestAmerica Denver Utah QUAN5 TestAmerica Denver Washington State Program 10 C1284

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

West Virginia

Wisconsin

West Virginia DEP

State Program

METALS

COVER PAGE METALS

Lab Name:	TestAmerica Denver	Job Number: 280-14462-1
SDG No.:	A1D070566	
Project:	USGS RVAAP	
	Client Sample ID	Lab Sample ID
	FWGRQLMW-007C-0120-GF	280-14462-1
	FWGRQLMW-008C-0130-GF	280-14462-2
	FWGRQLMW-009C-0140-GF	280-14462-3
	FWGRQLMW-014C-0150-GF	280-14462-4
	FWGRQLMW-016C-0160-GF	280-14462-5
	FWGB12MW-010C-0220-FB	280-14462-6
	FWGSCFMW-003C-0170-GF	280-14462-7

Comments:

Client Sample ID: FWGRQLMW-007C-0120-GF Lab Sample ID: 280-14462-1

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG ID.: A1D070566

Matrix: Water Date Sampled: 04/06/2011 15:19

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	270	100	4.4	ug/L			1	6010B
7439-93-2	Lithium	ND	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	5.5	20	3.1	ug/L	J		1	6010B
14808-60-7	SiO2, Silica	15000	500	74	ug/L			1	6010B
7440-61-1	Uranium	1.3	1.0	0.020	ug/L			1	6020

Client Sample ID: FWGRQLMW-008C-0130-GF Lab Sample ID: 280-14462-2

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG ID.: A1D070566

Matrix: Water Date Sampled: 04/06/2011 13:09

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	170	100	4.4	ug/L			1	6010B
7439-93-2	Lithium	ND	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	6.0	20	3.1	ug/L	J		1	6010B
14808-60-7	SiO2, Silica	9300	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.37	1.0	0.020	ug/L	J		1	6020

Client Sample ID: FWGRQLMW-009C-0140-GF Lab Sample ID: 280-14462-3

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG ID.: A1D070566

Matrix: Water Date Sampled: 04/06/2011 15:31

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	27	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	ND	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	11000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.11	1.0	0.020	ug/L	J		1	6020

Client Sample ID: FWGRQLMW-014C-0150-GF Lab Sample ID: 280-14462-4

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG ID.: A1D070566

Matrix: Water Date Sampled: 04/06/2011 09:16

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	13	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	4.3	10	2.6	ug/L	J		1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	14000	500	74	ug/L			1	6010B
7440-61-1	Uranium	ND	1.0	0.020	ug/L			1	6020

Client Sample ID: FWGRQLMW-016C-0160-GF Lab Sample ID: 280-14462-5

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG ID.: A1D070566

Matrix: Water Date Sampled: 04/06/2011 11:03

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	21	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	110	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	18000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.38	1.0	0.020	ug/L	J		1	6020

Client Sample ID: FWGB12MW-010C-0220-FB Lab Sample ID: 280-14462-6

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG ID.: A1D070566

Matrix: Water Date Sampled: 04/06/2011 14:05

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	ND	100	4.4	ug/L			1	6010B
7439-93-2	Lithium	ND	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	ND	500	74	ug/L			1	6010B
7440-61-1	Uranium	ND	1.0	0.020	ug/L			1	6020

Client Sample ID: FWGSCFMW-003C-0170-GF Lab Sample ID: 280-14462-7

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG ID.: A1D070566

Matrix: Water Date Sampled: 04/06/2011 09:22

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	29	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	15	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	12000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.026	1.0	0.020	ug/L	J		1	6020

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

ICV Source: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00150

)-62167/7)11 12:36		-62167/106 011 17:30		CCV 280-62167/120 04/13/2011 18:02						
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Boron	261		250	105	487		500	97	490		500	98
Lithium	259		250	104	982		1000	98	992		1000	99
Molybdenum	243		250	97	533		500	107	535		500	107
SiO2,	4300		4280	101	10700		10700	100	10800		10700	101
Silica												

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

ICV Source: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00150

	CCV 280-62167/133 04/13/2011 18:32											
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Boron	487		500	97								
Lithium	987		1000	99								
Molybdenum	539		500	108								
SiO2,	10700		10700	100								
Silica												

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

ICV Source: MS ICV_00314 Concentration Units: ug/L

CCV Source: MS CCV_00315

	ICV 280-62295/5 04/13/2011 19:14				CCV 280-62295/17 04/13/2011 19:46				CCV 280-62295/50 04/14/2011 01:21			
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Uranium	40.6		40.0	101	50.0		50.0	100	50.6		50.0	101

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2A-IN CALIBRATION VERIFICATIONS METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

ICV Source: MS ICV_00314 Concentration Units: ug/L

CCV Source: MS CCV_00315

			-62295/63 011 01:57				-62295/75 011 02:30					
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Uranium	51.0		50.0	102	54.0		50.0	108				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results. Italicized analytes were not requested for this sequence.

2B-IN CRQL CHECK STANDARD METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Analysis Method: 6010B Instrument ID: MT_026

Lab Sample ID: CRI 280-62167/12 Concentration Units: ug/L

CRQL Check Standard Source: ICP RL STD 00346

		CRQL Check Standard						
Analyte	True	Found	Qualifiers	%R(1)	Limits			
Boron	100	108		108	50-150			
Lithium	10.0	9.61	J	96	50-150			
Molybdenum	10.0	10.1	J	101	50-150			
SiO2, Silica	1070	1120		105	50-150			

2B-IN CRQL CHECK STANDARD METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Analysis Method: 6020 Instrument ID: MT_024

Lab Sample ID: CRI 280-62295/9 Concentration Units: ug/L

CRQL Check Standard Source: MS RL STD_00324

	CRQL Check Standard						
Analyte	True	Found	Qualifiers	%R(1)	Limits		
Uranium	1.00	1.02		102	50-150		

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Concentration Units: ug/L

		ICB 280-6216 ² 04/13/2011 1		·		CCB 280-62167/121 04/13/2011 18:04		CCB 280-62167/134 04/13/2011 18:34	
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Boron	100	ND		ND		ND		ND	
Lithium	10	ND		ND		ND		ND	
Molybdenum	20	ND		ND		ND		ND	
SiO2,	1100	ND		ND		ND		ND	
Silica									

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Concentration Units: ug/L

		ICB 280-6229 04/13/2011 1		CCB 280-62295 04/13/2011 1	•	CCB 280-62295 04/14/2011 0		CCB 280-62295	
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Uranium	1.0	ND		0.0425	J	ND		0.0382	J

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Concentration Units: ug/L

		CCB 280-62295							
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Uranium	1.0	0.0381	J						

3-IN METHOD BLANK METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Concentration Units: ug/L Lab Sample ID: MB 280-61780/1-A

Instrument Code: MT_026 Batch No.: 62167

CAS No.	Analyte	Concentration	С	Q	Method
7440-42-8	Boron	ND			6010B
7439-93-2	Lithium	ND			6010B
7439-98-7	Molybdenum	ND			6010B
14808-60-7	SiO2, Silica	ND			6010B

3-IN METHOD BLANK METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Concentration Units: ug/L Lab Sample ID: MB 280-61784/1-A

Instrument Code: MT 024 Batch No.: 62295

CAS No.	Analyte	Concentration	С	Q	Method
7440-61-1	Uranium	ND			6020

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Lab Sample ID: ICSA 280-62167/13 Instrument ID: MT_026

Lab File ID: 26b041311.asc ICS Source: ICP ICSA_00037

Concentration Units: ug/L

	True	Found		
Analyte	Solution A	Solution A	Percent Recovery	
Boron		-0.730		
Lithium		-0.360		
Molybdenum		-1.53		
SiO2, Silica		13.4		
Aluminum	500000	507950	102	
Antimony		15.6		
Arsenic		4.05		
Barium		1.10		
Beryllium		-0.0700		
Bismuth		33.1		
Cadmium		-0.460		
Calcium	500000	460710	92	
Chromium		2.02		
Cobalt		-1.29		
Copper		4.64		
Iron	200000	186030	93	
Lead		-4.82		
Magnesium	500000	498380	100	
Manganese		2.32		
Nickel		0.850		
Phosphorus		-0.280		
Potassium		139		
Selenium		2.43		
Silicon		6.24		
Silver		0.0200		
Sodium		137		
Strontium		-2.43		
Thallium		-1.93		
Thorium		19.1		
Tin		-0.340		
Titanium		-2.93		
Vanadium		3.28		
Zinc		5.95		
Zirconium		4.68		

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Lab Sample ID: ICSAB 280-62167/14 Instrument ID: MT_026

Lab File ID: 26b041311.asc ICS Source: ICP ICSAB_00029

Concentration Units: ug/L

	True	Found			
			Percent		
Analyte	Solution AB	Solution AB	Recovery		
Boron	2000	1946	97		
Lithium	1000	1014	101		
Molybdenum	1000	984	98		
SiO2, Silica	21400	21582	101		
Aluminum	500000	513280	103		
Antimony	1000	1033	103		
Arsenic	2000	2088	104		
Barium	500	501	100		
Beryllium	500	486	97		
Bismuth	1000	1047	105		
Cadmium	1000	1039	104		
Calcium	500000	470530	94		
Chromium	500	500	100		
Cobalt	500	481	96		
Copper	500	528	106		
Iron	200000	188470	94		
Lead	1000	984	98		
Magnesium	500000	499350	100		
Manganese	500	513	103		
Nickel	1000	967	97		
Phosphorus	2000	2054	103		
Potassium	50000	51462	103		
Selenium	5000	4709	94		
Silicon	10000	10085	101		
Silver	1000	1077	108		
Sodium	50000	50149	100		
Strontium	1000	976	98		
Thallium	10000	9091	91		
Thorium	2000	2109	105		
Tin	10000	9510	95		
Titanium	1000	1013	101		
Vanadium	500	513	103		
Zinc	1000	1017	102		
Zirconium	1000	976	98		

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Lab Sample ID: ICSA 280-62295/11 Instrument ID: MT_024

Lab File ID: 011ICSA.D ICS Source: MS ICSA_00314

Concentration Units: ug/L

	True	Found	
			Percent
Analyte	Solution A	Solution A	Recovery
Uranium		0.0064	
Antimony		0.256	
Arsenic		0.216	
Barium		0.173	
Beryllium		0.0044	
Cadmium		0.348	
Chromium		2.71	
Cobalt		0.0280	
Copper		0.219	
Lead		0.127	
Manganese		0.582	
Molybdenum	2000	2209	110
Nickel		1.02	
Selenium		-0.0858	
Silver		0.0921	
Thallium		0.0312	
Thorium		0.375	
Tin		0.206	
Vanadium		0.0980	
Zinc		1.52	

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Lab Sample ID: ICSAB 280-62295/12 Instrument ID: MT_024

Lab File ID: 012ICSB.D ICS Source: MS ICSAB_00316

Concentration Units: ug/L

	True	Found			
Analyte	Solution AB	Solution AB	Percent Recovery		
Uranium	100	106	106		
Antimony	100	99.6	100		
Arsenic	100	102	102		
Barium	100	107	106		
Beryllium	100	91.8	92		
Cadmium	100	95.0	95		
Chromium	100	110	110		
Cobalt	100	102	102		
Copper	100	89.9	90		
Lead	100	94.5	94		
Manganese	100	103	103		
Molybdenum	2100	2313	110		
Nickel	100	95.4	95		
Selenium	100	104	104		
Silver	100	86.5	86		
Thallium	100	98.1	98		
Thorium	100	117	117		
Tin	100	103	103		
Vanadium	100	114	114		
Zinc	100	95.5	96		

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Lab Sample ID: ICSA 280-62295/43 Instrument ID: MT_024

Lab File ID: 103ICSA.D ICS Source: MS ICSA_00314

Concentration Units: ug/L

	True	Found	
			Percent
Analyte	Solution A	Solution A	Recovery
Uranium		0.0243	
Antimony		0.269	
Arsenic		0.337	
Barium		0.164	
Beryllium		0.0072	
Cadmium		0.230	
Chromium		2.62	
Cobalt		0.0591	
Copper		0.300	
Lead		0.127	
Manganese		0.663	
Molybdenum	2000	2204	110
Nickel		1.27	
Selenium		0.302	
Silver		0.0980	
Thallium		0.0263	
Tin		0.332	
Vanadium		0.0639	
Zinc		1.76	

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Lab Sample ID: ICSAB 280-62295/44 Instrument ID: MT_024

Lab File ID: 104ICSB.D ICS Source: MS ICSAB_00316

Concentration Units: ug/L

	True	Found	
Analyte	Solution AB	Solution AB	Percent Recovery
Uranium	100	105	105
Antimony	100	104	104
Arsenic	100	104	104
Barium	100	109	109
Beryllium	100	94.7	95
Cadmium	100	97.5	97
Chromium	100	110	110
Cobalt	100	104	104
Copper	100	88.7	89
Lead	100	93.0	93
Manganese	100	103	103
Molybdenum	2100	2391	114
Nickel	100	97.5	98
Selenium	100	104	104
Silver	100	87.6	88
Thallium	100	98.9	99
Thorium	100	119	119
Tin	100	104	104
Vanadium	100	115	115
Zinc	100	101	101

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: FWGRQLMW-007C-0120-GF MS Lab ID: 280-14462-1 MS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Matrix: Water Concentration Units: ug/L

% Solids:

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Boron	1270	270	1000	100	87-113		6010B
Lithium	1040	ND	1000	104	89-114		6010B
Molybdenum	1100	5.5 J	1000	110	83-109	F	6010B
SiO2, Silica	37500	15000	21400	107	75-141		6010B
Uranium	43.3	1.3	40.0	105	85-119		6020

SSR Spiked Sample Result

5B-IN POST DIGESTION SPIKE SAMPLE RECOVERY METALS

Client ID: FWGRQLMW-007C-0120-GF PDS Lab ID: 280-14462-1 PDS

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: A1D070566

Matrix: Water Concentration Units: ug/L

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Uranium	214	1.3	200	107	75-125		6020

SSR Spiked Sample Result

6-IN DUPLICATES METALS

Client ID: FWGRQLMW-007C-0120-GF DU Lab ID: 280-14462-1 DU

Lab Name: TestAmerica Denver Job No.: 280-14462-1

SDG No.: AlD070566

% Solids for Sample: % Solids for Duplicate:

Matrix: Water Concentration Units: ug/L

Analyte	Control Limit	Sample (S)	С	Duplicate (D)	С	RPD	Q	Method
Boron	100	270		263		0.9		6010B
Lithium	10	ND		ND		NC		6010B
Molybdenum	20	5.5	J	ND		NC		6010B
SiO2, Silica	500	15000		14600		0.1		6010B
Uranium	1.0	1.3		1.44		13		6020

7A-IN LAB CONTROL SAMPLE METALS

Lab ID: LCS 280-61780/2-A

Lab Name: TestAmerica Denver Job No.: 280-14462-1

Sample Matrix: Water LCS Source: ICP SPK 2A_00024

		Water(ug/L)							
Analyte	True	Found	С	%R	Lim	its	Q	Method	
Boron	1000	999		100	86	110		6010B	
Lithium	1000	1030		103	90	112		6010B	
Molybdenum	1000	1100		110	90	110		6010B	
SiO2, Silica	21400	22100		103	90	110		6010B	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN LAB CONTROL SAMPLE METALS

Lab ID: LCS 280-61784/2-A

Lab Name: TestAmerica Denver Job No.: 280-14462-1

Sample Matrix: Water LCS Source: MS CALSTD-1_00037

	Water(ug/L)							
Analyte	True	Found	С	%R	Lim	its	Q	Method
Uranium	40.0	42.0		105	85	119		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 280-14462-1

SDG No: A1D070566

Lab Name: TestAmerica Denver Job No: 280-14462-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sampl Result (I)	le C	Serial Dilution Result (S)	С	% Difference	Q	Method
Boron	270		271	J	2.2		6010B
Lithium	ND		ND		NC		6010B
Molybdenum	5.5	J	ND		NC		6010B
SiO2, Silica	15000		14800		1.2		6010B

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 280-14462-1

SDG No: A1D070566

Lab Name: TestAmerica Denver Job No: 280-14462-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Difference	Q	Method
Uranium	1.3	1.25 J	1.7		6020

9-IN DETECTION LIMITS METALS

Lab Name: TestAmerica Denver Job Number: 280-14462-1

SDG Number: A1D070566

Matrix: Water Instrument ID: MT_026

Analysis Method: 6010B MDL Date: 02/23/2011 08:42

Prep Method: 3010A

Leach Method:

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Boron	208.9	100	4.37
Lithium	670.7	10	2.61
Molybdenum	202	20	3.13
SiO2, Silica	288.1	500	74.3

9-IN CALIBRATION BLANK DETECTION LIMITS METALS

Lab Name: TestAmerica Denver

SDG Number: A1D070566

Matrix: Water

Instrument ID: MT_026

Analysis Method: 6010B

XMDL Date: 02/23/2011 08:43

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Boron		100	4.37
Lithium		10	2.61
Molybdenum		20	3.13
SiO2, Silica		1100	74.3

9-IN DETECTION LIMITS METALS

Lab Name: TestAmerica Denver Job Number: 280-14462-1

SDG Number: A1D070566

Matrix: Water Instrument ID: MT_024

Analysis Method: 6020 MDL Date: 04/26/2010 12:11

Prep Method: 3020A

Leach Method:

Analyte	Wavelength/	RL	MDL
	Mass	(ug/L)	(ug/L)
Uranium	238	1	0.02

9-IN CALIBRATION BLANK DETECTION LIMITS METALS

Lab Name: TestAmerica Denver	Job Number: 280-14462-1
SDG Number: A1D070566	
Matrix: Water	Instrument ID: MT_024
Analysis Method: 6020	XMDL Date: 04/26/2010 12:12

Analyte	Wavelength/	XRL	XMDL
	Mass	(ug/L)	(ug/L)
Uranium		1	0.02

TestAmerica Denver

□6020/DV-MT-0018

TestAmerica

□200.8/DV-MT-0002

ICP/MS Technical Data Review Checklist

ab Project ID	Number(s): see attached cover sheet	Check Method/SOP Used:

--- Level 1 ---Comments & Level 2 Review Items Samples Affected Yes No N/A Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8? Tune RSD <5%? Resolution ≤ 0.9 AMU full width at 10% peak height? O'her NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height Initial Calibration Done with a minimum of 3 integrations of a high standard and blank? 2. ICV/CCV run at beginning of run, 10% frequency, and end of run? Results with 10% of expected value? ICB/CCB run at beginning of run, 10% frequency, and end of run? Results +/- RL 4. ICSA/AB analyzed at beginning of run and every 12 hours and results 80-120% of TV? 5. RL Std analyzed at beginning of run and results +/- 50% of TV(for AFCEE 4.0, DoD V3 +/- 20% of true value)? Client Samples & QC Sample Results Were all samples within linear range, ≤ 90% of LDR for 200.8? Dilutions due to target elements? Dilutions for other reasons? All reported results bracketed by in control OC? All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%? Was a 5X serial dilution analyzed for 6020 and, if so, are results $\pm 10\%$ of original result, if original $\geq 100x$ MDL? LCS included in batch and within OC limits? Method blank included and <1/2RL? MS and MSD included in batch? PDS analyzed and recovery 75-125%? Manual calculations documented properly and checked? 11. Are non-conformances documented on an NCM? 12. Is the appropriate raw data included? 13. Are all results manually entered into LIMS verified? Are all electronic data files archived to the appropriate network locations? 14. Were special client requirements met?

1st Level Reviewer:

Date:

Date:

2nd Level Reviewer: L:\QA\Edit\FORMS\Data Review\ICPMS

Rev. 2, 6/12/08

Page 1 of 1

METALS BATCH WORKSHEET

Job No.: 280-14462-1

uspg No.: AlD070566 61780 Batch Number:

3010A

Batch Method:

04/13/11 08:00 Batch End Date: 04/13/11 13:00 Batch Start Date:

Batch Analyst: Niman, Katie M

ICP SPK 3A 00026		0.5 mL			0.5 mL						
ICP SPK 2A 00024		0.5 mL			0.5 mL						
FinalAmount	50 mL	20 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL
InitialAmount	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL
Initial pH			<2	<2	<2	<2	<2	<2	<2	<2	<2
Basis			E	E	E	EH	E	₽	E	EH	L
Method Chain	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B	3010A, 6010B
Client Sample ID			FWGRQLMW-007C-01 20-GF	FWGRQLMW-007C-01 20-GF	FWGRQLMW-007C-01 3010A, 6010B 20-GF	FWGRQLMW-008C-01 30-GF	FWGRQLMW-009C-01 40-GF	FWGRQLMW-014C-01 50-GF	FWGRQLMW-016C-01 60-GF	FWGB12MW-010C-02 20-FB	FWGSCFMW-003C-01
Lab Sample ID	MB 280-61780/1	LCS 280-61780/2	280-14462-A-1	280-14462-A-1 DU	280-14462-A-1 MS	280-14462-A-2	280-14462-A-3	280-14462-A-4	280-14462-A-5	280-14462-A-6	280-14462-A-7

Batch	Batch Notes
Lot # of hydrochloric acid	J46037
Lot # of Nitric Acid	K09041
Hot Block ID number	05
Oven, Bath or Block Temperature 1	95 Degrees C
Oven, Bath or Block Temperature 2	95 Degrees C
Pipette ID	MET-007
Person who witnessed spiking	KMN
ID number of the thermometer	0908002329
Digestion Tube/Cup Lot #	1010191
Uncorrected Temperature	95 Degrees C
Uncorrected Temperature 2	95 Degrees C

Basis Description		
	Total/NA	
Basis	T	

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Page 582 of 586

Page 1 of 1

Job No.: 280-14462-1

uspg No.: AlD070566 61784 Batch Number:

Batch Method: 3020A

04/13/11 08:00 Batch End Date: 04/13/11 13:00 Batch Start Date:

Batch Analyst: Niman, Katie M

MS CALSTD-2 00036		0.1 mL			0.1 mL						
MS CALSTD-1 00037		0.1 mL			0.1 mL						
FinalAmount	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	50 mL	20 mL	50 mL	20 mL	50 mL
InitialAmount	50 mL	50 mL	20 mL	50 mL	50 mL	50 mL	50 mL				
Initial pH			<2>	<2	<2	<2	<2	<2	<2	<2	<2
Basis			H	EH	H	E	EH	E	E	EH	E
Method Chain	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020
Client Sample ID			FWGRQLMW-007C-01 20-GF	FWGRQLMW-007C-01 20-GF	FWGRQLMW-007C-01 20-GF	FWGRQLMW-008C-01 30-GF	FWGRQLMW-009C-01 40-GF	FWGRQLMW-014C-01 3020A, 6020 50-GF	FWGRQLMW-016C-01 60-GF	FWGB12MW-010C-02 20-FB	FWGSCFMW-003C-01
Lab Sample ID	MB 280-61784/1	LCS 280-61784/2	280-14462-A-1	280-14462-A-1 DU	280-14462-A-1 MS	280-14462-A-2	280-14462-A-3	280-14462-A-4	280-14462-A-5	280-14462-A-6	280-14462-A-7

Batch	Batch Notes
Lot # of Nitric Acid	K09041
Hot Block ID number	60
Oven, Bath or Block Temperature 1	92 Degrees C
Oven, Bath or Block Temperature 2	95 Degrees C
Pipette ID	MET-015
ID number of the thermometer	3967
Digestion Tube/Cup Lot #	1010191

Basis Description	otal/NA
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Shipping and Receiving Documents

Login Sample Receipt Checklist

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1 SDG Number: A1D070566

List Source: TestAmerica Denver

Login Number: 14462 List Number: 1

Creator: Bindel, Aaron M

	Answer Comment
Radioactivity either was not measured or, if measured, is at or below background	True
The cooler's custody seal, if present, is intact.	True
The cooler or samples do not appear to have been compromised or tampered with.	True
Samples were received on ice.	True
Cooler Temperature is acceptable.	True
Cooler Temperature is recorded.	True
COC is present.	True
COC is filled out in ink and legible.	True
COC is filled out with all pertinent information.	True
Is the Field Sampler's name present on COC?	True
There are no discrepancies between the sample IDs on the containers and the COC.	True
Samples are received within Holding Time.	True
Sample containers have legible labels.	True
Containers are not broken or leaking.	True
Sample collection date/times are provided.	True
Appropriate sample containers are used.	True
Sample bottles are completely filled.	True
Sample Preservation Verified.	True
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A
Multiphasic samples are not present.	True
Samples do not require splitting or compositing.	True
Residual Chlorine Checked.	N/A

North	TestAme r 4955 Yarrov	r ica Denver v Street	31,	2.6° IP 46 4/8/11	TestAmeric SAMPLE ANAL Lab Request		JISTION	Need	Report Package: Analytical Report	Expanded Deliverables 2011-04-21
Canton	Arvada, CO		80003	2						
on		Client Code:	1434673		:				Project Manager:	MARK LOEB
Sample I.I	D.	Work Order I	Nu <u>mber</u>	Client Sample	<u>ID</u>				Sampling Date	Analysis Required
A1D0705		MGPAL	.	FWGRQLMW	V-007C-0120-G	F			2011-04-06 15:19	WATER, 6020, Uranium by ICP/MS (Denver)
A1D0705	66-2	MGPAL		FWGRQLMW	V-007C-0120-G	_F / l			2011-04-06 15:19	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D0705	66-4	MGPAV		FWGRQLMW	V-008C-0130-G	F			2011-04-06 13:09	WATER, 6020, Uranium by ICP/MS (Denver)
A1D0705	66-4	MGPAV		FWGRQLMW	V-008C-0130-G	F			2011-04-06 13:09	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D0705	66-6	MGPA3		FWGRQLMW	V-009C-0140-G	F			2011-04-06 15:31	WATER, 6020, Uranium by ICP/MS (Denver)
A1D0705	66-6	MGPA3		FWGRQLMW	V-009C-0140-G	F			2011-04-06 15:31	WATER, 6010B, Metals B Li Mo Si (Denver)
ម្ត 9 A1D0705	666-8	MGPA6		FWGRQLMW	V-014C-0150-G	F			2011-04-06 9:16	WATER, 6020, Uranium by ICP/MS (Denver)
б В А1D0705	666-8	MGPA6		FWGRQLMW	V-014C-0150-G	F			2011-04-06 9:16	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D0705	666-10	MGPA8		FWGRQLMW	V-016C-0160-G	F			2011-04-06 11:03	WATER, 6020, Uranium by ICP/MS (Denver)
ន្ត 6 A1D0705	666-10	MGPA8		FWGRQLMW	V-016C-0160-G	F _		,	2011-04-06 11:03	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D0705		MGPCC		FWGB12MW	-010C-0220-FE	3 17	A		2011-04-06 14:05	WATER, 6020, Uranium by ICP/MS (Denver)

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

at the TAL North Canton Laboratory

Need detection limit and analysis date included in report.

Please send a signed copy this form with the report at completion of analysis.

Date/Time:

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Shipping Method:

FED-EX

NO CLaboratory	,
Canton	

TestAmerica Denver

TestAmerica Laboratories, Inc. SAMPLE ANALYSIS REQUISTION

Report Package:

Expanded Deliverables

4955 Yarrow Street

Lab Request

1434673

SR126383

Need Analytical Report

2011-04-21

Arvada, CO

80002

Project Manager:

MARK LOEB

Sample I.D.

Work Order Number

Client Sample ID

Sampling Date 2011-04-06 14:05 **Analysis Required**

A1D070566-11

MGPCC

Client Code:

FWGB12MW-010C-0220-FB

WATER, 6010B, Metals B Li Mo Si (Denver)

A1D070566-12

MGPCK

FWGSCFMW-003C-0170-GF

2011-04-06 9:22

WATER, 6020, Uranium by ICP/MS (Denver)

A1D070566-12

MGPCK

2011-04-06 9:22

WATER, 6010B, Metals B Li Mo Si (Denver)

Page

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

at the TAL North Canton Laboratory

Shipping Method:

FED-EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by:

Relinquished by:

Date/Time:

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION



WEST SACRAMENTO DATA

Case Narrative

TestAmerica West Sacramento Project Number A1D070566

General Comments

The samples were received at 1 degrees C.

Following US EPA Region V guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: S-Q-004, including Addendum 1. The reasons for manual integration have been documented on the affected chromatograms, which are provided in the raw data package. The raw data also includes the original chromatograms prior to any manual integration being performed. The following samples and analytes required manual integration:

LC₁₀

8330 MRL standard (analyzed on 4/16/11 @ 06:49) - Tetryl & PETN 8330 MRL standard (analyzed on 4/13/11 @11:49) - Tetryl, 3-Nitrotoluene, & PETN

WATER, 8330, Explosives

Sample(s): 11

There was insufficient sample volume to prepare a matrix spike/matrix spike duplicate (MS/MSD) pair with this batch.

Sample(s): 11

The percent difference values for RDX or 4-Amino-2,6-Dinitrotoluene & 2-Nitrotoluene are above the project specific acceptance limit in the associated MRL standards. For corrective action a standard at approximately 2X the MDL was analyzed and the analytes were detected.

WATER, 353.2, Nitrate-Nitrite

Sample(s): 11

The matrix spikes, which were performed on sample 11, have low recoveries due to possible matrix interferences. Since the laboratory control sample met acceptance criteria, no corrective action was performed.

There were no other anomalies associated with this project.

WATER, 8330, Explosives

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

HPLC

Matrix..... WQ

Lot-Sample #...: A1D070566-011 Work Order #...: MGPCC1AE
Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11 Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Dilution Factor: 1.07	Method	: SW846 83	SW846 8330		
		REPORTIN	IG		
PARAMETER	RESULT	LIMIT	UNITS		
1,3,5-Trinitrobenzene	ND	0.11	ug/L		
1,3-Dinitrobenzene	ND	0.11	ug/L		
2-Amino-4,6-	ND	0.11	ug/L		
dinitrotoluene					
2,4,6-Trinitrotoluene	ND	0.11	${\tt ug/L}$		
2,4-Dinitrotoluene	ND	0.11	ug/L		
2,6-Dinitrotoluene	ND	0.11	ug/L		
2-Nitrotoluene	ND	0.54	ug/L		
3-Nitrotoluene	ND	0.54	ug/L		
4-Amino-2,6-	ND	0.11	ug/L		
dinitrotoluene					
4-Nitrotoluene	ND	0.54	ug/L		
HMX	ND	0.11	${\tt ug/L}$		
Nitrobenzene	ND	0.11	ug/L		
Nitroglycerin	ND	0.70	ug/L		
RDX	ND	0.11	ug/L		
PETN	ND	0.70	ug/L		
Tetryl	ND	0.11	ug/L		
	PERCENT	RECOVERY			
SURROGATE	RECOVERY	LIMITS			
3,4-Dinitrotoluene	101	(50 - 15	0)		

QC DATA ASSOCIATION SUMMARY

A1D070566

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP <u>BATCH #</u>	MS RUN#
011	WQ	SW846 8330		1103098	
	WQ	SW846 8330 (Modif		1102416	1102228

METHOD BLANK REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXKL1AA Matrix...... WATER

MB Lot-Sample #: G1D130000-098

Prep Date....: 04/13/11

Analysis Date..: 04/16/11 Prep Batch #...: 1103098

Dilution Factor: 1

		REPORTING				
PARAMETER	RESULT	LIMIT	UNITS	METHOD		
1,3,5-Trinitrobenzene	ND	0.10	ug/L	SW846 8330		
1,3-Dinitrobenzene	ND	0.10	ug/L	SW846 8330		
2-Amino-4,6-	ND	0.10	ug/L	SW846 8330		
dinitrotoluene						
2,4,6-Trinitrotoluene	ND	0.10	ug/L	SW846 8330		
2,4-Dinitrotoluene	ND	0.10	ug/L	SW846 8330		
2,6-Dinitrotoluene	ND	0.10	ug/L	SW846 8330		
2-Nitrotoluene	ND	0.50	ug/L	SW846 8330		
3-Nitrotoluene	ND	0.50	ug/L	SW846 8330		
4-Amino-2,6-	ND	0.10	ug/L	SW846 8330		
dinitrotoluene						
4-Nitrotoluene	ND	0.50	ug/L	SW846 8330		
HMX	ND	0.10	ug/L	SW846 8330		
Nitrobenzene	ND	0.10	ug/L	SW846 8330		
Nitroglycerin	ND	0.65	${\tt ug/L}$	SW846 8330		
RDX	ND	0.10	ug/L	SW846 8330		
PETN	ND	0.65	${\tt ug/L}$	SW846 8330		
Tetryl	ND	0.10	ug/L	SW846 8330		
	PERCENT	RECOVERY				
SURROGATE	RECOVERY	LIMITS				
3,4-Dinitrotoluene	102	(50 - 150	0)			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Dilution Factor: 1

	SPIKE	MEASURED)	PERCENT		
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	METHOD
1,3,5-Trinitrobenzene	1.0	1.1	ug/L	115		SW846 8330
	1.0	1.1	ug/L	114	0.61	SW846 8330
1,3-Dinitrobenzene	1.0	1.2	ug/L	117		SW846 8330
	1.0	1.2	ug/L	116	0.25	SW846 8330
2-Amino-4,6-	1.0	1.1	ug/L	111		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	110	0.45	SW846 8330
2,4,6-Trinitrotoluene	1.0	0.90	ug/L	90		SW846 8330
	1.0	0.89	ug/L	89	1.4	SW846 8330
2,4-Dinitrotoluene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	111	0.98	SW846 8330
2,6-Dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.36	SW846 8330
2-Nitrotoluene	1.0	1.1	ug/L	110		SW846 8330
	1.0	1.1	ug/L	110	0.090	SW846 8330
3-Nitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	1.0	1.1	ug/L	108	0.27	SW846 8330
4-Amino-2,6-	1.0	1.1	ug/L	109		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	107	1.1	SW846 8330
4-Nitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	110	0.63	SW846 8330
HMX	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.090	SW846 8330
Nitrobenzene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	112	0.17	SW846 8330
Nitroglycerin	5.0	5.1	ug/L	102		SW846 8330
	5.0	5.1	ug/L	101	0.94	SW846 8330
RDX	1.0	1.2	ug/L	116		SW846 8330
	1.0	1.2	ug/L	117	0.68	SW846 8330
PETN	5.0	5.0	ug/L	100		SW846 8330
	5.0	4.9	ug/L	98	1.5	SW846 8330
Tetryl	1.0	1.0	ug/L	101		SW846 8330
	1.0	1.0	ug/L	100	0.90	SW846 8330
			PERCENT	RECOVERY		
SURROGATE	_		RECOVERY	LIMITS		
3,4-Dinitrotoluene			106	(50 - 150)	
			106	(50 - 150)	

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11
Prep Batch #...: 1103098 Analysis Date..: 04/16/11

Dilution Factor: 1

	PERCENT	RECOVERY	RPD	
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD
1,3,5-Trinitrobenzene	115	(53 - 135)		SW846 8330
	114	(53 - 135)	0.61 (0-30)	SW846 8330
1,3-Dinitrobenzene	117	(54 - 120)	(, ,,	SW846 8330
-,-	116	(54 - 120)	0.25 (0-30)	SW846 8330
2-Amino-4,6-	111	(53 - 120)	(0.00)	SW846 8330
dinitrotoluene		(00 11.0)		5
dinitio to tuche	110	(53 - 120)	0.45 (0-30)	SW846 8330
	110	(00 120)	0.10 (0.50)	2
2,4,6-Trinitrotoluene	90	(37 - 120)		SW846 8330
•	89	(37 - 120)	1.4 (0-30)	SW846 8330
2,4-Dinitrotoluene	112	(58 - 136)		SW846 8330
-,	111	(58 - 136)	0.98 (0-30)	SW846 8330
2,6-Dinitrotoluene	111	(52 - 144)	(, ,,	SW846 8330
2,0 22	111	(52 - 144)	0.36 (0-30)	SW846 8330
2-Nitrotoluene	110	(52 - 120)	(, ,	SW846 8330
2 11111000110110	110	(52 - 120)	0.090 (0-30)	SW846 8330
3-Nitrotoluene	109	(48 - 136)	0.050 (0.00)	SW846 8330
3 1122333243113	108	(48 - 136)	0.27 (0-30)	SW846 8330
4-Amino-2,6-	109	(58 - 159)	(, ,,,	SW846 8330
dinitrotoluene		(00 107)		
41111111111111	107	(58 - 159)	1.1 (0-30)	SW846 8330
		(00 102)	112 (0 00)	
4-Nitrotoluene	111	(46 - 136)		SW846 8330
	110	(46 - 136)	0.63 (0-30)	SW846 8330
нмх	111	(45 - 140)		SW846 8330
	111	(45 - 140)	0.090 (0-30)	SW846 8330
Nitrobenzene	112	(49 - 120)		SW846 8330
	112	(49 - 120)	0.17 (0-30)	SW846 8330
Nitroglycerin	102	(60 - 120)		SW846 8330
	101	(60 - 120)	0.94 (0-60)	SW846 8330
RDX	116	(39 - 120)		SW846 8330
	117	(39 - 120)	0.68 (0-30)	SW846 8330
PETN	100	(60 - 120)		SW846 8330
	98	(60 - 120)	1.5 (0-30)	SW846 8330
Tetryl	101	(30 - 120)		SW846 8330
-	100	(30 - 120)	0.90 (0-30)	SW846 8330
		•		
		PERCENT	RECOVERY	
SURROGATE		RECOVERY	LIMITS	
3,4-Dinitrotoluene		106	(50 - 150)	
		106	(50 - 150)	

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

WATER, Nitroguanidine

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

Dissolved HPLC

Lot-Sample #:	A1D070566-011	Work Order #:	MGPCC1A9	Matrix: WQ
Date Sampled:	04/06/11 14:05	Date Received:	04/07/11	
Prep Date:	04/12/11	Analysis Date:	04/19/11	

Prep Batch #...: 1102416

Dilution Factor: 1 Method.....: SW846 8330 (Modif

REPORTING

PARAMETER RESULT LIMIT UNITS NItroguanidine ND 20 ug/L

QC DATA ASSOCIATION SUMMARY

A1D070566

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
011	WQ WQ	SW846 8330 SW846 8330 (Modif		1103098 1102416	1102228

METHOD BLANK REPORT

HPLC

Client Lot #...: A1D070566

Work Order #...: MGXET1AA

Matrix....: WATER

MB Lot-Sample #: G1D120000-416

Prep Date....: 04/12/11

Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1

REPORTING

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXET1AC Matrix...... WATER

LCS Lot-Sample#: G1D120000-416

Prep Batch #...: 1102416

Dilution Factor: 1

SPIKE MEASURED PERCENT

PARAMETER AMOUNT UNITS RECOVERY METHOD

Nitroguanidine 250 260 ug/L 103 SW846 8330 (Modi

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXET1AC Matrix...... WATER

LCS Lot-Sample#: G1D120000-416

Prep Batch #...: 1102416

Dilution Factor: 1

PERCENT RECOVERY
PARAMETER RECOVERY LIMITS

PARAMETER RECOVERY LIMITS METHOD

Nitroguanidine 103 (73 - 117) SW846 8330 (Modified

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGP0L1AJ-MS Matrix..... WATER

MS Lot-Sample #: A1D080404-001 MGP0L1AK-MSD

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11 Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch **∦...:** 1102416

Dilution Factor: 1

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD	
Nitroguanidine	ND	250	260	ug/L	104		SW846 8330	(Modified
	ND	250	260	ug/L	105	1.2	SW846 8330	(Modified

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGP0L1AJ-MS Matrix..... WATER

MS Lot-Sample #: A1D080404-001 MGP0L1AK-MSD

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11
Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
Nitroguanidine	104	(73 - 117)			SW846 8330 (Modified
	105	(73 - 117)	1.2	(0-15)	SW846 8330 (Modified

NOTE (S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

WATER, 8330, Explosives

QC Summary

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXKL1AC-LCS Matrix.....: WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Dilution Factor: 1

	SPIKE	MEASUREI		PERCENT		
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	METHOD
1,3,5-Trinitrobenzene	1.0	1.1	ug/L	115		SW846 8330
	1.0	1.1	ug/L	114	0.61	SW846 8330
1,3-Dinitrobenzene	1.0	1.2	ug/L	117		SW846 8330
	1.0	1.2	ug/L	116	0.25	SW846 8330
2-Amino-4,6-	1.0	1.1	ug/L	111		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	110	0.45	SW846 8330
2,4,6-Trinitrotoluene	1.0	0.90	ug/L	90		SW846 8330
	1.0	0.89	ug/L	89	1.4	SW846 8330
2,4-Dinitrotoluene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	111	0.98	SW846 8330
2,6-Dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.36	SW846 8330
2-Nitrotoluene	1.0	1.1	ug/L	110		SW846 8330
	1.0	1.1	ug/L	110	0.090	SW846 8330
3-Nitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	1.0	1.1	ug/L	108	0.27	SW846 8330
4-Amino-2,6-	1.0	1.1	ug/L	109		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	107	1.1	SW846 8330
4-Nitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	110	0.63	SW846 8330
HMX	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.090	SW846 8330
Nitrobenzene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	112	0.17	SW846 8330
Nitroglycerin	5.0	5.1	ug/L	102		SW846 8330
	5.0	5.1	ug/L	101	0.94	SW846 8330
RDX	1.0	1.2	ug/L	116		SW846 8330
	1.0	1.2	ug/L	117	0.68	SW846 8330
PETN	5.0	5.0	ug/L	100		SW846 8330
	5.0	4.9	ug/L	98.	1.5	SW846 8330
Tetryl	1.0	1.0	ug/L	101		SW846 8330
	1.0	1.0	ug/L	100	0.90	SW846 8330
			PERCENT	RECOVERY		
SURROGATE			RECOVERY	LIMITS	_	
3,4-Dinitrotoluene			106	(50 - 150)	
			106	(50 - 150)	

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: AlD070566 Work Order #...: MGXKLlAC-LCS Matrix.....: WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: AlD070566 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Dilution Factor: 1

	PERCENT	RECOVERY	RPD	
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD
1,3,5-Trinitrobenzene	115	(53 - 135)	<u> </u>	SW846 8330
	114	(53 - 135)	0.61 (0-30)	SW846 8330
1,3-Dinitrobenzene	117	(54 - 120)		SW846 8330
	116	(54 - 120)	0.25 (0-30)	SW846 8330
2-Amino-4,6-	111	(53 - 120)		SW846 8330
dinitrotoluene				
	110	(53 - 120)	0.45 (0~30)	SW846 8330
2,4,6-Trinitrotoluene	90	(37 - 120)		SW846 8330
	89	(37 - 120)	1.4 (0~30)	SW846 8330
2,4-Dinitrotoluene	112	(58 - 136)		SW846 8330
	111	(58 - 136)	0.98 (0-30)	SW846 8330
2,6-Dinitrotoluene	111	(52 - 144)		SW846 8330
	111	(52 - 144)	0.36 (0-30)	SW846 8330
2-Nitrotoluene	110	(52 - 120)		SW846 8330
	110	(52 - 120)	0.090 (0-30)	SW846 8330
3-Nitrotoluene	109	(48 - 136)		SW846 8330
	108	(48 - 136)	0.27 (0-30)	SW846 8330
4-Amino-2,6-	109	(58 - 159)		SW846 8330
dinitrotoluene				
	107	(58 - 159)	1.1 (0-30)	SW846 8330
4-Nitrotoluene	111	(46 - 136)		SW846 8330
	110	(46 - 136)	0.63 (0-30)	SW846 8330
HMX	111	(45 - 140)		SW846 8330
	111	(45 - 140)	0.090 (0-30)	SW846 8330
Nitrobenzene	112	(49 - 120)		SW846 8330
	112	(49 - 120)	0.17 (0-30)	SW846 8330
Nitroglycerin	102	(60 - 120)		SW846 8330
	101	(60 - 120)	0.94 (0-60)	SW846 8330
RDX	116	(39 - 120)		SW846 8330
	117	(39 - 120)	0.68 (0-30)	SW846 8330
PETN	100	(60 - 120)		SW846 8330
	98	(60 - 120)	1.5 (0-30)	SW846 8330
Tetryl	101	(30 - 120)		SW846 8330
	100	(30 - 120)	0.90 (0-30)	SW846 8330
		PERCENT	RECOVERY	
SURROGATE		RECOVERY	LIMITS	
3,4-Dinitrotoluene		106	(50 - 150)	
		106	(50 - 150)	

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D070566 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



ANALYTICAL REPORT

PROJECT NO. GR11NJ00D5W2100

RAVENNA, OHIO

Lot #: A1D080416

CONTRACT NO: GR11NJ00D5WRV00.

Brian Mailot

U.S.Geological Survey (USGS) 6480 Doubletree Avenue Columbus, OH 43229

TESTAMERICA LABORATORIES, INC.

Unless noted otherwise, the test results reported herein meet all requirements of NELAC and the current version of the DoD QSM.

Project Manager mark.loeb@testamericainc.com

Mark J. Loeb

Approved for release Mark J. Loeb Project Manager II 6/23/2011 2:35 PM



ANALYTICAL REPORT

PROJECT NO. GR11NJ00D5W2100
RAVENNA, OHIO
Lot #: A1D080416

CONTRACT NO: GR11NJ00D5WRV00.

Ralph Haefner

U.S.Geological Survey (USGS) 6480 Doubletree Avenue Columbus, OH 43229

TESTAMERICA LABORATORIES, INC.

Unless noted otherwise, the test results reported herein meet all requirements of NELAC and the current version of the DoD QSM.

Mark J. Loeb Project Manager

Laboratory Job No: AND ALDS 80 416

CONTRACT LABORATORY DATA-REVIEW WORKSHEET

1.0 GENERAL INFORMATION
Data reviewer:
Office, Project, & Account #: Olt Rave M
2.0 DATA DELIVERABLES
Date of Lab analytical report:
No. of CD copies of raw-data report:Remarks:
Raw-data report reviewed? YesNoElectronic data files on CD? YesNo
EDD file format: QWDATATAL QUA08ERPIMSOther
Date rec'd data deliverables: 6/27/4/ Date sent deliverables to USGS office 6/27/4/
3.0 INVOICE STATUS FOR LOT:
4.0 SAMPLE INFORMATION (Page #'s listed in this worksheet refer to lab analytical report)
Sample collection date(s): 4/7/11 Sample matrix: WuTer
No. of sample types in lot: Environmental Trip blank Equip. blank
MS/MSDOther:
Date samples received at laboratory: 4/8///
4.1 Were accelerated turn-around times (TATs) requested for analyses? YesNo
If yes, list TAT period and if completed:
4.2 Were analyses on chain-of-custody (COC) form performed by lab? YESNO
If no , list missing or cancelled analyses and reason for non-performance:
4.3 Were the samples properly preserved, labeled, no lab log-in problems, and(or) at
appropriate temperature (<6 deg. C) upon receipt by the laboratory: YesNo
If no, list sample/lab IDs, and associated problems or reference lab report case narrative:

Laboratory Job No:
4.4 Were preparation (extraction) and(or) analysis holding times met? YesNo
If no, list analytical methods and sample/lab IDs for samples that exceeded holding-time limits
4.5 Did surrogate recoveries meet QC acceptance criteria? YesNoNA
If no, list methods, surrogates, associated sample/lab IDs, lab report page #s:
500c-P59,063; Pestrudge P79-4/increm; PCB-194+71(cs)+8
Me - P101-102 (MS); Explosives - P982 (1-1/2 (1-1/2))
4.6 Were dilution factors greater than 1 for <i>organic</i> analyses? YesNoNA
If yes , list analytical methods and reason for raised dilution factors: dilution
high-analyte levelsmatrix interferencesother
riigh analyte levelsmatrix interiorologsother
4.7 Were dilution factors greater than 1 for inorganic analyses? YesNoNA
If yes , list analytical methods and reason for raised dilution factors:
high-analyte levelsmatrix interferencesother
4.8 Additional comments about sample analyses:

Laboratory Job No: Aloo80 416 5.0 QUALITY CONTROL (QC) ANALYSES and RESULTS 5.1 Were any target analytes detected in the Laboratory Method Blanks? Yes // No If **yes**, list method, analytes, prep batch #, report page #s: 5.2 Did lab control samples (LCS/LSCD) meet percent recoveries (%R) criteria? Yes No. If **no**. list method, analytes, LCS/LCSD, prep batch #, report page #s: - 129 (4;6)-120 (con) +131; SVUC-1071 (1192 Samputs) 5.3 Did the MS/MSD results meet %R or RPD acceptance criteria? Yes Note: matrix spike and matrix spike duplicate (MS/MSD) data are used to evaluate the effect of sample matrix on the analytical process and should be only used in conjunction with other available lab QC data. In some cases, MS samples not directly associated with this lot may be used by the laboratory. If no. list method, analytes: MS, MSD or RPD; and lab report page #: · OCDE-math- - - 1,2,4-TCR-Law-1937 5.4 Did the lab-sample duplicate results meet RPD acceptance criteria? Yes / No NA If **no**, list method, analytes, prep batch #, report page #s, 5.5 Additional comments about QC results:

	Laboratory Job No:				
6.0 ANALYTICAL METHODS USED in this LABORATORY LOT NUMBER					
VOCs by GC/MSmethod 8260B/ 524.2	[water (W) or solids (S) analysis holding-time (HT) of 14 days]				
Gasoline Range Organics (GRO)+BTEX-met	hod 8015B(GRO)/ 8021 [W and S: analysis HT 14 days]				
Diesel Range Organics-method 8015B-DRO	[W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]				
Pesticides by GCmethod 8081A	[W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]				
PCBs by GCmethod 8082	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]				
Pesticides by GCmethod 8141A	[W: prep HT 7 days. S: prep HT 14 days. analysis HT 40 days.				
Herbicides by GCmethod 8151A	[W: prep HT 7 days; S: prep HT14 days, analysis HT 40 days]				
SVOCs by GC/MSmethod 8270C	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]				
Dioxins and Furansmethods 8280/ 8290/ 16	13 [W and S: prep HT 30 days; analysis HT 45 days]				
PAHs by HPLC method 8310	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]				
Explosives by HPLC method 8330 or 8321A	[W: prep HT 7 days; S: prep HT14 days; analysis HT 40 days]				
Hexane extractable materials (HEM and SGT	-HEM)-method 1664/ 9071B [W/S: analysis HT 28 days]				
Total organic carbon (TOC) or DOCmethods	s 415.1 or 9060 or 5310B [W: analysis HT 28 days]				
Perchloratemethods 314.0 or 6850 LC/MS/N	MS or 6860 IC/MS/MS [W: analysis HT 28 days]				
Metals by ICPmethod 6010B or 200.7	[W and S: analysis HT 180 days]				
Metals by ICP/MSmethod 6020 or 200.8	[W and S: analysis HT 180 days]				
Mercury by CVAAmethod 7470A (W) and 74	171A (S) [W and S: analysis HT 28 days]				
Inorganic anions-method 300/9056 [W: analysis HT 48 hours- NO ₂ , NO ₃ , ortho-P; HT 28 daysBr,Cl ,F, SO ₄]					
Total dissolved solids (TDS)method 2540C a	and(or) TSSmethod 2540D [W: analysis HT 7 days]				
Alkalinitymethod 310.1 (Total, OH, HCO ₃ , ar	nd CO ₃) [W: analysis HT_14 days]				
Nitrogen, ammoniamethod 350 1 350. 2	[W analysis HT 28 days]				
Nitrogen, TKNmethod 351.2	[W: analysis HT 28 days]				
Nitrogen, nitrate + nitritemethod 353.2 [W:	analysis HT 28 days] NO ₃ or NO ₂ only [HT 48 hours]				
Nitrogen, nitritemethod 353.2 or 354.1	[W: analysis HT 48 hours]				
Phosphorus-method 365.3 and ortho P by 368	5.3 [Phosphorus.: W: analysis HT 28 days, ortho P 48 hours]				
Phosphorus-method 365.1 and ortho P by 36	5.1 [Phosphorus: W: analysis HT 28 days, ortho P 48 hours]				
Cyanide, total, dissolved, or amenablemethod	ods 9012A/ 335.4 [W and S: analysis HT 14 days]				
MBAS surfactants - method 425.1 (HT 48 ho	urs)				
Moisture contentmethods D2216 or 160.3M					

Other analyses: Netrocelly 105 e

BOD--method 405.1 (HT 48 hours) or COD--method 410.4

Turbidity--method 180.1 (HT 48 hours); Hardness 2340B

Physical properties: pH--method 4500 H B; specific conductance—method 2510B



CASE NARRATIVE

CASE NARRATIVE

A1D080416

The following report contains the analytical results for seven water samples submitted to TestAmerica North Canton by U.S. Geological Survey (USGS) from the RAVENNA, OHIO Site, project number GR11NJ00D5W2100. The samples were received April 08, 2011, according to documented sample acceptance procedures.

The 6010B Metals B Li Mo Si and 6020 Uranium by ICP/MS analyses were performed at the TestAmerica Denver laboratory.

The 8330 Explosives, Nitroguanidine, and Nitrocellulose as N analyses were performed at the TestAmerica West Sacramento laboratory. Refer to TestAmerica West Sacramento narrative included in their data package for additional information.

TestAmerica utilizes USEPA approved methods and Louisville Corps Guidelines version 5, where applicable, in all analytical reports. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

All parameters were evaluated to the method detection limit and include qualified results where applicable.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Mark J. Loeb, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 1.6, 1.8, and 1.8°C.

See TestAmerica's Cooler Receipt Form for additional information.

GC/MS VOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for batch(es) 1109091 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The LCS associated with batch(es) 1109091 was recovered high and outside of criteria for Methylene Chloride and Carbon Disulfide. Since the analyte was not detected in any of the samples above reporting limits, the results were accepted. Slight positive bias is not believed to have impacted data quality.

GC/MS SEMIVOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

3-Methylphenol (m-Cresol) and 4-Methylphenol (p-Cresol) co-elute and cannot be reported as separate analytes. When these analytes are requested, the reported result represents a probable combination of the two analytes.

GC/MS SEMIVOLATILES (continued)

There was no client requested matrix spike / matrix spike duplicate (MS/MSD) in batch(es) 1109035.

Insufficient sample volume was provided to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch(es) 1101057.

For sample(s) FWGLL1mw-084C-0200-GW, FWGLL4mw-198C-0210-GW, and the Blank and LCS associated with batch(es) 1101057, the recovery for surrogate compound(s) are outside acceptance criteria. Since LCG criterion is that all surrogates be above 10%, no corrective action is required.

PESTICIDES-8081

For the LCS associated with batch(es) 1099014, the recovery for one surrogate compound is outside acceptance criteria. Since LCG criterion is that one of two surrogate compounds must meet acceptance criteria, no corrective action was required. (Surrogate was below acceptance criteria, but above 10%.)

Sample(s) FWGLL1mw-084C-0200-GW had elevated reporting limits due to matrix interference.

