

Draft Study of
Results of Groundwater Sampling for Major Cations and Anions, Trace Elements,
Nutrients, Organic Chemicals, and Isotopes of Hydrogen and Oxygen
at RVAAP-66 Facility-Wide Groundwater, April 2011

Ravenna Army Ammunition Plant
Ravenna, Ohio

Contract No. (MIPR Number) W22W9K03277399
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141	Table of Contents	
142		
143	Executive Summary	10
144	1.0 Introduction	12
145	2.0 Purpose and Scope	14
146	3.0 Methods.....	15
147	4.0 Results.....	20
148	4.1 Stable isotopes of hydrogen and oxygen in water	28
149	4.2 Bis(2-ethylhexyl)phthalate.....	30
150	4.3 Water chemistry along groundwater-flow paths.....	31
151	4.4 Comparison of purging methods.....	35
152	5.0 Discussion and Conclusion	37
153	6.0 References	44
154	Appendices.....	46
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 Table	833
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

170 **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			
176	2	Well-construction details for wells sampled by the U.S. Geological Survey	17
177			
178	3	Water-quality physical measurements in groundwater samples	47
179			
180	4	Selected inorganic constituents in groundwater samples.....	49
181			
182	5	Explosives and propellants in groundwater samples	52
183			
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			
192	10	Results of cation/anion balance computations and comparison of measured	
193		and computed specific conductances	22
194			
195	11	Concentrations of reduction / oxidation (redox) sensitive constituents,	
196		general redox category, and dominant redox processes in groundwater	
197		samples	27
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			

210 **List of Figures**

211			
212	<u>Figure</u>		<u>Page</u>
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 flow-path 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

252 great degree at this facility, it is reasonable to conclude that elevated concentrations are the result
253 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	Yes	6010B
	Magnesium	Yes	6010B
	Sodium	Yes	6010B
	Potassium	Yes	6010B
Anions, unfiltered	Bromide	No	300.0A
	Chloride	No	300.0A
	Fluoride	No	300.0A
	Sulfate	No	300.0A
Trace elements, filtered	Aluminum	Yes	6020
	Antimony	Yes	6020
	Arsenic	Yes	6010B
	Barium	Yes	6010B
	Beryllium	Yes	6020
	Boron	No	6010B
	Cadmium	Yes	6020
	Chromium	Yes	6010B
	Cobalt	Yes	6010B
	Copper	Yes	6010B
	Iron	Yes	6020
	Lithium	No	6010B
	Lead	Yes	6010B
	Manganese	Yes	6010B
	Mercury	Yes	6010B
	Molybdenum	No	6010B
	Nickel	Yes	6010B
	Selenium	Yes	6010B
	Silica, as SiO₂	No	6010B
	Silver	Yes	6010B
	Thallium	Yes	6020
	Uranium	No	6020
	Vanadium	Yes	6010B
	Zinc	Yes	6020
Nutrients, un-filtered	Nitrate as N	Yes	353.2
	Nitrite as N	No	300.0A
	Nitrogen as Ammonia	No	350.2
	Phosphate as P, Ortho	No	300.0A
Iso-topes, un-filtered	Hydrogen (²H/¹H)	No	n/a
	Oxygen (¹⁸O/¹⁶O)	No	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:

1. 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)

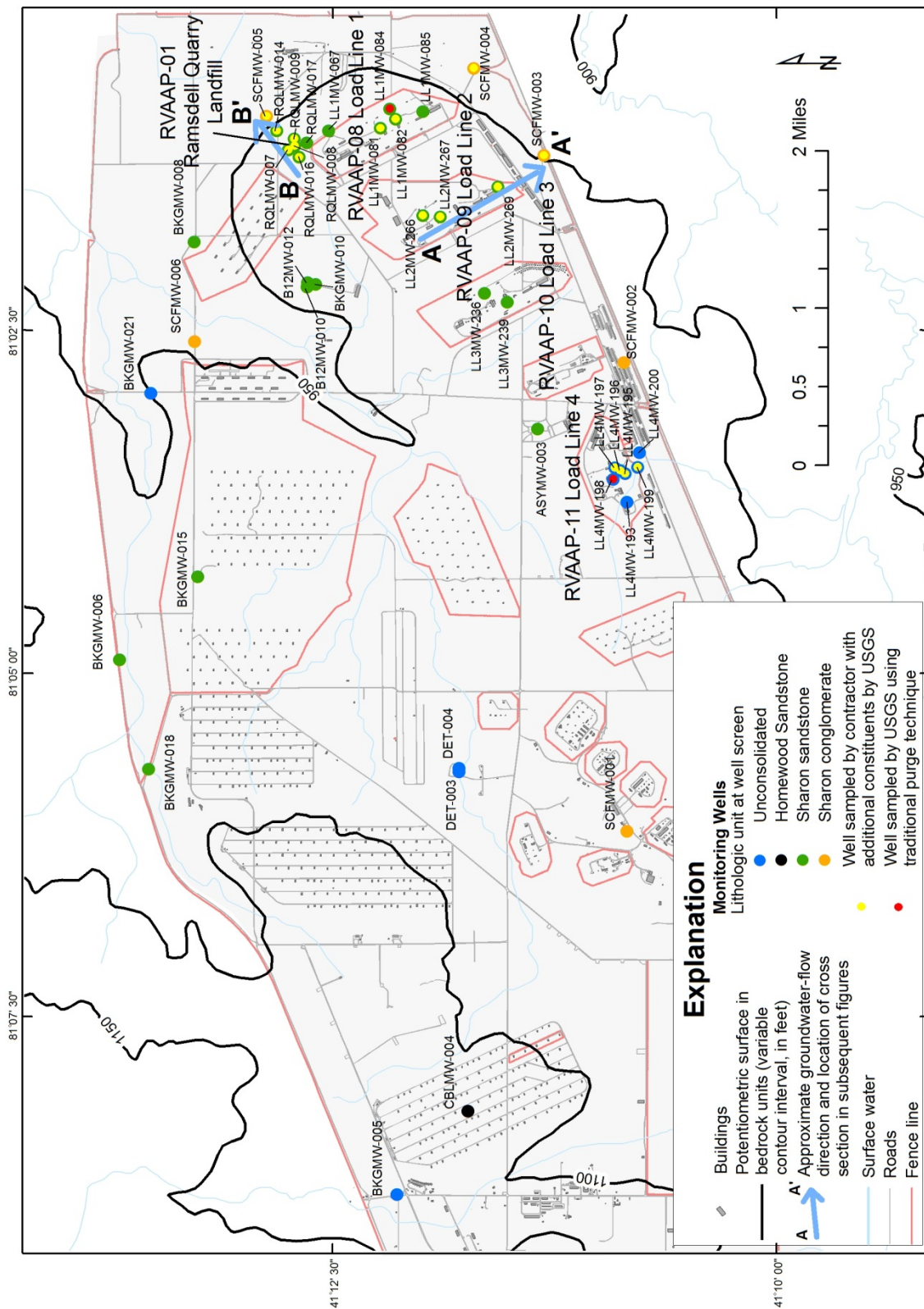


Figure 1. Monitoring wells sampled during April 2011 at RVAAP-66 Facility-wide Groundwater. Bedrock potentiometric surface from Ohio Department of Natural Resources (2005).

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	Land surface datum (ft above NGVD 29)	Well depth (ft)	Screen interval		Litho-logic unit
					Top (ft)	Bot-tom (ft)	
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	411054081033000	982.56	20.0	9.2	19.2	Unc
LL4MW-197	PO-146	411056081032900	983.79	21.7	10.8	20.8	Unc
LL4MW-198	PO-147	411056081033400	981.61	22.0	10.3	20.3	Unc
LL4MW-199	PO-148	411048081032900	975.20	22.0	10.3	20.3	Unc
RQLMW-007	PO-149	411244081010900	963.86	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-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
SCFMW-003	PO-154	411119081011200	956.14	135.5	125.5	135.5	Sc
SCFMW-004	PO-155	411142081003300	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.

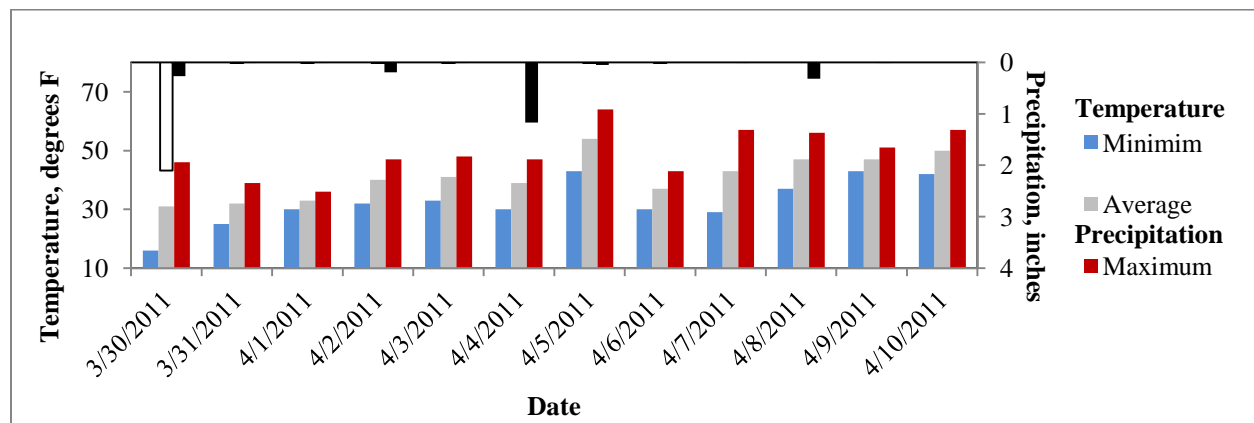


Figure 2. Temperature and precipitation amounts at Akron-Canton Regional Airport prior to and during groundwater sampling at RVAAP-66 Facility-wide Groundwater (National Oceanic and Atmospheric Administration, 2011).

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 μm 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:

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

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.

[$\mu\text{S/cm}$, microSiemens per centimeter at 25 degrees Celsius; RPD, relative percent difference]

Site	Cation/ anion balance (percent)	Specific conductance		RPD
		Measured (μS/cm)	Computed (μS/cm)	
Micropurge samples				
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
Traditional purge samples				
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):

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

where X_1 is the measured specific conductance, X_2 is the computed specific conductance and $X_{\text{mean}} = ((X_1 + X_2) / 2)$. 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 $\mu\text{S}/\text{cm}$ with a median of 471 $\mu\text{S}/\text{cm}$ (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).

481 A

EXPLANATION

(number of samples in parentheses)

- RVAAP-08 Load Line 1 (5)
- △ RVAAP-09 Load Line 2 (4)
- + RVAAP-10 Load Line 4 (6)
- × RVAAP-01 Ramsdell Quarry Landfill (6)

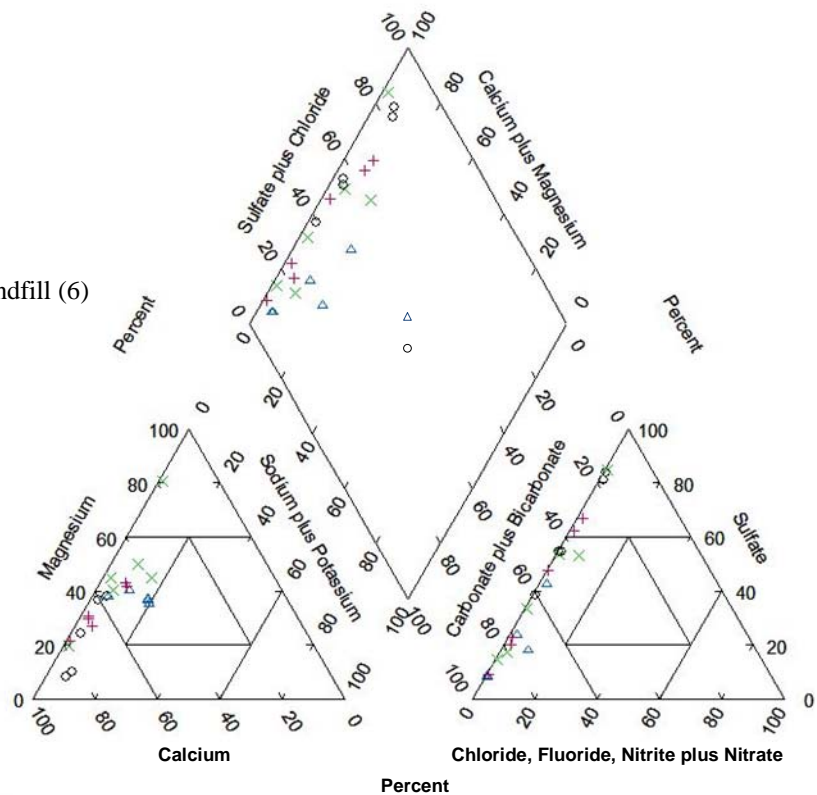
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B

EXPLANATION

(number of samples in parentheses)

- + Unconsolidated glacial deposits (6)
- △ Sharon sandstone (12)
- Sharon conglomerate (3)

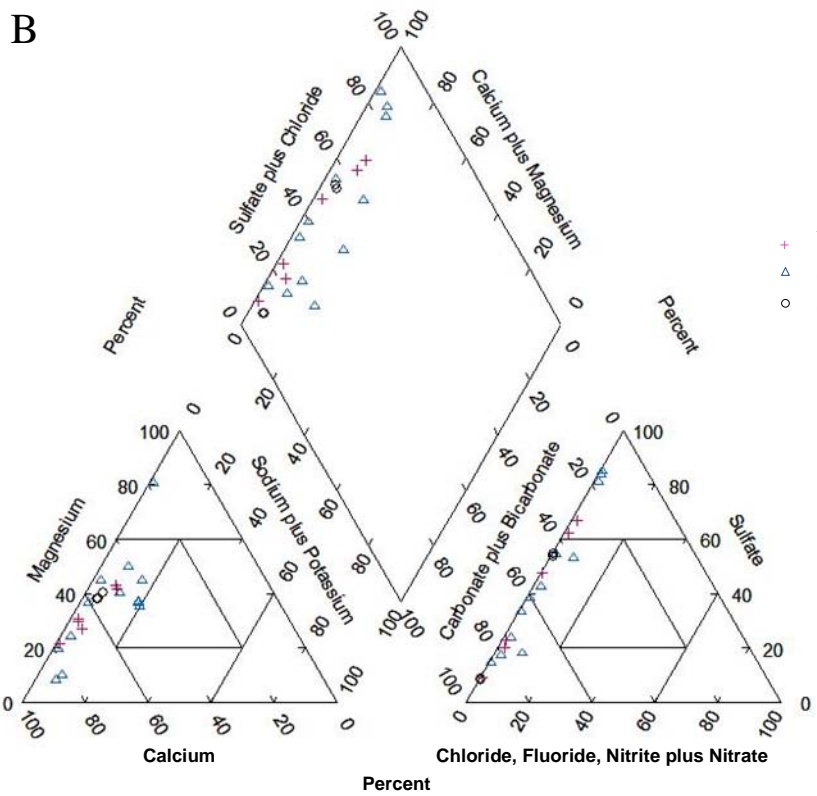


Figure 3. Piper plots of cation and anion concentrations in groundwater samples from RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011 by A. area of concern, and B. lithologic unit.

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
Micropurge samples							
LL1MW-081	4.3	0.1 U	2.17	4.63	129	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
LL1MW-082	0.6	0.1 U	1.64	5.21	63.7	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
LL1MW-084	8.8	0.86	0.19	0.05	122	Mixed (oxic-anoxic)	O ₂ -Mn(IV)
LL2MW-266	8.5	0.1 U	0.76	2.47	27.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
LL2MW-267	5.1	0.1 U	0.56	0.43	82	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
LL2MW-269	1.0	0.1 U	1.59	6.80	27.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
LL4MW-195	1.8	0.1 U	3.49	7.32	358	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
LL4MW-196	3.1	0.22	0.06	0.31	54.4	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
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)/SO ₄
LL4MW-199	6.6	0.1 U	0.84	5.83	64.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
RQLMW-007	3.4	0.04 B	0.02	0.59	101	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
RQLMW-008	0.6	0.1 U	0.30	18.20	62.6	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
RQLMW-009	2.5	0.07 B	0.11	0.89	13.4	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
RQLMW-014	0.7	0.1 U	2.80	15.10	50	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
RQLMW-016	6.0	0.1 U	6.83	11.60	1,120	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
SCFMW-003	3.6	0.1 U	0.26	0.60	25.2	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
SCFMW-004	3.4	0.1 U	0.73	0.05	334	Mixed (oxic-anoxic)	O ₂ -Mn(IV)
SCFMW-005	3.8	0.1 U	1.62	3.95	232	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄
Traditional purge samples							
LL1MW-084	4.7	0.1 U	0.24	0.05	104	Mixed (oxic-anoxic)	O ₂ -Mn(IV)
LL4MW-198	0.6	0.1 U	1.05	4.69	84.5	Mixed (oxic-anoxic)	O ₂ -Fe(III)/SO ₄

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

4.1 Stable isotopes of hydrogen and oxygen in water

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.

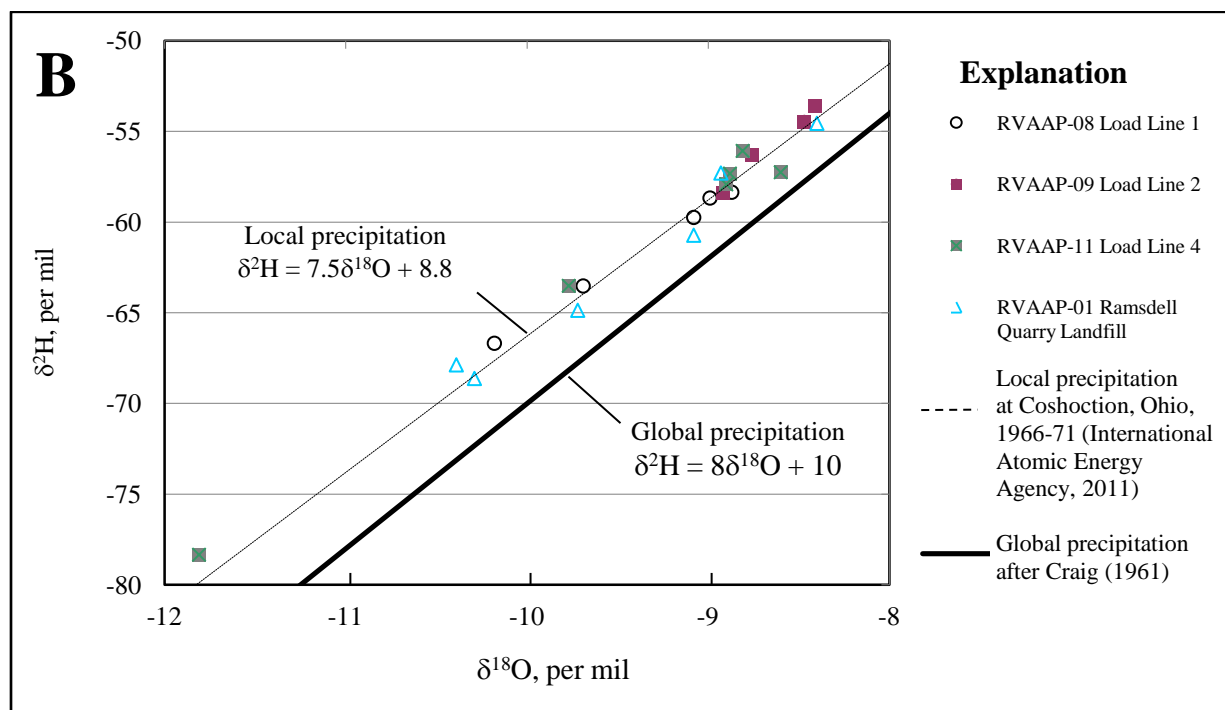
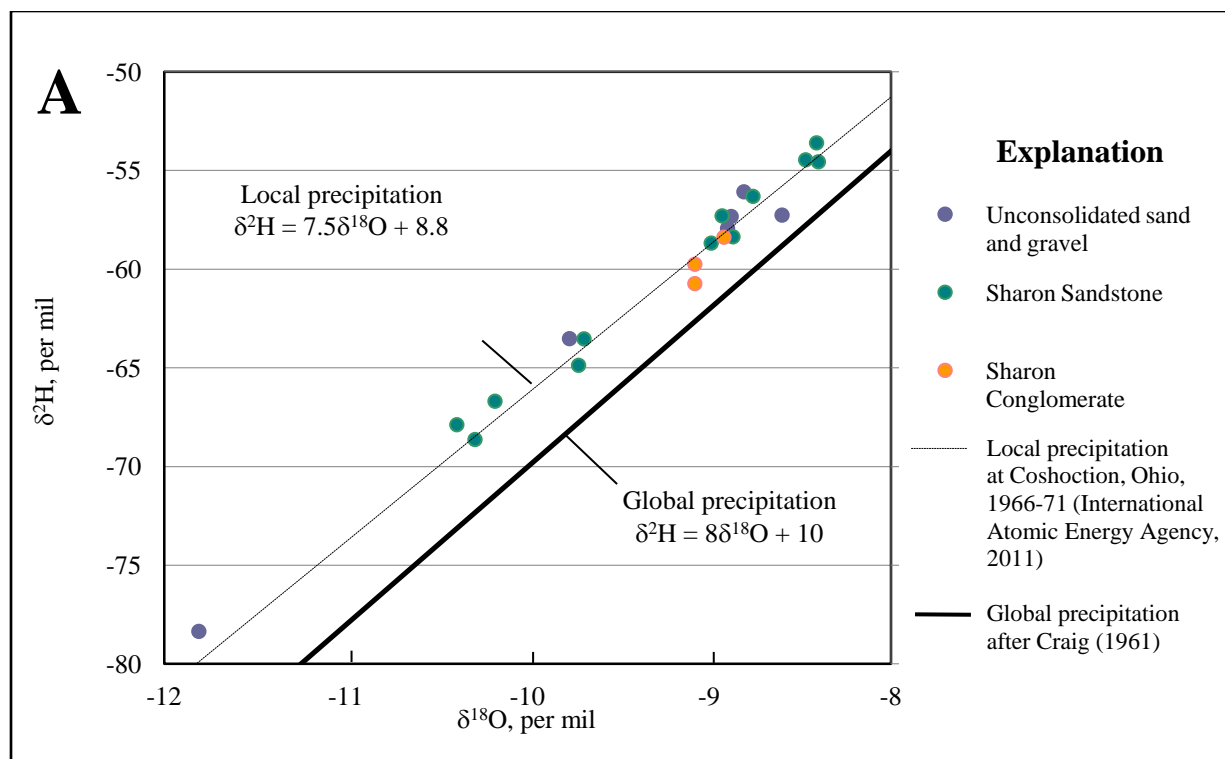


Figure 4. Isotope ratios of hydrogen and oxygen in groundwater samples collected at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011 in relation to global and local precipitation lines plotted by A. lithologic unit, and B. area of concern. (Delta notation, δ , denotes isotope ratio relative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

[µg/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-ethylhexyl)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 contractor 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

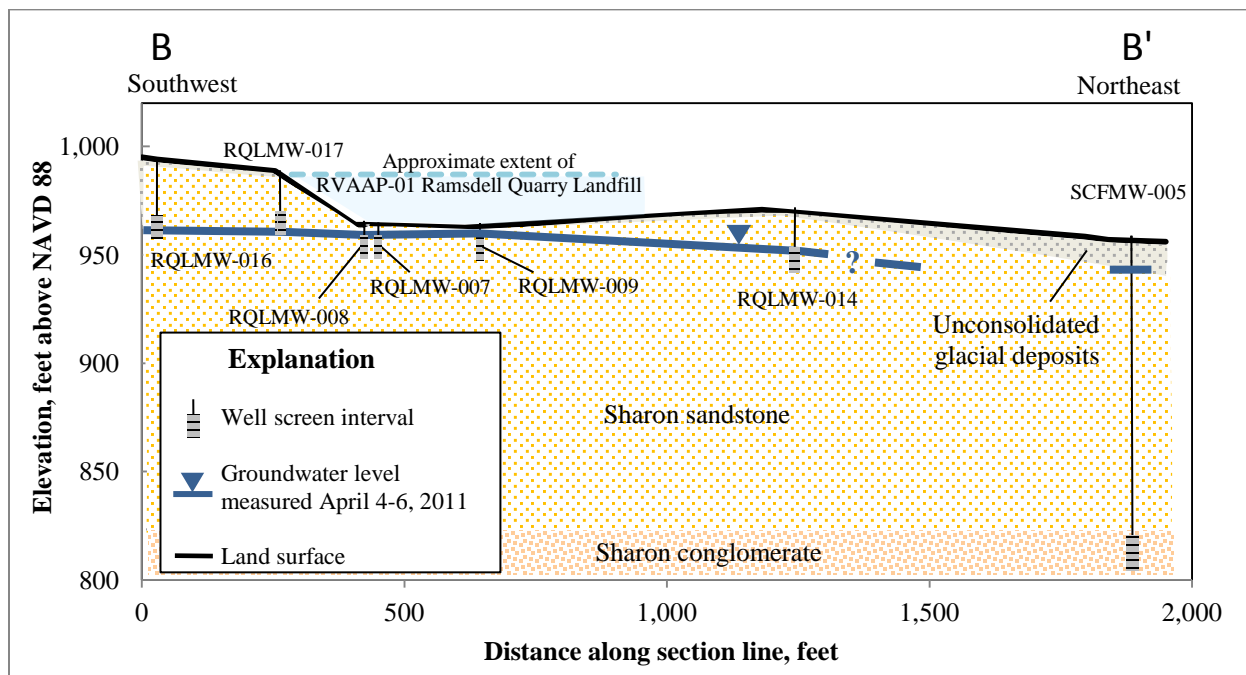
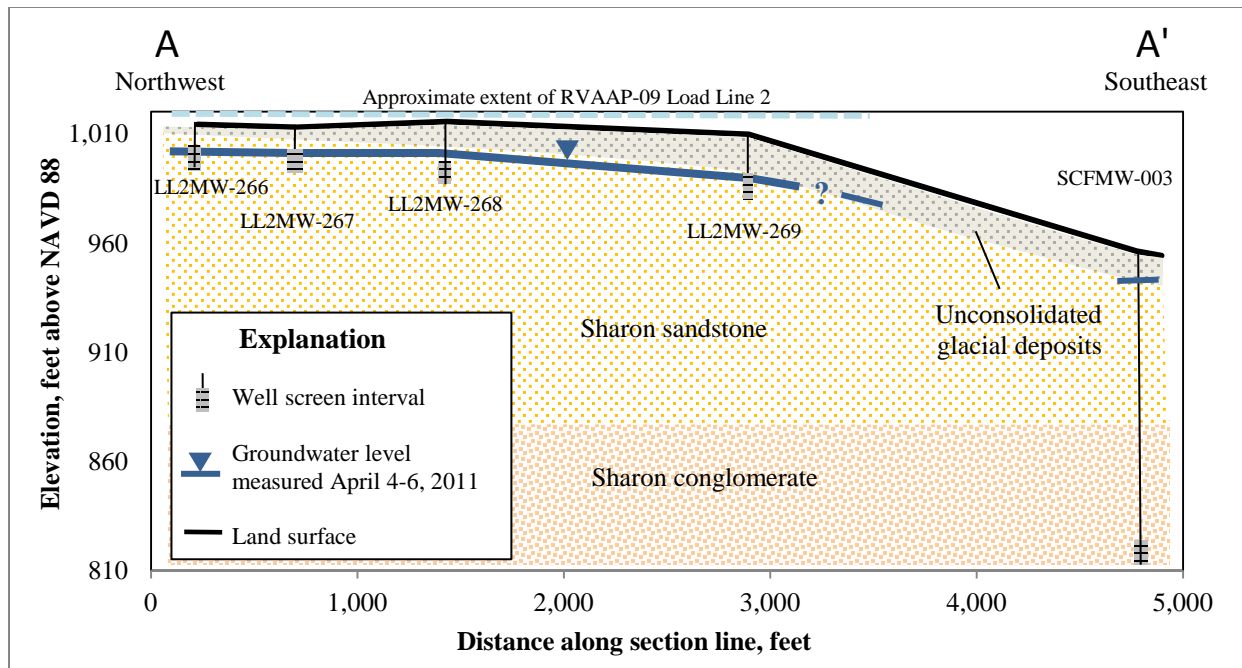


Figure 5. Hydrologic section lines along A-A' for RVAAP-09 Load Line 2 and B-B' for RVAAP-01 Ramsdell Quarry Landfill. Section lines are from figure 1.

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.

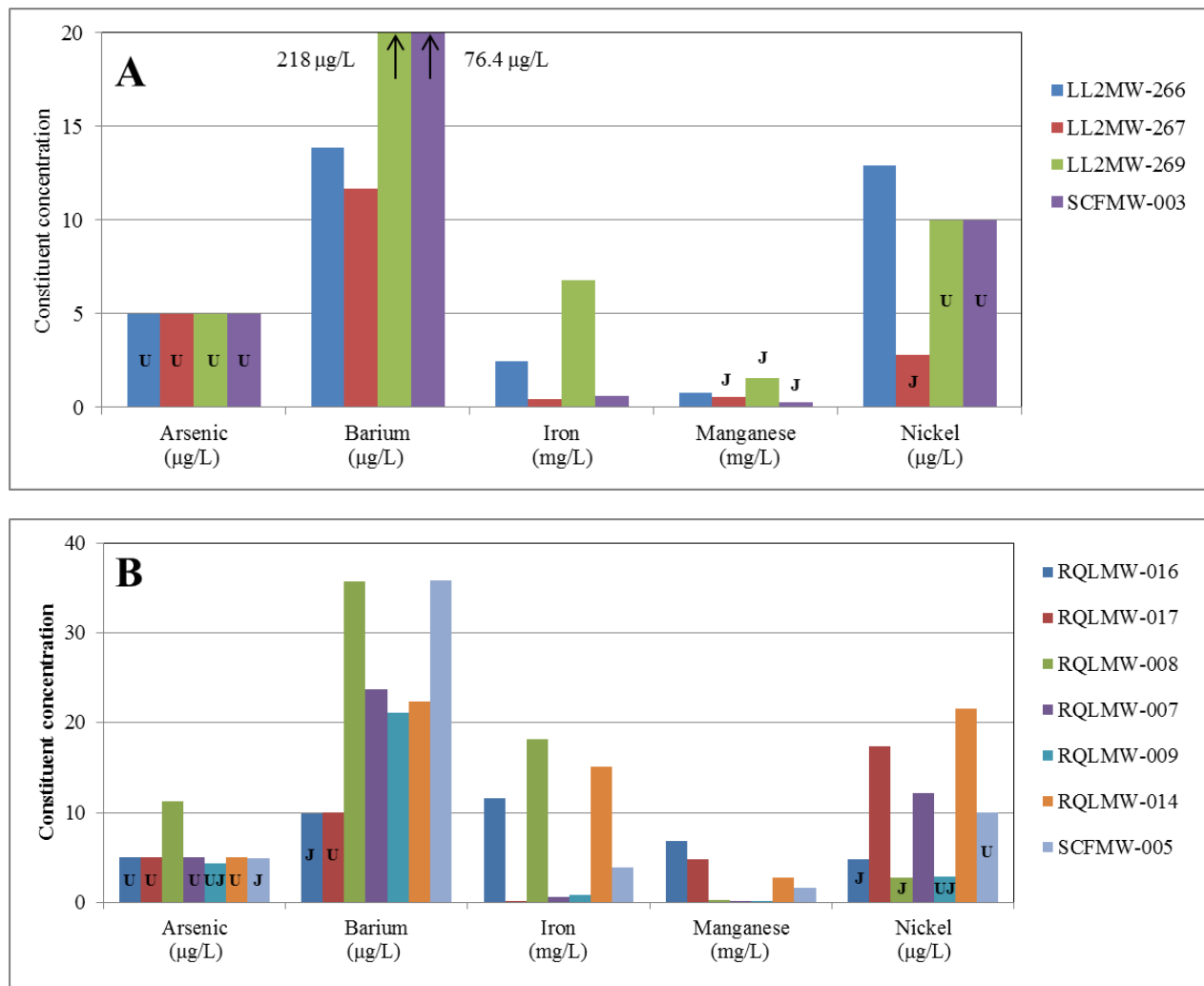


Figure 6. Concentrations of selected inorganic constituents at A. RVAAP-09 Load Line 2, and B. RVAAP-01 Ramsdell Quarry Landfill, April 4 through 7, 2011. (U, The constituent was analyzed for but not detected; UJ, the reported value is considered to an estimated Method Reporting Level; J, the quality-assurance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

Constituent (units)	Reporting level	Site	Sampling method		Relative percent difference
			Traditional purge	Micro-purge	
Inorganic constituents					
Aluminum (µg/L)	50	LL1MW-084	404	246	48.6
Barium (µg/L)	10	LL1MW-084	15.7	16.7	-6.2
		LL4MW-198	10.3	8.7 J	16.8
Cadmium (µg/L)	0.50	LL1MW-084	1.6	1.5	6.5
Calcium (mg/L)	1	LL1MW-084	42.3	49.1	-14.9
		LL4MW-198	27.5	27.3	0.7
Cobalt (µg/L)	5	LL1MW-084	19.6	14.6	29.2
Copper (µg/L)	5	LL1MW-084	9.3	9.9	-6.3
Iron (mg/L)	0.05	LL4MW-198	4.69	4.72	-0.6
Magnesium (mg/L)	1	LL1MW-084	3.2	2.9	9.8
		LL4MW-198	14.9	14.1	5.5
Manganese (mg/L)	0.010	LL1MW-084	0.243	0.192	23.4
		LL4MW-198	1.05	1.01	3.9
Nickel (µg/L)	10	LL1MW-084	37	24.6	40.3
		LL4MW-198	32.2	25.3	24
Potassium (mg/L)	1	LL1MW-084	2.5	2.42	3.3
		LL4MW-198	0.717 B	0.591 J	19.3
Sodium (mg/L)	1	LL1MW-084	3.14	2.92	7.3
		LL4MW-198	5.07	5.63	-10.5
Zinc (µg/L)	10	LL1MW-084	72.4 J	49.3	38.0
		LL4MW-198	64.4	61.6	4.4
Explosives and propellants					
1,3,5-Trinitrobenzene (µg/L)	0.11	LL1MW-084	4.7 PG	3.3 J	35.0
1,3-Dinitrobenzene (µg/L)	0.11	LL1MW-084	0.86	0.41 J	70.9
2,4,6-Trinitrotoluene (µg/L)	0.11	LL1MW-084	11	8.4 J	26.8
2-4-Dinitrotoluene (µg/L)	0.11	LL1MW-084	1.2 J	1.7 J	-34.5
2-Amino-4,6-dinitrotoluene (µg/L)	0.11	LL1MW-084	15	13 J	14.3
4-Amino-2,6-dinitrotoluene (µg/L)	0.11	LL1MW-084	29	26 J	10.9
HMX (µg/L)	0.11	LL1MW-084	0.98 PG	0.79 J	21.5
RDX (µg/L)	0.11	LL1MW-084	0.59	0.42 J	33.7

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, 1,3-dinitrobenzene, 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.