POLYCHLORINATED BIPHENYLS-8082

For sample(s) FWGLL1mw-084C-0200-GW, the recovery for one surrogate compound is outside acceptance criteria. Since LCG criterion is that one of two surrogate compounds must meet acceptance criteria, no corrective action was required. (Surrogate was below acceptance limit, but above 10%.)

NITROAROMATICS AND NITRAMINES-8330

The analyses reported herein were performed using an instrument that has two columns(GC) or detectors(HPLC), one of which is used to confirm the results of the other. Peak interferences may result in some cases, which cause a quantitation difference between the two columns/detectors. If the difference between the two results is greater than 40%, the higher of the two results or the primary column/detector is normally reported. The reported results are flagged with "PG".

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "J". Refer to the sample report pages for the affected analyte(s).

The matrix spike/matrix spike duplicate(s) for batch(es) 1101020 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

No ICP Trace or ICP MS Form IX was provided for batch(es) 1101020. The serial dilutions were performed on a different sample from the same QC batch(es).

The sample duplicate RPD was outside the acceptance limits for some analytes. The result is less than five times the reporting limit; therefore, no corrective action is required. Refer to the sample duplicate report for RPDS that exceed 20%.

GENERAL CHEMISTRY

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

The matrix spike/matrix spike duplicate(s) for FWGLL2mw-266C-0040-GW had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The matrix spike/matrix spike duplicate(s) for batch(es) 1102391 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The LCSD and CCV associated with batch(es) 1101306 exceeded method criteria on the high side for Phosphate as P, Ortho. Since the sample results were below the requested reporting limit the results were accepted.

GENERAL CHEMISTRY (continued)

Sample(s) FWGLL2mw-266C-0040-GW, FWGLL2mw-267C-0050-GW, FWGLL2mw-269C-0060-GW, FWGLL1mw-084C-0200-GW, and FWGLL4mw-198C-0210-GW analyzed by ion chromatography had greater than 10 samples between CCV/CCBs due to analyst error. The CCV/CCB results met criteria and results are reported.

The Method Blank associated with batch(es) 1112227 for the Cyanide sample(s) FWGLL1mw-084C-0200-GW and FWGLL4mw-198C-0210-GW was greater than 1/2 the MRL. Since there is no more sample and all the samples are non-detect, the data is reported.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data. Program or agency specific requirements take precedence over the requirements listed in this narrative.

OC BATCH

Environmental samples are taken through the testing process in groups called Quality Control Batches (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, a Matrix Spike/Matrix Spike Duplicate (MS/MSD) pair or a Matrix Spike/Sample Duplicate (MS/DU) pair.

For 600 series/CWA methods, QC samples include a Method Blank (MB), a Laboratory Control Sample (LCS) and, where appropriate, a Matrix Spike (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch, with the exception of poor performing analytes. A list of these analytes is listed below. No corrective action is taken if these analytes do not meet criteria. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

Poor performers

rooi periorniers			
Method 8270 Water and Solid:			
4-Nitrophenol	3,3' – Dichlorobenzidine		
Benzoic Acid	2,4,6 - Tribromophenol		
Phenol	2,4-Dinitrophenol		
Phenol-d5	Pentachlorophenol		
4,6-Dinitro-2-methylphenol	Hexachlorocyclopentadiene (LCG only)		
Benzyl Alcohol	4-Chloroaniline		
Method 8151 Solid			
Dinoseb			
Method 8260 Water and Solid			
Dichlorodifluoromethane	Hexachlorobutadiene		
Trichlorofluoromethane	Naphthalene		
Chloroethane	1,2,3-Trichlorobenzene		
Acetone	1,2,4-Trichlorobenzene		
Bromomethane	2,2-Dichloropropane		
Bromoform	Chloromethane		

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

• Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be ten fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

QUALITY CONTROL ELEMENTS NARRATIVE (continued)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride,	Phthalate Esters	Copper, Iron, Zinc,	Copper, Iron, Zinc, Lead
Acetone, 2-Butanone		Lead, Calcium,	
		Magnesium, Potassium,	
		Sodium, Barium,	
		Chromium, Manganese	

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results do not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate or Matrix Spike/Sample Duplicate.

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater. For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica Certifications and Approvals:

The laboratory is certified for the analytes listed on the documents below. These are available upon request. California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),

Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Nevada (#OH-000482008A), OhioVAP (#CL0024), Pennsylvania (#008), West Virginia (#210), Wisconsin (#999518190), DoD ELAP (ADE-1437) USDA Soil Permit (P33-08-00123)



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A1D080416

PARAMETER	RESULT	REPORTING	UNITS	ANALYTICAL METHOD
FWGLL2mw-266C-0040-GW 04/07/11 11:04	001			
Chloride	1.6	1.0	mg/L	MCAWW 300.0A
Sulfate	27.2	1.0	mg/L	MCAWW 300.0A
Fluoride	0.083 B	1.0	mg/L	MCAWW 300.0A
FWGLL2mw-267C-0050-GW 04/07/11 08:52	003			
Chloride	3.2	1.0	mg/L	MCAWW 300.0A
Sulfate	82.0	1.0	mg/L	MCAWW 300.0A
Fluoride	0.29 B	1.0	mg/L	MCAWW 300.0A
Phosphate as P,	0.37 B	0.50	mg/L	MCAWW 300.0A
Ortho				
FWGLL2mw-269C-0060-GW 04/07/11 08:59	005			
Chloride	10.0	1.0	mq/L	MCAWW 300.0A
Sulfate	27.2	1.0	mg/L	MCAWW 300.0A
Fluoride	0.16 в	1.0	mg/L	MCAWW 300.0A
FWGLL1mw-084C-0200-GW 04/07/11 12:00	007			
1,3,5-Trinitrobenzene	4.7 PG	0.11	ug/L	SW846 8330
1,3-Dinitrobenzene	0.86	0.11	ug/L	SW846 8330
2-Amino-4,6-	15	0.11	ug/L	SW846 8330
dinitrotoluene				
2,4,6-Trinitrotoluene	11	0.11	ug/L	SW846 8330
2,4-Dinitrotoluene	2.8	0.11	ug/L	SW846 8330
2,6-Dinitrotoluene	1.1	0.11	ug/L	SW846 8330
4-Amino-2,6-	29	0.21	ug/L	SW846 8330
dinitrotoluene				
HMX	0.98 PG	0.11	ug/L	SW846 8330
RDX	0.59	0.11	ug/L	SW846 8330
2,4-Dinitrotoluene	1.2 J	5.0	ug/L	SW846 8270C
Nitrogen, as Ammonia	0.84 B	2.0	mg/L	MCAWW 350.2
Nitrate-Nitrite	0.8	0.1	mg/L	MCAWW 353.2
Chloride	1.1	1.0	mg/L	MCAWW 300.0A
Sulfate	104	1.0	mg/L	MCAWW 300.0A
Fluoride	0.070 B	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.74	0.10	mg/L	MCAWW 300.0A
Phosphate as P,	0.18 B	0.50	mg/L	MCAWW 300.0A
Ortho				

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A1D080416

		REPORTING		ANALYTICAL
PARAMETER	RESULT	LIMIT	UNITS	METHOD
FWGLL1mw-084C-0200-GF 04/07/11 12:00	008			
Aluminum	404	50.0	ug/L	SW846 6020
Cadmium	1.6	0.50	ug/L	SW846 6020
Sodium	3140	1000	ug/L	SW846 6020
Thallium	0.55 B	1.0	ug/L	SW846 6020
Zinc	72.4 J	10.0	ug/L	SW846 6020
Barium	15.7	10.0	ug/L	SW846 6010B
Calcium	42300	1000	ug/L	SW846 6010B
Cobalt	19.6	5.0	ug/L	SW846 6010B
Copper	9.3	5.0	ug/L	SW846 6010B
Potassium	2500	1000	ug/L	SW846 6010B
Magnesium	3200	1000	ug/L	SW846 6010B
Manganese	243 J	10.0	ug/L	SW846 6010B
Nickel	37.0	10.0	ug/L	SW846 6010B
FWGLL4mw-198C-0210-GW 04/07/11 15:00	009			
Nitrogen, as Ammonia	0.84 B	2.0	mg/L	MCAWW 350.2
Nitrate-Nitrite	0.03 B	0.1	mg/L	MCAWW 353.2
Chloride	1.2	1.0	mg/L	MCAWW 300.0A
Sulfate	84.5	1.0	mg/L	MCAWW 300.0A
Fluoride	0.16 B	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.033 B	0.10	mg/L	MCAWW 300.0A
FWGLL4mw-198C-0210-GF 04/07/11 15:00	010			
Aluminum	34.4 B	50.0	ug/L	SW846 6020
Iron	4690	50.0	ug/L	SW846 6020
Sodium	5070	1000	ug/L	SW846 6020
Zinc	64.4	10.0	ug/L	SW846 6020
Barium	10.3	10.0	ug/L	SW846 6010B
Calcium	27500	1000	ug/L	SW846 6010B
Potassium	717 В	1000	ug/L	SW846 6010B
Magnesium	14900	1000	ug/L	SW846 6010B
Manganese	1050	10.0	ug/L	SW846 6010B
Nickel	32.2	10.0	ug/L	SW846 6010B



METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A1D080416

PARAMETER	ANALYTICAL METHOD
Ammonia Nitrogen	MCAWW 350.2
Bromide	MCAWW 300.0A
Chloride	MCAWW 300.0A
Cyanide, Total	SW846 9012A
Fluoride	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
ICP-MS (6020)	SW846 6020
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A
Nitrate as N	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.2
Nitrite as N	MCAWW 300.0A
Nitroaromatics and Nitramines by HPLC	SW846 8330
Nitrocellulose as N, WS-WC-0050 (Colorimetric)	TAL-SOP WS-WC-0050
Organics by UV/HPLC	SW846 8330 (Modified)
Organochlorine Pesticides	SW846 8081A
Phosphate as P, Ortho	MCAWW 300.0A
PCBs by SW-846 8082	SW846 8082
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Sulfate	MCAWW 300.0A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW	"Methods for Chemical Analysis of Water and Wastes", ${\tt EPA-600/4-79-020}$, March 1983 and subsequent revisions.
SW846	"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.
TAL-SOP	TESTAMERICA LABORATORIES INC., LABORATORY STANDARD OPERATING PROCEDURE



SAMPLE SUMMARY

SAMPLE SUMMARY

A1D080416

<u>WO #</u>	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MGP5D	001	FWGLL2mw-266C-0040-GW	04/07/11	11:04
MGP5J	003	FWGLL2mw-267C-0050-GW	04/07/11	08:52
MGP5N	005	FWGLL2mw-269C-0060-GW	04/07/11	08:59
MGP5R	007	FWGLL1mw-084C-0200-GW	04/07/11	12:00
MGP5W	800	FWGLL1mw-084C-0200-GF	04/07/11	12:00
MGP53	009	FWGLL4mw-198C-0210-GW	04/07/11	15:00
MGP6A	010	FWGLL4mw-198C-0210-GF	04/07/11	15:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



SHIPPING AND RECEIVING DOCUMENTS

TestAmerica Laboratory location:

THE LEADER IN ENVIRONMENTAL TESTING

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TestAmerica Cooler	Receipt Form/Narrative	Lot Number 1 DAGAUL
North Canton Facili		Lot Number: A(Da80416
100		74 000/100
Cooler Received on	Yllu Project Raspyne C Yllu Opened on 4/8/11	By: JULIU
	☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestA	(Signature)
TestAmerica Cooler #	Multiple Coolers Foam Box	Client Cooler Other
1 Were custody seals of	n the outside of the cooler(s)? Yes No	T /
If YES, Quantity		Intact? Yes 🖾 No 🗌 NA 🗍
	n the outside of cooler(s) signed and dated?	Yes No NA
Were custody seals of	· , -	Yes No No
If YES, are there any	` '	Tes [] INU [2]
B 1	attached to the cooler(s)?	Yes ⊠ No □
	company the sample(s)? Yes No	Relinquished by client? Yes 🔼 No 🗌
4	ers signed in the appropriate place?	Yes No
	l: Bubble Wrap 🛽 Foam 🗌 None 🗌 O	
	pon receipt°C See back of form	
	R TO Other Other	Tot multiple coolers/temps (2)
B		None
	good condition (Unbroken)?	Yes ⊠ No □
H I	be reconciled with the COC?	Yes No No
ł	correct pH upon receipt?	Yes No NA
	used for the test(s) indicated?	Yes 🕅 No 🗌
11. Were air bubbles >6 m	· ·	Yes No NA NA
	eived to perform indicated analyses?	Yes 🛛 No 🗌
	ent in the cooler(s)?, Yes \(\square\) No \(\mathbb{X} \) Were VO	
Contacted PM MAL	Date 4/8/α by 9μ-	via Verbal 🕅 Voice Mail 🗌 Other 🗍
Concerning	# 14	via voidal 🖾 voida ividii 🗀 Otiloi 🖺
14. CHAIN OF CUSTOD		
The following discrepancie	es occurred:	
3 S 0	sticido bottlos for sample 186-0210-GW not marked un ex volume	/ 5 VIII - 4901 6266 /1
- 12028 Den 16.	STICINO DETTIOS IN Sample	63 WG-LL (MW - 084C- 0 200- 64
+ FWGLLEMW-19	186-0210-6W not marked in	- COC. Will los for
Posticidos po	v volume	
		· · · · · · · · · · · · · · · · · · ·
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15. SAMPLE CONDITION	V	
Sample(s)	were received after th	ne recommended holding time had expired.
Sample(s)		were received in a broken container.
Sample(s)	were received w	vith bubble >6 mm in diameter. (Notify PM)
16. SAMPLE PRESERVA	ATION	
Sample(s)		were further preserved in Sample
	mended pH level(s). Nitric Acid Lot# 100110-HNO ₃ ; S	
	OH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydro	oxide and Zinc Acetate Lot# 100108-
	t time was preservative added to sample(s)?	
Client ID	pH	<u>Date</u> <u>Initials</u>
0040	2242	4/8/u 2-
0050	4242	
0060	4242	
0200	62626262712	
0210	62626262712	

rth Canton Faci Client ID		<u>Date</u>	<u>Initial</u>
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]
Cooler#	Temp. °C	Method	Coolar
A-192	1.8	IR	Ic
A726 A732	1.4	1	1
A732	1,8		
repancies Cont'd:			<u> </u>



GCMS VOLATILE DATA

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Volatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AA Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11
Prep Date....: 04/19/11 Analysis Date..: 04/19/11

Prep Batch #...: 1109091

Method....: SW846 8260B

PARAMETER RESULT LIMIT UNITS Bromochloromethane ND 1.0 ug/L 1,2-Dichromoethane ND 1.0 ug/L cis-1,2-Dichloroethene ND 1.0 ug/L crans-1,2-Dichloroethene ND 1.0 ug/L crylene ND 1.0 ug/L m-Xylene & p-Xylene ND 1.0 ug/L Encommethane ND 1.0 ug/L Encommethane ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Chlorocthane ND 1.0 ug/L Methylene chloride ND 1.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.			REPORTIN	JG
Bromochloromethane	PARAMETER	RESULT		
1,2-Dibromoethane ND 1.0 ug/L cis-1,2-Dichloroethene ND 1.0 ug/L trans-1,2-Dichloroethene ND 1.0 ug/L o-Xylene ND 1.0 ug/L m-Xylene & p-Xylene ND 1.0 ug/L Chloromethane ND 1.0 ug/L Bromomethane ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 1.0 ug/L Acetone ND 1.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethane ND 1.0				
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Bromomethane				
Vinyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 2.0 ug/L Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Putanohoromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 <	Bromomethane			
Chloroethane ND 1.0 ug/L Methylene chloride ND 2.0 ug/L Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,2-Dichloroptide ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,1,2-Trichloropropene ND 1.0				
Methylene chloride ND 2.0 ug/L Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L Carbon tetrachloropropene ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L 1,1,2-Trichloroethane ND	_	ND	1.0	
Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L (total) ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L Larns-1,3-Dichloropropene ND	Methylene chloride	ND	2.0	_
Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform	-			
1,1-Dichloroethane ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethene (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L Chloroform ND 1.0 ug/L 2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10	Carbon disulfide	ND	1.0	
1,1-Dichloroethane	1,1-Dichloroethene			-
1,2-Dichloroethene (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND	•			
Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND <td></td> <td></td> <td></td> <td>-</td>				-
Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethane ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 01,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Emzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L Trachloroethane ND 1.0 ug/L Trachloroethane ND 1.0 ug/L Trans-1,3-Dichloropropene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L	•			3/
1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethane ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Tetrachloroethane ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Cherobenzene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L		ND	1.0	ua/L
2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L	1,2-Dichloroethane			
1,1,1-TrichloroethaneND1.0ug/LCarbon tetrachlorideND1.0ug/LBromodichloromethaneND1.0ug/L1,2-DichloropropaneND1.0ug/Lcis-1,3-DichloropropeneND1.0ug/LTrichloroetheneND1.0ug/LDibromochloromethaneND1.0ug/L1,1,2-TrichloroethaneND1.0ug/LBenzeneND1.0ug/Ltrans-1,3-DichloropropeneND1.0ug/LBromoformND1.0ug/L4-Methyl-2-pentanoneND10ug/L2-HexanoneND1.0ug/LTetrachloroetheneND1.0ug/L1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L				
Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L Erans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L Bromoform ND 1.0 ug/L Bromoform ND 1.0 ug/L C-Hexanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L C-Hexanone ND 10 ug/L C-Hexanone ND 1.0 ug/L	1,1,1-Trichloroethane	ND		<u> </u>
Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L Bromoform ND 1.0 ug/L T-trichloroethane ND 1.0 ug/L C-Hexanone ND 1.0 ug/L C-Hexanone ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L				_
1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L	Bromodichloromethane	ND		_
cis-1,3-DichloropropeneND1.0ug/LTrichloroetheneND1.0ug/LDibromochloromethaneND1.0ug/L1,1,2-TrichloroethaneND1.0ug/LBenzeneND1.0ug/Ltrans-1,3-DichloropropeneND1.0ug/LBromoformND1.0ug/L4-Methyl-2-pentanoneND10ug/L2-HexanoneND10ug/LTetrachloroetheneND1.0ug/L1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L	1,2-Dichloropropane			
Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L			1.0	_
Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
1,1,2-TrichloroethaneND1.0ug/LBenzeneND1.0ug/Ltrans-1,3-DichloropropeneND1.0ug/LBromoformND1.0ug/L4-Methyl-2-pentanoneND10ug/L2-HexanoneND10ug/LTetrachloroetheneND1.0ug/L1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L	Dibromochloromethane			-
Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L	1,1,2-Trichloroethane			
trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L 1.0 ug/L 1.1,2,2-Tetrachloroethane ND 1.0 ug/L 1.0 ug/L 1.0 ug/L				
4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				_
Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L				-
Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
Chlorobenzene ND 1.0 ug/L				-
TICHY + A/CHACHC	Ethylbenzene	ND	1.0	ug/L

(Continued on next page)

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Volatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AA Matrix.....: WG

		REPORTING	
PARAMETER	RESULT	LIMIT UNITS	3
Styrene	ND	1.0 ug/L	
Xylenes (total)	ND	2.0 ug/L	
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	<u>LIMITS</u>	
Dibromofluoromethane	78	(50 - 150)	
1,2-Dichloroethane-d4	76	(50 - 150)	
Toluene-d8	78	(50 - 150)	
4-Bromofluorobenzene	80	(50 - 150)	

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Volatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AA Matrix.....: WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11
Prep Date.....: 04/19/11 Analysis Date..: 04/19/11

Prep Batch #...: 1109091

Method.....: SW846 8260B

PARAMETER RESULT LIMIT UNITS Bromochloromethane ND 1.0 ug/L 1,2-Dichromoethane ND 1.0 ug/L cis-1,2-Dichloroethene ND 1.0 ug/L crans-1,2-Dichloroethene ND 1.0 ug/L crylene ND 1.0 ug/L m-Xylene & p-Xylene ND 1.0 ug/L Encommethane ND 1.0 ug/L Encommethane ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Chlorocthane ND 1.0 ug/L Methylene chloride ND 1.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.			REPORTIN	JG
Bromochloromethane	PARAMETER	RESULT		
1,2-Dibromoethane ND 1.0 ug/L cis-1,2-Dichloroethene ND 1.0 ug/L trans-1,2-Dichloroethene ND 1.0 ug/L o-Xylene ND 1.0 ug/L m-Xylene & p-Xylene ND 1.0 ug/L Chloromethane ND 1.0 ug/L Bromomethane ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 1.0 ug/L Acetone ND 1.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethane ND 1.0				
cis-1,2-Dichloroethene ND 1.0 ug/L crans-1,2-Dichloroethene ND 1.0 ug/L o-Xylene ND 1.0 ug/L m-Xylene & p-Xylene ND 2.0 ug/L Chloromethane ND 1.0 ug/L Bromomethane ND 1.0 ug/L Winyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Chloroethane ND 1.0 ug/L Acetone ND 1.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1-Trichloroethane ND 1.0 <				
trans-1,2-Dichloroethene ND 1.0 ug/L o-Xylene ND 1.0 ug/L m-Xylene & p-Xylene ND 2.0 ug/L Chloromethane ND 1.0 ug/L Bromomethane ND 1.0 ug/L World chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 1.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Dichloropropane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0				_
o-Xylene ND 1.0 ug/L m-Xylene & p-Xylene ND 2.0 ug/L Chloromethane ND 1.0 ug/L Bromomethane ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 2.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1-Trichloroethane ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropene ND 1.0				
m-Xylene & p-Xylene ND 2.0 ug/L Chloromethane ND 1.0 ug/L Bromomethane ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 1.0 ug/L Acetone ND 1.0 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Bromodichloromethane ND 1.0 ug/L Bromodichloropropene ND 1.0 ug/L Trichloropropene ND				
Chloromethane ND 1.0 ug/L Bromomethane ND 1.0 ug/L Vinyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 2.0 ug/L Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Pichloroethane ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L <td>-</td> <td></td> <td></td> <td></td>	-			
Bromomethane				
Vinyl chloride ND 1.0 ug/L Chloroethane ND 1.0 ug/L Methylene chloride ND 2.0 ug/L Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 2-Putanohoromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 <	Bromomethane			
Chloroethane ND 1.0 ug/L Methylene chloride ND 2.0 ug/L Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,2-Dichloroptide ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,1,2-Trichloropropene ND 1.0				
Methylene chloride ND 2.0 ug/L Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L Carbon tetrachloropropene ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L 1,1,2-Trichloroethane ND	_	ND	1.0	
Acetone ND 10 ug/L Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L (total) ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L Larns-1,3-Dichloropropene ND	Methylene chloride	ND	2.0	_
Carbon disulfide ND 1.0 ug/L 1,1-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L 1,2-Dichloroethene ND 1.0 ug/L (total) ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform	-			
1,1-Dichloroethane ND 1.0 ug/L 1,1-Dichloroethane ND 1.0 ug/L 1,2-Dichloroethene (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L Chloroform ND 1.0 ug/L 2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10	Carbon disulfide	ND	1.0	
1,1-Dichloroethane	1,1-Dichloroethene			-
1,2-Dichloroethene (total) ND 1.0 ug/L Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 1.0 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND	•			
Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND <td></td> <td></td> <td></td> <td>-</td>				-
Chloroform ND 1.0 ug/L 1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethane ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 01,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Emzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L Trachloroethane ND 1.0 ug/L Trachloroethane ND 1.0 ug/L Trans-1,3-Dichloropropene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L	•			3/
1,2-Dichloroethane ND 1.0 ug/L 2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethane ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Tetrachloroethane ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Cherobenzene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L		ND	1.0	ua/L
2-Butanone ND 10 ug/L 1,1,1-Trichloroethane ND 1.0 ug/L Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L	1,2-Dichloroethane			
1,1,1-TrichloroethaneND1.0ug/LCarbon tetrachlorideND1.0ug/LBromodichloromethaneND1.0ug/L1,2-DichloropropaneND1.0ug/Lcis-1,3-DichloropropeneND1.0ug/LTrichloroetheneND1.0ug/LDibromochloromethaneND1.0ug/L1,1,2-TrichloroethaneND1.0ug/LBenzeneND1.0ug/Ltrans-1,3-DichloropropeneND1.0ug/LBromoformND1.0ug/L4-Methyl-2-pentanoneND10ug/L2-HexanoneND1.0ug/LTetrachloroetheneND1.0ug/L1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L				
Carbon tetrachloride ND 1.0 ug/L Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L Erans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L Bromoform ND 1.0 ug/L Bromoform ND 1.0 ug/L C-Hexanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L C-Hexanone ND 10 ug/L C-Hexanone ND 1.0 ug/L	1,1,1-Trichloroethane	ND		<u> </u>
Bromodichloromethane ND 1.0 ug/L 1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L Bromoform ND 1.0 ug/L T-trichloroethane ND 1.0 ug/L C-Hexanone ND 1.0 ug/L C-Hexanone ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L				_
1,2-Dichloropropane ND 1.0 ug/L cis-1,3-Dichloropropene ND 1.0 ug/L Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 1.0 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L	Bromodichloromethane	ND		_
cis-1,3-DichloropropeneND1.0ug/LTrichloroetheneND1.0ug/LDibromochloromethaneND1.0ug/L1,1,2-TrichloroethaneND1.0ug/LBenzeneND1.0ug/Ltrans-1,3-DichloropropeneND1.0ug/LBromoformND1.0ug/L4-Methyl-2-pentanoneND10ug/L2-HexanoneND10ug/LTetrachloroetheneND1.0ug/L1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L	1,2-Dichloropropane			
Trichloroethene ND 1.0 ug/L Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L			1.0	_
Dibromochloromethane ND 1.0 ug/L 1,1,2-Trichloroethane ND 1.0 ug/L Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
1,1,2-TrichloroethaneND1.0ug/LBenzeneND1.0ug/Ltrans-1,3-DichloropropeneND1.0ug/LBromoformND1.0ug/L4-Methyl-2-pentanoneND10ug/L2-HexanoneND10ug/LTetrachloroetheneND1.0ug/L1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L	Dibromochloromethane			-
Benzene ND 1.0 ug/L trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L	1,1,2-Trichloroethane			
trans-1,3-Dichloropropene ND 1.0 ug/L Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
Bromoform ND 1.0 ug/L 4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L 1.0 ug/L 1.1,2,2-Tetrachloroethane ND 1.0 ug/L 1.0 ug/L 1.0 ug/L				
4-Methyl-2-pentanone ND 10 ug/L 2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
2-Hexanone ND 10 ug/L Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				_
Tetrachloroethene ND 1.0 ug/L 1,1,2,2-Tetrachloroethane ND 1.0 ug/L Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
1,1,2,2-TetrachloroethaneND1.0ug/LTolueneND1.0ug/LChlorobenzeneND1.0ug/L				-
Toluene ND 1.0 ug/L Chlorobenzene ND 1.0 ug/L				
Chlorobenzene ND 1.0 ug/L				-
TICHY + A/CHACHC	Ethylbenzene	ND	1.0	ug/L

(Continued on next page)

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Volatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AA Matrix.....: WG

		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	2.0	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	_
Dibromofluoromethane	78	(50 - 150))
1,2-Dichloroethane-d4	79	(50 - 150))
Toluene-d8	79	(50 - 150))
4-Bromofluorobenzene	80	(50 - 150))

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MG6XC1AA Matrix.....: WATER

MB Lot-Sample #: A1D190000-091

Prep Date.....: 04/19/11 Final Wgt/Vol..: 5 mL

Analysis Date..: 04/19/11 Prep Batch #...: 1109091 Dilution Factor: 1 Initial Wgt/Vol: 5 mL

REPORTING

		KEPOKITI	NG	
PARAMETER	RESULT	LIMIT	UNITS	METHOD
Bromochloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	2.0	ug/L	SW846 8260B
Chloromethane	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	1.0	ug/L	SW846 8260B
Methylene chloride	0.86 J	2.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
(total)				
Chloroform	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	2.0	ug/L	SW846 8260B

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #: AlD080416	Work Order #	.: MG6XC1AA	Matrix WATER
PARAMETER	RESULT	REPORTING LIMIT UNITS	METHOD
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	<u>LIMITS</u>	
Dibromofluoromethane	77	(50 - 150)	
1,2-Dichloroethane-d4	76	(50 - 150)	
Toluene-d8	78	(50 - 150)	
4-Bromofluorobenzene	78	(50 - 150)	
NOTE(S):			

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MG6XC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-091

Prep Batch #...: 1109091

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 5 mL

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
cis-1,2-Dichloroethene	101	(73 - 133)	SW846 8260B
trans-1,2-Dichloroethene	103	(75 - 134)	SW846 8260B
1,2-Dibromoethane	105	(75 - 127)	SW846 8260B
Bromochloromethane	104	(75 - 127)	SW846 8260B
m-Xylene & p-Xylene	102	(75 - 122)	SW846 8260B
o-Xylene	104	(75 - 118)	SW846 8260B
Chloromethane	108	(58 - 135)	SW846 8260B
Bromomethane	89	(35 - 153)	SW846 8260B
Vinyl chloride	97	(73 - 134)	SW846 8260B
Chloroethane	96	(72 - 129)	SW846 8260B
Methylene chloride	121 a	(69 - 118)	SW846 8260B
Acetone	93	(51 - 157)	SW846 8260B
Carbon disulfide	130 a	(74 - 123)	SW846 8260B
1,1-Dichloroethene	111	(75 - 125)	SW846 8260B
1,1-Dichloroethane	102	(75 - 133)	SW846 8260B
1,2-Dichloroethene	102	(85 - 111)	SW846 8260B
(total)			
Chloroform	102	(74 - 127)	SW846 8260B
1,2-Dichloroethane	102	(67 - 132)	SW846 8260B
2-Butanone	105	(45 - 150)	SW846 8260B
1,1,1-Trichloroethane	100	(70 - 127)	SW846 8260B
Carbon tetrachloride	103	(71 - 132)	SW846 8260B
Bromodichloromethane	105	(70 - 130)	SW846 8260B
1,2-Dichloropropane	104	(75 - 127)	SW846 8260B
cis-1,3-Dichloropropene	105	(73 - 132)	SW846 8260B
Trichloroethene	100	(67 - 128)	SW846 8260B
Dibromochloromethane	103	(74 - 145)	SW846 8260B
1,1,2-Trichloroethane	104	(75 - 136)	SW846 8260B
Benzene	102	(75 - 126)	SW846 8260B
trans-1,3-Dichloropropene	115	(74 - 131)	SW846 8260B
Bromoform	101	(72 - 136)	SW846 8260B
4-Methyl-2-pentanone	109	(59 - 150)	SW846 8260B
2-Hexanone	113	(53 - 139)	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MG6XC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-091

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
Tetrachloroethene	93	(75 - 129)	SW846 8260B
1,1,2,2-Tetrachloroethane	98	(68 - 129)	SW846 8260B
Toluene	100	(75 - 125)	SW846 8260B
Chlorobenzene	99	(75 - 127)	SW846 8260B
Ethylbenzene	104	(75 - 120)	SW846 8260B
Styrene	107	(75 - 130)	SW846 8260B
Xylenes (total)	103	(90 - 114)	SW846 8260B
n-Hexane	84	(69 - 129)	SW846 8260B
1,2-Dibromo-3-chloro-	75	(75 - 132)	SW846 8260B
propane			
1,2-Dichlorobenzene	102	(73 - 120)	SW846 8260B
1,3-Dichlorobenzene	97	(75 - 122)	SW846 8260B
1,4-Dichlorobenzene	96	(74 - 123)	SW846 8260B
Dichlorodifluoromethane	58 a	(59 - 134)	SW846 8260B
Freon 113	99	(50 - 150)	SW846 8260B
Isopropylbenzene	100	(75 - 126)	SW846 8260B
Methyl acetate	101	(60 - 140)	SW846 8260B
Methylcyclohexane	84	(60 - 140)	SW846 8260B
Methyl tert-butyl ether	102	(59 - 129)	SW846 8260B
(MTBE)			
1,2,4-Trichloro-	63 a	(75 - 130)	SW846 8260B
benzene			
Trichlorofluoromethane	117	(68 - 133)	SW846 8260B
Acrolein	123	(50 - 150)	SW846 8260B
Acrylonitrile	111	(50 - 150)	SW846 8260B
n-Butylbenzene	91	(75 - 126)	SW846 8260B
sec-Butylbenzene	89	(75 - 125)	SW846 8260B
tert-Butylbenzene	86	(75 - 125)	SW846 8260B
2-Chlorotoluene	90	(75 - 121)	SW846 8260B
4-Chlorotoluene	93	(73 - 127)	SW846 8260B
Dibromomethane	106	(76 - 132)	SW846 8260B
1,3-Dichloropropane	102	(75 - 133)	SW846 8260B
2,2-Dichloropropane	102	(62 - 134)	SW846 8260B
1,1-Dichloropropene	98	(75 - 135)	SW846 8260B
Hexachlorobutadiene	60 a	(75 - 133)	SW846 8260B
Iodomethane	132	(50 - 150)	SW846 8260B
p-Isopropyltoluene	95	(75 - 125)	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MG6XC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-091

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
Naphthalene	63 a	(65 - 149)	SW846 8260B
n-Propylbenzene	91	(75 - 127)	SW846 8260B
1,1,1,2-Tetrachloroethane	102	(75 - 127)	SW846 8260B
1,2,3-Trichlorobenzene	61 a	(75 - 133)	SW846 8260B
1,2,3-Trichloropropane	94	(65 - 139)	SW846 8260B
1,1,2-Trichloro-	99	(50 - 150)	SW846 8260B
1,2,2-trifluoroethane			
1,2,4-Trimethylbenzene	96	(75 - 123)	SW846 8260B
1,3,5-Trimethylbenzene	93	(75 - 121)	SW846 8260B
Vinyl acetate	125	(30 - 150)	SW846 8260B
Bromobenzene	88	(74 - 123)	SW846 8260B
		PERCENT	RECOVERY
SURROGATE		RECOVERY	LIMITS
Dibromofluoromethane		79	(50 - 150)
1,2-Dichloroethane-d4		79	(50 - 150)
Toluene-d8		80	(50 - 150)
4-Bromofluorobenzene		94	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MG6XC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-091

Prep Batch #...: 1109091

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 5 mL

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
cis-1,2-Dichloroethene	10	10	ug/L	101	SW846 8260B
trans-1,2-Dichloroethene	10	10	ug/L	103	SW846 8260B
1,2-Dibromoethane	10	11	ug/L	105	SW846 8260B
Bromochloromethane	10	10	ug/L	104	SW846 8260B
m-Xylene & p-Xylene	20	20	ug/L	102	SW846 8260B
o-Xylene	10	10	ug/L	104	SW846 8260B
Chloromethane	10	11	ug/L	108	SW846 8260B
Bromomethane	10	8.9	ug/L	89	SW846 8260B
Vinyl chloride	10	9.7	ug/L	97	SW846 8260B
Chloroethane	10	9.6	ug/L	96	SW846 8260B
Methylene chloride	10	12 a	ug/L	121	SW846 8260B
Acetone	20	19	ug/L	93	SW846 8260B
Carbon disulfide	10	13 a	ug/L	130	SW846 8260B
1,1-Dichloroethene	10	11	ug/L	111	SW846 8260B
1,1-Dichloroethane	10	10	ug/L	102	SW846 8260B
1,2-Dichloroethene	20	20	ug/L	102	SW846 8260B
(total)					
Chloroform	10	10	ug/L	102	SW846 8260B
1,2-Dichloroethane	10	10	ug/L	102	SW846 8260B
2-Butanone	20	21	ug/L	105	SW846 8260B
1,1,1-Trichloroethane	10	10	ug/L	100	SW846 8260B
Carbon tetrachloride	10	10	ug/L	103	SW846 8260B
Bromodichloromethane	10	11	ug/L	105	SW846 8260B
1,2-Dichloropropane	10	10	ug/L	104	SW846 8260B
cis-1,3-Dichloropropene	10	10	ug/L	105	SW846 8260B
Trichloroethene	10	10	ug/L	100	SW846 8260B
Dibromochloromethane	10	10	ug/L	103	SW846 8260B
1,1,2-Trichloroethane	10	10	ug/L	104	SW846 8260B
Benzene	10	10	ug/L	102	SW846 8260B
trans-1,3-Dichloropropene	10	11	ug/L	115	SW846 8260B
Bromoform	10	10	ug/L	101	SW846 8260B
4-Methyl-2-pentanone	20	22	ug/L	109	SW846 8260B
2-Hexanone	20	23	ug/L	113	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MG6XC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-091

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
Tetrachloroethene	10	9.3	ug/L	93	SW846 8260B
1,1,2,2-Tetrachloroethane	10	9.8	ug/L	98	SW846 8260B
Toluene	10	10	ug/L	100	SW846 8260B
Chlorobenzene	10	9.9	ug/L	99	SW846 8260B
Ethylbenzene	10	10	ug/L	104	SW846 8260B
Styrene	10	11	ug/L	107	SW846 8260B
Xylenes (total)	30	31	ug/L	103	SW846 8260B
n-Hexane	10	8.4	ug/L	84	SW846 8260B
1,2-Dibromo-3-chloro-	10	7.5	ug/L	75	SW846 8260B
propane					
1,2-Dichlorobenzene	10	10	ug/L	102	SW846 8260B
1,3-Dichlorobenzene	10	9.7	ug/L	97	SW846 8260B
1,4-Dichlorobenzene	10	9.6	ug/L	96	SW846 8260B
Dichlorodifluoromethane	10	5.8 a	ug/L	58	SW846 8260B
Freon 113	10	9.9	ug/L	99	SW846 8260B
Isopropylbenzene	10	10	ug/L	100	SW846 8260B
Methyl acetate	10	10	ug/L	101	SW846 8260B
Methylcyclohexane	10	8.4	ug/L	84	SW846 8260B
Methyl tert-butyl ether	10	10	ug/L	102	SW846 8260B
(MTBE)					
1,2,4-Trichloro-	10	6.3 a	ug/L	63	SW846 8260B
benzene					
Trichlorofluoromethane	10	12	ug/L	117	SW846 8260B
Acrolein	30	37	ug/L	123	SW846 8260B
Acrylonitrile	30	33	ug/L	111	SW846 8260B
n-Butylbenzene	10	9.1	ug/L	91	SW846 8260B
sec-Butylbenzene	10	8.9	ug/L	89	SW846 8260B
tert-Butylbenzene	10	8.6	ug/L	86	SW846 8260B
2-Chlorotoluene	10	9.0	ug/L	90	SW846 8260B
4-Chlorotoluene	10	9.3	ug/L	93	SW846 8260B
Dibromomethane	10	11	ug/L	106	SW846 8260B
1,3-Dichloropropane	10	10	ug/L	102	SW846 8260B
2,2-Dichloropropane	10	10	ug/L	102	SW846 8260B
1,1-Dichloropropene	10	9.8	ug/L	98	SW846 8260B
Hexachlorobutadiene	10	6.0 a	ug/L	60	SW846 8260B
Iodomethane	10	13	ug/L	132	SW846 8260B
p-Isopropyltoluene	10	9.5	ug/L	95	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MG6XC1AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-091

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
Naphthalene	10	6.3 a	ug/L	63	SW846 8260B
n-Propylbenzene	10	9.1	ug/L	91	SW846 8260B
1,1,1,2-Tetrachloroethane	10	10	ug/L	102	SW846 8260B
1,2,3-Trichlorobenzene	10	6.1 a	ug/L	61	SW846 8260B
1,2,3-Trichloropropane	10	9.4	ug/L	94	SW846 8260B
1,1,2-Trichloro-	10	9.9	ug/L	99	SW846 8260B
1,2,2-trifluoroethane					
1,2,4-Trimethylbenzene	10	9.6	ug/L	96	SW846 8260B
1,3,5-Trimethylbenzene	10	9.3	ug/L	93	SW846 8260B
Vinyl acetate	10	13	ug/L	125	SW846 8260B
Bromobenzene	10	8.8	ug/L	88	SW846 8260B
G		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS	_	
Dibromofluoromethane		79	(50 - 150)		
1,2-Dichloroethane-d4		79	(50 - 150)	
Toluene-d8		80	(50 - 150)	
4-Bromofluorobenzene		94	(50 - 150)	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11
Prep Date.....: 04/19/11 Analysis Date..: 04/19/11

Prep Batch #...: 1109091

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
cis-1,2-Dichloroethene	99	(70 - 130)			SW846 8260B
	99	(70 - 130)	0.19	(0-30)	SW846 8260B
trans-1,2-Dichloroethene	100	(70 - 130)			SW846 8260B
	100	(70 - 130)	0.09	(0-30)	SW846 8260B
1,2-Dibromoethane	98	(70 - 130)			SW846 8260B
	99	(70 - 130)	1.2	(0-30)	SW846 8260B
Bromochloromethane	99	(70 - 130)			SW846 8260B
	101	(70 - 130)	1.8	(0-30)	SW846 8260B
m-Xylene & p-Xylene	98	(70 - 130)			SW846 8260B
	100	(70 - 130)	2.5	(0-30)	SW846 8260B
o-Xylene	100	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.76	(0-30)	SW846 8260B
Chloromethane	102	(70 - 130)			SW846 8260B
	94	(70 - 130)	8.2	(0-30)	SW846 8260B
Bromomethane	95	(70 - 130)			SW846 8260B
	98	(70 - 130)	3.4	(0-30)	SW846 8260B
Vinyl chloride	101	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.73	(0-30)	SW846 8260B
Chloroethane	103	(70 - 130)			SW846 8260B
	100	(70 - 130)	2.6	(0-30)	SW846 8260B
Methylene chloride	106	(70 - 130)			SW846 8260B
	111	(70 - 130)	4.3	(0-30)	SW846 8260B
Acetone	97	(70 - 130)			SW846 8260B
	96	(70 - 130)	1.5	(0-30)	SW846 8260B
Carbon disulfide	132 a	(70 - 130)			SW846 8260B
	133 a	(70 - 130)	1.2	(0-30)	SW846 8260B
1,1-Dichloroethene	111	(70 - 130)			SW846 8260B
	115	(70 - 130)	2.9	(0-30)	SW846 8260B
1,1-Dichloroethane	97	(70 - 130)			SW846 8260B
	100	(70 - 130)	2.2	(0-30)	SW846 8260B
<pre>1,2-Dichloroethene (total)</pre>	100	(70 - 130)			SW846 8260B
	100	(70 - 130)	0.05	(0-30)	SW846 8260B
Chloroform	99	(70 - 130)			SW846 8260B
	99	(70 - 130)	0.25	(0-30)	SW846 8260B
1,2-Dichloroethane	97	(70 - 130)	-	· · ·	SW846 8260B
	99	(70 - 130)	1.6	(0-30)	SW846 8260B
2-Butanone	106	(70 - 130)	-	· · ·	SW846 8260B
	105	(70 - 130)	0.69	(0-30)	SW846 8260B
		=		=	

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GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

_					
	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	<u>RPD</u>	LIMITS	METHOD
1,1,1-Trichloroethane	101	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.31	(0-30)	SW846 8260B
Carbon tetrachloride	101	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.02	(0-30)	SW846 8260B
Bromodichloromethane	101	(70 - 130)			SW846 8260B
	100	(70 - 130)	0.52	(0-30)	SW846 8260B
1,2-Dichloropropane	102	(70 - 130)			SW846 8260B
	101	(70 - 130)	0.83	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	99	(70 - 130)			SW846 8260B
	98	(70 - 130)	1.6	(0-30)	SW846 8260B
Trichloroethene	98	(70 - 130)			SW846 8260B
	98	(70 - 130)	0.75	(0-30)	SW846 8260B
Dibromochloromethane	99	(70 - 130)			SW846 8260B
	100	(70 - 130)	1.1	(0-30)	SW846 8260B
1,1,2-Trichloroethane	100	(70 - 130)			SW846 8260B
	100	(70 - 130)	0.12	(0-30)	SW846 8260B
Benzene	99	(70 - 130)			SW846 8260B
	101	(70 - 130)	1.6	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	109	(70 - 130)			SW846 8260B
	112	(70 - 130)	2.5	(0-30)	SW846 8260B
Bromoform	97	(70 - 130)			SW846 8260B
	96	(70 - 130)	0.62	(0-30)	SW846 8260B
4-Methyl-2-pentanone	111	(70 - 130)			SW846 8260B
	113	(70 - 130)	2.0	(0-30)	SW846 8260B
2-Hexanone	115	(70 - 130)			SW846 8260B
	112	(70 - 130)	3.0	(0-30)	SW846 8260B
Tetrachloroethene	93	(70 - 130)			SW846 8260B
	93	(70 - 130)	0.37	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane		(70 - 130)			SW846 8260B
	97	(70 - 130)	3.8	(0-30)	SW846 8260B
Toluene	96	(70 - 130)		,	SW846 8260B
	97	(70 - 130)	1.1	(0-30)	SW846 8260B
Chlorobenzene	95	(70 - 130)		(= == ,	SW846 8260B
	95	(70 - 130)	0.31	(0-30)	SW846 8260B
Ethylbenzene	99	(70 - 130)		(= == ,	SW846 8260B
7	100	(70 - 130)	1.7	(0-30)	SW846 8260B
Styrene	103	(70 - 130)		(5 50)	SW846 8260B
	105	(70 - 130)	1.6	(0-30)	SW846 8260B
Xylenes (total)	98	(70 - 130)		(5 50)	SW846 8260B
	100	(70 - 130)	1.9	(0-30)	SW846 8260B
n-Hexane	86	(70 - 130)	1.7	(0 50)	SW846 8260B
II IICAUIC	86	(70 - 130)	0.63	(0-30)	SW846 8260B
	00	(10 130)	0.03	(0 30)	DMOTO OZOOD

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GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY_	LIMITS	RPD_	LIMITS	METHOD
PARAMETER	KECOVEKI_	TIMII 12	<u>KPD</u>	ПТИТТО	METHOD
Cyclohexane	96	(70 - 130)			SW846 8260B
2	97	(70 - 130)	1.4	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro-	71	(70 - 130)		() ()	SW846 8260B
propane		,			
F = 0F 4331	74	(70 - 130)	3.5	(0-30)	SW846 8260B
		,		, ,	
1,2-Dichlorobenzene	97	(70 - 130)			SW846 8260B
	99	(70 - 130)	1.4	(0-30)	SW846 8260B
1,3-Dichlorobenzene	93	(70 - 130)			SW846 8260B
	93	(70 - 130)	0.54	(0-30)	SW846 8260B
1,4-Dichlorobenzene	92	(70 - 130)			SW846 8260B
•	95	(70 - 130)	2.9	(0-30)	SW846 8260B
Dichlorodifluoromethane	57 a	(70 - 130)		(SW846 8260B
	56 a	(70 - 130)	2.6	(0-30)	SW846 8260B
Freon 113	105	(70 - 130)		(SW846 8260B
	108	(70 - 130)	3.2	(0-30)	SW846 8260B
Isopropylbenzene	97	(70 - 130)		(SW846 8260B
-2 of - of 1 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	99	(70 - 130)	1.4	(0-30)	SW846 8260B
Methyl acetate	96	(70 - 130)		() ()	SW846 8260B
	94	(70 - 130)	1.6	(0-30)	SW846 8260B
Methylcyclohexane	89	(70 - 130)		() ()	SW846 8260B
	91	(70 - 130)	2.2	(0-30)	SW846 8260B
Methyl tert-butyl ether	98	(70 - 130)		() ()	SW846 8260B
(MTBE)		,			
,	100	(70 - 130)	2.8	(0-30)	SW846 8260B
		,			
1,2,4-Trichloro-	53 a	(70 - 130)			SW846 8260B
benzene					
	56 a	(70 - 130)	4.7	(0-30)	SW846 8260B
Trichlorofluoromethane	125	(70 - 130)			SW846 8260B
	123	(70 - 130)	2.0	(0-30)	SW846 8260B
Acrolein	127	(70 - 130)			SW846 8260B
	124	(70 - 130)	2.9	(0-30)	SW846 8260B
Acrylonitrile	104	(70 - 130)			SW846 8260B
_	106	(70 - 130)	1.6	(0-30)	SW846 8260B
Bromobenzene	81	(70 - 130)		-	SW846 8260B
	86	(70 - 130)	5.8	(0-30)	SW846 8260B
n-Butylbenzene	91	(70 - 130)		-	SW846 8260B
-	92	(70 - 130)	1.4	(0-30)	SW846 8260B
sec-Butylbenzene	85	(70 - 130)		-	SW846 8260B
-	85	(70 - 130)	0.10	(0-30)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
tert-Butylbenzene	83	(70 - 130)			SW846 8260B
	85	(70 - 130)	2.4	(0-30)	SW846 8260B
2-Chlorotoluene	85	(70 - 130)			SW846 8260B
	89	(70 - 130)	4.7	(0-30)	SW846 8260B
4-Chlorotoluene	87	(70 - 130)			SW846 8260B
	88	(70 - 130)	0.94	(0-30)	SW846 8260B
Dibromomethane	103	(70 - 130)			SW846 8260B
	106	(70 - 130)	2.4	(0-30)	SW846 8260B
trans-1,4-Dichloro-	199 a	(70 - 130)			SW846 8260B
2-butene					
	197 a	(70 - 130)	1.1	(0-30)	SW846 8260B
1,3-Dichloropropane	99	(70 - 130)			SW846 8260B
	101	(70 - 130)	1.4	(0-30)	SW846 8260B
2,2-Dichloropropane	104	(70 - 130)			SW846 8260B
	103	(70 - 130)	0.53	(0-30)	SW846 8260B
1,1-Dichloropropene	98	(70 - 130)			SW846 8260B
	99	(70 - 130)	0.75	(0-30)	SW846 8260B
Ethyl methacrylate	0.0 a	(70 - 130)			SW846 8260B
	0.0 a	(70 - 130)	0.0	(0-30)	SW846 8260B
Hexachlorobutadiene	48 a	(70 - 130)			SW846 8260B
	50 a	(70 - 130)	4.1	(0-30)	SW846 8260B
Iodomethane	134 a	(70 - 130)			SW846 8260B
	140 a	(70 - 130)	4.8	(0-30)	SW846 8260B
p-Isopropyltoluene	93	(70 - 130)			SW846 8260B
	93	(70 - 130)	0.39	(0-30)	SW846 8260B
Naphthalene	53 a	(70 - 130)			SW846 8260B
-	59 a	(70 - 130)	9.2	(0-30)	SW846 8260B
n-Propylbenzene	88	(70 - 130)			SW846 8260B
	89	(70 - 130)	1.2	(0-30)	SW846 8260B
1,1,1,2-Tetrachloroethane		(70 - 130)			SW846 8260B
. , ,	101	(70 - 130)	1.5	(0-30)	SW846 8260B
1,2,3-Trichlorobenzene	49 a	(70 - 130)		,	SW846 8260B
, , ,	52 a	(70 - 130)	6.3	(0-30)	SW846 8260B
1,2,3-Trichloropropane	92	(70 - 130)		(0 0 0 7	SW846 8260B
,,	97	(70 - 130)	4.6	(0-30)	SW846 8260B
1,1,2-Trichloro-	105	(70 - 130)		(0 00)	SW846 8260B
1,2,2-trifluoroethane					
,,_	108	(70 - 130)	3.2	(0-30)	SW846 8260B
			-	(= 30)	
1,2,4-Trimethylbenzene	91	(70 - 130)			SW846 8260B
. ,	94	(70 - 130)	2.5	(0-30)	SW846 8260B
	- -	(150)		(0 50)	

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOI)
1,3,5-Trimethylbenzene Vinyl acetate	87 88 128 135 a	(70 - 130) (70 - 130) (70 - 130) (70 - 130)	1.2 5.1	(0-30) (0-30)	SW846 SW846	8260B 8260B 8260B 8260B
tert-Butyl alcohol	105 107	(70 - 130) (70 - 130)	1.8	(0-30)	SW846	8260B 8260B
		PERCENT		RECOVERY		
SURROGATE	_	RECOVERY		LIMITS	_	
Dibromofluoromethane		79		(50 - 150)	
		77		(50 - 150)	
1,2-Dichloroethane-d4		72		(50 - 150)	
		73		(50 - 150)	
Toluene-d8		80		(50 - 150)	
		78		(50 - 150	•	
4-Bromofluorobenzene		94		(50 - 150)	
		94		(50 - 150)	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11
Prep Date.....: 04/19/11 Analysis Date..: 04/19/11

Prep Batch #...: 1109091

	CAMPIE	an tur	METOR		DED CHE			
DADAMEMED	SAMPLE	SPIKE	MEASRD	INITEG	PERCNT	DDD	MEMITO	
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD_		
cis-1,2-Dichloroethene	ND	10	9.9	ug/L	99	0 10		8260B
1 2 Dishlassakhana	ND	10	9.9	ug/L	99	0.19	SW846	
trans-1,2-Dichloroethene	ND	10	10	ug/L	100	0 00		8260B
1.0 %	ND	10	10	ug/L	100	0.09	SW846	
1,2-Dibromoethane	ND	10	9.8	ug/L	98	1 0		8260B
D 1-1	ND	10	9.9	ug/L	99	1.2		8260B
Bromochloromethane	ND	10	9.9	ug/L	99	1 0		8260B
1 1	ND	10	10	ug/L	101	1.8		8260B
m-Xylene & p-Xylene	ND	20	20	ug/L	98			8260B
_	ND	20	20	ug/L	100	2.5		8260B
o-Xylene	ND	10	10	ug/L	100			8260B
	ND	10	10	ug/L	101	0.76	SW846	
Chloromethane	ND	10	10	ug/L	102			8260B
	ND	10	9.4	ug/L	94	8.2		8260B
Bromomethane	ND	10	9.5	ug/L	95			8260B
	ND	10	9.8	ug/L	98	3.4		8260B
Vinyl chloride	ND	10	10	ug/L	101		SW846	8260B
	ND	10	10	ug/L	101	0.73	SW846	8260B
Chloroethane	ND	10	10	ug/L	103		SW846	8260B
	ND	10	10	ug/L	100	2.6	SW846	8260B
Methylene chloride	0.41	10	11	ug/L	106		SW846	8260B
	0.41	10	11	ug/L	111	4.3	SW846	8260B
Acetone	ND	20	19	ug/L	97		SW846	8260B
	ND	20	19	ug/L	96	1.5	SW846	8260B
Carbon disulfide	ND	10	13	ug/L	132 a		SW846	8260B
	ND	10	13	ug/L	133 a	1.2	SW846	8260B
1,1-Dichloroethene	ND	10	11	ug/L	111		SW846	8260B
	ND	10	11	ug/L	115	2.9	SW846	8260B
1,1-Dichloroethane	ND	10	9.7	ug/L	97		SW846	8260B
	ND	10	10	ug/L	100	2.2	SW846	8260B
1,2-Dichloroethene	ND	20	20	ug/L	100		SW846	8260B
(total)								
	ND	20	20	ug/L	100	0.05	SW846	8260B
Chloroform	ND	10	9.9	ug/L	99		SW846	8260B
	ND	10	9.9	ug/L	99	0.25	SW846	
1,2-Dichloroethane	ND	10	9.7	ug/L	97			8260B
	ND	10	9.9	ug/L	99	1.6	SW846	8260B
2-Butanone	ND	20	21	ug/L	106			8260B
	ND	20	21	uq/L	105	0.69	SW846	
				~	-			

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GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD_	METHOD
1,1,1-Trichloroethane	ND	10	10	ug/L	101		SW846 8260B
,,_	ND	10	10	ug/L	101	0.31	SW846 8260B
Carbon tetrachloride	ND	10	10	ug/L	101		SW846 8260B
	ND	10	10	ug/L	101	0.02	SW846 8260B
Bromodichloromethane	ND	10	10	ug/L	101		SW846 8260B
	ND	10	10	ug/L	100	0.52	SW846 8260B
1,2-Dichloropropane	ND	10	10	ug/L	102		SW846 8260B
	ND	10	10	ug/L	101	0.83	SW846 8260B
cis-1,3-Dichloropropene	ND	10	9.9	ug/L	99		SW846 8260B
, , , , , , , , , , , , , , , , , , , ,	ND	10	9.8	ug/L	98	1.6	SW846 8260B
Trichloroethene	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.8	ug/L	98	0.75	SW846 8260B
Dibromochloromethane	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	10	ug/L	100	1.1	SW846 8260B
1,1,2-Trichloroethane	ND	10	10	ug/L	100		SW846 8260B
	ND	10	10	ug/L	100	0.12	SW846 8260B
Benzene	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	10	ug/L	101	1.6	SW846 8260B
trans-1,3-Dichloropropene	ND	10	11	ug/L	109		SW846 8260B
	ND	10	11	ug/L	112	2.5	SW846 8260B
Bromoform	ND	10	9.7	ug/L	97		SW846 8260B
	ND	10	9.6	ug/L	96	0.62	SW846 8260B
4-Methyl-2-pentanone	ND	20	22	ug/L	111		SW846 8260B
	ND	20	23	ug/L	113	2.0	SW846 8260B
2-Hexanone	ND	20	23	ug/L	115		SW846 8260B
	ND	20	22	ug/L	112	3.0	SW846 8260B
Tetrachloroethene	ND	10	9.3	ug/L	93		SW846 8260B
	ND	10	9.3	ug/L	93	0.37	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	10	9.3	ug/L	93		SW846 8260B
	ND	10	9.7	ug/L	97	3.8	SW846 8260B
Toluene	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	9.7	ug/L	97	1.1	SW846 8260B
Chlorobenzene	ND	10	9.5	ug/L	95		SW846 8260B
	ND	10	9.5	ug/L	95	0.31	SW846 8260B
Ethylbenzene	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	10	ug/L	100	1.7	SW846 8260B
Styrene	ND	10	10	ug/L	103		SW846 8260B
	ND	10	10	ug/L	105	1.6	SW846 8260B
Xylenes (total)	ND	30	30	ug/L	98		SW846 8260B
	ND	30	30	ug/L	100	1.9	SW846 8260B
n-Hexane	ND	10	8.6	ug/L	86		SW846 8260B
	ND	10	8.6	ug/L	86	0.63	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

	SAMPLE	SPIKE	MEASRD	_	PERCNT		_
PARAMETER	AMOUNT	AMT	<u>AMOUNT</u>	UNITS	RECVRY	<u>RPD</u>	METHOD
Cralcherene	MD	10	9.6		96		SW846 8260B
Cyclohexane	ND ND			ug/L		1 4	
1 2 Dibusus 2 shlows	ND ND	10	9.7	ug/L	97 71	1.4	
1,2-Dibromo-3-chloro-	ND	10	7.1	ug/L	71		SW846 8260B
propane	NTD	10	7.4	/T	74	э г	амоле озеор
	ND	10	7.4	ug/L	74	3.5	SW846 8260B
1,2-Dichlorobenzene	ND	10	9.7	ug/L	97		SW846 8260B
_,	ND	10	9.9	ug/L	99	1.4	
1,3-Dichlorobenzene	ND	10	9.3	ug/L	93		SW846 8260B
1,3 Diomioropement	ND	10	9.3	ug/L	93	0 54	SW846 8260B
1,4-Dichlorobenzene	ND	10	9.2	ug/L	92	0.51	SW846 8260B
1,1 Diomiorobement	ND	10	9.5	ug/L	95	2.9	SW846 8260B
Dichlorodifluoromethane	ND	10	5.7	ug/L	57 a	,	SW846 8260B
DIGITOTO GITTUOTO INCCIDENCE	ND	10	5.6	ug/L	56 a	2.6	SW846 8260B
Freon 113	ND	10	10	ug/L	105	2.0	SW846 8260B
110011113	ND	10	11	ug/L	108	3.2	SW846 8260B
Isopropylbenzene	ND	10	9.7	ug/L	97	3.2	SW846 8260B
150p10p115cm2cmc	ND	10	9.9	ug/L	99	1.4	SW846 8260B
Methyl acetate	ND	10	9.6	ug/L	96		SW846 8260B
neen/1 decease	ND	10	9.4	ug/L	94	1.6	SW846 8260B
Methylcyclohexane	ND	10	8.9	ug/L	89		SW846 8260B
110011/10/1010110110	ND	10	9.1	ug/L	91	2.2	SW846 8260B
Methyl tert-butyl ether	ND	10	9.8	ug/L	98		SW846 8260B
(MTBE)				3.			
	ND	10	10	ug/L	100	2.8	SW846 8260B
				_			
1,2,4-Trichloro-	0.51	10	5.8	ug/L	53 a		SW846 8260B
benzene							
	0.51	10	6.1	ug/L	56 a	4.7	SW846 8260B
Trichlorofluoromethane	ND	10	13	ug/L	125		SW846 8260B
	ND	10	12	ug/L	123	2.0	SW846 8260B
Acrolein	ND	30	38	ug/L	127		SW846 8260B
	ND	30	37	ug/L	124	2.9	SW846 8260B
Acrylonitrile	ND	30	31	ug/L	104		SW846 8260B
	ND	30	32	ug/L	106	1.6	SW846 8260B
Bromobenzene	ND	10	8.1	ug/L	81		SW846 8260B
	ND	10	8.6	ug/L	86	5.8	SW846 8260B
n-Butylbenzene	ND	10	9.1	ug/L	91		SW846 8260B
	ND	10	9.2	ug/L	92	1.4	SW846 8260B
sec-Butylbenzene	ND	10	8.5	ug/L	85		SW846 8260B
	ND	10	8.5	ug/L	85	0.10	SW846 8260B

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GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

SAMPLE SPIKE MEASRD PERCNT RECVRY RPD METHOD
tert-Butylbenzene ND 10 8.3 ug/L 83 SW846 8260B 2-Chlorotoluene ND 10 8.5 ug/L 85 2.4 SW846 8260B ND 10 8.5 ug/L 85 SW846 8260B ND 10 8.9 ug/L 89 4.7 SW846 8260B 4-Chlorotoluene ND 10 8.7 ug/L 87 SW846 8260B ND 10 8.8 ug/L 88 0.94 SW846 8260B Dibromomethane ND 10 10 ug/L 103 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
ND 10 8.5 ug/L 85 2.4 SW846 8260B 2-Chlorotoluene ND 10 8.5 ug/L 85 SW846 8260B A-Chlorotoluene ND 10 8.9 ug/L 89 4.7 SW846 8260B A-Chlorotoluene ND 10 8.7 ug/L 87 SW846 8260B ND 10 8.8 ug/L 88 0.94 SW846 8260B Dibromomethane ND 10 10 ug/L 103 SW846 8260B ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
ND 10 8.5 ug/L 85 2.4 SW846 8260B 2-Chlorotoluene ND 10 8.5 ug/L 85 SW846 8260B A-Chlorotoluene ND 10 8.9 ug/L 89 4.7 SW846 8260B A-Chlorotoluene ND 10 8.7 ug/L 87 SW846 8260B ND 10 8.8 ug/L 88 0.94 SW846 8260B Dibromomethane ND 10 10 ug/L 103 SW846 8260B ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
2-Chlorotoluene ND 10 8.5 ug/L 85 SW846 8260B ND 10 8.9 ug/L 89 4.7 SW846 8260B 4-Chlorotoluene ND 10 8.7 ug/L 87 SW846 8260B ND 10 8.8 ug/L 88 0.94 SW846 8260B Dibromomethane ND 10 10 ug/L 103 SW846 8260B ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
ND 10 8.9 ug/L 89 4.7 SW846 8260B 4-Chlorotoluene ND 10 8.7 ug/L 87 SW846 8260B ND 10 8.8 ug/L 88 0.94 SW846 8260B Dibromomethane ND 10 10 ug/L 103 SW846 8260B ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
4-Chlorotoluene ND 10 8.7 ug/L 87 SW846 8260B ND 10 8.8 ug/L 88 0.94 SW846 8260B Dibromomethane ND 10 10 ug/L 103 SW846 8260B ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
ND 10 8.8 ug/L 88 0.94 SW846 8260B Dibromomethane ND 10 10 ug/L 103 SW846 8260B ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
Dibromomethane ND 10 10 ug/L 103 SW846 8260B ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene 2-butene 3
ND 10 11 ug/L 106 2.4 SW846 8260B trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
trans-1,4-Dichloro- ND 10 20 ug/L 199 a SW846 8260B 2-butene
2-butene
ND 10 20 110/I. 197 2 1 1 CW9/6 9260D
עו באר באו מ עב באון a 1.1 אויס באר מען באר באון a 1.1 אויס באר מען באר באוויס באר
1,3-Dichloropropane ND 10 9.9 ug/L 99 SW846 8260B
ND 10 10 ug/L 101 1.4 SW846 8260B
2,2-Dichloropropane ND 10 10 ug/L 104 SW846 8260B
ND 10 10 ug/L 103 0.53 SW846 8260B
1,1-Dichloropropene ND 10 9.8 ug/L 98 SW846 8260B
ND 10 9.9 ug/L 99 0.75 SW846 8260B
Ethyl methacrylate ND 10 0.0 ug/L 0.0 a SW846 8260B
ND 10 0.0 ug/L 0.0 a 0.0 SW846 8260B
Hexachlorobutadiene 0.77 10 5.5 ug/L 48 a SW846 8260B
0.77 10 5.7 ug/L 50 a 4.1 SW846 8260B
Iodomethane ND 10 13 ug/L 134 a SW846 8260B
ND 10 14 ug/L 140 a 4.8 SW846 8260B
p-Isopropyltoluene ND 10 9.3 ug/L 93 SW846 8260B
ND 10 9.3 ug/L 93 0.39 SW846 8260B
Naphthalene 0.61 10 5.9 ug/L 53 a SW846 8260B
0.61 10 6.5 ug/L 59 a 9.2 SW846 8260B
n-Propylbenzene ND 10 8.8 ug/L 88 SW846 8260B
ND 10 8.9 ug/L 89 1.2 SW846 8260B
1,1,1,2-Tetrachloroethane ND 10 9.9 ug/L 99 SW846 8260B
ND 10 10 ug/L 101 1.5 SW846 8260B
1,2,3-Trichlorobenzene 0.89 10 5.7 ug/L 49 a SW846 8260B
0.89 10 6.1 ug/L 52 a 6.3 SW846 8260B
1,2,3-Trichloropropane ND 10 9.2 ug/L 92 SW846 8260B
ND 10 9.7 ug/L 97 4.6 SW846 8260B
1,1,2-Trichloro- ND 10 10 ug/L 105 SW846 8260B
1,2,2-trifluoroethane
ND 10 11 ug/L 108 3.2 SW846 8260B
1,2,4-Trimethylbenzene ND 10 9.1 ug/L 91 SW846 8260B
ND 10 9.4 ug/L 94 2.5 SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP131AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-018 MGP131AD-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS		PERCNT RECVRY	RPD	METHOL)
1,3,5-Trimethylbenzene	ND	10	8.7	ug/L		87		SW846	8260B
	ND	10	8.8	ug/L		88	1.2	SW846	8260B
Vinyl acetate	ND	10	13	ug/L		128		SW846	8260B
	ND	10	14	ug/L		135 a	5.1		8260B
tert-Butyl alcohol	ND	200	210	ug/L		105		SW846	8260B
	ND	200	210	ug/L		107	1.8	SW846	8260B
CUDDOCATE			RCENT			COVERY			
SURROGATE	-		COVERY			MITS	_		
Dibromofluoromethane		79 77			•	0 - 150 0 - 150	•		
1,2-Dichloroethane-d4		72			(5	0 - 150)		
		73			(5	0 - 150)		
Toluene-d8		80			(5	0 - 150)		
		78			(5	0 - 150)		
4-Bromofluorobenzene		94			(5	0 - 150)		
		94			(5	0 - 150)		
MOTE (C) ·									

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11
Prep Date....: 04/19/11 Analysis Date..: 04/19/11

Prep Batch #...: 1109091

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
cis-1,2-Dichloroethene	99	(70 - 130)			SW846 8260B
	94	(70 - 130)	5.3	(0-30)	SW846 8260B
trans-1,2-Dichloroethene	102	(70 - 130)			SW846 8260B
	98	(70 - 130)	3.8	(0-30)	SW846 8260B
1,2-Dibromoethane	100	(70 - 130)			SW846 8260B
	97	(70 - 130)	3.4	(0-30)	SW846 8260B
Bromochloromethane	100	(70 - 130)			SW846 8260B
	94	(70 - 130)	5.7	(0-30)	SW846 8260B
m-Xylene & p-Xylene	102	(70 - 130)			SW846 8260B
	96	(70 - 130)	5.7	(0-30)	SW846 8260B
o-Xylene	103	(70 - 130)			SW846 8260B
	97	(70 - 130)	5.9	(0-30)	SW846 8260B
Chloromethane	102	(70 - 130)			SW846 8260B
	91	(70 - 130)	11	(0-30)	SW846 8260B
Bromomethane	98	(70 - 130)			SW846 8260B
	92	(70 - 130)	6.2	(0-30)	SW846 8260B
Vinyl chloride	100	(70 - 130)			SW846 8260B
	98	(70 - 130)	1.9	(0-30)	SW846 8260B
Chloroethane	101	(70 - 130)			SW846 8260B
	100	(70 - 130)	1.1	(0-30)	SW846 8260B
Methylene chloride	113	(70 - 130)			SW846 8260B
	106	(70 - 130)	6.2	(0-30)	SW846 8260B
Acetone	94	(70 - 130)			SW846 8260B
	89	(70 - 130)	5.1	(0-30)	SW846 8260B
Carbon disulfide	138 a	(70 - 130)			SW846 8260B
	134 a	(70 - 130)	2.9	(0-30)	SW846 8260B
1,1-Dichloroethene	115	(70 - 130)			SW846 8260B
	115	(70 - 130)	0.26	(0-30)	SW846 8260B
1,1-Dichloroethane	98	(70 - 130)			SW846 8260B
	95	(70 - 130)	3.4	(0-30)	SW846 8260B
<pre>1,2-Dichloroethene (total)</pre>	101	(70 - 130)			SW846 8260B
	96	(70 - 130)	4.6	(0-30)	SW846 8260B
Chloroform	99	(70 - 130)			SW846 8260B
	94	(70 - 130)	6.0	(0-30)	SW846 8260B
1,2-Dichloroethane	101	(70 - 130)			SW846 8260B
	93	(70 - 130)	8.4	(0-30)	SW846 8260B
2-Butanone	106	(70 - 130)			SW846 8260B
	103	(70 - 130)	2.9	(0-30)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
1,1,1-Trichloroethane	103	(70 - 130)			SW846 8260B
	99	(70 - 130)	3.6	(0-30)	SW846 8260B
Carbon tetrachloride	104	(70 - 130)			SW846 8260B
	106	(70 - 130)	2.0	(0-30)	SW846 8260B
Bromodichloromethane	103	(70 - 130)			SW846 8260B
	95	(70 - 130)	7.7	(0-30)	SW846 8260B
1,2-Dichloropropane	103	(70 - 130)			SW846 8260B
	96	(70 - 130)	6.6	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	98	(70 - 130)			SW846 8260B
	91	(70 - 130)	7.5	(0-30)	SW846 8260B
Trichloroethene	97	(70 - 130)			SW846 8260B
	92	(70 - 130)	5.5	(0-30)	SW846 8260B
Dibromochloromethane	105	(70 - 130)			SW846 8260B
	98	(70 - 130)	7.1	(0-30)	SW846 8260B
1,1,2-Trichloroethane	102	(70 - 130)			SW846 8260B
	98	(70 - 130)	4.0	(0-30)	SW846 8260B
Benzene	101	(70 - 130)			SW846 8260B
	95	(70 - 130)	6.0	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	111	(70 - 130)			SW846 8260B
	105	(70 - 130)	5.4	(0-30)	SW846 8260B
Bromoform	100	(70 - 130)			SW846 8260B
	97	(70 - 130)	3.7	(0-30)	SW846 8260B
4-Methyl-2-pentanone	112	(70 - 130)			SW846 8260B
	108	(70 - 130)	3.3	(0-30)	SW846 8260B
2-Hexanone	116	(70 - 130)			SW846 8260B
	116	(70 - 130)	0.03	(0-30)	SW846 8260B
Tetrachloroethene	95	(70 - 130)			SW846 8260B
	92	(70 - 130)	3.1	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	94	(70 - 130)			SW846 8260B
	90	(70 - 130)	4.2	(0-30)	SW846 8260B
Toluene	101	(70 - 130)			SW846 8260B
	94	(70 - 130)	7.2	(0-30)	SW846 8260B
Chlorobenzene	97	(70 - 130)			SW846 8260B
	93	(70 - 130)	4.4	(0-30)	SW846 8260B
Ethylbenzene	102	(70 - 130)			SW846 8260B
_	98	(70 - 130)	4.1	(0-30)	SW846 8260B
Styrene	106	(70 - 130)			SW846 8260B
_	99	(70 - 130)	7.0	(0-30)	SW846 8260B
Xylenes (total)	102	(70 - 130)			SW846 8260B
-	96	(70 - 130)	5.8	(0-30)	SW846 8260B
n-Hexane	89	(70 - 130)		-	SW846 8260B
	99	(70 - 130)	10	(0-30)	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

	PERCENT	DECOVEDY		RPD	
		RECOVERY	חחח		MERIOD
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
Cyclohexane	100	(70 - 130)			SW846 8260B
Сустопехане	106	(70 - 130)	5.8	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro-	75	(70 - 130)	3.0	(0 30)	SW846 8260B
propane	75	(70 130)			5W010 0200B
proparic	74	(70 - 130)	1.5	(0-30)	SW846 8260B
	, 1	(70 130)	1.5	(0 30)	5W010 0200B
1,2-Dichlorobenzene	97	(70 - 130)			SW846 8260B
	93	(70 - 130)	4.6	(0-30)	SW846 8260B
1,3-Dichlorobenzene	91	(70 - 130)			SW846 8260B
•	87	(70 - 130)	4.6	(0-30)	SW846 8260B
1,4-Dichlorobenzene	93	(70 - 130)			SW846 8260B
·	89	(70 - 130)	4.4	(0-30)	SW846 8260B
Dichlorodifluoromethane	60 a	(70 - 130)		, ,	SW846 8260B
	63 a	(70 - 130)	4.6	(0-30)	SW846 8260B
Freon 113	109	(70 - 130)		, ,	SW846 8260B
	114	(70 - 130)	4.2	(0-30)	SW846 8260B
Isopropylbenzene	101	(70 - 130)	-	, ,	SW846 8260B
-2 oF - oF / -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	97	(70 - 130)	3.8	(0-30)	SW846 8260B
Methyl acetate	100	(70 - 130)		(= == ,	SW846 8260B
	97	(70 - 130)	3.3	(0-30)	SW846 8260B
Methylcyclohexane	93	(70 - 130)		() ()	SW846 8260B
	98	(70 - 130)	5.2	(0-30)	SW846 8260B
Methyl tert-butyl ether	97	(70 - 130)		(= == ,	SW846 8260B
(MTBE)	-	, ,			
,	95	(70 - 130)	2.0	(0-30)	SW846 8260B
1,2,4-Trichloro-	52 a	(70 - 130)			SW846 8260B
benzene					
	55 a	(70 - 130)	6.0	(0-30)	SW846 8260B
Trichlorofluoromethane	136 a	(70 - 130)			SW846 8260B
	135 a	(70 - 130)	0.73	(0-30)	SW846 8260B
Acrolein	128	(70 - 130)			SW846 8260B
	119	(70 - 130)	6.9	(0-30)	SW846 8260B
Acrylonitrile	108	(70 - 130)			SW846 8260B
	106	(70 - 130)	2.2	(0-30)	SW846 8260B
Bromobenzene	84	(70 - 130)			SW846 8260B
	80	(70 - 130)	5.1	(0-30)	SW846 8260B
n-Butylbenzene	90	(70 - 130)			SW846 8260B
	89	(70 - 130)	2.1	(0-30)	SW846 8260B
sec-Butylbenzene	85	(70 - 130)			SW846 8260B
	84	(70 - 130)	1.4	(0-30)	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
TAKAMBIBK	RECOVERT	штитъ	KLD	DIMITO	
tert-Butylbenzene	83	(70 - 130)			SW846 8260B
2022 2007 2000	79	(70 - 130)	4.7	(0-30)	SW846 8260B
2-Chlorotoluene	87	(70 - 130)	-	, , , , , , , , , , , , , , , , , , , ,	SW846 8260B
	83	(70 - 130)	4.1	(0-30)	SW846 8260B
4-Chlorotoluene	89	(70 - 130)			SW846 8260B
	85	(70 - 130)	4.6	(0-30)	SW846 8260B
Dibromomethane	106	(70 - 130)			SW846 8260B
	99	(70 - 130)	5.9	(0-30)	SW846 8260B
trans-1,4-Dichloro-	212 a	(70 - 130)			SW846 8260B
2-butene					
	209 a	(70 - 130)	1.1	(0-30)	SW846 8260B
1,3-Dichloropropane	99	(70 - 130)			SW846 8260B
	95	(70 - 130)	4.2	(0-30)	SW846 8260B
2,2-Dichloropropane	104	(70 - 130)			SW846 8260B
	101	(70 - 130)	2.5	(0-30)	SW846 8260B
1,1-Dichloropropene	101	(70 - 130)			SW846 8260B
	98	(70 - 130)	3.2	(0-30)	SW846 8260B
Ethyl methacrylate	0.0 a	(70 - 130)			SW846 8260B
	0.0 a	(70 - 130)	0.0	(0-30)	SW846 8260B
Hexachlorobutadiene	53 a	(70 - 130)			SW846 8260B
	55 a	(70 - 130)	5.0	(0-30)	SW846 8260B
Iodomethane	140 a	(70 - 130)			SW846 8260B
	134 a	(70 - 130)	4.7	(0-30)	SW846 8260B
p-Isopropyltoluene	92	(70 - 130)			SW846 8260B
	90	(70 - 130)	1.9	(0-30)	SW846 8260B
Naphthalene	49 a	(70 - 130)			SW846 8260B
	58 a	(70 - 130)	17	(0-30)	SW846 8260B
n-Propylbenzene	86	(70 - 130)			SW846 8260B
	82	(70 - 130)	4.6	(0-30)	SW846 8260B
1,1,1,2-Tetrachloroethane	103	(70 - 130)			SW846 8260B
	97	(70 - 130)	6.2	(0-30)	SW846 8260B
1,2,3-Trichlorobenzene	49 a	(70 - 130)			SW846 8260B
	56 a	(70 - 130)	13	(0-30)	SW846 8260B
1,2,3-Trichloropropane	89	(70 - 130)			SW846 8260B
	90	(70 - 130)	1.6	(0-30)	SW846 8260B
1,1,2-Trichloro-	109	(70 - 130)			SW846 8260B
1,2,2-trifluoroethane					
	114	(70 - 130)	4.2	(0-30)	SW846 8260B
1,2,4-Trimethylbenzene	92	(70 - 130)			SW846 8260B
	88	(70 - 130)	4.3	(0-30)	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,3,5-Trimethylbenzene	89	(70 - 130)			SW846 8260B
	85	(70 - 130)	4.9	(0-30)	SW846 8260B
Vinyl acetate	129	(70 - 130)			SW846 8260B
	122	(70 - 130)	5.0	(0-30)	SW846 8260B
tert-Butyl alcohol	104	(70 - 130)			SW846 8260B
	102	(70 - 130)	2.4	(0-30)	SW846 8260B
		PERCENT		RECOVERY	
SURROGATE		RECOVERY		LIMITS	
Dibromofluoromethane		77		(50 - 150)
		77		(50 - 150)
1,2-Dichloroethane-d4		74		(50 - 150)
		73		(50 - 150)
Toluene-d8		81		(50 - 150)
		80		(50 - 150)
4-Bromofluorobenzene		96		(50 - 150)
		96		(50 - 150)
MORE (G)					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11
Prep Date....: 04/19/11 Analysis Date..: 04/19/11

Prep Batch #...: 1109091

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY		METHOI	1
cis-1,2-Dichloroethene	ND	10	9.9	ug/L	99	KFD_		8260B
CIS 1,2 DICHIOTOECHENE	ND	10	9.4	ug/L	94	5.3		8260B
trans-1,2-Dichloroethene	ND	10	10	ug/L ug/L	102	3.3		8260B
crans 1,2 bichioroechene	ND	10	9.8	ug/L ug/L	98	3.8		8260B
1,2-Dibromoethane	ND	10	10	ug/L	100	3.0		8260B
1,2 DIDIOMOECHANE	ND	10	9.7	ug/L ug/L	97	3.4		8260B
Bromochloromethane	ND	10	10	ug/L ug/L	100	5.1		8260B
BI OMOCITIOI OMCCITATIC	ND	10	9.4	ug/L	94	5.7		8260B
m-Xylene & p-Xylene	ND	20	20	ug/L	102	5.7		8260B
m Myrene u p Myrene	ND	20	19	ug/L	96	5.7		8260B
o-Xylene	ND	10	10	ug/L	103	3.7		8260B
o ny tene	ND	10	9.7	ug/L	97	5.9		8260B
Chloromethane	ND	10	10	ug/L	102			8260B
0 0 0 0	ND	10	9.1	ug/L	91	11		8260B
Bromomethane	ND	10	9.8	ug/L	98			8260B
	ND	10	9.2	ug/L	92	6.2		8260B
Vinyl chloride	ND	10	10	uq/L	100			8260B
1	ND	10	9.8	uq/L	98	1.9		8260B
Chloroethane	ND	10	10	uq/L	101			8260B
	ND	10	10	ug/L	100	1.1	SW846	8260B
Methylene chloride	ND	10	12	uq/L	113			8260B
-	ND	10	11	uq/L	106	6.2		8260B
Acetone	ND	20	19	ug/L	94		SW846	8260B
	ND	20	18	ug/L	89	5.1	SW846	8260B
Carbon disulfide	ND	10	14	ug/L	138 a		SW846	8260B
	ND	10	13	ug/L	134 a	2.9	SW846	8260B
1,1-Dichloroethene	ND	10	11	ug/L	115		SW846	8260B
	ND	10	11	ug/L	115	0.26	SW846	8260B
1,1-Dichloroethane	ND	10	9.8	ug/L	98		SW846	8260B
	ND	10	9.5	ug/L	95	3.4	SW846	8260B
1,2-Dichloroethene	ND	20	20	ug/L	101		SW846	8260B
(total)								
	ND	20	19	ug/L	96	4.6	SW846	8260B
Chloroform	ND	10	9.9	ug/L	99			8260B
	ND	10	9.4	ug/L	94	6.0	SW846	8260B
1,2-Dichloroethane	ND	10	10	ug/L	101			8260B
	ND	10	9.3	ug/L	93	8.4		8260B
2-Butanone	ND	20	21	ug/L	106			8260B
	ND	20	21	ug/L	103	2.9	SW846	8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD
TAKARIBIBI	AMOUNT	AIII	AMOUNT	ONTID	ICEC VICE	KL D	METHOD
1,1,1-Trichloroethane	ND	10	10	ug/L	103		SW846 8260B
1/1/1 111011101000114110	ND	10	9.9	ug/L	99	3.6	SW846 8260B
Carbon tetrachloride	ND	10	10	ug/L	104		SW846 8260B
	ND	10	11	ug/L	106	2.0	SW846 8260B
Bromodichloromethane	ND	10	10	ug/L	103		SW846 8260B
	ND	10	9.5	ug/L	95	7.7	SW846 8260B
1,2-Dichloropropane	ND	10	10	ug/L	103		SW846 8260B
,	ND	10	9.6	ug/L	96	6.6	SW846 8260B
cis-1,3-Dichloropropene	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.1	ug/L	91	7.5	SW846 8260B
Trichloroethene	ND	10	9.7	ug/L	97		SW846 8260B
	ND	10	9.2	ug/L	92	5.5	SW846 8260B
Dibromochloromethane	ND	10	10	ug/L	105		SW846 8260B
	ND	10	9.8	ug/L	98	7.1	SW846 8260B
1,1,2-Trichloroethane	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.8	ug/L	98	4.0	SW846 8260B
Benzene	ND	10	10	ug/L	101		SW846 8260B
	ND	10	9.5	ug/L	95	6.0	SW846 8260B
trans-1,3-Dichloropropene	ND	10	11	ug/L	111		SW846 8260B
	ND	10	11	ug/L	105	5.4	SW846 8260B
Bromoform	ND	10	10	ug/L	100		SW846 8260B
	ND	10	9.7	ug/L	97	3.7	SW846 8260B
4-Methyl-2-pentanone	ND	20	22	ug/L	112		SW846 8260B
	ND	20	22	ug/L	108	3.3	SW846 8260B
2-Hexanone	ND	20	23	ug/L	116		SW846 8260B
	ND	20	23	ug/L	116	0.03	SW846 8260B
Tetrachloroethene	ND	10	9.5	ug/L	95		SW846 8260B
	ND	10	9.2	ug/L	92	3.1	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	10	9.4	ug/L	94		SW846 8260B
	ND	10	9.0	ug/L	90	4.2	SW846 8260B
Toluene	ND	10	10	ug/L	101		SW846 8260B
	ND	10	9.4	ug/L	94	7.2	SW846 8260B
Chlorobenzene	ND	10	9.7	ug/L	97		SW846 8260B
	ND	10	9.3	ug/L	93	4.4	SW846 8260B
Ethylbenzene	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.8	ug/L	98	4.1	SW846 8260B
Styrene	ND	10	11	ug/L	106		SW846 8260B
	ND	10	9.9	ug/L	99	7.0	SW846 8260B
Xylenes (total)	ND	30	31	ug/L	102		SW846 8260B
	ND	30	29	ug/L	96	5.8	SW846 8260B
n-Hexane	ND	10	8.9	ug/L	89		SW846 8260B
	ND	10	9.9	ug/L	99	10	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD	
Cyclohexane	ND	10	10	ug/L	100		SW846 8260B	
	ND	10	11	ug/L	106	5.8	SW846 8260B	
1,2-Dibromo-3-chloro- propane	ND	10	7.5	ug/L	75		SW846 8260B	
FISHMIC	ND	10	7.4	ug/L	74	1.5	SW846 8260B	
1,2-Dichlorobenzene	ND	10	9.7	ug/L	97		SW846 8260B	
	ND	10	9.3	ug/L	93	4.6	SW846 8260B	
1,3-Dichlorobenzene	ND	10	9.1	ug/L	91		SW846 8260B	
	ND	10	8.7	ug/L	87	4.6	SW846 8260B	
1,4-Dichlorobenzene	ND	10	9.3	ug/L	93		SW846 8260B	
	ND	10	8.9	ug/L	89	4.4	SW846 8260B	
Dichlorodifluoromethane	ND	10	6.0	ug/L	60 a		SW846 8260B	
	ND	10	6.3	ug/L	63 a	4.6	SW846 8260B	
Freon 113	ND	10	11	ug/L	109		SW846 8260B	
	ND	10	11	ug/L	114	4.2	SW846 8260B	
Isopropylbenzene	ND	10	10	ug/L	101		SW846 8260B	
1 11	ND	10	9.7	ug/L	97	3.8	SW846 8260B	
Methyl acetate	ND	10	10	ug/L	100		SW846 8260B	
	ND	10	9.7	ug/L	97	3.3	SW846 8260B	
Methylcyclohexane	ND	10	9.3	ug/L	93		SW846 8260B	
110011/10/010110110110	ND	10	9.8	ug/L	98	5.2	SW846 8260B	
Methyl tert-butyl ether (MTBE)	ND	10	9.7	ug/L	97	3.2	SW846 8260B	
(/	ND	10	9.5	ug/L	95	2.0	SW846 8260B	
1,2,4-Trichloro- benzene	ND	10	5.2	ug/L	52 a		SW846 8260B	
	ND	10	5.5	ug/L	55 a	6.0	SW846 8260B	
Trichlorofluoromethane	ND	10	14	ug/L	136 a		SW846 8260B	
	ND	10	13	ug/L	135 a	0.73	SW846 8260B	
Acrolein	ND	30	38	ug/L	128		SW846 8260B	
	ND	30	36	ug/L	119	6.9	SW846 8260B	
Acrylonitrile	ND	30	32	ug/L	108		SW846 8260B	
	ND	30	32	ug/L	106	2.2	SW846 8260B	
Bromobenzene	ND	10	8.4	ug/L	84		SW846 8260B	
	ND	10	8.0	ug/L	80	5.1	SW846 8260B	
n-Butylbenzene	ND	10	9.0	ug/L	90		SW846 8260B	
-	ND	10	8.9	ug/L	89	2.1	SW846 8260B	
sec-Butylbenzene	ND	10	8.5	ug/L	85		SW846 8260B	
•	ND	10	8.4	ug/L	84	1.4	SW846 8260B	

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	ממם	METHOD
PARAMETER	AMOUNT	AMI	AMOUNI	UNIIS	KECVKI	KPD_	MEIROD
tert-Butylbenzene	ND	10	8.3	ug/L	83		SW846 8260B
cere bueyrbendene	ND	10	7.9	ug/L	79	4.7	SW846 8260B
2-Chlorotoluene	ND	10	8.7	ug/L	87	-•.	SW846 8260B
_ 00000_00	ND	10	8.3	ug/L	83	4.1	SW846 8260B
4-Chlorotoluene	ND	10	8.9	ug/L	89		SW846 8260B
1 011-01 000 1 000 1	ND	10	8.5	ug/L	85	4.6	SW846 8260B
Dibromomethane	ND	10	11	ug/L	106		SW846 8260B
2 -2 - 0 - 10 - 10 - 10 - 10 - 10 - 10 -	ND	10	9.9	ug/L	99	5.9	SW846 8260B
trans-1,4-Dichloro-	ND	10	21	ug/L	212 a		SW846 8260B
2-butene				5, -			2
	ND	10	21	ug/L	209 a	1.1	SW846 8260B
				-5.			
1,3-Dichloropropane	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	9.5	ug/L	95	4.2	SW846 8260B
2,2-Dichloropropane	ND	10	10	ug/L	104		SW846 8260B
	ND	10	10	ug/L	101	2.5	SW846 8260B
1,1-Dichloropropene	ND	10	10	ug/L	101		SW846 8260B
	ND	10	9.8	ug/L	98	3.2	SW846 8260B
Ethyl methacrylate	ND	10	0.0	ug/L	0.0 a		SW846 8260B
1	ND	10	0.0	ug/L	0.0 a	0.0	SW846 8260B
Hexachlorobutadiene	ND	10	5.3	ug/L	53 a		SW846 8260B
	ND	10	5.5	ug/L	55 a	5.0	SW846 8260B
Iodomethane	ND	10	14	ug/L	140 a		SW846 8260B
	ND	10	13	ug/L	134 a	4.7	SW846 8260B
p-Isopropyltoluene	ND	10	9.2	ug/L	92		SW846 8260B
	ND	10	9.0	ug/L	90	1.9	SW846 8260B
Naphthalene	ND	10	4.9	ug/L	49 a		SW846 8260B
-	ND	10	5.8	ug/L	58 a	17	SW846 8260B
n-Propylbenzene	ND	10	8.6	ug/L	86		SW846 8260B
	ND	10	8.2	ug/L	82	4.6	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	10	10	ug/L	103		SW846 8260B
	ND	10	9.7	ug/L	97	6.2	SW846 8260B
1,2,3-Trichlorobenzene	ND	10	4.9	ug/L	49 a		SW846 8260B
	ND	10	5.6	ug/L	56 a	13	SW846 8260B
1,2,3-Trichloropropane	ND	10	8.9	ug/L	89		SW846 8260B
	ND	10	9.0	ug/L	90	1.6	SW846 8260B
1,1,2-Trichloro-	ND	10	11	ug/L	109		SW846 8260B
1,2,2-trifluoroethane				-			
	ND	10	11	ug/L	114	4.2	SW846 8260B
1,2,4-Trimethylbenzene	ND	10	9.2	ug/L	92		SW846 8260B
	ND	10	8.8	ug/L	88	4.3	SW846 8260B

(Continued on next page)

GC/MS Volatiles

Client Lot #...: A1D080416 Work Order #...: MGP1D1AC-MS Matrix.....: WATER

MS Lot-Sample #: A1D080405-002 MGP1D1AD-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS		PERCNT RECVRY	RPD	METHOL)
1,3,5-Trimethylbenzene	ND	10	8.9	ug/L		89		SW846	8260B
	ND	10	8.5	ug/L		85	4.9	SW846	8260B
Vinyl acetate	ND	10	13	ug/L		129		SW846	8260B
	ND	10	12	ug/L		122	5.0	SW846	8260B
tert-Butyl alcohol	ND	200	210	ug/L		104		SW846	8260B
	ND	200	200	ug/L		102	2.4	SW846	8260B
		PE	RCENT		RE	COVERY			
SURROGATE		RE	COVERY		LI	MITS			
Dibromofluoromethane		77			(5	0 - 150)		
		77			(5	0 - 150)		
1,2-Dichloroethane-d4		74			(5	0 - 150)		
		73			(5	0 - 150)		
Toluene-d8		81			(5	0 - 150)		
		80			(5	0 - 150)		
4-Bromofluorobenzene		96			(5	0 - 150)		
		96			(5	0 - 150)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

North Canton

Lot/SDG Number: A1D080416

Sample Control Chain of Custody - TAL North Canton GC/MS Volatiles

Lot Number	Sample	Work Order	Analysis Type	Analysis Date	Analyst
A1D080416	7	MGP5R1AA	Volatile Organics, GC/MS (8260B)	04/19/11	Laura Evans
A1D080416	9	MGP531AA	Volatile Organics, GC/MS (8260B)	04/19/11	Laura Evans



GCMS SEMIVOLATILE DATA

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AC Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11
Prep Date....: 04/11/11 Analysis Date..: 04/14/11

Prep Batch #...: 1101057

Method....: SW846 8270C

		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
Acenaphthene	ND	0.20	ug/L
Acenaphthylene	ND	0.20	ug/L
Anthracene	ND	0.20	ug/L
Benzo(a)anthracene	ND	0.20	uq/L
Benzo(b)fluoranthene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.20	ug/L
Benzoic acid	ND	10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(a)pyrene	ND	0.20	ug/L
Benzyl alcohol	ND	5.0	ug/L
bis(2-Chloroethoxy)	ND	1.0	ug/L
methane			
bis(2-Chloroethyl)-	ND	1.0	ug/L
ether			_
bis(2-Ethylhexyl)	ND	10	ug/L
phthalate			
4-Bromophenyl phenyl	ND	2.0	ug/L
ether			_
Butyl benzyl phthalate	ND	1.0	ug/L
4-Chloroaniline	ND	2.0	ug/L
4-Chloro-3-methylphenol	ND	2.0	ug/L
2-Chloronaphthalene	ND	1.0	ug/L
2-Chlorophenol	ND	1.0	ug/L
4-Chlorophenyl phenyl	ND	2.0	ug/L
ether			
Chrysene	ND	0.20	ug/L
Dibenz(a,h)anthracene	ND	0.20	ug/L
Dibenzofuran	ND	1.0	ug/L
Di-n-butyl phthalate	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
3,3'-Dichlorobenzidine	ND	5.0	ug/L
2,4-Dichlorophenol	ND	2.0	ug/L
Diethyl phthalate	ND	1.0	ug/L
2,4-Dimethylphenol	ND	2.0	ug/L
Dimethyl phthalate	ND	1.0	ug/L
Di-n-octyl phthalate	ND	1.0	ug/L

(Continued on next page)

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AC Matrix.....: WG

PARAMETER RESULT LIMIT UNITS 4,6-Dinitro- ND 5.0 ug/L
1,0 21112010 43,2
2-methylphenol
2,4-Dinitrotoluene 1.2 J 5.0 ug/L
2,6-Dinitrotoluene ND 5.0 ug/L
Fluoranthene ND 0.20 ug/L
Fluorene ND 0.20 ug/L
Hexachlorobenzene ND 0.20 ug/L
Hexachlorobutadiene ND 1.0 ug/L
Hexachlorocyclopenta- ND 10 ug/L
diene
Hexachloroethane ND 1.0 ug/L
Indeno(1,2,3-cd)pyrene ND 0.20 ug/L
Isophorone ND 1.0 ug/L
2-Methylnaphthalene ND 0.20 ug/L
2-Methylphenol ND 1.0 ug/L
4-Methylphenol ND 1.0 ug/L
Naphthalene ND 0.20 ug/L
2-Nitroaniline ND 2.0 ug/L
3-Nitroaniline ND 2.0 ug/L
4-Nitroaniline ND 2.0 ug/L
Nitrobenzene ND 1.0 ug/L
2-Nitrophenol ND 2.0 ug/L
4-Nitrophenol ND 5.0 ug/L
N-Nitrosodi-n-propyl- ND 1.0 ug/L
amine
N-Nitrosodiphenylamine ND 1.0 ug/L
Pentachlorophenol ND 5.0 ug/L
Phenanthrene ND 0.20 ug/L
Phenol ND 1.0 ug/L
Pyrene ND 0.20 ug/L
1,2,4-Trichloro- ND 1.0 ug/L
benzene
2,4,5-Trichloro- ND 5.0 ug/L
phenol
2,4,6-Trichloro- ND 5.0 ug/L
phenol
Carbazole ND 1.0 ug/L
2,2'-oxybis ND 1.0 ug/L

(Continued on next page)

(1-Chloropropane)

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AC Matrix.....: WG

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Nitrobenzene-d5	44 *	(50 - 150)
2-Fluorobiphenyl	48 *	(50 - 150)
Terphenyl-d14	58	(50 - 150)
Phenol-d5	52	(50 - 150)
2-Fluorophenol	49 *	(50 - 150)
2,4,6-Tribromophenol	56	(50 - 150)

NOTE(S):

^{*} Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R2AC Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11 Prep Date....: 04/19/11 Analysis Date..: 04/21/11

Prep Batch #...: 1109035

Method....: SW846 8270C

REPORTING

PARAMETER RESULT LIMIT UNITS 2,4-Dinitrophenol ND 5.0 ug/L

	PERCENT	RECOVERY
SURROGATE	RECOVERY	<u>LIMITS</u>
Nitrobenzene-d5	52	(50 - 150)
2-Fluorobiphenyl	56	(50 - 150)
Terphenyl-d14	73	(50 - 150)
Phenol-d5	54	(50 - 150)
2-Fluorophenol	51	(50 - 150)
2,4,6-Tribromophenol	57	(50 - 150)

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AC Matrix.....: WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11 Prep Date....: 04/11/11 Analysis Date..: 04/14/11

Prep Batch #...: 1101057

Method....: SW846 8270C

PARAMETER RESULT LIMIT UNITS
Acenaphthene ND 0.20 ug/L Acenaphthylene ND 0.20 ug/L Anthracene ND 0.20 ug/L Benzo(a)anthracene ND 0.20 ug/L Benzo(b)fluoranthene ND 0.20 ug/L Benzo(k)fluoranthene ND 0.20 ug/L Benzoic acid ND 10 ug/L Benzo(ghi)perylene ND 0.20 ug/L Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane ND 1.0 ug/L bis(2-Chloroethyl)- ND 1.0 ug/L ether ND 2.0 ug/L bis(2-Ethylhexyl) ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline
Acenaphthylene ND 0.20 ug/L Anthracene ND 0.20 ug/L Benzo(a)anthracene ND 0.20 ug/L Benzo(b)fluoranthene ND 0.20 ug/L Benzo(k)fluoranthene ND 0.20 ug/L Benzoic acid ND 0.20 ug/L Benzoic acid ND 10 ug/L Benzo(ghi)perylene ND 0.20 ug/L Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 5.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 1.0 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Anthracene ND 0.20 ug/L Benzo(a)anthracene ND 0.20 ug/L Benzo(b)fluoranthene ND 0.20 ug/L Benzo(k)fluoranthene ND 0.20 ug/L Benzoic acid ND 0.20 ug/L Benzoic acid ND 10 ug/L Benzo(ghi)perylene ND 0.20 ug/L Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Benzo(a)anthracene ND 0.20 ug/L Benzo(b)fluoranthene ND 0.20 ug/L Benzo(k)fluoranthene ND 0.20 ug/L Benzoic acid ND 10 ug/L Benzo(ghi)perylene ND 0.20 ug/L Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane ND 1.0 ug/L bis(2-Chloroethyl)- ND 1.0 ug/L ether ND 10 ug/L 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Benzo(b)fluoranthene ND 0.20 ug/L Benzo(k)fluoranthene ND 0.20 ug/L Benzoic acid ND 10 ug/L Benzo(ghi)perylene ND 0.20 ug/L Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Benzo(k)fluoranthene ND 0.20 ug/L Benzoic acid ND 10 ug/L Benzo(ghi)perylene ND 0.20 ug/L Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Benzoic acid ND 10 ug/L Benzo(ghi)perylene ND 0.20 ug/L Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Benzo(a)pyrene ND 0.20 ug/L Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Benzyl alcohol ND 5.0 ug/L bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
bis(2-Chloroethoxy) ND 1.0 ug/L methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
methane bis(2-Chloroethyl)- ND 1.0 ug/L ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
ether bis(2-Ethylhexyl) ND 10 ug/L phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
phthalate 4-Bromophenyl phenyl ND 2.0 ug/L ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
ether Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
Butyl benzyl phthalate ND 1.0 ug/L 4-Chloroaniline ND 2.0 ug/L 4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
4-ChloroanilineND2.0ug/L4-Chloro-3-methylphenolND2.0ug/L2-ChloronaphthaleneND1.0ug/L
4-Chloro-3-methylphenol ND 2.0 ug/L 2-Chloronaphthalene ND 1.0 ug/L
2-Chloronaphthalene ND 1.0 ug/L
2-Chlorophenol ND 1.0 ug/L
4-Chlorophenyl phenyl ND 2.0 ug/L
ether
Chrysene ND 0.20 ug/L
Dibenz(a,h)anthracene ND 0.20 ug/L
Dibenzofuran ND 1.0 ug/L
Di-n-butyl phthalate ND 1.0 ug/L
1,2-Dichlorobenzene ND 1.0 ug/L
1,3-Dichlorobenzene ND 1.0 ug/L
1,4-Dichlorobenzene ND 1.0 ug/L
3,3'-Dichlorobenzidine ND 5.0 ug/L
2,4-Dichlorophenol ND 2.0 ug/L
Diethyl phthalate ND 1.0 ug/L
2,4-Dimethylphenol ND 2.0 ug/L
Dimethyl phthalate ND 1.0 ug/L
Di-n-octyl phthalate ND 1.0 ug/L

(Continued on next page)

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AC Matrix.....: WG

REPORTING RESULT LIMIT UNITS 4,6-Dinitro-
4,6-Dinitro- ND 5.0 ug/L 2-methylphenol 2,4-Dinitrotoluene ND 5.0 ug/L 2,6-Dinitrotoluene ND 5.0 ug/L Fluoranthene ND 0.20 ug/L
2-methylphenol 2,4-Dinitrotoluene ND 5.0 ug/L 2,6-Dinitrotoluene ND 5.0 ug/L Fluoranthene ND 0.20 ug/L
2,4-Dinitrotoluene ND 5.0 ug/L 2,6-Dinitrotoluene ND 5.0 ug/L Fluoranthene ND 0.20 ug/L
2,6-Dinitrotoluene ND 5.0 ug/L Fluoranthene ND 0.20 ug/L
Fluoranthene ND 0.20 ug/L
Hexachlorobenzene ND 0.20 ug/L
Hexachlorobutadiene ND 1.0 ug/L
Hexachlorocyclopenta- ND 10 ug/L
diene
Hexachloroethane ND 1.0 ug/L
Indeno(1,2,3-cd)pyrene ND 0.20 ug/L
Isophorone ND 1.0 ug/L
2-Methylnaphthalene ND 0.20 ug/L
2-Methylphenol ND 1.0 ug/L
4-Methylphenol ND 1.0 ug/L
Naphthalene ND 0.20 ug/L
2-Nitroaniline ND 2.0 ug/L
3-Nitroaniline ND 2.0 ug/L
4-Nitroaniline ND 2.0 ug/L
Nitrobenzene ND 1.0 ug/L
2-Nitrophenol ND 2.0 ug/L
4-Nitrophenol ND 5.0 ug/L
N-Nitrosodi-n-propyl- ND 1.0 ug/L
amine
N-Nitrosodiphenylamine ND 1.0 ug/L
Pentachlorophenol ND 5.0 ug/L
Phenanthrene ND 0.20 ug/L
Phenol ND 1.0 ug/L
Pyrene ND 0.20 ug/L
1,2,4-Trichloro- ND 1.0 ug/L
benzene
2,4,5-Trichloro- ND 5.0 ug/L
phenol
2,4,6-Trichloro- ND 5.0 ug/L
phenol
Carbazole ND 1.0 ug/L
2,2'-oxybis ND 1.0 ug/L

(Continued on next page)

(1-Chloropropane)

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AC Matrix.....: WG

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Nitrobenzene-d5	45 *	(50 - 150)
2-Fluorobiphenyl	48 *	(50 - 150)
Terphenyl-d14	56	(50 - 150)
Phenol-d5	51	(50 - 150)
2-Fluorophenol	50	(50 - 150)
2,4,6-Tribromophenol	54	(50 - 150)

NOTE(S):

^{*} Surrogate recovery is outside stated control limits.