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 oxidic) were characterized as mixed (oxidic-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 oxidic 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 redox-sensitive 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.

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

Table 14. Ionic ratios for groundwater samples collected at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

[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
Wells screened in unconsolidated glacial deposits										
Micropurge samples										
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 samples										
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
Mean of nearby public supply-well samples (Ohio EPA, 2011)										
Garrettsville	9.24	0.12	1.48	12.1	4.78	0.14	5.42	2.52	2.22	1.30
Mantua	2.13	0.27	0.71	2.68	1.03	0.04	0.64	2.60	4.21	1.26
Wells screened in bedrock										
Micropurge samples										
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 samples										
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	56.8	0.14	3.06	37.4	51.5	0.76	39.8	2.86	1.58	1.73
Mean of nearby public supply-well samples (Ohio EPA, 2011)										
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

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

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

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

797 First, during sampling on April 4, field crews noted that more than inch of rain fell at
798 RVAAP. Rain that infiltrates into the ground may alter local groundwater conditions by
799 increasing concentrations of some constituents through leaching of salts in the unsaturated zone
800 or decreasing concentrations of some constituents by dilution. Additionally, changes in
801 groundwater water levels and gradients can result in focused recharge. Therefore, large
802 differences in water-quality results may be due to naturally changing hydrologic conditions
803 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

screened in the different lithologic units would allow measurement of vertical and horizontal gradients to better define groundwater flow paths.

6.0 References

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Appendices

APPENDIX A: Summary of water-quality data for groundwater samples collected at RVAAP-66 Facility-wide Groundwater, April 4 through 7, 2011.

Abbreviations and data qualifiers used throughout following tables

< Less than

-- Not measured or data unavailable

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.

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 <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.”

ft Feet

J The identification of the constituent is acceptable, but the quality-assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e. the quantitative value is considered estimated).

mg/L Milligrams per liter

NTU Nephelometric turbidity units

per mil Parts per thousand relative to a standard

PG Percent difference between the original and confirmation analyses is greater than 10 percent.

µg/L Micrograms per liter

µS/cm MicroSiemens per centimeter

U The constituent was analyzed for but not detected. The value preceding the U is the Method Reporting Limit.

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 Level.

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

Site	USGS Site Number	USGS Site ID	Date of sampling	Water level (ft below land surface)	Temperature, water (degrees Celsius)	Specific conductance (µS/cm)
Micropurge 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
RQLMW-007	PO-149	411244081010900	04/06/11	5.62	9.0	420
RQLMW-008	PO-150	411242081010800	04/06/11	6.28	7.3	742
RQLMW-009	PO-151	411242081010400	04/06/11	4.35	6.4	219
RQLMW-014	PO-152	411248081010100	04/06/11	20.00	8.8	210
RQLMW-016	PO-153	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
Traditional 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⁻)	Bicarbonate, incre- mental (mg/L) as HCO ₃ ⁻)
Micropurge samples						
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-196	7.1	3.1	405	188	0.4 e	228 e
LL4MW-197	7.1	8.3	133	310	0.9 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
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-004	6.9	3.4	0	288	0.3	351
SCFMW-005	6.7	3.8	3	205	0.1	250
Traditional purge samples						
LL1MW-084	5.8	4.70	1.3	22.8	0.0 e	28.1 e
LL4MW-198	6.0	0.56	3.8	51.0	0.0	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)
		Micropurge 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	0.061 B	10 U	20 U	0.1 U
	LL1MW-084	83 J	0.5 U	0.95 B	0.033 B	10 U	20 U	0.86
	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 B
	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
		Traditional purge samples						
	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 B
	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 SiO₂ (mg/L)	Sulfate (mg/L)	Uranium (µg/L)
		Micropurge samples					
	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 JB
	LL2MW-267	0.1 U	2 U	0.37 B	15	82	0.066 JB
	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 JB
	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
		Traditional purge samples					
	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- inium (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)	Chrom- ium (µg/L)
Micropurge samples								
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
Traditional purge samples								
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- alt (µg/L)	Cop- per- (µg/L)	Cyan- ide (mg/L)	Iron (µg/L)	Lead (µg/L)	Magnes- ium (µg/L)	Manga- nese (µg/L)	Merc- ury (µg/L)
Micropurge samples								
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
Traditional purge samples								
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
	Nickel (µg/L)	Potass- ium (µg/L)	Selen- ium (µg/L)	Silver (µg/L)	Sod- ium (µg/L)	Thall- ium (µg/L)	Vanad- ium (µg/L)	Zinc (µg/L)
Micropurge samples								
LL1MW-084	24.6	2,420	5 U	5 U	2,920	0.32 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
Traditional purge samples								
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
Field blank	10 U	1,000 U	5 U	5 U	1,000 U	1.0 U	10.0 U	4.3 BJ

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)	2,4- Dinitro toluene (µg/L)	2,6- Dinitro toluene (µg/L)	2-Amino- 4,6- dinitro toluene (µg/L)
		Micropurge samples					
	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	0.098 U
		Traditional purge samples					
	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
		2- Nitro- toluene (µg/L)	3- Nitro- toluene (µg/L)	4-Amino- 2,6- Dinitro toluene (µg/L)	4- Nitro toluene (µg/L)	HMX (µg/L)	Nitro- benzene (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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- cellul- ulose (mg/L)	Nitro- glyc- erin (µg/L)	Nitro- guan- idine (µg/L)	PETN (µg/L)	RDX (µg/L)	Tetryl (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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 (µg/L)	4,4'- DDE (µg/L)	4,4'- DDT (µg/L)	Aldrin (µg/L)	alpha- BHC (µg/L)	alpha- Chordane (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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
		Beta- BHC (µg/L)	Delta- BHC (µg/L)	Dield- rin (µg/L)	Endo- sulfan I (µg/L)	Endo- sulfan II (µg/L)	Endo- sulfan sulfate (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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
		Endrin (µg/L)	Endrin aldehyde (µg/L)	Endrin ketone (µg/L)	Gamma- BHC (Lindane) (µg/L)	Gamma- Chlor- dane (µg/L)	Hepta- chlor (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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)
		Micropurge samples					
	LL1MW-084	0.03 UJ	0.10 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.50 UJ
	LL4MW-198	0.03 UJ	0.10 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.50 UJ
		Traditional purge samples					
	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
	Field blank	0.03 U	0.10 U	2.0 U	0.50 U	0.50 U	0.50 U
		Aroclor PCB- 1242 (µg/L)	Aroclor PCB- 1248 (µg/L)	Aroclor PCB- 1254 (µg/L)	Aroclor PCB- 1260 (µg/L)		
		Micropurge samples					
	LL1MW-084	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ		
	LL4MW-198	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ		
		Traditional purge samples					
	LL1MW-084	0.50 U	0.50 U	0.50 U	0.50 U		
	LL4MW-198	0.50 U	0.50 U	0.50 U	0.50 U		
	Field blank	0.50 U	0.50 U	0.50 U	0.50 U		

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-ethane (µg/L)	1,1,2,2-Tetra-chloro-ethane (µg/L)	1,1,2-Tri-chloro-ethane (µg/L)	1,1-Di-chloro-ethane (µg/L)	1,1-Di-chloro-ethene (total) (µg/L)
Micropurge samples						
LL1MW-084	1.0 U	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	1.0 U
Traditional purge samples						
LL1MW-084	1.0 U	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	1.0 U
Field blank	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
		1,2-Di-bromo-methane (µg/L)	1,2-Di-chloro-ethane (µg/L)	1,2-Di-chloro-ethene (total) (µg/L)	1,2-Di-chloro-propane (µg/L)	2-But-anone (µg/L)
Micropurge samples						
LL1MW-084	1.0 U	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	1.0 U	10 U
Traditional purge samples						
LL1MW-084	1.0 U	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	1.0 U	10 U
Field blank	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U
		2-Hexa-none (µg/L)	4-Methyl-2-penta-none (µg/L)	Acetone (µg/L)	Benzene (µg/L)	Bromo-chloro-methane (µg/L)
Micropurge samples						
LL1MW-084	10 U	10 U	10 U	10 U	1.0 U	1.0 U
LL4MW-198	10 U	10 U	10 U	10 U	1.0 U	1.0 U
Traditional purge samples						
LL1MW-084	10 U	10 U	10 U	10 U	1.0 U	1.0 U
LL4MW-198	10 U	10 U	10 U	10 U	1.0 U	1.0 U
Field blank	10 U	10 U	10 U	10 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 (µg/L)	Bromo- form (µg/L)	Bromo- methane (µg/L)	Carbon disulfide (µg/L)	Carbon tetra- chloride (µg/L)
		Micropurge 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
		Chloro- benzene (µg/L)	Chloro- ethane (µg/L)	Chloro- form (µg/L)	Chloro- methane (µg/L)	cis-1,2- -di chloro ethene (µg/L)
		Micropurge 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- chloro- propene (µg/L)	Di- bromo- chloro- methane (µg/L)	Ethyl- benzene (µg/L)	m & p- xylenes (µg/L)	Methyl- ene chloride (µg/L)
		Micropurge samples				
	LL1MW-084	1.0 U	1.0 U	1.0 U	2.0 U	2.0 UJ
	LL4MW-198	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U
		Traditional purge 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
	Field blank	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U

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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)
		Micropurge samples					
	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
		Traditional purge samples					
	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-Trichloro phenol (µg/L)	2,4-Dichloro phenol (µg/L)	2,4-Dimethyl phenol (µg/L)	2,4-Dinitro phenol (µg/L)	2-Chloro naphtha lene (µg/L)	2-Chloro phenol (µg/L)
		Micropurge samples					
	LL1MW-084	5.0 U	2.0 U	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
		Traditional purge samples					
	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-naphtha lene (µg/L)	2-Methyl phenol (µg/L)	2-Nitro aniline (µg/L)	2-Nitro phenol (µg/L)	3, 3-Dichloro benzidine (µg/L)	3-Nitro aniline (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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 ether (µg/L)	4- Chloro 3-methyl phenol (µg/L)	4- Chloro aniline (µg/L)	4- Chloro- phenyl ether (µg/L)	4- Methyl phenol (µg/L)
		Micropurge 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
		Traditional purge 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
	Field Blank	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U
		4- Nitro- aniline (µg/L)	4- Nitro- phenol (µg/L)	Ace- naphtha- ene (µg/L)	Ace- naphthyl- ene (µg/L)	Anthra- cene (µg/L)	Benzo(a) anthra- cene (µg/L)
		Micropurge 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
		Traditional purge samples					
	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(a) pyrene (µg/L)	Benzo(b)- -fluor- anthene (µg/L)	Benzo- (g,h,i)- perylene (µg/L)	Benzo(k) fluor anthene (µg/L)	Benzoic acid (µg/L)	Benzyl alcohol (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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
	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)
		Micropurge samples					
	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
		Traditional purge samples					
	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)- anthra- cene (µg/L)	Di- benzo- furan (µg/L)	Di- ethyl phthalate (µg/L)	Di- methyl phthalate (µg/L)	Di-n- butyl phthalate (µg/L)	Di-n- octyl phthalate (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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
		Fluor- anthene (µg/L)	Fluorene (µg/L)	Hexa- chloro- benzene (µg/L)	Hexa- chloro- buta- diene (µg/L)	Hexa- chloro- cyclo- penta- diene (µg/L)	Hexa- chloro ethane (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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

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 diphenyl amine (µg/L)
		Micropurge samples					
	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
		Traditional purge samples					
	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- chloro- phenol (µg/L)	Phenan- threne (µg/L)	Phenol (µg/L)	Pyrene (µg/L)		
		Micropurge samples					
	LL1MW-084	5.0 U	0.20 U	1.0 U	0.20 U		
	LL4MW-198	5.0 U	0.20 U	1.0 U	0.20 U		
		Traditional purge samples					
	LL1MW-084	5.0 U	0.20 U	1.0 U	0.20 U		
	LL4MW-198	5.0 U	0.20 U	1.0 U	0.20 U		
	Field Blank	5.0 U	0.20 U	1.0 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.

		$\delta^2\text{H}$ (per mil)	$\delta^{18}\text{O}$ (per mil)
	Micropurge samples		
	LL1MW-081	-63.53	-9.69
	LL1MW-082	-66.69	-10.18
	LL1MW-084	-58.68	-8.99
	LL2MW-266	-56.31	-8.76
	LL2MW-267	-53.60	-8.41
	LL2MW-269	-54.46	-8.47
	LL4MW-195	-56.08	-8.81
	LL4MW-196	-63.52	-9.77
	LL4MW-197	-78.35	-11.81
	LL4MW-198	-57.33	-8.88
	LL4MW-199	-57.26	-8.60
	RQLMW-007	-68.63	-10.29
	RQLMW-008	-67.88	-10.39
	RQLMW-009	-64.87	-9.72
	RQLMW-014	-54.56	-8.40
	RQLMW-016	-57.30	-8.93
	SCFMW-003	-58.38	-8.92
	SCFMW-004	-59.75	-9.08
	SCFMW-005	-60.73	-9.08
	Traditional purge samples		
	LL1MW-084	-58.36	-8.87
	LL4MW-198	-57.93	-8.90

1655 **APPENDIX B: Laboratory analytical reports and data validation reports for groundwater**
1656 **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

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Project Manager II
6/23/2011 10:03 AM

June 23, 2011

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CONTRACT LABORATORY DATA-REVIEW WORKSHEET**1.0 GENERAL INFORMATION**Data reviewer: Gary Cottrell Review date: 6/27/11Office, Project, & Account #: OK, Ravenry**2.0 DATA DELIVERABLES**Date of Lab analytical report: 6/27/11 Number of copies: bound 0 unbound 0No. of CD copies of raw-data report: 2 Remarks: _____Raw-data report reviewed? Yes ☒ No ☐ Electronic data files on CD? Yes ☒ No ☐EDD file format: QWDATA ☐ 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): 4/4/11 Sample matrix: waterNo. of sample types in lot: Environmental 5 Trip blank ☐ Equip. blank ☐MS/MSD ☐ Other: ☐Date samples received at laboratory: 4/4/114.1 Were accelerated turn-around times (TATs) requested for analyses? Yes ☐ No ☒

If yes, list TAT period and if completed: _____

4.2 Were analyses on chain-of-custody (COC) form performed by lab? YES ☒ NO ☐

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: Yes ☒ No ☐

If no, list sample/lab IDs, and associated problems or reference lab report case narrative: _____

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 exceeded holding-time limits:

4.5 Did surrogate recoveries meet QC acceptance criteria? Yes ☐ No ☐ NA ☒

If **no**, list methods, surrogates, associated sample/lab IDs, lab report page #s: _____

4.6 Were dilution factors greater than 1 for **organic** analyses? Yes ☐ No ☐ NA ☒

If **yes**, list analytical methods and reason for raised dilution factors: dilution _____

high-analyte levels _____ matrix interferences _____ other _____

4.7 Were dilution factors greater than 1 for **inorganic** analyses? Yes ☒ No ☐ NA ☐

If **yes**, list analytical methods and reason for raised dilution factors:

high-analyte levels ☒ matrix interferences _____ other _____

SD₁ - X5 - P20

4.8 Additional comments about sample analyses: _____

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: _____

Ortho P - High - P25

5.3 Did the **MS/MSD** results meet %R or RPD acceptance criteria? Yes ☐ No ☒ 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 #:

Ortho P - Low and High - P31

Ortho P - Low - P33

Ortho P - High - P35 + 37

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: _____

6.0 ANALYTICAL METHODS USED in this LABORATORY LOT NUMBER

- ☐ VOCs by GC/MS--method 8260B/ 524.2 [water (W) or solids (S) analysis holding-time (HT) of 14 days]
☐ Gasoline Range Organics (GRO)+BTEX-method 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 GC--method 8081A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
☐ PCBs by GC--method 8082 [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
☐ Pesticides by GC--method 8141A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
☐ Herbicides by GC--method 8151A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
☐ SVOCs by GC/MS--method 8270C [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
☐ Dioxins and Furans--methods 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 HT 14 days; analysis HT 40 days]
☐ Explosives by HPLC method 8330 or 8321A [W: prep HT 7 days; S: prep HT 14 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]
☐ Perchlorate--methods 314.0 or 6850 LC/MS/MS or 6860 IC/MS/MS [W: analysis HT 28 days]
☒ Metals by ICP--method 6010B or 200.7 [W and S: analysis HT 180 days]
☒ Metals by ICP/MS--method 6020 or 200.8 [W and S: analysis HT 180 days]
☐ Mercury by CVAA--method 7470A (W) and 7471A (S) [W and S: analysis HT 28 days]
☒ Inorganic anions-method 300/9056 [W: analysis HT 48 hours- NO₂, NO₃, ortho-P; HT 28 days-Br, Cl, F, SO₄]
☐ Total dissolved solids (TDS)--method 2540C and(or) TSS--method 2540D [W: analysis HT 7 days]
☐ Alkalinity--method 310.1 (Total, OH, HCO₃, and CO₃) [W: analysis HT 14 days]
☒ Nitrogen, ammonia--method 350.1 *350.2* [W: analysis HT 28 days]
☐ Nitrogen, TKN--method 351.2 [W: analysis HT 28 days]
☐ Nitrogen, nitrate + nitrite--method 353.2 [W: analysis HT 28 days] NO₃ or NO₂ only [HT 48 hours]
☐ Nitrogen, nitrite--method 353.2 or 354.1 [W: analysis HT 48 hours]
☐ Phosphorus-method 365.3 and ortho 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 amenable--methods 9012A/ 335.4 [W and S: analysis HT 14 days]
☐ MBAS surfactants – method 425.1 (HT 48 hours)
☐ Moisture content--methods D2216 or 160.3M
☐ 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
☐ Other analyses: _____

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.

QC 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 reparation 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)

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

- 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 reparation 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 B	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

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
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

14

THE LEADER IN ENVIRONMENTAL TESTING

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

North Canton

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Lot Number: 41050441

Client U.S. Geological Survey Project Ravenna Oh By: [Signature]
Cooler Received on 4-5-11 Opened on 4-5-11 (Signature)

FedEx ☐ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☒ Other ☐
TestAmerica Cooler # A728 Multiple Coolers ☐ Foam Box ☐ Client Cooler ☐ Other ☐

1. Were custody seals on the outside of the cooler(s)? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
If YES, Quantity 1 Quantity Unsalvageable _____
Were custody seals on the outside of cooler(s) signed and dated? Yes ☒ No ☐ 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 ☐
 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 ☐ Other _____
 6. Cooler temperature upon receipt 1-8 °C See back of form for multiple coolers/temps ☐
METHOD: IR ☒ Other ☐
COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
 7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
 8. Could all bottle labels be reconciled with the COC? Yes ☒ No ☐
 9. 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 VOAs on the COC? Yes ☐ No ☒
- Contacted PM _____ Date _____ by _____ via Verbal ☐ Voice Mail ☐ Other ☐
Concerning _____

14. CHAIN OF CUSTODY

The following discrepancies occurred:

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in Sample Receiving to meet recommended pH level(s). Nitric Acid Lot# 100110-HNO₃; Sulfuric Acid Lot# 110410-H₂SO₄; Sodium Hydroxide Lot# 100108 -NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot# 100108-(CH₃COO)₂ZN/NaOH. What time was preservative added to sample(s)? _____

Client ID	pH	Date	Initials
1522 GW	12	4-5-11	MS
1605	12		
1411	12		
1235	12		
1333	12		
1522 GF	12		
1605	12		
1411	12		

[illegible]

GENERAL CHEMISTRY DATA

U.S.Geological Survey (USGS)

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

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

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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	0.50	mg/L	MCAWW 300.0A	04/05/11	1096316
		Dilution Factor: 1				
Chloride	2.8	1.0	mg/L	MCAWW 300.0A	04/05/11	1096314
		Dilution Factor: 1				
Fluoride	0.18 B	1.0	mg/L	MCAWW 300.0A	04/05/11	1096312
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/05/11	1096317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/05/11	1096315
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	0.45 B	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	358	5.0	mg/L	MCAWW 300.0A	04/07/11	1098197
		Dilution Factor: 5				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/05/11	1096316
		Dilution Factor: 1				
Chloride	1.6	1.0	mg/L	MCAWW 300.0A	04/05/11	1096314
		Dilution Factor: 1				
Fluoride	0.44 B	1.0	mg/L	MCAWW 300.0A	04/05/11	1096312
		Dilution Factor: 1				
Nitrate as N	0.22	0.10	mg/L	MCAWW 300.0A	04/05/11	1096317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/05/11	1096315
		Dilution Factor: 1				
Nitrogen, as Ammonia	4.5	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	54.4	1.0	mg/L	MCAWW 300.0A	04/05/11	1096318
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

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

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/05/11	1096316
		Dilution Factor: 1				
Chloride	4.9	1.0	mg/L	MCAWW 300.0A	04/05/11	1096314
		Dilution Factor: 1				
Fluoride	0.15 B	1.0	mg/L	MCAWW 300.0A	04/05/11	1096312
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/05/11	1096317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/05/11	1096315
		Dilution Factor: 1				
Nitrogen, as Ammonia	0.84 B	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	64.2	1.0	mg/L	MCAWW 300.0A	04/05/11	1096318
		Dilution Factor: 1				

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		METHOD	PREPARATION-	PREP
		LIMIT	UNITS		ANALYSIS DATE	BATCH #
Bromide	ND	Work Order #: MGMEV1AA 0.50	mg/L	MB Lot-Sample #: A1D060000-316 MCAWW 300.0A	04/05/11	1096316
		Dilution Factor: 1				
Chloride	ND	Work Order #: MGMD81AA 1.0	mg/L	MB Lot-Sample #: A1D060000-314 MCAWW 300.0A	04/05/11	1096314
		Dilution Factor: 1				
Fluoride	ND	Work Order #: MGMD71AA 1.0	mg/L	MB Lot-Sample #: A1D060000-312 MCAWW 300.0A	04/05/11	1096312
		Dilution Factor: 1				
Nitrate as N	ND	Work Order #: MGMEX1AA 0.10	mg/L	MB Lot-Sample #: A1D060000-317 MCAWW 300.0A	04/05/11	1096317
		Dilution Factor: 1				
Nitrite as N	ND	Work Order #: MGME1AA 0.10	mg/L	MB Lot-Sample #: A1D060000-315 MCAWW 300.0A	04/05/11	1096315
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	Work Order #: MGQQH1AA 2.0	mg/L	MB Lot-Sample #: A1D080000-085 MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	Work Order #: MGPDG1AA 0.50	mg/L	MB Lot-Sample #: A1D070000-318 MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	Work Order #: MGVPD1AA 0.50	mg/L	MB Lot-Sample #: A1D110000-306 MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	ND	Work Order #: MGME21AA 1.0	mg/L	MB Lot-Sample #: A1D060000-318 MCAWW 300.0A	04/05/11	1096318
		Dilution Factor: 1				
Sulfate	ND	Work Order #: MGQL91AA 1.0	mg/L	MB Lot-Sample #: A1D080000-197 MCAWW 300.0A	04/07/11	1098197
		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

Lot-Sample #...: A1D050441

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD RPD	LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide		WO#:MGMEV1AC-LCS/MGMEV1AD-LCSD LCS Lot-Sample#: A1D060000-316					
	96	(90 - 110)			MCAWW 300.0A	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/MGMD81AD-LCSD LCS Lot-Sample#: A1D060000-314					
	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/MGMD71AD-LCSD LCS Lot-Sample#: A1D060000-312					
	97	(90 - 110)			MCAWW 300.0A	04/05/11	1096312
	98	(90 - 110)	0.94	(0-20)	MCAWW 300.0A	04/05/11	1096312
		Dilution Factor: 1					
Nitrate as N		WO#:MGME1AC-LCS/MGME1AD-LCSD LCS Lot-Sample#: A1D060000-317					
	96	(90 - 110)			MCAWW 300.0A	04/05/11	1096317
	97	(90 - 110)	0.45	(0-20)	MCAWW 300.0A	04/05/11	1096317
		Dilution Factor: 1					
Nitrite as N		WO#:MGMER1AC-LCS/MGMER1AD-LCSD LCS Lot-Sample#: A1D060000-315					
	96	(90 - 110)			MCAWW 300.0A	04/05/11	1096315
	96	(90 - 110)	0.66	(0-20)	MCAWW 300.0A	04/05/11	1096315
		Dilution Factor: 1					
Phosphate as P, Ortho		WO#:MGPDG1AC-LCS/MGPDG1AD-LCSD LCS Lot-Sample#: A1D070000-318					
	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 Factor: 1					
Phosphate as P, Ortho		WO#:MGVPD1AC-LCS/MGVPD1AD-LCSD LCS Lot-Sample#: A1D110000-306					
	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					

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D050441

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Sulfate		WO#:MGME21AC-LCS/MGME21AD-LCSD LCS Lot-Sample#: A1D060000-318				
	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 Factor: 1				
Sulfate		WO#:MGQL91AC-LCS/MGQL91AD-LCSD LCS Lot-Sample#: A1D080000-197				
	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 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.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D050441

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide								
						WO#:MGMEV1AC-LCS/MGMEV1AD-LCSD	LCS Lot-Sample#: A1D060000-316	
	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
						Dilution Factor: 1		
Chloride								
						WO#:MGMD81AC-LCS/MGMD81AD-LCSD	LCS Lot-Sample#: A1D060000-314	
	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
						Dilution Factor: 1		
Fluoride								
						WO#:MGMD71AC-LCS/MGMD71AD-LCSD	LCS Lot-Sample#: A1D060000-312	
	2.5	2.4	mg/L	97		MCAWW 300.0A	04/05/11	1096312
	2.5	2.5	mg/L	98	0.94	MCAWW 300.0A	04/05/11	1096312
						Dilution Factor: 1		
Nitrate as N								
						WO#:MGMEX1AC-LCS/MGMEX1AD-LCSD	LCS Lot-Sample#: A1D060000-317	
	2.5	2.4	mg/L	96		MCAWW 300.0A	04/05/11	1096317
	2.5	2.4	mg/L	97	0.45	MCAWW 300.0A	04/05/11	1096317
						Dilution Factor: 1		
Nitrite as N								
						WO#:MGMER1AC-LCS/MGMER1AD-LCSD	LCS Lot-Sample#: A1D060000-315	
	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
						Dilution Factor: 1		
Phosphate as P, Ortho								
						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 Factor: 1		
Phosphate as P, Ortho								
						WO#:MGVPD1AC-LCS/MGVPD1AD-LCSD	LCS Lot-Sample#: A1D110000-306	
	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
						Dilution Factor: 1		

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General Chemistry

Matrix.....: WATER

NOTE (S) :

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrogen, as Ammonia	94	Work Order #: MGQQH1AC (85 - 114)	LCS Lot-Sample#: A1D080000-085 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

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia	14	13	mg/L	94	MCAWW 350.2	04/08/11	1098085
Work Order #: MGQQH1AC LCS Lot-Sample#: A1D080000-085							
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	PREPARATION-	PREP
RECOVERY	LIMITS	RPD LIMITS	ANALYSIS DATE	BATCH #
Nitrogen, as Ammonia	WO#: MGAA51AU-MS/MGAA51AV-MSD	MS 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
	Dilution Factor: 1			
Phosphate as P, Ortho	WO#: MGLNF1AW-MS/MGLNF1AX-MSD	MS Lot-Sample #: A1D060449-001		
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
	Dilution Factor: 1			
Phosphate as P, Ortho	WO#: MGLQ01AW-MS/MGLQ01AX-MSD	MS Lot-Sample #: A1D060449-009		
103	(80 - 120)	MCAWW 300.0A	04/06/11	1097318
109	(80 - 120)	5.7 (0-20) MCAWW 300.0A	04/06/11	1097318
	Dilution Factor: 1			
Phosphate as P, Ortho	WO#: MGP5D1AW-MS/MGP5D1AX-MSD	MS Lot-Sample #: A1D080416-001		
119	(80 - 120)	MCAWW 300.0A	04/08/11	1101306
121 N	(80 - 120)	1.2 (0-20) MCAWW 300.0A	04/08/11	1101306
	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 #...: A1D050441

Matrix.....: WATER

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

PARAMETER	SAMPLE SPIKE AMOUNT	AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia									
WO#: MGAA51AU-MS/MGAA51AV-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGLNF1AW-MS/MGLNF1AX-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGLQ01AW-MS/MGLQ01AX-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGP5D1AW-MS/MGP5D1AX-MSD MS Lot-Sample #: 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
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 EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441

Matrix.....: WATER

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia	104	Work Order #...: MGAA51AU (75 - 125)	MCAWW 350.2	MS Lot-Sample #: A1C290455-001 04/08/11	1098085
		Dilution Factor: 1			
Phosphate as P, Ortho	53 N	Work Order #...: MGLNF1AW (80 - 120)	MCAWW 300.0A	MS Lot-Sample #: A1D060449-001 04/06/11	1097318
		Dilution Factor: 1			
Phosphate as P, Ortho	103	Work Order #...: MGLQ01AW (80 - 120)	MCAWW 300.0A	MS Lot-Sample #: A1D060449-009 04/06/11	1097318
		Dilution Factor: 1			
Phosphate as P, Ortho	119	Work Order #...: MGP5D1AW (80 - 120)	MCAWW 300.0A	MS Lot-Sample #: A1D080416-001 04/08/11	1101306
		Dilution Factor: 1			
Sulfate	108	Work Order #...: MGAE31AU (80 - 120)	MCAWW 300.0A	MS Lot-Sample #: A1C290465-012 04/05/11	1096318
		Dilution Factor: 2			
Sulfate	98	Work Order #...: MGMJ71AW (80 - 120)	MCAWW 300.0A	MS Lot-Sample #: A1D060583-006 04/07/11	1098198
		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 #...: A1D050441

Matrix.....: WATER

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Sulfate	346	50.0	400	mg/L	108	MCAWW 300.0A	04/05/11	1096318
Work Order #...: MGAE31AU MS Lot-Sample #: A1C290465-012								
Dilution Factor: 2								
Sulfate	10.4	50.0	59.6	mg/L	98	MCAWW 300.0A	04/07/11	1098198
Work Order #...: MGMJ71AW MS Lot-Sample #: A1D060583-006								
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.....: WG

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide			WO#: MGJ221AR-MS/MGJ221AT-MSD MS Lot-Sample #: A1D050441-007				
	106	(80 - 120)			MCAWW 300.0A	04/05/11	1096316
	104	(80 - 120)	1.3	(0-20)	MCAWW 300.0A	04/05/11	1096316
			Dilution Factor: 1				
Chloride			WO#: MGJ221AM-MS/MGJ221AN-MSD MS Lot-Sample #: A1D050441-007				
	112	(80 - 120)			MCAWW 300.0A	04/05/11	1096314
	110	(80 - 120)	1.2	(0-20)	MCAWW 300.0A	04/05/11	1096314
			Dilution Factor: 1				
Fluoride			WO#: MGJ221AK-MS/MGJ221AL-MSD MS Lot-Sample #: A1D050441-007				
	109	(80 - 120)			MCAWW 300.0A	04/05/11	1096312
	109	(80 - 120)	0.47	(0-20)	MCAWW 300.0A	04/05/11	1096312
			Dilution Factor: 1				
Nitrate as N			WO#: MGJ221AU-MS/MGJ221AV-MSD MS Lot-Sample #: A1D050441-007				
	107	(80 - 120)			MCAWW 300.0A	04/05/11	1096317
	107	(80 - 120)	0.29	(0-20)	MCAWW 300.0A	04/05/11	1096317
			Dilution Factor: 1				
Nitrite as N			WO#: MGJ221AP-MS/MGJ221AQ-MSD MS Lot-Sample #: A1D050441-007				
	107	(80 - 120)			MCAWW 300.0A	04/05/11	1096315
	105	(80 - 120)	1.7	(0-20)	MCAWW 300.0A	04/05/11	1096315
			Dilution Factor: 1				
Phosphate as P, Ortho			WO#: MGJ2A1AK-MS/MGJ2A1AL-MSD MS Lot-Sample #: A1D050441-001				
	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
			Dilution Factor: 1				
Phosphate as P, Ortho			WO#: MGJ221A0-MS/MGJ221A1-MSD MS Lot-Sample #: A1D050441-007				
	162 N	(80 - 120)			MCAWW 300.0A	04/06/11	1097318
	174 N	(80 - 120)	7.5	(0-20)	MCAWW 300.0A	04/06/11	1097318
			Dilution Factor: 1				
Sulfate			WO#: MGJ221AW-MS/MGJ221AX-MSD MS Lot-Sample #: A1D050441-007				
	114	(80 - 120)			MCAWW 300.0A	04/05/11	1096318
	113	(80 - 120)	0.57	(0-20)	MCAWW 300.0A	04/05/11	1096318
			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 #...: A1D050441

Matrix.....: WG

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide									
WO#: MGJ221AR-MS/MGJ221AT-MSD MS Lot-Sample #: A1D050441-007									
	ND	10.0	10.6	mg/L	106		MCAWW 300.0A	04/05/11	1096316
	ND	10.0	10.4	mg/L	104	1.3	MCAWW 300.0A	04/05/11	1096316
Dilution Factor: 1									
Chloride									
WO#: MGJ221AM-MS/MGJ221AN-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Fluoride									
WO#: MGJ221AK-MS/MGJ221AL-MSD MS Lot-Sample #: A1D050441-007									
	0.24	2.5	3.0	mg/L	109		MCAWW 300.0A	04/05/11	1096312
	0.24	2.5	3.0	mg/L	109	0.47	MCAWW 300.0A	04/05/11	1096312
Dilution Factor: 1									
Nitrate as N									
WO#: MGJ221AU-MS/MGJ221AV-MSD MS Lot-Sample #: A1D050441-007									
	1.4	2.5	4.1	mg/L	107		MCAWW 300.0A	04/05/11	1096317
	1.4	2.5	4.1	mg/L	107	0.29	MCAWW 300.0A	04/05/11	1096317
Dilution Factor: 1									
Nitrite as N									
WO#: MGJ221AP-MS/MGJ221AQ-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGJ2A1AK-MS/MGJ2A1AL-MSD MS Lot-Sample #: A1D050441-001									
	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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGJ221A0-MS/MGJ221A1-MSD MS Lot-Sample #: A1D050441-007									
	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
Dilution Factor: 1									
Sulfate									
WO#: MGJ221AW-MS/MGJ221AX-MSD MS Lot-Sample #: A1D050441-007									
	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	MCAWW 300.0A	04/05/11	1096318
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 EVALUATION REPORT

General Chemistry

Client Lot #...: A1D050441

Matrix.....: WG

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	106	Work Order #...: MGJ221AR (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/05/11	1096316
Chloride	112	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 #...: MGJ221AK (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-001 04/06/11	1097318
Phosphate as P, Ortho	162 N	Work Order #...: MGJ221A0 (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/06/11	1097318
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

The test results in this report relate only to the samples in this report and meet all requirements of NELAP, 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.