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP532AC Matrix.....: WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11 Prep Date....: 04/19/11 Analysis Date..: 04/21/11

Prep Batch #...: 1109035

Method....: SW846 8270C

REPORTING

PARAMETERRESULTLIMITUNITS2,4-DinitrophenolND5.0ug/L

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Nitrobenzene-d5	57	(50 - 150)
2-Fluorobiphenyl	61	(50 - 150)
Terphenyl-d14	74	(50 - 150)
Phenol-d5	63	(50 - 150)
2-Fluorophenol	61	(50 - 150)
2,4,6-Tribromophenol	67	(50 - 150)

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AA Matrix.....: WATER

MB Lot-Sample #: A1D110000-057

2,4-Dinitrotoluene

Prep Date.....: 04/11/11 Final Wgt/Vol..: 2 mL

Analysis Date..: 04/14/11 Prep Batch #...: 1101057
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL

REPORTING PARAMETER RESULT LIMIT UNITS METHOD 0.20 SW846 8270C ND Acenaphthene uq/L Acenaphthylene MD 0.20 ua/L SW846 8270C 0.20 SW846 8270C Anthracene ND uq/L Benzo(a)anthracene ND 0.20 uq/L SW846 8270C Benzo(b)fluoranthene ND0.20 SW846 8270C uq/L Benzo(k)fluoranthene ND 0.20 SW846 8270C ug/L Benzoic acid SW846 8270C ND10 ug/L Benzo(ghi)perylene ND 0.20 ug/L SW846 8270C Benzo(a)pyrene ND 0.20 uq/L SW846 8270C 5.0 SW846 8270C Benzyl alcohol ND ug/L bis(2-Chloroethoxy) ND 1.0 SW846 8270C ug/L methane bis(2-Chloroethyl)-ND 1.0 ug/L SW846 8270C ether bis(2-Ethylhexyl) ND 10 ug/L SW846 8270C phthalate 4-Bromophenyl phenyl ND 2.0 SW846 8270C ug/L ether Butyl benzyl phthalate ND 1.0 ug/L SW846 8270C 4-Chloroaniline ND 2.0 uq/L SW846 8270C 2.0 SW846 8270C 4-Chloro-3-methylphenol ND ug/L 2-Chloronaphthalene 1.0 SW846 8270C ND uq/L 2-Chlorophenol ND 1.0 uq/L SW846 8270C 4-Chlorophenyl phenyl ND 2.0 uq/L SW846 8270C ether 0.20 SW846 8270C Chrysene ND uq/L ND 0.20 Dibenz(a,h)anthracene SW846 8270C uq/L Dibenzofuran ND 1.0 uq/L SW846 8270C SW846 8270C Di-n-butyl phthalate ND1.0 ug/L 1,2-Dichlorobenzene ND 1.0 ug/L SW846 8270C 1,3-Dichlorobenzene ND 1.0 uq/L SW846 8270C SW846 8270C 1,4-Dichlorobenzene ND 1.0 ug/L 3,3'-Dichlorobenzidine ND 5.0 uq/L SW846 8270C 2,4-Dichlorophenol 2.0 SW846 8270C NDug/L Diethyl phthalate ND 1.0 uq/L SW846 8270C SW846 8270C 2,4-Dimethylphenol ND 2.0 ug/L ug/L Dimethyl phthalate ND 1.0 SW846 8270C Di-n-octyl phthalate ND 1.0 uq/L SW846 8270C 4,6-Dinitro-ND 5.0 SW846 8270C ug/L 2-methylphenol

(Continued on next page)

ND

North Canton 65

5.0

ug/L

SW846 8270C

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AA Matrix.....: WATER

		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	METHOD
2,6-Dinitrotoluene	ND	5.0	ug/L	SW846 8270C
Fluoranthene	ND	0.20	ug/L	SW846 8270C
Fluorene	ND	0.20	ug/L	SW846 8270C
Hexachlorobenzene	ND	0.20	ug/L	SW846 8270C
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8270C
Hexachlorocyclopenta- diene	ND	10	ug/L	SW846 8270C
Hexachloroethane	ND	1.0	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L	SW846 8270C
Isophorone	ND	1.0	ug/L	SW846 8270C
2-Methylnaphthalene	ND	0.20	ug/L	SW846 8270C
2-Methylphenol	ND	1.0	ug/L	SW846 8270C
4-Methylphenol	ND	1.0	ug/L	SW846 8270C
Naphthalene	ND	0.20	ug/L	SW846 8270C
2-Nitroaniline	ND	2.0	ug/L	SW846 8270C
3-Nitroaniline	ND	2.0	ug/L	SW846 8270C
4-Nitroaniline	ND	2.0	ug/L	SW846 8270C
Nitrobenzene	ND	1.0	ug/L	SW846 8270C
2-Nitrophenol	ND	2.0	ug/L	SW846 8270C
4-Nitrophenol	ND	5.0	ug/L	SW846 8270C
N-Nitrosodi-n-propyl-	ND	1.0	ug/L	SW846 8270C
amine				
N-Nitrosodiphenylamine	ND	1.0	ug/L	SW846 8270C
Pentachlorophenol	ND	5.0	ug/L	SW846 8270C
Phenanthrene	ND	0.20	ug/L	SW846 8270C
Phenol	ND	1.0	ug/L	SW846 8270C
Pyrene	ND	0.20	ug/L	SW846 8270C
1,2,4-Trichloro- benzene	ND	1.0	ug/L	SW846 8270C
2,4,5-Trichloro- phenol	ND	5.0	ug/L	SW846 8270C
2,4,6-Trichloro-	ND	5.0	ug/L	SW846 8270C
phenol				
Carbazole	ND	1.0	ug/L	SW846 8270C
2,2'-oxybis (1-Chloropropane)	ND	1.0	ug/L	SW846 8270C
(= 0010;	PERCENT	RECOVER	Y	
SURROGATE	<u>RECOVERY</u>	LIMITS		
Nitrobenzene-d5	46 *	(50 - 19	50)	
2-Fluorobiphenyl	49 *	(50 - 1	50)	
Terphenyl-d14	59	(50 - 1	50)	
Phenol-d5	53	(50 - 1	50)	
2-Fluorophenol	50	(50 - 1	50)	
2,4,6-Tribromophenol	54	(50 - 19	50)	

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AA Matrix.....: WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

^{*} Surrogate recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MG6N11AA Matrix.....: WATER

MB Lot-Sample #: A1D190000-035

Prep Date.....: 04/19/11 Final Wgt/Vol..: 2 mL

Analysis Date..: 04/21/11 Prep Batch #...: 1109035 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL

REPORTING

	REPORTING			
RESULT	LIMIT	UNITS	METHOD	
ND	5.0	ug/L	SW846 8270C	
PERCENT	RECOVERY			
RECOVERY	LIMITS	_		
54	(50 - 150)		
58	(50 - 150)		
75	(50 - 150)		
62	(50 - 150)		
59	(50 - 150)		
66	(50 - 150)		
	ND PERCENT RECOVERY 54 58 75 62 59	RESULT LIMIT ND 5.0 PERCENT RECOVERY RECOVERY LIMITS 54 (50 - 150 58 (50 - 150 75 (50 - 150 62 (50 - 150 59 (50 - 150	RESULT LIMIT UNITS ND 5.0 ug/L PERCENT RECOVERY RECOVERY LIMITS 54 (50 - 150) 58 (50 - 150) 75 (50 - 150) 62 (50 - 150) 59 (50 - 150)	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D110000-057

Prep Date....: 04/11/11 Analysis Date..: 04/14/11

Prep Batch #...: 1101057

Dilution Factor: 1 Final Wgt/Vol..: 2 mL

Initial Wgt/Vol: 1000 mL

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
1,2,4-Trichloro-	46	(30 - 120)	SW846 8270C
benzene		,	
Acenaphthene	49	(31 - 120)	SW846 8270C
2,4-Dinitrotoluene	50	(34 - 151)	SW846 8270C
Pyrene	49	(35 - 139)	SW846 8270C
N-Nitrosodi-n-propyl- amine	47	(30 - 132)	SW846 8270C
1,4-Dichlorobenzene	49	(30 - 115)	SW846 8270C
Pentachlorophenol	46	(30 - 150)	SW846 8270C
Phenol	53	(30 - 115)	SW846 8270C
2-Chlorophenol	52	(30 - 120)	SW846 8270C
4-Chloro-3-methylphenol	51	(31 - 121)	SW846 8270C
4-Nitrophenol	51	(30 - 138)	SW846 8270C
1,2-Dichlorobenzene	49	(30 - 120)	SW846 8270C
1,3-Dichlorobenzene	47	(30 - 120)	SW846 8270C
2,4,5-Trichloro-	52	(36 - 135)	SW846 8270C
phenol			
4-Methylphenol	51	(31 - 115)	SW846 8270C
4-Nitroaniline	46	(30 - 140)	SW846 8270C
Acenaphthylene	48	(37 - 115)	SW846 8270C
Anthracene	50	(45 - 118)	SW846 8270C
Benzo(a)anthracene	46	(43 - 138)	SW846 8270C
Benzo(a)pyrene	42	(38 - 144)	SW846 8270C
Benzo(b)fluoranthene	45	(31 - 146)	SW846 8270C
Benzo(ghi)perylene	48	(35 - 129)	SW846 8270C
Benzo(k)fluoranthene	55	(40 - 127)	SW846 8270C
bis(2-Chloroethoxy)	50	(30 - 115)	SW846 8270C
methane			
bis(2-Chloroethyl)-	50	(30 - 115)	SW846 8270C
ether			
bis(2-Chloroisopropyl)	50	(50 - 150)	SW846 8270C
ether			
bis(2-Ethylhexyl)	51	(30 - 154)	SW846 8270C
phthalate			

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D110000-057

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
2,4,6-Trichloro-	50	(39 - 115)	SW846 8270C
phenol			
2,4-Dichlorophenol	51	(34 - 115)	SW846 8270C
2,4-Dimethylphenol	42	(31 - 120)	SW846 8270C
2,6-Dinitrotoluene	52	(43 - 122)	SW846 8270C
2-Chloronaphthalene	49	(35 - 115)	SW846 8270C
2-Methylnaphthalene	56	(32 - 115)	SW846 8270C
2-Methylphenol	50	(30 - 116)	SW846 8270C
2-Nitroaniline	45	(36 - 140)	SW846 8270C
2-Nitrophenol	51	(33 - 115)	SW846 8270C
3,3'-Dichlorobenzidine	30	(30 - 160)	SW846 8270C
3-Nitroaniline	44	(30 - 138)	SW846 8270C
4,6-Dinitro-	48	(42 - 144)	SW846 8270C
2-methylphenol			
4-Bromophenyl phenyl	52	(43 - 118)	SW846 8270C
ether			
4-Chloroaniline	41	(30 - 133)	SW846 8270C
4-Chlorophenyl phenyl	50	(40 - 115)	SW846 8270C
ether			
Butyl benzyl phthalate	52	(37 - 136)	SW846 8270C
Carbazole	49	(49 - 126)	SW846 8270C
Chrysene	51	(42 - 142)	SW846 8270C
Dibenz(a,h)anthracene	47	(38 - 130)	SW846 8270C
Dibenzofuran	49	(40 - 115)	SW846 8270C
Diethyl phthalate	50	(43 - 132)	SW846 8270C
Dimethyl phthalate	51	(42 - 116)	SW846 8270C
Di-n-octyl phthalate	46	(36 - 151)	SW846 8270C
Fluoranthene	50	(47 - 132)	SW846 8270C
Fluorene	49	(41 - 115)	SW846 8270C
Hexachlorobenzene	52	(42 - 123)	SW846 8270C
Hexachlorobutadiene	46	(30 - 120)	SW846 8270C
Hexachloroethane	45	(30 - 120)	SW846 8270C
Isophorone	48	(33 - 115)	SW846 8270C
Naphthalene	46	(30 - 119)	SW846 8270C
Nitrobenzene	49	(31 - 115)	SW846 8270C
N-Nitrosodiphenylamine	44	(35 - 124)	SW846 8270C
Phenanthrene	49	(45 - 117)	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D110000-057

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	<u>LIMITS</u>	METHOD
Indeno(1,2,3-cd)pyrene	48	(37 - 130)	SW846 8270C
Di-n-butyl phthalate	50	(46 - 123)	SW846 8270C
Hexachlorocyclopenta- diene	29 a	(30 - 115)	SW846 8270C
Benzoic acid	23 a	(30 - 136)	SW846 8270C
Benzyl alcohol	54	(29 - 115)	SW846 8270C
Atrazine	56	(30 - 120)	SW846 8270C
Acetophenone	54	(30 - 120)	SW846 8270C
1,1'-Biphenyl	52	(30 - 120)	SW846 8270C
Caprolactam	47	(30 - 120)	SW846 8270C
Benzaldehyde	90	(30 - 120)	SW846 8270C
Aniline	36	(30 - 127)	SW846 8270C
N-Nitrosodimethylamine	47	(30 - 115)	SW846 8270C
Pyridine	10 a	(50 - 150)	SW846 8270C
1,2-Diphenylhydrazine	50	(50 - 150)	SW846 8270C
		PERCENT	RECOVERY
SURROGATE		RECOVERY	<u>LIMITS</u>
Nitrobenzene-d5		49 *	(50 - 150)
2-Fluorobiphenyl		49 *	(50 - 150)
Terphenyl-d14		58	(50 - 150)
Phenol-d5		53	(50 - 150)
2-Fluorophenol		52	(50 - 150)
2,4,6-Tribromophenol		54	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

^{*} Surrogate recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D110000-057

Prep Batch #...: 1101057

Dilution Factor: 1 Final Wgt/Vol..: 2 mL

Initial Wgt/Vol: 1000 mL

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
1,2,4-Trichloro-	20	9.1	ug/L	46	SW846 8270C
benzene					
Acenaphthene	20	9.8	ug/L	49	SW846 8270C
2,4-Dinitrotoluene	20	10	ug/L	50	SW846 8270C
Pyrene	20	9.8	ug/L	49	SW846 8270C
N-Nitrosodi-n-propyl- amine	20	9.3	ug/L	47	SW846 8270C
1,4-Dichlorobenzene	20	9.7	ug/L	49	SW846 8270C
Pentachlorophenol	20	9.2	ug/L	46	SW846 8270C
Phenol	20	11	ug/L	53	SW846 8270C
2-Chlorophenol	20	10	ug/L	52	SW846 8270C
4-Chloro-3-methylphenol	20	10	ug/L	51	SW846 8270C
4-Nitrophenol	20	10	ug/L	51	SW846 8270C
1,2-Dichlorobenzene	20	9.9	ug/L	49	SW846 8270C
1,3-Dichlorobenzene	20	9.4	ug/L	47	SW846 8270C
2,4,5-Trichloro-	20	10	ug/L	52	SW846 8270C
phenol					
4-Methylphenol	40	21	ug/L	51	SW846 8270C
4-Nitroaniline	20	9.3	ug/L	46	SW846 8270C
Acenaphthylene	20	9.7	ug/L	48	SW846 8270C
Anthracene	20	10	ug/L	50	SW846 8270C
Benzo(a)anthracene	20	9.2	ug/L	46	SW846 8270C
Benzo(a)pyrene	20	8.3	ug/L	42	SW846 8270C
Benzo(b)fluoranthene	20	9.1	ug/L	45	SW846 8270C
Benzo(ghi)perylene	20	9.6	ug/L	48	SW846 8270C
Benzo(k)fluoranthene	20	11	ug/L	55	SW846 8270C
<pre>bis(2-Chloroethoxy) methane</pre>	20	10	ug/L	50	SW846 8270C
<pre>bis(2-Chloroethyl)- ether</pre>	20	9.9	ug/L	50	SW846 8270C
<pre>bis(2-Chloroisopropyl) ether</pre>	20	10	ug/L	50	SW846 8270C
<pre>bis(2-Ethylhexyl) phthalate</pre>	20	10	ug/L	51	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D110000-057

	SPIKE	MEASURED		PERCENT	
PARAMETER	<u>AMOUNT</u>	AMOUNT	UNITS	RECOVERY	METHOD
2,4,6-Trichloro-	20	10	ug/L	50	SW846 8270C
phenol					
2,4-Dichlorophenol	20	10	ug/L	51	SW846 8270C
2,4-Dimethylphenol	20	8.3	ug/L	42	SW846 8270C
2,6-Dinitrotoluene	20	10	ug/L	52	SW846 8270C
2-Chloronaphthalene	20	9.7	ug/L	49	SW846 8270C
2-Methylnaphthalene	20	11	ug/L	56	SW846 8270C
2-Methylphenol	20	10	ug/L	50	SW846 8270C
2-Nitroaniline	20	9.0	ug/L	45	SW846 8270C
2-Nitrophenol	20	10	ug/L	51	SW846 8270C
3,3'-Dichlorobenzidine	20	6.0	ug/L	30	SW846 8270C
3-Nitroaniline	20	8.8	ug/L	44	SW846 8270C
4,6-Dinitro-	20	9.6	ug/L	48	SW846 8270C
2-methylphenol					
4-Bromophenyl phenyl	20	10	ug/L	52	SW846 8270C
ether					
4-Chloroaniline	20	8.1	ug/L	41	SW846 8270C
4-Chlorophenyl phenyl	20	10	ug/L	50	SW846 8270C
ether					
Butyl benzyl phthalate	20	10	ug/L	52	SW846 8270C
Carbazole	20	9.8	ug/L	49	SW846 8270C
Chrysene	20	10	ug/L	51	SW846 8270C
Dibenz(a,h)anthracene	20	9.4	ug/L	47	SW846 8270C
Dibenzofuran	20	9.9	ug/L	49	SW846 8270C
Diethyl phthalate	20	10	ug/L	50	SW846 8270C
Dimethyl phthalate	20	10	ug/L	51	SW846 8270C
Di-n-octyl phthalate	20	9.2	ug/L	46	SW846 8270C
Fluoranthene	20	10	ug/L	50	SW846 8270C
Fluorene	20	9.7	ug/L	49	SW846 8270C
Hexachlorobenzene	20	10	ug/L	52	SW846 8270C
Hexachlorobutadiene	20	9.2	ug/L	46	SW846 8270C
Hexachloroethane	20	9.1	ug/L	45	SW846 8270C
Isophorone	20	9.5	ug/L	48	SW846 8270C
Naphthalene	20	9.3	ug/L	46	SW846 8270C
Nitrobenzene	20	9.8	ug/L	49	SW846 8270C
N-Nitrosodiphenylamine	20	8.8	ug/L	44	SW846 8270C
Phenanthrene	20	9.9	ug/L	49	SW846 8270C

(Continued on next page)

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER

LCS Lot-Sample#: A1D110000-057

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
<pre>Indeno(1,2,3-cd)pyrene</pre>	20	9.7	ug/L	48	SW846 8270C
Di-n-butyl phthalate	20	10	ug/L	50	SW846 8270C
Hexachlorocyclopenta-	20	5.9 a	ug/L	29	SW846 8270C
diene					
Benzoic acid	20	a	ug/L	23	SW846 8270C
Benzyl alcohol	20	11	ug/L	54	SW846 8270C
Atrazine	20	11	ug/L	56	SW846 8270C
Acetophenone	20	11	ug/L	54	SW846 8270C
1,1'-Biphenyl	20	10	ug/L	52	SW846 8270C
Caprolactam	20	9.5	ug/L	47	SW846 8270C
Benzaldehyde	20	18	ug/L	90	SW846 8270C
Aniline	20	7.2	ug/L	36	SW846 8270C
N-Nitrosodimethylamine	20	9.4	ug/L	47	SW846 8270C
Pyridine	20	2.1 a	ug/L	10	SW846 8270C
1,2-Diphenylhydrazine	20	10	ug/L	50	SW846 8270C
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS		
Nitrobenzene-d5		49 *	(50 - 150	<u> </u>	
2-Fluorobiphenyl		49 *	(50 - 150))	
Terphenyl-d14		58	(50 - 150	•	
Phenol-d5		53	(50 - 150))	
2-Fluorophenol		52	(50 - 150	•	
2,4,6-Tribromophenol		54	(50 - 150	•	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

^{*} Surrogate recovery is outside stated control limits.

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MG6N11AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-035

Prep Batch #...: 1109035

Dilution Factor: 1 Final Wgt/Vol..: 2 mL

Initial Wgt/Vol: 1000 mL

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
2,4-Dinitrophenol	42	(29 - 146)	SW846 8270C
			n = @0
		PERCENT	RECOVERY
SURROGATE		RECOVERY	LIMITS
Nitrobenzene-d5		60	(50 - 150)
2-Fluorobiphenyl		64	(50 - 150)
Terphenyl-d14		73	(50 - 150)
Phenol-d5		69	(50 - 150)
2-Fluorophenol		67	(50 - 150)
2,4,6-Tribromophenol		72	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MG6N11AC Matrix.....: WATER

LCS Lot-Sample#: A1D190000-035

Prep Batch #...: 1109035

Dilution Factor: 1 Final Wgt/Vol..: 2 mL

Initial Wgt/Vol: 1000 mL

PARAMETER 2,4-Dinitrophenol	SPIKE AMOUNT 20	MEASURED AMOUNT 8.5	UNITS ug/L	PERCENT RECOVERY 42	METHOD SW846 8270C
		PERCENT	RECOVERY		
SURROGATE		RECOVERY	LIMITS	_	
Nitrobenzene-d5		60	(50 - 150))	
2-Fluorobiphenyl		64	(50 - 150))	
Terphenyl-d14		73	(50 - 150))	
Phenol-d5		69	(50 - 150))	
2-Fluorophenol		67	(50 - 150))	
2,4,6-Tribromophenol		72	(50 - 150))	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Lot/SDG Number: A1D080416

Sample Control Chain of Custody - TAL North Canton GC/MS Semivolatiles

Lot Number	Work Order	Analysis Type	Prep Date	Prep Analyst	Date of Transfer	Transferred By	Analysis Date	Analyst
A1D080416-007	MGP5R1AC	Base/Neutrals and Acids (8270C)	04/11/11	Eric Mills	04/12/11	Leslie Howell	04/14/11	John Gruber
A1D080416-007	MGP5R2AC	Base/Neutrals and Acids (8270C)	04/19/11	Eric Mills	04/20/11	Steve Earle	04/21/11	John Gruber
A1D080416-009	MGP531AC	Base/Neutrals and Acids (8270C)	04/11/11	Eric Mills	04/12/11	Leslie Howell	04/14/11	John Gruber
A1D080416-009	MGP532AC	Base/Neutrals and Acids (8270C)	04/19/11	Eric Mills	04/20/11	Steve Earle	04/21/11	John Gruber



PESTICIDE DATA

Client Sample ID: FWGLL1mw-084C-0200-GW

GC Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AW Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11
Prep Date....: 04/09/11 Analysis Date..: 04/18/11

Prep Batch #...: 1099014

Dilution Factor: 5 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 5 mL

Method....: SW846 8081A

		REPORTING	
PARAMETER	RESULT	LIMIT	<u>UNITS</u>
alpha-BHC	ND	0.15	ug/L
beta-BHC	ND	0.15	ug/L
delta-BHC	ND	0.15	ug/L
gamma-BHC (Lindane)	ND	0.15	ug/L
Heptachlor	ND	0.15	ug/L
Aldrin	ND	0.15	ug/L
Heptachlor epoxide	ND	0.15	ug/L
Endosulfan I	ND	0.12	ug/L
Dieldrin	ND	0.15	ug/L
4,4'-DDE	ND	0.15	ug/L
Endrin	ND	0.15	ug/L
Endosulfan II	ND	0.12	ug/L
4,4'-DDD	ND	0.15	ug/L
Endosulfan sulfate	ND	0.15	ug/L
4,4'-DDT	ND	0.15	ug/L
Methoxychlor	ND	0.50	ug/L
Endrin ketone	ND	0.15	ug/L
Endrin aldehyde	ND	0.15	ug/L
alpha-Chlordane	ND	0.15	ug/L
gamma-Chlordane	ND	0.15	ug/L
Toxaphene	ND	10	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Tetrachloro-m-xylene	84 DIL	(50 - 150)	
Decachlorobiphenyl	14 DIL,*	(50 - 150)	

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

^{*} Surrogate recovery is outside stated control limits.

Client Sample ID: FWGLL4mw-198C-0210-GW

GC Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AW Matrix.....: WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11
Prep Date.....: 04/09/11 Analysis Date..: 04/17/11

Prep Batch #...: 1099014

Method....: SW846 8081A

		REPORTIN	
PARAMETER	RESULT	<u>LIMIT</u>	<u>UNITS</u>
alpha-BHC	ND	0.030	ug/L
beta-BHC	ND	0.030	ug/L
delta-BHC	ND	0.030	ug/L
gamma-BHC (Lindane)	ND	0.030	ug/L
Heptachlor	ND	0.030	ug/L
Aldrin	ND	0.030	ug/L
Heptachlor epoxide	ND	0.030	ug/L
Endosulfan I	ND	0.025	ug/L
Dieldrin	ND	0.030	ug/L
4,4'-DDE	ND	0.030	ug/L
Endrin	ND	0.030	ug/L
Endosulfan II	ND	0.025	ug/L
4,4'-DDD	ND	0.030	ug/L
Endosulfan sulfate	ND	0.030	ug/L
4,4'-DDT	ND	0.030	ug/L
Methoxychlor	ND	0.10	ug/L
Endrin ketone	ND	0.030	ug/L
Endrin aldehyde	ND	0.030	ug/L
alpha-Chlordane	ND	0.030	ug/L
gamma-Chlordane	ND	0.030	ug/L
Toxaphene	ND	2.0	ug/L
	PERCENT	RECOVERY	·
SURROGATE	RECOVERY	LIMITS	
Tetrachloro-m-xylene	78	(50 - 15	50)
Decachlorobiphenyl	58	(50 - 15	50)

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGR9L1AA Matrix.....: WATER

MB Lot-Sample #: A1D090000-014

Prep Date.....: 04/09/11 Final Wgt/Vol..: 5 mL

Analysis Date..: 04/17/11 Prep Batch #...: 1099014
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL

REPORTING

PARAMETER	RESULT	LIMIT	UNITS	METHOD
alpha-BHC	ND	0.030	ug/L	SW846 8081A
beta-BHC	ND	0.030	ug/L	SW846 8081A
delta-BHC	ND	0.030	ug/L	SW846 8081A
gamma-BHC (Lindane)	ND	0.030	ug/L	SW846 8081A
Heptachlor	ND	0.030	ug/L	SW846 8081A
Aldrin	ND	0.030	ug/L	SW846 8081A
Heptachlor epoxide	ND	0.030	ug/L	SW846 8081A
Endosulfan I	ND	0.025	ug/L	SW846 8081A
Dieldrin	ND	0.030	ug/L	SW846 8081A
4,4'-DDE	ND	0.030	ug/L	SW846 8081A
Endrin	ND	0.030	ug/L	SW846 8081A
Endosulfan II	ND	0.025	ug/L	SW846 8081A
4,4'-DDD	ND	0.030	ug/L	SW846 8081A
Endosulfan sulfate	ND	0.030	ug/L	SW846 8081A
4,4'-DDT	ND	0.030	ug/L	SW846 8081A
Methoxychlor	ND	0.10	ug/L	SW846 8081A
Endrin ketone	ND	0.030	ug/L	SW846 8081A
Endrin aldehyde	ND	0.030	ug/L	SW846 8081A
alpha-Chlordane	ND	0.030	ug/L	SW846 8081A
gamma-Chlordane	ND	0.030	ug/L	SW846 8081A
Toxaphene	ND	2.0	ug/L	SW846 8081A
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Tetrachloro-m-xylene	81	(50 - 150))	
Decachlorobiphenyl	72	(50 - 150))	

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

GC Semivolatiles

Client Lot #...: AlD080416 Work Order #...: MGR9L1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-014

Prep Batch #...: 1099014

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

	PERCENT	RECOVERY	
PARAMETER	RECOVERY	LIMITS	METHOD
alpha-BHC	96	(44 - 137)	SW846 8081A
beta-BHC	92	(50 - 135)	SW846 8081A
delta-BHC	96	(58 - 160)	SW846 8081A
gamma-BHC (Lindane)	98	(58 - 127)	SW846 8081A
Heptachlor	89	(48 - 150)	SW846 8081A
Aldrin	88	(53 - 128)	SW846 8081A
Heptachlor epoxide	90	(50 - 127)	SW846 8081A
Endosulfan I	54	(50 - 160)	SW846 8081A
Dieldrin	91	(50 - 124)	SW846 8081A
4,4'-DDE	92	(50 - 130)	SW846 8081A
Endrin	91	(50 - 137)	SW846 8081A
Endosulfan II	61	(50 - 144)	SW846 8081A
4,4'-DDD	100	(50 - 137)	SW846 8081A
Endosulfan sulfate	91	(50 - 160)	SW846 8081A
4,4'-DDT	92	(50 - 145)	SW846 8081A
Methoxychlor	94	(50 - 160)	SW846 8081A
Endrin ketone	87	(50 - 150)	SW846 8081A
Endrin aldehyde	72	(30 - 160)	SW846 8081A
alpha-Chlordane	89	(50 - 122)	SW846 8081A
gamma-Chlordane	92	(50 - 130)	SW846 8081A
		PERCENT	RECOVERY
SURROGATE		<u>RECOVERY</u>	<u>LIMITS</u>
Tetrachloro-m-xylene		86	(50 - 150)
Decachlorobiphenyl		40 *	(50 - 150)

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \textbf{are} \ \textbf{performed} \ \textbf{before} \ \textbf{rounding} \ \textbf{to} \ \textbf{avoid} \ \textbf{round-off} \ \textbf{errors} \ \textbf{in} \ \textbf{calculated} \ \textbf{results}.$

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

GC Semivolatiles

Client Lot #...: AlD080416 Work Order #...: MGR9L1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-014

Prep Batch #...: 1099014

Dilution Factor: 1 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

	SPIKE	MEASURED		PERCENT	
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	METHOD
alpha-BHC	1.0	0.96	ug/L	96	SW846 8081A
beta-BHC	1.0	0.92	ug/L	92	SW846 8081A
delta-BHC	1.0	0.96	ug/L	96	SW846 8081A
gamma-BHC (Lindane)	1.0	0.98	ug/L	98	SW846 8081A
Heptachlor	1.0	0.89	ug/L	89	SW846 8081A
Aldrin	1.0	0.88	ug/L	88	SW846 8081A
Heptachlor epoxide	1.0	0.90	ug/L	90	SW846 8081A
Endosulfan I	1.0	0.54	ug/L	54	SW846 8081A
Dieldrin	1.0	0.91	ug/L	91	SW846 8081A
4,4'-DDE	1.0	0.92	ug/L	92	SW846 8081A
Endrin	1.0	0.91	ug/L	91	SW846 8081A
Endosulfan II	1.0	0.61	ug/L	61	SW846 8081A
4,4'-DDD	1.0	1.0	ug/L	100	SW846 8081A
Endosulfan sulfate	1.0	0.91	ug/L	91	SW846 8081A
4,4'-DDT	1.0	0.92	ug/L	92	SW846 8081A
Methoxychlor	1.0	0.94	ug/L	94	SW846 8081A
Endrin ketone	1.0	0.87	ug/L	87	SW846 8081A
Endrin aldehyde	1.0	0.72	ug/L	72	SW846 8081A
alpha-Chlordane	1.0	0.89	ug/L	89	SW846 8081A
gamma-Chlordane	1.0	0.92	ug/L	92	SW846 8081A
		PERCENT	RECOVERY		
SURROGATE		<u>RECOVERY</u>	LIMITS	_	
Tetrachloro-m-xylene		86	(50 - 150)		
Decachlorobiphenyl		40 *	(50 - 150)		

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \textbf{are} \ \textbf{performed} \ \textbf{before} \ \textbf{rounding} \ \textbf{to} \ \textbf{avoid} \ \textbf{round-off} \ \textbf{errors} \ \textbf{in} \ \textbf{calculated} \ \textbf{results}.$

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date.....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099014

Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	<u>RPD</u>	LIMITS	METHOD
alpha-BHC	101	(50 - 150)			SW846 8081A
_	94	(50 - 150)	6.8	(0-50)	SW846 8081A
beta-BHC	99	(50 - 150)			SW846 8081A
	91	(50 - 150)	7.6	(0-50)	SW846 8081A
delta-BHC	102	(50 - 150)			SW846 8081A
	95	(50 - 150)	7.2	(0-50)	SW846 8081A
gamma-BHC (Lindane)	101	(50 - 150)			SW846 8081A
	95	(50 - 150)	7.0	(0-50)	SW846 8081A
Heptachlor	94	(50 - 150)			SW846 8081A
	90	(50 - 150)	4.5	(0-50)	SW846 8081A
Aldrin	92	(50 - 150)			SW846 8081A
	87	(50 - 150)	6.5	(0-50)	SW846 8081A
Heptachlor epoxide	92	(50 - 150)			SW846 8081A
	86	(50 - 150)	6.2	(0-50)	SW846 8081A
Endosulfan I	61	(50 - 150)			SW846 8081A
	57	(50 - 150)	6.3	(0-50)	SW846 8081A
Dieldrin	98	(50 - 150)			SW846 8081A
	91	(50 - 150)	6.8	(0-50)	SW846 8081A
4,4'-DDE	100	(50 - 150)			SW846 8081A
	94	(50 - 150)	6.2	(0-50)	SW846 8081A
Endrin	98	(50 - 150)			SW846 8081A
	92	(50 - 150)	6.4	(0-50)	SW846 8081A
Endosulfan II	67	(50 - 150)			SW846 8081A
	65	(50 - 150)	4.3	(0-50)	SW846 8081A
4,4'-DDD	106	(50 - 150)			SW846 8081A
	101	(50 - 150)	4.4	(0-50)	SW846 8081A
Endosulfan sulfate	98	(50 - 150)			SW846 8081A
	94	(50 - 150)	4.0	(0-50)	SW846 8081A
4,4'-DDT	103	(50 - 150)			SW846 8081A
	99	(50 - 150)	3.4	(0-50)	SW846 8081A
Methoxychlor	104	(50 - 150)			SW846 8081A
	103	(50 - 150)	0.91	(0-50)	SW846 8081A
Endrin ketone	94	(50 - 150)			SW846 8081A
	91	(50 - 150)	3.2	(0-50)	SW846 8081A
Endrin aldehyde	78	(50 - 150)			SW846 8081A
	75	(50 - 150)	4.4	(0-50)	SW846 8081A
alpha-Chlordane	95	(50 - 150)			SW846 8081A
	89	(50 - 150)	6.6	(0-50)	SW846 8081A
gamma-Chlordane	98	(50 - 150)			SW846 8081A
	91	(50 - 150)	7.3	(0-50)	SW846 8081A

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Tetrachloro-m-xylene	91	(50 - 150)
	85	(50 - 150)
Decachlorobiphenyl	81	(50 - 150)
	86	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date.....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099014

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD
alpha-BHC	ND	2.0	2.0	ug/L	101		SW846 8081A
_	ND	2.0	1.9	ug/L	94	6.8	SW846 8081A
beta-BHC	ND	2.0	2.0	ug/L	99		SW846 8081A
	ND	2.0	1.8	ug/L	91	7.6	SW846 8081A
delta-BHC	ND	2.0	2.0	ug/L	102		SW846 8081A
	ND	2.0	1.9	ug/L	95	7.2	SW846 8081A
gamma-BHC (Lindane)	ND	2.0	2.0	ug/L	101		SW846 8081A
	ND	2.0	1.9	ug/L	95	7.0	SW846 8081A
Heptachlor	ND	2.0	1.9	ug/L	94		SW846 8081A
	ND	2.0	1.8	ug/L	90	4.5	SW846 8081A
Aldrin	ND	2.0	1.8	ug/L	92		SW846 8081A
	ND	2.0	1.7	ug/L	87	6.5	SW846 8081A
Heptachlor epoxide	ND	2.0	1.8	ug/L	92		SW846 8081A
	ND	2.0	1.7	ug/L	86	6.2	SW846 8081A
Endosulfan I	ND	2.0	1.2	ug/L	61		SW846 8081A
	ND	2.0	1.1	ug/L	57	6.3	SW846 8081A
Dieldrin	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.8	ug/L	91	6.8	SW846 8081A
4,4'-DDE	ND	2.0	2.0	ug/L	100		SW846 8081A
	ND	2.0	1.9	ug/L	94	6.2	SW846 8081A
Endrin	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.8	ug/L	92	6.4	SW846 8081A
Endosulfan II	ND	2.0	1.3	ug/L	67		SW846 8081A
	ND	2.0	1.3	ug/L	65	4.3	SW846 8081A
4,4'-DDD	ND	2.0	2.1	ug/L	106		SW846 8081A
	ND	2.0	2.0	ug/L	101	4.4	SW846 8081A
Endosulfan sulfate	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.9	ug/L	94	4.0	SW846 8081A
4,4'-DDT	ND	2.0	2.1	ug/L	103		SW846 8081A
	ND	2.0	2.0	ug/L	99	3.4	SW846 8081A
Methoxychlor	ND	2.0	2.1	ug/L	104		SW846 8081A
	ND	2.0	2.1	ug/L	103	0.91	SW846 8081A
Endrin ketone	ND	2.0	1.9	ug/L	94		SW846 8081A
	ND	2.0	1.8	ug/L	91	3.2	SW846 8081A
Endrin aldehyde	ND	2.0	1.6	ug/L	78		SW846 8081A
	ND	2.0	1.5	ug/L	75	4.4	SW846 8081A
alpha-Chlordane	ND	2.0	1.9	ug/L	95		SW846 8081A
	ND	2.0	1.8	ug/L	89	6.6	SW846 8081A
gamma-Chlordane	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.8	ug/L	91	7.3	SW846 8081A

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MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM7Q1AT-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Tetrachloro-m-xylene	91	(50 - 150)
	85	(50 - 150)
Decachlorobiphenyl	81	(50 - 150)
	86	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM891AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/17/11

Prep Batch #...: 1099014

Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	<u>RECOVERY</u>	LIMITS	RPD_	LIMITS	METHOD
alpha-BHC	97	(50 - 150)			SW846 8081A
_	92	(50 - 150)	5.1	(0-50)	SW846 8081A
beta-BHC	96	(50 - 150)			SW846 8081A
	87	(50 - 150)	9.1	(0-50)	SW846 8081A
delta-BHC	99	(50 - 150)			SW846 8081A
	92	(50 - 150)	7.8	(0-50)	SW846 8081A
gamma-BHC (Lindane)	102	(50 - 150)			SW846 8081A
	96	(50 - 150)	6.7	(0-50)	SW846 8081A
Heptachlor	85	(50 - 150)			SW846 8081A
	81	(50 - 150)	5.2	(0-50)	SW846 8081A
Aldrin	86	(50 - 150)			SW846 8081A
	82	(50 - 150)	4.7	(0-50)	SW846 8081A
Heptachlor epoxide	95	(50 - 150)			SW846 8081A
	89	(50 - 150)	6.5	(0-50)	SW846 8081A
Endosulfan I	61	(50 - 150)			SW846 8081A
	55	(50 - 150)	9.6	(0-50)	SW846 8081A
Dieldrin	98	(50 - 150)			SW846 8081A
	89	(50 - 150)	9.4	(0-50)	SW846 8081A
4,4'-DDE	91	(50 - 150)			SW846 8081A
	84	(50 - 150)	8.1	(0-50)	SW846 8081A
Endrin	100	(50 - 150)			SW846 8081A
	90	(50 - 150)	11	(0-50)	SW846 8081A
Endosulfan II	66	(50 - 150)			SW846 8081A
	61	(50 - 150)	8.2	(0-50)	SW846 8081A
4,4'-DDD	106	(50 - 150)			SW846 8081A
	95	(50 - 150)	11	(0-50)	SW846 8081A
Endosulfan sulfate	100	(50 - 150)			SW846 8081A
	89	(50 - 150)	11	(0-50)	SW846 8081A
4,4'-DDT	98	(50 - 150)			SW846 8081A
	87	(50 - 150)	12	(0-50)	SW846 8081A
Methoxychlor	103	(50 - 150)			SW846 8081A
	92	(50 - 150)	12	(0-50)	SW846 8081A
Endrin ketone	96	(50 - 150)			SW846 8081A
	86	(50 - 150)	10	(0-50)	SW846 8081A
Endrin aldehyde	78	(50 - 150)			SW846 8081A
	71	(50 - 150)	9.6	(0-50)	SW846 8081A
alpha-Chlordane	92	(50 - 150)			SW846 8081A
	84	(50 - 150)	9.0	(0-50)	SW846 8081A
gamma-Chlordane	95	(50 - 150)			SW846 8081A
	88	(50 - 150)	7.8	(0-50)	SW846 8081A

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM891AT-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

	PERCENT	RECOVERY
SURROGATE	RECOVERY	LIMITS
Tetrachloro-m-xylene	82	(50 - 150)
	80	(50 - 150)
Decachlorobiphenyl	31 *	(50 - 150)
	28 *	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results. Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM891AT-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/17/11

Prep Batch #...: 1099014

Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	SAMPLE	SPIKE	MEASRD		PERCNT		
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD
alpha-BHC	ND	2.0	1.9	ug/L	97		SW846 8081A
_	ND	2.0	1.8	ug/L	92	5.1	SW846 8081A
beta-BHC	ND	2.0	1.9	ug/L	96		SW846 8081A
	ND	2.0	1.7	ug/L	87	9.1	SW846 8081A
delta-BHC	ND	2.0	2.0	ug/L	99		SW846 8081A
	ND	2.0	1.8	ug/L	92	7.8	SW846 8081A
gamma-BHC (Lindane)	ND	2.0	2.0	ug/L	102		SW846 8081A
	ND	2.0	1.9	ug/L	96	6.7	SW846 8081A
Heptachlor	ND	2.0	1.7	ug/L	85		SW846 8081A
	ND	2.0	1.6	ug/L	81	5.2	SW846 8081A
Aldrin	ND	2.0	1.7	ug/L	86		SW846 8081A
	ND	2.0	1.6	ug/L	82	4.7	SW846 8081A
Heptachlor epoxide	ND	2.0	1.9	ug/L	95		SW846 8081A
	ND	2.0	1.8	ug/L	89	6.5	SW846 8081A
Endosulfan I	ND	2.0	1.2	ug/L	61		SW846 8081A
	ND	2.0	1.1	ug/L	55	9.6	SW846 8081A
Dieldrin	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.8	ug/L	89	9.4	SW846 8081A
4,4'-DDE	ND	2.0	1.8	ug/L	91		SW846 8081A
	ND	2.0	1.7	ug/L	84	8.1	SW846 8081A
Endrin	ND	2.0	2.0	ug/L	100		SW846 8081A
	ND	2.0	1.8	ug/L	90	11	SW846 8081A
Endosulfan II	ND	2.0	1.3	ug/L	66		SW846 8081A
	ND	2.0	1.2	ug/L	61	8.2	SW846 8081A
4,4'-DDD	ND	2.0	2.1	ug/L	106		SW846 8081A
	ND	2.0	1.9	ug/L	95	11	SW846 8081A
Endosulfan sulfate	ND	2.0	2.0	ug/L	100		SW846 8081A
	ND	2.0	1.8	ug/L	89	11	SW846 8081A
4,4'-DDT	ND	2.0	2.0	ug/L	98		SW846 8081A
	ND	2.0	1.7	ug/L	87	12	SW846 8081A
Methoxychlor	ND	2.0	2.1	ug/L	103		SW846 8081A
	ND	2.0	1.8	ug/L	92	12	SW846 8081A
Endrin ketone	ND	2.0	1.9	ug/L	96		SW846 8081A
	ND	2.0	1.7	ug/L	86	10	SW846 8081A
Endrin aldehyde	ND	2.0	1.6	ug/L	78		SW846 8081A
	ND	2.0	1.4	ug/L	71	9.6	SW846 8081A
alpha-Chlordane	ND	2.0	1.8	ug/L	92		SW846 8081A
	ND	2.0	1.7	ug/L	84	9.0	SW846 8081A
gamma-Chlordane	ND	2.0	1.9	ug/L	95		SW846 8081A
	ND	2.0	1.8	ug/L	88	7.8	SW846 8081A

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MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM891AT-MS Matrix....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Tetrachloro-m-xylene	82	(50 - 150)	
	80	(50 - 150)	
Decachlorobiphenyl	31 *	(50 - 150)	
	28 *	(50 - 150)	

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \textbf{are} \ \textbf{performed} \ \textbf{before} \ \textbf{rounding} \ \textbf{to} \ \textbf{avoid} \ \textbf{round-off} \ \textbf{errors} \ \textbf{in} \ \textbf{calculated} \ \textbf{results}.$

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

North Canton

Lot/SDG Number: A1D080416

Sample Control Chain of Custody - TAL North Canton GC Semivolatiles

					Date of			
Lot Number	Work Order	Analysis Type	Prep Date	Prep Analyst	Transfer	Transferred By	Analysis Date	Analyst
A1D080416-007	MGP5R1AW	Pesticides (8081A)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/18/11	Carolyn Van Doren
A1D080416-009	MGP531AW	Pesticides (8081A)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/17/11	Carolynne Roach



POLYCHLORINATED BIPHENYLS DATA

Client Sample ID: FWGLL1mw-084C-0200-GW

GC Semivolatiles

Lot-Sample #: A1D080416-007 Date Sampled: 04/07/11 12:00 Prep Date: 04/09/11 Prep Batch #: 1099015		04/08/11	Matrix: WG
Dilution Factor: 1	-		Final Wgt/Vol: 5 mL
	Method:	SW846 8U82	
		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
Aroclor 1016	ND	0.50	ug/L
Aroclor 1221	ND	0.50	ug/L
Aroclor 1232	ND	0.50	ug/L
Aroclor 1242	ND	0.50	ug/L
Aroclor 1248	ND	0.50	ug/L
Aroclor 1254	ND	0.50	ug/L
Aroclor 1260	ND	0.50	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Tetrachloro-m-xylene	75	(50 - 150)	
Decachlorobiphenyl	12 *	(50 - 150)	

NOTE(S):

^{*} Surrogate recovery is outside stated control limits.

Client Sample ID: FWGLL4mw-198C-0210-GW

GC Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AG Matrix.....: WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11
Prep Date....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099015

Method....: SW846 8082

		REPORTING	3
PARAMETER	RESULT	LIMIT	UNITS
Aroclor 1016	ND	0.50	ug/L
Aroclor 1221	ND	0.50	ug/L
Aroclor 1232	ND	0.50	ug/L
Aroclor 1242	ND	0.50	ug/L
Aroclor 1248	ND	0.50	ug/L
Aroclor 1254	ND	0.50	ug/L
Aroclor 1260	ND	0.50	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
Tetrachloro-m-xylene	77	(50 - 150))
Decachlorobiphenyl	53	(50 - 150))

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGR9M1AA Matrix.....: WATER

MB Lot-Sample #: A1D090000-015

Prep Date.....: 04/09/11 Final Wgt/Vol..: 5 mL

Analysis Date..: 04/16/11 Prep Batch #...: 1099015 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL

REPORTING

PARAMETER	RESULT	LIMIT	UNITS	METHOD
Aroclor 1016	ND	0.50	ug/L	SW846 8082
Aroclor 1221	ND	0.50	ug/L	SW846 8082
Aroclor 1232	ND	0.50	ug/L	SW846 8082
Aroclor 1242	ND	0.50	ug/L	SW846 8082
Aroclor 1248	ND	0.50	ug/L	SW846 8082
Aroclor 1254	ND	0.50	ug/L	SW846 8082
Aroclor 1260	ND	0.50	ug/L	SW846 8082
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS	_	
Tetrachloro-m-xylene	81	(50 - 150)	
Decachlorobiphenyl	70	(50 - 150)	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGR9M1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-015

Prep Batch #...: 1099015

Dilution Factor: 2 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

PERCENT RECOVERY

 PARAMETER
 RECOVERY
 LIMITS
 METHOD

 Aroclor 1016
 84
 (58 - 141)
 SW846 8082

 Aroclor 1260
 83
 (71 - 143)
 SW846 8082

 SURROGATE
 PERCENT
 RECOVERY

 Tetrachloro-m-xylene
 77
 (50 - 150)

 Decachlorobiphenyl
 39 *
 (50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGR9M1AC Matrix.....: WATER

LCS Lot-Sample#: A1D090000-015

Prep Batch #...: 1099015

Dilution Factor: 2 Final Wgt/Vol..: 5 mL

Initial Wgt/Vol: 1000 mL

PARAMETER Aroclor 1016 Aroclor 1260	SPIKE AMOUNT 10 10	MEASURED AMOUNT 8.4 8.3	UNITS ug/L ug/L	PERCENT RECOVERY 84 83	METHOD SW846 8082 SW846 8082
SURROGATE Tetrachloro-m-xylene Decachlorobiphenyl		PERCENT RECOVERY 77 39 *	RECOVERY <u>LIMITS</u> (50 - 150) (50 - 150)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM7Q1AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AW-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/15/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
Aroclor 1016	90	(50 - 150)			SW846 8082
	89	(50 - 150)	0.78	(0-50)	SW846 8082
Aroclor 1260	89	(50 - 150)			SW846 8082
	91	(50 - 150)	2.2	(0-50)	SW846 8082
		PERCENT		RECOVERY	
SURROGATE		RECOVERY		LIMITS	_
Tetrachloro-m-xylene		85		(50 - 150)
		87		(50 - 150)
Decachlorobiphenyl		72		(50 - 150)
		74		(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM7Q1AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-016 MGM7Q1AW-MSD

Date Sampled...: 04/06/11 09:22 Date Received..: 04/07/11
Prep Date....: 04/09/11 Analysis Date..: 04/15/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	SAMPLE	SPIKE	MEASRD			PERCNT				
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS		<u>RECVRY</u>	<u>RPD</u>	<u>METHOI</u>)	_
Aroclor 1016	ND	20	18	ug/L		90		SW846	8082	
	ND	20	18	ug/L		89	0.78	SW846	8082	
Aroclor 1260	ND	20	18	ug/L		89		SW846	8082	
	ND	20	18	ug/L		91	2.2	SW846	8082	
		P.	ERCENT		REC	COVERY				
SURROGATE	=	<u>R</u> :	ECOVERY		LIM	MITS	_			
Tetrachloro-m-xylene		8	5		(50	- 150)			
		8	7		(50	- 150)			
Decachlorobiphenyl		7	2		(50	- 150)			
		7	4		(50	- 150)			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM891AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AW-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date.....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD_	LIMITS	METHOD
Aroclor 1016	91	(50 - 150)			SW846 8082
	91	(50 - 150)	0.0	(0-50)	SW846 8082
Aroclor 1260	81	(50 - 150)			SW846 8082
	81	(50 - 150)	0.0	(0-50)	SW846 8082
		PERCENT		RECOVERY	
SURROGATE		RECOVERY		LIMITS	
Tetrachloro-m-xylene		88		(50 - 150)
		88		(50 - 150)
Decachlorobiphenyl		45 *		(50 - 150)
		45 *		(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM891AV-MS Matrix.....: WATER

MS Lot-Sample #: A1D070402-030 MGM891AW-MSD

Date Sampled...: 04/06/11 13:09 Date Received..: 04/07/11
Prep Date.....: 04/09/11 Analysis Date..: 04/16/11

Prep Batch #...: 1099015

Dilution Factor: 2 Initial Wgt/Vol: 500 mL Final Wgt/Vol..: 5 mL

PARAMETER Aroclor 1016	SAMPLE AMOUNT ND ND	SPIKE <u>AMT</u> 20 20	MEASRD AMOUNT 18 18	UNITS ug/L ug/L	PERO <u>RECV</u> 91 91		METHOI SW846 SW846	8082
Aroclor 1260	ND	20	16	ug/L	81		SW846	8082
	ND	20	16	ug/L	81	0.0	SW846	8082
			PERCENT		RECOVER	RY		
SURROGATE	-		<u>RECOVERY</u>		<u>LIMITS</u>			
Tetrachloro-m-xylene			88		(50 - 1	50)		
Decachlorobiphenyl			88 45 *		(50 - 1 (50 - 1	.50) .50)		
			45 *		(50 - 1	50)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

^{*} Surrogate recovery is outside stated control limits.

North Cant

Lot/SDG Number: A1D080416

Sample Control Chain of Custody - TAL North Canton GC Semivolatiles

					Date of			
Lot Number	Work Order	Analysis Type	Prep Date	Prep Analyst	Transfer	Transferred By	Analysis Date	Analyst
A1D080416-007	MGP5R1AG	PCBs (8082)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/16/11	Lori Hass
A1D080416-009	MGP531AG	PCBs (8082)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/16/11	Lori Hass



METALS DATA

Client Sample ID: FWGLL1mw-084C-0200-GF

TOTAL Metals

Lot-Sample #...: A1D080416-008 Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

-				
		REPORTING		PREPARATION- WORK
PARAMETER	RESULT	<u>LIMIT</u> <u>UNITS</u>	METHOD	ANALYSIS DATE ORDER #
Prep Batch #				
Silver	ND	5.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AX
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Aluminum	404	50.0 ug/L	SW846 6020	04/14-04/18/11 MGP5W1AA
		Dilution Factor: 1	Analysis Time: 14:13	Analyst ID: 000079
		Instrument ID: 18		
Arsenic	ND	5.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AK
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Barium	15.7	10.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AN
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Beryllium	ND	1.0 ug/L	SW846 6020	04/14-04/18/11 MGP5W1AD
		Dilution Factor: 1	Analysis Time: 14:13	Analyst ID: 000079
		Instrument ID: 18		
Calcium	42300	1000 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AP
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
~				
Cadmium	1.6	0.50 ug/L	SW846 6020	04/14-04/18/11 MGP5W1AE
		Dilution Factor: 1 Instrument ID: I8	Analysis Time: 14:13	Analyst ID: 000079
		instrument ib 10		
Cobalt	19.6	5.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AQ
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Class and a see	MD	Γ. Ο/Τ	QUO 4 C C C C C C C C C C C C C C C C C C	04/14 04/15/11 2500577131
Chromium	ND	5.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1A1
		Dilution Factor: 1 Instrument ID: I5	Analysis Time: 06:55	Analyst ID: 002260
		INSCIUMENC ID 13		
Copper	9.3	5.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AR
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		

(Continued on next page)

Client Sample ID: FWGLL1mw-084C-0200-GF

TOTAL Metals

Lot-Sample #...: A1D080416-008 **Matrix.....:** WG

	DEGIH E	REPORTING	MERILOD	PREPARATION- WORK
<u>PARAMETER</u> Iron	RESULT ND	LIMIT UNITS 50.0 ug/L	METHOD SW846 6020	ANALYSIS DATE ORDER # 04/14-04/18/11 MGP5W1AF
11011	ND	Dilution Factor: 1	Analysis Time: 14:13	Analyst ID: 000079
		Instrument ID: 18	imaryorb frace 11:13	indiffic ib 6000/5
Mercury	ND	0.20 ug/L	SW846 7470A	04/14-04/15/11 MGP5W1A2
		Dilution Factor: 1 Instrument ID: H1	Analysis Time: 10:34	Analyst ID: 002260
Potassium	2500	1000 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AW
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Magnesium	3200	1000 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AT
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Manganese	243 Ј	10.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AU
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Sodium	3140	1000 ug/L	SW846 6020	04/14-04/18/11 MGP5W1AG
		Dilution Factor: 1	Analysis Time: 14:13	Analyst ID: 000079
		Instrument ID: 18		
Nickel	37.0	10.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AV
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Lead	ND	3.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AL
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Antimony	ND	2.0 ug/L	SW846 6020	04/14-04/18/11 MGP5W1AC
		Dilution Factor: 1	Analysis Time: 14:13	Analyst ID: 000079
		Instrument ID: 18		
Selenium	ND	5.0 ug/L	SW846 6010B	04/14-04/15/11 MGP5W1AM
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		

(Continued on next page)

Client Sample ID: FWGLL1mw-084C-0200-GF

TOTAL Metals

Lot-Sample #...: A1D080416-008 **Matrix.....:** WG

		REPORTING				PREPARATION-	WORK
PARAMETER	RESULT	LIMIT	UNITS	METHO1	D	ANALYSIS DATE	ORDER #
Thallium	0.55 в	1.0	ug/L	SW846	6020	04/14-04/18/11	MGP5W1AH
		Dilution Facto	or: 1	Analysis	Time: 14:13	Analyst ID	: 000079
		Instrument ID.	: I8				
Vanadium	ND	10.0	ug/L	SW846	6010B	04/14-04/15/11	MGP5W1A0
		Dilution Facto	or: 1	Analysis	Time: 06:55	Analyst ID	: 002260
		Instrument ID.	: I5				
Zinc	72.4 J	10.0	ug/L	SW846	6020	04/14-04/18/11	MGP5W1AJ
		Dilution Facto	or: 1	Analysis	Time: 14:13	Analyst ID	: 000079
		Instrument ID.	: 18				

NOTE(S):

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL4mw-198C-0210-GF

TOTAL Metals

Lot-Sample #...: A1D080416-010 **Matrix.....:** WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11

PARAMETER	RESULT	REPORTING LIMIT UNITS	METHOD	PREPARATION- WORK ANALYSIS DATE ORDER #
Prep Batch #	.: 1101020			
Silver	ND	5.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 21:17	04/11-04/14/11 MGP6A1A2 Analyst ID: 002260
Aluminum	34.4 B	50.0 ug/L Dilution Factor: 1 Instrument ID: I8	SW846 6020 Analysis Time: 13:26	04/11-04/13/11 MGP6A1AE Analyst ID: 000079
Arsenic	ND	5.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 21:17	04/11-04/14/11 MGP6A1AN Analyst ID: 002260
Barium	10.3	10.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 21:17	04/11-04/14/11 MGP6A1AR Analyst ID: 002260
Beryllium	ND	1.0 ug/L Dilution Factor: 1 Instrument ID: I8	SW846 6020 Analysis Time: 13:26	04/11-04/13/11 MGP6A1AG Analyst ID: 000079
Calcium	27500	1000 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 21:17	04/11-04/14/11 MGP6A1AT Analyst ID: 002260
Cadmium	ND	0.50 ug/L Dilution Factor: 1 Instrument ID: 18	SW846 6020 Analysis Time: 13:26	04/11-04/13/11 MGP6A1AH Analyst ID: 000079
Cobalt	ND	5.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 21:17	04/11-04/14/11 MGP6A1AU Analyst ID: 002260
Chromium	ND	5.0 ug/L Dilution Factor: 1 Instrument ID: I5	SW846 6010B Analysis Time: 21:17	04/11-04/14/11 MGP6A1AC Analyst ID: 002260
Copper	ND	5.0 ug/L Dilution Factor: 1 Instrument ID.:: I5	SW846 6010B Analysis Time: 21:17	04/11-04/14/11 MGP6A1AV Analyst ID: 002260

(Continued on next page)

Client Sample ID: FWGLL4mw-198C-0210-GF

TOTAL Metals

Lot-Sample #...: A1D080416-010 **Matrix.....:** WG

		REPORTING		PREPARATION- WORK
PARAMETER	RESULT	LIMIT UNITS	METHOD	ANALYSIS DATE ORDER #
Iron	4690	50.0 ug/L Dilution Factor: 1	SW846 6020	04/11-04/13/11 MGP6A1AJ
		Instrument ID: 18	Analysis Time: 13:26	Analyst ID: 000079
		Instrument ID 10		
Mercury	ND	0.20 ug/L	SW846 7470A	04/11-04/12/11 MGP6A1AD
		Dilution Factor: 1	Analysis Time: 13:43	Analyst ID: 002260
		Instrument ID: H1		
Potassium	717 в	1000 ug/L	SW846 6010B	04/11-04/14/11 MGP6A1A1
		Dilution Factor: 1	Analysis Time: 21:17	Analyst ID: 002260
		Instrument ID: I5	-	-
Magnesium	14900	1000 ug/L	SW846 6010B	04/11-04/14/11 MGP6A1AW
nagnes Lum	11500	Dilution Factor: 1	Analysis Time: 21:17	Analyst ID: 002260
		Instrument ID: I5		
Manganese	1050	10.0 ug/L	SW846 6010B	04/11-04/14/11 MGP6A1AX
ilanganese	1030	Dilution Factor: 1	Analysis Time: 21:17	Analyst ID: 002260
		Instrument ID: I5	-	•
Sodium	5070	1000 ug/L	SW846 6020	04/11-04/13/11 MGP6A1AK
		Dilution Factor: 1	Analysis Time: 13:26	Analyst ID: 000079
		Instrument ID: 18		
Nickel	32.2	10.0 ug/L	SW846 6010B	04/11-04/14/11 MGP6A1A0
		Dilution Factor: 1	Analysis Time: 21:17	Analyst ID: 002260
		Instrument ID: I5		
Lead	ND	3.0 ug/L	SW846 6010B	04/11-04/14/11 MGP6A1AP
		Dilution Factor: 1	Analysis Time: 21:17	Analyst ID: 002260
		Instrument ID: I5		
Antimony	ND	2.0 ug/L	SW846 6020	04/11-04/13/11 MGP6A1AF
		Dilution Factor: 1	Analysis Time: 13:26	Analyst ID: 000079
		Instrument ID: 18		
Selenium	ND	5.0 ug/L	SW846 6010B	04/11-04/14/11 MGP6A1AQ
		Dilution Factor: 1	Analysis Time: 21:17	Analyst ID: 002260
		Instrument ID: I5		

(Continued on next page)

Client Sample ID: FWGLL4mw-198C-0210-GF

TOTAL Metals

Lot-Sample #: A1D080416-010	Matrix: WG
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<u>PARAMETER</u> Thallium	RESULT ND	REPORTING LIMIT 1.0 Dilution Fact Instrument ID	UNITS ug/L or: 1	METHOI SW846 Analysis		PREPARATION- ANALYSIS DATE 04/11-04/13/11 Analyst ID	
Vanadium	ND	10.0 Dilution Fact Instrument ID			6010B Time: 21:17	04/11-04/14/11 Analyst ID	
Prep Batch # Zinc	: 1105011 64.4	10.0 Dilution Fact Instrument ID		SW846 Analysis	6020 Time: 14:50	04/15-04/18/11 Analyst ID	

NOTE(S):

B Estimated result. Result is less than RL.