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com



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 control 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 ogerating 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 / Qualifierg		Reporting g Limitg	Unitsg	Methodg
280-14464-1g	FWG-LL4MW-198C-0100-GFg					
BoronS		28S	JS	100S	ug/LS	6010BS
LithiumS		9.3S	JS	10S	ug/LS	6010BS
iO2, SilicaS		22000		500S	ug/LS	6010BS
UraniumS		0.054S	J BS	1.0S	ug/LS	6020S
280-14464-2g	FWG-LL4MW-195C-0070-GFg					
BoronS		41S	JS	100S	ug/LS	6010BS
LithiumS		21S		10S	ug/LS	6010BS
iO2, SilicaS		21000		500S	ug/LS	6010BS
UraniumS		0.97S	J BS	1.0S	ug/LS	6020S
280-14464-3g	FWG-LL4MW-196C-0080-GFg					
BoronS		24S	JS	100S	ug/LS	6010BS
LithiumS		5.4S	JS	10S	ug/LS	6010BS
iO2, SilicaS		15000		500S	ug/LS	6010BS
UraniumS		0.12S	J BS	1.0S	ug/LS	6020S
280-14464-4g	FWG-LL4MW-197C-0090-GFg					
BoronS		28S	JS	100S	ug/LS	6010BS
LithiumS		3.8S	JS	10S	ug/LS	6010BS
iO2, SilicaS		12000		500S	ug/LS	6010BS
UraniumS		1.5S	BS	1.0S	ug/LS	6020S
280-14464-5g	FWG-LL4MW-199C-0110-GFg					
BoronS		27S	JS	100S	ug/LS	6010BS
LithiumS		11S		10S	ug/LS	6010BS
iO2, SilicaS		19000		500S	ug/LS	6010BS
UraniumS		0.20S	J BS	1.0S	ug/LS	6020S

METHOD SUMMARY

Client: TestAmerica Laboratories, Inc.

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

Description	Lab Location	Method	Preparation Method
Matrix: m Water			
Metals (ICP)	AL DEN	SW846 6010BS	
Preparation, Total Metals	TAL DEN		W846 3010AS
Metals (ICP/MS)	TAL DEN	W846 6020S	
Preparation, Total Metals	TAL DEN		W846 3020AS

Lab References:

AL 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.S

Job Number: 280-14464-1S
dg Number: A1D050441S

Method	analyst	analyst 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

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time received
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

Analytical Data(

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1
Sdg Number: A1D050441S**Client Sample ID:(FWG-LL4MW-198C-0100-GF(**Lab Sample ID:S 280-14464-1S
Client Matrix:S WaterSDate Sampled: 04/04/2011 1522S
Date Received: 04/11/2011 1000S**6010B 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 mL
Analysis Date:S	04/15/2011 1655S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 0730S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
BoronS	28S	JS	4.4S	100S
LithiumS	9.3S	JS	2.6S	10S
MolybdenumS	NDS		3.1S	20S
iO2, SilicaS	22000S		74	500S

6020 Metals (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	210AREF.DS
Dilution:S	1.0S			Initial Weight/Volume:S	50 mL
Analysis Date:S	04/16/2011 0452S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 1530S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
UraniumS	0.054S	J BS	0.020S	1.0S

Analytical Data(

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1

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 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 mL
Analysis Date:S	04/15/2011 1704S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 0730S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
BoronS	41S	JS	4.4S	100S
LithiumS	21S		2.6S	10S
MolybdenumS	NDS		3.1S	20S
iO2, SilicaS	21000S		74	500S

6020 Metals (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 mL
Analysis Date:S	04/16/2011 0506S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 1530S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
UraniumS	0.97S	J BS	0.020S	1.0S

Analytical Data(

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1

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 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 mL
Analysis Date:S	04/15/2011 1707S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 0730S				

AnalyteS	Result (ug/L)S	QualifierS	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 Metals (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	216SMPL.DS
Dilution:S	1.0S			Initial Weight/Volume:S	50 mL
Analysis Date:S	04/16/2011 0509S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 1530S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
UraniumS	0.12S	J BS	0.020S	1.0S

Analytical Data(

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1

Sdg Number: A1D050441S

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

Lab Sample ID:S 280-14464-4S

Date Sampled: 04/04/2011 1235S

Client Matrix:S WaterS

Date Received: 04/11/2011 1000S

6010B 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 mL
Analysis Date:S	04/15/2011 1718S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 0730S				

AnalyteS	Result (ug/L)S	QualifierS	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 Metals (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 mL
Analysis Date:S	04/16/2011 0517S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 1530S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
UraniumS	1.5S	BS	0.020S	1.0S

Analytical Data(

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1

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 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 mL
Analysis Date:S	04/15/2011 1720S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 0730S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
BoronS	27S	JS	4.4S	100S
LithiumS	11S		2.6S	10S
MolybdenumS	NDS		3.1S	20S
iO2, SilicaS	19000S		74	500S

6020 Metals (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 mL
Analysis Date:S	04/16/2011 0520S			Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 1530S				

AnalyteS	Result (ug/L)S	QualifierS	MDLS	RLS
UraniumS	0.20S	J BS	0.020S	1.0S

Quality Control Results2

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1S

dg Number: A1D050441S

QC Association Summary2

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

TestAmerica Denver2

Quality Control Results2

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1S
dg Number: A1D050441S

QC Association Summary2

Lab Sample ID2	lient Sample ID2	Report2 Basis2	lient Matrix2	Method2	Prep Batch
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Report Basis2
= 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 mL
Analysis Date:S	04/15/2011 1651S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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 mL
Analysis Date:S	04/15/2011 1653S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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 mL
Analysis Date:S	04/15/2011 1702S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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 Results

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 mL
Analysis Date:S	04/15/2011 1657S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 0730S				
Leach Date:S	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

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 mL
Analysis Date:S	04/15/2011 1700S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
Prep Date:S	04/15/2011 0730S				
Leach Date:S	N/AS				

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	
iO2, SilicaS	22000S	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

Lab Sample ID:S	MB 280-61885/1-AS	Analysis Batch:S	280-62706S	Instrument ID:S	MT_024S
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 mL
Analysis Date:S	04/16/2011 0447S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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 mL
Analysis Date:S	04/16/2011 0449S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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 mL
Analysis Date:S	04/16/2011 0458S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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	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 mL
Analysis Date:S	04/16/2011 0503S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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 Results03

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14464-1S
dg Number: A1D050441S

Serial Dilution - 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	211SDIL.DS
Dilution:S	5.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mL
Analysis Date:S	04/16/2011 0455S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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
Dilution:S	1.0S	Leach Batch:S	N/AS	Initial Weight/Volume:S	50 mL
Analysis Date:S	04/16/2011 0500S	Units:S	ug/LS	Final Weight/Volume:S	50 mL
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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
P:3010AS	280-14464-A-1-A SD S ^5S		280-62690S	280-61884S	04/15/2011 07:30S	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 04:55S	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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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	

Client: TestAmerica Laboratories, Inc.S

Job Number: 280-14464-1
SDG: A1D050441S

Laboratory Chronicle8

Lab ID:8 MB8

Client ID: N/A8

Sample Date/Time:S N/AS

Received Date/Time:S N/AS

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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

Client ID: N/A8

Sample Date/Time:S N/AS

Received Date/Time:S N/AS

Method8	Bottle ID8	Run8	Analysis 8		Date Prepared / 8		Dil8	Lab8	Analyst8
			Batch8	Prep Batch8	Analyzed8				
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
FWG-LL4MW-198C-0100-GF
FWG-LL4MW-195C-0070-GF
FWG-LL4MW-196C-0080-GF
FWG-LL4MW-197C-0090-GF
FWG-LL4MW-199C-0110-GF

ab Sample IDc
280-14464-1
280-14464-2
280-14464-3
280-14464-4
280-14464-5 c

Comments:c

1A-INr
INORGANIC ANALYSIS DATA SHEETr
METALSr

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	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

1A-INr
INORGANIC ANALYSIS DATA SHEETr
METALSr

lient Sample ID:r FWG-LL4MW-195C-0070-GFr	Lab Sample ID: r 280-14464-2r
Lab Name:r TestAmerica Denver	Job No.:r 280-14464-1r
SDG ID.:r A1D050441r	
Matrix:r Water	Date Sampled:r 04/04/2011 16:05r
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	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

1A-INr
INORGANIC ANALYSIS DATA SHEETr
METALSr

lient Sample ID:r FWG-LL4MW-196C-0080-GFr	Lab Sample ID: r 280-14464-3r
Lab Name:r TestAmerica Denver	Job No.:r 280-14464-1r
SDG ID.:r A1D050441r	
Matrix:r Water	Date Sampled:r 04/04/2011 14:11r
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	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

1A-INr
INORGANIC ANALYSIS DATA SHEETr
METALSr

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

1A-INr
INORGANIC ANALYSIS DATA SHEETr
METALSr

lient Sample ID:r FWG-LL4MW-199C-0110-GFr	Lab Sample ID: r 280-14464-5r
Lab Name:r TestAmerica Denver	Job No.:r 280-14464-1r
SDG ID.:r A1D050441r	
Matrix:r Water	Date Sampled:r 04/04/2011 13:33r
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	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

2A-INmE
CALIBRATION VERIFICATIONSmE
METALSmE

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

AnalyteE	ICV 280-62690/8 04/15/2011 09:39E				ICV 280-62690/9 04/15/2011 09:42E				CCV 280-62690/51 04/15/2011 16:44E			
	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

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

Italicized analytes were not requested for this sequence.mE

2A-INmE
CALIBRATION VERIFICATIONSmE
METALSmE

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

AnalyteE	CCV 280-62690/63 04/15/2011 17:11E				CCV 280-62690/76 04/15/2011 17:41E							
	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, Silica	10300E		10700E	96E	10400E		10700E	98E				

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

Italicized analytes were not requested for this sequence.mE

2A-INmE
CALIBRATION VERIFICATIONSmE
METALSmE

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

AnalyteE	ICV 280-62706/4 04/15/2011 19:28E				ICV 280-62706/6 04/15/2011 19:33E				CCV 280-62706/18 04/15/2011 20:06E			
	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

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

Italicized analytes were not requested for this sequence.mE

2A-INmE
CALIBRATION VERIFICATIONSmE
METALSmE

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

AnalyteE	CCV 280-62706/164 04/16/2011 04:41E				CCV 280-62706/175 04/16/2011 05:12E				CCV 280-62706/186 04/16/2011 05:42E			
	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

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

2B-INmT
CRQL CHECK STANDARDmT
METALS mT

Lab Name: T estAmerica Denver Job No.: T 280-14464-1
 SDG No.: T A1D050441
 Method: T 6010BT Instrument ID: T MT_025
 Lab Sample ID: T CRI 280-62690/14 Concentration Units: T ug/L
 CRQL Check Standard Source: T ICP RL STD_00348

Analyte	CRQL Check Standard				
	rue	Found	Qualifiers	%R(1)	Limits
Boron	100	104		104	50-150
Lithium	10.0	10.7		107	50-150
Molybdenum	10.0	10.2	JT	102	50-150
SiO ₂ , Silica	1070	1060	JT	99	50-150

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

FORM IIB-INmT

2B-INmT
CRQL CHECK STANDARDmT
METALS mT

Lab Name: T estAmerica Denver T Job No.: T 280-14464-1 T
SDG No.: T A1D050441 T
Method: T 6020 T Instrument ID: T MT_024 T
Lab Sample ID: T CRI 280-62706/10 T Concentration Units: T ug/L T
CRQL Check Standard Source: T MS RL STD_00326 T

Analyte	CRQL Check Standard				
	rue	Found	Qualifiers	%R(1)	Limits
Uranium	1.00	1.01		101	50-150

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

FORM IIB-INmT

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

Analyte2	RL2	ICB 280-62690/13 04/15/2011 09:542		CCB 280-62690/5 04/15/2011 16:462		CCB 280-62690/64 04/15/2011 17:132		CCB 280-62690/772 04/15/2011 17:432	
		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, Silica	11002	ND2		ND2		ND2		ND2	

Italicized analytes were not requested for this sequence.2

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

Analyte2	RL2	ICB 280-62706/9 04/15/2011 19:42		CCB 280-62706/202 04/15/2011 20:112		CCB 280-62706/1652 04/16/2011 04:442		CCB 280-62706/1762 04/16/2011 05:142	
		Found2	C2	Found2	C2	Found2	C2	Found2	C2
Uranium	1.02	ND2		0.04372		0.06902		0.05472	

Italicized analytes were not requested for this sequence.2

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

Analyte2	RL2	CCB 280-62706/1872 04/16/2011 05:452							
		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: 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.:t 280-14464-1t

SDG No.:t A1D050441t

Concentration Units: ug/Lt

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

4A-INv
INTERFERENCE CHECK STANDARDv
METALSv

Lab Name:v TestAmerica Denver 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

Analytev	Truev Solution ABv	Foundv Solution ABv	Percentv Recoveryv
Boron	2000	1818	1
Lithium	1000	1032	103
Molybdenum	1000	11	1
SiO2, Silica	21400	20802	7
<i>AluminumL</i>	<i>500000L</i>	<i>507520L</i>	<i>102L</i>
<i>AntimonyL</i>	<i>1000L</i>	<i>965L</i>	<i>97L</i>
<i>ArsenicL</i>	<i>2000L</i>	<i>1958L</i>	<i>98L</i>
<i>BariumL</i>	<i>500L</i>	<i>488L</i>	<i>98L</i>
<i>BerylliumL</i>	<i>500L</i>	<i>471L</i>	<i>94L</i>
<i>BismuthL</i>	<i>1000L</i>	<i>1059L</i>	<i>106L</i>
<i>CadmiumL</i>	<i>1000L</i>	<i>1023L</i>	<i>102L</i>
<i>CalciumL</i>	<i>500000L</i>	<i>457890L</i>	<i>92L</i>
<i>ChromiumL</i>	<i>500L</i>	<i>475L</i>	<i>95L</i>
<i>CobaltL</i>	<i>500L</i>	<i>454L</i>	<i>91L</i>
<i>CopperL</i>	<i>500L</i>	<i>534L</i>	<i>107L</i>
<i>IronL</i>	<i>200000L</i>	<i>186780L</i>	<i>93L</i>
<i>LeadL</i>	<i>1000L</i>	<i>891</i>	<i>89L</i>
<i>MagnesiumL</i>	<i>500000L</i>	<i>479720L</i>	<i>96L</i>
<i>ManganeseL</i>	<i>500L</i>	<i>484L</i>	<i>97L</i>
<i>NickelL</i>	<i>1000L</i>	<i>893L</i>	<i>89L</i>
<i>PhosphorusL</i>	<i>2000L</i>	<i>1871L</i>	<i>94L</i>
<i>PotassiumL</i>	<i>50000L</i>	<i>50456L</i>	<i>101L</i>
<i>SeleniumL</i>	<i>5000L</i>	<i>4665L</i>	<i>93L</i>
<i>SiliconL</i>	<i>10000L</i>	<i>9721L</i>	<i>97L</i>
<i>SilverL</i>	<i>1000L</i>	<i>1071L</i>	<i>107L</i>
<i>SodiumL</i>	<i>50000L</i>	<i>52252L</i>	<i>105L</i>
<i>StrontiumL</i>	<i>1000L</i>	<i>956L</i>	<i>96L</i>
<i>ThalliumL</i>	<i>10000L</i>	<i>8279L</i>	<i>83L</i>
<i>ThoriumL</i>	<i>2000L</i>	<i>2019L</i>	<i>101L</i>
<i>TinL</i>	<i>10000L</i>	<i>8783L</i>	<i>88L</i>
<i>TitaniumL</i>	<i>1000L</i>	<i>969L</i>	<i>97L</i>
<i>VanadiumL</i>	<i>500L</i>	<i>485L</i>	<i>97L</i>
<i>ZincL</i>	<i>1000L</i>	<i>938L</i>	<i>94L</i>
<i>ZirconiumL</i>	<i>1000L</i>	<i>955L</i>	<i>95L</i>

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

FORM IVA-INmv

4A-INv
INTERFERENCE CHECK STANDARDv
METALSv

Lab Name:v TestAmerica Denver 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

Analytev	Truev Solution Av	Foundv 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	91L
ChromiumL		2.79L	
CobaltL		-1.52L	
CopperL		7.10L	
IronL	200000L	184780L	92L
LeadL		-5.41	
MagnesiumL	500000L	473400L	95L
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	

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

FORM IVA-INmv

4A-INv
INTERFERENCE CHECK STANDARDv
METALSv

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

Analytev	Truev Solution Av	Foundv Solution Av	Percentv Recoveryv
Uranium		0.0066	
<i>AntimonyL</i>		<i>0.286L</i>	
<i>ArsenicL</i>		<i>0.252L</i>	
<i>BariumL</i>		<i>0.169L</i>	
<i>BerylliumL</i>		<i>0.0126L</i>	
<i>CadmiumL</i>		<i>0.370L</i>	
<i>ChromiumL</i>		<i>2.74L</i>	
<i>CobaltL</i>		<i>0.0311L</i>	
<i>CopperL</i>		<i>0.235L</i>	
<i>LeadL</i>		<i>0.130</i>	
<i>ManganeseL</i>		<i>0.597L</i>	
<i>MolybdenumL</i>	<i>2000L</i>	<i>2213L</i>	<i>111L</i>
<i>NickelL</i>		<i>1.05L</i>	
<i>SeleniumL</i>		<i>0.0647L</i>	
<i>SilverL</i>		<i>0.0929L</i>	
<i>ThalliumL</i>		<i>0.0405L</i>	
<i>ThoriumL</i>		<i>0.947L</i>	
<i>TinL</i>		<i>0.168L</i>	
<i>VanadiumL</i>		<i>0.165L</i>	
<i>ZincL</i>		<i>1.50L</i>	

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

FORM IVA-INmv

4A-INv
INTERFERENCE CHECK STANDARDv
METALSv

Lab Name:v TestAmerica Denver 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

Analyte	True	Found	
	Solution AB	Solution AB	Percent Recovery
Uranium	100	104	104
<i>AntimonyL</i>	<i>100L</i>	<i>98.5L</i>	<i>99L</i>
<i>ArsenicL</i>	<i>100L</i>	<i>102L</i>	<i>102L</i>
<i>BariumL</i>	<i>100L</i>	<i>106L</i>	<i>106L</i>
<i>BerylliumL</i>	<i>100L</i>	<i>92.4L</i>	<i>92L</i>
<i>CadmiumL</i>	<i>100L</i>	<i>95.5L</i>	<i>95L</i>
<i>ChromiumL</i>	<i>100L</i>	<i>111L</i>	<i>111L</i>
<i>CobaltL</i>	<i>100L</i>	<i>103L</i>	<i>103L</i>
<i>CopperL</i>	<i>100L</i>	<i>90.4L</i>	<i>90L</i>
<i>LeadL</i>	<i>100L</i>	<i>93.2</i>	<i>93L</i>
<i>ManganeseL</i>	<i>100L</i>	<i>103L</i>	<i>102L</i>
<i>MolybdenumL</i>	<i>2100L</i>	<i>2317L</i>	<i>110L</i>
<i>NickelL</i>	<i>100L</i>	<i>95.7L</i>	<i>96L</i>
<i>SeleniumL</i>	<i>100L</i>	<i>103L</i>	<i>103L</i>
<i>SilverL</i>	<i>100L</i>	<i>87.9L</i>	<i>88L</i>
<i>ThalliumL</i>	<i>100L</i>	<i>95.8L</i>	<i>96L</i>
<i>ThoriumL</i>	<i>100L</i>	<i>118L</i>	<i>118L</i>
<i>TinL</i>	<i>100L</i>	<i>104L</i>	<i>104L</i>
<i>VanadiumL</i>	<i>100L</i>	<i>114L</i>	<i>114L</i>
<i>ZincL</i>	<i>100L</i>	<i>96.8L</i>	<i>97L</i>

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

FORM IVA-INmv

4A-INv
INTERFERENCE CHECK STANDARDv
METALSv

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

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

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

FORM IVA-INmv

4A-INv
INTERFERENCE CHECK STANDARDv
METALSv

Lab Name:v TestAmerica Denver 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

Analyte	True	Found	
	Solution AB	Solution AB	Percent Recovery
Uranium	100	103	103
<i>AntimonyL</i>	<i>100L</i>	<i>98.1L</i>	<i>98L</i>
<i>ArsenicL</i>	<i>100L</i>	<i>103L</i>	<i>103L</i>
<i>BariumL</i>	<i>100L</i>	<i>105L</i>	<i>105L</i>
<i>BerylliumL</i>	<i>100L</i>	<i>94.6L</i>	<i>95L</i>
<i>CadmiumL</i>	<i>100L</i>	<i>94.4L</i>	<i>94L</i>
<i>ChromiumL</i>	<i>100L</i>	<i>112L</i>	<i>112L</i>
<i>CobaltL</i>	<i>100L</i>	<i>104L</i>	<i>104L</i>
<i>CopperL</i>	<i>100L</i>	<i>92.0L</i>	<i>92L</i>
<i>LeadL</i>	<i>100L</i>	<i>92.4</i>	<i>92L</i>
<i>ManganeseL</i>	<i>100L</i>	<i>105L</i>	<i>105L</i>
<i>MolybdenumL</i>	<i>2100L</i>	<i>2346L</i>	<i>112L</i>
<i>NickelL</i>	<i>100L</i>	<i>97.5L</i>	<i>98L</i>
<i>SeleniumL</i>	<i>100L</i>	<i>103L</i>	<i>103L</i>
<i>SilverL</i>	<i>100L</i>	<i>86.0L</i>	<i>86L</i>
<i>ThalliumL</i>	<i>100L</i>	<i>95.9L</i>	<i>96L</i>
<i>ThoriumL</i>	<i>100L</i>	<i>117L</i>	<i>117L</i>
<i>TinL</i>	<i>100L</i>	<i>102L</i>	<i>102L</i>
<i>VanadiumL</i>	<i>100L</i>	<i>114L</i>	<i>114L</i>
<i>ZincL</i>	<i>100L</i>	<i>96.3L</i>	<i>96L</i>

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

FORM IVA-INmv

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 : C:	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:
SiO ₂ , 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.:

FORM VA - IN:

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 : C:	Sample: Result (SR) : C:	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.:

FORM VB - IN:

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	ontrol 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 .

Lab Name:.. TestAmerica Denver.

Job No.:. 280-14464-1.

Sample Matrix:.. Water.

LCS Source:.. ICP SPK 2A_00024.

Analyte.	Water(ug/L) .						
	True.	Found.		%R.	Limits.	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.O

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.

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

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

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 Sample/ Result (I)/ C/		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/

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

FORM VIII-IN:/

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/

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

FORM VIII-IN:/

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	500x	74.3x

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 280-14464-1x

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

10-IN
ICP-AES INTERELEMENT CORRECTION FACTORS
METALSJ

Lab Name: TestAmerica DenverJ ob Number: 280-14464-1J

SDG No.: A1D050441

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

naLyteJ	Wave Length	AgJ	1J	sJ	BJ	BaJ	BeJ	BiJ	CaJ	CdJ	CoJ	CrJ	CuJ	FeJ	KJ
luminumJ	167.079													0.001408	
luminumJ	309.271													0.001655	
ntimony	206.833J		0.000023									0.004302		0.000030	
rsenicJ	189.042				0							0.014240			
BariumJ	455.403														
BerylliumJ	313.042														
BismuthJ	223.061											0.002290			
BoronJ	208.959														
CadmiumJ	228.802J			0.002543							-0.004118				
CalciumJ	317.933														
ChromiumJ	205.552						-0.002169								
CobaltJ	228.616														
CopperJ	324.754														
IronJ	259.940										0.070287				
IronJ	271.441										0.070287				
LeadJ	220.353J		0.000058										0.000146	0.000018	
LithiumJ	670.784								0.000009						
MagnesiumJ	279.079														
ManganeseJ	257.610														
MolybdenumJ	202.030														
NickelJ	231.604														
PhosphorusJ	178.284														
PotassiumJ	766.490														
SeleniumJ	196.090J		0.000032											0.000009	
SiliconJ	288.158											-0.002611			
SilverJ	328.068														
SodiumJ	589.592														
SodiumJ	818.326														
StrontiumJ	407.771								0.000009						
Sulfur	182.034														

10-IN
ICP-AES INTERELEMENT CORRECTION FACTORS
METALSJ

Lab Name: TestAmerica DenverJ ob Number: 280-14464-1J

SDG No.: A1D050441

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

naLyteJ	Wave Length	AgJ	lJ	sJ	BJ	BaJ	BeJ	BiJ	CaJ	CdJ	CoJ	CrJ	CuJ	FeJ	KJ
ThalliumJ	190.856										0.003800	0.000241			
ThoriumJ	283.730									-0.000516		0.000240		0.000729	
TinJ	189.989														
TitaniumJ	334.904											0.000169			
UraniumJ	370.152				0.001088				0.000107			0.001869		0.000215	
VanadiumJ	292.402											-0.006569			
ZincJ	206.200											-0.000710			
Zirconium	339.198														

10-IN
ICP-AES INTERELEMENT CORRECTION FACTORS
METALSJ

Lab Name: TestAmerica DenverJ ob Number: 280-14464-1J

SDG No.: A1D050441

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

naLyteJ	Wave Length	LiJ	MgJ	MnJ	MoJ	NaJ	NiJ	PJ	PbJ	SJ	SbJ	SeJ	SiJ	SnJ	StrJ
AluminumJ	309.271														
AluminumJ	167.079														
Antimony	206.833				-0.000868										
AsenicJ	189.042				0.001045										
BariumJ	455.403														
BerylliumJ	313.042														
BismuthJ	223.061														
BoronJ	208.959				0.021490										
CadmiumJ	228.802														
CalciumJ	317.933														
ChromiumJ	205.552						0.000151								
CobaltJ	228.616				-0.000837		0.000134								
CopperJ	324.754				0.000034										
IronJ	259.940J		0.000894												
IronJ	271.441J		0.000894												
LeadJ	220.353J			0	0.001805		0.000312						0.000071		
LithiumJ	670.784														
MagnesiumJ	279.079														
ManganeseJ	257.610														
MolybdenumJ	202.030														
NickelJ	231.604														
PhosphorusJ	178.284				-0.004187										
PotassiumJ	766.490														
SeleniumJ	196.090J			0.000750											
SiliconJ	288.158				-0.005077										
SilverJ	328.068J		0		0.000441										
SodiumJ	818.326														
SodiumJ	589.592														
StrontiumJ	407.771														
SulfurJ	182.034J			0.011200	-0.001874										

X-INJ

10-IN
ICP-AES INTERELEMENT CORRECTION FACTORS
METALSJ

Lab Name: TestAmerica DenverJ ob Number: 280-14464-1J

SDG No.: A1D050441

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

naLyteJ	Wave Length	LiJ	MgJ	MnJ	MoJ	NaJ	NiJ	PJ	PbJ	SJ	SbJ	SeJ	SiJ	SnJ	SrJ
ThalliumJ	190.856J			0.001027											
ThoriumJ	283.730						0.000237								
TinJ	189.989														
TitaniumJ	334.904J		0.000003		0.000571										
UraniumJ	370.152														
VanadiumJ	292.402J			0.000497											
ZincJ	206.200														
Zirconium	339.198														

10-IN
ICP-AES INTERELEMENT CORRECTION FACTORS
METALSJ

Lab Name: TestAmerica DenverJ ob Number: 280-14464-1J

SDG No.: A1D050441

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

nalYTEJ	Wave Length	ThJ	TiJ	TlJ	UJ	VJ	WJ	ZnJ	ZrJ								
luminumJ	167.079																
AluminumJ	309.271																
Antimony	206.833				-0.001780				0.001223								
rsenicJ	189.042																
BariumJ	455.403								0.001154								
BerylliumJ	313.042J		0.000204														
BismuthJ	223.061J		0.002704														
BoronJ	208.959																
CadmiumJ	228.802																
CalciumJ	317.933	-0.012260															
ChromiumJ	205.552	0.000058			0.000035												
CobaltJ	228.616J		0.001698														
CopperJ	324.754J	0.003266	-0.000326		0.001095	0.000656			0.000024								
IronJ	259.940					-0.209500											
IronJ	271.441					-0.209500											
LeadJ	220.353J		0.000719		0.000511				0.000476								
LithiumJ	670.784																
MagnesiumJ	279.079	-0.042580			-0.010166												
ManganeseJ	257.610																
MolybdenumJ	202.030																
NickelJ	231.604																
PhosphorusJ	178.284																
PotassiumJ	766.490																
SeleniumJ	196.090	-0.000849			-0.002406												
SiliconJ	288.158																
SilverJ	328.068	0.000067			0.001256				0.003534								
SodiumJ	589.592																
SodiumJ	818.326																
StrontiumJ	407.771																
SulfurJ	182.034					0.015870											

X-INJ

10-IN
ICP-AES INTERELEMENT CORRECTION FACTORS
METALSJ

Lab Name: TestAmerica DenverJ ob Number: 280-14464-1J

SDG No.: A1D050441

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

naLyteJ	Wave Length	ThJ	TiJ	TlJ	UJ	VJ	WJ	ZnJ	ZrJ							
ThalliumJ	190.856J		0.000398			0.000675										
ThoriumJ	283.730				0.021950				0.007938							
TinJ	189.989J		0.001001													
TitaniumJ	334.904	0.006042			-0.000536											
UraniumJ	370.152J		0.005239													
VanadiumJ	292.402J	0.001078	0.000574		-0.000661											
ZincJ	206.200															
Zirconium	339.198	0.065805														

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:g 04/12/2011 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 (mL) r	Final r Volumer (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

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: <u>62686-62700</u>		Earliest due date: <u>4/18/11</u>		
Run Date: <u>4/15/11</u>	Analyst: <u>JKH</u>	Instrument: <u>25</u>		
QC programs/Methods Run: <u>See Fun Logs</u>				
Review Items	Yes	No	N/A	2nd Level
A. Preparation/Matrix QC				
1. LCS done per prep batch and within QC limits?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
2. Method blank done per prep batch and < 1/2 RL or CRDL (CLP) or < 2.2x MDL 200.7?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
3. MS run at required frequency and within limits?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
4. MSD or DU run at required frequency and RPD within SOP limits?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
5. Serial dilution done per prep batch (or per SDG for CLP)?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
6. Post digest spike analyzed if required (CLP, DOD & AFCEE only)? NCM Whether needed for DODV3, AFCEE 4.0, 6010c?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
B. Calibration/Instrument Run QC				
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?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
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)?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
3. High Standard (HIGH) reanalyzed before samples and recovered within QC limits? (+5%)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
4. RL STD run and recovered within QC limits? ($\pm 50\%$ for non-CLP, $\pm 20\%$ for DoD V3 / AFCEE 4.0 / USACE)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
5. Was the LLICV/LLCCV analyzed at appropriate frequency for 6010C and within control (+30% or +20%)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
6. ICSA/ICSAB run at required frequency and within SOP limits? (ICSA < 2X MDL AFCEE 4.0, DOD V3 or < RL std work or < MDLV 6010C)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
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?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
2. Are all reported results bracketed by in control QC?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
D. Other				
1. Are all nonconformances documented appropriately?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
2. Calculations checked for errors?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
3. Transcriptions checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
4. All client/project specific requirements met?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
5. Date/time of analysis verified as correct?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
6. PDF attached, verified uncorrupted?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>

Analyst: JKHDate: 4/18/11

Comments: _____

2nd Level Reviewer: [Signature]Date: 4/18/11

Comments: _____

TestAmerica Denver

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-000262706-6020 water
62711-soilTestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Review Items	Level 1			Level 2	Comments & Samples Affected
	Yes	No	N/A		
Tune					
1. Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8?	✓			✓	
2. Tune RSD <5%?	✓			✓	
2. Resolution ≤ 0.9 AMU full width at 10% peak height? NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height	✓			✓	
Initial Calibration					
1. 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?	✓			✓	
3. 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					
1. Were all samples within linear range, ≤ 90% of LDR for 200.8?	✓			✓	
2. Dilutions due to target elements? Dilutions for other reasons? ✓	✓			✓	
3. All reported results bracketed by in control QC?	✓			✓	
4. All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%?	✓			✓	
5. Was a 5X serial dilution analyzed for 6020 and, if so, are results ± 10% of original result, if original ≥ 100x MDL?	✓			✓	
6. LCS included in batch and within QC limits?	✓			✓	
7. Method blank included and <1/2RL?	✓			✓	
8. MS and MSD included in batch?	✓			✓	
9. PDS analyzed and recovery 75-125%?	✓			✓	
10. 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: [Signature]Date: 4/19/112nd Level Reviewer: [Signature]Date: 4/19/11

METALS BATCH WORKSHEET

Lab Name: TestAmerica Denver

ob No.:6 280-14464-16

SDG No.: A1D050441

Batch Number:6 18846

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

Batch Analyst: Niman, Katie M

Batch Method:6 3010A6

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

Lab Sample ID6	Client Sample ID6	Method Chain6	Basis6	Initial pH6	InitialAmount6	FinalAmount6	ICP SPK 2A 000246	ICP SPK 3A 00026
MB 280-61884/16		3010A, 6010B6			50 mL	50 mL		
LCS 280-61884/26		3010A, 6010B			50 mL	50 mL	0.5 mL	0.5 mL
280-14464-A-16	FWG-LL4MW-198C-0 100-GF6	3010A, 6010B6	T6	<26	50 mL	50 mL		
280-14464-A-1	FWG-LL4MW-198C-0 100-GF6	3010A, 6010B6	T6	<26	50 mL	50 mL		
DU6	100-GF6							
280-14464-A-1	FWG-LL4MW-198C-0 100-GF6	3010A, 6010B6	T6	<26	50 mL	50 mL	0.5 mL	0.5 mL
MS6	100-GF6							
280-14464-A-26	FWG-LL4MW-195C-0 070-GF6	3010A, 6010B6	T6	<26	50 mL	50 mL		
280-14464-A-36	FWG-LL4MW-196C-0 080-GF6	3010A, 6010B6	T6	<26	50 mL	50 mL		
280-14464-A-46	FWG-LL4MW-197C-0 090-GF6	3010A, 6010B6	T6	<26	50 mL	50 mL		
280-14464-A-56	FWG-LL4MW-199C-0 110-GF6	3010A, 6010B6	T	<26	50 mL	50 mL		

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	KMN6
ID number of the thermometer6	9080015586
Digestion Tube/Cup Lot #6	10101916
Uncorrected Temperature6	95 Degrees C
Uncorrected Temperature 26	95 Degrees C6

Basis6	Basis Description
T6	Total/NA6

METALS BATCH WORKSHEET

Lab Name: TestAmerica Denver

ob No.:6 280-14464-16

SDG No.: A1D050441

Batch Number:6 18856

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

Batch Analyst: Mooney, Joseph C

Batch Method:6 3020A6

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

Lab Sample ID6	Client Sample ID6	Method Chain6	Basis6	Initial pH6	InitialAmount6	FinalAmount6	MS CALSTD-1 000376	MS CALSTD-2 00036
MB 280-61885/16		3020A, 60206			50 mL	50 mL		
LCS 280-61885/26		3020A, 6020			50 mL6	50 mL6	0.1 mL6	0.1 mL
280-14464-A-16	FWG-LL4MW-198C-0 100-GF6	3020A, 60206	T6	<26	50 mL6	50 mL		
280-14464-A-1	FWG-LL4MW-198C-0 100-GF6	3020A, 60206	T6	<26	50 mL6	50 mL		
DU6	100-GF6							
280-14464-A-1	FWG-LL4MW-198C-0 100-GF6	3020A, 60206	T6	<26	50 mL6	50 mL6	0.1 mL6	0.1 mL
MS6	100-GF6							
280-14464-A-26	FWG-LL4MW-195C-0 070-GF6	3020A, 60206	T6	<26	50 mL6	50 mL		
280-14464-A-36	FWG-LL4MW-196C-0 080-GF6	3020A, 60206	T6	<26	50 mL6	50 mL		
280-14464-A-46	FWG-LL4MW-197C-0 090-GF6	3020A, 60206	T6	<26	50 mL6	50 mL		
280-14464-A-56	FWG-LL4MW-199C-0 110-GF6	3020A, 60206	T	<26	50 mL6	50 mL		

Batch Notes6	
Lot # of Nitric Acid6	K090416
Hot Block ID number6	06
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

Basis6	Basis Description
T6	Total/NA6

Shipping and eceiving Documents

26°, 31°

Laboratory

TestAmerica Denver

4955 Yarrow Street

Arvada, CO

80002

Client Code: 1434673

TestAmerica Laboratories, Inc.
SAMPLE ANALYSIS REQUISITION

Lab Request

SR126369

Report Package:

Need Analytical Report

Expanded Deliverables

2011-04-19

Project Manager:

MARK LOEB

<u>Sample I.D.</u>	<u>Work Order Number</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Analysis Required</u>
A1D050441-2	MGJ2K	FWG-LL4mw-198C-0100-GF	2011-04-04 15:22	WATER, 6020, Uranium by ICP/MS (Denver)
A1D050441-2	MGJ2K	FWG-LL4mw-198C-0100-GF	2011-04-04 15:22	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D050441-4	MGJ2W	FWG-LL4mw-195C-0070-GF	2011-04-04 16:05	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D050441-4	MGJ2W	FWG-LL4mw-195C-0070-GF	2011-04-04 16:05	WATER, 6020, Uranium by ICP/MS (Denver)
A1D050441-6	MGJ20	FWG-LL4mw-196C-0080-GF	2011-04-04 14:11	WATER, 6020, Uranium by ICP/MS (Denver)
A1D050441-6	MGJ20	FWG-LL4mw-196C-0080-GF	2011-04-04 14:11	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D050441-8	MGJ24	FWG-LL4mw-197C-0090-GF	2011-04-04 12:35	WATER, 6020, Uranium by ICP/MS (Denver)
A1D050441-8	MGJ24	FWG-LL4mw-197C-0090-GF	2011-04-04 12:35	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D050441-10	MGJ26	FWG-LL4mw-199C-0110-GF	2011-04-04 13:33	WATER, 6020, Uranium by ICP/MS (Denver)
A1D050441-10	MGJ26	FWG-LL4mw-199C-0110-GF	2011-04-04 13:33	WATER, 6010B, Metals B Li Mo Si (Denver)

Please use **Client Sample ID** for report

Call MARK LOEB with questions at 330-497-9396

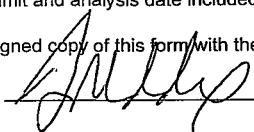
at the TAL North Canton Laboratory

Shipping Method:

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.

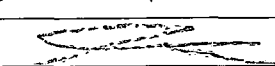
Relinquished by: 

Date/Time:

4/7/11 3:00pm

Relinquished by: _____

Date/Time: _____

Received for lab by: 

Date/Time:

4/8/11 10:00

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

END OF REPORT

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

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

June 23, 2011

TestAmerica Laboratories, Inc.

TestAmerica North Canton 4101 Shuffel Street NW, North Canton, OH 44720

Tel (330)497-9396 Fax (330)497-0772 www.testamericainc.com



CONTRACT LABORATORY DATA-REVIEW WORKSHEET**1.0 GENERAL INFORMATION**

Data reviewer: Gary Cottrell Review date: 6/27/11
Office, Project, & Account #: OK, Ravenna

2.0 DATA DELIVERABLES

Date of Lab analytical report: 6/23/11 Number of copies: bound 0 unbound 0
No. of CD copies of raw-data report: 2 Remarks: _____

Raw-data report reviewed? Yes ☒ No ☐ Electronic data files on CD? Yes ☒ No ☐

EDD file format: QWDATA ☐ 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): 4/5/11 Sample matrix: _____

No. of sample types in lot: Environmental 5 Trip blank _____ Equip. blank _____

MS/MSD _____ Other: _____

Date samples received at laboratory: 4/6/11

4.1 Were accelerated turn-around times (TATs) requested for analyses? Yes ☐ No ☒

If yes, list TAT period and if completed: _____

4.2 Were analyses on chain-of-custody (COC) form performed by lab? YES ☒ NO ☐

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: Yes ☒ No ☐

If no, list sample/lab IDs, and associated problems or reference lab report case narrative: _____

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 exceeded holding-time limits:

4.5 Did surrogate recoveries meet QC acceptance criteria? Yes ☐ No ☐ NA ☒

If **no**, list methods, surrogates, associated sample/lab IDs, lab report page #s: _____

4.6 Were dilution factors greater than 1 for **organic** analyses? Yes ☐ No ☐ NA ☒

If **yes**, list analytical methods and reason for raised dilution factors: dilution _____

high-analyte levels _____ matrix interferences _____ other _____

4.7 Were dilution factors greater than 1 for **inorganic** analyses? Yes ☒ No ☐ NA ☐

If **yes**, list analytical methods and reason for raised dilution factors:

high-analyte levels ☒ matrix interferences _____ other _____

SO₄ = X2; P19, 20

4.8 Additional comments about sample analyses: _____

5.0 QUALITY CONTROL (QC) ANALYSES and RESULTS5.1 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/LCSD) meet percent recoveries (%R) criteria? Yes ☒ No ☐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? Yes ☐ No ☒ 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 - Low Recovery - P31 + P35Ortho P - Low Recovery - P32 + P35Ortho P - High Recovery - P37 + P39U - High Recovery - P58NOTE: Cl spike P39 overwhelmed by sample concentration5.4 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: _____

6.0 ANALYTICAL METHODS USED in this LABORATORY LOT NUMBER

- _____ VOCs by GC/MS--method 8260B/ 524.2 [water (W) or solids (S) analysis holding-time (HT) of 14 days]
 _____ Gasoline Range Organics (GRO)+BTEX-method 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 GC--method 8081A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
 _____ PCBs by GC--method 8082 [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
 _____ Pesticides by GC--method 8141A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
 _____ Herbicides by GC--method 8151A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
 _____ SVOCs by GC/MS--method 8270C [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
 _____ Dioxins and Furans--methods 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 HT 14 days; analysis HT 40 days]
 _____ Explosives by HPLC method 8330 or 8321A [W: prep HT 7 days; S: prep HT 14 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]
 _____ Perchlorate--methods 314.0 or 6850 LC/MS/MS or 6860 IC/MS/MS [W: analysis HT 28 days]
 ✓ _____ Metals by ICP--method 6010B or 200.7 [W and S: analysis HT 180 days]
 _____ Metals by ICP/MS--method 6020 or 200.8 [W and S: analysis HT 180 days]
 _____ Mercury by CVAA--method 7470A (W) and 7471A (S) [W and S: analysis HT 28 days]
 ✓ _____ Inorganic anions-method 300/9056 [W: analysis HT **48 hours**- NO₂, NO₃, ortho-P; HT 28 days--Br, Cl, F, SO₄]
 _____ Total dissolved solids (TDS)--method 2540C and(or) TSS--method 2540D [W: analysis HT 7 days]
 _____ Alkalinity--method 310.1 (Total, OH, HCO₃, and CO₃) [W: analysis HT 14 days]
 ✓ _____ Nitrogen, ammonia--method ~~350.1~~ 350.2 [W: analysis HT 28 days]
 _____ Nitrogen, TKN--method 351.2 [W: analysis HT 28 days]
 _____ Nitrogen, nitrate + nitrite--method 353.2 [W: analysis HT 28 days] NO₃ or NO₂ only [HT **48 hours**]
 _____ Nitrogen, nitrite--method 353.2 or 354.1 [W: analysis HT **48 hours**]
 _____ Phosphorus-method 365.3 and ortho 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 amenable--methods 9012A/ 335.4 [W and S: analysis HT 14 days]
 _____ MBAS surfactants -- method 425.1 (**HT 48 hours**)
 _____ Moisture content--methods D2216 or 160.3M
 _____ 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
 _____ 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.

QC 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 reparation 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)

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

- 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 reparation 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 B	1.0	mg/L	MCAWW 300.0A
Phosphate as P, Ortho	0.25 B	0.50	mg/L	MCAWW 300.0A
FWGSCFMW-005-0190-GW 04/05/11 15:08 003				
Nitrogen, as Ammonia	2.8	2.0	mg/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 B	1.0	mg/L	MCAWW 300.0A
Phosphate as P, Ortho	0.22 B	0.50	mg/L	MCAWW 300.0A
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 B	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

METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A1D060449

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
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 DATE	SAMP TIME
MGLNF	001	FWGSCFMW-004-0180-GW	04/05/11	10:02
MGLQQ	003	FWGSCFMW-005-0190-GW	04/05/11	15:08
MGLQT	005	FWGLL1MW-081C-0010-GW	04/05/11	11:23
MGLQW	007	FWGLL1MW-082C-0020-GW	04/05/11	09:23
MGLQ0	009	FWGLL1MW-084C-0030-GW	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

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Canton

Regulatory program:

☐ DW☐ NPDES☐ RCRA☐ Other

TestAmerica Laboratories, Inc.

Client Contact		Client Project Manager:		Site Contact:		Lab Contact:		COC No:															
Company Name: U.S. Geological Survey		Ralph Haefner		Brian Mailot		Ken Kuzior		019552															
Address: 6480 Doubletree Ave.		Telephone: 614-430-7709		Telephone: 614-430-7747		Telephone: 330-966-9374		1 of 1 COCs															
City/State/Zip: Columbus, OH 43229		Email: rhaefner@usgs.gov		Analysis Turnaround Time (in BUS days) TAT if different from below <u>Contract</u> <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Analyses Metals 6010/6020 Anions/nutrients 300.0 Ammonia 350.1		For lab use only Sample Specific Notes / Special Instructions: Cooler #															
Phone: 614-430-7700																							
Project Name: Ravenna OH		Method of Shipment/Carrier: Lab pickup																					
Project Number: GRINJ00D5WZ100		Shipping/Tracking No:																					
PO #																							
Sample Identification		Sample Date	Sample Time	Matrix			Containers & Preservatives																
				Air	Aqueous	Sediment	Solid	Other	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other								
FWGSCFmw-004-018U-GW		4/5/11	10:02	X					X					X	NG	X	X	A300					
FWGSCFmw-004-018U-GF		4/5/11	10:02	X						X					YG	X		A300					
FWGSCFmw-005-019U-GW		4/5/11	15:08	X					X					X	NG		X	A300					
FWGSCFmw-005-019U-GF		4/5/11	15:08	X						X					YG	X		A300					
FWGLLI mw-081C-001U-GW		4/5/11	11:23	X					1					1	NG		X	A300					
FWGLLI mw-081C-001U-GF		4/5/11	11:23	X						1					YG	X		A300					
FWGLLI mw-082C-002U-GW		4/5/11	09:23	X					1					1	NG		X	A300					
FWGLLI mw-082C-002U-GF		4/5/11	09:23	X						1					YG	X		A300					
FWGLLI mw-084C-003U-GW		4/5/11	13:25	X					1					1	NG		X	A300					
FWGLLI mw-084C-003U-GF		4/5/11	13:25	X						1					YG	X		A300					
Possible Hazard Identification										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months													
Special Instructions/QC Requirements & Comments: Metals - Gold (B, Li, Mo, Si) 6020 (U) filtered Anions/nutrients - 300.0A (Br, Cl, F, SO4) nitrite, orthophosphate Nitrogen, ammonia - 350.1																							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:		Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	
Brian Mailot		USGS		4/5/11 18:33		KC 1/20		TAL-XIC		4/5/11 1833		KC 1/20		TAL-XIC		4/5/11 1833		JL Kujal		TAL-XIC		4/6/11 0700	

TestAmerica Cooler Receipt Form/Narrative North Canton Facility

Lot Number: 41D060449

Client US Geological Survey Project Ravenna By: [Signature]
Cooler Received on 4-6-11 Opened on 4-6-11 (Signature)

FedEx ☒ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☒ Other ☐
TestAmerica Cooler # A300 Multiple Coolers ☐ Foam Box ☐ Client Cooler ☐ Other ☐

1. Were custody seals on the outside of the cooler(s)? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
If YES, Quantity _____ Quantity Unsalvageable _____
Were custody seals on the outside of cooler(s) signed and dated? Yes ☒ No ☐ 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 ☒
 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 ☐ Other _____
 6. Cooler temperature upon receipt 1.8 °C See back of form for multiple coolers/temps ☐
METHOD: IR ☒ Other ☐
COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
 7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
 8. Could all bottle labels be reconciled with the COC? Yes ☒ No ☐
 9. 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 VOAs on the COC? Yes ☐ No ☒
- Contacted PM _____ Date _____ by _____ via Verbal ☐ Voice Mail ☐ Other ☐
Concerning _____

14. CHAIN OF CUSTODY

The following discrepancies occurred:

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in Sample Receiving to meet recommended pH level(s). Nitric Acid Lot# 100110-HNO₃; Sulfuric Acid Lot# 110410-H₂SO₄; Sodium Hydroxide Lot# 100108-NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot# 100108-(CH₃COO)₂ZN/NaOH. What time was preservative added to sample(s)? _____

Client ID	pH	Date	Initials
18U GW	12	4-6-11	[Signature]
19U	12		
001U	12		
002U	12		
003U	12		
18U GF	12		
19U	12		
004U	12		

TestAmerica Cooler Receipt Form/Narrative North Canton Facility

[illegible]

Discrepancies Cont'd:

GENERAL CHEMISTRY DATA

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097315
		Dilution Factor: 1				
Chloride	2.1	1.0	mg/L	MCAWW 300.0A	04/06/11	1097311
		Dilution Factor: 1				
Fluoride	0.039 B	1.0	mg/L	MCAWW 300.0A	04/06/11	1097310
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1				
Nitrogen, as Ammonia	7.2	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	0.25 B	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	334	2.0	mg/L	MCAWW 300.0A	04/07/11	1098197
		Dilution Factor: 2				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097315
		Dilution Factor: 1				
Chloride	2.9	1.0	mg/L	MCAWW 300.0A	04/06/11	1097311
		Dilution Factor: 1				
Fluoride	0.060 B	1.0	mg/L	MCAWW 300.0A	04/06/11	1097310
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1				
Nitrogen, as Ammonia	2.8	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	0.22 B	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	232	2.0	mg/L	MCAWW 300.0A	04/07/11	1098207
		Dilution Factor: 2				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097315
		Dilution Factor: 1				
Chloride	1.7	1.0	mg/L	MCAWW 300.0A	04/06/11	1097311
		Dilution Factor: 1				
Fluoride	0.059 B	1.0	mg/L	MCAWW 300.0A	04/06/11	1097310
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	129	1.0	mg/L	MCAWW 300.0A	04/06/11	1097320
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097315
		Dilution Factor: 1				
Chloride	0.91 B	1.0	mg/L	MCAWW 300.0A	04/06/11	1097311
		Dilution Factor: 1				
Fluoride	0.061 B	1.0	mg/L	MCAWW 300.0A	04/06/11	1097310
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	63.7	1.0	mg/L	MCAWW 300.0A	04/06/11	1097320
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097315
		Dilution Factor: 1				
Chloride	0.95 B	1.0	mg/L	MCAWW 300.0A	04/06/11	1097311
		Dilution Factor: 1				
Fluoride	0.033 B	1.0	mg/L	MCAWW 300.0A	04/06/11	1097310
		Dilution Factor: 1				
Nitrate as N	0.86	0.10	mg/L	MCAWW 300.0A	04/06/11	1097317
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	122	1.0	mg/L	MCAWW 300.0A	04/06/11	1097320
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D060449

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	PREP
		LIMIT	UNITS		ANALYSIS DATE	BATCH #
Bromide	ND	Work Order #: MGPC81AA 0.50	mg/L	MB Lot-Sample #: A1D070000-315 MCAWW 300.0A	04/06/11	1097315
		Dilution Factor: 1				
Chloride	ND	Work Order #: MGPC01AA 1.0	mg/L	MB Lot-Sample #: A1D070000-311 MCAWW 300.0A	04/06/11	1097311
		Dilution Factor: 1				
Fluoride	ND	Work Order #: MGPCV1AA 1.0	mg/L	MB Lot-Sample #: A1D070000-310 MCAWW 300.0A	04/06/11	1097310
		Dilution Factor: 1				
Nitrate as N	ND	Work Order #: MGPD1AA 0.10	mg/L	MB Lot-Sample #: A1D070000-317 MCAWW 300.0A	04/06/11	1097317
		Dilution Factor: 1				
Nitrite as N	ND	Work Order #: MGPC41AA 0.10	mg/L	MB Lot-Sample #: A1D070000-314 MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	Work Order #: MGQQH1AA 2.0	mg/L	MB Lot-Sample #: A1D080000-085 MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	Work Order #: MGPDG1AA 0.50	mg/L	MB Lot-Sample #: A1D070000-318 MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1				
Sulfate	ND	Work Order #: MGPD1AA 1.0	mg/L	MB Lot-Sample #: A1D070000-320 MCAWW 300.0A	04/06/11	1097320
		Dilution Factor: 1				
Sulfate	ND	Work Order #: MGQL91AA 1.0	mg/L	MB Lot-Sample #: A1D080000-197 MCAWW 300.0A	04/07/11	1098197
		Dilution Factor: 1				
Sulfate	ND	Work Order #: MGQM41AA 1.0	mg/L	MB Lot-Sample #: A1D080000-207 MCAWW 300.0A	04/07/11	1098207
		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

Lot-Sample #...: A1D060449

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD RPD	LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide		WO#:MGPC81AC-LCS/MGPC81AD-LCSD LCS Lot-Sample#: A1D070000-315					
	98	(90 - 110)			MCAWW 300.0A	04/06/11	1097315
	98	(90 - 110)	0.49	(0-20)	MCAWW 300.0A	04/06/11	1097315
		Dilution Factor: 1					
Chloride		WO#:MGPC01AC-LCS/MGPC01AD-LCSD LCS Lot-Sample#: A1D070000-311					
	100	(90 - 110)			MCAWW 300.0A	04/06/11	1097311
	100	(90 - 110)	0.04	(0-20)	MCAWW 300.0A	04/06/11	1097311
		Dilution Factor: 1					
Fluoride		WO#:MGPCV1AC-LCS/MGPCV1AD-LCSD LCS Lot-Sample#: A1D070000-310					
	95	(90 - 110)			MCAWW 300.0A	04/06/11	1097310
	95	(90 - 110)	0.04	(0-20)	MCAWW 300.0A	04/06/11	1097310
		Dilution Factor: 1					
Nitrate as N		WO#:MGPDCLAC-LCS/MGPDCLAD-LCSD LCS Lot-Sample#: A1D070000-317					
	96	(90 - 110)			MCAWW 300.0A	04/06/11	1097317
	96	(90 - 110)	0.12	(0-20)	MCAWW 300.0A	04/06/11	1097317
		Dilution Factor: 1					
Nitrite as N		WO#:MGPC41AC-LCS/MGPC41AD-LCSD LCS Lot-Sample#: A1D070000-314					
	98	(90 - 110)			MCAWW 300.0A	04/06/11	1097314
	98	(90 - 110)	0.73	(0-20)	MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1					
Phosphate as P, Ortho		WO#:MGPDG1AC-LCS/MGPDG1AD-LCSD LCS Lot-Sample#: A1D070000-318					
	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 Factor: 1					
Sulfate		WO#:MGPDMLAC-LCS/MGPDMLAD-LCSD LCS Lot-Sample#: A1D070000-320					
	96	(90 - 110)			MCAWW 300.0A	04/06/11	1097320
	95	(90 - 110)	0.79	(0-20)	MCAWW 300.0A	04/06/11	1097320
		Dilution Factor: 1					
Sulfate		WO#:MGQL91AC-LCS/MGQL91AD-LCSD LCS Lot-Sample#: A1D080000-197					
	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 Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D060449

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Sulfate		WO#:MGQM41AC-LCS/MGQM41AD-LCSD	LCS	Lot-Sample#:	A1D080000-207			
	94	(90 - 110)				MCAWW 300.0A	04/07/11	1098207
	94	(90 - 110)	0.04	(0-20)		MCAWW 300.0A	04/07/11	1098207
		Dilution Factor: 1						

NOTE(S):

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

General Chemistry

Matrix.....: WATER

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D060449

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Sulfate								
	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

WO#:MGQM41AC-LCS/MGQM41AD-LCSD LCS Lot-Sample#: A1D080000-207

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

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrogen, as Ammonia	94	Work Order #: MGQQH1AC (85 - 114)	LCS Lot-Sample#: A1D080000-085 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

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCNT</u> <u>RECVRY</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>PREP</u> <u>BATCH #</u>
Nitrogen, as Ammonia	14	13	mg/L	94	MCAWW 350.2	04/08/11	1098085
Work Order #: MGQQH1AC LCS Lot-Sample#: A1D080000-085							
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	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide			WO#: MGLNF1AR-MS/MGLNF1AT-MSD MS Lot-Sample #: A1D060449-001				
	88	(80 - 120)			MCAWW 300.0A	04/06/11	1097315
	91	(80 - 120)	3.1	(0-20)	MCAWW 300.0A	04/06/11	1097315
			Dilution Factor: 1				
Bromide			WO#: MGLQ01AR-MS/MGLQ01AT-MSD MS Lot-Sample #: A1D060449-009				
	88	(80 - 120)			MCAWW 300.0A	04/06/11	1097315
	90	(80 - 120)	2.0	(0-20)	MCAWW 300.0A	04/06/11	1097315
			Dilution Factor: 1				
Chloride			WO#: MGLNF1AM-MS/MGLNF1AN-MSD MS Lot-Sample #: A1D060449-001				
	96	(80 - 120)			MCAWW 300.0A	04/06/11	1097311
	99	(80 - 120)	2.9	(0-20)	MCAWW 300.0A	04/06/11	1097311
			Dilution Factor: 1				
Chloride			WO#: MGLQ01AM-MS/MGLQ01AN-MSD MS Lot-Sample #: A1D060449-009				
	94	(80 - 120)			MCAWW 300.0A	04/06/11	1097311
	97	(80 - 120)	2.7	(0-20)	MCAWW 300.0A	04/06/11	1097311
			Dilution Factor: 1				
Fluoride			WO#: MGLNF1AK-MS/MGLNF1AL-MSD MS Lot-Sample #: A1D060449-001				
	73 N	(80 - 120)			MCAWW 300.0A	04/06/11	1097310
	75 N	(80 - 120)	2.5	(0-20)	MCAWW 300.0A	04/06/11	1097310
			Dilution Factor: 1				
Fluoride			WO#: MGLQ01AK-MS/MGLQ01AL-MSD MS Lot-Sample #: A1D060449-009				
	85	(80 - 120)			MCAWW 300.0A	04/06/11	1097310
	87	(80 - 120)	2.1	(0-20)	MCAWW 300.0A	04/06/11	1097310
			Dilution Factor: 1				
Nitrate as N			WO#: MGLNF1AU-MS/MGLNF1AV-MSD MS Lot-Sample #: A1D060449-001				
	89	(80 - 120)			MCAWW 300.0A	04/06/11	1097317
	92	(80 - 120)	2.6	(0-20)	MCAWW 300.0A	04/06/11	1097317
			Dilution Factor: 1				
Nitrate as N			WO#: MGLQ01AU-MS/MGLQ01AV-MSD MS Lot-Sample #: A1D060449-009				
	90	(80 - 120)			MCAWW 300.0A	04/06/11	1097317
	93	(80 - 120)	2.2	(0-20)	MCAWW 300.0A	04/06/11	1097317
			Dilution Factor: 1				
Nitrite as N			WO#: MGLNF1AP-MS/MGLNF1AQ-MSD MS Lot-Sample #: A1D060449-001				
	108	(80 - 120)			MCAWW 300.0A	04/06/11	1097314
	109	(80 - 120)	0.25	(0-20)	MCAWW 300.0A	04/06/11	1097314
			Dilution Factor: 1				

(Continued on next page)

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	PERCENT RECOVERY	RPD	PREPARATION-	PREP
RECOVERY	LIMITS	RPD LIMITS	ANALYSIS DATE	BATCH #
Nitrite as N		WO#: MGLQ01AP-MS/MGLQ01AQ-MSD MS Lot-Sample #: A1D060449-009		
108	(80 - 120)		04/06/11	1097314
109	(80 - 120)	0.91 (0-20) MCAWW 300.0A	04/06/11	1097314
		Dilution Factor: 1		
Phosphate as P, Ortho		WO#: MGLNF1AW-MS/MGLNF1AX-MSD MS Lot-Sample #: A1D060449-001		
53 N	(80 - 120)		04/06/11	1097318
60 N	(80 - 120)	10 (0-20) MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1		
Phosphate as P, Ortho		WO#: MGLQ01AW-MS/MGLQ01AX-MSD MS Lot-Sample #: A1D060449-009		
103	(80 - 120)		04/06/11	1097318
109	(80 - 120)	5.7 (0-20) MCAWW 300.0A	04/06/11	1097318
		Dilution Factor: 1		
Sulfate		WO#: MGLQQ1AR-MS/MGLQQ1AT-MSD MS Lot-Sample #: A1D060449-003		
91	(80 - 120)		04/07/11	1098207
85	(80 - 120)	1.0 (0-20) MCAWW 300.0A	04/07/11	1098207
		Dilution Factor: 1		
Sulfate		WO#: MGLQ01A0-MS/MGLQ01A1-MSD MS Lot-Sample #: A1D060449-009		
107	(80 - 120)		04/06/11	1097320
113	(80 - 120)	1.7 (0-20) MCAWW 300.0A	04/06/11	1097320
		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 #...: A1D060449

Matrix.....: WG

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide									
WO#: MGLNF1AR-MS/MGLNF1AT-MSD MS Lot-Sample #: A1D060449-001									
ND	10.0	8.8	mg/L	88			MCAWW 300.0A	04/06/11	1097315
ND	10.0	9.1	mg/L	91	3.1		MCAWW 300.0A	04/06/11	1097315
Dilution Factor: 1									
Bromide									
WO#: MGLQ01AR-MS/MGLQ01AT-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Chloride									
WO#: MGLNF1AM-MS/MGLNF1AN-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Chloride									
WO#: MGLQ01AM-MS/MGLQ01AN-MSD MS Lot-Sample #: A1D060449-009									
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
Dilution Factor: 1									
Fluoride									
WO#: MGLNF1AK-MS/MGLNF1AL-MSD MS Lot-Sample #: A1D060449-001									
0.039	2.5	1.9 N	mg/L	73			MCAWW 300.0A	04/06/11	1097310
0.039	2.5	1.9 N	mg/L	75	2.5		MCAWW 300.0A	04/06/11	1097310
Dilution Factor: 1									
Fluoride									
WO#: MGLQ01AK-MS/MGLQ01AL-MSD MS Lot-Sample #: A1D060449-009									
0.033	2.5	2.2	mg/L	85			MCAWW 300.0A	04/06/11	1097310
0.033	2.5	2.2	mg/L	87	2.1		MCAWW 300.0A	04/06/11	1097310
Dilution Factor: 1									
Nitrate as N									
WO#: MGLNF1AU-MS/MGLNF1AV-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrate as N									
WO#: MGLQ01AU-MS/MGLQ01AV-MSD MS Lot-Sample #: A1D060449-009									
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
Dilution Factor: 1									
Nitrite as N									
WO#: MGLNF1AP-MS/MGLNF1AQ-MSD MS Lot-Sample #: A1D060449-001									
ND	2.5	2.7	mg/L	108			MCAWW 300.0A	04/06/11	1097314
ND	2.5	2.7	mg/L	109	0.25		MCAWW 300.0A	04/06/11	1097314
Dilution Factor: 1									

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A1D060449

Matrix.....: WG

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
WO#: MGLQ01AP-MS/MGLQ01AQ-MSD MS Lot-Sample #: A1D060449-009									
Nitrite as N	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
Dilution Factor: 1									
WO#: MGLNF1AW-MS/MGLNF1AX-MSD MS Lot-Sample #: A1D060449-001									
Phosphate as P, Ortho	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
Dilution Factor: 1									
WO#: MGLQ01AW-MS/MGLQ01AX-MSD MS Lot-Sample #: A1D060449-009									
Phosphate as P, Ortho	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
Dilution Factor: 1									
WO#: MGLQQ1AR-MS/MGLQQ1AT-MSD MS Lot-Sample #: A1D060449-003									
Sulfate	232	50.0	277	mg/L	91		MCAWW 300.0A	04/07/11	1098207
	232	50.0	274	mg/L	85	1.0	MCAWW 300.0A	04/07/11	1098207
Dilution Factor: 1									
WO#: MGLQ01A0-MS/MGLQ01A1-MSD MS Lot-Sample #: A1D060449-009									
Sulfate	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
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 EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449

Matrix.....: WG

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	88	Work Order #...: MGLNF1AR (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-001 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 #: A1D060449-001 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 #: A1D060449-009 04/06/11	1097317
Nitrite as N	108	Work Order #...: MGLNF1AP (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-001 04/06/11	1097314
Nitrite as N	108	Work Order #...: MGLQ01AP (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-009 04/06/11	1097314
Phosphate as P, Ortho	53 N	Work Order #...: MGLNF1AW (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D060449-001 04/06/11	1097318

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449

Matrix.....: WG

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

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Phosphate as P, Ortho	103	(80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: 04/06/11	A1D060449-009 1097318
Sulfate	91	(80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: 04/07/11	A1D060449-003 1098207
Sulfate	107	(80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: 04/06/11	A1D060449-009 1097320

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

PARAMETER	PERCENT RECOVERY	RPD	PREPARATION-	PREP
RECOVERY LIMITS	RPD LIMITS	METHOD	ANALYSIS DATE	BATCH #
Nitrogen, as Ammonia	WO#: MGAA51AU-MS/MGAA51AV-MSD	MS	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
	Dilution Factor: 1			
Phosphate as P, Ortho	WO#: MGJ2A1AK-MS/MGJ2A1AL-MSD	MS	Lot-Sample #:	A1D050441-001
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
	Dilution Factor: 1			
Phosphate as P, Ortho	WO#: MGJ221A0-MS/MGJ221A1-MSD	MS	Lot-Sample #:	A1D050441-007
162 N	(80 - 120)	MCAWW 300.0A	04/06/11	1097318
174 N	(80 - 120)	7.5 (0-20) MCAWW 300.0A	04/06/11	1097318
	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.