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

		REPORTING			PREPARATION- WORK
PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE ORDER #
MB Lot-Sample	#: A1D110000-	-020 Prep Bat	tch #:	1101020	
Aluminum	ND	50.0	ug/L	SW846 6020	04/11-04/13/11 MGTR71AA
		Dilution Facto			
		Analysis Time.	.: 11:41	Analyst ID: 00	0079 Instrument ID: 18
Antimony	ND	2.0	ug/L	SW846 6020	04/11-04/13/11 MGTR71AF
		Dilution Facto	r: 1		
		Analysis Time.	.: 11:41	Analyst ID: 00	0079 Instrument ID: 18
Arsenic	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11 MGTR71AK
		Dilution Facto	r: 1		
		Analysis Time.	.: 19:00	Analyst ID: 00	2260 Instrument ID: I5
Barium	ND	10.0	uq/L	SW846 6010B	04/11-04/14/11 MGTR71AP
		Dilution Facto	r: 1		
		Analysis Time.	.: 19:00	Analyst ID: 00	2260 Instrument ID: I5
Beryllium	ND	1.0	ug/L	SW846 6020	04/11-04/13/11 MGTR71AC
_		Dilution Facto	r: 1		
		Analysis Time.	.: 11:41	Analyst ID: 00	0079 Instrument ID: 18
Cadmium	ND	0.50	uq/L	SW846 6020	04/11-04/13/11 MGTR71AD
		Dilution Facto	r: 1		
		Analysis Time.	.: 11:41	Analyst ID: 00	0079 Instrument ID: 18
Calcium	ND	1000	uq/L	SW846 6010B	04/11-04/14/11 MGTR71AQ
		Dilution Facto	r: 1		_
		Analysis Time.	.: 19:00	Analyst ID: 00	2260 Instrument ID: I5
Chromium	ND	5.0	uq/L	SW846 6010B	04/11-04/14/11 MGTR71AT
		Dilution Facto	r: 1		
		Analysis Time.	.: 19:00	Analyst ID: 00	2260 Instrument ID: I5
Cobalt	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11 MGTR71AR
		Dilution Facto			
		Analysis Time.	.: 19:00	Analyst ID: 00	2260 Instrument ID: I5
Copper	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11 MGTR71AU
		Dilution Facto	r: 1		
		Analysis Time.	.: 19:00	Analyst ID: 00	2260 Instrument ID: I5
Iron	ND	50.0	ug/L	SW846 6020	04/11-04/13/11 MGTR71AE
		Dilution Facto	_	-	
		Analysis Time.	.: 11:41	Analyst ID: 00	0079 Instrument ID: 18

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

	DECIII T	REPORTING	METRIAD	PREPARATION- WORK
PARAMETER	RESULT	LIMIT UNITS	METHOD	ANALYSIS DATE ORDER #
Lead	ND	3.0 ug/L	SW846 6010B	04/11-04/14/11 MGTR71AL
		Dilution Factor: 1		
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5
Magnesium	ND	1000 ug/L	SW846 6010B	04/11-04/14/11 MGTR71AW
J		Dilution Factor: 1		
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5
M	MD	10.0	GM0.4.C. C.0.1.0.D.	04/11 04/14/11 MOTED 7173
Manganese	ND	10.0 ug/L	SW846 6010B	04/11-04/14/11 MGTR71AX
		Dilution Factor: 1	_	
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5
Mercury	ND	0.20 ug/L	SW846 7470A	04/11-04/12/11 MGTR71A2
		Dilution Factor: 1		
		Analysis Time: 13:30	Analyst ID: 002260	Instrument ID: H1
Nickel	ND	10.0 ug/L	SW846 6010B	04/11-04/14/11 MGTR71A0
		Dilution Factor: 1		,
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5
		111017515 1111011 15 00	11101750 15 002200	1112 01 01110110 12 1 1 1 1 1
Potassium	ND	1000 ug/L	SW846 6010B	04/11-04/14/11 MGTR71AV
		Dilution Factor: 1		
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5
Selenium	ND	5.0 ug/L	SW846 6010B	04/11-04/14/11 MGTR71AM
SCICIII	112	Dilution Factor: 1	20010 00102	01/11 01/11/11 110110/11111
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5
		indipolo ilme 19.00	111141,50 15 002200	instrument 15 15
Silver	ND	5.0 ug/L	SW846 6010B	04/11-04/14/11 MGTR71AN
		Dilution Factor: 1		
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5
Sodium	ND	1000 ug/L	SW846 6020	04/11-04/13/11 MGTR71AJ
		Dilution Factor: 1		
		Analysis Time: 11:41	Analyst ID: 000079	Instrument ID: 18
Thallium	ND	1.0 ug/L	SW846 6020	04/11-04/13/11 MGTR71AH
		Dilution Factor: 1		
		Analysis Time: 11:41	Analyst ID: 000079	Instrument ID: 18
Vanadium	ND	10.0 ug/L	SW846 6010B	04/11-04/14/11 MGTR71A1
		Dilution Factor: 1		
		Analysis Time: 19:00	Analyst ID: 002260	Instrument ID: I5

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

		REPORTING		PREPARATION- WORK
PARAMETER	RESULT	-	ITS METHOD	ANALYSIS DATE ORDER #_
MB Lot-Sample	#: A1D140000-	-025 Prep Batch	#: 1104025	
Aluminum	ND	50.0 ug/	/L SW846 6020	04/14-04/18/11 MG0051AA
		Dilution Factor: 1		
		Analysis Time: 1	.4:01 Analyst ID: 000	079 Instrument ID: 18
Antimony	ND	2.0 ug/	/L SW846 6020	04/14-04/18/11 MG0051AC
		Dilution Factor: 1		
		Analysis Time: 1	4:01 Analyst ID: 000	O79 Instrument ID: 18
Arsenic	ND	5.0 ug/	/L SW846 6010B	04/14-04/15/11 MG0051AK
		Dilution Factor: 1		
		Analysis Time: 0	6:43 Analyst ID: 002	260 Instrument ID: I5
Barium	ND	10.0 ug/	/L SW846 6010B	04/14-04/15/11 MG0051AN
		Dilution Factor: 1		
		Analysis Time: 0	6:43 Analyst ID: 002	260 Instrument ID: I5
Beryllium	ND	1.0 ug/	/L SW846 6020	04/14-04/18/11 MG0051AD
		Dilution Factor: 1		
		Analysis Time: 1	4:01 Analyst ID: 000	O79 Instrument ID: 18
Cadmium	ND	0.50 ug/	/L SW846 6020	04/14-04/18/11 MG0051AE
		Dilution Factor: 1		
		Analysis Time: 1	4:01 Analyst ID: 000	O79 Instrument ID: 18
Calcium	ND	1000 ug/	/L SW846 6010B	04/14-04/15/11 MG0051AP
		Dilution Factor: 1		
		Analysis Time: 0	6:43 Analyst ID: 002	260 Instrument ID: I5
Chromium	ND	5.0 ug/	/L SW846 6010B	04/14-04/15/11 MG0051A1
		Dilution Factor: 1		
		Analysis Time: 0	6:43 Analyst ID: 002	260 Instrument ID: I5
Cobalt	ND	5.0 ug/	/L SW846 6010B	04/14-04/15/11 MG0051AQ
		Dilution Factor: 1		
		Analysis Time: 0	6:43 Analyst ID: 002	260 Instrument ID: I5
Copper	ND	5.0 ug/	/L SW846 6010B	04/14-04/15/11 MG0051AR
		Dilution Factor: 1		
		Analysis Time: 0	6:43 Analyst ID: 002	260 Instrument ID: I5
Iron	ND	50.0 ug/	/L SW846 6020	04/14-04/18/11 MG0051AF
		Dilution Factor: 1		
		Analysis Time: 1	4:01 Analyst ID: 000	779 Instrument ID: 18

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

		DEDODETNO		
PARAMETER	DECIII	REPORTING	ac METHOD	PREPARATION- WORK
Lead	RESULT ND	<u>LIMIT</u> <u>UNIT</u> 3.0 uq/I		<u>ANALYSIS DATE</u> <u>ORDER #</u> 04/14-04/15/11 MG0051AL
Leau	ND		5W040 0010B	04/14-04/15/11 MG0051AL
		Dilution Factor: 1 Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
		Analysis ilme 00	Analyse ID 002200	instrument ib is
Magnesium	ND	1000 ug/I	SW846 6010B	04/14-04/15/11 MG0051AT
		Dilution Factor: 1		, ,
		Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
		•	-	
Manganese	2.2 B	10.0 ug/I	SW846 6010B	04/14-04/15/11 MG0051AU
		Dilution Factor: 1		
		Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
Mercury	ND	0.20 ug/I	SW846 7470A	04/14-04/15/11 MG0051A2
		Dilution Factor: 1		
		Analysis Time: 10	:44 Analyst ID: 002260	Instrument ID: H1
Nickel	ND	10.0 ug/I	SW846 6010B	04/14-04/15/11 MG0051AV
		Dilution Factor: 1	40 - 1 00000	
		Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
Potassium	ND	1000 ug/I	SW846 6010B	04/14-04/15/11 MG0051AW
POCASSIUM	ND	Dilution Factor: 1	SW040 0010B	04/14-04/13/11 MG0031AW
		Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
		imaryorb rime 00	Thirdippe ID 002200	Instrument 15 13
Selenium	ND	5.0 ug/I	SW846 6010B	04/14-04/15/11 MG0051AM
		Dilution Factor: 1		
		Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
Silver	ND	5.0 ug/I	SW846 6010B	04/14-04/15/11 MG0051AX
		Dilution Factor: 1		
		Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
Sodium	ND	1000 ug/I	SW846 6020	04/14-04/18/11 MG0051AG
		Dilution Factor: 1		_
		Analysis Time: 14	:01 Analyst ID: 000079	Instrument ID: 18
Thallium	ND	1.0 ug/I	SW846 6020	04/14-04/18/11 MG0051AH
IIIaIIIuiii	ND	Dilution Factor: 1	SW040 0020	04/14-04/16/11 MG0051AH
		Analysis Time: 14	:01 Analyst ID: 000079	Instrument ID: 18
		Analysis lime li	Analyse Ib 000075	instrument ib io
Vanadium	ND	10.0 ug/I	SW846 6010B	04/14-04/15/11 MG0051A0
		Dilution Factor: 1	-	
		Analysis Time: 06	:43 Analyst ID: 002260	Instrument ID: I5
Zinc	2.5 B	10.0 ug/I	SW846 6020	04/14-04/18/11 MG0051AJ
		Dilution Factor: 1		
		Analysis Time: 14	:01 Analyst ID: 000079	Instrument ID: 18

(Continued on next page)

TOTAL Metals

 Client Lot #...: A1D080416
 Matrix....: WATER

 REPORTING
 PREPARATION- WORK

 PARAMETER
 PREPARATION- WORK

 MB Lot-Sample #: A1D150000-011 Prep Batch #...: 1105011

 Zinc
 ND
 10.0 ug/L
 SW846 6020
 04/15-04/18/11 MG2XW1AA

 Dilution Factor: 1

 Analysis Time..: 14:34
 Analyst ID....: 000079
 Instrument ID..: 18

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

TOTAL Metals

Client Lot #:	A1D080416			Matrix	: WATER
PARAMETER_	PERCENT RECOVERY	RECOVERY LIMITS M	ETHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: Aluminum		(80 - 120) SI	W846 6020 1 Analysis	04/11-04/13/11	MGTR71A3
Beryllium	106				MGTR71A4 analyst ID: 000079
Cadmium	106				MGTR71A5 analyst ID: 000079
Iron	102				MGTR71A6
Antimony	102				MGTR71A7 unalyst ID: 000079
Thallium	102				MGTR71A9 nalyst ID: 000079
Sodium	110				MGTR71CA malyst ID: 000079
Arsenic	92				MGTR71CC malyst ID: 002260
Lead	101	(80 - 120) SI Dilution Factor: Instrument ID:	1 Analysis	04/11-04/14/11 Time: 19:18	MGTR71CD malyst ID: 002260
Selenium	103	(80 - 120) ST Dilution Factor: Instrument ID:	1 Analysis	04/11-04/14/11 Time: 19:18	MGTR71CE nalyst ID: 002260

(Continued on next page)

TOTAL Metals

Client Lot #: A1D080416	Matrix: WATER
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PARAMETER	PERCENT RECOVERY	RECOVERY PREPARATION- LIMITS METHOD ANALYSIS DATE WORK ORDER #
Silver	95	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CF Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: 15
Barium	103	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CG Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Calcium	95	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CH Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Cobalt	97	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CJ Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Chromium	96	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CK Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Copper	100	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CL Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Potassium	100	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CM Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Magnesium	96	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CN Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Manganese	105	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CP Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5
Nickel	99	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CQ Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: 15
Vanadium	99	(80 - 120) SW846 6010B 04/11-04/14/11 MGTR71CR Dilution Factor: 1 Analysis Time: 19:18 Analyst ID: 002260 Instrument ID: I5

(Continued on next page)

TOTAL Metals

Client Lot #:	A1D080416		Matrix: WATER
<u>PARAMETER</u> Mercury	PERCENT RECOVERY 96	<u>LIMITS</u> <u>METHOD</u> (80 - 120) SW846 7470A	
		025 Prep Batch #: 1104025 (80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: 18	
Antimony	104	(80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: I8	04/14-04/18/11 MG0051A4 Time: 14:06 Analyst ID: 000079
Beryllium	104	(80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: I8	04/14-04/18/11 MG0051A5 Time: 14:06 Analyst ID: 000079
Cadmium	105	(80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: I8	04/14-04/18/11 MG0051A6 Time: 14:06 Analyst ID: 000079
Iron	100	(80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: I8	04/14-04/18/11 MG0051A7 Time: 14:06 Analyst ID: 000079
Sodium	102	(80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: I8	04/14-04/18/11 MG0051A8 Time: 14:06 Analyst ID: 000079
Thallium	99	(80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: I8	04/14-04/18/11 MG0051A9 Time: 14:06 Analyst ID: 000079
Zinc	110	(80 - 120) SW846 6020 Dilution Factor: 1 Analysis Instrument ID: I8	04/14-04/18/11 MG0051CA Time: 14:06 Analyst ID: 000079
Arsenic	92		04/14-04/15/11 MG0051CC Time: 06:49 Analyst ID: 002260
Lead	100		04/14-04/15/11 MG0051CD Time: 06:49 Analyst ID: 002260

North Canton 118

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TOTAL Metals

Client Lot #: A1D080416	Matrix: WATER
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<u>PARAMETER</u> Selenium	PERCENT RECOVERY 103	RECOVERY PREPARATION- LIMITS METHOD ANALYSIS DATE WORK ORDER # (80 - 120) SW846 6010B 04/14-04/15/11 MG0051CE
		Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Barium	102	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CF Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Calcium	92	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CG Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Cobalt	96	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CH Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Copper	99	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CJ Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Magnesium	92	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CK Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Manganese	102	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CL Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Nickel	99	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CM Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Potassium	94	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CN Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Silver	94	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CP Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5
Vanadium	98	(80 - 120) SW846 6010B 04/14-04/15/11 MG0051CQ Dilution Factor: 1 Analysis Time: 06:49 Analyst ID: 002260 Instrument ID: I5

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

PARAMETER Chromium	PERCENT RECOVERY 95		-	PREPARATION- ANALYSIS DATE WORK ORDER # 04/14-04/15/11 MG0051CR Time: 06:49 Analyst ID: 002260
Mercury	105	,	r: 1 Analysis '	04/14-04/15/11 MG0051CT Time: 10:47 Analyst ID: 002260
LCS Lot-Sample#: Zinc	A1D150000- 108	(80 - 120)	r: 1 Analysis	04/15-04/18/11 MG2XW1AC Time: 14:39 Analyst ID: 000079

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #	: A1D		Matrix:	WATER			
PARAMETER	SPIKE AMOUNT	MEASUR:	ED UNITS	PERCNT RECVRY		PREPARATION- ANALYSIS DATE	
_	le#: A1D		020 Prep Bat				
Aluminum	10000	10100	ug/L Dilution Factor Instrument ID		SW846 6020 Analysis Time: 1		
Beryllium	100	106	ug/L Dilution Factor Instrument ID		SW846 6020 Analysis Time: 1	- , - , - ,	_
Cadmium	100	106	ug/L Dilution Factor Instrument ID	:: 1	SW846 6020 Analysis Time: 1		
Iron	10000	10200	ug/L Dilution Factor Instrument ID	:: 1	SW846 6020 Analysis Time: 1	- , - , - ,	
Antimony	100	102	ug/L Dilution Factor Instrument ID	:: 1	SW846 6020 Analysis Time: 1	- , - , - ,	_
Thallium	100	102	ug/L Dilution Factor Instrument ID	:: 1	SW846 6020 Analysis Time: 1		
Sodium	10000	11000	ug/L Dilution Factor Instrument ID	:: 1	SW846 6020 Analysis Time: 1		
Arsenic	2000	1840	ug/L Dilution Factor Instrument ID	:: 1	SW846 6010B Analysis Time: 1		
Lead	500	503	ug/L Dilution Factor Instrument ID		SW846 6010B Analysis Time: 1	04/11-04/14/11 9:18 Analyst ID	MGTR71CD: 002260
Selenium	2000	2060	ug/L Dilution Factor Instrument ID		SW846 6010B Analysis Time: 1	04/11-04/14/11 9:18 Analyst ID	MGTR71CE : 002260

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

	SPIKE	MEASURI		PERCNT		PREPARATION-	WORK
PARAMETER	AMOUNT_	AMOUNT	<u>UNITS</u>	RECVRY	METHOD	ANALYSIS DATE	ORDER #
Silver	50.0	47.5	ug/L	95	SW846 6010B	04/11-04/14/11	MGTR71CF
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID	: 15			
Barium	2000	2060	ug/L	103	SW846 6010B	04/11-04/14/11	MGTR71CG
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID	: 15			
Calcium	50000	47700	ug/L	95	SW846 6010B	04/11-04/14/11	
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID	: 15			
Cobalt	500	483	ug/L	97	SW846 6010B	04/11-04/14/11	MGTR71CJ
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID	: 15			
Chromium	200	192	ug/L	96	SW846 6010B	04/11-04/14/11	MGTR71CK
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID	: 15			
Copper	250	251	ug/L	100	SW846 6010B	04/11-04/14/11	MGTR71CL
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID:	: I5			
Potassium	50000	49800	ug/L	100	SW846 6010B	04/11-04/14/11	MGTR71CM
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID:	: 15			
Magnesium	50000	48100	ug/L	96	SW846 6010B	04/11-04/14/11	MGTR71CN
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID:	: 15			
Manganese	500	523	ug/L	105	SW846 6010B	04/11-04/14/11	MGTR71CP
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID	: 15			
Nickel	500	496	ug/L	99	SW846 6010B	04/11-04/14/11	MGTR71CQ
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID:	: I5			
Vanadium	500	494	ug/L	99	SW846 6010B	04/11-04/14/11	MGTR71CR
			Dilution Factor	: 1	Analysis Time: 19	:18 Analyst ID.	: 002260
			Instrument ID	: 15			

(Continued on next page)

TOTAL Metals

			10	TAL MEC	ais			
Client Lot #	: A1D	080416				Mat	rix	: WATER
	SPIKE	MEASURI		PERCNT			PREPARATION-	
					METHOD			
Mercury	5.0	4.8	ug/L	96	SW846 7470A	0	04/11-04/12/13	l MGTR71CT
			Dilution Factor Instrument ID.		Analysis Time:	13:33	1 Analyst ID	: 002260
LCS Lot-Samp	le#: A1D							
Aluminum	10000	9970	ug/L	100	SW846 6020	0	04/14-04/18/13	L MG0051A3
			Dilution Factor	r: 1	Analysis Time:	14:06	6 Analyst ID	: 000079
			Instrument ID.	.: I8				
Antimony	100	104	_		SW846 6020			
			Dilution Factor Instrument ID.		Analysis Time:	14:06	6 Analyst ID	: 000079
Beryllium	100	104	11 a / T.	104	SW846 6020	0	04/14-04/18/1	1 MG0051A5
Dergran	100	101	_		Analysis Time:			
			Instrument ID.		Anarysis iimc	11.00	o Anaryst is	
Cadmium	100	105	ug/L	105	SW846 6020	0	04/14-04/18/13	L MG0051A6
			_		Analysis Time:			
			Instrument ID.		-		•	
Iron	10000	9990	ug/L	100	SW846 6020	0	04/14-04/18/13	L MG0051A7
			_		Analysis Time:	14:06	6 Analyst ID	: 000079
			Instrument ID.		-		•	
Sodium	10000	10200	ug/L	102	SW846 6020	0	04/14-04/18/13	L MG0051A8
			Dilution Factor	r: 1	Analysis Time:	14:06	6 Analyst ID	: 000079
			Instrument ID.	.: I8				
Thallium	100	98.8	ug/L	99	SW846 6020	0	04/14-04/18/13	L MG0051A9
			Dilution Factor	r: 1	Analysis Time:	14:06	6 Analyst ID	: 000079
			Instrument ID.		-		-	
Zinc	1000	1100	ug/L	110	SW846 6020	0	04/14-04/18/13	L MG0051CA
			Dilution Factor	r: 1	Analysis Time:	14:06	6 Analyst ID	: 000079
			Instrument ID.	.: 18				
Arsenic	2000	1830	ug/L	92	SW846 6010B	0	04/14-04/15/13	L MG0051CC
			Dilution Factor	r: 1	Analysis Time:	06:49	9 Analyst ID	: 002260
			Instrument ID.	.: I5				
Lead	500	499	ug/L	100	SW846 6010B	0	04/14-04/15/13	L MG0051CD
			Dilution Factor	r: 1	Analysis Time:	06:49	9 Analyst ID	: 002260
			Instrument ID.	.: 15				

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TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

	SPIKE	MEASUR	ED	PERCNT		PREPARATION- WO	ORK
PARAMETER	AMOUNT	AMOUNT	UNITS	<u>RECVRY</u>	METHOD	ANALYSIS DATE OF	RDER #_
Selenium	2000	2070	ug/L	103	SW846 6010B	04/14-04/15/11 MG	G0051CE
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: I5	-	-	
Barium	2000	2030	ug/L	102	SW846 6010B	04/14-04/15/11 MG	G0051CF
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: 15			
a 1 '	F0000	46000	/-	0.0	GT10.4.C. C.0.1.0.D.	04/14 04/15/11 20	2005166
Calcium	50000	46000	ug/L	92	SW846 6010B		
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: 15			
Cobalt	500	480	uq/L	96	SW846 6010B	04/14-04/15/11 MG	G0051CH
			Dilution Factor		Analysis Time: 06		
			Instrument ID		Iniai, Sib iime 00	inaryse is	002200
			Inscrument ib	. 13			
Copper	250	249	ug/L	99	SW846 6010B	04/14-04/15/11 MG	G0051CJ
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: I5	-	-	
Magnesium	50000	46200	ug/L	92	SW846 6010B	04/14-04/15/11 MG	G0051CK
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: I5			
Manganese	500	509	ug/L	102	SW846 6010B	04/14-04/15/11 MG	G0051CL
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: I5			
Nickel	500	494	ug/L	99	SW846 6010B	04/14-04/15/11 MG	G0051CM
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: 15			
Dohomaium	F0000	47000	/ T	0.4	GMO46 CO10D	04/14 04/15/11 MG	300F1@N
Potassium	50000	47000	ug/L Dilution Factor	94	SW846 6010B	04/14-04/15/11 MG	
					Analysis Time: 06	:49 Analyst ID	002260
			Instrument ID	: 15			
Silver	50.0	46.9	ug/L	94	SW846 6010B	04/14-04/15/11 MG	G0051CP
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID		-	•	
Vanadium	500	488	ug/L	98	SW846 6010B	04/14-04/15/11 MG	G0051CQ
			Dilution Factor	: 1	Analysis Time: 06	:49 Analyst ID	.: 002260
			Instrument ID	: I5	-	-	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

PARAMETER Chromium	SPIKE AMOUNT 200		UNITS ug/L Dilution Factor Enstrument ID		METHOD SW846 6010B Analysis Time: 06	PREPARATION- ANALYSIS DATE 04/14-04/15/11 :49 Analyst ID.	MG0051CR
Mercury	5.0		ug/L Dilution Factor Enstrument ID		SW846 7470A Analysis Time: 10	04/14-04/15/11:47 Analyst ID.	
LCS Lot-Samp Zinc	le#: A1D 1000	1080	.1 Prep Bate ug/L Dilution Factor Enstrument ID	108	SW846 6020	04/15-04/18/11:39 Analyst ID.	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D080416 Matrix....: WATER Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11 PERCENT RECOVERY PREPARATION-RECOVERY LIMITS METHOD ANALYSIS DATE WORK ORDER # MS Lot-Sample #: A1D080405-003 Prep Batch #...: 1101020 100 (75 - 125) SW846 6020 04/11-04/13/11 MGP1F1AC Dilution Factor: 1 Analysis Time..: 11:52 Instrument ID..: 18 Analyst ID....: 000079 Antimony 99 (75 - 125) SW846 6020 04/11-04/13/11 MGP1F1AQ Dilution Factor: 1 Analysis Time..: 11:52 Instrument ID..: 18 Analyst ID....: 000079 (75 - 125) SW846 6010B Arsenic 95 04/11-04/14/11 MGP1F1A5 Dilution Factor: 1 Analysis Time..: 19:24 Instrument ID..: I5 Analyst ID....: 002260 100 Barium (75 - 125) SW846 6010B 04/11-04/14/11 MGP1F1CJ Dilution Factor: 1 Analysis Time..: 19:24 Instrument ID..: I5 Analyst ID....: 002260 (75 - 125) SW846 6020 Beryllium 103 04/11-04/13/11 MGP1F1AF Dilution Factor: 1 Analysis Time..: 11:52 Instrument ID..: 18 Analyst ID....: 000079 Cadmium 104 (75 - 125) SW846 6020 04/11-04/13/11 MGP1F1AJ Dilution Factor: 1 Analysis Time..: 11:52 Instrument ID..: 18 Analyst ID....: 000079 Calcium 96 (75 - 125) SW846 6010B 04/11-04/14/11 MGP1F1CM Dilution Factor: 1 Analysis Time..: 19:24 Instrument ID..: I5 Analyst ID....: 002260 Chromium 98 (75 - 125) SW846 6010B 04/11-04/14/11 MGP1F1CU Dilution Factor: 1 Analysis Time..: 19:24 Instrument ID..: I5 Analyst ID....: 002260 Cobalt 100 (75 - 125) SW846 6010B 04/11-04/14/11 MGP1F1CQ Dilution Factor: 1 Analysis Time..: 19:24 Instrument ID..: I5 Analyst ID....: 002260 98 (75 - 125) SW846 6010B 04/11-04/14/11 MGP1F1CX Copper Analysis Time..: 19:24 Dilution Factor: 1 Instrument ID..: I5 Analyst ID....: 002260

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11

	PERCENT		PREPARATION-
PARAMETER	RECOVERY		ANALYSIS DATE WORK ORDER #
Iron	98		04/11-04/13/11 MGP1F1AM
		Dilution Factor: 1 Analysis T Analyst ID: 000079	rime: II:52 Instrument ID: 18
Lead	105	(75 - 125) SW846 6010B (04/11-04/14/11 MGP1F1A8
		Dilution Factor: 1 Analysis T Analyst ID: 002260	Fime: 19:24 Instrument ID: I5
Magnesium	97	(75 - 125) SW846 6010B	04/11-04/14/11 MGP1F1C5
J		Dilution Factor: 1 Analysis T	Fime: 19:24 Instrument ID: I5
		Analyst ID: 002260	
Manganese	106	(75 - 125) SW846 6010B	04/11-04/14/11 MGP1F1C8
		Dilution Factor: 1 Analysis T	Time: 19:24 Instrument ID: I5
		Analyst ID: 002260	
Mercury	102	(80 - 120) SW846 7470A C	04/11-04/12/11 MGP1F1DJ
		Dilution Factor: 1 Analysis T Analyst ID: 002260	Fime: 13:33 Instrument ID: H1
Nickel	102	(75 - 125) SW846 6010B	04/11-04/14/11 MGP1F1DC
		Dilution Factor: 1 Analysis T	
		Analyst ID: 002260	
Potassium	92	(75 - 125) SW846 6010B	04/11-04/14/11 MGP1F1C2
		Dilution Factor: 1 Analysis T Analyst ID: 002260	Fime: 19:24 Instrument ID: I5
Selenium	106	(75 - 125) SW846 6010B	04/11-04/14/11 MGP1F1CC
		Dilution Factor: 1 Analysis T	
		Analyst ID: 002260	
Silver	94	(75 - 125) SW846 6010B	04/11-04/14/11 MGP1F1CF
		Dilution Factor: 1 Analysis T	Time: 19:24 Instrument ID: I5
		Analyst ID: 002260	
Sodium	107	(75 - 125) SW846 6020 C	04/11-04/13/11 MGP1F1A2
		Dilution Factor: 1 Analysis T	Time: 11:52 Instrument ID: I8
		Analyst ID: 000079	
Thallium	101	(75 - 125) SW846 6020	04/11-04/13/11 MGP1F1AX
		Dilution Factor: 1 Analysis T	Fime: 11:52 Instrument ID: I8
		Analyst ID: 000079	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11

<u>PARAMETER</u> Vanadium	PERCENT RECOVERY 100	RECOVERY LIMITS (75 - 125)	METHOD SW846 6010	 3	PREPARATION- ANALYSIS DATE 04/11-04/14/11	WORK ORDER # MGP1F1DF
		Dilution Fact		Analysis	Time: 19:24	Instrument ID: I5
Zinc	98	(75 - 125) Dilution Fact Analyst ID	tor: 1	Analysis	04/11-04/13/11 Time: 11:52	MGP1F1AU Instrument ID: 18

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT	UNITS	PERCENT RECOVERY	Y METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Samp	le #: AlI ND	0080405 10000	9970 Dilution F	Batch #. ug/L Factor: 1	100 Analy	020 SW846 6020 vsis Time: 11:52	04/11-04/13/11 Instrument ID:	
Antimony	ND	100		ug/L Factor: 1	-	SW846 6020	04/11-04/13/11 Instrument ID:	~
Arsenic	ND	2000		ug/L Factor: 1		SW846 6010B	04/11-04/14/11 Instrument ID:	
Barium	12.0	2000		ug/L Factor: 1		SW846 6010B	04/11-04/14/11 Instrument ID:	
Beryllium	ND	100		ug/L Factor: 1		SW846 6020 vsis Time: 11:52	04/11-04/13/11 Instrument ID:	
Cadmium	ND	100		ug/L Factor: 1		SW846 6020 vsis Time: 11:52	04/11-04/13/11 Instrument ID:	
Calcium	29000	50000	76900 Dilution F Analyst II	ug/L Factor: 1		SW846 6010B	04/11-04/14/11 Instrument ID:	
Chromium	ND	200	195 Dilution F Analyst II	ug/L Factor: 1	_	SW846 6010B	04/11-04/14/11 Instrument ID:	
Cobalt	ND	500	498 Dilution F Analyst II	ug/L Factor: 1	_	SW846 6010B	04/11-04/14/11 Instrument ID:	
Copper	ND	250	245 Dilution F Analyst II	ug/L Factor: 1	_	SW846 6010B	04/11-04/14/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT	IINTTS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK
Iron	ND	10000		ug/L actor: 1	98 Analys	SW846 6020 is Time: 11:52	04/11-04/13/11 Instrument ID:	MGP1F1AM
Lead	ND	500	524 Dilution Fa	actor: 1	Analys	SW846 6010B is Time: 19:24	04/11-04/14/11 Instrument ID:	
Magnesium	3960	50000	52400 Dilution Fa	actor: 1	-	SW846 6010B is Time: 19:24	04/11-04/14/11 Instrument ID:	
Manganese	2.7	500	533 Dilution Fa	actor: 1	Analys	SW846 6010B	04/11-04/14/11 Instrument ID:	
Mercury	ND	1.0	1.0 Dilution Fa	actor: 1	Analys	SW846 7470A is Time: 13:33	04/11-04/12/11 Instrument ID:	
Nickel	ND	500	512 Dilution Fa	actor: 1	Analys	SW846 6010B is Time: 19:24	04/11-04/14/11 Instrument ID:	
Potassium	591	50000	46400 Dilution Fa	actor: 1	Analys	SW846 6010B	04/11-04/14/11 Instrument ID:	
Selenium	ND	2000	2110 Dilution Fa	actor: 1	Analys	SW846 6010B	04/11-04/14/11 Instrument ID:	
Silver	ND	50.0	46.9 Dilution Fa	actor: 1	Analys	SW846 6010B is Time: 19:24	04/11-04/14/11 Instrument ID:	
Sodium	1710	10000	12400 Dilution Fa		_	SW846 6020 is Time: 11:52	04/11-04/13/11 Instrument ID:	
Thallium	0.18	100	101 Dilution Fa Analyst ID.		_	SW846 6020 is Time: 11:52	04/11-04/13/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11

<u>PARAMETER</u> Vanadium	SAMPLE AMOUNT ND	SPIKE AMT 500	MEASURED AMOUNT 498	<u>UNITS</u> ug/L	PERCENT RECOVERY 100	METHOD SW846 6010B	PREPARATION- ANALYSIS DATE 04/11-04/14/11	WORK ORDER # MGP1F1DF
			Dilution E		-	is Time: 19:24	Instrument ID:	15
			Analyst II	0022	60			
Zinc	7.3	100	106	ug/L	98	SW846 6020	04/11-04/13/11	MGP1F1AU
			Dilution E	Factor: 1	Analysi	is Time: 11:52	Instrument ID:	18
			Analyst II	0000	79			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D080416 Matrix....: WATER Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11 PERCENT RECOVERY PREPARATION-RECOVERY LIMITS METHOD WORK ORDER # ANALYSIS DATE MS Lot-Sample #: A1D080405-019 Prep Batch #...: 1101020 100 (75 - 125) SW846 6020 04/11-04/13/11 MGP151AM Dilution Factor: 1 Analysis Time..: 12:55 Instrument ID..: 18 Analyst ID....: 000079 Antimony 100 (75 - 125) SW846 6020 04/11-04/13/11 MGP151A2 Dilution Factor: 1 Analysis Time..: 12:55 Instrument ID..: 18 Analyst ID....: 000079 (75 - 125) SW846 6010B 92 Arsenic 04/11-04/14/11 MGP151AF Dilution Factor: 1 Analysis Time..: 20:35 Instrument ID..: I5 Analyst ID....: 002260 102 Barium (75 - 125) SW846 6010B 04/11-04/14/11 MGP151CU Dilution Factor: 1 Analysis Time..: 20:35 Instrument ID..: I5 Analyst ID....: 002260 (75 - 125) SW846 6020 Beryllium 103 04/11-04/13/11 MGP151AQ Dilution Factor: 1 Analysis Time..: 12:55 Instrument ID..: 18 Analyst ID....: 000079 Cadmium 104 (75 - 125) SW846 6020 04/11-04/13/11 MGP151AU Dilution Factor: 1 Analysis Time..: 12:55 Instrument ID..: 18 Analyst ID....: 000079 Calcium 88 (75 - 125) SW846 6010B 04/11-04/14/11 MGP151CX Dilution Factor: 1 Analysis Time..: 20:35 Instrument ID..: I5 Analyst ID....: 002260 Chromium 95 (75 - 125) SW846 6010B 04/11-04/14/11 MGP151C5 Dilution Factor: 1 Analysis Time..: 20:35 Instrument ID..: I5 Analyst ID....: 002260 (75 - 125) SW846 6010B Cobalt 96 04/11-04/14/11 MGP151C2 Dilution Factor: 1 Analysis Time..: 20:35 Instrument ID..: I5 Analyst ID....: 002260 99 (75 - 125) SW846 6010B 04/11-04/14/11 MGP151C8 Copper Analysis Time..: 20:35 Dilution Factor: 1 Instrument ID..: I5 Analyst ID....: 002260

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TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

PARAMETER	PERCENT RECOVERY		REPARATION- NALYSIS DATE WORK ORDER #
Iron	101		4/11-04/13/11 MGP151AX
Lead	100	(75 - 125) SW846 6010B 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	4/11-04/14/11 MGP151AJ me: 20:35 Instrument ID: I5
Magnesium	92	(75 - 125) SW846 6010B 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	4/11-04/14/11 MGP151CF me: 20:35 Instrument ID: I5
Manganese	74 N	(75 - 125) SW846 6010B 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	
Mercury	102	(80 - 120) SW846 7470A 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	4/11-04/12/11 MGP151DJ .me: 13:39 Instrument ID: H1
Nickel	99	(75 - 125) SW846 6010B 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	4/11-04/14/11 MGP151DC .me: 20:35 Instrument ID: I5
Potassium	102	(75 - 125) SW846 6010B 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	4/11-04/14/11 MGP151CC .me: 20:35 Instrument ID: I5
Selenium	102	(75 - 125) SW846 6010B 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	4/11-04/14/11 MGP151CM me: 20:35 Instrument ID: I5
Silver	93	(75 - 125) SW846 6010B 04 Dilution Factor: 1 Analysis Time Analyst ID: 002260	4/11-04/14/11 MGP151CQ .me: 20:35 Instrument ID: I5
Sodium	105		4/11-04/13/11 MGP151AC me: 12:55 Instrument ID: I8
Thallium	101		4/11-04/13/11 MGP151A8 .me: 12:55 Instrument ID: I8

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

	, -	METHOD 25) SW846 6010	- , , ,	
Zinc 10	Analyst 2 (75 - 1	Factor: 1 ID: 002260 25) SW846 6020 Factor: 1	Analysis Time: 20:35 04/11-04/13/11 Analysis Time: 12:55	Instrument ID: I5 MGP151A5 Instrument ID: I8

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT UNIT	PERCE S RECOV		PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sampl Aluminum	le #: A1D ND	0080405 10000	-019 Prep Batc 9990 ug/L Dilution Factor: Analyst ID:	100 1 Ar	.01020 SW846 6020 nalysis Time: 12:55	04/11-04/13/11 Instrument ID:	
Antimony	ND	100	100 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6020 nalysis Time: 12:55	04/11-04/13/11 Instrument ID:	
Arsenic	ND	2000	1840 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6010B nalysis Time: 20:35	04/11-04/14/11 Instrument ID:	
Barium	218	2000	2260 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6010B nalysis Time: 20:35	04/11-04/14/11 Instrument ID:	
Beryllium	ND	100	103 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6020 nalysis Time: 12:55	04/11-04/13/11 Instrument ID:	~
Cadmium	ND	100	104 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6020 nalysis Time: 12:55	04/11-04/13/11 Instrument ID:	
Calcium	30900	50000	74900 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6010B nalysis Time: 20:35	04/11-04/14/11 Instrument ID:	
Chromium	ND	200	189 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6010B nalysis Time: 20:35	04/11-04/14/11 Instrument ID:	
Cobalt	ND	500	479 ug/L Dilution Factor: Analyst ID:		SW846 6010B nalysis Time: 20:35	04/11-04/14/11 Instrument ID:	
Copper	ND	250	249 ug/L Dilution Factor: Analyst ID:	1 Ar	SW846 6010B nalysis Time: 20:35	04/11-04/14/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT UN	PE. ITS RE	RCENT COVERY METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	6800		16900 ug	/L 10	1 SW846 6020 Analysis Time: 12:55	04/11-04/13/11 Instrument ID:	MGP151AX
Lead	ND	500	_	r: 1	O SW846 6010B Analysis Time: 20:35	04/11-04/14/11 Instrument ID:	
Magnesium	15400	50000	61700 ug Dilution Facto Analyst ID	r: 1		04/11-04/14/11 Instrument ID:	
Manganese	1590	500	1960 N ug Dilution Facto Analyst ID	r: 1		04/11-04/14/11 Instrument ID:	
Mercury	ND	1.0	1.0 ug Dilution Facto Analyst ID	r: 1	2 SW846 7470A Analysis Time: 13:39	04/11-04/12/11 Instrument ID:	
Nickel	ND	500	496 ug Dilution Facto Analyst ID	r: 1		04/11-04/14/11 Instrument ID:	
Potassium	3080	50000	53900 ug Dilution Facto Analyst ID	r: 1	2 SW846 6010B Analysis Time: 20:35	04/11-04/14/11 Instrument ID:	
Selenium	ND	2000	2050 ug Dilution Facto Analyst ID	r: 1		04/11-04/14/11 Instrument ID:	
Silver	ND	50.0	46.6 ug Dilution Facto Analyst ID		Analysis Time: 20:35	04/11-04/14/11 Instrument ID:	-
Sodium	6250	10000	16700 ug Dilution Facto Analyst ID	r: 1	5 SW846 6020 Analysis Time: 12:55	04/11-04/13/11 Instrument ID:	
Thallium	ND	100	101 ug Dilution Facto Analyst ID	r: 1	1 SW846 6020 Analysis Time: 12:55	04/11-04/13/11 Instrument ID:	

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TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

<u>PARAMETER</u> Vanadium	SAMPLE AMOUNT ND	SPIKE AMT 500	MEASURED AMOUNT 490	<u>UNITS</u> ug/L	PERCENT RECOVERY 98	METHOD SW846 6010B	PREPARATION- ANALYSIS DATE 04/11-04/14/11	WORK ORDER # MGP151DF
			Dilution F	Factor: 1	-	is Time: 20:35	Instrument ID:	I5
			Analyst II	J 0022	00			
Zinc	4.7	100	106	ug/L	102	SW846 6020	04/11-04/13/11	MGP151A5
			Dilution F		-	is Time: 12:55	Instrument ID:	I8
			Analyst II	0000	79			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

TOTAL Metals

Client Lot #...: A1D080416 Matrix....: WG Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11 PERCENT RECOVERY PREPARATION-RECOVERY LIMITS METHOD WORK ORDER # ANALYSIS DATE MS Lot-Sample #: A1D080416-008 Prep Batch #...: 1104025 99 (75 - 125) SW846 6020 04/14-04/18/11 MGP5W1A3 Dilution Factor: 1 Analysis Time..: 14:13 Instrument ID..: 18 Analyst ID....: 000079 Antimony 104 (75 - 125) SW846 6020 04/14-04/18/11 MGP5W1A4 Dilution Factor: 1 Analysis Time..: 14:13 Instrument ID..: 18 Analyst ID....: 000079 (75 - 125) SW846 6010B Arsenic 96 04/14-04/15/11 MGP5W1CC Dilution Factor: 1 Analysis Time..: 06:55 Instrument ID..: I5 Analyst ID....: 002260 101 Barium (75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CF Dilution Factor: 1 Analysis Time..: 06:55 Instrument ID..: I5 Analyst ID....: 002260 (75 - 125) SW846 6020 Beryllium 101 04/14-04/18/11 MGP5W1A5 Dilution Factor: 1 Analysis Time..: 14:13 Instrument ID..: 18 Analyst ID....: 000079 Cadmium 104 (75 - 125) SW846 6020 04/14-04/18/11 MGP5W1A6 Dilution Factor: 1 Analysis Time..: 14:13 Instrument ID..: 18 Analyst ID....: 000079 Calcium 94 (75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CG Dilution Factor: 1 Analysis Time..: 06:55 Instrument ID..: I5 Analyst ID....: 002260 Chromium 98 (75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CR Dilution Factor: 1 Analysis Time..: 06:55 Instrument ID..: I5 Analyst ID....: 002260 (75 - 125) SW846 6010B Cobalt 99 04/14-04/15/11 MGP5W1CH Dilution Factor: 1 Analysis Time..: 06:55 Instrument ID..: I5 Analyst ID....: 002260 99 (75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CJ Copper Analysis Time..: 06:55 Dilution Factor: 1 Instrument ID..: I5

(Continued on next page)

Analyst ID....: 002260

TOTAL Metals

Client Lot #...: A1D080416 Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

PARAMETER	PERCENT RECOVERY	RECOVERY PREPARATION- LIMITS METHOD ANALYSIS DATE WORK ORDER #
Iron	100	(75 - 125) SW846 6020 04/14-04/18/11 MGP5W1A7 Dilution Factor: 1 Analysis Time: 14:13 Instrument ID: I8 Analyst ID: 000079
Lead	104	(75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CD Dilution Factor: 1 Analysis Time: 06:55 Instrument ID: 15 Analyst ID: 002260
Magnesium	98	(75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CK Dilution Factor: 1 Analysis Time: 06:55 Instrument ID: I5 Analyst ID: 002260
Manganese	106	(75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CL Dilution Factor: 1 Analysis Time: 06:55 Instrument ID: I5 Analyst ID: 002260
Mercury	108	(80 - 120) SW846 7470A 04/14-04/15/11 MGP5W1CT Dilution Factor: 1 Analysis Time: 10:34 Instrument ID: H1 Analyst ID: 002260
Nickel	101	(75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CM Dilution Factor: 1 Analysis Time: 06:55 Instrument ID: I5 Analyst ID: 002260
Potassium	92	(75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CN Dilution Factor: 1 Analysis Time: 06:55 Instrument ID: I5 Analyst ID: 002260
Selenium	105	(75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CE Dilution Factor: 1 Analysis Time: 06:55 Instrument ID: I5 Analyst ID: 002260
Silver	92	(75 - 125) SW846 6010B 04/14-04/15/11 MGP5W1CP Dilution Factor: 1 Analysis Time: 06:55 Instrument ID: I5 Analyst ID: 002260
Sodium	98	(75 - 125) SW846 6020 04/14-04/18/11 MGP5W1A8 Dilution Factor: 1 Analysis Time: 14:13 Instrument ID: I8 Analyst ID: 000079
Thallium	97	(75 - 125) SW846 6020 04/14-04/18/11 MGP5W1A9 Dilution Factor: 1 Analysis Time: 14:13 Instrument ID: I8 Analyst ID: 000079

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

<u>PARAMETER</u> Vanadium	PERCENT RECOVERY 100	Dilution Fact	2	PREPARATION- ANALYSIS DATE 04/14-04/15/11 s Time: 06:55	WORK ORDER # MGP5W1CQ Instrument ID.: 15
Zinc	107	Analyst ID (75 - 125) Dilution Fact Analyst ID	SW846 6020 tor: 1 Analys:	04/14-04/18/11 s Time: 14:13	. MGP5W1CA Instrument ID: I8

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TOTAL Metals

Client Lot #...: A1D080416 Matrix....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Samp	le #: A11 404		10400 Dilution F	Batch #. ug/L Factor: 1	99 Analy	SW846 6020 rsis Time: 14:13	04/14-04/18/11 Instrument ID:	
Antimony	ND	100		ug/L Factor: 1	-	SW846 6020 rsis Time: 14:13	04/14-04/18/11 Instrument ID:	
Arsenic	ND	2000		ug/L Factor: 1	-	SW846 6010B	04/14-04/15/11 Instrument ID:	
Barium	15.7	2000		ug/L Factor: 1	2	SW846 6010B	04/14-04/15/11 Instrument ID:	
Beryllium	ND	100		ug/L Factor: 1	2	SW846 6020 rsis Time: 14:13	04/14-04/18/11 Instrument ID:	
Cadmium	1.6	100		ug/L Factor: 1	_	SW846 6020	04/14-04/18/11 Instrument ID:	
Calcium	42300	50000	89300 Dilution F Analyst II	ug/L Factor: 1	_	SW846 6010B	04/14-04/15/11 Instrument ID:	
Chromium	ND	200	196 Dilution F	ug/L Factor: 1	_	SW846 6010B	04/14-04/15/11 Instrument ID:	
Cobalt	19.6	500	Dilution F	ug/L Factor: 1	_	SW846 6010B	04/14-04/15/11 Instrument ID:	
Copper	9.3	250	258 Dilution F Analyst II	ug/L Factor: 1	_	SW846 6010B	04/14-04/15/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

PARAMETER	SAMPLE AMOUNT		MEASURED AMOUNT	IINTTS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK
Iron	ND	10000		ug/L ctor: 1	100 Analysi	SW846 6020 is Time: 14:13	04/14-04/18/11 Instrument ID:	MGP5W1A7
Lead	ND	500	521 to Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 6010B	04/14-04/15/11 Instrument ID:	
Magnesium	3200	50000	52000 Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 6010B	04/14-04/15/11 Instrument ID:	
Manganese	243	500	775 to Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 6010B	04/14-04/15/11 Instrument ID:	
Mercury	ND	1.0	1.1 to Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 7470A	04/14-04/15/11 Instrument ID:	
Nickel	37.0	500	542 to Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 6010B	04/14-04/15/11 Instrument ID:	
Potassium	2500	50000	48500 to Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 6010B	04/14-04/15/11 Instrument ID:	
Selenium	ND	2000	2110 to Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 6010B	04/14-04/15/11 Instrument ID:	
Silver	ND	50.0	46.1 Dilution Factor Analyst ID.	ctor: 1	Analysi	SW846 6010B	04/14-04/15/11 Instrument ID:	
Sodium	3140	10000	12900 1 Dilution Fac Analyst ID.		_	SW846 6020 is Time: 14:13	04/14-04/18/11 Instrument ID:	
Thallium	0.55	100	97.6 Dilution Factor Analyst ID.		_	SW846 6020 is Time: 14:13	04/14-04/18/11 Instrument ID:	

(Continued on next page)

TOTAL Metals

Client Lot #...: A1D080416 Matrix....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

<u>PARAMETER</u> Vanadium	SAMPLE AMOUNT ND	SPIKE AMT 500	MEASURED AMOUNT 498	<u>UNITS</u> ug/L	PERCENT RECOVERY 100	METHOD SW846 6010B	PREPARATION- ANALYSIS DATE 04/14-04/15/11	WORK ORDER # MGP5W1CQ
			Dilution 1	Factor: 1	Analys	is Time: 06:55	Instrument ID:	I5
			Analyst II	D: 0022	60			
Zinc	72.4	1000	1140	ug/L	107	SW846 6020	04/14-04/18/11	MGP5W1CA
			Dilution 1	Factor: 1	Analys	is Time: 14:13	Instrument ID:	18
			Analyst II	D: 0000	79			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals

Client Lot #...: A1D080416 Work Order #...: MGP1F-SMP Matrix.....: WATER

MGP1F-DUP

Date Sampled...: 04/07/11 09:01 Date Received..: 04/08/11

	DUPLICATE			RPD		PREPARATION-	PREP	
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #	
Copper					SD Lot-Sample #:	A1D080405-003		
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/11-04/14/11	1101020	
		Dilution Fac	tor: 1	Ana	alysis Time: 19:24	Analyst ID:	002260	
		Instrument I	D: I5					
Nickel					SD Lot-Sample #:	A1D080405-003		
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/11-04/14/11	1101020	
		Dilution Fac	tor: 1	Ana	alysis Time: 19:24	Analyst ID:	002260	
		Instrument I	D: I5					
Vanadium					SD Lot-Sample #:			
ND	ND	ug/L	0	(0-20)		04/11-04/14/11		
		Dilution Fac		Ana	alysis Time: 19:24	Analyst ID:	Analyst ID: 002260	
		Instrument I	D: I5					
14					CD I - + C 1 - •	715000405 003		
Mercury	MD	110 /T	0	(0.20)	SD Lot-Sample #: SW846 7470A		1101020	
ND	ND	ug/L	0	(0-20)		04/11-04/12/11		
		Dilution Fac		Alla	alysis Time: 13:33	Analyst ID:	002260	
		Instrument 1	п.					
Sodium					SD Lot-Sample #:	A1D080405-003		
1710	1630	ug/L	5.1	(0-20)		04/11-04/13/11	1101020	
		Dilution Fac		,	alysis Time: 11:52	Analyst ID:		
		Instrument I			.			
Arsenic					SD Lot-Sample #:	A1D080405-003		
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/11-04/14/11	1101020	
		Dilution Fac	tor: 1	Ana	alysis Time: 19:24	Analyst ID:	002260	
		Instrument I	D: I5					
Lead					SD Lot-Sample #:			
ND	ND	ug/L	0	(0-20)		04/11-04/14/11		
		Dilution Fac		Ana	alysis Time: 19:24	Analyst ID:	002260	
		Instrument I	D: I5					
7.7					CD tob Commis #:	71D00040F 003		
Aluminum	NID	/T	0	(0.20)	SD Lot-Sample #:		1101020	
ND	ND	ug/L Dilution Fac	0	(0-20)	SW846 6020	04/11-04/13/11		
				Alla	alysis Time: 11:52	Analyst ID:	000079	
		Instrument I	٠٠٠٠ ١٥					
Beryllium					SD Lot-Sample #:	A1D080405-003		
ND	ND	ug/L	0	(0-20)	SW846 6020	04/11-04/13/11	1101020	
_		Dilution Fac			alysis Time: 11:52	Analyst ID:		
		Instrument I			-	•		

(Continued on next page)

Metals

Lot-Sample #	: A1D080416-	000 Work Order	#: MGP1F-SMP Matr	ix WATER
	DUPLICATE		RPD	PREPARATION- PREP
PARAM RESULT	RESULT	<u>UNITS</u> RPD	LIMIT METHOD	ANALYSIS DATE BATCH #
Cadmium			SD Lot-Sample #:	A1D080405-003
ND	ND	ug/L 0	(0-20) SW846 6020	04/11-04/13/11 1101020
		Dilution Factor: 1 Instrument ID: I8	Analysis Time: 11:52	Analyst ID: 000079
Iron			SD Lot-Sample #:	A1D080405-003
ND	ND	uq/L 0	(0-20) SW846 6020	04/11-04/13/11 1101020
		Dilution Factor: 1	Analysis Time: 11:52	Analyst ID: 000079
		Instrument ID: 18	•	-
Antimony			SD Lot-Sample #:	A1D080405-003
ND	ND	ug/L 0	(0-20) SW846 6020	04/11-04/13/11 1101020
		Dilution Factor: 1	Analysis Time: 11:52	Analyst ID: 000079
		Instrument ID: 18		
Thallium			SD Lot-Sample #:	A1D080405-003
0.18 B	ND	ug/L 200	(0-20) SW846 6020	04/11-04/13/11 1101020
		Dilution Factor: 1	Analysis Time: 11:52	Analyst ID: 000079
		Instrument ID: 18		
Potassium			SD Lot-Sample #:	A1D080405-003
591 B	619 B	ug/L 4.6	(0-20) SW846 6010B	04/11-04/14/11 1101020
		Dilution Factor: 1	Analysis Time: 19:24	Analyst ID: 002260
		Instrument ID: I5		
Magnesium			SD Lot-Sample #:	A1D080405-003
3960	4280	ug/L 7.6	(0-20) SW846 6010B	04/11-04/14/11 1101020
		Dilution Factor: 1 Instrument ID: I5	Analysis Time: 19:24	Analyst ID: 002260
Manganese			SD Lot-Sample #:	A1D080405-003
2.7 B	ND	ug/L 200	(0-20) SW846 6010B	04/11-04/14/11 1101020
		Dilution Factor: 1	Analysis Time: 19:24	Analyst ID: 002260
		Instrument ID: I5		
Selenium			SD Lot-Sample #:	A1D080405-003
ND	ND	ug/L 0	(0-20) SW846 6010B	04/11-04/14/11 1101020
		Dilution Factor: 1 Instrument ID: I5	Analysis Time: 19:24	Analyst ID: 002260
Silver			SD Lot-Sample #:	A1D080405-003
ND	ND	ug/L 0	(0-20) SW846 6010B	04/11-04/14/11 1101020
		Dilution Factor: 1	Analysis Time: 19:24	Analyst ID: 002260
		Instrument ID: I5		

(Continued on next page)

Metals

Lot-Sample #:	ot-Sample #: A1D080416-000 Work Order #: MGP1F-SMP Matrix: WATER MGP1F-DUP								
	DUPLICATE			RPD		PREPARATION-	PREP		
PARAM RESULT	RESULT	UNITS	RPD_	LIMIT	METHOD	ANALYSIS DATE	BATCH #		
Barium					SD Lot-Sample #:	A1D080405-003			
12.0	11.5	ug/L	3.9	(0-20)	SW846 6010B	04/11-04/14/11	1101020		
		Dilution Factor: 1 Analysis T			alysis Time: 19:24	Analyst ID:	002260		
		Instrument	ID: I5						
Calcium					SD Lot-Sample #:	A1D080405-003			
29000	30800	ug/L	5.9	(0-20)	SW846 6010B	04/11-04/14/11	1101020		
	Dilution Factor: 1				alysis Time: 19:24	Analyst ID:	002260		
		Instrument	ID: I5						
Cobalt					SD Lot-Sample #:	A1D080405-003			
ND	ND	ug/L	0	(0-20)	SW846 6010B		1101020		
		Dilution Fa	ctor: 1	Ana	alysis Time: 19:24	Analyst ID:	002260		
		Instrument	ID: I5						
Chromium					SD Lot-Sample #:	A1D080405-003			
ND	ND	ug/L	0	(0-20)	SW846 6010B		1101020		
		Dilution Fa	ctor: 1	Ana	alysis Time: 19:24	Analyst ID:	002260		
		Instrument	ID: I5						
Zinc					SD Lot-Sample #:	A1D080405-003			
7.3 B	ND	uq/L	200	(0-20)	SW846 6020		1101020		
		Dilution Fa		` ,	alysis Time: 11:52				
		Instrument	ID: I8		-	-			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

Metals

Client Lot #...: A1D080416 Work Order #...: MGP15-SMP Matrix.....: WATER

MGP15-DUP

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Antimony					SD Lot-Sample #:		
ND	ND	ug/L	0	(0-20)	SW846 6020	04/11-04/13/11	1101020
		Dilution Fac	ctor: 1	Ana	alysis Time: 12:55	Analyst ID:	000079
		Instrument :	ID: 18				
Thallium					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)	SW846 6020	04/11-04/13/11	1101020
		Dilution Fac	ctor: 1	Ana	alysis Time: 12:55	Analyst ID:	000079
		Instrument 1	ID: I8				
Sodium					SD Lot-Sample #:	A1D080405-019	
6250	6490	ug/L	3.7	(0-20)	SW846 6020	04/11-04/13/11	1101020
		Dilution Fac	ctor: 1	Ana	alysis Time: 12:55	Analyst ID:	000079
		Instrument 1	ID: I8				
Arsenic					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/11-04/14/11	1101020
		Dilution Fac	ctor: 1	Ana	alysis Time: 20:35	Analyst ID:	002260
		Instrument I	ID: I5				
Lead					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)		04/11-04/14/11	1101020
		Dilution Fac	ctor: 1	Ana	alysis Time: 20:35	Analyst ID:	
		Instrument I	ID: I5			-	
Aluminum					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)		04/11-04/13/11	1101020
		Dilution Fac	ctor: 1	Ana	alysis Time: 12:55	Analyst ID:	000079
		Instrument I	ID: I8			-	
Beryllium					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)		04/11-04/13/11	1101020
		Dilution Fac	ctor: 1	Ana	alysis Time: 12:55		
		Instrument 1	ID: I8		•	•	
Cadmium					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)		04/11-04/13/11	1101020
		Dilution Fac			alysis Time: 12:55		
		Instrument			,		
Iron					SD Lot-Sample #:	A1D080405-019	
6800	7010	ug/L	3.1	(0-20)	-	04/11-04/13/11	1101020
		Dilution Fac			alysis Time: 12:55		
		Instrument		1110	- · · · · · · · · · · · · · · · · · · ·		

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Metals

Lot-Sample #	: A1D080416-	000 Work Order	#: MGP15-SMP Matr MGP15-DUP	ix: WATER
PARAM RESULT	DUPLICATE RESULT	UNITS RPD	RPD LIMIT METHOD	PREPARATION- PREP ANALYSIS DATE BATCH #
Cobalt	KESULI	<u>UNIIS KPD</u>	SD Lot-Sample #:	
ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020 Analyst ID: 002260
Chromium			SD Lot-Sample #:	1D080405-019
ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020 Analyst ID: 002260
Copper			SD Lot-Sample #:	A1D080405-019
ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020 Analyst ID: 002260
Potassium			SD Lot-Sample #:	A1D080405-019
3080	3240	ug/L 5.1 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020
Magnesium			SD Lot-Sample #:	A1D080405-019
15400	14900	ug/L 3.9 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020 Analyst ID: 002260
Manganese			SD Lot-Sample #:	A1D080405-019
1590	1580	ug/L 0.88 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020
Selenium			SD Lot-Sample #:	A1D080405-019
ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020 Analyst ID: 002260
Silver			SD Lot-Sample #:	<u> </u>
ND	ND	ug/L 0 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020 Analyst ID: 002260
Barium			SD Lot-Sample #:	A1D080405-019
218	226	ug/L 3.6 Dilution Factor: 1 Instrument ID: I5	(0-20) SW846 6010B Analysis Time: 20:35	04/11-04/14/11 1101020 Analyst ID: 002260

(Continued on next page)

Metals

Lot-Sample #:	A1D080416-	000 Work	Order	#: MG MG	P15-SMP Matr P15-DUP	ix WAT	ER
	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	<u>UNITS</u>	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Calcium					SD Lot-Sample #:	A1D080405-019	
30900	30300	ug/L	2.2	(0-20)	SW846 6010B	04/11-04/14/11	1101020
		Dilution Fa	ctor: 1	Ana	alysis Time: 20:35	Analyst ID:	002260
		Instrument	ID: I5				
Nickel					SD Lot-Sample #:	A1D080405-019	
ND	2.9 B	ug/L	200	(0-20)	SW846 6010B	04/11-04/14/11	1101020
		Dilution Fa	ctor: 1	Ana	alysis Time: 20:35	Analyst ID:	002260
		Instrument	ID: I5				
Vanadium					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/11-04/14/11	1101020
		Dilution Fa	ctor: 1	Ana	alysis Time: 20:35	Analyst ID:	002260
		Instrument	ID: I5				
Mercury					SD Lot-Sample #:	A1D080405-019	
ND	ND	ug/L	0	(0-20)	SW846 7470A	04/11-04/12/11	1101020
		Dilution Fa	ctor: 1	Ana	alysis Time: 13:39	Analyst ID:	002260
		Instrument	ID: H1				
Zinc					SD Lot-Sample #:	A1D080405-019	
4.7 B	3.8 B	ug/L	21	(0-20)	SW846 6020	04/11-04/13/11	1101020
		Dilution Fa	ctor: 1	Ana	alysis Time: 12:55	Analyst ID:	000079
		Instrument	ID: 18				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

Metals

Client Lot #...: A1D080416 Work Order #...: MGP5W-SMP Matrix.....: WG

MGP5W-DUP

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	UNITS	RPD	LIMIT	METHOD	ANALYSIS DATE	
Silver		011110	_ 1112		SD Lot-Sample #:		<u> </u>
ND	ND	ug/L	0	(0-20)	-	04/14-04/15/11	1104025
		Dilution Fa	ctor: 1	Ana	alysis Time: 06:55	Analyst ID:	002260
		Instrument	ID: I5				
Aluminum					SD Lot-Sample #:		
404	394	ug/L				04/14-04/18/11	
		Dilution Fa		Ana	alysis Time: 14:13	Analyst ID:	000079
		Instrument	ID: 18				
Arsenic					SD Lot-Sample #:	71D080416-008	
ND	ND	uq/L	0	(0-20)		04/14-04/15/11	1104025
ND	ND	Dilution Fa			alysis Time: 06:55	Analyst ID:	
		Instrument		11110	arybib rime 00.55	inidique in	002200
Barium					SD Lot-Sample #:	A1D080416-008	
15.7	15.5	ug/L	1.1	(0-20)	SW846 6010B	04/14-04/15/11	1104025
		Dilution Fa	ctor: 1	Ana	alysis Time: 06:55	Analyst ID:	002260
		Instrument	ID: I5				
						-1-000116 000	
Beryllium	NID	/ T	0	(0.20)	SD Lot-Sample #:		1104005
ND	ND	ug/L	0			04/14-04/18/11	
		Dilution Fa Instrument		Ana	alysis Time: 14:13	Analyst ID:	000079
		THIS CT UNITED IC	10 10				
Calcium					SD Lot-Sample #:	A1D080416-008	
42300	41000	ug/L	3.0	(0-20)		04/14-04/15/11	1104025
		Dilution Fa	ctor: 1	Ana	alysis Time: 06:55	Analyst ID:	002260
		Instrument	ID: I5				
Cadmium					SD Lot-Sample #:		
1.6	1.6	ug/L				04/14-04/18/11	
		Dilution Fa		Ana	alysis Time: 14:13	Analyst ID:	000079
		Instrument	ID: 18				
Cobalt					SD Lot-Sample #:	<u> 1</u> 0080416-008	
19.6	18.6	uq/L	5.5	(0-20)	SW846 6010B	04/14-04/15/11	1104025
27.0		Dilution Fa			alysis Time: 06:55	Analyst ID:	
		Instrument	ID: I5		•	•	
Chromium					SD Lot-Sample #:	A1D080416-008	
ND	ND	ug/L	0		SW846 6010B	04/14-04/15/11	
		Dilution Fa	ctor: 1	Ana	alysis Time: 06:55	Analyst ID:	002260
		Instrument	ID: I5				

(Continued on next page)

Metals

Lot-Sample #:	A1D080416-	000 Work Order	#: MGP5W-SMP Matr	ix WG
	DUPLICATE		RPD	PREPARATION- PREP
PARAM RESULT	RESULT	UNITS RPD	LIMIT METHOD	ANALYSIS DATE BATCH #
Copper			SD Lot-Sample #:	A1D080416-008
9.3	10.7	ug/L 13	(0-20) SW846 6010B	04/14-04/15/11 1104025
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Iron		/-	SD Lot-Sample #:	
ND	ND	ug/L 0	(0-20) SW846 6020	04/14-04/18/11 1104025
		Dilution Factor: 1	Analysis Time: 14:13	Analyst ID: 000079
		Instrument ID: 18		
Mercury			SD Lot-Sample #:	71D080416_008
Mercury ND	ND	ug/L 0	(0-20) SW846 7470A	04/14-04/15/11 1104025
ND	ND	Dilution Factor: 1	Analysis Time: 10:34	
		Instrument ID: H1	Analysis lime 10.34	Analyst ID 002200
		Instrument ib in		
Potassium			SD Lot-Sample #:	A1D080416-008
2500	2420	ug/L 3.4	(0-20) SW846 6010B	04/14-04/15/11 1104025
		Dilution Factor: 1	Analysis Time: 06:55	
		Instrument ID: I5	-	-
Magnesium			SD Lot-Sample #:	A1D080416-008
3200	3110	ug/L 2.9	(0-20) SW846 6010B	04/14-04/15/11 1104025
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Manganese			SD Lot-Sample #:	
243 J	236	ug/L 3.0	(0-20) SW846 6010B	04/14-04/15/11 1104025
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		
Sodium			CD 1-+ C1 "-	710000416 000
	2070	/ Т	SD Lot-Sample #:	
3140	3070	ug/L 2.2		04/14-04/18/11 1104025
			Analysis Time: 14:13	Analyst ID: 0000/9
		Instrument ID: 18		
Nickel			SD Lot-Sample #:	A1D080416-008
37.0	35.3	ug/L 4.6	(0-20) SW846 6010B	04/14-04/15/11 1104025
37.0	33.3	Dilution Factor: 1		Analyst ID: 002260
		Instrument ID: I5	111117212 111110 00.00	
Lead			SD Lot-Sample #:	A1D080416-008
ND	ND	ug/L 0	(0-20) SW846 6010B	04/14-04/15/11 1104025
		Dilution Factor: 1	Analysis Time: 06:55	Analyst ID: 002260
		Instrument ID: I5		

(Continued on next page)

Metals

Lot-Sample #:	A1D080416-	000 Work	0rder	#: MG MG	P5W-SMP Matr :	ix WG	
	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	<u>UNITS</u>	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Antimony					SD Lot-Sample #:	A1D080416-008	
ND	ND	ug/L	0	(0-20)	SW846 6020	04/14-04/18/11	1104025
		Dilution Fact	tor: 1	Ana	alysis Time: 14:13	Analyst ID:	000079
		Instrument II	D: I8				
Selenium					SD Lot-Sample #:	A1D080416-008	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/14-04/15/11	1104025
		Dilution Fact	tor: 1	Ana	alysis Time: 06:55	Analyst ID:	002260
		Instrument II	D: I5				
Thallium					SD Lot-Sample #:	A1D080416-008	
0.55 B	0.36 B	ug/L	40	(0-20)	SW846 6020	04/14-04/18/11	1104025
		Dilution Fact	tor: 1	Ana	alysis Time: 14:13	Analyst ID:	000079
		Instrument II	D: 18				
Vanadium					SD Lot-Sample #:	A1D080416-008	
ND	ND	ug/L	0	(0-20)	SW846 6010B	04/14-04/15/11	1104025
		Dilution Fact	tor: 1	Ana	alysis Time: 06:55	Analyst ID:	002260
		Instrument II	D: I5				
Zinc					SD Lot-Sample #:	A1D080416-008	
72.4 J	73.2	ug/L	1.2	(0-20)	SW846 6020	04/14-04/18/11	1104025
		Dilution Fact	tor: 1	Ana	alysis Time: 14:13	Analyst ID:	000079
		Instrument II	D: I8				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

Metals Internal Chain of Custody

	Date Prepared:	04/11/11	Pre	p Analyst : Lisa Mcզ	gall	
Laboratory	Sample ID	Lab ID	Method	Analysis Date	Analyst	Instrument
A1D080416	10	MGP6A	SW846 6010B	04/14/11	Brian Davies	15
A1D080416	10	MGP6A	SW846 6020	04/13/11	Natalie Bucklew	18
A1D080416	10	MGP6A	SW846 7470A	04/12/11	Brian Davies	H1
	Date Prepared:	04/14/11	Pre	p Analyst : Lisa Mcզ	gall	
Laboratory	Sample ID	Lab ID	Method	Analysis Date	Analyst	Instrument
A1D080416	8	MGP5W	SW846 6010B	04/15/11	Brian Davies	15
A1D080416	8 S	MGP5W	SW846 6010B	04/15/11	Brian Davies	15
A1D080416	8 X	MGP5W	SW846 6010B	04/15/11	Brian Davies	15
A1D080416	8	MGP5W	SW846 6020	04/18/11	Natalie Bucklew	18
A1D080416	8 S	MGP5W	SW846 6020	04/18/11	Natalie Bucklew	18
A1D080416	8 X	MGP5W	SW846 6020	04/18/11	Natalie Bucklew	18
A1D080416	8	MGP5W	SW846 7470A	04/15/11	Brian Davies	H1
A1D080416	8 S	MGP5W	SW846 7470A	04/15/11	Brian Davies	H1
A1D080416	8 X	MGP5W	SW846 7470A	04/15/11	Brian Davies	H1
	Date Prepared:	04/15/11	Pre	p Analyst: Lisa Mco	gall	
Laboratory	Sample ID	Lab ID	Method	Analysis Date	Analyst	Instrument
A1D080416	10	MGP6A	SW846 6020	04/18/11	Natalie Bucklew	18



GENERAL CHEMISTRY DATA

U.S.Geological Survey (USGS)

Client Sample ID: FWGLL2mw-266C-0040-GW

General Chemistry

Lot-Sample #...: A1D080416-001 Work Order #...: MGP5D Matrix.....: WG

Date Sampled...: 04/07/11 11:04 Date Received..: 04/08/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	UNITS	METHOI)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101303
	Di	lution Fact	or: 1				
Chloride	1.6	1.0	mg/L	MCAWW	300.0A	04/08/11	1101301
	Di	lution Fact	or: 1				
Fluoride	0.083 B	1.0	mg/L	MCAWW	300.0A	04/08/11	1101297
	Di	lution Fact	or: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW	300.0A	04/08/11	1101304
	Di	lution Fact	or: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/08/11	1101302
	Di	lution Fact.	or: 1				
Nitrogen, as Ammonia		2.0	mg/L	MCAWW	350.2	04/15/11	1105283
	Di	lution Fact	or: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101306
	Di	lution Fact	or: 1				
Sulfate	27.2	1.0	mg/L	MCAWW	300.0A	04/08/11	1101310
	Di	lution Fact	or: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL2mw-267C-0050-GW

General Chemistry

Lot-Sample #...: A1D080416-003 Work Order #...: MGP5J Matrix.....: WG

Date Sampled...: 04/07/11 08:52 Date Received..: 04/08/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	UNITS	METHOI)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mq/L	MCAWW	300.0A	04/08/11	1101303
210140		Dilution Fact	3 ·	110111111	500,011	01,00,11	110100
Chloride	3.2	1.0	3.	MCAWW	300.0A	04/08/11	1101301
	D	Dilution Fact	or: 1				
Fluoride	0.29 в	1.0	mq/L	MCAWW	300.0A	04/08/11	1101297
	D	Dilution Fact	_				
		0.10			000 0-	04/00/11	
Nitrate as N	ND	0.10	_	MCAWW	300.0A	04/08/11	1101304
	D	Dilution Fact	or: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/08/11	1101302
	D	Dilution Fact	or: 1				
77 d 1	ND	2 0	/T	MODULI	250 2	04/15/11	1105000
Nitrogen, as Ammonia		2.0	_	MCAWW	350.2	04/15/11	1105283
	Ľ	Dilution Fact	or: 1				
Phosphate as P,	0.37 в	0.50	mg/L	MCAWW	300.0A	04/08/11	1101306
Ortho							
	D	Dilution Fact	or: 1				
Sulfate	82.0	1.0	mg/L	MCAWW	300.0A	04/08/11	1101310
Dullucc		Dilution Fact	_	1-1021/11/1	300.011	01/00/11	1101510

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL2mw-269C-0060-GW

General Chemistry

Lot-Sample #...: A1D080416-005 Work Order #...: MGP5N Matrix.....: WG

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

						PREPARATION-	PREP
PARAMETER	RESULT	RL	UNITS	METHOI)	ANALYSIS DATE	BATCH #
Bromide	ND	0.50	mq/L	MCAWW	300.0A	04/08/11	1101303
		Dilution Fact	J .			-, -,	
Chloride	10.0	1.0	mg/L	MCAWW	300.0A	04/08/11	1101301
	;	Dilution Fact	or: 1				
Fluoride	0.16 в	1.0	mg/L	MCAWW	300.0A	04/08/11	1101297
		Dilution Fact	_	11011111	30000	0 1, 0 0, 1 1	
Nitrate as N	NTD	0 10	/ T	MOATH	300.0A	04/08/11	1101304
Nitrate as N	ND	0.10 Dilution Fact	mg/L or: 1	MCAWW	300.UA	04/08/11	1101304
Nitrite as N	ND	0.10	mg/L	MCAWW	300.0A	04/08/11	1101302
		Dilution Fact	or: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW	350.2	04/15/11	1105283
		Dilution Fact	or: 1				
Phosphate as P,	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101306
Ortho			J.				
		Dilution Fact	or: 1				
Sulfate	27.2	1.0	mg/L	MCAWW	300.0A	04/08/11	1101310
	:	Dilution Fact	_				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL1mw-084C-0200-GW

General Chemistry

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

PARAMETER	RESULT	RL	UNITS	METHOD		PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND D	0.50 Dilution Fact	mg/L or: 1	MCAWW 300.	0A	04/08/11	1101303
Chloride	1.1	1.0 Dilution Fact	mg/L or: 1	MCAWW 300.	0A	04/08/11	1101301
Cyanide, Total	ND D	0.010 Dilution Fact	mg/L or: 1	SW846 9012	A	04/21/11	1112227
Fluoride	0.070 B	1.0	mg/L or: 1	MCAWW 300.	0A	04/08/11	1101297
Nitrate as N	0.74	0.10	mg/L or: 1	MCAWW 300.	0A	04/08/11	1101304
Nitrate-Nitrite	0.8	0.1 Dilution Fact	mg/L or: 1	MCAWW 353.	2	04/12/11	1102391
Nitrite as N	ND D	0.10 Dilution Fact	mg/L or: 1	MCAWW 300.	0A	04/08/11	1101302
Nitrocellulose	ND D	2.0 Dilution Fact	mg/L or: 1	TAL-SOP WS	-WC-005	04/12-04/13/11	1102167
Nitrogen, as Ammonia		2.0 Dilution Fact	mg/L or: 1	MCAWW 350.	2	04/15/11	1105283
Phosphate as P, Ortho	0.18 в	0.50	mg/L	MCAWW 300.	0A	04/08/11	1101306
	D	ilution Fact	or: 1				
Sulfate	104	1.0 Dilution Fact	mg/L or: 1	MCAWW 300.	0A	04/08/11	1101310

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Client Sample ID: FWGLL4mw-198C-0210-GW

General Chemistry

Lot-Sample #...: A1D080416-009 Work Order #...: MGP53 Matrix.....: WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11

PARAMETER	RESULT	RL	UNITS	METHOI)	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND D	0.50 ilution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101303
Chloride	1.2	1.0 ilution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101301
Cyanide, Total	ND D.	0.010 ilution Facto	mg/L or: 1	SW846	9012A	04/21/11	1112227
Fluoride	0.16 B	1.0 ilution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101297
Nitrate as N	0.033 B	0.10 ilution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101304
Nitrate-Nitrite	0.03 B	0.1 ilution Facto	mg/L or: 1	MCAWW	353.2	04/12/11	1102391
Nitrite as N	ND D.	0.10 ilution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101302
Nitrocellulose	ND D.	2.0 ilution Facto	mg/L or: 1	TAL-SO	OP WS-WC-005	04/12-04/13/11	1102167
Nitrogen, as Ammonia		2.0 ilution Facto	mg/L or: 1	MCAWW	350.2	04/15/11	1105283
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW	300.0A	04/08/11	1101306
	D.	ilution Facto	or: 1				
Sulfate	84.5 D.	1.0 ilution Facto	mg/L or: 1	MCAWW	300.0A	04/08/11	1101310

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix.....: WATER

DADAMERED	DEGIH M	REPORTING	MERITOD	PREPARATION-	
PARAMETER	KESULI_	LIMIT UNITS			BAICH #
Bromide			AA MB Lot-Sample #:		110100
	ND	-	MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1			
al. 1				717110000 201	
Chloride	110		AA MB Lot-Sample #:		1101201
	ND	-	MCAWW 300.0A	04/08/11	1101301
		Dilution Factor: 1			
Cyanide, Total		Work Order #: MUEQT1	LAA MB Lot-Sample #:	717270000_227	
cyanide, iocai	ND		SW846 9012A		1112227
	ND	Dilution Factor: 1	3W040 9012A	04/21/11	1112227
		Dilution Factor: 1			
Fluoride		Work Order #: MCVN51	LAA MB Lot-Sample #:	297_110000	
Fluoride	ND		MCAWW 300.0A		1101297
	ND	Dilution Factor: 1	MCAWW 300.0A	04/00/11	1101277
		Dilucion Faccor: 1			
Nitrate as N		Work Order #: MGVPA1	AA MB Lot-Sample #:	A1D110000-304	
	ND		MCAWW 300.0A		1101304
		Dilution Factor: 1		-, -, -,	
Nitrate-Nitrite		Work Order #: MGXCN1	AA MB Lot-Sample #:	G1D120000-391	
	ND		MCAWW 353.2		1102391
		Dilution Factor: 1			
Nitrite as N		Work Order #: MGVN81	AA MB Lot-Sample #:	A1D110000-302	
	ND	0.10 mg/L	MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1			
Nitrocellulose		Work Order #: MGWA31	AA MB Lot-Sample #:	G1D120000-167	
	ND	2.0 mg/L	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1			
Nitrogen, as Ammor	nia	Work Order #: MG3831			
	ND	2.0 mg/L	MCAWW 350.2	04/15/11	1105283
		Dilution Factor: 1			
Phosphate as P,		Work Order #: MGVPD1	LAA MB Lot-Sample #:	A1D110000-306	
Ortho					
	ND	0.50 mg/L	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1			
a 15 .			77 M 7 L 2 7 "	717110000 010	
Sulfate	110		LAA MB Lot-Sample #:		1101010
	ND	1.0 mg/L	MCAWW 300.0A	04/08/11	1101310
		Dilution Factor: 1			

Calculations are performed before rounding to avoid round-off errors in calculated results.

NOTE(S):

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D080416 Matrix.....: WATER

PARAMETER Bromide		WO#:MGVN91AC-LCS/MGV (90 - 110) (90 - 110) 0.36 (0-20)	N91AD-LCSD LCS L MCAWW 300.0A	ot-Sample#: A1D1 04/08/11	10000-303
Chloride	99 99	Dilution Factor: 1 WO#:MGVN71AC-LCS/MGV (90 - 110) (90 - 110) 0.22 (0-20) Dilution Factor: 1	MCAWW 300.0A	04/09/11	1101301
Fluoride	96 95	WO#:MGVN51AC-LCS/MGV (90 - 110) (90 - 110) 0.04 (0-20) Dilution Factor: 1	MCAWW 300.0A	04/09/11	1101297
Nitrate as N		WO#:MGVPA1AC-LCS/MGV (90 - 110) (90 - 110) 0.58 (0-20) Dilution Factor: 1	MCAWW 300.0A	04/08/11	1101304
Nitrite as N		WO#:MGVN81AC-LCS/MGV (90 - 110) (90 - 110) 1.1 (0-20) Dilution Factor: 1	MCAWW 300.0A	04/08/11	1101302
Phosphate as Ortho		WO#:MGVPD1AC-LCS/MGV		_	
	108 111 N	(90 - 110) (90 - 110) 2.6 (0-20) Dilution Factor: 1	MCAWW 300.0A MCAWW 300.0A		
Sulfate	94 95	WO#:MGVPF1AC-LCS/MGV (90 - 110) (90 - 110) 0.27 (0-20) Dilution Factor: 1	MCAWW 300.0A	04/09/11	1101310

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D080416 Matrix.....: WATER

	SPIKE	MEASURED		PERCNT	555	MERITO	-	PREPARATION-	PREP
<u>PARAMETER</u> Bromide	AMOUNT							ANALYSIS DATE mple#: A1D11000	
BIOIIIIGE	10.0	9.4	mg/L	94	VINJIA		300.0A	04/08/11	1101303
	10.0	9.4	mg/L	94	0 36		300.0A	04/08/11	1101303
	10.0		ilution Fact		0.50	NCAWW	300.0A	01/00/11	1101303
		2.	11401011 140	001 1					
Chloride		WO#	:MGVN71AC	-LCS/MG	VN71A			mple#: A1D11000	0-301
	50.0	49.4	mg/L	99		MCAWW	300.0A	04/09/11	1101301
	50.0	49.6	mg/L	99	0.22	MCAWW	300.0A	04/09/11	1101301
		D:	ilution Fact	tor: 1					
Fluoride		WO#	:MGVN51AC	-LCS/MG	VN51A	D-LCSD	LCS Lot-Sar	mple#: A1D11000	0-297
	2.5	2.4	mg/L	96		MCAWW	300.0A	04/09/11	1101297
	2.5	2.4	mg/L	95	0.04	MCAWW	300.0A	04/09/11	1101297
		D:	ilution Fact	tor: 1					
Nitrate as N		WO#	:MGVPA1AC	-LCS/MG	VPA1A	D-LCSD	LCS Lot-Sar	mple#: A1D11000	0-304
	2.5	2.4	mg/L	95			300.0A	04/08/11	1101304
	2.5	2.4	mg/L	95	0.58	MCAWW	300.0A	04/08/11	1101304
		D:	ilution Fact	tor: 1					
Nitrite as N		WO#	:MGVN81AC	-LCS/MG	VN81A	D-LCSD	LCS Lot-Sar	mple#: A1D11000	0-302
	2.5	2.5	mg/L	99		MCAWW	300.0A	04/08/11	1101302
	2.5	2.5	mg/L	100	1.1	MCAWW	300.0A	04/08/11	1101302
		D:	ilution Fact	tor: 1					
Phosphate as Ortho	Р,	WO#	:MGVPD1AC	-LCS/MG	VPD1A	D-LCSD	LCS Lot-Sar	mple#: AlD11000	0-306
	2.5	2.7	mg/L	108		MCAWW	300.0A	04/08/11	1101306
	2.5	2.8 N	mg/L	111	2.6	MCAWW	300.0A	04/08/11	1101306
		D:	ilution Fact	tor: 1					
Sulfate		WO#	:MGVPF1AC	-LCS/MG	VPF1A	D-LCSD	LCS Lot-Sar	mple#: A1D11000	0-310
	50.0	47.1	mg/L	94		MCAWW	300.0A	04/09/11	1101310
	50.0	47.3	mg/L	95	0.27	MCAWW	300.0A	04/09/11	1101310
		D:	ilution Fact	tor: 1					

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix.....: WATER

<u>PARAMETER</u> Cyanide, Total	PERCENT RECOVERY 107	RECOVERY LIMITS Work Order (80 - 120) Dilution Fact	SW846 9012A	PREPARATION- <u>ANALYSIS DATE</u> t-Sample#: A1D220000 04/21/11	PREP <u>BATCH #</u> -227 1112227
Nitrate-Nitrite	100		MCAWW 353.2	t-Sample#: G1D120000 04/12/11	-391 1102391
Nitrocellulose	90		TAL-SOP WS-WC-005	t-Sample#: G1D120000 04/12-04/13/11	
Nitrogen, as Am	monia 88		MCAWW 350.2	t-Sample#: A1D150000 04/15/11	-283 1105283

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix.....: WATER

<u>PARAMETER</u> Cyanide, Tot		MEASUR AMOUNT	UNITS	: MHE9T	1AC	MOD LCS Lot-Sample	<u>ANZ</u> e#:	EPARATION- ALYSIS DATE A1D220000-2 04/21/11	
			Dilution Factor	r: 1					
Nitrate-Nitr	ite 1.0	1	Work Order # mg/L Dilution Factor	100		LCS Lot-Sample W 353.2		G1D120000-3 04/12/11	91 1102391
Nitrocellulo	se 5.1	4.6	Work Order # mg/L Dilution Factor	90		LCS Lot-Sample			
Nitrogen, as	Ammonia 14	12	Work Order # mg/L Dilution Factor	88		LCS Lot-Sample W 350.2		A1D150000-2 04/15/11	83 1105283

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitr	ite	WO#:	MGPCC1C4-MS/	MGPCC1C5-MSD	MS Lot-Sample #: All	0070566-011
	87 N	(90 - 110)		MCAWW 353.2	04/12/11	1102391
	89 N	(90 - 110)	1.7 (0-20)	MCAWW 353.2	04/12/11	1102391
		Dilut	ion Factor: 1			
Nitrocellulose			MGLKA1AF-MS/	MGLKA1AG-MSD	MS Lot-Sample #: All	0060428-014
	80	(26 - 144)		TAL-SOP WS-WO	C-005 04/12-04/13/11	1102167
	79	(26 - 144)	0.99 (0-45)	TAL-SOP WS-WO	C-005 04/12-04/13/11	1102167
		Dilut	ion Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix.....: WATER

Date Sampled...: 04/06/11 14:05 Date Received..: 04/07/11

Ç	SAMPLE	SPIKE	MEASRD		PERCNT			PREPARATION-	PREP
PARAMETER A	AMOUNT	AMT	AMOUNT	UNITS	<u>RECVRY</u>	<u>RPD</u>	METHOD	ANALYSIS DATE	BATCH #
Nitrate-Nit	rite		WO#:	MGPCC1C4-MS	/MGPCC1	C5-MS	D MS Lot-Sam	ple #: A1D070566	-011
NI	D	1.0	0.9 N	mg/L	87		MCAWW 353.2	04/12/11	1102391
NI	D	1.0	0.9 N	mg/L	89	1.7	MCAWW 353.2	04/12/11	1102391
			Diluti	on Factor: 1					
Nitrocellulo	ose		WO#:	MGLKA1AF-MS	/MGLKA1	AG-MS	D MS Lot-Sam	ple #: A1D060428	-014
NI	D	5.1	4.1	mg/L	80		TAL-SOP WS-W	C 04/12-04/13/11	1102167
NI	D	5.1	4.0	mg/L	79	0.99	TAL-SOP WS-W	C 04/12-04/13/11	1102167
			Diluti	on Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

PARAMETER Bromide	PERCENT RECOVERY 87 86	WO#: MGP (80 - 120)	5D1AR-MS/MGP5D1AT-MSD MCAWW 300.0A 4 (0-20) MCAWW 300.0A		1
Chloride	91 91	(80 - 120)	MCAWW 300.0A 6 (0-20) MCAWW 300.0A		1
Cyanide, Tota		(80 - 120)	SW846 9012A (0-20) SW846 9012A		7
Fluoride	89 89	(80 - 120)	MCAWW 300.0A 1 (0-20) MCAWW 300.0A		1
Nitrate as N			MCAWW 300.0A 7 (0-20) MCAWW 300.0A	MS Lot-Sample #: AlD080416-003 04/08/11 1101304 04/08/11 1101304	1
Nitrite as N		(80 - 120)	MCAWW 300.0A (0-20) MCAWW 300.0A		1
Nitrogen, as		(75 - 125)	MCAWW 350.2 (0-20) MCAWW 350.2	MS Lot-Sample #: A1D080416-002 04/15/11 1105283 04/15/11 1105283	1
Phosphate as Ortho	119	(80 - 120)	MCAWW 300.0A (0-20) MCAWW 300.0A	MS Lot-Sample #: A1D080416-003 04/08/11	1

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

	PERCENT	RECOVERY		RPD		PREPARATION- PREP
PARAMETER	RECOVERY	LIMITS	RPD	<u>LIMITS</u>	METHOD	ANALYSIS DATE BATCH #
Sulfate		WO#:	MGP5	D1A0-MS/	MGP5D1A1-MSD	MS Lot-Sample #: A1D080416-001
	93	(80 - 120)			MCAWW 300.0A	04/08/11 1101310
	93	(80 - 120)	0.04	(0-20)	MCAWW 300.0A	04/08/11 1101310
		Dilut	ion Fa	ctor: 1		

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

PARAMETER	SAMPLE		MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide								ole #: A1D080416	
	ND	10.0	8.7	mg/L	87	-	MCAWW 300.0A	04/08/11	1101303
	ND	10.0	8.6	mg/L	86	0.84	MCAWW 300.0A	04/08/11	1101303
			Dilut	ion Factor: 1					
Chloride			WO#:	MGP5D1AM-MS	/MGP5D1	AN-MS	D MS Lot-Samp	ole #: A1D080416	-001
	1.6	50.0	47.2	mg/L	91		MCAWW 300.0A	04/08/11	1101301
	1.6	50.0	47.3	mg/L	91	0.16	MCAWW 300.0A	04/08/11	1101301
			Dilut	ion Factor: 1					
Q	ma+a1		тто# .	MODED13V MO	/MODED1	N	D MC Lat Came	ole #: A1D080416	0.07
Cyanide,	ND	0.040	0.042		99	40-M2	D MS LOC-Samp SW846 9012A	04/21/11	1112227
	ND ND	0.040	0.042	mg/L mg/L	88	11	SW846 9012A SW846 9012A	04/21/11	1112227
	ND	0.040		ion Factor: 1	00	11	5W040 9012A	04/21/11	1112221
Fluoride			WO#:	MGP5D1AK-MS	/MGP5D1	AL-MS	D MS Lot-Samp	ole #: A1D080416	-001
	0.083	2.5	2.3	mg/L	89		MCAWW 300.0A	04/08/11	1101297
	0.083	2.5	2.3	mg/L	89	0.51	MCAWW 300.0A	04/08/11	1101297
			Dilut	ion Factor: 1					
Nitrate a	a N		WO#:	MCD5D1 AII_MC	/MGD5D12	2M-17	D MS Lot-Samr	ole #: A1D080416	-001
NICIACE a	ND	2.5	2.2	mg/L	88	1V 11D	MCAWW 300.0A	04/08/11	1101304
	ND	2.5	2.2	mg/L	88	0 27	MCAWW 300.0A	04/08/11	1101301
	ND	2.5		ion Factor: 1	00	0.27	11C1WW 500.011	01/00/11	1101301
Nitrite a	s N		WO#:	MGP5D1AP-MS	/MGP5D1	AQ-MS	D MS Lot-Samp	ole #: A1D080416	-001
	ND	2.5	2.7	mg/L	109		MCAWW 300.0A	04/08/11	1101302
	ND	2.5	2.7	mg/L	110	1.0	MCAWW 300.0A	04/08/11	1101302
			Dilut	ion Factor: 1					
Nitrogen,	as Ammo	nia	WO#:	MGP5D1A2-MS	/MGP5D1	2M-84	D MS Lot-Samr	ole #: A1D080416	-001
microgen,	ND	4.0	3.9	mq/L	91	15 116	MCAWW 350.2	04/15/11	1105283
	ND	4.0	3.9	mg/L	91	0.0	MCAWW 350.2	04/15/11	1105283
				ion Factor: 1				,,	
Phosphate	as P,		WO#:	MGP5D1AW-MS	/MGP5D1	AX-MS	D MS Lot-Samp	ole #: A1D080416	-001
Ortho	NTD	٥. ٦	2 0		110		NG 7 LTL 200 07	04/00/11	1101206
	ND	2.5	3.0	mg/L	119	1.2	MCAWW 300.0A	04/08/11	1101306
	ND	2.5	3.0 N	mg/L	121	⊥.∠	MCAWW 300.0A	04/08/11	1101306
			DITUE	ion Factor: 1					

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D080416 Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11

	SAMPLE	SPIKE	MEASRD		PERCNT				PREPARATION-	PREP
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	<u>RECVRY</u>	<u>RPD</u>	<u>METHOI</u>)	ANALYSIS DATE	BATCH #
Sulfate			WO#:	MGP5D1A0-MS	/MGP5D1	A1-MSI	D MS I	Lot-Sampl	Le #: A1D080416	-001
	27.2	50.0	73.9	mg/L	93		MCAWW	300.0A	04/08/11	1101310
	27.2	50.0	74.0	mg/L	93	0.04	MCAWW	300.0A	04/08/11	1101310
			Diluti	on Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416 Work Order #...: MGP5N-SMP Matrix.....: WG

MGP5N-DUP

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11

	DUPLICATE			RPD		PREPARATION-	PREP
PARAM RESULT	RESULT	<u>UNITS</u>	RPD	LIMIT	METHOD	ANALYSIS DATE	BATCH #
Bromide					SD Lot-Sample #:	A1D080416-005	
ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	04/08/11	1101303
		Dilution Fac	ctor: 1				
Chloride					SD Lot-Sample #:	Δ1D080416-005	
10.0	10	mq/L	0.30	(0-20)	MCAWW 300.0A	04/08/11	1101301
10.0	10	Dilution Fac		(0 20)	MCAWW 500.0A	01/00/11	1101301
		Dilucion Fac	2011				
Fluoride					SD Lot-Sample #:	A1D080416-005	
0.16 B	0.14 B	mg/L	15	(0-20)	MCAWW 300.0A	04/08/11	1101297
		Dilution Fac	ctor: 1				
Nitrate as N			_	,	SD Lot-Sample #:		
ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	04/08/11	1101304
		Dilution Fac	ctor: 1				
Nitrite as N					SD Lot-Sample #:	A1D080416-005	
ND	ND	mq/L	0	(0-20)	MCAWW 300.0A	04/08/11	1101302
		Dilution Fac	ctor: 1	(,			
Phosphate as P,					SD Lot-Sample #:	A1D080416-005	
Ortho							
ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	04/08/11	1101306
		Dilution Fac	ctor: 1				
Sulfate					SD Lot-Sample #:	71D080416_005	
27.2	27.3	mg/L	0.26	(0-20)	MCAWW 300.0A	04/08/11	1101310
27.2	27.5	Dilution Fac		(0 20)	110111111 500.011	01/00/11	1101010

NOTE(S):

 $\label{lem:calculations} \textbf{Calculations} \ \text{are performed before rounding to avoid round-off errors in calculated results}.$

B Estimated result. Result is less than RL.



DENVER DATA



ANALYTICAL REPORT

Job Number: 280-14465-1

SDG Number: A1D080416

Job Description: USGS - RVAAP

For:

TestAmerica Laboratories, Inc. 4101 Shuffel Street NW North Canton, OH 44720

Attention: Mr. Mark J. Loeb

Approved for release. Dee A Kettula Project Mgmt. Assistant 4/26/2011 1:23 PM

Designee for
DiLea Griego
Project Manager I
dilea.griego@testamericainc.com
04/26/2011

Dee Kettula

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.



CASE NARRATIVE

Client: TestAmerica Laboratories, Inc.

Project: USGS - RVAAP

Report Number: 280-14465-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIP1

The samples were received on 04/09/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.4°C.

TOTAL METALS - METHODS SW846 6010B/6020

Uranium was detected in method blank MB 280-61885/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered.

DATA REPORTING QUALIFIERS

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Lab Section	Qualifier	Description
Metals		
	В	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

EXECUTIVE SUMMARY - Detections

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1 Sdg Number: A1D080416

Boron 29	Lab Sample ID Analyte	Client Sample ID	Result / Qu	ualifier	Reporting Limit	Units	Method
Lithium 23 100 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.043 JB 1.0 ug/L 6010B Uranium 0.043 JB 1.0 ug/L 6020 280-14465-2 FWGLL2MW-267C-0050-GF Boron 23 10 ug/L 6010B Uranium 23 10 ug/L 6010B Uranium 23 10 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6020 280-14465-3 FWGLLWMW-269C-0060-GF Boron 120 100 ug/L 6010B Uranium 49 10 ug/L 6010B Uranium 5.50 ug/L 6010B Uranium 7.5 J 10 ug/L 6010B Uranium 0.62 JB 1.0 ug/L 6010B Uranium 0.	280-14465-1	FWGLL2MW-266C-0	040-GF				
Lithium 23 100 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.043 JB 1.0 ug/L 6010B Uranium 0.043 JB 1.0 ug/L 6020 280-14465-2 FWGLL2MW-267C-0050-GF Boron 23 10 ug/L 6010B Uranium 23 10 ug/L 6010B Uranium 23 10 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6020 280-14465-3 FWGLLWMW-269C-0060-GF Boron 120 100 ug/L 6010B Uranium 49 10 ug/L 6010B Uranium 5.50 ug/L 6010B Uranium 7.5 J 10 ug/L 6010B Uranium 0.62 JB 1.0 ug/L 6010B Uranium 0.	Boron		29	.l	100	ug/l	6010B
SiO2, Silica				J			
Uranium 0.043 J B 1.0 ug/L 6020 280-14465-2 FWGLL2MW-267C-0050-GF FWGLL2MW-267C-0050-GF Boron 26 J 100 ug/L 6010B Lithium 23 10 ug/L 6010B SiO2, Silica 15000 500 ug/L 6010B Uranium 0.066 J B 1.0 ug/L 6020 280-14465-3 FWGLLWMW-269C-0060-GF Boron 120 100 ug/L 6010B Lithium 49 10 ug/L 6010B SiO2, Silica 8800 500 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6010B 280-14465-5 FWGLL4MW-198C-0210-GW Ug/L 6010B Boron 26 J 100 ug/L 6010B Lithium 8.3 J 100 ug/L 6010B						-	
Boron 26 J 100 ug/L 6010B Lithium 23 100 ug/L 6010B SiO2, Silica 15000 500 ug/L 6010B Uranium 0.066 J B 1.0 ug/L 6010B 280-14465-3 FWGLLWMW-269C-0060-F Boron 120 100 ug/L 6010B Lithium 49 10 ug/L 6010B SiO2, Silica 8800 500 ug/L 6010B 280-14465-4 FWGLL1MW-084C-0200-GW Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 ug/L 6010B SiO2, Silica 11000 ug/L 6010B SiO2, Silica 11000 ug/L 6010B SiO3 ug/L 6010B SiO4 ug/L 6010B SiO5 ug/L 6010B SiO5 ug/L 6010B SiO5 ug/L 6010B SiO5 ug/L 6010B SiO5 ug/L 6010B SiO5 ug/L 6010B SiO5 ug/L 6010B SiO5 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6010B Lithium 8.3 J 100 ug/L 6010B Lithium 6010B				JВ		-	
Lithium 23 10 ug/L 6010B SiO2, Silica 15000 JB 1.0 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6020	280-14465-2	FWGLL2MW-267C-0	050-GF				
Lithium 23 10 ug/L 6010B SiO2, Silica 15000 JB 1.0 ug/L 6010B Uranium 0.066 JB 1.0 ug/L 6020	Boron		26	J	100	ua/l	6010B
SiO2, Silica 15000 500 ug/L 6010B Uranium 0.066 J B 1.0 ug/L 6020 280-14465-3 FWGLLWMW-269C-0060-GF Boron 120 100 ug/L 6010B Lithium 49 10 ug/L 6010B SiO2, Silica 8800 500 ug/L 6010B Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 100 ug/L 6010B				Ü		-	
Uranium 0.066 J B 1.0 ug/L 6020 280-14465-3 FWGLLWMW-269C-0060-F Boron 120 100 ug/L 6010B Lithium 49 10 ug/L 6010B SiO2, Silica 8800 500 ug/L 6010B 280-14465-4 FWGLL1MW-084C-0200-GW Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 100 ug/L 6010B						_	
Boron 120 100 ug/L 6010B Lithium 49 10 ug/L 6010B SiO2, Silica 8800 500 ug/L 6010B 280-14465-4 FWGLL1MW-084C-0200-GW Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 10 ug/L 6010B				JB		•	
Lithium 49 10 ug/L 6010B SiO2, Silica 8800 500 ug/L 6010B 280-14465-4 FWGLL1MW-084C-0200-GW Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6010B 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B	280-14465-3	FWGLLWMW-269C-0	0060-GF				
Lithium 49 10 ug/L 6010B SiO2, Silica 8800 500 ug/L 6010B 280-14465-4 FWGLL1MW-084C-0200-GW Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6010B 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B Lithium 100 ug/L 6010B	Boron		120		100	ua/L	6010B
SiO2, Silica 8800 500 ug/L 6010B 280-14465-4 FWGLL1MW-084C-0200-GW Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 100 ug/L 6010B	Lithium		49				
Boron 79 J 100 ug/L 6010B Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 100 ug/L 6010B						-	
Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 10 ug/L 6010B	280-14465-4	FWGLL1MW-084C-0	200-GW				
Lithium 7.5 J 10 ug/L 6010B SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 10 ug/L 6010B	Boron		79	.I	100	ua/l	6010B
SiO2, Silica 11000 500 ug/L 6010B Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW Boron 26 J 100 ug/L 6010B Lithium 8.3 J 10 ug/L 6010B						_	
Uranium 0.62 J B 1.0 ug/L 6020 280-14465-5 FWGLL4MW-198C-0210-GW V				Ü		-	
Boron 26 J 100 ug/L 6010B Lithium 8.3 J 10 ug/L 6010B				JB		-	
Lithium 8.3 J 10 ug/L 6010B	280-14465-5	FWGLL4MW-198C-0	210-GW				
Lithium 8.3 J 10 ug/L 6010B	Boron		26	.l	100	ua/l	6010B
· · · · · · · · · · · · · · · · · · ·							
	SiO2, Silica		22000	J	500	ug/L	6010B

METHOD SUMMARY

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1 Sdg Number: A1D080416

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Metals (ICP) Preparation, Total Metals	TAL DEN TAL DEN	SW846 6010B	SW846 3010A
Metals (ICP/MS) Preparation, Total Metals	TAL DEN TAL DEN	SW846 6020	SW846 3020A

Lab References:

TAL DEN = TestAmerica Denver

Method References:

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

METHOD / ANALYST SUMMARY

Client: TestAmerica Laboratories, Inc. Job Number: 280-14465-1

Sdg Number: A1D080416

Method	Analyst	Analyst ID
SW846 6010B	Harre, John K	JKH
SW846 6020	Lill, Thomas E	TEL

SAMPLE SUMMARY

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

		Date/Time	Date/Time
Client Sample ID	Client Matrix	Sampled	Received
FWGLL2MW-266C-0040-GF	Water	04/07/2011 1104	04/09/2011 0900
FWGLL2MW-266C-0040-GF	Water	04/07/2011 1104	04/09/2011 0900
FWGLL2MW-266C-0040-GF	Water	04/07/2011 1104	04/09/2011 0900
FWGLL2MW-267C-0050-GF	Water	04/07/2011 0852	04/09/2011 0900
FWGLLWMW-269C-0060-GF	Water	04/07/2011 0859	04/09/2011 0900
FWGLL1MW-084C-0200-GW	Water	04/07/2011 1200	04/09/2011 0900
FWGLL4MW-198C-0210-GW	Water	04/07/2011 1500	04/09/2011 0900
	FWGLL2MW-266C-0040-GF FWGLL2MW-266C-0040-GF FWGLL2MW-266C-0040-GF FWGLL2MW-267C-0050-GF FWGLLWMW-269C-0060-GF FWGLL1MW-084C-0200-GW	FWGLL2MW-266C-0040-GF Water FWGLL2MW-266C-0040-GF Water FWGLL2MW-266C-0040-GF Water FWGLL2MW-267C-0050-GF Water FWGLLWMW-269C-0060-GF Water FWGLL1MW-084C-0200-GW Water	Client Sample ID Client Matrix Sampled FWGLL2MW-266C-0040-GF Water 04/07/2011 1104 FWGLL2MW-266C-0040-GF Water 04/07/2011 1104 FWGLL2MW-266C-0040-GF Water 04/07/2011 1104 FWGLL2MW-267C-0050-GF Water 04/07/2011 0852 FWGLLWMW-269C-0060-GF Water 04/07/2011 0859 FWGLL1MW-084C-0200-GW Water 04/07/2011 1200

Client: TestAmerica Laboratories, Inc. Job Number: 280-14465-1

Sdg Number: A1D080416

Client Sample ID: FWGLL2MW-266C-0040-GF

Lab Sample ID: 280-14465-1 Date Sampled: 04/07/2011 1104 Client Matrix: Water Date Received: 04/09/2011 0900

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62690	1	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch: 280-61884 La		Lab File ID:	N/A	
Dilution:	1.0			1	Initial Weight/Volume:	50 mL
Analysis Date:	04/15/2011 1723				Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730				-	
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		29		J	4.4	100
Lithium		23			2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		11000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62706	ı	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	ļ	Lab File ID:	221AREF.D
Dilution:	1.0			1	Initial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0523				Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				Ü	
				0 ""	MDI	DI
Analyte		Result (u	g/L)	Qualifier	MDL	RL

Client: TestAmerica Laboratories, Inc. Job Number: 280-14465-1

Sdg Number: A1D080416

Client Sample ID: FWGLL2MW-267C-0050-GF

Lab Sample ID: 280-14465-2 Date Sampled: 04/07/2011 0852 Client Matrix: Water Date Received: 04/09/2011 0900