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

PARAMETER	SAMPLE SPIKE AMOUNT	AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia			WO#: MGAA51AU-MS/MGAA51AV-MSD				MS Lot-Sample #: 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

Dilution Factor: 1

Phosphate as P, Ortho			WO#: MGJ2A1AK-MS/MGJ2A1AL-MSD				MS Lot-Sample #: A1D050441-001		
	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

Dilution Factor: 1

Phosphate as P, Ortho			WO#: MGJ221A0-MS/MGJ221A1-MSD				MS Lot-Sample #: A1D050441-007		
	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

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.

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 EVALUATION REPORT

General Chemistry

Client Lot #...: A1D060449

Matrix.....: WATER

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	112	Work Order #...: MGDVA1AE (80 - 120)	MCAWW 300.0A Dilution Factor: 1	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 Ammonia	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 #: A1D050441-001 04/06/11	1097318
Phosphate as P, Ortho	162 N	Work Order #...: MGJ221A0 (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D050441-007 04/06/11	1097318
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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	77.2	50.0	133	mg/L	112	MCAWW 300.0A	04/06/11	1097311
Work Order #...: MGDVA1AE MS Lot-Sample #: A1C300577-001 Dilution Factor: 1								
Chloride	1290	50.0	1260	mg/L		MCAWW 300.0A	04/07/11	1097311
Work Order #...: MGEVM1AE MS Lot-Sample #: A1C310476-007 Qualifiers: NC,MSB Dilution Factor: 20								
Sulfate	9.3	50.0	58.1	mg/L	98	MCAWW 300.0A	04/06/11	1097320
Work Order #...: MGDVA1AF MS Lot-Sample #: A1C300577-001 Dilution Factor: 1								
Sulfate	53.7	50.0	94.8	mg/L	82	MCAWW 300.0A	04/07/11	1097320
Work Order #...: MGEVM1AF MS Lot-Sample #: A1C310476-007 Dilution Factor: 20								
Sulfate	10.4	50.0	59.6	mg/L	98	MCAWW 300.0A	04/07/11	1098198
Work Order #...: MGMJ71AW MS Lot-Sample #: A1D060583-006 Dilution Factor: 1								

NOTE(S):

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

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.

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



Approved for release.
DiLea Griego
Project Manager I
4/21/2011 9:58 AM

DiLea Griego
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 NELAP, 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.

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
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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

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time 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

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-14463-1	FWGSCFMW-004-0180-GF					
Boron		110		100	ug/L	6010B
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	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
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)	TAL DEN	SW846 6010B	
Preparation, Total Metals	TAL DEN		SW846 3010A
Metals (ICP/MS)	TAL DEN	SW846 6020	
Preparation, Total Metals	TAL DEN		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

Analytical Data

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1813			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Boron	110		4.4	100
Lithium	15		2.6	10
Molybdenum	ND		3.1	20
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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0211			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	ND		0.020	1.0

Analytical Data

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Client Sample ID: FWGSCFMW-005-0190-GF

Lab Sample ID: 280-14463-2

Date Sampled: 04/05/2011 1508

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 1820			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/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 Metals (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 (ug/L)	Qualifier	MDL	RL
Uranium	0.21	J	0.020	1.0

Analytical Data

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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1823			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Boron	66	J	4.4	100
Lithium	ND		2.6	10
Molybdenum	ND		3.1	20
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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0222			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.31	J	0.020	1.0

Analytical Data

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

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 (ug/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 Metals (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 (ug/L)	Qualifier	MDL	RL
Uranium	0.055	J	0.020	1.0

Analytical Data

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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1827			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Boron	83	J	4.4	100
Lithium	ND		2.6	10
Molybdenum	ND		3.1	20
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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0227			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.47	J	0.020	1.0

Quality Control Results

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
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/13/2011 1736
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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: 280-61780

Method: 6010B

Preparation: 3010A

Lab Sample ID: LCS 280-61780/2-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/13/2011 1739
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
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: 280-14463-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/13/2011 1818
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Serial Dilution - Batch: 280-61780

Method: 6010B

Preparation: 3010A

Lab Sample ID: 280-14462-A-1-A SD ^5
Client Matrix: Water
Dilution: 5.0
Analysis Date: 04/13/2011 1743
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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

Duplicate - Batch: 280-61780

Method: 6010B

Preparation: 3010A

Lab Sample ID: 280-14463-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/13/2011 1816
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Method Blank - Batch: 280-61784

Method: 6020

Preparation: 3020A

Lab Sample ID: MB 280-61784/1-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/14/2011 0129
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 141_BLK.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/14/2011 0132
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 142_LCS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Uranium	40.0	42.0	105	85 - 119	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Post Digestion Spike - Batch: 280-61784

Method: 6020

Preparation: 3020A

Lab Sample ID: 280-14462-A-1-D PDS
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/14/2011 0140
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 145PDS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/14/2011 0216
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 158_MS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Uranium	ND	40.0	48.2	121	85 - 119	F

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14463-1

Sdg Number: A1D060449

Serial Dilution - Batch: 280-61784

Method: 6020

Preparation: 3020A

Lab Sample ID: 280-14462-A-1-D SD ^5
Client Matrix: Water
Dilution: 5.0
Analysis Date: 04/14/2011 0138
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 144SDIL.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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

Duplicate - Batch: 280-61784

Method: 6020

Preparation: 3020A

Lab Sample ID: 280-14463-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/14/2011 0213
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 157_DU.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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

Quality Control Results

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					
Prep Batch: 280-61780					
LCS 280-61780/2-A	Lab Control Sample	T	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	
Prep Batch: 280-61784					
LCS 280-61784/2-A	Lab Control Sample	T	Water	3020A	
MB 280-61784/1-A	Method Blank	T	Water	3020A	
280-14463-1	FWGSCFMW-004-0180-GF	T	Water	3020A	
280-14463-1DU	Duplicate	T	Water	3020A	
280-14463-1MS	Matrix Spike	T	Water	3020A	
280-14463-2	FWGSCFMW-005-0190-GF	T	Water	3020A	
280-14463-3	FWGLL1MW-081C-0010-GF	T	Water	3020A	
280-14463-4	FWGLL1MW-082C-0020-GF	T	Water	3020A	
280-14463-5	FWGLL1MW-084C-0030-GF	T	Water	3020A	
Analysis Batch:280-62167					
LCS 280-61780/2-A	Lab Control Sample	T	Water	6010B	280-61780
MB 280-61780/1-A	Method Blank	T	Water	6010B	280-61780
280-14463-1	FWGSCFMW-004-0180-GF	T	Water	6010B	280-61780
280-14463-1DU	Duplicate	T	Water	6010B	280-61780
280-14463-1MS	Matrix Spike	T	Water	6010B	280-61780
280-14463-2	FWGSCFMW-005-0190-GF	T	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:280-62295					
LCS 280-61784/2-A	Lab Control Sample	T	Water	6020	280-61784
MB 280-61784/1-A	Method Blank	T	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	T	Water	6020	280-61784
280-14463-2	FWGSCFMW-005-0190-GF	T	Water	6020	280-61784
280-14463-3	FWGLL1MW-081C-0010-GF	T	Water	6020	280-61784
280-14463-4	FWGLL1MW-082C-0020-GF	T	Water	6020	280-61784
280-14463-5	FWGLL1MW-084C-0030-GF	T	Water	6020	280-61784

TestAmerica Denver

Quality Control Results

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
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Report Basis

T = Total

Certification Summary

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

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

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
TestAmerica Denver	Wisconsin	State Program	5	999615430

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.

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
<u>FWGSCFMW-004-0180-GF</u>	<u>280-14463-1</u>
<u>FWGSCFMW-005-0190-GF</u>	<u>280-14463-2</u>
<u>FWGLLMW-081C-0010-GF</u>	<u>280-14463-3</u>
<u>FWGLLMW-082C-0020-GF</u>	<u>280-14463-4</u>
<u>FWGLLMW-084C-0030-GF</u>	<u>280-14463-5</u>

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: <u>FWGSCFMW-005-0190-GF</u>	Lab Sample ID: <u>280-14463-2</u>
Lab Name: <u>TestAmerica Denver</u>	Job No.: <u>280-14463-1</u>
SDG ID.: <u>A1D060449</u>	
Matrix: <u>Water</u>	Date Sampled: <u>04/05/2011 15:08</u>
Reporting Basis: <u>WET</u>	Date Received: <u>04/08/2011 10:00</u>

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

Analyte	ICV 280-62167/7 04/13/2011 12:36				CCV 280-62167/106 04/13/2011 17:30				CCV 280-62167/120 04/13/2011 18:02			
	Found	C	True	%R	Found	C	True	%R	Found	C	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, Silica	4300		4280	101	10700		10700	100	10800		10700	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: ICP ICVL_00049 Concentration Units: ug/L
 CCV Source: ICP CCVL_00150

Analyte	CCV 280-62167/133 04/13/2011 18:32											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	487		500	97								
Lithium	987		1000	99								
Molybdenum	539		500	108								
SiO2, Silica	10700		10700	100								

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

Analyte	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			
	Found	C	True	%R	Found	C	True	%R	Found	C	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

Analyte	CCV 280-62295/63 04/14/2011 01:57				CCV 280-62295/75 04/14/2011 02:30							
	Found	C	True	%R	Found	C	True	%R	Found	C	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

Analyte	CRQL Check Standard				
	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

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

FORM IIB-IN

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

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

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

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

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

SDG No.: A1D060449

Concentration Units: ug/L

Analyte	RL	ICB 280-62167/11 04/13/2011 12:45		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	
		Found	C	Found	C	Found	C	Found	C
Boron	100	ND		ND		ND		ND	
Lithium	10	ND		ND		ND		ND	
Molybdenum	20	ND		ND		ND		ND	
SiO2, Silica	1100	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1
 SDG No.: A1D060449
 Concentration Units: ug/L

Analyte	RL	ICB 280-62295/8 04/13/2011 19:22		CCB 280-62295/19 04/13/2011 19:52		CCB 280-62295/52 04/14/2011 01:27		CCB 280-62295/64 04/14/2011 02:00	
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	ND		0.0425	J	ND		0.0382	J

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14463-1
 SDG No.: A1D060449
 Concentration Units: ug/L

Analyte	RL	CCB 280-62295/76 04/14/2011 02:33							
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	0.0381	J						

Italicized analytes were not requested for this sequence.

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	C	Q	Method
7440-42-8	Boron	ND			6010B
7439-93-2	Lithium	ND			6010B
7439-98-7	Molybdenum	ND			6010B
14808-60-7	SiO ₂ , 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	C	Q	Method
7440-61-1	Uranium	ND			6020

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

Analyte	True Solution A	Found 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	

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

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 C	Sample Result (SR) C	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
SiO ₂ , Silica	34900	13000	21400	100	75-141		6010B
Uranium	48.2	ND	40.0	121	85-119	F	6020

SSR Spiked Sample Result

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

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

SSR Spiked Sample Result

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

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.: A1D060449
 % Solids for Sample: _____ % Solids for Duplicate: _____
 Matrix: Water Concentration Units: ug/L

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Boron	100	110	105	0.2		6010B
Lithium	10	15	16.5	11		6010B
Molybdenum	20	ND	ND	NC		6010B
SiO ₂ , Silica	500	13000	13600	0.7		6010B
Uranium	1.0	ND	ND	NC		6020

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

FORM VI-IN

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

Analyte	Water (ug/L)							
	True	Found	C	%R	Limits		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

Analyte	Water (ug/L)							
	True	Found	C	%R	Limits		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-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 Sample Result (I) C		Serial Dilution Result (S) C		% 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

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

FORM VIII-IN

8-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

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

FORM VIII-IN

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: 280-14463-1
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/ Mass	RL (ug/L)	MDL (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/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium		1	0.02

La N me: TestAme ica Denve

SDG N .: A1D0 9

ICP-AES Instr ment ID: MT_ 6

Date: 1/ 1/ 11

N mb : 280 14 3-1

[illegible]
$$\text{NH-X}$$

10 I
ICP-AES INTERELEMENT CORRECTION FACTORS
METALS

La N me: TestAme ica Denv _____ N mb : 280 14 3-1 _____
SDG N .: A1D0 _____
ICP-AES Instr ment ID: MT_ _____ Date: 01/ 1/ 11 _____

Ana yte	Length	Ag	Al	As				Bi	Cd				
Tha ium	190.856												
Tho ium	83.730		-0						-0				
Tin	189.989												
Titanium	334.9												
Ur nium	370.152								-0				
Van dium									-0				
Zinc									-0				
Zirc nium	339.198											-0	

10 I
ICP-AES INTERELEMENT CORRECTION FACTORS
METALS

La N me: TestAme ica Denv _____ N mb : 280 14 3-1 _____
SDG N .: A1D0 _____
ICP-AES Instr ment ID: MT_ _____ Date: 01/ 1/ 11 _____

Ana yte	Length	Li	Mg	Mn	Mo	i	P	Pb	S	Sb	Se	Si	SiO2	Sn
Al minum	309. 71													
Al minum	167.07													
Antimony	.833				-0									
Arsenic	189.0				-0									
ium	.403													
llium	313.0													
ismuth	23.0 1													
	08.959													
admium	8.80													
cium	317.933													
romium														
t	8.616				-0									
	324.7													
Ir														
Iro	71.4 1													
Le d	.353				-0									
Lithium	70.784													
Magn sium														
Mang se	7.610													
Mo den m	.030													
icke	31.6													
Phospho s	178.284													
Potassium														
Se nium	196.0													
Silicon	88.158				-0									
Silv	328.0 8				.									
Sodium	818.32													
Sodium	589.592													
Str ntium	7.771													
Sul	182. 34													

10 I
ICP-AES INTERELEMENT CORRECTION FACTORS
METALS

La N me: TestAme ica Denv _____ N mb : 280 14 3-1 _____
SDG N .: A1D0 _____
ICP-AES Instr ment ID: MT_ _____ Date: 01/ 1/ 11 _____

Ana yte	Length	Li	Mg	Mn	Mo		i	P	Pb	S	Sb	Se	Si	SiO2	Sn
Tha ium	190.856					-0									
Tho ium	83.730		-0												
Tin	189.989														
Titanium	334.9														
Ur nium	370.152														
Van dium				-0											
Zinc															
Zirc nium	339.198														

10 I
ICP-AES INTERELEMENT CORRECTION FACTORS
METALS

La N me: TestAme ica Denv _____ N mb : 280 14 3-1
SDG N .: A1D0
ICP-AES Instr ment ID: MT_ _____ Date: 01/ 1/ 11

Ana yte	Length	Sr	Th	Ti	Tl	U	V	Zn				
Al minum	167.07											
Al minum	309. 71											
Antimony	.833					-0						
Arsenic	189.0											
ium	.403											
llium	313.0			-0								
ismuth	3.0 1		-0	-0		-0						
	8.959											
adium	8.80											
cium	317.933		-0									
omium												
t	8.616											
	324.7			-0								
Ir												
Iro	71.4 1						-0					
Le d	0.353			-0								
Lithium	0.784											
Magn sium			-0			-0						
Mang se	7.610											
Mo den m	.030											
icke	31.6											
Phospho s	178.284											
Potassium												
Se nium	196.0					-0						
Silicon	88.158											
Silv	328.0 8		-0									
Sodium	589.592											
Sodium	818.32											
Str ntium	7.771											
Sul	182. 34											

10 I
ICP-AES INTERELEMENT CORRECTION FACTORS
METALS

La N me: TestAme ica Denv _____ N mb : 280 14 3-1 _____
SDG N .: A1D0 _____
ICP-AES Instr ment ID: MT_ _____ Date: 01/ 1/ 11 _____

Ana yte	Length	Sr	Th	Ti	Tl	U	V	Zn							
Tha ium	190.856			-0		-0	-0								
Tho ium	83.730														
Tin	189.989			-0											
Titanium	334.9					-0									
Ur nium	370.152		-0												
Van dium						-0									
Zinc															
Zirc nium	339.198														

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
SiO ₂ , 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

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

62295-6020 water
62297-200.8
62300-soilTestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Review Items	Level 1			Level 2	Comments & Samples Affected
	Yes	No	N/A		
Tune					
1. Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8?	✓			✓	
2. Tune RSD <5%?	✓			✓	
2. Resolution ≤ 0.9 AMU full width at 10% peak height? NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height	✓			✓	
Initial Calibration					
1. Done with a minimum of 3 integrations of a high standard and blank?	✓			✓	
2. ICB/CCV run at beginning of run, 10% frequency, and end of run? Results with 10% of expected value?	✓			✓	
3. 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					
1. Were all samples within linear range, ≤ 90% of LDR for 200.8?	✓			✓	
2. Dilutions due to target elements? Dilutions for other reasons? ✓	✓			✓	
3. All reported results bracketed by in control QC?	✓			✓	
4. All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%?	✓			✓	
5. Was a 5X serial dilution analyzed for 6020 and, if so, are results ± 10% of original result, if original ≥ 100x MDL?	✓			✓	
6. LCS included in batch and within QC limits?	✓			✓	
7. Method blank included and <1/2RL?	✓			✓	
8. MS and MSD included in batch?	✓			✓	
9. PDS analyzed and recovery 75-125%?	✓			✓	
10. 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: [Signature]Date: 4/15/112nd Level Reviewer: [Signature]Date: 4/15/11

Lab : Test ic ve : 80-1446 -1

Gen : A 449

Bacterial : 6 80 : 4/1 /1 8:0 : 0 : im Ka ie M

Batch Me : 3 A : 4/1 /1 0

b	ID	ie	ID	Me	in	Ba is	Initia H	Initia t	in	t	IC	K	0	4	IC	K	0	6
MB 80-6	80/1			3	B			5 L	5	L								
80-6	80/2			3	B			5 L	5	L								
80-1446 -A-1		WGS	MW-0 4-0 8	3	B	T	<2	5 L	5	L				0	L		0	L
80-1446 -A-1		0-GF																
80-1446 -A-1		FWGS	MW-0 4-0 8	3	B	T	<2	5 L	5	L								
DU		0-GF																
80-1446 -A-1		FWGS	MW-0 4-0 8	3	B	T	<2	5 L	5	L								
MS		0-GF																
80-1446 -A-2		WGS	MW-0 -0 9	3	B	T	<2	5 L	5	L				0	L		0	L
80-1446 -A-2		0-GF																
80-1446 -A-3		WGL	MW-081 -0	3	B	T	<2	5 L	5	L								
10-GF																		
80-1446 -A-4		FWGL	MW-082 -0	3	B	T	<2	5 L	5	L								
20-GF																		
80-1446 -A-5		WGL	MW-084C-	3	B	T	<2	5 L	5	L								
30-GF																		

Ba C S																
#	Y	C	ic	cid		46	7									
#	it	ic	cid			K0	41									
Ho	Bl	ck	ID	be		05										
Ove	Ba	Bl	ck	Te	1	9	C									
Ove	Ba	Bl	ck	Te	2	9	C									
ip	ID					MET-0	7									
wh	wit	ikin				KMN										
ID	be		r			80	9									
ig	io	Tube/C	#			1	1									
Unc	c	Te	e			9	C									
Unc	c	Te	2			9	C									

Ba is	Ba is	crip io
T	To	/N

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80-1446 -1

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TD-2

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Ka ie M

Ba c

Me

Ba c

4/1 /1

b	ID	ie	ID	Me	in	Ba is	Initia	H	Initia	in	MS	TD-1	MS	TD-2
MB 80-6	84/1													
80-6	84/2													
80-1446 -A-1		WGS	MW-0 4-0 8			T								
		O-GF												
280-1446 -A-1		WGS	MW-0 4-0 8			T								
		O-GF												
280-1446 -A-1		WGS	MW-0 4-0 8			T								
		O-GF												
MS		WGS	MW-0 -0			T								
		-GF												
280-1446 -A-3		WGL	MW-081 -0			T								
		-GF												
280-1446 -A-4		WGL	MW-082 -0			T								
		-GF												
280-1446 -A-5		WGL	MW-084C-			T								
		-GF												

Ba c			
Nit		ic cid	K0 41
Ho	Bl ck ID	be	
Ove	Ba	Bl ck Te	
Ove	Ba	Bl ck Te	
ip	ID		MET-0
ID	be		
ig	io	Tube/Cu	

Ba is	Ba is	crip io
T	To	/N

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

Question	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	

Laboratory

TestAmerica Denver

4955 Yarrow Street

Arvada, CO

26°, 31°

80002

TestAmerica Laboratories, Inc.
SAMPLE ANALYSIS REQUISITION

Lab Request

SR126370

Report Package:

Need Analytical Report

Expanded Deliverables

2011-04-20

Client Code: 1434673

Project Manager:

MARK LOEB

<u>Sample I.D.</u>	<u>Work Order Number</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Analysis Required</u>
A1D060449-2	MGLQM	FWGSCFMW-004-0180-GF	2011-04-05 10:02	WATER, 6020, Uranium by ICP/MS (Denver)
A1D060449-2	MGLQM	FWGSCFMW-004-0180-GF	2011-04-05 10:02	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D060449-4	MGLQR	FWGSCFMW-005-0190-GF	2011-04-05 15:08	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D060449-4	MGLQR	FWGSCFMW-005-0190-GF	2011-04-05 15:08	WATER, 6020, Uranium by ICP/MS (Denver)
A1D060449-6	MGLQV	FWGLL1MW-081C-0010-GF	2011-04-05 11:23	WATER, 6020, Uranium by ICP/MS (Denver)
A1D060449-6	MGLQV	FWGLL1MW-081C-0010-GF	2011-04-05 11:23	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D060449-8	MGLQX	FWGLL1MW-082C-0020-GF	2011-04-05 9:23	WATER, 6020, Uranium by ICP/MS (Denver)
A1D060449-8	MGLQX	FWGLL1MW-082C-0020-GF	2011-04-05 9:23	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D060449-10	MGLQ1	FWGLL1MW-084C-0030-GF	2011-04-05 13:25	WATER, 6020, Uranium by ICP/MS (Denver)
A1D060449-10	MGLQ1	FWGLL1MW-084C-0030-GF	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

Shipping Method:

FED-EX

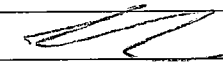
Need detection limit and analysis date included in report.

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

Relinquished by: 

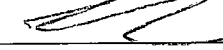
Date/Time:

4/7/11 3:00pm

Relinquished by: 

Date/Time:

4/8/11 10:00

Received for lab by: 

Date/Time:

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

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

Approved for release.
Mark J. Loeb
Project Manager II
6/23/2011 2:22 PM

June 23, 2011

TestAmerica Laboratories, Inc.

TestAmerica North Canton 4101 Shuffel Street NW, North Canton, OH 44720

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CONTRACT LABORATORY DATA-REVIEW WORKSHEET**1.0 GENERAL INFORMATION**

Data reviewer: Gary Cottrell Review date: 6/28/11
Office, Project, & Account #: OH, Ravenna

2.0 DATA DELIVERABLES

Date of Lab analytical report: 6/27/11 Number of copies: bound 0 unbound 1
No. of CD copies of raw-data report: 2 Remarks: _____

Raw-data report reviewed? Yes ☒ No ☐ Electronic data files on CD? Yes ☒ No ☐

EDD file format: QWDATA ☐ 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): 4/6/11 Sample matrix: Water

No. of sample types in lot: Environmental 7 Trip blank _____ Equip. blank _____

MS/MSD _____ Other: _____

Date samples received at laboratory: 4/7/11

4.1 Were accelerated turn-around times (TATs) requested for analyses? Yes ☐ No ☒

If yes, list TAT period and if completed: _____

4.2 Were analyses on chain-of-custody (COC) form performed by lab? YES ☒ NO ☐

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: Yes ☒ No ☐

If no, list sample/lab IDs, and associated problems or reference lab report case narrative: _____

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 exceeded holding-time limits:

4.5 Did surrogate recoveries meet QC acceptance criteria? Yes ☒ No ☐ NA ☐

If **no**, list methods, surrogates, associated sample/lab IDs, lab report page #s: _____

NOTE: Surrogate Low - P90 - LCS; Low P97 - MS

4.6 Were dilution factors greater than 1 for **organic** analyses? Yes ☐ No ☒ NA ☐

If **yes**, list analytical methods and reason for raised dilution factors: dilution _____

high-analyte levels _____ matrix interferences _____ other _____

4.7 Were dilution factors greater than 1 for **inorganic** analyses? Yes ☐ No ☐ NA ☒

If **yes**, list analytical methods and reason for raised dilution factors:

high-analyte levels _____ matrix interferences _____ other _____

4.8 Additional comments about sample analyses: _____

5.0 QUALITY CONTROL (QC) ANALYSES and RESULTS5.1 Were any target analytes detected in the **Laboratory Method Blanks**? Yes ☐ No ☒If **yes**, list method, analytes, prep batch #, report page #s: _____bis(2-Ethylhexyl) phthalate = 4.0, mol = RL = 10; P 57NOTE: High Surrogate Recovery For This BlankZn = 5.9, RL = 10; P 116; Mol5.2 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: _____3-SVOL - P 62 + 65NOTE: Surrogate out - P 1045.3 Did the **MS/MSD** results meet %R or RPD acceptance criteria? Yes ☐ No ☒ 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 #:Multiple SVOL - P 68 + 69 - most Low - Benzaldehyde HighMultiple SVOL - P 78 (Low) - Benzaldehyde (High) - P 79At Orino P - P 167 (Double Spiked one 9) - P 1672 + 3 - P 168 - Low - P 170; Mol - High - P 189NOTE: Surrogate out - P 1085.4 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: _____

6.0 ANALYTICAL METHODS USED in this LABORATORY LOT NUMBER

- ☒ VOCs by GC/MS--method 8260B/ 524.2 [water (W) or solids (S) analysis holding-time (HT) of 14 days]
- ☐ Gasoline Range Organics (GRO)+BTEX-method 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 GC--method 8081A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☒ PCBs by GC--method 8082 [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☐ Pesticides by GC--method 8141A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☐ Herbicides by GC--method 8151A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☒ SVOCs by GC/MS--method 8270C [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☐ Dioxins and Furans--methods 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 HT 14 days; analysis HT 40 days]
- ☒ Explosives by HPLC method 8330 or 8321A [W: prep HT 7 days; S: prep HT 14 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]
- ☐ Perchlorate--methods 314.0 or 6850 LC/MS/MS or 6860 IC/MS/MS [W: analysis HT 28 days]
- ☒ Metals by ICP--method 6010B or 200.7 [W and S: analysis HT 180 days]
- ☒ Metals by ICP/MS--method 6020 or 200.8 [W and S: analysis HT 180 days]
- ☒ Mercury by CVAA--method 7470A (W) and 7471A (S) [W and S: analysis HT 28 days]
- ☒ Inorganic anions-method 300/ 9056 [W: analysis HT 48 hours- NO₂, NO₃, ortho-P; HT 28 days--Br, Cl, F, SO₄]
- ☐ Total dissolved solids (TDS)--method 2540C and(or) TSS--method 2540D [W: analysis HT 7 days]
- ☐ Alkalinity--method 310.1 (Total, OH, HCO₃, and CO₃) [W: analysis HT 14 days]
- ☒ Nitrogen, ammonia--method 350.1 *350.2* [W analysis HT 28 days]
- ☐ Nitrogen, TKN--method 351.2 [W: analysis HT 28 days]
- ☒ Nitrogen, nitrate + nitrite--method 353.2 [W: analysis HT 28 days] NO₃ or NO₂ only [HT 48 hours]
- ☒ Nitrogen, nitrite--method 353.2 or 354.1 [W: analysis HT 48 hours]
- ☐ Phosphorus-method 365.3 and ortho 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 amenable--methods 9012A/ 335.4 [W and S: analysis HT 14 days]
- ☐ MBAS surfactants – method 425.1 (HT 48 hours)
- ☐ Moisture content--methods D2216 or 160.3M
- ☐ 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
- ☒ Other analyses: *Nitrocellulose*

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.

QC 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 reparation 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)

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

- 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 reparation 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

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL 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 B	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.040 B	0.10	mg/L	MCAWW 300.0A
Phosphate as P, Ortho	0.79	0.50	mg/L	MCAWW 300.0A
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, Ortho	0.17 B	0.50	mg/L	MCAWW 300.0A
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, Ortho	1.3	0.50	mg/L	MCAWW 300.0A
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, Ortho	0.19 B	0.50	mg/L	MCAWW 300.0A

(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				
beta-BHC	0.017 J	0.030	ug/L	SW846 8081A
Zinc	4.3 B,J	10.0	ug/L	SW846 6020
bis(2-Ethylhexyl) phthalate	2.2 J,B	10	ug/L	SW846 8270C
FWGSCFMW-003C-0170-GW 04/06/11 09:22 013				
Chloride	1.4	1.0	mg/L	MCAWW 300.0A
Sulfate	25.2	1.0	mg/L	MCAWW 300.0A
Fluoride	0.12 B	1.0	mg/L	MCAWW 300.0A

METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A1D070566

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", 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

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MGPAF	001	FWGRQLMW-007C-0120-GW	04/06/11	15:19
MGPAP	003	FWGRQLMW-008C-0130-GW	04/06/11	13:09
MGPAL	005	FWGRQLMW-009C-0140-GW	04/06/11	15:31
MGPAA	007	FWGRQLMW-014C-0150-GW	04/06/11	09:16
MGPAA	009	FWGRQLMW-016C-0160-GW	04/06/11	11:03
MGPCC	011	FWGB12MW-010C-0220-FB	04/06/11	14:05
MGPCC	013	FWGSCFMW-003C-0170-GW	04/06/11	09:22

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

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location:

Canton

Regulatory program:

☐ DW☐ NPDES☐ RCRA☐ Other

TestAmerica Laboratories, Inc.

Client Contact		Client Project Manager:		Site Contact:		Lab Contact:		COC No:								
Company Name: U.S. Geological Survey		Ralph Haefner		Brian Maillet		Ken Kuzior		019554								
Address: 6480 Doubletree Ave.		Telephone: 614-430-7709		Telephone: 614-430-7747		Telephone: 330-966-9374		2 of 2 COCs								
City/State/Zip: Columbus, OH 43229		Email: rhaefner@usgs.gov		Analysis Turnaround Time (in BUS days) TAT if different from below: <u>Contract</u> <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Analyses Metals 6010/6020 Anions/nutrients-300.0A Ammonia 350.1		For lab use only: Work in client <input type="checkbox"/> Lab pickup <input type="checkbox"/> Lab sampling <input type="checkbox"/> Job/SDG No.:								
Phone: 614-430-7700																
Project Name: Ravenna OH		Method of Shipment/Carrier: lab pickup														
Project Number: GRUNJ00D5W2100		Shipping/Tracking No:														
PO#																
Sample Identification		Sample Date	Sample Time	Matrix			Containers & Preservatives			Sample Specific Notes / Special Instructions: cooler						
				Air	Aqueous	Sediment	Solid	Other:	H2SO4		HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:
FWGRQLMW-007C-012U-GW		4/6/11	15:19	X												L814
FWGRQLMW-007C-012U-GF		4/6/11	15:19	X												L814
FWGRQLMW-008C-013U-GW		4/6/11	13:09	X												L814
FWGRQLMW-008C-013U-GF		4/6/11	13:09	X												L814
FWGRQLMW-009C-014U-GW		4/6/11	15:31	X												L814
FWGRQLMW-009C-014U-GF		4/6/11	15:31	X												L814
FWGRQLMW-014C-015U-GW		4/6/11	09:16	X												L814
FWGRQLMW-014C-015U-GF		4/6/11	09:16	X												L814
FWGRQLMW-016C-016U-GW		4/6/11	11:03	X												L814
FWGRQLMW-016C-016U-GF		4/6/11	11:03	X												L814
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)												
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown				<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months												
Special Instructions/QC Requirements & Comments:																
Metals -6010 (B, Li, Mo, Si) 6020 (U) filtered Anions/nutrients -300.0A (Br, Cl, F, SO4), nitrite, or phosphate Nitrogen, ammonia - 350.1																
Relinquished by:		Company:		Date/Time:		Received by:		Company:								
Brian Maillet		USGS		4/6/11 1830		TC Redun		TAL-XC								
Relinquished by:		Company:		Date/Time:		Received by:		Company:								
TC Redun		TAL-XC		4/6/11 - 1944												
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:								
						JL Kujel		TAL-XC								
								4/7/11 0700								

TestAmerica

87

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

COC No: 019553

North Canton

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Lot Number: A1D670564

Client US Geological Survey Project Ravenna Oh. By: [Signature]
 Cooler Received on 4-7-11 Opened on 4-7-11 (Signature)

FedEx ☐ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☒ Other ☐
 TestAmerica Cooler # _____ Multiple Coolers ☒ Foam Box ☐ Client Cooler ☐ Other ☐

1. Were custody seals on the outside of the cooler(s)? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
 If YES, Quantity 2 Quantity Unsalvageable _____
 Were custody seals on the outside of cooler(s) signed and dated? Yes ☒ No ☐ 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 ☒
 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 ☐ Other _____
 6. Cooler temperature upon receipt _____ °C See back of form for multiple coolers/temps ☒
 METHOD: IR ☒ Other ☐
 COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
 7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
 8. Could all bottle labels be reconciled with the COC? Yes ☒ No ☐
 9. 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 VOAs on the COC? Yes ☒ No ☐
- Contacted PM _____ Date _____ by _____ via Verbal ☐ Voice Mail ☐ Other ☐
 Concerning _____

14. CHAIN OF CUSTODY

The following discrepancies occurred:

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in Sample Receiving to meet recommended pH level(s). Nitric Acid Lot# 100110-HNO₃; Sulfuric Acid Lot# 110410-H₂SO₄; Sodium Hydroxide Lot# 100108-NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot# 100108-(CH₃COO)₂ZN/NaOH. What time was preservative added to sample(s)? _____

Client ID	pH	Date	Initials
1519 Gw	'2	4-7-11	JS
F	'2		
1309 W	'2		
F	'2		
1531 W	'2		
F	'2		
916 W	'2		
F	'2		

North Canton Facility

[illegible]

Discrepancies Cont'd:

GCMS VOLATILE DATA

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC/MS Volatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPC1AA 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
 Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
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 #...: MGPC1AA Matrix.....: WQ

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	2.0	ug/L

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
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
MB Lot-Sample #: A1D150000-156

Work Order #...: MG3AC1AA

Matrix.....: WATER

Analysis Date...: 04/15/11

Prep Date.....: 04/15/11

Final Wgt/Vol...: 5 mL

Dilution Factor: 1

Prep Batch #...: 1105156

Initial Wgt/Vol: 5 mL

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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	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

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A1D070566

Work Order #...: MG3AC1AA

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <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 Date.....: 04/15/11 Analysis Date...: 04/15/11
 Prep Batch #...: 1105156
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 5 mL

PARAMETER	PERCENT	RECOVERY	METHOD
	RECOVERY	LIMITS	
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 (total)	105	(85 - 111)	SW846 8260B
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)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D150000-156

PARAMETER	PERCENT RECOVERY	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- propane	71 a	(75 - 132)	SW846 8260B
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 (MTBE)	104	(59 - 129)	SW846 8260B
1,2,4-Trichloro- benzene	57 a	(75 - 130)	SW846 8260B
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)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D150000-156

<u>PARAMETER</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>	<u>METHOD</u>
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- 1,2,2-trifluoroethane	105	(50 - 150)	SW846 8260B
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

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	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 Date.....: 04/15/11 Analysis Date...: 04/15/11
 Prep Batch #...: 1105156
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 5 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	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 (total)	20	21	ug/L	105	SW846 8260B
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

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D070566
LCS Lot-Sample#: A1D150000-156

Work Order #...: MG3AC1AC

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
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- propane	10	7.1 a	ug/L	71	SW846 8260B
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 (MTBE)	10	10	ug/L	104	SW846 8260B
1,2,4-Trichloro- benzene	10	5.7 a	ug/L	57	SW846 8260B
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

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D070566 Work Order #...: MG3AC1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D150000-156

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
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- 1,2,2-trifluoroethane	10	11	ug/L	105	SW846 8260B
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

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY 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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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
1,2-Dichloroethene (total)	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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
1,1,1-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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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
Cyclohexane	92	(70 - 130)			SW846 8260B
	86	(70 - 130)	6.8	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro- propane	76	(70 - 130)			SW846 8260B
	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
	102	(70 - 130)	2.5	(0-30)	SW846 8260B
1,2,4-Trichloro- benzene	54 a	(70 - 130)			SW846 8260B
	54 a	(70 - 130)	0.40	(0-30)	SW846 8260B
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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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
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- 2-butene	188 a	(70 - 130)			SW846 8260B
	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
	47 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	102	(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- 1,2,2-trifluoroethane	98	(70 - 130)			SW846 8260B
	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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)			SW846 8260B
	80	(70 - 130)	6.7	(0-30)	SW846 8260B
Vinyl acetate	118	(70 - 130)			SW846 8260B
	106	(70 - 130)	10	(0-30)	SW846 8260B
tert-Butyl alcohol	104	(70 - 130)			SW846 8260B
	112	(70 - 130)	6.8	(0-30)	SW846 8260B

SURROGATE	PERCENT RECOVERY	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.

MATRIX SPIKE SAMPLE DATA REPORT

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
cis-1,2-Dichloroethene	ND	10	10	ug/L	101		SW846 8260B
	ND	10	10	ug/L	101	0.04	SW846 8260B
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		SW846 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 (total)	ND	20	21	ug/L	103	0.48	SW846 8260B
Chloroform	ND	10	10	ug/L	102		SW846 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	SW846 8260B
2-Butanone	ND	20	22	ug/L	111		SW846 8260B
	ND	20	23	ug/L	115	3.1	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
1,1,1-Trichloroethane	ND	10	10	ug/L	104		SW846 8260B
	ND	10	10	ug/L	101	2.3	SW846 8260B
Carbon tetrachloride	ND	10	10	ug/L	105		SW846 8260B
	ND	10	10	ug/L	100	5.0	SW846 8260B
Bromodichloromethane	ND	10	11	ug/L	108		SW846 8260B
	ND	10	10	ug/L	105	3.2	SW846 8260B
1,2-Dichloropropane	ND	10	10	ug/L	102		SW846 8260B
	ND	10	10	ug/L	103	0.81	SW846 8260B
cis-1,3-Dichloropropene	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	9.8	ug/L	98	2.8	SW846 8260B
Trichloroethene	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	9.7	ug/L	97	1.5	SW846 8260B
Dibromochloromethane	ND	10	10	ug/L	104		SW846 8260B
	ND	10	10	ug/L	101	3.0	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	104		SW846 8260B
	ND	10	10	ug/L	102	2.0	SW846 8260B
trans-1,3-Dichloropropene	ND	10	11	ug/L	106		SW846 8260B
	ND	10	10	ug/L	103	2.4	SW846 8260B
Bromoform	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.9	ug/L	99	2.4	SW846 8260B
4-Methyl-2-pentanone	ND	20	23	ug/L	115		SW846 8260B
	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)

MATRIX SPIKE SAMPLE DATA REPORT

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	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- propane	ND	10	7.6	ug/L	76		SW846 8260B
	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
Isopropylbenzene	ND	10	9.3	ug/L	93		SW846 8260B
	ND	10	8.7	ug/L	87	6.2	SW846 8260B
Methyl acetate	ND	10	9.7	ug/L	97		SW846 8260B
	ND	10	9.8	ug/L	98	0.83	SW846 8260B
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 (MTBE)	ND	10	10	ug/L	100		SW846 8260B
	ND	10	10	ug/L	102	2.5	SW846 8260B
1,2,4-Trichloro- benzene	ND	10	5.4	ug/L	54 a		SW846 8260B
	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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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
tert-Butylbenzene	ND	10	7.9	ug/L	79		SW846 8260B
	ND	10	7.5	ug/L	75	5.8	SW846 8260B
2-Chlorotoluene	ND	10	8.5	ug/L	85		SW846 8260B
	ND	10	8.2	ug/L	82	4.1	SW846 8260B
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- 2-butene	ND	10	19	ug/L	188 a		SW846 8260B
	ND	10	16	ug/L	164 a	14	SW846 8260B
1,3-Dichloropropane	ND	10	10	ug/L	101		SW846 8260B
	ND	10	9.7	ug/L	97	4.5	SW846 8260B
2,2-Dichloropropane	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	9.5	ug/L	95	1.3	SW846 8260B
1,1-Dichloropropene	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	10	ug/L	100	0.39	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	ND	10	4.9	ug/L	49 a		SW846 8260B
	ND	10	4.7	ug/L	47 a	4.6	SW846 8260B
Iodomethane	ND	10	14	ug/L	143 a		SW846 8260B
	ND	10	14	ug/L	139 a	2.4	SW846 8260B
p-Isopropyltoluene	ND	10	8.5	ug/L	85		SW846 8260B
	ND	10	8.2	ug/L	82	3.9	SW846 8260B
Naphthalene	ND	10	4.9	ug/L	49 a		SW846 8260B
	ND	10	5.6	ug/L	56 a	13	SW846 8260B
n-Propylbenzene	ND	10	8.4	ug/L	84		SW846 8260B
	ND	10	8.1	ug/L	81	4.5	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.9	ug/L	99	3.1	SW846 8260B
1,2,3-Trichlorobenzene	ND	10	5.0	ug/L	50 a		SW846 8260B
	ND	10	5.3	ug/L	53 a	5.9	SW846 8260B
1,2,3-Trichloropropane	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.2	ug/L	92	6.3	SW846 8260B
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.6	ug/L	96	2.0	SW846 8260B
1,2,4-Trimethylbenzene	ND	10	9.0	ug/L	90		SW846 8260B
	ND	10	8.6	ug/L	86	5.3	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
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	PERCENT RECOVERY	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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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
1,2-Dichloroethene (total)	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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
1,1,1-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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MATRIX SPIKE SAMPLE EVALUATION REPORT

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
Cyclohexane	87	(70 - 130)			SW846 8260B
	84	(70 - 130)	4.0	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro- propane	72	(70 - 130)			SW846 8260B
	71	(70 - 130)	1.5	(0-30)	SW846 8260B
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)			SW846 8260B
	88	(70 - 130)	0.80	(0-30)	SW846 8260B
Methyl acetate	99	(70 - 130)			SW846 8260B
	95	(70 - 130)	4.0	(0-30)	SW846 8260B
Methylcyclohexane	79	(70 - 130)			SW846 8260B
	76	(70 - 130)	5.0	(0-30)	SW846 8260B
Methyl tert-butyl ether (MTBE)	103	(70 - 130)			SW846 8260B
	104	(70 - 130)	1.1	(0-30)	SW846 8260B
1,2,4-Trichloro- benzene	55 a	(70 - 130)			SW846 8260B
	55 a	(70 - 130)	0.05	(0-30)	SW846 8260B
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
	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
	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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
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
	185 a	(70 - 130)	4.7	(0-30)	SW846 8260B
1,3-Dichloropropane	96	(70 - 130)			SW846 8260B
	100	(70 - 130)	3.6	(0-30)	SW846 8260B
2,2-Dichloropropane	91	(70 - 130)			SW846 8260B
	94	(70 - 130)	3.2	(0-30)	SW846 8260B
1,1-Dichloropropene	96	(70 - 130)			SW846 8260B
	96	(70 - 130)	0.11	(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
	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
	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- 1,2,2-trifluoroethane	98	(70 - 130)			SW846 8260B
	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)

MATRIX SPIKE SAMPLE EVALUATION REPORT

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

SURROGATE	PERCENT RECOVERY	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.

MATRIX SPIKE SAMPLE DATA REPORT

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
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 (total)	ND	20	20	ug/L	100		SW846 8260B
	ND	20	20	ug/L	102	2.0	SW846 8260B
Chloroform	ND	10	10	ug/L	101		SW846 8260B
	ND	10	10	ug/L	101	0.75	SW846 8260B
1,2-Dichloroethane	ND	10	10	ug/L	103		SW846 8260B
	ND	10	10	ug/L	104	1.0	SW846 8260B
2-Butanone	ND	20	22	ug/L	109		SW846 8260B
	ND	20	23	ug/L	113	3.8	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
1,1,1-Trichloroethane	ND	10	10	ug/L	100		SW846 8260B
	ND	10	10	ug/L	102	2.2	SW846 8260B
Carbon tetrachloride	ND	10	10	ug/L	103		SW846 8260B
	ND	10	10	ug/L	101	1.9	SW846 8260B
Bromodichloromethane	ND	10	11	ug/L	106		SW846 8260B
	ND	10	11	ug/L	105	0.48	SW846 8260B
1,2-Dichloropropane	ND	10	10	ug/L	104		SW846 8260B
	ND	10	10	ug/L	105	0.35	SW846 8260B
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 8260B
	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 8260B
	ND	10	7.4	ug/L	74	1.7	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
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 8260B
	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
	ND	10	8.8	ug/L	88	0.80	SW846 8260B
Methyl acetate	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	9.5	ug/L	95	4.0	SW846 8260B
Methylcyclohexane	ND	10	7.9	ug/L	79		SW846 8260B
	ND	10	7.6	ug/L	76	5.0	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	10	10	ug/L	103		SW846 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 8260B
Trichlorofluoromethane	ND	10	12	ug/L	117		SW846 8260B
	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 8260B
	ND	30	34	ug/L	114	0.44	SW846 8260B
Bromobenzene	ND	10	7.9	ug/L	79		SW846 8260B
	ND	10	8.4	ug/L	84	5.6	SW846 8260B
n-Butylbenzene	ND	10	7.4	ug/L	74		SW846 8260B
	ND	10	7.6	ug/L	76	2.8	SW846 8260B
sec-Butylbenzene	ND	10	7.2	ug/L	72		SW846 8260B
	ND	10	7.5	ug/L	75	3.8	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
tert-Butylbenzene	ND	10	7.2	ug/L	72		SW846 8260B
	ND	10	7.5	ug/L	75	3.4	SW846 8260B
2-Chlorotoluene	ND	10	7.7	ug/L	77		SW846 8260B
	ND	10	8.1	ug/L	81	5.1	SW846 8260B
4-Chlorotoluene	ND	10	8.1	ug/L	81		SW846 8260B
	ND	10	8.2	ug/L	82	1.1	SW846 8260B
Dibromomethane	ND	10	11	ug/L	109		SW846 8260B
	ND	10	11	ug/L	111	1.5	SW846 8260B
trans-1,4-Dichloro- 2-butene	ND	10	18	ug/L	176 a		SW846 8260B
	ND	10	18	ug/L	185 a	4.7	SW846 8260B
1,3-Dichloropropane	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	10	ug/L	100	3.6	SW846 8260B
2,2-Dichloropropane	ND	10	9.1	ug/L	91		SW846 8260B
	ND	10	9.4	ug/L	94	3.2	SW846 8260B
1,1-Dichloropropene	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	9.6	ug/L	96	0.11	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	ND	10	4.9	ug/L	49 a		SW846 8260B
	ND	10	5.2	ug/L	52 a	6.0	SW846 8260B
Iodomethane	ND	10	14	ug/L	137 a		SW846 8260B
	ND	10	14	ug/L	144 a	5.4	SW846 8260B
p-Isopropyltoluene	ND	10	7.9	ug/L	79		SW846 8260B
	ND	10	8.1	ug/L	81	2.3	SW846 8260B
Naphthalene	ND	10	5.8	ug/L	58 a		SW846 8260B
	ND	10	5.7	ug/L	57 a	1.7	SW846 8260B
n-Propylbenzene	ND	10	7.7	ug/L	77		SW846 8260B
	ND	10	7.9	ug/L	79	1.8	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	10	ug/L	100	1.2	SW846 8260B
1,2,3-Trichlorobenzene	ND	10	5.5	ug/L	55 a		SW846 8260B
	ND	10	5.3	ug/L	53 a	3.0	SW846 8260B
1,2,3-Trichloropropane	ND	10	9.1	ug/L	91		SW846 8260B
	ND	10	9.4	ug/L	94	4.2	SW846 8260B
1,1,2-Trichloro- 1,2,2-trifluoroethane	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.9	ug/L	99	1.5	SW846 8260B
1,2,4-Trimethylbenzene	ND	10	8.4	ug/L	84		SW846 8260B
	ND	10	8.6	ug/L	86	3.1	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
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	PERCENT RECOVERY	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.

Lot/SDG
Number: **A1D070566**

Sample Control Chain of Custody – TAL North Canton
GC/MS Volatiles

<u>Lot Number</u>	<u>Sample</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Analysis Date</u>	<u>Analyst</u>
A1D070566	11	MGPC1AA	Volatile Organics, GC/MS (8260B)	04/15/11	Laura Evans

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
 Dilution Factor: 1 Initial Wgt/Vol: 990 mL Final Wgt/Vol...: 2 mL
 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING	
		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
bis(2-Chloroethoxy) methane	ND	1.0	ug/L
bis(2-Chloroethyl)- ether	ND	1.0	ug/L
bis(2-Ethylhexyl) phthalate	2.2 J,B	10	ug/L
4-Bromophenyl phenyl ether	ND	2.0	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
2-Chlorophenol	ND	1.0	ug/L
4-Chlorophenyl phenyl ether	ND	2.0	ug/L
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)

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

GC/MS Semivolatiles

Lot-Sample #...: A1D070566-011 Work Order #...: MGPPC1AC Matrix.....: WQ

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
4,6-Dinitro- 2-methylphenol	ND	5.0	ug/L
2,4-Dinitrophenol	ND	5.0	ug/L
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
Hexachlorobutadiene	ND	1.0	ug/L
Hexachlorocyclopenta- diene	ND	10	ug/L
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- 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	1.0	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
2,2'-oxybis (1-Chloropropane)	ND	1.0	ug/L

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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 #...: MGPC1AC Matrix.....: WQ

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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
MB Lot-Sample #: A1D080000-032

Work Order #...: MGPXW1AA

Matrix.....: WATER

Analysis Date...: 04/19/11

Prep Date.....: 04/08/11

Final Wgt/Vol...: 2 mL

Dilution Factor: 1

Prep Batch #...: 1098032

Initial Wgt/Vol: 1000 mL

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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) methane	ND	1.0	ug/L	SW846	8270C
bis(2-Chloroethyl)- ether	ND	1.0	ug/L	SW846	8270C
bis(2-Ethylhexyl) phthalate	4.0 J	10	ug/L	SW846	8270C
4-Bromophenyl phenyl ether	ND	2.0	ug/L	SW846	8270C
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 ether	ND	2.0	ug/L	SW846	8270C
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- 2-methylphenol	ND	5.0	ug/L	SW846	8270C
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

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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 (1-Chloropropane)	ND	1.0	ug/L	SW846	8270C

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Nitrobenzene-d5	144	(50 - 150)
2-Fluorobiphenyl	146	(50 - 150)
Terphenyl-d14	171 *	(50 - 150)
Phenol-d5	163 *	(50 - 150)
2-Fluorophenol	155 *	(50 - 150)

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566

Work Order #...: MGPXW1AA

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D080000-032
 Prep Date.....: 04/08/11 Analysis Date...: 04/19/11
 Prep Batch #...: 1098032
 Dilution Factor: 1 Final Wgt/Vol...: 2 mL
 Initial Wgt/Vol: 1000 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,2,4-Trichloro- benzene	73	(30 - 120)	SW846 8270C
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- phenol	80	(36 - 135)	SW846 8270C
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) methane	82	(30 - 115)	SW846 8270C
bis(2-Chloroethyl)- ether	78	(30 - 115)	SW846 8270C
bis(2-Chloroisopropyl) ether	78	(50 - 150)	SW846 8270C
bis(2-Ethylhexyl) phthalate	55	(30 - 154)	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER
LCS Lot-Sample#: A1D080000-032

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2,4,6-Trichloro-phenol	81	(39 - 115)	SW846 8270C
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-2-methylphenol	76	(42 - 144)	SW846 8270C
4-Bromophenyl phenyl ether	86	(43 - 118)	SW846 8270C
4-Chloroaniline	62	(30 - 133)	SW846 8270C
4-Chlorophenyl phenyl ether	79	(40 - 115)	SW846 8270C
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

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER
LCS Lot-Sample#: A1D080000-032

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
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- diene	41	(30 - 115)	SW846 8270C
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

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
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.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566	Work Order #...: MGPXW1AC	Matrix.....: WATER
LCS Lot-Sample#: A1D080000-032		
Prep Date.....: 04/08/11	Analysis Date...: 04/19/11	
Prep Batch #...: 1098032		
Dilution Factor: 1	Final Wgt/Vol...: 2 mL	
Initial Wgt/Vol: 1000 mL		

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
1,2,4-Trichloro-benzene	20	15	ug/L	73	SW846 8270C
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-phenol	20	16	ug/L	80	SW846 8270C
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
bis(2-Chloroethoxy) methane	20	16	ug/L	82	SW846 8270C
bis(2-Chloroethyl)-ether	20	16	ug/L	78	SW846 8270C
bis(2-Chloroisopropyl) ether	20	16	ug/L	78	SW846 8270C
bis(2-Ethylhexyl) phthalate	20	11	ug/L	55	SW846 8270C

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D080000-032

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
2,4,6-Trichloro-phenol	20	16	ug/L	81	SW846 8270C
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-2-methylphenol	20	15	ug/L	76	SW846 8270C
4-Bromophenyl phenyl ether	20	17	ug/L	86	SW846 8270C
4-Chloroaniline	20	12	ug/L	62	SW846 8270C
4-Chlorophenyl phenyl ether	20	16	ug/L	79	SW846 8270C
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)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGPXW1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D080000-032

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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- diene	20	8.3	ug/L	41	SW846 8270C
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

SURROGATE	PERCENT RECOVERY	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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2,4-Trichloro- benzene	66	(45 - 135)			SW846 8270C
	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	74	(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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
bis(2-Chloroethoxy) methane	75	(45 - 135)			SW846 8270C
	76	(45 - 135)	1.2	(0-40)	SW846 8270C
bis(2-Chloroethyl)- ether	71	(45 - 135)			SW846 8270C
	79	(45 - 135)	9.4	(0-40)	SW846 8270C
bis(2-Chloroisopropyl) ether	71	(45 - 135)			SW846 8270C
	76	(45 - 135)	5.8	(0-40)	SW846 8270C
bis(2-Ethylhexyl) phthalate	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
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- 2-methylphenol	71	(45 - 135)			SW846 8270C
	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Methylphenol	74	(45 - 135)			SW846 8270C
	76	(45 - 135)	2.9	(0-40)	SW846 8270C
4-Methylphenol	75	(45 - 135)			SW846 8270C
	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)			SW846 8270C
	69	(45 - 135)	3.1	(0-40)	SW846 8270C
Nitrobenzene	72	(45 - 135)			SW846 8270C
	75	(45 - 135)	3.7	(0-40)	SW846 8270C
2-Nitrophenol	75	(45 - 135)			SW846 8270C
	81	(45 - 135)	7.8	(0-40)	SW846 8270C
N-Nitrosodiphenylamine	61	(45 - 135)			SW846 8270C
	62	(45 - 135)	2.1	(0-40)	SW846 8270C
Phenanthrene	73	(45 - 135)			SW846 8270C
	75	(45 - 135)	3.0	(0-40)	SW846 8270C
2,4,5-Trichloro-phenol	76	(45 - 135)			SW846 8270C
	75	(45 - 135)	1.3	(0-40)	SW846 8270C
2,4,6-Trichloro-phenol	70	(45 - 135)			SW846 8270C
	74	(45 - 135)	6.0	(0-40)	SW846 8270C
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
	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	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.

MATRIX SPIKE SAMPLE DATA REPORT

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT 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
	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
	ND	41	30	ug/L	75	1.6	SW846 8270C
Benzo(a)pyrene	ND	41	24	ug/L	59		SW846 8270C
	ND	41	26	ug/L	64	7.4	SW846 8270C

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
 MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT 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
bis(2-Chloroisopropyl) ether	ND	41	29	ug/L	71		SW846 8270C
	ND	41	31	ug/L	76	5.8	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	41	31	ug/L	77		SW846 8270C
	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

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
 MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT 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- 2-methylphenol	ND	41	29	ug/L	71		SW846 8270C
	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
	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
	ND	41	33	ug/L	80	5.3	SW846 8270C
Hexachlorobutadiene	ND	41	27	ug/L	66		SW846 8270C
	ND	41	28	ug/L	69	5.1	SW846 8270C
Hexachlorocyclopenta- diene	ND	41	15	ug/L	38 a		SW846 8270C
	ND	41	17	ug/L	41 a	9.2	SW846 8270C
Hexachloroethane	ND	41	27	ug/L	66		SW846 8270C
	ND	41	29	ug/L	70	5.2	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	41	29	ug/L	71		SW846 8270C
	ND	41	30	ug/L	74	4.3	SW846 8270C
Isophorone	ND	41	29	ug/L	71		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

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2-Methylphenol	ND	41	30	ug/L	74		SW846 8270C
	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
	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	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	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-phenol	ND	41	31	ug/L	76		SW846 8270C
	ND	41	31	ug/L	75	1.3	SW846 8270C
2,4,6-Trichloro-phenol	ND	41	28	ug/L	70		SW846 8270C
	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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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AG-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2,4-Trichloro- benzene	68	(45 - 135)			SW846 8270C
	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)			SW846 8270C
	70	(45 - 135)	1.9	(0-40)	SW846 8270C
Phenol	78	(45 - 135)			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
	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

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
bis(2-Chloroethoxy) methane	76	(45 - 135)			SW846 8270C
	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
bis(2-Chloroisopropyl) ether	73	(45 - 135)			SW846 8270C
	73	(45 - 135)	0.05	(0-40)	SW846 8270C
bis(2-Ethylhexyl) phthalate	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

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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- 2-methylphenol	73	(45 - 135)			SW846 8270C
	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- diene	44 a	(45 - 135)			SW846 8270C
	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)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	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)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	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.

MATRIX SPIKE SAMPLE DATA REPORT

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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,2,4-Trichloro- benzene	ND	41	28	ug/L	68		SW846 8270C
	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 8270C
Pentachlorophenol	ND	41	29	ug/L	71		SW846 8270C
	ND	41	29	ug/L	70	1.9	SW846 8270C
Phenol	ND	41	32	ug/L	78		SW846 8270C
	ND	41	32	ug/L	78	0.11	SW846 8270C
2-Chlorophenol	ND	41	32	ug/L	78		SW846 8270C
	ND	41	32	ug/L	77	0.30	SW846 8270C
4-Chloro-3-methylphenol	ND	41	33	ug/L	81		SW846 8270C
	ND	41	34	ug/L	83	2.7	SW846 8270C
4-Nitrophenol	ND	41	34	ug/L	83		SW846 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

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
 MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
bis(2-Chloroethoxy) methane	ND	41	31	ug/L	76		SW846 8270C
	ND	41	31	ug/L	76	0.38	SW846 8270C
bis(2-Chloroethyl)- ether	ND	41	31	ug/L	77		SW846 8270C
	ND	41	30	ug/L	74	2.7	SW846 8270C
bis(2-Chloroisopropyl) ether	ND	41	30	ug/L	73		SW846 8270C
	ND	41	30	ug/L	73	0.05	SW846 8270C
bis(2-Ethylhexyl) phthalate	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
	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

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,3-Dichlorobenzene	ND	41	28	ug/L	69		SW846 8270C
	ND	41	29	ug/L	70	1.3	SW846 8270C
3,3'-Dichlorobenzidine	ND	41	8.4	ug/L	20 a		SW846 8270C
	ND	41	8.5	ug/L	21 a	1.5	SW846 8270C
2,4-Dichlorophenol	ND	41	32	ug/L	80		SW846 8270C
	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- 2-methylphenol	ND	41	30	ug/L	73		SW846 8270C
	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		SW846 8270C
	ND	41	31	ug/L	75	2.3	SW846 8270C
Hexachlorobenzene	ND	41	31	ug/L	76		SW846 8270C
	ND	41	32	ug/L	78	2.2	SW846 8270C
Hexachlorobutadiene	ND	41	28	ug/L	69		SW846 8270C
	ND	41	28	ug/L	69	0.08	SW846 8270C
Hexachlorocyclopenta- diene	ND	41	18	ug/L	44 a		SW846 8270C
	ND	41	19	ug/L	46	4.8	SW846 8270C
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)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2-Methylphenol	ND	41	31	ug/L	75		SW846 8270C
	ND	41	31	ug/L	76	1.2	SW846 8270C
4-Methylphenol	ND	82	63	ug/L	78		SW846 8270C
	ND	82	63	ug/L	77	0.96	SW846 8270C
Naphthalene	ND	41	29	ug/L	71		SW846 8270C
	ND	41	29	ug/L	72	0.83	SW846 8270C
2-Nitroaniline	ND	41	28	ug/L	68		SW846 8270C
	ND	41	28	ug/L	69	1.1	SW846 8270C
3-Nitroaniline	ND	41	27	ug/L	65		SW846 8270C
	ND	41	25	ug/L	60	8.5	SW846 8270C
4-Nitroaniline	ND	41	28	ug/L	70		SW846 8270C
	ND	41	27	ug/L	67	4.4	SW846 8270C
Nitrobenzene	ND	41	31	ug/L	75		SW846 8270C
	ND	41	31	ug/L	76	1.4	SW846 8270C
2-Nitrophenol	ND	41	32	ug/L	79		SW846 8270C
	ND	41	32	ug/L	79	0.57	SW846 8270C
N-Nitrosodiphenylamine	ND	41	27	ug/L	66		SW846 8270C
	ND	41	27	ug/L	65	1.9	SW846 8270C
Phenanthrene	ND	41	31	ug/L	75		SW846 8270C
	ND	41	30	ug/L	74	0.82	SW846 8270C
2,4,5-Trichloro-phenol	ND	41	33	ug/L	82		SW846 8270C
	ND	41	32	ug/L	78	4.6	SW846 8270C
2,4,6-Trichloro-phenol	ND	41	32	ug/L	79		SW846 8270C
	ND	41	32	ug/L	77	2.1	SW846 8270C
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	SW846 8270C
Caprolactam	ND	41	30	ug/L	74		SW846 8270C
	ND	41	31	ug/L	75	1.5	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AF-MS Matrix.....: WATER
 MS Lot-Sample #: A1D070402-030 MGM891AG-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	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.