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62690		Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch: 280-61884			Lab File ID:	N/A
Dilution:	1.0				Initial Weight/Volume:	50 mL
Analysis Date:	04/15/2011 1729				Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730					
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		26		J	4.4	100
Lithium		23			2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		15000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62706		Instrument ID:	MT_024
	3020A	Prep Batch:	280-61885		Lab File ID:	224SMPL.D
Prep Method:	3020A	riep batcii.	200-01003		Lub i lic ib.	ZZTOWII L.D
•	1.0	гтер вакт.	200-01003		Initial Weight/Volume:	50 mL
Prep Method: Dilution: Analysis Date:		гтер вакт.	200-01003			_
Dilution: Analysis Date:	1.0	гтер Баст.	200-01003		Initial Weight/Volume:	50 mL
Dilution:	1.0 04/16/2011 0531	Result (u			Initial Weight/Volume: Final Weight/Volume:	50 mL

Client: TestAmerica Laboratories, Inc. Job Number: 280-14465-1

Sdg Number: A1D080416

Client Sample ID: FWGLLWMW-269C-0060-GF

Lab Sample ID: 280-14465-3 Date Sampled: 04/07/2011 0859 Client Matrix: Water Date Received: 04/09/2011 0900

	Trate.				24.0	
		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62690	I	nstrument ID:	MT_025
Prep Method:	3010A	Prep Batch: 280-61884		l	_ab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:		50 mL
Analysis Date:	04/15/2011 1732			F	Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730					
Analyte		Result (u	ıg/L)	Qualifier	MDL	RL
Boron		120			4.4	100
Lithium		49			2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		8800			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62706	I	nstrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	l	₋ab File ID:	225SMPL.D
Dilution:	1.0			I	nitial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0534			F	Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				-	
Analyte		Result (u	ıg/L)	Qualifier	MDL	RL
Uranium		ND			0.020	1.0

Client: TestAmerica Laboratories, Inc. Job Number: 280-14465-1

Sdg Number: A1D080416

Client Sample ID: FWGLL1MW-084C-0200-GW

Lab Sample ID: 280-14465-4 Date Sampled: 04/07/2011 1200 Client Matrix: Water Date Received: 04/09/2011 0900

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch: 280-62690 Instrument ID:		nstrument ID:	MT_025	
Prep Method:	3010A	Prep Batch:	ep Batch: 280-61884 Lab File ID:		N/A	
Dilution:	1.0			1	nitial Weight/Volume:	50 mL
Analysis Date:	04/15/2011 1734			Final Weight/Volume:		50 mL
Prep Date:	04/15/2011 0730					
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		79		J	4.4	100
Lithium		7.5		J	2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		11000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62706	ļ	nstrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	I	_ab File ID:	226SMPL.D
Dilution:	1.0				nitial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0537				Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				-	
				0	MDI	DI
Analyte		Result (u	g/L)	Qualifier	MDL	RL

Client: TestAmerica Laboratories, Inc. Job Number: 280-14465-1

Sdg Number: A1D080416

Client Sample ID: FWGLL4MW-198C-0210-GW

Lab Sample ID: 280-14465-5 Date Sampled: 04/07/2011 1500 Client Matrix: Water Date Received: 04/09/2011 0900

		6010B	Metals (ICP)			
Analysis Method:	6010B	Analysis Batch:	280-62690	I	nstrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-61884	L	_ab File ID:	N/A
Dilution:	1.0			I	nitial Weight/Volume:	50 mL
Analysis Date:	04/15/2011 1736			F	Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730					
Analyte		Result (u	g/L)	Qualifier	MDL	RL
Boron		26		J	4.4	100
Lithium		8.3		J	2.6	10
Molybdenum		ND			3.1	20
SiO2, Silica		22000			74	500
		6020 Me	etals (ICP/MS)			
Analysis Method:	6020	Analysis Batch:	280-62706	I	nstrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	L	_ab File ID:	227SMPL.D
Dilution:	1.0			I	nitial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0539				Final Weight/Volume:	50 mL
	04/15/2011 1530				ŭ	
Prep Date:	04/13/2011 1330					
•	04/13/2011 1330	Result (u	g/L)	Qualifier	MDL	RL

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-61884					
LCS 280-61884/2-A	Lab Control Sample	Т	Water	3010A	
MB 280-61884/1-A	Method Blank	Т	Water	3010A	
280-14465-1	FWGLL2MW-266C-0040-GF	T	Water	3010A	
280-14465-1DU	Duplicate	Т	Water	3010A	
280-14465-1MS	Matrix Spike	T	Water	3010A	
280-14465-2	FWGLL2MW-267C-0050-GF	Т	Water	3010A	
280-14465-3	FWGLLWMW-269C-0060-GF	Т	Water	3010A	
280-14465-4	FWGLL1MW-084C-0200-GW	Т	Water	3010A	
280-14465-5	FWGLL4MW-198C-0210-GW	T	Water	3010A	
Prep Batch: 280-61885					
LCS 280-61885/2-A	Lab Control Sample	T	Water	3020A	
MB 280-61885/1-A	Method Blank	T	Water	3020A	
280-14465-1	FWGLL2MW-266C-0040-GF	Т	Water	3020A	
280-14465-1DU	Duplicate	T	Water	3020A	
280-14465-1MS	Matrix Spike	Т	Water	3020A	
280-14465-2	FWGLL2MW-267C-0050-GF	Т	Water	3020A	
280-14465-3	FWGLLWMW-269C-0060-GF	Т	Water	3020A	
280-14465-4	FWGLL1MW-084C-0200-GW	Т	Water	3020A	
280-14465-5	FWGLL4MW-198C-0210-GW	Т	Water	3020A	
Analysis Batch:280-62690)				
LCS 280-61884/2-A	Lab Control Sample	T	Water	6010B	280-61884
MB 280-61884/1-A	Method Blank	T	Water	6010B	280-61884
280-14465-1	FWGLL2MW-266C-0040-GF	T	Water	6010B	280-61884
280-14465-1DU	Duplicate	T	Water	6010B	280-61884
280-14465-1MS	Matrix Spike	Т	Water	6010B	280-61884
280-14465-2	FWGLL2MW-267C-0050-GF	T	Water	6010B	280-61884
280-14465-3	FWGLLWMW-269C-0060-GF	T	Water	6010B	280-61884
280-14465-4	FWGLL1MW-084C-0200-GW	Т	Water	6010B	280-61884
280-14465-5	FWGLL4MW-198C-0210-GW	T	Water	6010B	280-61884
Analysis Batch:280-62706	3				
LCS 280-61885/2-A	Lab Control Sample	Т	Water	6020	280-61885
MB 280-61885/1-A	Method Blank	Т	Water	6020	280-61885
280-14465-1	FWGLL2MW-266C-0040-GF	Т	Water	6020	280-61885
280-14465-1DU	Duplicate	T	Water	6020	280-61885
280-14465-1MS	Matrix Spike	Т	Water	6020	280-61885
280-14465-2	FWGLL2MW-267C-0050-GF	T	Water	6020	280-61885
280-14465-3	FWGLLWMW-269C-0060-GF	T	Water	6020	280-61885
280-14465-4	FWGLL1MW-084C-0200-GW	Т	Water	6020	280-61885
280-14465-5	FWGLL4MW-198C-0210-GW	T	Water	6020	280-61885

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

QC Association Summary

Report

Lab Sample ID Client Sample ID Basis Client Matrix Method Prep Batch

Report Basis

T = Total

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Method Blank - Batch: 280-61884 Method: 6010B Preparation: 3010A

Lab Sample ID: MB 280-61884/1-A Analysis Batch: 280-62690 Instrument ID: MT_025 Client Matrix: Water Prep Batch: 280-61884 Lab File ID: N/A Dilution: Leach Batch: N/A Initial Weight/Volume: 50 mL 1.0 04/15/2011 1651 Final Weight/Volume: Analysis Date: Units: ug/L 50 mL

Prep Date: 04/15/2011 0730

Leach Date: N/A

Analyte	Result	Qual	MDL	RL
Boron	ND		4.4	100
Lithium	ND		2.6	10
Molybdenum	ND		3.1	20
SiO2, Silica	ND		74	500

Lab Control Sample - Batch: 280-61884 Method: 6010B Preparation: 3010A

Lab Sample ID: Analysis Batch: 280-62690 Instrument ID: MT_025 LCS 280-61884/2-A Client Matrix: Water Prep Batch: 280-61884 Lab File ID: N/A Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/15/2011 1653 Units: Final Weight/Volume: Analysis Date: ug/L 50 mL

Prep Date: 04/15/2011 0730

Leach Date: N/A

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Boron	1000	1010	101	86 - 110	
Lithium	1000	1000	100	90 - 112	
Molybdenum	1000	987	99	90 - 110	
SiO2, Silica	21400	20500	96	90 - 110	

Matrix Spike - Batch: 280-61884 Method: 6010B Preparation: 3010A

Lab Sample ID: 280-14465-1 Analysis Batch: 280-62690 Instrument ID: MT_025 Client Matrix: Water Prep Batch: 280-61884 Lab File ID: N/A Dilution: Leach Batch: Initial Weight/Volume: 1.0 N/A 50 mL Analysis Date: 04/15/2011 1727 Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/15/2011 0730

Leach Date: N/A

Analyte	Sample Result	/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Boron	29	J	1000	1060	103	87 - 113	
Lithium	23		1000	1030	101	89 - 114	
Molybdenum	ND		1000	1000	100	83 - 109	
SiO2, Silica	11000		21400	31800	97	75 - 141	

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Serial Dilution - Batch: 280-61884 Method: 6010B Preparation: 3010A

MT_025 Lab Sample ID: 280-14464-A-1-A SD ^5 Analysis Batch: 280-62690 Instrument ID: Client Matrix: Prep Batch: 280-61884 Lab File ID: N/A Dilution: 5.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/15/2011 1657 Final Weight/Volume: Analysis Date: Units: ug/L 50 mL

Prep Date: 04/15/2011 0730

Leach Date: N/A

Analyte	Sample Result/Qual		Result	%Diff	Limit	Qual
Boron	28	J	33.8	NC	10	J
Lithium	9.3	J	ND	NC	10	
Molybdenum	ND		ND	NC	10	
SiO2, Silica	22000		21900	0.47	10	

Duplicate - Batch: 280-61884 Method: 6010B Preparation: 3010A

Lab Sample ID: 280-14465-1 Analysis Batch: 280-62690 Instrument ID: MT_025 Client Matrix: Water Prep Batch: 280-61884 Lab File ID: N/A Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL Analysis Date: 04/15/2011 1725 Units: Final Weight/Volume: 50 mL ug/L

Prep Date: 04/15/2011 0730

Leach Date: N/A

Analyte Sample Result/Qual Result RPD Limit Qual Boron 29 J 29.6 2 25 J 23 23.9 25 Lithium 3 Molybdenum ND ND NC 25 SiO2, Silica 11000 11100 0.3 20

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Method Blank - Batch: 280-61885 Method: 6020 Preparation: 3020A

280-62706 MT_024 Lab Sample ID: MB 280-61885/1-A Analysis Batch: Instrument ID: Client Matrix: Water Prep Batch: 280-61885 Lab File ID: 208_BLK.D Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/16/2011 0447 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/15/2011 1530

Leach Date: N/A

 Analyte
 Result
 Qual
 MDL
 RL

 Uranium
 0.0299
 J
 0.020
 1.0

Lab Control Sample - Batch: 280-61885 Method: 6020
Preparation: 3020A

LCS 280-61885/2-A Analysis Batch: Instrument ID: MT_024 Lab Sample ID: 280-62706 Client Matrix: Water Prep Batch: 280-61885 Lab File ID: 209 LCS.D Leach Batch: Dilution: 1.0 N/A Initial Weight/Volume: 50 mL 04/16/2011 0449 Units: Final Weight/Volume: 50 mL ug/L

Analysis Date: 04/16/2011 0449 Prep Date: 04/15/2011 1530

Leach Date: N/A

 Analyte
 Spike Amount
 Result
 % Rec.
 Limit
 Qual

 Uranium
 40.0
 43.2
 108
 85 - 119

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Post Digestion Spike - Batch: 280-61885 Method: 6020 Preparation: 3020A

280-62706 Lab Sample ID: 280-14464-A-1-D PDS Analysis Batch: Instrument ID: MT_024 Client Matrix: Prep Batch: 280-61885 Lab File ID: 212PDS.D Dilution: Leach Batch: N/A Initial Weight/Volume: 1.0 50 mL 04/16/2011 0458 Analysis Date: Units: ug/L Final Weight/Volume: 50 mL

Prep Date: 04/15/2011 1530

Leach Date: N/A

 Analyte
 Sample Result/Qual
 Spike Amount
 Result
 % Rec.
 Limit
 Qual

 Uranium
 0.054
 J
 200
 198
 99
 75 - 125

Matrix Spike - Batch: 280-61885 Method: 6020 Preparation: 3020A

280-62706 MT_024 Lab Sample ID: 280-14465-1 Analysis Batch: Instrument ID: Client Matrix: Prep Batch: 280-61885 Lab File ID: 223_MS.D Water Dilution: 1.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/16/2011 0528 Final Weight/Volume: Analysis Date: Units: ug/L 50 mL

Prep Date: 04/15/2011 1530

Leach Date: N/A

 Analyte
 Sample Result/Qual
 Spike Amount
 Result
 % Rec.
 Limit
 Qual

 Uranium
 0.043
 J
 40.0
 42.8
 107
 85 - 119

MT_024

Limit

20

%Diff

2

Client: TestAmerica Laboratories, Inc. Job Number: 280-14465-1

Sdg Number: A1D080416

Qual

J

Serial Dilution - Batch: 280-61885 Method: 6020 Preparation: 3020A

Lab Sample ID: 280-14464-A-1-D SD ^5 Analysis Batch: 280-62706 Instrument ID:

Client Matrix: Prep Batch: 280-61885 Lab File ID: 211SDIL.D Dilution: 5.0 Leach Batch: N/A Initial Weight/Volume: 50 mL 04/16/2011 0455 50 mL

Final Weight/Volume: Analysis Date: Units: ug/L Prep Date: 04/15/2011 1530

Leach Date: N/A Sample Result/Qual

Uranium 0.054 J ND NC 10

Result

0.0425

Duplicate - Batch: 280-61885 Method: 6020 Preparation: 3020A

0.043

Analyte

Leach Date:

Uranium

N/A

Lab Sample ID: 280-14465-1 Analysis Batch: 280-62706 Instrument ID: MT_024 Client Matrix: Water Prep Batch: 280-61885 Lab File ID: 222_DU.D

Leach Batch: N/A Initial Weight/Volume: 50 mL Dilution: 1.0 04/16/2011 0526

Analysis Date: Units: Final Weight/Volume: 50 mL ug/L 04/15/2011 1530 Prep Date:

RPD Analyte Sample Result/Qual Result Limit Qual J

METALS

COVER PAGE METALS

Lab Name:	TestAmerica Denver	Job Number: 280-14465-1
SDG No.:	A1D080416	
Project:	USGS - RVAAP	
	Client Sample ID	Lab Sample ID
	FWGLL2MW-266C-0040-GF	280-14465-1
	FWGLL2MW-267C-0050-GF	280-14465-2
	FWGLLWMW-269C-0060-GF	280-14465-3
	FWGLL1MW-084C-0200-GW	280-14465-4
	FWGLL4MW-198C-0210-GW	280-14465-5

Comments:

Client Sample ID: FWGLL2MW-266C-0040-GF Lab Sample ID: 280-14465-1

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG ID.: A1D080416

Matrix: Water Date Sampled: 04/07/2011 11:04

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	29	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	23	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	11000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.043	1.0	0.020	ug/L	J	В	1	6020

Client Sample ID: FWGLL2MW-267C-0050-GF Lab Sample ID: 280-14465-2

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG ID.: A1D080416

Matrix: Water Date Sampled: 04/07/2011 08:52

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	26	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	23	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	15000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.066	1.0	0.020	ug/L	J	В	1	6020

Client Sample ID: FWGLLWMW-269C-0060-GF Lab Sample ID: 280-14465-3

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG ID.: A1D080416

Matrix: Water Date Sampled: 04/07/2011 08:59

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	120	100	4.4	ug/L			1	6010B
7439-93-2	Lithium	49	10	2.6	ug/L			1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	8800	500	74	ug/L			1	6010B
7440-61-1	Uranium	ND	1.0	0.020	ug/L			1	6020

Client Sample ID: FWGLL1MW-084C-0200-GW Lab Sample ID: 280-14465-4

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG ID.: A1D080416

Matrix: Water Date Sampled: 04/07/2011 12:00

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	79	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	7.5	10	2.6	ug/L	J		1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	11000	500	74	ug/L			1	6010B
7440-61-1	Uranium	0.62	1.0	0.020	ug/L	J	В	1	6020

Client Sample ID: FWGLL4MW-198C-0210-GW Lab Sample ID: 280-14465-5

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG ID.: A1D080416

Matrix: Water Date Sampled: 04/07/2011 15:00

CAS No.	Analyte	Result	RL	MDL	Units	С	Q	DIL	Method
7440-42-8	Boron	26	100	4.4	ug/L	J		1	6010B
7439-93-2	Lithium	8.3	10	2.6	ug/L	J		1	6010B
7439-98-7	Molybdenum	ND	20	3.1	ug/L			1	6010B
14808-60-7	SiO2, Silica	22000	500	74	ug/L			1	6010B
7440-61-1	Uranium	ND	1.0	0.020	ug/L			1	6020

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

ICV Source: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00151

	1	ICV 280-62690/8 04/15/2011 09:39					0-62690/9 011 09:42		CCV 280-62690/51 04/15/2011 16:44				
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R	
Boron	259		250	104	262		250	105	517		500	103	
Lithium	252		250	101	257		250	103	1000		1000	100	
Molybdenum	242		250	97	245		250	98	500		500	100	
SiO2,	4220		4280	99	4260		4280	100	10300		10700	97	
Silica													

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

ICV Source: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00151

			-62690/63 011 17:11			CCV 280-62690/76 04/15/2011 17:41						
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Boron	515		500	103	520		500	104				
Lithium	999		1000	100	1020		1000	102				
Molybdenum	497		500	99	504		500	101				
SiO2,	10300		10700	96	10400		10700	98				
Silica												

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

ICV Source: MS ICV_00316 Concentration Units: ug/L

CCV Source: MS CCV_00317

	ICV 280-62706/4 04/15/2011 19:28)-62706/6)11 19:33		CCV 280-62706/18 04/15/2011 20:06				
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R
Uranium	39.8		40.0	100	39.6		40.0	99	50.7		50.0	101

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

ICV Source: MS ICV_00316 Concentration Units: ug/L

CCV Source: MS CCV_00317

	CCV 280-62706/164 04/16/2011 04:41				CCV 280-62706/175 04/16/2011 05:12				CCV 280-62706/186 04/16/2011 05:42				
Analyte	Found	С	True	%R	Found	С	True	%R	Found	С	True	%R	
Uranium	52.2		50.0	104	51.9		50.0	104	52.1		50.0	104	

2B-IN CRQL CHECK STANDARD METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Method: 6010B Instrument ID: MT_025

Lab Sample ID: CRI 280-62690/14 Concentration Units: ug/L

CRQL Check Standard Source: ICP RL STD_00348

		CRQL (Check Standard		
Analyte	True	Found	Qualifiers	%R(1)	Limits
Boron	100	104		104	50-150
Lithium	10.0	10.7		107	50-150
Molybdenum	10.0	10.2	J	102	50-150
SiO2, Silica	1070	1060	J	99	50-150

2B-IN CRQL CHECK STANDARD METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Method: 6020 Instrument ID: MT_024

Lab Sample ID: CRI 280-62706/10 Concentration Units: ug/L

CRQL Check Standard Source: MS RL STD 00326

		CRQL C	Check Standard		
Analyte	True	Found	Qualifiers	%R(1)	Limits
Uranium	1.01		101	50-150	

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

		ICB 280-62690		CCB 280-62690/52 04/15/2011 16:46		CCB 280-62690/64 04/15/2011 17:13		CCB 280-62690/77 04/15/2011 17:43	
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Boron	100	ND		ND		ND		ND	
Lithium	10	ND		ND		ND		ND	
Molybdenum	20	ND		ND		ND		ND	
SiO2,	1100	ND		ND		ND		ND	
Silica									

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

		ICB 280-62706/9		CCB 280-62706/165 04/16/2011 04:44		CCB 280-62706/176 04/16/2011 05:14			
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Uranium	1.0	ND		0.0437	J	0.0690	J	0.0547	J

3-IN INSTRUMENT BLANKS METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

		CCB 280-62706							
Analyte	RL	Found	С	Found	С	Found	С	Found	С
Uranium	1.0	0.0503	J						

3-IN METHOD BLANK METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Concentration Units: ug/L Lab Sample ID: MB 280-61884/1-A

Instrument Code: MT_025 Batch No.: 62690

CAS No.	Analyte	Concentration	С	Q	Method
7440-42-8	Boron	ND			6010B
7439-93-2	Lithium	ND			6010B
7439-98-7	Molybdenum	ND			6010B
14808-60-7	SiO2, Silica	ND			6010B

3-IN METHOD BLANK METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Concentration Units: ug/L Lab Sample ID: MB 280-61885/1-A

Instrument Code: MT_024 Batch No.: 62706

CAS No.	Analyte	Concentration	С	Q	Method
7440-61-1	Uranium	0.0299	J		6020

Lab	Name: I	TestAmerica	Denver	Job No.: 280-14465-1
SDG	No.: A1	D080416		
Lab	Sample I	ID: ICSAB	280-62690/16 I	Instrument ID: MT_025
Lab	File ID	:		CCS Source: ICP ICSAB_00029

Concentration Units: ug/L

	True	Found	
Analyte	Solution AB	Solution AB	Percent Recovery
Boron	2000	1818	91
Lithium	1000	1032	103
Molybdenum	1000	911	91
SiO2, Silica	21400	20802	97
Aluminum	500000	507520	102
Antimony	1000	965	97
Arsenic	2000	1958	98
Barium	500	488	98
Beryllium	500	471	94
Bismuth	1000	1059	106
Cadmium	1000	1023	102
Calcium	500000	457890	92
Chromium	500	475	95
Cobalt	500	454	91
Copper	500	534	107
Iron	200000	186780	93
Lead	1000	891	89
Magnesium	500000	479720	96
Manganese	500	484	97
Nickel	1000	893	89
Phosphorus	2000	1871	94
Potassium	50000	50456	101
Selenium	5000	4665	93
Silicon	10000	9721	97
Silver	1000	1071	107
Sodium	50000	52252	105
Strontium	1000	956	90
Thallium	10000	8279	83
Thorium	2000	2019	101
Tin	10000	8783	88
Titanium	1000	969	97
Vanadium	500	485	97
Zinc	1000	938	94
Zirconium	1000	955	95

Lab Name: TestAmerica Denver	Job No.: 280-14465-1
SDG No.: A1D080416	
Lab Sample ID: <u>ICSA 280-62690/17</u>	Instrument ID: MT_025
Lab File ID:	ICS Source: ICP ICSA_00035
Consentuation United us/T	

Concentration Units: ug/L

	True	Found		
Analyte	Solution A	Solution A	Percent Recovery	
Boron		-1.66		
Lithium		5.09		
Molybdenum		-0.870		
SiO2, Silica		10.4		
Aluminum	500000	498730	100	
Antimony		-0.0900		
Arsenic		5.55		
Barium		0.310		
Beryllium		-0.0300		
Bismuth		5.62		
Cadmium		0.350		
Calcium	500000	453650	91	
Chromium		2.79		
Cobalt		-1.52		
Copper		7.10		
Iron	200000	184780	92	
Lead		-5.41		
Magnesium	500000	473400	95	
Manganese		2.09		
Nickel		0.580		
Phosphorus		-3.20		
Potassium		-11.1		
Selenium		-0.390		
Silicon		4.86		
Silver		-0.450		
Sodium		69.5		
Strontium		-2.26		
Thallium		-1.82		
Thorium		-20.6		
Tin		-0.180		
Titanium		1.76		
Vanadium		1.98		
Zinc		6.58		
Zirconium		0.100		

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Lab Sample ID: ICSA 280-62706/12 Instrument ID: MT_024

Lab File ID: 013ICSA.D ICS Source: MS ICSA_00316

Concentration Units: ug/L

	True	Found	
			Percent
Analyte	Solution A	Solution A	Recovery
Uranium		0.0066	
Antimony		0.286	
Arsenic		0.252	
Barium		0.169	
Beryllium		0.0126	
Cadmium		0.370	
Chromium		2.74	
Cobalt		0.0311	
Copper		0.235	
Lead		0.130	
Manganese		0.597	
Molybdenum	2000	2213	111
Nickel		1.05	
Selenium		0.0647	
Silver		0.0929	
Thallium		0.0405	
Thorium		0.947	
Tin		0.168	
Vanadium		0.165	
Zinc		1.50	

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Lab Sample ID: ICSAB 280-62706/13 Instrument ID: MT_024

Lab File ID: 014ICSB.D ICS Source: MS ICSAB 00318

Concentration Units: ug/L

	True	Found	
Analyte	Solution AB	Solution AB	Percent Recovery
Uranium	100	104	104
Antimony	100	98.5	99
Arsenic	100	102	102
Barium	100	106	106
Beryllium	100	92.4	92
Cadmium	100	95.5	95
Chromium	100	111	111
Cobalt	100	103	103
Copper	100	90.4	90
Lead	100	93.2	93
Manganese	100	103	102
Molybdenum	2100	2317	110
Nickel	100	95.7	96
Selenium	100	103	103
Silver	100	87.9	88
Thallium	100	95.8	96
Thorium	100	118	118
Tin	100	104	104
Vanadium	100	114	114
Zinc	100	96.8	97

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Lab Sample ID: ICSA 280-62706/66 Instrument ID: MT_024

Lab File ID: 067ICSA.D ICS Source: MS ICSA 00316

Concentration Units: ug/L

	True	Found	
			Percent
Analyte	Solution A	Solution A	Recovery
Uranium		0.0339	
Antimony		0.284	
Arsenic		0.337	
Barium		0.184	
Beryllium		0.0090	
Cadmium		0.465	
Chromium		2.68	
Cobalt		0.0484	
Copper		0.293	
Lead		0.143	
Manganese		0.631	
Molybdenum	2000	2178	109
Nickel		1.15	
Selenium		-0.0205	
Silver		0.104	
Thallium		0.0364	
Tin		0.342	
Vanadium		0.0376	
Zinc		1.58	

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Lab Sample ID: ICSAB 280-62706/67 Instrument ID: MT_024

Lab File ID: 068ICSB.D ICS Source: MS ICSAB 00318

	True	Found	
Analyte	Solution AB	Solution AB	Percent Recovery
Uranium	100	103	103
Antimony	100	98.1	98
Arsenic	100	103	103
Barium	100	105	105
Beryllium	100	94.6	95
Cadmium	100	94.4	94
Chromium	100	112	112
Cobalt	100	104	104
Copper	100	92.0	92
Lead	100	92.4	92
Manganese	100	105	105
Molybdenum	2100	2346	112
Nickel	100	97.5	98
Selenium	100	103	103
Silver	100	86.0	86
Thallium	100	95.9	96
Thorium	100	117	117
Tin	100	102	102
Vanadium	100	114	114
Zinc	100	96.3	96

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: FWGLL2MW-266C-0040-GF MS Lab ID: <u>280-14465-1 MS</u>

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Matrix: Water Concentration Units: ug/L

% Solids:

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Boron	1060	29 3	1000	103	87-113		6010B
Lithium	1030	23	1000	101	89-114		6010B
Molybdenum	1000	ND	1000	100	83-109		6010B
SiO2, Silica	31800	11000	21400	97	75-141		6010B
Uranium	42.8	0.043	40.0	107	85-119		6020

SSR = Spiked Sample Result

5B-IN POST DIGESTION SPIKE SAMPLE RECOVERY METALS

Client ID: _____ Lab ID: <u>280-14464-A-1-D PDS</u>

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Matrix: Water Concentration Units: ug/L

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Uranium	198	0.054 J	200	99	75-125		6020

SSR = Spiked Sample Result

6-IN DUPLICATES METALS

Client ID: FWGLL2MW-266C-0040-GF DU Lab ID: 280-14465-1 DU

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Matrix: Water Concentration Units: ug/L

Analyte	Control Limit	Sample (S)		Duplicate (D)		RPD	Q	Method
Boron	100	29	J	29.6	J	2		6010B
Lithium	10	23		23.9		3		6010B
Molybdenum	20	ND		ND		NC		6010B
SiO2, Silica	500	11000		11100		0.3		6010B
Uranium	1.0	0.043	J	0.0425	J	2		6020

7A-IN LAB CONTROL SAMPLE METALS

Lab ID: LCS 280-61884/2-A

Lab Name: TestAmerica Denver Job No.: 280-14465-1

Sample Matrix: Water LCS Source: ICP SPK 2A_00024

		Water(ug/L)								
Analyte	True	Found	С	%R	Lim	its	Q	Method		
Boron	1000	1010		101	86	110		6010B		
Lithium	1000	1000		100	90	112		6010B		
Molybdenum	1000	987		99	90	110		6010B		
SiO2, Silica	21400	20500		96	90	110		6010B		

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN LAB CONTROL SAMPLE METALS

Lab ID: LCS 280-61885/2-A

Lab Name: TestAmerica Denver Job No.: 280-14465-1

Sample Matrix: Water LCS Source: MS CALSTD-1_00037

				Wate	r(ug/L)			
Analyte	True	Found	С	%R	Lim	its	Q	Method
Uranium	40.0	43.2		108	85	119		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 280-14464-A-1-A SD ^5

SDG No: A1D080416

Lab Name: TestAmerica Denver Job No: 280-14465-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sampi Result (I)	le C	Serial Dilution Result (S)	С	% Difference	Q	Method
Boron	28	J	33.8	J	NC		6010B
Lithium	9.3	J	ND		NC		6010B
Molybdenum	ND		ND		NC		6010B
SiO2, Silica	22000		21900		0.47		6010B

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 280-14464-A-1-D SD ^5

SDG No: A1D080416

Lab Name: TestAmerica Denver Job No: 280-14465-1

Matrix: Water Concentration Units: ug/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Difference	Q	Method
Uranium	0.054 J	ND	NC		6020

9-IN DETECTION LIMITS METALS

Lab Name: TestAmerica Denver Job Number: 280-14465-1

SDG Number: A1D080416

Matrix: Water Instrument ID: MT_025

Method: 6010B MDL Date: 02/23/2011 08:42

Prep Method: 3010A

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Boron	208.9	100	4.37
Lithium	670.7	10	2.61
Molybdenum	202	20	3.13
SiO2, Silica	288.1	500	74.3

9-IN CALIBRATION BLANK DETECTION LIMITS METALS

Lab Name: TestAmerica Denver	Job Number: 280-14465-1
SDG Number: A1D080416	
Matrix: Water	Instrument ID: MT_025
Method: 6010B	XMDL Date: 02/23/2011 08:43

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Boron		100	4.37
Lithium		10	2.61
Molybdenum		20	3.13
SiO2, Silica		1100	74.3

9-IN DETECTION LIMITS METALS

Lab Name: TestAmerica Denver Job Number: 280-14465-1

SDG Number: A1D080416

Matrix: Water Instrument ID: MT_024

Method: 6020 MDL Date: 04/26/2010 12:11

Prep Method: 3020A

Analyte	Wavelength/	RL	MDL
	Mass	(ug/L)	(ug/L)
Uranium	238	1	0.02

9-IN CALIBRATION BLANK DETECTION LIMITS METALS

Lab Name: TestAmerica Denver	Job Number: 280-14465-1
SDG Number: A1D080416	
Matrix: Water	Instrument ID: MT_024
Method: 6020	XMDL Date: 04/26/2010 12:12

Analyte	Wavelength/	XRL	XMDL
	Mass	(ug/L)	(ug/L)
Uranium		1	0.02

ICP Data Review Checklist

TALS BATCH NUMBER: 6X86-62700	Earliest due date: 4/18/11					
Run Date: 4/15/11 Analyst: JKH		Instrument: 25				
QC programs/Methods Run: SEE FUN LOGS						
Review Items	Yes	No	N/A	2nd Level		
A. Preparation/Matrix QC		1,738		98.056G		
1. LCS done per prep batch and within QC limits?						
2. Method blank done per prep batch and < 1/2 RL or CRDL (CLP) or < 2.2x MDL 200.7 ?						
3. MS run at required frequency and within limits?						
4. MSD or DU run at required frequency and RPD within SOP limits?				/		
5. Serial dilution done per prep batch (of per SDG for CLP)?				1		
6. Post digest spike analyzed if required (CLP, DOD & AFCEE only)? NCM Whether needed for DODV3, AFCEE 4.0, 6010c?						
B. Calibration/Instrument Run QC	7		12 A			
1. ICV/CCV analyzed at appropriate frequency and within control limits? (6010B: CLP = 90 -						
110%; 200.7: ICV = 95 - 105%, CCV 90-110%) If not in control, was the ICV or CCV reanalyzed twice to show return to control as per NELAP?	1					
 ICB/CCB analyzed at appropriate frequency and < RL or < CRDL (CLP) or < 2X MDL (DOD V3,AFCEE 4.0)? Was it less than the MDLV (6010C) 	/					
3. High Standard (HIGH) reanalyzed before samples and recovered within QC limits? (+-5%)						
4. RL STD run and recovered within QC limits? (± 50% for non-CLP, ± 20% for DoD V3 / AFCEE 4.0 / USACE)	1					
5. Was the LLICV/LLCCV analyzed at appropriate frequency for 6010C and within control (+-30 % or +-20%)				/		
6. ICSA/ICSAB run at required frequency and within SOP limits? (ICSA < 2X MDL AFCEE 4.0, DOD V3 or <rl 6010c))<="" <mdlv="" or="" std="" td="" work=""><td>/</td><td></td><td></td><td></td></rl>	/					
C. Sample Results						
1. For 6010B, were samples with concentrations > the linear range for any parameter diluted and reanalyzed? For 200.7, were samples with concentrations within 90% of the linear range diluted and reanalyzed?	/					
2. Are all reported results bracketed by in control QC?	·/					
D. Other				7577624		
Are all nonconformances documented appropriately?		1				
2. Calculations checked for errors?						
3. Transcriptions checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	/					
4. All client/project specific requirements met?						
5. Date/time of analysis verified as correct?						
6. PDF attached, verified uncorrupted?			_			
Analyst: Date:						
2nd Level Reviewer: Meng muy Date: 4/18/11	,					

TestAmerica Denver

62706-6020 Water

62711-Soil TestAmerica

The Lader in Environmental Listing

ICP/MS Technical Data Review Checklist

Lab Project ID Number(s): see attached cover sheet Check Method/SOP Used: □6020/DV-MT-0018 □200.8/DV-MT-0002

		i di	Level 1		Level 2	Comments &
	Review Items	Yes∍	. No ⊈	N/A		Samples Affected
Tun	The state of the s	Hak z je				
1.	Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8?	<u>×</u>				
2.	Tune RSD <5%?	_8_				
2.	Resolution ≤ 0.9 AMU full width at 10% peak height? NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height	V				t has a
Initi	al Calibration					
1.	Done with a minimum of 3 integrations of a high standard and blank?	7				
2.	ICV/CCV run at beginning of run, 10% frequency, and end of run? Results with 10% of expected value?	8		T canada ()		
3.	ICB/CCB run at beginning of run, 10% frequency, and end of run? Results +/- RL	8		to appear as to		
4.	ICSA/AB analyzed at beginning of run and every 12 hours and results 80-120% of TV?	8				
5.	RL Std analyzed at beginning of run and results +/- 50% of TV(for AFCEE 4.0, DoD V3 +/- 20% of true value)?	8				
Clie	nt Samples & QC Sample Results		22.5			
1.	Were all samples within linear range, ≤ 90% of LDR for 200.8?	8				
2.	Dilutions due to target elements? Dilutions for other reasons?	8				
3.	All reported results bracketed by in control QC?	8		!		•
4.	All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%?	8			/	
5.	Was a 5X serial dilution analyzed for 6020 and, if so, are results $\pm 10\%$ of original result, if original $\geq 100x$ MDL?	8				
6.	LCS included in batch and within QC limits?	8				
7.	Method blank included and <1/2RL?	V		-		
8.	MS and MSD included in batch?	1/				
9.	PDS analyzed and recovery 75-125%?	18				
10.	Manual calculations documented properly and checked?	~	 		 	
11.	Are non-conformances documented on an NCM?		-		+ -	
12.	Is the appropriate raw data included?	V		1	 	
13.	Are all results manually entered into LIMS verified? Are all electronic	0	 	-		
	data files archived to the appropriate network locations?	8		Į.	/	
14.			1			

1st Level Reviewer: 2nd Level Reviewer:

Typnyming DJ.

Date: 9/19///

L:\QA\Edit\FORMS\Data Review\ICPMS

METALS BATCH WORKSHEET

Job No.: 280-14465-1

uspg No.: Ald080416 61884 Batch Number:

04/15/11 07:30 Batch End Date: 04/15/11 12:30 Batch Start Date:

Batch Analyst: Niman, Katie M

Batch Method: 3010A

ICP SPK 3A 00026			0.5 mL					0.5 mL									
ICP SPK 2A 00024			0.5 mL					0.5 mL									
FinalAmount	50 mT,		20 mL	50 mL		50 mL		50 mL		50 mL		20 mL		50 mL		50 mL	
InitialAmount	50 mT.)	20 mL	50 mL		50 mL		50 mL		50 mL		20 mL		50 mL		50 mL	
Initial pH				<2		<2		<2		<2		<2		<2		<2	
Basis				L		T		L		⊟		L		L		⊟	
Method Chain	3010A. 6010B	===== /===	3010A, 6010B	3010A, 6010B		3010A, 6010B		3010A, 6010B		3010A, 6010B		3010A, 6010B		3010A, 6010B		3010A, 6010B	
Client Sample ID				FWGLL2MW-266C-00	40-GF	FWGLL2MW-266C-00	40-GF	FWGLL2MW-266C-00	40-GF	FWGLL2MW-267C-00	50-GF	FWGLLWMW-269C-00 3010A, 6010B	60-GF	FWGLL1MW-084C-02 3010A, 6010B	00-GW	FWGLL4MW-198C-02	10-GW
Lab Sample ID	MB 280-61884/1	1 (1)	LCS 280-61884/2	280-14465-A-1		280-14465-A-1	DO	280-14465-A-1	MS	280-14465-A-2		280-14465-A-3		280-14465-A-4		280-14465-A-5	

Batch	Batch Notes
Lot # of hydrochloric acid	J46037
Lot # of Nitric Acid	K09041
Hot Block ID number	02
Oven, Bath or Block Temperature 1	95 Degrees C
Oven, Bath or Block Temperature 2	95 Degrees C
Pipette ID	MET-007
Person who witnessed spiking	KMN
ID number of the thermometer	908001558
Digestion Tube/Cup Lot #	1010191
Uncorrected Temperature	95 Degrees C
Uncorrected Temperature 2	95 Degrees C

Basis Description	Total/NA
Basis	I

Page 753 of 756

METALS BATCH WORKSHEET

Job No.: 280-14465-1

uspg No.: Ald080416

04/15/11 15:30 Batch Start Date: 61885

Batch Analyst: Mooney, Joseph C

20:30

04/15/11

Batch End Date:

3020A Batch Method: Batch Number:

MS CALSTD-2 00036		0.1 mL			0.1 mL				
MS CALSTD-1 00037		0.1 mL			0.1 mL				
FinalAmount	50 mL	50 mL	50 mL	50 mL	50 mL	20 mL	50 mL	50 mL	50 mL
InitialAmount	50 mL	20 mL	20 mL	20 mL	20 mL	20 mL	20 mL	20 mL	50 mL
Initial pH			<2	<2	<2	<2	<2	<2	<2
Basis			L	E	E	E	E	E	L
Method Chain	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020	3020A, 6020
Client Sample ID			FWGLL2MW-266C-00 3020A, 6020 40-GF	FWGLL2MW-266C-00 3020A, 6020 40-GF	FWGLL2MW-266C-00 3020A, 6020 40-GF	FWGLL2MW-267C-00 3020A, 6020 50-GF	FWGLLWMW-269C-00 3020A, 6020 60-GF	FWGLL1MW-084C-02 00-GW	FWGLL4MW-198C-02
Lab Sample ID	MB 280-61885/1	LCS 280-61885/2	280-14465-A-1	280-14465-A-1 DU	280-14465-A-1 MS	280-14465-A-2	280-14465-A-3	280-14465-A-4	280-14465-A-5

Batch	Batch Notes
Lot # of Nitric Acid	K09041
Hot Block ID number	90
Oven, Bath or Block Temperature 1	94 Degrees C
Oven, Bath or Block Temperature 2	94 Degrees C
Pipette ID	MET-015
ID number of the thermometer	14859
Digestion Tube/Cup Lot #	1010191

escription	
Basis D	Total/NA
Basis	L

Shipping and Receiving Documents

927

N O K t t h	atory
Canton	

TestAmerica Denver 4955 Yarrow Street

TestAmerica Laboratories, Inc. SAMPLE ANALYSIS REQUISTION

Report Package:

Expanded Deliverables

Lab Request

SR126391

Need Analytical Report

2011-04-22

Arvada, CO

80002

Client Code: 1434673

Sample I.D. A1D080416-2	Work Order Number MGP5G	Client Sample ID FWGLL2mw-266C-0040-GF
A1D080416-2	MGP5G	FWGLL2mw-266C-0040-GF
A1D080416-4	MGP5M	FWGLL2mw-267C-0050-GF
A1D080416-4	MGP5M	FWGLL2mw-267C-0050-GF
A1D080416-6	MGP5P	FWGLL2mw-269C-0060-GF
A1D080416-6	MGP5P	FWGLL2mw-269C-0060-GF
ସ୍ଥ୍ୟ A1D080416-7	MGP5R	FWGLL1mw-084C-0200-GW
ეგ A1D080416-7	MGP5R	FWGLL1mw-084C-0200-GW
A1D080416-9	MGP53	FWGLL4mw-198C-0210-GW

Project Manager:

MARK LOEB

Sampling Date Analysis Required 2011-04-07 11:04 WATER, 6020, Uranium by ICP/MS (Denver)

2011-04-07 11:04 WATER, 6010B, Metals B Li Mo Si (Denver)

2011-04-07 8:52 WATER, 6020, Uranium by ICP/MS (Denver)

2011-04-07 8:52 WATER, 6010B, Metals B Li Mo Si (Denver)

2011-04-07 8:59 WATER, 6020, Uranium by ICP/MS (Denver)

2011-04-07 8:59 WATER, 6010B, Metals B Li Mo Si (Denver)

2011-04-07 12:00 WATER, 6020, Uranium by ICP/MS (Denver)

2011-04-07 12:00 WATER, 6010B, Metals B Li Mo Si (Denver)

2011-04-07 15:00 WATER, 6020, Uranium by ICP/MS (Denver)

2011-04-07 15:00 WATER, 6010B, Metals B Li Mo Si (Denver)

FED EX

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

FWGLL4mw-198C-0210-GW

at the TAL North Canton Laboratory

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

MGP53

Relinquished by:

75 A1D080416-9

Relinquished by:

Received for lab by:

Shipping Method:



WEST SACRAMENTO DATA

Case Narrative

TestAmerica West Sacramento Project Number A1D080416

General Comments

The samples were received at 1 degrees C.

Following US EPA Region V guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: S-Q-004, including Addendum 1. The reasons for manual integration have been documented on the affected chromatograms, which are provided in the raw data package. The raw data also includes the original chromatograms prior to any manual integration being performed. The following samples and analytes required manual integration:

LC10

8330 MRL standard (analyzed on 4/13/11 @ 11:49) – Tetryl, 3-Nitrotoluene, & PETN

8330 MRL standard (analyzed on 4/16/11 @ 06:49) - Tetryl & PETN 8330 MRL standard (analyzed on 4/19/11 @ 08:33) - Tetryl, 4-Nitrotoluene, & 3-Nitrotoluene

8330 MRL standard (analyzed on 4/19/11 @ 00:17) - Tetryl

WATER, 8330, Explosives

Sample(s): 7, 9

There was insufficient sample volume to prepare a matrix spike/matrix spike duplicate (MS/MSD) pair with this batch.

Sample(s): 7, 9

The percent difference values for RDX, 4-Amino-2,6-Dinitrotoluene, 2-Nitrotoluene, 2,6-Dintrotoluene, & 3-Nitrotoluene are above the project specific acceptance limit in some of the associated MRL standards. For corrective action a standard at approximately 2X the MDL was analyzed and these analytes were detected.

Sample(s): 7

This sample has high surrogate recoveries due to visible matrix interferences. The surrogate recoveries in the associated method blank and laboratory control sample (LCS) were within established control limits. The results for this sample may be biased high.

There were no other anomalies associated with this project.

WATER, 8330, Explosives

Client Sample ID: FWGLL1mw-084C-0200-GW

HPLC

Lot-Sample #: A1D080416-007 Date Sampled: 04/07/11 12:00 Prep Date: 04/13/11 Prep Batch #: 1103098		04/08/11	Matrix: WG
Dilution Factor: 1.06	Method:	SW846 8330	
		REPORTING	
PARAMETER	RESULT	LIMIT	UNITS
1,3,5-Trinitrobenzene	4.7 PG	0.11	ug/L
1,3-Dinitrobenzene	0.86	0.11	ug/L
2-Amino-4,6-	15	0.11	ug/L
dinitrotoluene			
2,4,6-Trinitrotoluene	11	0.11	ug/L
2,4-Dinitrotoluene	2.8	0.11	ug/L
2,6-Dinitrotoluene	1.1	0.11	ug/L
2-Nitrotoluene	ND	0.53	ug/L
3-Nitrotoluene	ND	0.53	ug/L
4-Nitrotoluene	ND	0.53	ug/L
HMX	0.98 PG	0.11	ug/L
Nitrobenzene	ND	0.11	ug/L
Nitroglycerin	ND	0.69	ug/L
RDX	0.59	0.11	ug/L
PETN	ND	0.69	ug/L
Tetryl	ND	0.11	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	
3,4-Dinitrotoluene	449 *	(50 - 150)	

NOTE(S):

^{*} Surrogate recovery is outside stated control limits.

PG. The percent difference between the original and confirmation analyses is greater than 40%.

Client Sample ID: FWGLL1mw-084C-0200-GW

HPLC

Lot-Sample #: A1D080416-007 Date Sampled: 04/07/11 12:00 Prep Date: 04/13/11 Prep Batch #: 1103098		04/08/11	Matrix: WG
Dilution Factor: 2.13	Method:	SW846 8330	
PARAMETER 4-Amino-2,6- dinitrotoluene	RESULT 29	REPORTING LIMIT 0.21	UNITS ug/L
SURROGATE 3,4-Dinitrotoluene	PERCENT RECOVERY 444 *	RECOVERY LIMITS (50 - 150)	

NOTE (S):

* Surrogate recovery is outside stated control limits

Client Sample ID: FWGLL4mw-198C-0210-GW

HPLC

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AF Matrix..... WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11 Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Mothod SM846 8330

Dilution Factor: 1.06	Method	: SW846 83	330
		REPORTIN	IG
PARAMETER	RESULT	LIMIT	UNITS
1,3,5-Trinitrobenzene	ND	0.11	ug/L
1,3-Dinitrobenzene	ND	0.11	ug/L
2-Amino-4,6-	ND	0.11	ug/L
dinitrotoluene			
2,4,6-Trinitrotoluene	ND	0.11	ug/L
2,4-Dinitrotoluene	ND	0.11	ug/L
2,6-Dinitrotoluene	ND	0.11	ug/L
2-Nitrotoluene	ND	0.53	ug/L
3-Nitrotoluene	ND	0.53	ug/L
4-Amino-2,6-	ND	0.11	ug/L
dinitrotoluene			
1-Nitrotoluene	ND	0.53	${\tt ug/L}$
XME	ND	0.11	ug/L
Nitrobenzene	ND	0.11	ug/L
Nitroglycerin	ND	0.69	ug/L
RDX	ND	0.11	ug/L
PETN	ND	0.69	ug/L
Tetryl	ND	0.11	ug/L
	PERCENT	RECOVERY	
SURROGATE	RECOVERY	LIMITS	·
3,4-Dinitrotoluene	102	(50 - 15	0)

0.11	
CENT RECOVE	ERY
OVERY <u>LIMITS</u>	3
(50 -	150)
	CENT RECOVE

QC DATA ASSOCIATION SUMMARY

A1D080416

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH_#	PREP BATCH #	MS RUN#
007	WG	SW846 8330		1103098	
	WG	SW846 8330 (Modif		1102416	1102229
009	WG	SW846 8330		1103098	
	WG	SW846 8330 (Modif		1102416	1102229

METHOD BLANK REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGXKL1AA Matrix..... WATER

MB Lot-Sample #: G1D130000-098

Prep Date....: 04/13/11

Analysis Date..: 04/16/11 Prep Batch #...: 1103098

Dilution Factor: 1

		REPORTING	;	
PARAMETER	RESULT	LIMIT	UNITS	METHOD
1,3,5-Trinitrobenzene	ND	0.10	ug/L	SW846 8330
1,3-Dinitrobenzene	ИĎ	0.10	ug/L	SW846 8330
2-Amino-4,6-	ND	0.10	ug/L	SW846 8330
dinitrotoluene				
2,4,6-Trinitrotoluene	ND	0.10	ug/L	SW846 8330
2,4-Dinitrotoluene	ND	0.10	ug/L	SW846 8330
2,6-Dinitrotoluene	ND	0.10	ug/L	SW846 8330
2-Nitrotoluene	NĎ	0.50	ug/L	SW846 8330
3-Nitrotoluene	ND	0.50	ug/L	SW846 8330
4-Amino-2,6-	ND	0.10	ug/L	SW846 8330
dinitrotoluene				
4-Nitrotoluene	ND	0.50	ug/L	SW846 8330
HMX	ИD	0.10	ug/L	SW846 8330
Nitrobenzene	ND	0.10	ug/L	SW846 8330
Nitroglycerin	ND	0.65	ug/L	SW846 8330
RDX	ND	0.10	ug/L	SW846 8330
PETN	ND	0.65	ug/L	SW846 8330
Tetryl	ND	0.10	ug/L	SW846 8330
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
3,4-Dinitrotoluene	102	(50 - 150)	

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Dilution Factor: 1

	SPIKE	MEASURED		PERCENT		
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	METHOD
1,3,5-Trinitrobenzene	1.0	1.1	ug/L	115		SW846 8330
	1.0	1.1	ug/L	114	0.61	SW846 8330
1,3-Dinitrobenzene	1.0	1.2	ug/L	117		SW846 8330
	1.0	1.2	ug/L	116	0.25	SW846 8330
2-Amino-4,6-	1.0	1.1	ug/L	111		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	110	0.45	SW846 8330
2,4,6-Trinitrotoluene	1.0	0.90	ug/L	90		SW846 8330
	1.0	0.89	ug/L	89	1.4	SW846 8330
2,4-Dinitrotoluene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	111	0.98	SW846 8330
2,6-Dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.36	SW846 8330
2-Nitrotoluene	1.0	1.1	ug/L	110		SW846 8330
	1.0	1.1	ug/L	110	0.090	SW846 8330
3-Nitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	1.0	1.1	ug/L	108	0.27	SW846 8330
4-Amino-2,6-	1.0	1.1	ug/L	109		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	107	1.1	SW846 8330
4-Nitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	110	0.63	SW846 8330
HMX	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.090	SW846 8330
Nitrobenzene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	112	0.17	SW846 8330
Nitroglycerin	5.0	5.1	ug/L	102		SW846 8330
	5.0	5.1	ug/L	101	0.94	SW846 8330
RDX	1.0	1.2	ug/L	116		SW846 8330
	1.0	1.2	ug/L	117	0.68	SW846 8330
PETN	5.0	5.0	ug/L	100		SW846 8330
	5.0	4.9	ug/L	98	1.5	SW846 8330
Tetryl	1.0	1.0	ug/L	101		SW846 8330
	1.0	1.0	ug/L	100	0.90	SW846 8330
			pppapam	DECOVERY		
CUDDOCATE			PERCENT	RECOVERY		
SURROGATE			RECOVERY	LIMITS		
3,4-Dinitrotoluene			106	(50 - 150		
			106	(50 - 150)	

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGXKL1AC-LCS Matrix...... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGXKL1AC-LCS Matrix....: WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11
Prep Batch #...: 1103098 Analysis Date..: 04/16/11

Dilution Factor: 1

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
1,3,5-Trinitrobenzene	115	(53 - 135)			SW846 8330
• •	114	(53 - 135)	0.61	(0-30)	SW846 8330
1,3-Dinitrobenzene	117	(54 - 120)		•	SW846 8330
•	116	(54 - 120)	0.25	(0-30)	SW846 8330
2-Amino-4,6-	111	(53 - 120)		(/	SW846 8330
dinitrotoluene					
	110	(53 - 120)	0.45	(0-30)	SW846 8330
		,		,	
2,4,6-Trinitrotoluene	90	(37 - 120)			SW846 8330
	89	(37 - 120)	1.4	(0-30)	SW846 8330
2,4-Dinitrotoluene	112	(58 - 136)			SW846 8330
	111	(58 - 136)	0.98	(0-30)	SW846 8330
2,6-Dinitrotoluene	111	(52 - 144)			SW846 8330
	111	(52 - 144)	0.36	(0-30)	SW846 8330
2-Nitrotoluene	110	(52 - 120)			SW846 8330
	110	(52 - 120)	0.090	(0-30)	SW846 8330
3-Nitrotoluene	109	(48 - 136)			SW846 8330
	108	(48 - 136)	0.27	(0-30)	SW846 8330
4-Amino-2,6-	109	(58 - 159)			SW846 8330
dinitrotoluene					
	107	(58 - 159)	1.1	(0-30)	SW846 8330
4-Nitrotoluene	111	(46 - 136)			SW846 8330
	110	(46 - 136)	0.63	(0-30)	SW846 8330
HMX	111	(45 - 140)			SW846 8330
	111	(45 - 140)	0.090	(0-30)	SW846 8330
Nitrobenzene	112	(49 - 120)			SW846 8330
	112	(49 - 120)	0.17	(0-30)	SW846 8330
Nitroglycerin	102	(60 - 120)			SW846 8330
	101	(60 - 120)	0.94	(0-60)	SW846 8330
RDX	116	(39 - 120)			SW846 8330
	117	(39 - 120)	0.68	(0-30)	SW846 8330
PETN	100	(60 - 120)			SW846 8330
	98	(60 - 120)	1.5	(0-30)	SW846 8330
Tetryl	101	(30 - 120)			SW846 8330
	100	(30 - 120)	0.90	(0-30)	SW846 8330
		PERCENT	RECOVE	ERY	
SURROGATE		RECOVERY	LIMITS	3	
3,4-Dinitrotoluene		106	(50 -		
		106	(50 -	150)	

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGXKL1AC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