**Lot/SDG
Number:****A1D070566****Sample Control Chain of Custody – TAL North Canton
GC/MS Semivolatiles**

<u>Lot Number</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Prep Date</u>	<u>Prep Analyst</u>	<u>Date of Transfer</u>	<u>Transferred By</u>	<u>Analysis Date</u>	<u>Analyst</u>
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 #...: MGPC1CM 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
 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING	
		LIMIT	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
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
Tetrachloro-m-xylene	85	(50 - 150)	
Decachlorobiphenyl	65	(50 - 150)	

NOTE(S):

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A1D070566
MB Lot-Sample #: A1D090000-014

Work Order #...: MGR9L1AA

Matrix.....: WATER

Analysis Date...: 04/17/11

Prep Date.....: 04/09/11

Final Wgt/Vol...: 5 mL

Dilution Factor: 1

Prep Batch #...: 1099014

Initial Wgt/Vol: 1000 mL

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Tetrachloro-m-xylene	81	(50 - 150)
Decachlorobiphenyl	72	(50 - 150)

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9L1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D090000-014
 Prep Date.....: 04/09/11 Analysis Date...: 04/17/11
 Prep Batch #...: 1099014
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

PARAMETER	PERCENT RECOVERY	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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
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.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9L1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D090000-014
 Prep Date.....: 04/09/11 Analysis Date...: 04/17/11
 Prep Batch #...: 1099014
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
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

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY 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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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 #...: 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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT 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 #...: A1D070566 Work Order #...: MGM7Q1AT-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-016 MGM7Q1AU-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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 #...: 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	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AT-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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 #...: 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	SAMPLE	SPIKE	MEASRD	UNITS	PERCNT		METHOD
	AMOUNT	AMT	AMOUNT		RECVRY	RPD	
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

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGM891AT-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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.

Lot/SDG
Number: **A1D070566**

Sample Control Chain of Custody – TAL North Canton
GC Semivolatiles

<u>Lot Number</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Prep Date</u>	<u>Prep Analyst</u>	<u>Date of Transfer</u>	<u>Transferred By</u>	<u>Analysis Date</u>	<u>Analyst</u>
A1D070566-011	MGPCC1CM	Pesticides (8081A)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/17/11	Carolynne Roach

POLYCHLORINATED BIPHENYLS DATA

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8082

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
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
<u>SURROGATE</u>	<u>PERCENT</u>		<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
Tetrachloro-m-xylene	83	(50 - 150)	
Decachlorobiphenyl	55	(50 - 150)	

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A1D070566
MB Lot-Sample #: A1D090000-015

Work Order #...: MGR9M1AA

Matrix.....: WATER

Analysis Date...: 04/16/11

Prep Date.....: 04/09/11

Final Wgt/Vol...: 5 mL

Dilution Factor: 1

Prep Batch #...: 1099015

Initial Wgt/Vol: 1000 mL

PARAMETER	RESULT	REPORTING		
		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

SURROGATE	PERCENT	RECOVERY
	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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D070566 Work Order #...: MGR9M1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D090000-015
 Prep Date.....: 04/09/11 Analysis Date...: 04/16/11
 Prep Batch #...: 1099015
 Dilution Factor: 2 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>	<u>METHOD</u>
Aroclor 1016	84	(58 - 141)	SW846 8082
Aroclor 1260	83	(71 - 143)	SW846 8082

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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 #...: A1D070566 Work Order #...: MGR9M1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D090000-015
 Prep Date.....: 04/09/11 Analysis Date...: 04/16/11
 Prep Batch #...: 1099015
 Dilution Factor: 2 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
Aroclor 1016	10	8.4	ug/L	84	SW846 8082
Aroclor 1260	10	8.3	ug/L	83	SW846 8082

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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

SURROGATE	PERCENT RECOVERY	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 #...: 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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
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

SURROGATE	PERCENT RECOVERY	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 EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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

SURROGATE	PERCENT RECOVERY	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 #...: 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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
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

SURROGATE	PERCENT RECOVERY	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.

Lot/SDG
Number: **A1D070566**

Sample Control Chain of Custody – TAL North Canton
GC Semivolatiles

<u>Lot Number</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Prep Date</u>	<u>Prep Analyst</u>	<u>Date of Transfer</u>	<u>Transferred By</u>	<u>Analysis Date</u>	<u>Analyst</u>
A1D070566-011	MGPCC1AF	PCBs (8082)	04/09/11	Alex Robbins	04/11/11	Chris Coast	04/16/11	Lori Hass

METALS DATA

U.S.Geological Survey (USGS)

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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
Prep Batch #... : 1098019						
Silver	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1A4
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Aluminum	ND	50.0	ug/L	SW846 6020	04/08-04/11/11	MGPCC1AG
		Dilution Factor: 1		Analysis Time..: 20:24	Analyst ID.....: 000079	
		Instrument ID..: I8				
Arsenic	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1AQ
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Barium	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1AU
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Beryllium	ND	1.0	ug/L	SW846 6020	04/08-04/11/11	MGPCC1AJ
		Dilution Factor: 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 Factor: 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 Factor: 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 Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Chromium	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1A6
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Copper	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1AX
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				

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U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

TOTAL Metals

Lot-Sample #...: A1D070566-011

Matrix.....: WQ

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Iron	ND	50.0	ug/L	SW846 6020	04/08-04/11/11	MGPCC1AL
		Dilution Factor: 1		Analysis Time..: 20:24	Analyst ID.....: 000079	
		Instrument ID..: I8				
Mercury	ND	0.20	ug/L	SW846 7470A	04/08-04/11/11	MGPCC1A7
		Dilution Factor: 1		Analysis Time..: 13:57	Analyst ID.....: 002260	
		Instrument ID..: H1				
Potassium	ND	1000	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1A3
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Magnesium	ND	1000	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1A0
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Manganese	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1A1
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Sodium	ND	1000	ug/L	SW846 6020	04/08-04/11/11	MGPCC1AM
		Dilution Factor: 1		Analysis Time..: 20:24	Analyst ID.....: 000079	
		Instrument ID..: I8				
Nickel	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1A2
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Lead	ND	3.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1AR
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Antimony	ND	2.0	ug/L	SW846 6020	04/08-04/11/11	MGPCC1AH
		Dilution Factor: 1		Analysis Time..: 20:24	Analyst ID.....: 000079	
		Instrument ID..: I8				
Selenium	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1AT
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				

(Continued on next page)

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

TOTAL Metals

Lot-Sample #...: A1D070566-011

Matrix.....: WQ

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>	<u>PREPARATION-</u>	<u>WORK</u>
		<u>LIMIT</u>	<u>UNITS</u>		<u>ANALYSIS DATE</u>	<u>ORDER #</u>
Thallium	ND	1.0	ug/L	SW846 6020	04/08-04/11/11	MGPCC1AN
		Dilution Factor: 1		Analysis Time..: 20:24	Analyst ID.....: 000079	
		Instrument ID..: I8				
Vanadium	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11	MGPCC1A5
		Dilution Factor: 1		Analysis Time..: 18:55	Analyst ID.....: 002260	
		Instrument ID..: I5				
Zinc	4.3 B,J	10.0	ug/L	SW846 6020	04/08-04/11/11	MGPCC1AP
		Dilution Factor: 1		Analysis Time..: 20:24	Analyst ID.....: 000079	
		Instrument ID..: I8				

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.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A1D080000-019 Prep Batch #... : 1098019						
Aluminum	ND	50.0	ug/L	SW846 6020	04/08-04/11/11	MGPWP1AE
		Dilution Factor: 1				
		Analysis Time...: 18:09		Analyst ID.....: 000079	Instrument ID...: I8	
Antimony	ND	2.0	ug/L	SW846 6020	04/08-04/11/11	MGPWP1AJ
		Dilution Factor: 1				
		Analysis Time...: 18:09		Analyst ID.....: 000079	Instrument ID...: I8	
Arsenic	ND	5.0	ug/L	SW846 6010B	04/08-04/15/11	MGPWP1AN
		Dilution Factor: 1				
		Analysis Time...: 07:19		Analyst ID.....: 002260	Instrument ID...: I5	
Barium	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AT
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Beryllium	ND	1.0	ug/L	SW846 6020	04/08-04/11/11	MGPWP1AF
		Dilution Factor: 1				
		Analysis Time...: 18:09		Analyst ID.....: 000079	Instrument ID...: I8	
Cadmium	ND	0.50	ug/L	SW846 6020	04/08-04/11/11	MGPWP1AG
		Dilution Factor: 1				
		Analysis Time...: 18:09		Analyst ID.....: 000079	Instrument ID...: I8	
Calcium	ND	1000	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AU
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Chromium	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AW
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Cobalt	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AV
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Copper	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AX
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Iron	ND	50.0	ug/L	SW846 6020	04/08-04/11/11	MGPWP1AH
		Dilution Factor: 1				
		Analysis Time...: 18:09		Analyst ID.....: 000079	Instrument ID...: I8	

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Lead	ND	3.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AP
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Magnesium	ND	1000	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1A1
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Manganese	ND	10.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1A2
		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	
Selenium	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AQ
		Dilution Factor: 1				
		Analysis Time...: 16:15		Analyst ID.....: 002260	Instrument ID...: I5	
Silver	ND	5.0	ug/L	SW846 6010B	04/08-04/14/11	MGPWP1AR
		Dilution Factor: 1				
		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...: I8	
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...: I8	
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	
Zinc	5.9 B	10.0	ug/L	SW846 6020	04/08-04/11/11	MGPWP1AK
		Dilution Factor: 1				
		Analysis Time...: 18:09		Analyst ID.....: 000079	Instrument ID...: I8	

(Continued on next page)

METHOD BLANK REPORT

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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A1D080000-019 Prep Batch #... 1098019					
Nickel	99	(80 - 120)	SW846 6010B	04/08-04/14/11	MGPWP1A3
		Dilution Factor: 1	Analysis Time..: 16:21	Analyst ID.....: 002260	
		Instrument ID..: I5			
Vanadium	99	(80 - 120)	SW846 6010B	04/08-04/14/11	MGPWP1A4
		Dilution Factor: 1	Analysis Time..: 16:21	Analyst ID.....: 002260	
		Instrument ID..: I5			
Mercury	96	(80 - 120)	SW846 7470A	04/08-04/11/11	MGPWP1A5
		Dilution Factor: 1	Analysis Time..: 13:37	Analyst ID.....: 002260	
		Instrument ID..: H1			
Aluminum	99	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1A6
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079	
		Instrument ID..: I8			
Beryllium	101	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1A7
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079	
		Instrument ID..: I8			
Cadmium	106	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1A8
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079	
		Instrument ID..: I8			
Iron	101	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1A9
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079	
		Instrument ID..: I8			
Antimony	104	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1CA
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079	
		Instrument ID..: I8			
Zinc	113	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1CC
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079	
		Instrument ID..: I8			
Thallium	100	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1CD
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079	
		Instrument ID..: I8			

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>	
Sodium	114	(80 - 120)	SW846 6020	04/08-04/11/11	MGPWP1CE	
		Dilution Factor: 1	Analysis Time..: 18:14	Analyst ID.....: 000079		
		Instrument ID..: I8				
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..: I5				
Calcium	97	(80 - 120)	SW846 6010B	04/08-04/14/11	MGPWP1CL	
		Dilution Factor: 1	Analysis Time..: 16:21	Analyst ID.....: 002260		
		Instrument ID..: I5				
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				

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Magnesium	99	(80 - 120)	SW846 6010B	04/08-04/14/11	MGPWP1CR
		Dilution Factor: 1	Analysis Time..: 16:21	Analyst ID.....: 002260	
		Instrument ID..: I5			
Manganese	105	(80 - 120)	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.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample# : A1D080000-019 Prep Batch #... : 1098019							
Nickel	500	497	ug/L	99	SW846 6010B	04/08-04/14/11	MGPWP1A3
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Vanadium	500	493	ug/L	99	SW846 6010B	04/08-04/14/11	MGPWP1A4
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Mercury	5.0	4.8	ug/L	96	SW846 7470A	04/08-04/11/11	MGPWP1A5
			Dilution Factor: 1		Analysis Time..: 13:37	Analyst ID.....: 002260	
			Instrument ID..: H1				
Aluminum	10000	9920	ug/L	99	SW846 6020	04/08-04/11/11	MGPWP1A6
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				
Beryllium	100	101	ug/L	101	SW846 6020	04/08-04/11/11	MGPWP1A7
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				
Cadmium	100	106	ug/L	106	SW846 6020	04/08-04/11/11	MGPWP1A8
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				
Iron	10000	10100	ug/L	101	SW846 6020	04/08-04/11/11	MGPWP1A9
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				
Antimony	100	104	ug/L	104	SW846 6020	04/08-04/11/11	MGPWP1CA
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				
Zinc	100	113	ug/L	113	SW846 6020	04/08-04/11/11	MGPWP1CC
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				
Thallium	100	99.8	ug/L	100	SW846 6020	04/08-04/11/11	MGPWP1CD
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Sodium	10000	11400	ug/L	114	SW846 6020	04/08-04/11/11	MGPWP1CE
			Dilution Factor: 1		Analysis Time..: 18:14	Analyst ID.....: 000079	
			Instrument ID..: I8				
Arsenic	2000	1940	ug/L	97	SW846 6010B	04/08-04/15/11	MGPWP1CF
			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	MGPWP1CG
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Selenium	2000	2110	ug/L	106	SW846 6010B	04/08-04/14/11	MGPWP1CH
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Silver	50.0	45.2	ug/L	90	SW846 6010B	04/08-04/14/11	MGPWP1CJ
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Barium	2000	2000	ug/L	100	SW846 6010B	04/08-04/14/11	MGPWP1CK
			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	MGPWP1CL
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Cobalt	500	490	ug/L	98	SW846 6010B	04/08-04/14/11	MGPWP1CM
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Chromium	200	193	ug/L	96	SW846 6010B	04/08-04/14/11	MGPWP1CN
			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	MGPWP1CP
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				
Potassium	50000	46400	ug/L	93	SW846 6010B	04/08-04/14/11	MGPWP1CQ
			Dilution Factor: 1		Analysis Time..: 16:21	Analyst ID.....: 002260	
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Magnesium	50000	49700	ug/L	99	SW846 6010B	04/08-04/14/11	MGPWP1CR
				Dilution Factor: 1	Analysis Time.: 16:21	Analyst ID.....: 002260	
				Instrument ID.: I5			
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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received...: 04/07/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D070402-017 Prep Batch #... : 1098019					
Aluminum	97	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1AM
		Dilution Factor: 1	Analysis Time..: 19:06	Instrument ID...: I8	
		Analyst ID.....: 000079			
Antimony	102	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1A2
		Dilution Factor: 1	Analysis Time..: 19:06	Instrument ID...: I8	
		Analyst ID.....: 000079			
Arsenic	101	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1CF
		Dilution Factor: 1	Analysis Time..: 17:20	Instrument ID...: I5	
		Analyst ID.....: 002260			
Barium	107	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1CU
		Dilution Factor: 1	Analysis Time..: 17:20	Instrument ID...: I5	
		Analyst ID.....: 002260			
Beryllium	99	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1AQ
		Dilution Factor: 1	Analysis Time..: 19:06	Instrument ID...: I8	
		Analyst ID.....: 000079			
Cadmium	102	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1AU
		Dilution Factor: 1	Analysis Time..: 19:06	Instrument ID...: I8	
		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			
Copper	105	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1C8
		Dilution Factor: 1	Analysis Time..: 17:20	Instrument ID...: I5	
		Analyst ID.....: 002260			

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received...: 04/07/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Iron	98	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1AX
		Dilution Factor: 1	Analysis Time..: 19:06		Instrument ID...: I8
		Analyst ID.....: 000079			
Lead	110	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1CJ
		Dilution Factor: 1	Analysis Time..: 17:20		Instrument ID...: I5
		Analyst ID.....: 002260			
Magnesium	111	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1DF
		Dilution Factor: 1	Analysis Time..: 17:20		Instrument ID...: I5
		Analyst ID.....: 002260			
Manganese	114	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1DJ
		Dilution Factor: 1	Analysis Time..: 17:20		Instrument ID...: I5
		Analyst ID.....: 002260			
Mercury	97	(80 - 120)	SW846 7470A	04/08-04/11/11	MGM7R1AJ
		Dilution Factor: 1	Analysis Time..: 14:00		Instrument ID...: H1
		Analyst ID.....: 002260			
Nickel	108	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1AC
		Dilution Factor: 1	Analysis Time..: 17:20		Instrument ID...: I5
		Analyst ID.....: 002260			
Potassium	103	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1DC
		Dilution Factor: 1	Analysis Time..: 17:20		Instrument ID...: I5
		Analyst ID.....: 002260			
Selenium	112	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1CM
		Dilution Factor: 1	Analysis Time..: 17:20		Instrument ID...: I5
		Analyst ID.....: 002260			
Silver	98	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1CQ
		Dilution Factor: 1	Analysis Time..: 17:20		Instrument ID...: I5
		Analyst ID.....: 002260			
Sodium	103	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1CC
		Dilution Factor: 1	Analysis Time..: 19:06		Instrument ID...: I8
		Analyst ID.....: 000079			
Thallium	102	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1A8
		Dilution Factor: 1	Analysis Time..: 19:06		Instrument ID...: I8
		Analyst ID.....: 000079			

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received...: 04/07/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Vanadium	106	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM7R1AF
		Dilution Factor: 1	Analysis Time..: 17:20	Instrument ID...: I5	
		Analyst ID.....: 002260			
Zinc	96	(75 - 125)	SW846 6020	04/08-04/11/11	MGM7R1A5
		Dilution Factor: 1	Analysis Time..: 19:06	Instrument ID...: I8	
		Analyst ID.....: 000079			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

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	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D070402-017 Prep Batch #...: 1098019								
Aluminum	ND	10000	9680	ug/L	97	SW846 6020	04/08-04/11/11	MGM7R1AM
			Dilution Factor: 1		Analysis Time..: 19:06		Instrument ID...: I8	
			Analyst ID.....: 000079					
Antimony	ND	100	102	ug/L	102	SW846 6020	04/08-04/11/11	MGM7R1A2
			Dilution Factor: 1		Analysis Time..: 19:06		Instrument ID...: I8	
			Analyst ID.....: 000079					
Arsenic	ND	2000	2030	ug/L	101	SW846 6010B	04/08-04/14/11	MGM7R1CF
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Barium	76.4	2000	2220	ug/L	107	SW846 6010B	04/08-04/14/11	MGM7R1CU
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Beryllium	ND	100	98.7	ug/L	99	SW846 6020	04/08-04/11/11	MGM7R1AQ
			Dilution Factor: 1		Analysis Time..: 19:06		Instrument ID...: I8	
			Analyst ID.....: 000079					
Cadmium	ND	100	102	ug/L	102	SW846 6020	04/08-04/11/11	MGM7R1AU
			Dilution Factor: 1		Analysis Time..: 19:06		Instrument ID...: I8	
			Analyst ID.....: 000079					
Calcium	73600	50000	127000	ug/L	107	SW846 6010B	04/08-04/14/11	MGM7R1CX
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Chromium	ND	200	207	ug/L	103	SW846 6010B	04/08-04/14/11	MGM7R1C5
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Cobalt	ND	500	526	ug/L	105	SW846 6010B	04/08-04/14/11	MGM7R1C2
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Copper	ND	250	263	ug/L	105	SW846 6010B	04/08-04/14/11	MGM7R1C8
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					

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MATRIX SPIKE SAMPLE DATA REPORT

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	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	599	10000	10400	ug/L	98	SW846 6020	04/08-04/11/11	MGM7R1AX
			Dilution Factor: 1		Analysis Time..: 19:06		Instrument ID...: I8	
			Analyst ID.....: 000079					
Lead	ND	500	551	ug/L	110	SW846 6010B	04/08-04/14/11	MGM7R1CJ
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Magnesium	30000	50000	85300	ug/L	111	SW846 6010B	04/08-04/14/11	MGM7R1DF
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Manganese	258	500	829	ug/L	114	SW846 6010B	04/08-04/14/11	MGM7R1DJ
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Mercury	ND	1.0	0.97	ug/L	97	SW846 7470A	04/08-04/11/11	MGM7R1AJ
			Dilution Factor: 1		Analysis Time..: 14:00		Instrument ID...: H1	
			Analyst ID.....: 002260					
Nickel	ND	500	541	ug/L	108	SW846 6010B	04/08-04/14/11	MGM7R1AC
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Potassium	1370	50000	52800	ug/L	103	SW846 6010B	04/08-04/14/11	MGM7R1DC
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Selenium	ND	2000	2230	ug/L	112	SW846 6010B	04/08-04/14/11	MGM7R1CM
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Silver	ND	50.0	49.0	ug/L	98	SW846 6010B	04/08-04/14/11	MGM7R1CQ
			Dilution Factor: 1		Analysis Time..: 17:20		Instrument ID...: I5	
			Analyst ID.....: 002260					
Sodium	7180	10000	17500	ug/L	103	SW846 6020	04/08-04/11/11	MGM7R1CC
			Dilution Factor: 1		Analysis Time..: 19:06		Instrument ID...: I8	
			Analyst ID.....: 000079					
Thallium	ND	100	102	ug/L	102	SW846 6020	04/08-04/11/11	MGM7R1A8
			Dilution Factor: 1		Analysis Time..: 19:06		Instrument ID...: I8	
			Analyst ID.....: 000079					

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MATRIX SPIKE SAMPLE DATA REPORT

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	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Vanadium	ND	500	529	ug/L	106	SW846 6010B	04/08-04/14/11	MGM7R1AF
				Dilution Factor: 1	Analysis Time..: 17:20	Instrument ID...: I5		
				Analyst ID.....: 002260				
Zinc	8.0	100	104	ug/L	96	SW846 6020	04/08-04/11/11	MGM7R1A5
				Dilution Factor: 1	Analysis Time..: 19:06	Instrument ID...: I8		
				Analyst ID.....: 000079				

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received...: 04/07/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D070402-031 Prep Batch #... : 1098019					
Aluminum	96	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1AM
		Dilution Factor: 1	Analysis Time..: 20:02	Instrument ID...: I8	
		Analyst ID.....: 000079			
Antimony	101	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1A2
		Dilution Factor: 1	Analysis Time..: 20:02	Instrument ID...: I8	
		Analyst ID.....: 000079			
Arsenic	97	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1CF
		Dilution Factor: 1	Analysis Time..: 18:25	Instrument ID...: I5	
		Analyst ID.....: 002260			
Barium	109	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1CU
		Dilution Factor: 1	Analysis Time..: 18:25	Instrument ID...: I5	
		Analyst ID.....: 002260			
Beryllium	95	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1AQ
		Dilution Factor: 1	Analysis Time..: 20:02	Instrument ID...: I8	
		Analyst ID.....: 000079			
Cadmium	101	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1AU
		Dilution Factor: 1	Analysis Time..: 20:02	Instrument ID...: I8	
		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			
Copper	106	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1C8
		Dilution Factor: 1	Analysis Time..: 18:25	Instrument ID...: I5	
		Analyst ID.....: 002260			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received...: 04/07/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Iron	96	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1AX
		Dilution Factor: 1	Analysis Time..: 20:02		Instrument ID...: I8
		Analyst ID.....: 000079			
Lead	105	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1CJ
		Dilution Factor: 1	Analysis Time..: 18:25		Instrument ID...: I5
		Analyst ID.....: 002260			
Magnesium	98	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1DF
		Dilution Factor: 1	Analysis Time..: 18:25		Instrument ID...: I5
		Analyst ID.....: 002260			
Manganese	109	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1DJ
		Dilution Factor: 1	Analysis Time..: 18:25		Instrument ID...: I5
		Analyst ID.....: 002260			
Mercury	102	(80 - 120)	SW846 7470A	04/08-04/11/11	MGM9D1AJ
		Dilution Factor: 1	Analysis Time..: 13:39		Instrument ID...: H1
		Analyst ID.....: 002260			
Nickel	104	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1AC
		Dilution Factor: 1	Analysis Time..: 18:25		Instrument ID...: I5
		Analyst ID.....: 002260			
Potassium	107	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1DC
		Dilution Factor: 1	Analysis Time..: 18:25		Instrument ID...: I5
		Analyst ID.....: 002260			
Selenium	107	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1CM
		Dilution Factor: 1	Analysis Time..: 18:25		Instrument ID...: I5
		Analyst ID.....: 002260			
Silver	98	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1CQ
		Dilution Factor: 1	Analysis Time..: 18:25		Instrument ID...: I5
		Analyst ID.....: 002260			
Sodium	111	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1CC
		Dilution Factor: 1	Analysis Time..: 20:02		Instrument ID...: I8
		Analyst ID.....: 000079			
Thallium	102	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1A8
		Dilution Factor: 1	Analysis Time..: 20:02		Instrument ID...: I8
		Analyst ID.....: 000079			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D070566

Matrix.....: WATER

Date Sampled...: 04/06/11 13:09 Date Received...: 04/07/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Vanadium	104	(75 - 125)	SW846 6010B	04/08-04/14/11	MGM9D1AF
		Dilution Factor: 1	Analysis Time..: 18:25	Instrument ID...: I5	
		Analyst ID.....: 002260			
Zinc	100	(75 - 125)	SW846 6020	04/08-04/11/11	MGM9D1A5
		Dilution Factor: 1	Analysis Time..: 20:02	Instrument ID...: I8	
		Analyst ID.....: 000079			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

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	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D070402-031 Prep Batch #... : 1098019								
Aluminum	ND	10000	9640	ug/L	96	SW846 6020	04/08-04/11/11	MGM9D1AM
			Dilution Factor: 1		Analysis Time..: 20:02		Instrument ID...: I8	
			Analyst ID.....: 000079					
Antimony	ND	100	101	ug/L	101	SW846 6020	04/08-04/11/11	MGM9D1A2
			Dilution Factor: 1		Analysis Time..: 20:02		Instrument ID...: I8	
			Analyst ID.....: 000079					
Arsenic	11.3	2000	1960	ug/L	97	SW846 6010B	04/08-04/14/11	MGM9D1CF
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID...: I5	
			Analyst ID.....: 002260					
Barium	35.7	2000	2220	ug/L	109	SW846 6010B	04/08-04/14/11	MGM9D1CU
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID...: I5	
			Analyst ID.....: 002260					
Beryllium	ND	100	94.6	ug/L	95	SW846 6020	04/08-04/11/11	MGM9D1AQ
			Dilution Factor: 1		Analysis Time..: 20:02		Instrument ID...: I8	
			Analyst ID.....: 000079					
Cadmium	ND	100	101	ug/L	101	SW846 6020	04/08-04/11/11	MGM9D1AU
			Dilution Factor: 1		Analysis Time..: 20:02		Instrument ID...: I8	
			Analyst ID.....: 000079					
Calcium	33300	50000	82500	ug/L	98	SW846 6010B	04/08-04/14/11	MGM9D1CX
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID...: I5	
			Analyst ID.....: 002260					
Chromium	ND	200	200	ug/L	100	SW846 6010B	04/08-04/14/11	MGM9D1C5
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID...: I5	
			Analyst ID.....: 002260					
Cobalt	1.5	500	506	ug/L	101	SW846 6010B	04/08-04/14/11	MGM9D1C2
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID...: I5	
			Analyst ID.....: 002260					
Copper	ND	250	265	ug/L	106	SW846 6010B	04/08-04/14/11	MGM9D1C8
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID...: I5	
			Analyst ID.....: 002260					

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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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	18200	10000	27800	ug/L	96	SW846 6020	04/08-04/11/11	MGM9D1AX
			Dilution Factor: 1		Analysis Time..: 20:02		Instrument ID..: I8	
			Analyst ID.....: 000079					
Lead	ND	500	524	ug/L	105	SW846 6010B	04/08-04/14/11	MGM9D1CJ
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID..: I5	
			Analyst ID.....: 002260					
Magnesium	92000	50000	141000	ug/L	98	SW846 6010B	04/08-04/14/11	MGM9D1DF
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID..: I5	
			Analyst ID.....: 002260					
Manganese	296	500	842	ug/L	109	SW846 6010B	04/08-04/14/11	MGM9D1DJ
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID..: I5	
			Analyst ID.....: 002260					
Mercury	ND	1.0	1.0	ug/L	102	SW846 7470A	04/08-04/11/11	MGM9D1AJ
			Dilution Factor: 1		Analysis Time..: 13:39		Instrument ID..: H1	
			Analyst ID.....: 002260					
Nickel	2.8	500	522	ug/L	104	SW846 6010B	04/08-04/14/11	MGM9D1AC
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID..: I5	
			Analyst ID.....: 002260					
Potassium	2130	50000	55900	ug/L	107	SW846 6010B	04/08-04/14/11	MGM9D1DC
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID..: I5	
			Analyst ID.....: 002260					
Selenium	ND	2000	2150	ug/L	107	SW846 6010B	04/08-04/14/11	MGM9D1CM
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID..: I5	
			Analyst ID.....: 002260					
Silver	ND	50.0	49.1	ug/L	98	SW846 6010B	04/08-04/14/11	MGM9D1CQ
			Dilution Factor: 1		Analysis Time..: 18:25		Instrument ID..: I5	
			Analyst ID.....: 002260					
Sodium	2180	10000	13200	ug/L	111	SW846 6020	04/08-04/11/11	MGM9D1CC
			Dilution Factor: 1		Analysis Time..: 20:02		Instrument ID..: I8	
			Analyst ID.....: 000079					
Thallium	ND	100	102	ug/L	102	SW846 6020	04/08-04/11/11	MGM9D1A8
			Dilution Factor: 1		Analysis Time..: 20:02		Instrument ID..: I8	
			Analyst ID.....: 000079					

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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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Vanadium	ND	500	518	ug/L	104	SW846 6010B	04/08-04/14/11	MGM9D1AF
				Dilution Factor: 1	Analysis Time..: 18:25	Instrument ID...: I5		
				Analyst ID.....: 002260				
Zinc	5.5	100	106	ug/L	100	SW846 6020	04/08-04/11/11	MGM9D1A5
				Dilution Factor: 1	Analysis Time..: 20:02	Instrument ID...: I8		
				Analyst ID.....: 000079				

NOTE(S):

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

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A1D070566

Work Order #...: MGM7R-SMP
MGM7R-DUP

Matrix.....: WATER

Date Sampled...: 04/06/11 09:22 Date Received...: 04/07/11

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Lead	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Selenium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Silver	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Barium	76.4	78.2	ug/L	2.4	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Calcium	73600	74900	ug/L	1.8	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Potassium	1370	1380	ug/L	0.74	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Magnesium	30000	30500	ug/L	1.7	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Manganese	258	262	ug/L	1.8	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 17:20	Analyst ID.....: 002260	
			Instrument ID..: I5					
Antimony	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
			Dilution Factor: 1			Analysis Time..: 19:06	Analyst ID.....: 000079	
			Instrument ID..: I8					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D070566-000 Work Order #...: MGM7R-SMP Matrix.....: WATER
MGM7R-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Zinc	8.0 B,J	4.1 B	ug/L	65	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 19:06		Analyst ID.....: 000079
						Instrument ID..: I8		
Thallium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 19:06		Analyst ID.....: 000079
						Instrument ID..: I8		
Nickel	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 17:20		Analyst ID.....: 002260
						Instrument ID..: I5		
Vanadium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 17:20		Analyst ID.....: 002260
						Instrument ID..: I5		
Mercury	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 7470A	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 14:00		Analyst ID.....: 002260
						Instrument ID..: H1		
Aluminum	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 19:06		Analyst ID.....: 000079
						Instrument ID..: I8		
Beryllium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 19:06		Analyst ID.....: 000079
						Instrument ID..: I8		
Cadmium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 19:06		Analyst ID.....: 000079
						Instrument ID..: I8		
Iron	599	612	ug/L	2.2	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 19:06		Analyst ID.....: 000079
						Instrument ID..: I8		

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D070566-000 Work Order #...: MGM7R-SMP Matrix.....: WATER
MGM7R-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cobalt	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis Time..: 17:20		Analyst ID.....: 002260	
			Instrument ID..: I5					
Chromium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis Time..: 17:20		Analyst ID.....: 002260	
			Instrument ID..: I5					
Copper	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis Time..: 17:20		Analyst ID.....: 002260	
			Instrument ID..: I5					
Sodium	7180	7440	ug/L	3.5	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6020	04/08-04/11/11	1098019
			Dilution Factor: 1		Analysis Time..: 19:06		Analyst ID.....: 000079	
			Instrument ID..: I8					
Arsenic	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-017 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis 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.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A1D070566