WATER, Nitroguanidine

Client Sample ID: FWGLL1mw-084C-0200-GW

Dissolved HPLC

Lot-Sample #...: AlD080416-007 Work Order #...: MGP5R1AJ Matrix...... WG

Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11 Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1 Method.....: SW846 8330 (Modif

REPORTING

PARAMETERRESULTLIMITUNITSNitroguanidineND20ug/L

Client Sample ID: FWGLL4mw-198C-0210-GW

Dissolved HPLC

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AJ Matrix.....: WG

Date Sampled...: 04/07/11 15:00 Date Received..: 04/08/11 Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1 Method.....: SW846 8330 (Modif

REPORTING

PARAMETERRESULTLIMITUNITSNitroguanidineND20ug/L

QC DATA ASSOCIATION SUMMARY

A1D080416

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
007	WG WG	SW846 8330 SW846 8330 (Modif		1103098 1102416	1102229
009	WG WG	SW846 8330 SW846 8330 (Modif		1103098 1102416	1102229

METHOD BLANK REPORT

HPLC

Client Lot #...: A1D080416

Work Order #...: MGXET1AA

Matrix....: WATER

MB Lot-Sample #: G1D120000-416

Prep Date....: 04/12/11

Analysis Date..: 04/19/11

Dilution Factor: 1

Prep Batch #...: 1102416

REPORTING

PARAMETER RESULT LIMIT UNITS METHOD

Nitroguanidine ND 20 ug/L SW846 8330 (Modif

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: AlD080416 Work Order #...: MGXET1AC Matrix.....: WATER

LCS Lot-Sample#: G1D120000-416

Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1

 SPIKE
 MEASURED
 PERCENT

 PARAMETER
 AMOUNT
 MOUNT
 UNITS
 RECOVERY
 METHOD

 Nitroguanidine
 250
 260
 ug/L
 103
 SW846
 8330
 (Modi

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGXET1AC Matrix.....: WATER

LCS Lot-Sample#: G1D120000-416

Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1

PARAMETER PERCENT RECOVERY LIMITS

PARAMETER RECOVERY LIMITS METHOD
Nitroguanidine 103 (73 - 117) SW846 8330 (Modified

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGP071AJ-MS Matrix..... WATER

MS Lot-Sample #: A1D080404-008 MGP071AK-MSD

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11 Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1

	SAMPLE	SPIKE	MEASRD		PERCNT			
PARAMETER	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD	
Nitroguanidine	ND	250	260	ug/L	104		SW846 8330	(Modified
	ND	250	260	ug/L	106	1.8	SW846 8330	(Modified

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGP071AJ-MS Matrix..... WATER

MS Lot-Sample #: A1D080404-008 MGP071AK-MSD

Date Sampled...: 04/07/11 08:59 Date Received..: 04/08/11 Prep Date....: 04/12/11 Analysis Date..: 04/19/11

Prep Batch #...: 1102416

Dilution Factor: 1

	PERCENT	RECOVERY		RPD	
PARAMETER	RECOVERY	LIMITS	RPD	LIMITS	METHOD
Nitroguanidine	104	(73 - 117)			SW846 8330 (Modified
	106	(73 - 117)	1.8	(0-15)	SW846 8330 (Modified

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

WATER, 8330, Explosives

QC Summary

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: AlD080416 Work Order #...: MGXKLlAC-LCS Matrix..... WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Dilution Factor: 1

	SPIKE	MEASURED	1	PERCENT		
PARAMETER	TRUOMA	AMOUNT	UNITS	RECOVERY	RPD	METHOD
1,3,5-Trinitrobenzene	1.0	1.1	ug/L	115		SW846 8330
	1.0	1.1	ug/L	114	0.61	SW846 8330
1,3-Dinitrobenzene	1.0	1.2	ug/L	117		SW846 8330
	1.0	1.2	ug/L	116	0.25	SW846 8330
2-Amino-4,6-	1.0	1.1	ug/L	111		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	110	0.45	SW846 8330
2,4,6-Trinitrotoluene	1.0	0.90	ug/L	90		SW846 8330
	1.0	0.89	ug/L	89	1.4	SW846 8330
2,4-Dinitrotoluene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	111	0.98	SW846 8330
2,6-Dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.36	SW846 8330
2-Nitrotoluene	1.0	1.1	ug/L	110		SW846 8330
	1.0	1.1	ug/L	110	0.090	SW846 8330
3-Nitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	1.0	1.1	ug/L	108	0.27	SW846 8330
4-Amino-2,6-	1.0	1.1	ug/L	109		SW846 8330
dinitrotoluene						
	1.0	1.1	ug/L	107	1.1	SW846 8330
4-Nitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	110	0.63	SW846 8330
HMX	1.0	1.1	ug/L	111		SW846 8330
	1.0	1.1	ug/L	111	0.090	SW846 8330
Nitrobenzene	1.0	1.1	ug/L	112		SW846 8330
	1.0	1.1	ug/L	112	0.17	SW846 8330
Nitroglycerin	5.0	5.1	ug/L	102		SW846 8330
	5.0	5.1	ug/L	101	0.94	SW846 8330
RDX	1.0	1.2	ug/L	116		SW846 8330
	1.0	1.2	ug/L	117	0.68	SW846 8330
PETN	5.0	5.0	ug/L	100		SW846 8330
_	5.0	4.9	ug/L	98	1.5	SW846 8330
Tetryl	1.0	1.0	ug/L	101		SW846 8330
	1.0	1.0	ug/L	100	0.90	SW846 8330
			Distriction	DECOMENS		
arm no a a ma			PERCENT	RECOVERY		
SURROGATE			RECOVERY	LIMITS	₹	
3,4-Dinitrotoluene			106	(50 - 150	-	
			106	(50 - 150	1	

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A1D080416 Work Order #...: MGXKL1AC-LCS Matrix.....: WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: AlD080416 Work Order #...: MGXKL1AC-LCS Matrix.....: WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

Prep Date....: 04/13/11 Analysis Date..: 04/16/11

Prep Batch #...: 1103098

Dilution Factor: 1

	PERCENT	RECOVERY	RPD	
PARAMETER	RECOVERY	LIMITS	RPD LIMITS	METHOD
1,3,5-Trinitrobenzene	115	(53 - 135)		SW846 8330
	114	(53 - 135)	0.61 (0-30)	SW846 8330
1,3-Dinitrobenzene	117	(54 - 120)		SW846 8330
	116	(54 - 120)	0.25 (0-30)	SW846 8330
2-Amino-4,6-	111	(53 - 120)		SW846 8330
dinitrotoluene				
	110	(53 - 120)	0.45 (0-30)	SW846 8330
2,4,6-Trinitrotoluene	90	(37 - 120)		SW846 8330
	89	(37 - 120)	1.4 (0-30)	SW846 8330
2,4-Dinitrotoluene	112	(58 - 136)		SW846 8330
	111	(58 ~ 136)	0.98 (0-30)	SW846 8330
2,6-Dinitrotoluene	111	(52 - 144)		SW846 8330
	111	(52 - 144)	0.36 (0-30)	SW846 8330
2-Nitrotoluene	110	(52 - 120)		SW846 8330
	110	(52 - 120)	0.090 (0-30)	SW846 8330
3-Nitrotoluene	109	(48 - 136)		SW846 8330
	108	(48 - 136)	0.27 (0-30)	SW846 8330
4-Amino-2,6-	109	(58 - 159)		SW846 8330
dinitrotoluene				
	107	(58 - 159)	1.1 (0-30)	SW846 8330
4-Nitrotoluene	111	(46 - 136)		SW846 8330
•	110	(46 - 136)	0.63 (0-30)	SW846 8330
HMX	111	(45 - 140)		SW846 8330
•	111	(45 - 140)	0.090 (0-30)	SW846 8330
Nitrobenzene	112	(49 - 120)		SW846 8330
	112	(49 - 120)	0.17 (0-30)	SW846 8330
Nitroglycerin	102	(60 - 120)		SW846 8330
	101	(60 - 120)	0.94 (0-60)	SW846 8330
RDX	116	(39 - 120)		SW846 8330
	117	(39 - 120)	0.68 (0-30)	SW846 8330
PETN	100	(60 - 120)		SW846 8330
	98	(60 - 120)	1.5 (0-30)	SW846 8330
Tetryl	101	(30 - 120)		SW846 8330
	100	(30 - 120)	0.90 (0-30)	SW846 8330
		PERCENT	RECOVERY	
SURROGATE		RECOVERY	LIMITS	
3,4-Dinitrotoluene		106	(50 - 150)	
		106	(50 - 150)	

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: AlD080416 Work Order #...: MGXKL1AC-LCS Matrix.....: WATER

LCS Lot-Sample#: G1D130000-098 MGXKL1AD-LCSD

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Page#	

TestAmerica West Sacramento GC/LC INSTRUMENT LOG

Inst ID: LC10 Batch ID: 01082011

Method: Method 8330 Test: SOP SAC-LC-0009

ICAL Date: See Calibration Report

Date	Time	Operator	Sample ID	File ID	Vol or	Extract	Dilm	Comments
	l	1	t	1 1	Wt	Vol	i	1
	********	***********	으로 한 한 번째 하다 하다 하다 하다 하는 것 같은 중 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등 등			~~~~		
08-JAN-2011	13:00	RN	8330 PRIMER	A-000001.	0 g	0 mL	1	
08-JAN-2011	13:34	RN	8330 PRIMER	A-000002.	0 g	0 mL	1	l
08-JAN-2011	14:06	RN	8330 PRIMER	A-000003.	0 g) omr	1	
08-JAN-2011	14:36	RN	8330 PRIMER	A-000004.	0 g	0 mT	1	l
08-JAN-2011	15:20	RN	8330 PRIMER	A-000005.	0 g	0 po T] 1	
08-JAN-2011	16:03	RN	8330 PRIMER	A-000006.	0 g	0 mr	1	I
08-JAN-2011	16:45	RN	8330 PRIMER	A-000007.	βg	Lim O	1	1
08-JAN-2011	17:28	RN	8330 PRIMER	A-000008.	0 g	0 mL	1	
08-JAN-2011] 18:11	RN	8330 PRIMER	A-000009.	0 g	O mL	1	
08-JAN-2011	18:54	RN	8330 PRIMER	A-000010.	0 g	0 mL	ļı	
08-JAN-2011	19:37	RN	Nitrobenzene	A-000011.	0 g	0 mL	į ı	1
08-JAN-2011	20:20	RN	8330 PRIMER	A-000012.	0 g	0 mL	1 1	
08-JAN-2011	21:03	RN	8330 PRIMER	A-000013.	0 g	D mL	1 1	<u></u>
08-JAN-2011	21:47	RN	8330 PRIMER	A-000014.	0 g	Im C	1 1	
08-JAN-2011	22:34	RN	8330 PRIMER	A-000015.	0 g	O mL	1	
08-JAN-2011	23:14	RN	8330 PRIMER	[A-000016.]	0 g	0 mL	1	
08-JAN-2011	23:59	RN	8330 PRIMBR	A-000017.	0 g	o mr	1	
09-JAN-2011	00:41	RN	Tetryl Std	A-000018.	0 g	0 mL	1	I
09-JAN-2011	01:26	RN	BLANK	A-000019.	0 g	C mL	[1	l
09-JAN-2011	02:11	RN	ICAL L1 10GCSV0528 8330 5m	g/mL A-000020.	0 g	0 mL	ļ 1	l
09-JAN-2011	02:56	RN	ICAL L2 10GCSV0527 8330 10	ng/m A-000021.	0 g	் மட்	1 1	l
09-JAN-2011	03:41	RN	ICAL L3 10GCSV0526 8330 20	ng/m A-000022.	0 g	0 mr	1	l
09-JAN-2011	04:26	RN	ICAL L4 10GCSV0525 8330 50	ng/m A-000023.	0 g	O noz.	1	l
09-JAN-2011	05:11	RN	ICAL L5 10GCSV0524 8330 10	ong/ A-000024.	0 g	0 mL] 1	l
09-JAN-2011	05:56	RN	ICAL L6 10GCSV0523 8330 20	0ng/ A-000025.	0 g	0 mL	1 1	1
09-JAN-2011	06:42	RN	ICAL L7 10GCSV0522 8330 50	Ong/ A-000026.	0 g	0 mL	įı	l
09-JAN-2011	07:27	RN	ICAL L8 10GCSV0521 8330 10	00mg A-000027.	0 g	Lm O	1	1
09-JAN-2011	08:12	RN	BLANK	A-000028.	0 g	0 mL	1	İ
09-JAN-2011	08:57	RN	MRL 10GCSV0528 8330 5ng/ml	A-000029.	0 g	0 mL	1	İ
09-JAN-2011	09:42	RN	MRL 10GCSV0526 8330 20ng/m	L [A-000030.	0 g	O mL	1 1	l
09-JAN-2011	10:27	RN	ICV 10GCSV0502 8330 200ng/	mL A-000031.	0 g	l 0 mL	1 1	1

printed before end of sequence. Pen 1/9/11

TestAmerica West Sacramento GC/LC INSTRUMENT LOG

Inst ID: LC10 Batch ID: 04132011

Method: Method 8330 Test ICAL Date: See Calibration Report Test : SOP SAC-LC-0009

Date	Time	Operator	Sample ID	File ID		Extract		Comments
	l	 		1	j Wit l	Vol :		1
3-APR-2011	10:18	INS	PRIMER	[A-000001.	1000 mL	20 mL	1	
13-APR-2011	11:04	INS	STD 06 11GCSV0170 8330 200-50	·	•	0 mL	1	'
13-APR-2011		INS	STD MRL 11GCSV0086 8330 5-20n	•		,	1	12x MOL Ch
3-APR-2011		INS	MGQCX1AA 1098154 G1D080000-15				1	1
3-APR-2011	•	INS	MGQCX1AE 1098154 G1D080000-15	•	•		1	'
3-APR-2011		INS	MGQCX1AC 1098154 G1D080000-15	•		20 mL	1	'
3-APR-2011	•	INS	IMGQCX1AD 1098154 G1D080000-15		•	20 mL		' <u> </u>
3-APR-2011	•	INS	MGJ191AA 1098154 A1D050444-1	•	•			·
3-APR-2011		INS	IMGJ2C1AA 1098154 A1D050444-2	•		20 mL		' <u></u>
3-APR-2011		INS	IMGJ2D1AA 1098154 A1D050444-3	- •-	•		1 1	\ <u> </u>
		· ·					-	1
.3-APR-2011	•	INS	MGJ2F1AA 1098154 A1D050444-4	•			1	
3-APR-2011		INS	MGJ2H1AA 1098154 AlD050444-5			20 mL	1	<u> </u>
3-APR-2011		INS .	MGJ2J1AA 1098154 A1D050444-6			20 mL	1	!
3-APR-2011		INS	ISTD_05 10GCSV0524 8330 100-20	•	·	O mL	1	<u> </u>
13-APR-2011		INS	ISTD_MRL 11GCSV0086 8330 5-20m				1	<u> </u>
13-APR-2011	•	ins	MGJ2L1AA 1098154 A1D050444-7	•			1	l
.3-APR-2011	22:21	241	MGJ2M1AA 1098154 A1D050444-8	1 A-000017.	1019.86 mL	20 mL	1	1
3-APR-2011	1 23:07	INS	MGJ2N1AA 1098154 AlD050444-9	1 A-000018.	1029.84 mL		1	1
3-APR-2011	23:52	ins	MGTWF1AA 1101074 G1D110000-74	A-000019.	1000 mL	20 mL	1	1
4-APR-2011	00:37	INS	MGTWFLAD 1101074 G1D110000-74	JA-000020.	1000 mL	20 mL	1	1
4-APR-2011	01:22	INS	MGTWF1AC 1101074 G1D110000-74	JA-000021.	1000 mL	20 mL	1	1
4-APR-2011	02:07	Ins	JMGLG71AA 1101074 A1D060428-1	1 A-000022.	839.4 mL	20 mL	1	<u> </u>
4-APR-2011	02:52	INS	MGLH81AA 1101074 A1D060428-2	1 A-000023.	944.39 mL	20 mL	1	<u> </u>
4-APR-2011	03:37	INS	(MGLJC1AA 1101074 A1D060428-3	1!A-000024.	909.33 mL	20 mL	1 1	I
4-APR-2011	04:22	INS	MGLJD1AA 1101074 A1D060428-4	1 A-000025.	863.58 mL	20 mL	1	1
4-APR-2011	05:08	INS	STD 05 10GCSV0524 8330 100-20	01A-000026.	1 0 q 1	O mL	1	1
4-APR-2011	05:53	INS	[STD MRL 11GCSV0086 8330 5-20r	o A-000027.	1 0 g	0 mL	1	1
4-APR-2011	-	INS	MGLJH1AA 1101074 A1D060428-5	-	_		1 1	·
4-APR-2011	•	INS	MGLJMIAA 1101074 A1D060428-6	•			1 1	'
4-APR-2011		INS	MGLJP1AC 1101074 A1D060428-7					'
4-APR-2011		INS	MGLJR1AC 1101074 A1D060428-8	-	-		1	'
4-APR-2011		INS	MGLJW1AC 1101074 A1D060428-9				, 1	1
4-APR-2011	•	INS	MGLJX1AC 1101074 A1D060428-10		-		1 1	1
4-APR-2011		INS	MGLJ01AC 1101074 A1D060428-11		-		. – I 1	·
4-APR-2011		INS	OC CHECK		1000 mL		, -	1
4-APR-2011		INS	MGLJ21AA 1101074 A1D060428-12	-	-		1 1	' -
4-APR-2011	•	INS SMI	MGLJ71AA 1101074 A1D060428-13	•	•		1	1
14-APR-2011			STD_05_10GCSV0524_8330_100-20	•		O mL	1 1	<u></u>
		INS	ISTD MRL 11GCSV0086 8330 5~20r			_		!
4-APR-2011	•	INS	•		· -	Jπ O	1	<u> </u>
4-APR-2011		INS	MGLKA1AA 1101074 A1D060428-14				1	<u> </u>
4-APR-2011		INS	MGLKA1AC 1101074 A1D060428-14				1	
4-APR-2011		INS	MGLKA1AD 1101074 A1D060428-14	•	•		1	!
4-APR-2011		INS	MGLKH1AA 1101074 A1D060428-15	•	-		1	<u> </u>
4-APR-2011	18:39	[NS	[MGLKK1AA 1101074 A1D060428-16		-		1	ì
4-APR-2011	19:24	ins	MGV3E1AA 1102080 G1D120000-80			. 20 mL	1	l <u></u>
4-APR-2011	1 20:09	INS	MGV3E1AC 1102080 G1D120000-80) A-000046.	[1000 mL	20 mL	1	l
4-APR-2011	1 20:54	tns	[MGT4MLAA 1102080 G1D110417-1	1 A-000047.	1010.44 mL	20 mL	1	l
4-APR-2011	1 21:40	INS	MGT5C1AA 1102080 G1D110417-2	1 A-000048.	1011.98 mL	20 mL	1	1
4-APR-2011	22:25	เพร	MGT5D1AA 1102080 G1D110417-3	1 A-000049.	998.33 mL	20 mL	1 1	
4-APR-2011		INS	STD_05 10GCSV0524 8330 100-20			O mL	1 1	1

Sequence continued on next page

TestAmerica West Sacramento GC/LC INSTRUMENT LOG

Page 2 of Batch 04132011 on Instrument LC10 For header information, refer to the first page of this batch's log.

Date	Time	Operator	Ş	Sample	ID	File	ID)	Vol or	ì	Extract	į D	nli	J	Comments
	1	l	I			i	1	Wt	ı	Vol	1		1	
14-APR-2011	23:55	[NS	STD MRL	1GCSV008	36 8330 5-20n	g A-0000	51.	0 g	1	0 mL	1	1	1	
15-APR-2011	00:40	NS	[MGT5E1AA	1102080	G1D110417-4	1 A-0000	52. 1	003.33 m	ıL	20 mL	1	1	1	
15-APR-2011	01:25	INS	(MGT3L1AA	1101153	Ġ1D110000-15	31A-0000	53.1	1000 mL	1	20 mL	ţ	1	l	
15-APR-2011	02:10	INS	MGT3L1AC	1101153	G1D110000-15	3 A-0000	54.j	1000 mL	1	20 mL	1	1	1	
15-APR-2011	02:55	INS	MGPTV1AA	1101153	GlD070642-1	1 A-0000	55. 9	97.33 mI	-	20 mL	Į	1	1	
15-APR-2011	03:40	INS	[MGPTW1AA	1101153	GlD070642-2	1JA~0000	56. 9	93.38 mI	. [20 mL	}	1	i	
15-APR-2011	04:25	INS	MGPTX1AA	1101153	G1D070642-3	1 A-0000	57.11	001.06 п	ıL į	20 mL	ł	1	1	
15-APR-2011	05:10	INS	IMGPT01AA	1101153	G1D070642~4	1{A-0000	58.19	86.42 mI	- 1	20 mL	1	1	1	
15-APR-2011	05:56	เพร	MGPT11AA	1101153	GlD070642-5	1 A-0000	59.19	90.99 mI	1	20 πL	1	1	1	
15-APR-2011	06:41	INS	IMGPT21AA	1101153	G1D070642-6	1 A-0000	60. 1	002.01 n	ŒΙ	20 mL	1	1	1	
15-APR-2011	1 07:26	INS	IMGPT31AA	1101153	G1D070642-7	1;A-0000	61. 9	97.06 mi	- 1	20 mL	1	1	1	
15-APR-2011	08:11	INS	MGPT41AA	1101153	G1D070642-8	1 A-0000	62.{9	87.66 mi	1	20 mL	1	1	1	
15~APR-2011	08:56	INS	STD 05 1	0GCSV052	4 8330 100-20	0000-A 0	063.1	0 g	1	O nL	1	1	1	

TestAmerica West Sacramento GC/LC INSTRUMENT LOG

Inst ID: LC10 Batch ID: 04152011

Method: Method 8330 Test: SOP SAC-LC-0009

ICAL Date: See Calibration Report

10:32 11:17 12:02 12:47 13:32 14:17 15:02 15:47 16:33 17:18 18:03	INS INS INS INS INS INS INS INS INS INS		000004. 0 g 000005. 909.33 mL	20 mL 20 mL 0 mL	1	
11:17 12:02 12:47 13:32 14:17 15:02 15:47 16:33 17:18	INS INS INS INS INS INS	PRIMER A-C STD_06 11GCSV0170 8330 200-500 A-C STD_MRL 11GCSV0086 8330 5-20ng A-C MGLJC1AA 1101074 A1D060428-3 2 A-C MGLJD1AA 1101074 A1D060428-4 2 A-C MGV4M1AA 1102095 G1D120000-95 A-C	000002.[1000 mL 000003.] 0 g 9 000004. 0 g 000005.]909.33 mL	20 mL 0 mL 0 mL	1	
11:17 12:02 12:47 13:32 14:17 15:02 15:47 16:33 17:18	INS INS INS INS INS INS	PRIMER A-C STD_06 11GCSV0170 8330 200-500 A-C STD_MRL 11GCSV0086 8330 5-20ng A-C MGLJC1AA 1101074 A1D060428-3 2 A-C MGLJD1AA 1101074 A1D060428-4 2 A-C MGV4M1AA 1102095 G1D120000-95 A-C	000002.[1000 mL 000003.] 0 g 9 000004. 0 g 000005.]909.33 mL	20 mL 0 mL 0 mL	1	
12:02 12:47 13:32 14:17 15:02 15:47 16:33 17:18	INS INS INS INS INS	STD_06 11GCSV0170 8330 200-500}A-C STD_MRL 11GCSV0086 8330 5-20ng A-C MGLJC1AA 1101074 A1D060428-3 2 A-C MGLJD1AA 1101074 A1D060428-4 2 A-C MGV4M1AA 1102095 G1D120000-95 A-C	000003. 0 g ! 000004. 0 g 000005. 909.33 mL	O mL	1	
12:47 13:32 14:17 15:02 15:47 16:33 17:18	Ins Ins Ins Ins	STD MRL 11GCSV0086 8330 5-20ng A-0 MGLJC1AA 1101074 A1D060428-3 2 A-0 MGLJD1AA 1101074 A1D060428-4 2 A-0 MGV4M1AA 1102095 G1D120000-95 A-0	000004. 0 g 000005. 909.33 mL	0 mL		l
13:32 14:17 15:02 15:47 16:33 17:18	INS INS INS INS	MGLJC1AA 1101074 A1D060428-3 2 A-C MGLJD1AA 1101074 A1D060428-4 2 A-C MGV4M1AA 1102095 G1D120000-95 A-C	000005.1909.33 mL		1	
14:17 15:02 15:47 16:33 17:18	ins ins ins	MGLJD1AA 1101074 A10060428-4 2 A-0 MGV4M1AA 1102095 G1D120000-95 A-0		20 mL		f
15:02 15:47 16:33 17:18	INS INS	MGV4M1AA 1102095 G1D120000-95 A-0	000006.[863.58 mL		2	l
15:47 16:33 17:18	INS			20 mL	2	\
16:33 17:18	•	IMCV/MIAD 1102005 C10120000-05 13-0	000007. 1000 mL	20 mL	1	1
17:18	INS	TENNATURAL TYPECOSO GIDISOUGHSS [Wef	000008. 1000 mL	20 mL	1	1
		[MGV4M1AC 1102095 G1D120000-95 [A-0	000009. 1000 mL	20 mL	. 1	t
18:03	INS	[MGNCW1AA 1102095 A1D070414-1 1 A-0	000010. 988.78 mL	20 mL	1	1
	NS	MGNC11AA 1102095 A1D070414-2 1 A-0	000011. 1015.83 mL(20 mL	1	1
18:48	INS	MGNC21AA 1102095 A1D070414-3 1 A-0	000012. 1003.28 mL	20 mL	1	1
	INS	MGNC31AA 1102095 A1D070414-4 1 A-0	000013.[1002.35 mL]	20 mL	1	
20:18	INS			20 mL	1	I
	INS			0 mL	1	1
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	INS		·			ļ
08:20	INS	MGNDN1AC 1102095 A1D070414-14 A-0	000030. 975.67 mL	20 mL	1	l
09:05	148	[MGNDN1AD 1102095 A1D070414-14 [A-0	000031. 1016.77 mL		1	l
09:50	Ins	MGNDP1AA 1102095 A1D070414-15 A-0	000032. 966.04 mL		•	l
10:35	INS					
11:20	NS	MGXKL1AC 1103098 G1D130000~98 A-0	000034. 1000 mL	20 mL	1	l
12:05	Ins	•		20 mL	1	<u> </u>
12:51	INS					!
13:36	INS				1	l
14:21	INS					l
15:06	INS					l
15:51	INS	STD_MRL 11GCSV0086 8330 5-20ng A-6	000040. 0 g {	0 mL	1	!
16:36	INS	IMGX0X1AA 1103202 G1D130000-202\A-0	000041. 1000 mL	20 mL	1	i
17:21	INS	MGX0X1AD 1103202 G1D130000-202 A-0	000042. 1000 mL	20 mL	1 1	1
18:06	INS	MGX0X1AC 1103202 G1D130000-202 A-0	000043.; 1000 mL	20 mL	1	1
18:51	INS	MGPOLIAA 1103202 A1D080404-1 1 A-0	000044. 1012.12 mL	20 mL	1	1
19:36	INS	MGPOLIAE 1103202 A1D080404-1 S[A-0	000045. 987.91 mL	20 mL	1	1
20:22	NS	•			1	1
					1	1
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						1
	21:03 21:48 22:33 23:18 00:03 00:48 01:33 02:19 03:04 03:49 04:34 05:19 06:04 06:49 07:35 08:20 09:05 09:05 11:20 12:05 12:51 13:36 14:21 15:06 15:51 16:36 17:21 18:06 18:51 19:36	20:18 INS 21:03 INS 21:48 INS 22:33 INS 23:18 INS 00:03 INS 00:48 INS 01:33 INS 02:19 INS 03:04 INS 03:49 INS 04:34 INS 05:19 INS 06:04 INS 06:49 INS 07:35 INS 08:20 INS 09:05 INS 10:35 INS 11:20 INS 12:05 INS 12:05 INS 13:36 INS 14:21 INS 15:06 INS 15:51 INS 15:51 INS 16:36 INS 17:21 INS 18:06 INS 19:36 INS 19:38	20:18 NS	20:18 NS	20:18 NS	20:18 NS

Sequence continued on next page



Page 2 of Batch 04152011 on Instrument LC10 For header information, refer to the first page of this batch's log.

Date	1	Time	! Operator	1	Sample	ID	File	ID	Vol or	-1	Extract	1	Diln	ł	Comments
	1		1	I		_	1	i	Wt	1	Vol.	ł		1	
17-APR-2011		00:07	INS	STD 05 10	GCSV0524	8330 100-2	00 A-0000		0 g		0 mL		1	1	
17-APR-2011	1	00:52	INS	STD MRL 1	1GCSV008	86 8330 5-20	ng A-0000	052.1	0 g	- 1	ORL	I	1	ı	
17-APR-2011	}	01:38	INS	IMGP041AA	1103202	A1D080404-6	1/A-0000	053.18	396.86 mI	. 1	20 mL	1	1	\	
17-APR-2011	1	02:23	INS	MGP051AA	1103202	A1D080404-7	1 A-0000	054. 9	909.26 mI	. [20 mL	í	1	I	
17~APR-2011	1	03:08	INS	MGP071AA	1103202	A1D080404-8	1 A-0000	055.19	95.99 mI	ıΤ	20 mL	1	1.	1	
17-APR-2011	1	03:53	INS	IMGP071AC	1103202	A10080404-8	S A-0000	056.19	973.82 mI	١,	20 mL	Ţ	1	1	
17-APR-2011	1	04:38	INS	MGP071AD	1103202	A1D080404-8	D)A-0000	057.19	964.47 mI	. 1	20 թե	Ţ	1	I	
17-APR-2011	i	05:24	INS	MGP081AA	1103202	A1D080404-9	1 A-0000	58.19	92.33 mI	, 1	20 mL	į	1	1	
17-APR-2011	ŧ	06:09	[NS	IMGP091AA	1103202	A1D080404-1	0 [A-0000	059. 9	933.23 mI	1	20 mL	1	1	1	
17-APR-2011	1	06:54	INS	[MGP1A1AA	1103202	A1D080404-1	1 JA-0000	060. 9	966.03 ml	١,	20 mL	1	1	1	
17-APR-2011	1	07:39	INS	STD_05 10	GCSV0524	8330 100-2	000A-0000	061.1	0 g	ļ	0 mL	1	1	f	
17-APR-2011	i	08:24	INS	STD_MRL 1	1GCSV008	86 8330 5-20	ng A-0000	062.	0 g	1	O mL	Į	1	I	
17-APR-2011	1	09:10	INS	MGXKQ1AA	1103100	G1D130000-1	000-A100	063.	1000 mL	1	20 mL	ĺ	1		
17-APR-2011	1	09:55	INS	(MGXKQ1AC	1103100	G1D130000-1	001A-000	064.	1000 mL	-1	20 mL	1	1	1	
17-APR-2011	1	10:40	INS	MGQMT1AA	1103100	G1D080474-1	1[A-0000	065.15	395.77 mI		20 mL	i	1	1	
17-APR-2011	}	11:25	INS	STD_05 10	GCSV0524	8330 100-2	000-A 000	066.	0 g	ì	Jm O	į	1	i	

TestAmerica West Sacramento GC/LC INSTRUMENT LOG

Inst ID: LC10 Batch ID: 04182011

Method: Method 8330 Test: SOP SAC-LC-0009

ICAL Date: See Calibration Report

Date	1	rime	Operator	1	Sample	: ID	File	ID	Vol	\circ r	į	Extract	1	Dıln	i	Comments
	1		1	i			1	1	Wt		I	Vol	!		I	
18-APR-2011	22	2:02	NS	PRIMER		=======	0000-A]				 	20 mL	 	1	ـــــــــــــــــــــــــــــــــــــ	
18-APR-2011	1 22	2:47	INS	PRIMER) A-000	002.1	1000	mL	1	20 mL	1	1	1	
18-APR-2011	! 23	3:32	INS	STD_06	1GCSV017	0 8330 20	0-500 A-000	003.	0	g	f	O mL	į	1	1	
19-APR-2011	1 00	0:17	INS	STD_MRL	11GCSV00	86 8330 5	-20ng A-000	04.	0	g	Τ	0 mL	ſ	1	1	
19-APR-2011	01	1:02	INS	MGP5R2A	1103098	A1D08041	6-7 2 A-000	005.1	936.6	6 mL	I	20 mL	I	2	1	
19-APR-2011	01	1:47	INS	MGX0X1A0	1103202	G1D13000	0-202 A-000	06.1	1000	mL	ł	20 mL	1	1	1	
19-APR-2011	1 03	2:32	INS	JMGXKQ1A	1103100	G1D13000	0-100 A-000	007.1	1000	mL	1	20 mL	İ	1	1	
19-APR-2011	1 03	3:17	INS	MG4TL1A	1105341	G1D15000	0-341 A - 000	1.800	1000	ınL	I	20 mL	1	1	!	
19-APR-2011	1 04	1:02	INS	[MG4TL1AI	1105341	G1D15000	0-341 A-000	009.1	1000	mL	I	20 mL	I	1	1	
19-APR-2011	04	4:48	INS	MG4TL1AG	: 1105341	G1D15000	0-341 A-000	10.	1000	mL	ļ	20 mL	1	1	1	
19-APR-2011	1 05	5:33	INS	[MG3W21AX	1105341	G1D14059	9-1 1 A-000	11.	981.5	6 mL	1	20 mL	f	1	Ī	
19-APR-2011	1 06	6:18	INS	JMG3W31AV	1105341	G1D14059	9-2 1 A-000	12.	989.8	6 mL	1	20 mL	1	1	ŧ	
19-APR-2011	1 03	7:03	INS	IMG3W41A	1105341	G1D14059	9-3 1{A-000	13.	976.3	6 mL	1	20 mL	I	1	1	
19-APR-2011	1 07	7:48	INS	STD_05	.0GCSV052	4 8330 10	0-200 A - 0000	014.1	0	g	ŀ	0 mL	Ī	1	1	
19-APR-2011	1 08	3:33	INS	STD_MRL	11GCSV00	86 8330 5	-20ng A-0000	15.	0	q	1	0 mL	1	1	1	

TestAmerica West Sacramento GC/LC INSTRUMENT LOG

Page# 13

Batch ID: 04122011

Inst ID: LC12 Method: Method 8330

Test : SOP WS-LC-0009

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ICAL Date: See Calibration Report

Date	ı	Time	Operator	Sample	ID	File ID)	Vol or	1	Extract	[Di	ln	I	Comments	!
	}		+	1		1	ł	₩t	I	Vol	l		1		1
12-APR-2011		11:30	NS	8330 PRIMER		C-000001	•1	0 g	1	O mL		 1			
12-APR-2011	ŀ	12:36	INS	8330 PRIMER		[C-000002	۱٠:	0 g	1	0 mL	1	1	1		1
12-APR-2011	ı	13:41	INS	BLANK		[C-000003	3.	0 g	ı	0 mL	I	1.	1		1
12-APR-2011	1	14:46	INS	[STD_01 11GCSV0089	8330	5ng/mL C-000004	1.1	0 g	ı	O mL	l	1	l	_	1
12-APR-2011	ŧ	15:51	INS	[STD_02 10GCSV052]	8330	10ng/mLjC-000005	5.	0 g	- 1	O mL	ŀ	1	I		11
12-APR-2011	I	16:57	Ins	[STD_03 10GCSV0526	8330	20ng/mL C-000006	5.	0 g	1	0 mL	i	1	1		I
12-APR-2011	1	18:02	2N	[STD_04 10GCSV0529	8330	50ng/mL(C-000007	1.1	0 g	1	0 mL	}	1	1		l
12-APR-2011	1	19:08	NS	[STD_05 10GCSV0524	8330	100ng/m C-000006	3.1	0 g	į	0 mL	t	1	1		1
12-APR-2011	1	20:13	INS	[STD_06 11GCSV0170	8330	200ng/m C-000009	3. i	0 g	i	0 mL	I	1	1		1
12-APR-2011	1	21:18	Ins	[STD_07 10GCSV0522	8330	500ng/m C-000010	1.	0 g	1	O mL	l	1	1		11
12-APR-2011	1	22:24	INS	[STD_08 10GCSV052]	8330	1000ng/ C-000011	1	0 g	1	O mL	l	1	l		1
12-APR-2011	1	23:29	NS.	BLANK		(C-000012	1-1	0 g	1	O mL	ĺ	1	1		1
13-APR-2011	1	00:34	INS	STD_ICV 11GCSV016	9 833	0 200ng/ C-000013	3.	0 g	1	C mL	1	1	1		1
13-APR-2011	1 :	01:40	INS	STD_MRL 11GCSV008	6 833	0 5ng/mL C-000014		0 g	1	0 mL	1	1	12)	MOL	chek
															_

TestAmerica West Sacramento GC/LC INSTRUMENT LOG

Inst ID: LC12 Method: Method 8330 Batch ID: 04182011 Test : SOP WS-LC-0009

ICAL Date: See Calibration Report

Date	Time	Operator	Sample ID	File I	D	Vol or	-	Extract	Di	ln	Comments
		1	1	1	١	Wt	I	Vol	I		
18-APR-2011	21:46	NS	PRIMER	{C-00000	1.	0 g	==: 	O mL		 1	
18-APR-2011	22:51	INS	IPRIMER	(C-00000	2.1	0 g	1	0 mL	I	1	0 0
18-APR-2011	23:56	INS	STD_06 11GCSV0170 8330 200-5	001C-00000	3.	0 g	1	O mL	I	1	Mytail tor
19-APR-2011	01:01	INS	STD MRL 11GCSV0086 8330 5-20	ng C-00000	4.1	0 g	1	0 mL	1	1	(
19-APR-2011	02:07	INS	MGX0X1AA 1103202 G1D130000-2	021C-00000	5.;	1000 mL	Í	20 mL	ĺ	1	RE
19-APR-2011	03:12	INS	MGP011AA 1103202 A1D080404-4	1(C-00000	6. [8	37.26 mL	1	20 mL	I	1	
19-APR-2011	04:18	NS	MGP021AA 1103202 A1D080404-5	1(C-00000	7.19	66.73 mL	1	20 mL	I	1	
19-APR-2011	05:23	INS	MGP051AA 1103202 A1D080404-7	1 C-00000	8.19	09.26 mL	ŀ	20 mL	I	1	1
19-APR-2011	06:29	INS	MGP081AA 1103202 A1D080404-9					20 mL	I	1	- mal
19-APR-2011	07:34	INS	STD 05 10GCSV0524 8330 100-2	00 C-00001	0.1	0 g	ı	O mL	1	1	1
19-APR-2011	08:40	INS	STD MRL 11GCSV0086 8330 5-20	ng C-00001	1.	0 g	ı	0 mL	1	1	
19-APR-2011	09:46	INS	MGXKL1AA 1103098 G1D130000-9			1000 mL	Ī	20 mL	ı	1	I
19-APR-2011	10:51	INS	MGP5R2AF 1103098 A1D080416-7	2[C-00001	3. 9	36.66 mL	ī	20 mL	ı	2	
19-APR-2011	11:57	INS	IMGV4M1AA 1102095 G1D120000-9	5 [C-00001	4.	1000 mL °	ı	20 mL	1	1	I
19-APR-2011	13:02	INS	MGNDC1AC 1102095 A1D070414-9	1[C-00001	5.	942.8 mL	Ì	20 mL	1	1	
19-APR-2011	14:07	INS	[MGNDG1AA 1102095 A1D070414-1	1 [C-00001	6. 1	018.2 mL	ı	20 mL	ļ	1	1
19-APR-2011	15:12	INS	STD_05 10GCSV0524 8330 100-2	00 C-00001	7.1	0 g	1	0 mL	ļ	1	
19-APR-2011	16:18	INS	STD MRL 11GCSV0086 8330 5-20	ng C-00001	8.	0 g	ı	0 mL	i	1	
19-APR-2011	17:23	INS	MGX0X1AA 1103202 G1D130000-2	02 C-00001	9.	1000 mL	1	20 mL	ł	1	1
19-APR-2011	18:29	INS	[MGP011AA 1103202 A1D080404-4	1 C-00002	0.18	37.26 mL	1	20 mL	1	1	
19-APR-2011	19:35	INS	[MGP021AA 1103202 A1D080404-5	1 C-00002	1. 9	66.73 mL	i	20 mL	1	1	
19-APR-2011	20:40	INS	[MGP051AA 1103202 A1D080404-7	1 C-00002	2. 9	09.26 mL	i	20 mL	i	1	
19-APR-2011	21:45	INS	QC CHECK	IC-00002	3.	1000 mL	i	20 mL	i	1	
19-APR-2011		INS	MGP081AA 1103202 A1D080404-9	-			Ì	20 mL	1	1	
19-APR-2011		INS	MGLJC1AA 1101074 A1D060428-3					20 mL	•	1	
20-APR-2011		INS	MGLJD1AA 1101074 A1D060428-4	•				20 mL	'	1	· , _ , _ ,
20-APR-2011		INS	STD 05 10GCSV0524 8330 100-2	· ·	-	0 g	i	O mL	l	1	·
20-APR-2011		NS	STD MRL 11GCSV0086 8330 5-20			0 a	ì	O mL	-	1	·
20-APR-2011		INS	MGP5R1AF 1103098 A1D080416-7	-			i	20 mL	,	1	·
20-APR-2011		INS	MG4TL1AA 1105341 G1D150000-3				ì	20 mL	•	1	·
20-APR-2011		INS	MG3W21AA 1105341 G1D140599-1				i	20 mL	•	1	,
20-APR-2011		INS	STD 05 10GCSV0524 8330 100-2	· ·		0 g	i	O mL		1	'
20-APR-2011		INS	STD MRL 11GCSV0086 8330 5-20			0 g	i	O mL	•	1	

Comments on Preliminary Draft Study Sampling Groundwater for Major Cations and Anions, Trace Elements and Isotopes of Hydrogen and Oxygen in Groundwater at the Ravenna Army Ammunition Plant, Ravenna, Ohio October 20, 2011

Comments prepared by: James N. Trumble, USACE, Louisville District

Mark W. Nichter, USACE, Louisville District

Comments dated: 13 January 2012 & 8 February 2012

Responses prepared by: _Ralph J. Haefner & Brian E. Mailot_____

Responses dated: _February 25, 2012_____

No	Page	Line	Comment	Response
			Louisville District USACE (James Trumbl	le, Chemical Engineer)
1	11	195 - 200	There are three purposes to the scope, and four results. Could a note be added to the bottom of the page, directed back up to purpose #1, say that the differences between micro-purge, and traditional purging will also be discussed.	Agreed. Note added to end of objectives.
2	19	347	Could the order of the paragraphs in the Results (and the Discussion) match the order shown in Purpose and Scope.	Agreed. Results were reordered as follows: geochemical conditions, bis(2-ethylhexyl)phthalate, flow-path analysis, and micropurge and traditional purge comparison. However, the order of the Discussion was left as is (geochemical conditions, micropurge and traditional purge comparison bis(2-ethylhexyl)phthalate, and flow-path analysis) because it seemed to follow a more natural flow for the reader.
3	15	280	Here a table pushes the completion of a sentence that started on 15, to page 17. I do not want to waste paper, but inserting a table after the end of the paragraph it was first mentioned in would be an easier read. I believe printing on both sides of the paper is acceptable on this project.	Agreed. Final formatting of the document will likely take care of this and we will avoid this in the next draft version. And yes, saving paper should be a goal here, especially with the numerous copies and reproduced materials required by the formatting guidelines. If acceptable to other reviewers, we will print on both sides of future submissions.
4	20	363	U is not defined for table 10.	Agreed. U is now defined in the head note.
5	21	412	The last entry in Table 11 is the Field Blank. It is "B" flagged. For this table and all of the rest, clarify that B is the method blank, or trip blank. Also in the Appendix on pg 36.	Agreed. We added the phrase "associated method or trip" to each occurrence for clarity.
6	23	458	Equation 2 is mentioned at the end of this line. It says above, but it is in 4.0, on page 15. Maybe you can put (in Sect. 4.0) after "equation 2".	Agreed. Reference to "above" was removed and section number was inserted.

No	Page	Line	Comment	Response
7	35	713	The year has an extra zero in it.	Agreed. 20010 changed to 2010.
8	30	614	"Ohio EPA" prefers to be mentioned this way, as opposed to "OEPA".	Agreed. All occurrences of OEPA were changed to Ohio EPA.
9	29	577	I know you only had a limited amount of data points to try and make determinations, either for the direct scoped work, or the micro-purge / traditional purge comparison. If it makes sense for any of these tasks, please mention in the discussion the minimum amount of data points where you would think a definite conclusion could be reached.	That's not an easy issue to address because it depends on the variability in the overall population (the greater the variability, the more samples needed to obtain a representative sample population). Additionally, seasonal variability and long-term trends in water quality were not addressed in this work. Although we agree that this issue is important, we do not have the data to address it. Therefore, we did not include mention of the minimum number of data points where a definite conclusion could be reached.
	1	T	Louisville District USACE (Mark N	
10	9	176	The RVAAP facility currently has a groundwater monitoring well network consisting of 243 wells. The document indicates the Table 1 constituents were derived from analyses from over 280 wells. Does this number include wells that were historically installed and then plugged and abandoned at the facility?	Yes. We looked at all water-quality results collected at RVAAP since 2007 and noted that over 280 wells have been drilled even though some of these were subsequently abandoned. Instead of counting all the wells from which samples were obtained since 2007, we revised the text to state: "Even though analyses of most of the constituents listed in table 1 were done at one time or another on groundwater from more than 240 wells at RVAAP" so that our bases are covered.
11	11	210	The six deep wells sampled in the Sharon Conglomerate are actually screened in the basal portion of the Sharon Conglomerate. Revise the subject sentence to include"basal portion of the"Sharon Conglomerate.	Agreed. The phrase "basal portion of the" inserted in that description.
12	14	253-254	The RVAAP's "Submission Format Guidelines" document typically does not include report tables in an appendix. The summary tables are typically included within the text section or in a tables section. However, if the USGS plans to provide the analytical summary tables in an appendix, then please provide an appendix name (i.e., Appendix A).	Agreed. We felt that lengthy tables within the body of the text broke up the flow and readability of the document and few readers would actually peruse the data, so it would be better placed at the end of the report. Appendix now labeled "Appendix A." Also see response to comment 16.

No	Page	Line	Comment	Response
13	19-20	334-345, and Table 10	The referenced text and table indicate that only one well located in Load Line 4 exhibits the primary redox process of oxygen reduction. Other wells sampled during this study exhibit oxygen, iron, manganese, and sulfate reduction. Please explain the significance of these results.	We added text to the Results section and to the Discussion section to describe the significance of the results. Namely, that understanding redox conditions is important towards describing the potential for contaminant mobility, degradation, and solubility. This is especially important when considering monitored natural attenuation as a remediation alternative. The groundwater conditions at LL4mw-197 are oxic as demonstrated by the presence and relatively high concentrations of dissolved oxygen (8.3 mg/L) and dissolved nitrate (1.4 mg/L), but, as noted in the Discussion section, no other potential causes for this difference can be ascertained from the water-quality data alone. (Also note that the uranium concentration is higher in this sample than in any others (1.5 ug/L). Uranium is more soluble and therefore more mobile under oxidizing conditions.)

No	Page	Line	Comment	Response
			The intent of Section 5.0 is to provide a discussion pertaining to the results presented in Section 4.0. For clarity purposes, elaborate on the results presented in Section 4.0. Add further discussion(s) pertaining to the intent, purpose and/or results of each aspect of the study as follows:	As you might have surmised, we found it difficult to draw the line on where to start and where to end hydrologic and geochemical background information that is provided elsewhere in the literature, textbooks, and the Internet. We referenced background materials throughout the text. And as noted in the response to comment 9, it's difficult to elaborate any further given the limited data set that we have.
14	29-34	Section 5.0	 Explain what the cation/anion balance errors mean. What do they suggest with respect to groundwater quality? Explain why 76 percent of the measured specific conductance was higher than the computed specific conductance. What does this suggest with respect to groundwater quality? 	The cation/anion balance errors and the comparisons between measured and computed specific conductance were meant to be a check on the analytical results. As stated on line 264-266 (p. 15) "If all analyses are done accurately, the ideal analysis should have a cation/anion balance of zero percent. Positive errors indicate the sum of cations is greater than the sum of anions; negative errors indicate that the sum of anions is greater than the sum of cations." For typical USGS studies, we evaluate the quality of the data before making any interpretations and consider reanalysis or omitting analytical results if these checks are out of balance. The results from the RVAAP indicate that cation/anion balances are generally acceptable; however, for more than ¾ (76 percent) of the samples, the measured specific conductance was greater than that calculated by the software. As stated on lines 605-608 (p. 30) "Without further evaluation of field and lab procedures, there were no direct indications as to causes of these deviations from ideal. Although a wide variety of inorganic constituents were analyzed in these samples, it is still possible that additional constituents that were not analyzed contribute to the ionic balance and specific conductance of the sample." Since we had a limited number of samples in the dataset to start with, we kept all analyses and did not omit any, regardless of what the cation/anion balance or specific conductance evaluation indicated.

No	Page	Line	Comment	Response
			• It was indicated that turbidity stabilization is not a prerequisite to groundwater sampling under RVAAP's FWGWMP Plan. Explain the importance of turbidity stabilization, and how it might impact the quality of groundwater monitoring results. If applicable, include this as a possible recommendation for future groundwater monitoring at the RVAAP.	Stabilization of turbidity is important for the same reasons as stabilization of other parameters: to obtain a representative sample of groundwater that is minimally affected by the well construction or by the sampling methodology. In the case of wells at RVAAP, elevated turbidity is derived from aquifer solids. We inserted this text in the subsequent draft. To maintain objectivity, USGS reports generally do not make recommendations. Alternatively, we provide the data and interpretations to our partners and let them decide on next steps.
			• Explain the importance of the water-types evaluation with respect to the calciummagnesium-sulfate-bicarbonate relationship. A well located in Load Line 1 exhibited greater concentrations of sulfate and chloride than the wells in other AOCs. What does this suggest with respect to groundwater quality in the vicinity of the Load Line 1 well?	Water types are general descriptors of water quality and are used in many water-quality reports. They help put water quality into context with other areas of Ohio and the United States. Elevated sulfate and chloride can originate from many different sources. Identifying sources of specific elements or compounds was beyond the scope of this report and is not possible with the current data set.
			• Note that the bis(2-ethylhexyl)phthalate sampling and analysis appears to reveal non-conclusive results with respect to groundwater impact (based on purging techniques). Also note the detection of bis(2-ethylhexyl)phthalate in the blank samples, and how this points toward a possible laboratory artifact as the source of this constituent.	Agreed. We added similar text to the Discussion section.
			• Explain how the hydrogen-oxygen isotopes study is useful in examining the origin of groundwater recharge (rain, snowmelt). Discuss the meaning of the depleted isotope ratios in the Load Line 4 well. What does this mean? Is it an indicator of impacted groundwater?	Lines 418 through 428 explain the usefulness of isotope analysis. Along with the reference provided in the text and as noted at the beginning of the response to comment 14, we felt that this was adequate without reproducing information published elsewhere. As noted in lines 588-591 "As for the redox conditions described above, the isotopic signature of groundwater from well LL4mw-197 was different from other samples; however, chemical data provided in this report do not reveal any potential causes for this difference."

No	Page	Line	Comment	Response
			Discuss the difference in the analytical results pertaining to the purge methods. Explain why the traditional purge method resulted in higher concentrations of metals and explosives in the sample wells. Can the USGS conclude that the traditional purge method yields a more representative groundwater sample than the micro-purge method?	The differences pertaining to the purge methods are described in lines 631 through 664. We conclude that the rainfall event, turbidity, and that different segments and volumes of aquifer material contribute water to the well when using micropurge and traditional purge methods may be responsible. We reiterate those points in the Executive Summary.
			Maintain the discussion pertaining to water chemistry along flow paths, and how this study is useful in identifying potential groundwater impact source areas.	We summarized the findings of the analysis of water chemistry along flow paths in the last paragraph of the report "wells need to be situated in such a way that horizontal and vertical flow components can be verified. The two flow paths examined in this study were only estimates based on coarse-scale maps and did not consider vertical flow components between shallow and deep aquifers; however, the utility of the method can be a valuable tool in assessing the potential fate of contaminants and off-site contaminant migration." We're not sure that we can say much more without speculation and uncertainty.

No	Page	Line	Comment	Response
15	32	632-636	Generally, the report documents that the majority of the metals and explosives detected in this study exhibited increased concentrations in those wells where traditional purge methods were used prior to sample collection. As such, the possible explanation that a rain event (which occurred prior to the USGS sampling event) may have diluted concentrations is not well founded or justified. Dilution caused by the infiltration of rain waters would likely decrease the concentrations, and not increase the concentrations. This is confusing.	Rainfall/snowmelt can cause both increases and decreases in concentrations of some constituents. During dry periods, salts accumulated in the unsaturated zone through evaporation may be leached down to the water table with the first flush of recharge, thereby increasing concentrations of some constituents in shallow groundwater. Alternatively, and as you note, decreases in concentrations can be caused by dilution. Either of these changes can be almost instantaneous due to flow through preferential pathways or show a lag of several days because of inhibition of flow due to low hydraulic conductivity layers, such as clay.
			Please document when the rain event occurred. Did this occur before or during the April 4, 2011 sampling event conducted by the Contractor, or did it occur between the Contractor's sampling event and the USGS sampling event. If the rain event occurred between the Contractor's sampling event and the USGS's sampling event, then remove this possible explanation from the report (not well founded or justified).	According to the rain gage at the airport in Akron, Ohio, 2.1 inches of snow fell on March 30, followed by 1.17 inches of rain on April 4. We added a figure to the report showing the precipitation history from March 30 through April 7. As noted in table 3, the contractor sampled well LL1mw-084 on April 5, whereas USGS sampled the same well on April 7. The contractor sampled well LL4mw-198 on April 4, whereas the USGS sampled on April 7.
16	36	Appendix	The Appendices do not include the laboratory analytical reports or the data validation reports. Please include these items in an appendix in your submittal of the draft and final document.	In an attempt to eliminate duplication of large amounts of data and to save paper, the analytical results were compiled into the tables as shown in the previous draft of the report. These reports add 769 pages to our report. USACE should reconsider this requirement to conserve resources and require these documents be provided in electronic format only.
17	37	Entire Report	As a reminder, the submittal of reports and other documents on the RVAAP project require a specific format. The RVAAP project uses a document titled "Submission Format Guidelines." The USGS's draft and final report documents should follow the format guidelines specified in this document. A copy of this guidance document is available upon request.	It was our intent to follow the guidelines as specified. Specific examples of incorrect formatting would help here.