Work Order #...: MGM9D-SMP
MGM9D-DUP

Matrix.....: WATER

Date Sampled...: 04/06/11 13:09

Date Received...: 04/07/11

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Mercury	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 7470A	04/08-04/11/11	1098019
			Dilution Factor: 1			Analysis Time..: 13:39	Analyst ID.....: 002260	
			Instrument ID..: H1					
Aluminum	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
			Dilution Factor: 1			Analysis Time..: 20:02	Analyst ID.....: 000079	
			Instrument ID..: I8					
Beryllium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
			Dilution Factor: 1			Analysis Time..: 20:02	Analyst ID.....: 000079	
			Instrument ID..: I8					
Cadmium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
			Dilution Factor: 1			Analysis Time..: 20:02	Analyst ID.....: 000079	
			Instrument ID..: I8					
Iron	18200	16800	ug/L	8.0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
			Dilution Factor: 1			Analysis Time..: 20:02	Analyst ID.....: 000079	
			Instrument ID..: I8					
Cobalt	1.5 B	2.1 B	ug/L	33	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 18:25	Analyst ID.....: 002260	
			Instrument ID..: I5					
Chromium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 18:25	Analyst ID.....: 002260	
			Instrument ID..: I5					
Copper	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1			Analysis Time..: 18:25	Analyst ID.....: 002260	
			Instrument ID..: I5					
Sodium	2180	2000	ug/L	8.4	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
			Dilution Factor: 1			Analysis Time..: 20:02	Analyst ID.....: 000079	
			Instrument ID..: I8					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D070566-000 Work Order #...: MGM9D-SMP Matrix.....: WATER
MGM9D-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Arsenic	11.3	13.8	ug/L	20	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 18:25 Analyst ID.....: 002260		
						Instrument ID..: I5		
Antimony	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 20:02 Analyst ID.....: 000079		
						Instrument ID..: I8		
Zinc	5.5 B,J	7.4 B	ug/L	29	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 20:02 Analyst ID.....: 000079		
						Instrument ID..: I8		
Thallium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6020	04/08-04/11/11	1098019
						Dilution Factor: 1 Analysis Time..: 20:02 Analyst ID.....: 000079		
						Instrument ID..: I8		
Nickel	2.8 B	2.5 B	ug/L	10	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 18:25 Analyst ID.....: 002260		
						Instrument ID..: I5		
Vanadium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 18:25 Analyst ID.....: 002260		
						Instrument ID..: I5		
Lead	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 18:25 Analyst ID.....: 002260		
						Instrument ID..: I5		
Selenium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 18:25 Analyst ID.....: 002260		
						Instrument ID..: I5		
Silver	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
						Dilution Factor: 1 Analysis Time..: 18:25 Analyst ID.....: 002260		
						Instrument ID..: I5		

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D070566-000 Work Order #...: MGM9D-SMP Matrix.....: WATER
MGM9D-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Barium	35.7	33.6	ug/L	6.1	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis Time..: 18:25		Analyst ID.....: 002260	
			Instrument ID..: I5					
Calcium	33300	31000	ug/L	7.3	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis Time..: 18:25		Analyst ID.....: 002260	
			Instrument ID..: I5					
Potassium	2130	2050	ug/L	3.8	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis Time..: 18:25		Analyst ID.....: 002260	
			Instrument ID..: I5					
Magnesium	92000	85500	ug/L	7.3	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis Time..: 18:25		Analyst ID.....: 002260	
			Instrument ID..: I5					
Manganese	296	274	ug/L	7.5	(0-20)	SD Lot-Sample #: A1D070402-031 SW846 6010B	04/08-04/14/11	1098019
			Dilution Factor: 1		Analysis 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.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Metals Internal Chain of Custody

Date Prepared: 04/08/11 Prep Analyst: Lisa Mcgall

Laboratory Sample ID		Lab ID	Method	Analysis Date	Analyst	Instrument
A1D070566	11	MGPCC	SW846 6010B	04/14/11	Brian Davies	I5
A1D070566	11	MGPCC	SW846 6020	04/11/11	Natalie Bucklew	I8
A1D070566	11	MGPCC	SW846 7470A	04/11/11	Brian Davies	H1

GENERAL CHEMISTRY DATA

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	1.4	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Fluoride	0.14 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101103
		Dilution Factor: 1				
Nitrate as N	0.040 B	0.10	mg/L	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	0.79	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				
Sulfate	101	1.0	mg/L	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	1.3	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Fluoride	0.30 B	1.0	mg/L	MCAWW 300.0A	04/13/11	1104302
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrogen, as Ammonia	0.84 B	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	0.17 B	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				
Sulfate	62.6	1.0	mg/L	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	1.1	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Fluoride	0.11 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101103
		Dilution Factor: 1				
Nitrate as N	0.071 B	0.10	mg/L	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	1.3	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				
Sulfate	13.4	1.0	mg/L	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	5.0	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Fluoride	0.11 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101103
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				
Sulfate	50.0	1.0	mg/L	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	6.7	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Fluoride	0.37 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101103
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	0.19 B	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				
Sulfate	1120	10.0	mg/L	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 10				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

Client Sample ID: FWGB12MW-010C-0220-FB

General Chemistry

Lot-Sample #...: A1D070566-011 **Work Order #...**: MGPPC **Matrix.....**: WQ
Date Sampled...: 04/06/11 14:05 **Date Received..**: 04/07/11

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	ND	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/13/11	1103349
		Dilution Factor: 1				
Fluoride	ND	1.0	mg/L	MCAWW 300.0A	04/13/11	1104302
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrate-Nitrite	ND	0.1	mg/L	MCAWW 353.2	04/12/11	1102391
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrocellulose	ND	2.0	mg/L	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				
Sulfate	ND	1.0	mg/L	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 1				

U.S.Geological Survey (USGS)

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	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	1.4	1.0	mg/L	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Fluoride	0.12 B	1.0	mg/L	MCAWW 300.0A	04/13/11	1104302
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				
Sulfate	25.2	1.0	mg/L	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D070566

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	PREP
		LIMIT	UNITS		ANALYSIS DATE	BATCH #
Bromide	ND	Work Order #: MGT1H1AA 0.50	mg/L	MB Lot-Sample #: A1D110000-109 MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1				
Chloride	ND	Work Order #: MGT061AA 1.0	mg/L	MB Lot-Sample #: A1D110000-106 MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1				
Cyanide, Total	ND	Work Order #: MG0MK1AA 0.010	mg/L	MB Lot-Sample #: A1D130000-349 SW846 9012A	04/13/11	1103349
		Dilution Factor: 1				
Fluoride	ND	Work Order #: MGT031AA 1.0	mg/L	MB Lot-Sample #: A1D110000-103 MCAWW 300.0A	04/08/11	1101103
		Dilution Factor: 1				
Fluoride	ND	Work Order #: MG2FD1AA 1.0	mg/L	MB Lot-Sample #: A1D140000-302 MCAWW 300.0A	04/13/11	1104302
		Dilution Factor: 1				
Nitrate as N	ND	Work Order #: MGT1N1AA 0.10	mg/L	MB Lot-Sample #: A1D110000-114 MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1				
Nitrate-Nitrite	ND	Work Order #: MGXCN1AA 0.1	mg/L	MB Lot-Sample #: G1D120000-391 MCAWW 353.2	04/12/11	1102391
		Dilution Factor: 1				
Nitrite as N	ND	Work Order #: MGT1E1AA 0.10	mg/L	MB Lot-Sample #: A1D110000-108 MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1				
Nitrocellulose	ND	Work Order #: MGWA31AA 2.0	mg/L	MB Lot-Sample #: G1D120000-167 TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	Work Order #: MGQQH1AA 2.0	mg/L	MB Lot-Sample #: A1D080000-085 MCAWW 350.2	04/08/11	1098085
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	Work Order #: MGT1R1AA 0.50	mg/L	MB Lot-Sample #: A1D110000-116 MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1				

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METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D070566

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>PREP</u> <u>BATCH #</u>
Sulfate	ND	Work Order #: MGT111AA 1.0	mg/L	MB Lot-Sample #: A1D110000-119 MCAWW 300.0A	A1D110000-119 04/08/11	1101119
		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

Lot-Sample #...: A1D070566

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide		WO#:MGT1H1AC-LCS/MGT1H1AD-LCSD LCS Lot-Sample#: A1D110000-109					
	93	(90 - 110)			MCAWW 300.0A	04/08/11	1101109
	94	(90 - 110)	0.47	(0-20)	MCAWW 300.0A	04/08/11	1101109
		Dilution Factor: 1					
Chloride		WO#:MGT061AC-LCS/MGT061AD-LCSD LCS Lot-Sample#: A1D110000-106					
	100	(90 - 110)			MCAWW 300.0A	04/08/11	1101106
	100	(90 - 110)	0.34	(0-20)	MCAWW 300.0A	04/08/11	1101106
		Dilution Factor: 1					
Fluoride		WO#:MGT031AC-LCS/MGT031AD-LCSD LCS Lot-Sample#: A1D110000-103					
	92	(90 - 110)			MCAWW 300.0A	04/08/11	1101103
	93	(90 - 110)	0.86	(0-20)	MCAWW 300.0A	04/08/11	1101103
		Dilution Factor: 1					
Fluoride		WO#:MG2FD1AC-LCS/MG2FD1AD-LCSD LCS Lot-Sample#: A1D140000-302					
	94	(90 - 110)			MCAWW 300.0A	04/13/11	1104302
	94	(90 - 110)	0.0	(0-20)	MCAWW 300.0A	04/13/11	1104302
		Dilution Factor: 1					
Nitrate as N		WO#:MGT1N1AC-LCS/MGT1N1AD-LCSD LCS Lot-Sample#: A1D110000-114					
	95	(90 - 110)			MCAWW 300.0A	04/08/11	1101114
	95	(90 - 110)	0.38	(0-20)	MCAWW 300.0A	04/08/11	1101114
		Dilution Factor: 1					
Nitrite as N		WO#:MGT1E1AC-LCS/MGT1E1AD-LCSD LCS Lot-Sample#: A1D110000-108					
	101	(90 - 110)			MCAWW 300.0A	04/08/11	1101108
	101	(90 - 110)	0.27	(0-20)	MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1					
Phosphate as P, Ortho		WO#:MGT1R1AC-LCS/MGT1R1AD-LCSD LCS Lot-Sample#: A1D110000-116					
	100	(90 - 110)			MCAWW 300.0A	04/08/11	1101116
	102	(90 - 110)	2.7	(0-20)	MCAWW 300.0A	04/08/11	1101116
		Dilution Factor: 1					
Sulfate		WO#:MGT111AC-LCS/MGT111AD-LCSD LCS Lot-Sample#: A1D110000-119					
	95	(90 - 110)			MCAWW 300.0A	04/08/11	1101119
	96	(90 - 110)	0.66	(0-20)	MCAWW 300.0A	04/08/11	1101119
		Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A1D070566

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
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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

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide								
						WO#:MGT1H1AC-LCS/MGT1H1AD-LCSD	LCS Lot-Sample#: A1D110000-109	
	10.0	9.3	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
						Dilution Factor: 1		
Chloride								
						WO#:MGT061AC-LCS/MGT061AD-LCSD	LCS Lot-Sample#: A1D110000-106	
	50.0	49.9	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
						Dilution Factor: 1		
Fluoride								
						WO#:MGT031AC-LCS/MGT031AD-LCSD	LCS Lot-Sample#: A1D110000-103	
	2.5	2.3	mg/L	92		MCAWW 300.0A	04/08/11	1101103
	2.5	2.3	mg/L	93	0.86	MCAWW 300.0A	04/08/11	1101103
						Dilution Factor: 1		
Fluoride								
						WO#:MG2FD1AC-LCS/MG2FD1AD-LCSD	LCS Lot-Sample#: A1D140000-302	
	2.5	2.3	mg/L	94		MCAWW 300.0A	04/13/11	1104302
	2.5	2.3	mg/L	94	0.0	MCAWW 300.0A	04/13/11	1104302
						Dilution Factor: 1		
Nitrate as N								
						WO#:MGT1N1AC-LCS/MGT1N1AD-LCSD	LCS Lot-Sample#: A1D110000-114	
	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
						Dilution Factor: 1		
Nitrite as N								
						WO#:MGT1E1AC-LCS/MGT1E1AD-LCSD	LCS Lot-Sample#: A1D110000-108	
	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
						Dilution Factor: 1		
Phosphate as P, Ortho								
						WO#:MGT1R1AC-LCS/MGT1R1AD-LCSD	LCS Lot-Sample#: A1D110000-116	
	2.5	2.5	mg/L	100		MCAWW 300.0A	04/08/11	1101116
	2.5	2.6	mg/L	102	2.7	MCAWW 300.0A	04/08/11	1101116
						Dilution Factor: 1		
Sulfate								
						WO#:MGT111AC-LCS/MGT111AD-LCSD	LCS Lot-Sample#: A1D110000-119	
	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
						Dilution Factor: 1		

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LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D070566

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
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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>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Cyanide, Total	101	Work Order #: MG0MK1AC (80 - 120)	LCS Lot-Sample#: A1D130000-349 SW846 9012A	04/13/11	1103349
		Dilution Factor: 1			
Nitrate-Nitrite	100	Work Order #: MGXCN1AC (90 - 110)	LCS Lot-Sample#: G1D120000-391 MCAWW 353.2	04/12/11	1102391
		Dilution Factor: 1			
Nitrocellulose	90	Work Order #: MGWA31AC (26 - 144)	LCS Lot-Sample#: G1D120000-167 TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1			
Nitrogen, as Ammonia	94	Work Order #: MGQQH1AC (85 - 114)	LCS Lot-Sample#: A1D080000-085 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 #...: A1D070566

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cyanide, Total	0.33	0.33	mg/L	101	SW846 9012A	04/13/11	1103349
Work Order #: MG0MK1AC LCS Lot-Sample#: A1D130000-349							
Dilution Factor: 1							
Nitrate-Nitrite	1.0	1	mg/L	100	MCAWW 353.2	04/12/11	1102391
Work Order #: MGXCN1AC LCS Lot-Sample#: G1D120000-391							
Dilution Factor: 1							
Nitrocellulose	5.1	4.6	mg/L	90	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
Work Order #: MGWA31AC LCS Lot-Sample#: G1D120000-167							
Dilution Factor: 1							
Nitrogen, as Ammonia	14	13	mg/L	94	MCAWW 350.2	04/08/11	1098085
Work Order #: MGQQH1AC LCS Lot-Sample#: A1D080000-085							
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 #...: A1D070566

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received...: 04/08/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cyanide, Total			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
			Dilution Factor: 1				
Cyanide, Total			WO#:		MGP1D1AM-MS/MGP1D1AN-MSD	MS Lot-Sample #:	A1D080405-002
	92	(80 - 120)			SW846 9012A	04/13/11	1103349
	97	(80 - 120)	5.8	(0-20)	SW846 9012A	04/13/11	1103349
			Dilution Factor: 1				
Cyanide, Total			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
			Dilution Factor: 1				
Nitrocellulose			WO#:		MGLKA1AF-MS/MGLKA1AG-MSD	MS Lot-Sample #:	A1D060428-014
	80	(26 - 144)			TAL-SOP WS-WC-005	04/12-04/13/11	1102167
	79	(26 - 144)	0.99	(0-45)	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
			Dilution Factor: 1				
Nitrogen, as Ammonia			WO#:		MGAA51AU-MS/MGAA51AV-MSD	MS 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
			Dilution 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

PARAMETER	AMOUNT	SAMPLE SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cyanide, Total									
WO#: MGM891AM-MS/MGM891AN-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Cyanide, Total									
WO#: MGP1D1AM-MS/MGP1D1AN-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Cyanide, Total									
WO#: MGP131AM-MS/MGP131AN-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrocellulose									
WO#: MGLKA1AF-MS/MGLKA1AG-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrogen, as Ammonia									
WO#: MGAA51AU-MS/MGAA51AV-MSD MS Lot-Sample #: 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
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 #...: A1D070566

Matrix.....: WATER

Date Sampled...: 03/28/11 13:42 Date Received...: 03/29/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Cyanide, Total	99	Work Order #...: MGM891AM (80 - 120)	SW846 9012A Dilution Factor: 1	MS Lot-Sample #: A1D070402-030 04/13/11	1103349
Cyanide, Total	92	Work Order #...: MGP1D1AM (80 - 120)	SW846 9012A Dilution Factor: 1	MS Lot-Sample #: A1D080405-002 04/13/11	1103349
Cyanide, Total	103	Work Order #...: MGP131AM (80 - 120)	SW846 9012A Dilution Factor: 1	MS Lot-Sample #: A1D080405-018 04/13/11	1103349
Nitrocellulose	80	Work Order #...: MGLKA1AF (26 - 144)	TAL-SOP WS-WC-005 Dilution Factor: 1	MS Lot-Sample #: A1D060428-014 04/12-04/13/11	1102167
Nitrogen, as Ammonia	104	Work Order #...: MGAA51AU (75 - 125)	MCAWW 350.2 Dilution Factor: 1	MS Lot-Sample #: A1C290455-001 04/08/11	1098085

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D070566

Matrix.....: WG

Date Sampled...: 04/06/11 09:22 Date Received...: 04/07/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide			WO#: MGPAF1AR-MS/MGPAF1AT-MSD MS Lot-Sample #: A1D070566-001				
	95	(80 - 120)			MCAWW 300.0A	04/08/11	1101109
	95	(80 - 120)	0.21	(0-20)	MCAWW 300.0A	04/08/11	1101109
			Dilution Factor: 1				
Bromide			WO#: MGPA71AV-MS/MGPA71AW-MSD MS Lot-Sample #: A1D070566-009				
	94	(80 - 120)			MCAWW 300.0A	04/08/11	1101109
	93	(80 - 120)	0.82	(0-20)	MCAWW 300.0A	04/08/11	1101109
			Dilution Factor: 1				
Chloride			WO#: MGPAF1AM-MS/MGPAF1AN-MSD MS Lot-Sample #: A1D070566-001				
	102	(80 - 120)			MCAWW 300.0A	04/08/11	1101106
	100	(80 - 120)	1.4	(0-20)	MCAWW 300.0A	04/08/11	1101106
			Dilution Factor: 1				
Chloride			WO#: MGPA71AN-MS/MGPA71AP-MSD MS Lot-Sample #: A1D070566-009				
	105	(80 - 120)			MCAWW 300.0A	04/08/11	1101106
	104	(80 - 120)	0.71	(0-20)	MCAWW 300.0A	04/08/11	1101106
			Dilution Factor: 1				
Fluoride			WO#: MGPAF1AK-MS/MGPAF1AL-MSD MS Lot-Sample #: A1D070566-001				
	99	(80 - 120)			MCAWW 300.0A	04/08/11	1101103
	98	(80 - 120)	0.53	(0-20)	MCAWW 300.0A	04/08/11	1101103
			Dilution Factor: 1				
Fluoride			WO#: MGPA71AK-MS/MGPA71AL-MSD MS Lot-Sample #: A1D070566-009				
	94	(80 - 120)			MCAWW 300.0A	04/08/11	1101103
	93	(80 - 120)	0.95	(0-20)	MCAWW 300.0A	04/08/11	1101103
			Dilution Factor: 1				
Nitrate as N			WO#: MGPAF1AU-MS/MGPAF1AV-MSD MS Lot-Sample #: A1D070566-001				
	94	(80 - 120)			MCAWW 300.0A	04/08/11	1101114
	94	(80 - 120)	0.50	(0-20)	MCAWW 300.0A	04/08/11	1101114
			Dilution Factor: 1				
Nitrate as N			WO#: MGPA71A0-MS/MGPA71A1-MSD MS Lot-Sample #: A1D070566-009				
	95	(80 - 120)			MCAWW 300.0A	04/08/11	1101114
	94	(80 - 120)	0.76	(0-20)	MCAWW 300.0A	04/08/11	1101114
			Dilution Factor: 1				
Nitrite as N			WO#: MGPAF1AP-MS/MGPAF1AQ-MSD MS Lot-Sample #: A1D070566-001				
	115	(80 - 120)			MCAWW 300.0A	04/08/11	1101108
	113	(80 - 120)	1.5	(0-20)	MCAWW 300.0A	04/08/11	1101108
			Dilution Factor: 1				

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D070566

Matrix.....: WG

Date Sampled...: 04/06/11 09:22 Date Received...: 04/07/11

PARAMETER	PERCENT RECOVERY	RPD	PREPARATION-	PREP
RECOVERY	LIMITS	RPD LIMITS	ANALYSIS DATE	BATCH #
Nitrite as N		WO#: MGPA71AR-MS/MGPA71AT-MSD MS Lot-Sample #: A1D070566-009		
113	(80 - 120)		04/08/11	1101108
111	(80 - 120)	1.9 (0-20) MCAWW 300.0A	04/08/11	1101108
		Dilution Factor: 1		
Phosphate as P, Ortho		WO#: MGPAF1AW-MS/MGPAF1AX-MSD MS Lot-Sample #: 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
		Dilution Factor: 1		
Phosphate as P, Ortho		WO#: MGPA71A3-MS/MGPA71A4-MSD MS Lot-Sample #: 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
		Dilution Factor: 1		
Sulfate		WO#: MGPAF1A0-MS/MGPAF1A1-MSD MS Lot-Sample #: A1D070566-001		
113	(80 - 120)	MCAWW 300.0A	04/08/11	1101119
112	(80 - 120)	0.57 (0-20) MCAWW 300.0A	04/08/11	1101119
		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 #...: A1D070566

Matrix.....: WG

Date Sampled...: 04/06/11 09:22 Date Received...: 04/07/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide									
WO#: MGPAF1AR-MS/MGPAF1AT-MSD MS Lot-Sample #: A1D070566-001									
	ND	10.0	9.5	mg/L	95		MCAWW 300.0A	04/08/11	1101109
	ND	10.0	9.5	mg/L	95	0.21	MCAWW 300.0A	04/08/11	1101109
Dilution Factor: 1									
Bromide									
WO#: MGPA71AV-MS/MGPA71AW-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Chloride									
WO#: MGPAF1AM-MS/MGPAF1AN-MSD MS Lot-Sample #: A1D070566-001									
	1.4	50.0	52.3	mg/L	102		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
Dilution Factor: 1									
Chloride									
WO#: MGPA71AN-MS/MGPA71AP-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Fluoride									
WO#: MGPAF1AK-MS/MGPAF1AL-MSD MS Lot-Sample #: A1D070566-001									
	0.14	2.5	2.6	mg/L	99		MCAWW 300.0A	04/08/11	1101103
	0.14	2.5	2.6	mg/L	98	0.53	MCAWW 300.0A	04/08/11	1101103
Dilution Factor: 1									
Fluoride									
WO#: MGPA71AK-MS/MGPA71AL-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrate as N									
WO#: MGPAF1AU-MS/MGPAF1AV-MSD MS Lot-Sample #: A1D070566-001									
	0.040	2.5	2.4	mg/L	94		MCAWW 300.0A	04/08/11	1101114
	0.040	2.5	2.4	mg/L	94	0.50	MCAWW 300.0A	04/08/11	1101114
Dilution Factor: 1									
Nitrate as N									
WO#: MGPA71A0-MS/MGPA71A1-MSD MS Lot-Sample #: A1D070566-009									
	ND	2.5	2.4	mg/L	95		MCAWW 300.0A	04/08/11	1101114
	ND	2.5	2.4	mg/L	94	0.76	MCAWW 300.0A	04/08/11	1101114
Dilution Factor: 1									
Nitrite as N									
WO#: MGPAF1AP-MS/MGPAF1AQ-MSD MS Lot-Sample #: 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
Dilution 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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrite as N									
WO#: MGPA71AR-MS/MGPA71AT-MSD MS Lot-Sample #: A1D070566-009									
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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGPAF1AW-MS/MGPAF1AX-MSD MS Lot-Sample #: A1D070566-001									
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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGPA71A3-MS/MGPA71A4-MSD MS Lot-Sample #: A1D070566-009									
0.19	2.5		0.096 N	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
Dilution Factor: 1									
Sulfate									
WO#: MGPAF1A0-MS/MGPAF1A1-MSD MS Lot-Sample #: A1D070566-001									
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
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 EVALUATION REPORT

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- ANALYSIS DATE	PREP 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)

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D070566

Matrix.....: WG

Date Sampled...: 04/06/11 15:19 Date Received...: 04/07/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Phosphate as P, Ortho	200 N	(80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: 04/08/11	A1D070566-001 1101116
Phosphate as P, Ortho	0.0 N	(80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: 04/08/11	A1D070566-009 1101116
Sulfate	113	(80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: 04/08/11	A1D070566-001 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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D070566

Matrix.....: WQ

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 #
Bromide			WO#: MGPCC1CU-MS/MGPCC1CV-MSD MS Lot-Sample #: A1D070566-011				
	89	(80 - 120)			MCAWW 300.0A	04/08/11	1101109
	94	(80 - 120)	4.6	(0-20)	MCAWW 300.0A	04/08/11	1101109
			Dilution Factor: 1				
Chloride			WO#: MGPCC1CP-MS/MGPCC1CQ-MSD MS Lot-Sample #: A1D070566-011				
	95	(80 - 120)			MCAWW 300.0A	04/08/11	1101106
	96	(80 - 120)	1.1	(0-20)	MCAWW 300.0A	04/08/11	1101106
			Dilution Factor: 1				
Nitrate as N			WO#: MGPCC1CW-MS/MGPCC1CX-MSD MS Lot-Sample #: A1D070566-011				
	92	(80 - 120)			MCAWW 300.0A	04/08/11	1101114
	94	(80 - 120)	2.5	(0-20)	MCAWW 300.0A	04/08/11	1101114
			Dilution Factor: 1				
Nitrate-Nitrite			WO#: MGPCC1C4-MS/MGPCC1C5-MSD MS Lot-Sample #: A1D070566-011				
	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
			Dilution Factor: 1				
Nitrite as N			WO#: MGPCC1CR-MS/MGPCC1CT-MSD MS Lot-Sample #: A1D070566-011				
	107	(80 - 120)			MCAWW 300.0A	04/08/11	1101108
	110	(80 - 120)	2.5	(0-20)	MCAWW 300.0A	04/08/11	1101108
			Dilution Factor: 1				
Phosphate as P, Ortho			WO#: MGPCC1C0-MS/MGPCC1C1-MSD MS Lot-Sample #: A1D070566-011				
	89	(80 - 120)			MCAWW 300.0A	04/08/11	1101116
	95	(80 - 120)	6.8	(0-20)	MCAWW 300.0A	04/08/11	1101116
			Dilution Factor: 1				
Sulfate			WO#: MGPCC1C2-MS/MGPCC1C3-MSD MS Lot-Sample #: A1D070566-011				
	90	(80 - 120)			MCAWW 300.0A	04/08/11	1101119
	92	(80 - 120)	1.3	(0-20)	MCAWW 300.0A	04/08/11	1101119
			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 #...: A1D070566

Matrix.....: WQ

Date Sampled...: 04/06/11 14:05 Date Received...: 04/07/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide									
WO#: MGPCC1CU-MS/MGPCC1CV-MSD MS Lot-Sample #: A1D070566-011									
	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
Dilution Factor: 1									
Chloride									
WO#: MGPCC1CP-MS/MGPCC1CQ-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrate as N									
WO#: MGPCC1CW-MS/MGPCC1CX-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrate-Nitrite									
WO#: MGPCC1C4-MS/MGPCC1C5-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrite as N									
WO#: MGPCC1CR-MS/MGPCC1CT-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Phosphate as P, Ortho									
WO#: MGPCC1C0-MS/MGPCC1C1-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Sulfate									
WO#: MGPCC1C2-MS/MGPCC1C3-MSD MS Lot-Sample #: 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
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 EVALUATION REPORT

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- ANALYSIS DATE	PREP BATCH #
Bromide	89	Work Order #...: MGPC1CU (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11	1101109
Chloride	95	Work Order #...: MGPC1CP (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11	1101106
Nitrate as N	92	Work Order #...: MGPC1CW (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11	1101114
Nitrate-Nitrite	87 N	Work Order #...: MGPC1C4 (90 - 110)	MCAWW 353.2 Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/12/11	1102391
Nitrite as N	107	Work Order #...: MGPC1CR (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11	1101108
Phosphate as P, Ortho	89	Work Order #...: MGPC1C0 (80 - 120)	MCAWW 300.0A Dilution Factor: 1	MS Lot-Sample #: A1D070566-011 04/08/11	1101116
Sulfate	90	Work Order #...: MGPC1C2 (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 AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Fluoride	0.12	2.5	2.6	mg/L	100	MCAWW 300.0A	04/13/11	1104302

Work Order #...: MGPCP1AR MS Lot-Sample #: A1D070566-013
Dilution Factor: 1

NOTE(S):

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

DENVER DATA

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



Approved for release.
DiLea Griego
Project Manager I
4/21/2011 10:07 AM

DiLea Griego
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 NELAP, 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.

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com



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

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time 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 / Qualifier	Reporting Limit	Units	Method
280-14462-1	FWGRQLMW-007C-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-0130-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-0140-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-0150-GF				
Boron		13 J	100	ug/L	6010B
Lithium		4.3 J	10	ug/L	6010B
SiO2, Silica		14000	500	ug/L	6010B
280-14462-5	FWGRQLMW-016C-0160-GF				
Boron		21 J	100	ug/L	6010B
Lithium		110	10	ug/L	6010B
SiO2, Silica		18000	500	ug/L	6010B
Uranium		0.38 J	1.0	ug/L	6020
280-14462-7	FWGSCFMW-003C-0170-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)	TAL DEN	SW846 6010B	
Preparation, Total Metals	TAL DEN		SW846 3010A
Metals (ICP/MS)	TAL DEN	SW846 6020	
Preparation, Total Metals	TAL DEN		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

Analytical Data

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Client Sample ID: FWGRQLMW-007C-0120-GF

Lab Sample ID: 280-14462-1

Date Sampled: 04/06/2011 1519

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 1741			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62295	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784	Lab File ID:	143AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0135			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	1.3		0.020	1.0

Analytical Data

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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1750			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Boron	170		4.4	100
Lithium	ND		2.6	10
Molybdenum	6.0	J	3.1	20
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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0149			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.37	J	0.020	1.0

Analytical Data

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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1752			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Boron	27	J	4.4	100
Lithium	ND		2.6	10
Molybdenum	ND		3.1	20
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
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0151			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.11	J	0.020	1.0

Analytical Data

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Client Sample ID: FWGRQLMW-014C-0150-GF

Lab Sample ID: 280-14462-4

Date Sampled: 04/06/2011 0916

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 1755			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62295	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784	Lab File ID:	150SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0154			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	ND		0.020	1.0

Analytical Data

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

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 (ug/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 Metals (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 (ug/L)	Qualifier	MDL	RL
Uranium	0.38	J	0.020	1.0

Analytical Data

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

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
Analysis Date:	04/13/2011 1809			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Boron	ND		4.4	100
Lithium	ND		2.6	10
Molybdenum	ND		3.1	20
SiO2, Silica	ND		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:	154SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0205			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	ND		0.020	1.0

Analytical Data

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	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 1811			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62295	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61784	Lab File ID:	155SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0208			Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.026	J	0.020	1.0

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Method Blank - Batch: 280-61780

Method: 6010B

Preparation: 3010A

Lab Sample ID: MB 280-61780/1-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/13/2011 1736
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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: 280-61780

Method: 6010B

Preparation: 3010A

Lab Sample ID: LCS 280-61780/2-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/13/2011 1739
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
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: 280-14462-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/13/2011 1748
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62167
Prep Batch: 280-61780
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_026
Lab File ID: 26b041311.asc
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Boron	270	1000	1270	100	87 - 113	
Lithium	ND	1000	1040	104	89 - 114	
Molybdenum	5.5 J	1000	1100	110	83 - 109	F
SiO2, Silica	15000	21400	37500	107	75 - 141	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Serial Dilution - 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:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	04/13/2011 1743	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
Boron	270	271	2.2	10	J
Lithium	ND	ND	NC	10	
Molybdenum	5.5 J	ND	NC	10	
SiO2, Silica	15000	14800	1.2	10	

Duplicate - 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
Analysis Date:	04/13/2011 1746	Units:	ug/L	Final Weight/Volume:	50 mL
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	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Method Blank - Batch: 280-61784

Method: 6020

Preparation: 3020A

Lab Sample ID: MB 280-61784/1-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/14/2011 0129
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 141_BLK.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/14/2011 0132
Prep Date: 04/13/2011 0800
Leach Date: N/A

Analysis Batch: 280-62295
Prep Batch: 280-61784
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 142_LCS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Uranium	40.0	42.0	105	85 - 119	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Post Digestion 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:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0140	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:	280-14462-1	Analysis Batch:	280-62295	Instrument ID:	MT_024
Client Matrix:	Water	Prep Batch:	280-61784	Lab File ID:	147_MS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0146	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	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

Sdg Number: A1D070566

Serial Dilution - 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:	144SDIL.D
Dilution:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0138	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

Duplicate - 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
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	04/14/2011 0143	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	04/13/2011 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Uranium	1.3	1.44	13	20	

Quality Control Results

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	T	Water	3010A	
MB 280-61780/1-A	Method Blank	T	Water	3010A	
280-14462-1	FWGRQLMW-007C-0120-GF	T	Water	3010A	
280-14462-1DU	Duplicate	T	Water	3010A	
280-14462-1MS	Matrix Spike	T	Water	3010A	
280-14462-2	FWGRQLMW-008C-0130-GF	T	Water	3010A	
280-14462-3	FWGRQLMW-009C-0140-GF	T	Water	3010A	
280-14462-4	FWGRQLMW-014C-0150-GF	T	Water	3010A	
280-14462-5	FWGRQLMW-016C-0160-GF	T	Water	3010A	
280-14462-6	FWGB12MW-010C-0220-FB	T	Water	3010A	
280-14462-7	FWGSCFMW-003C-0170-GF	T	Water	3010A	
Prep Batch: 280-61784					
LCS 280-61784/2-A	Lab Control Sample	T	Water	3020A	
MB 280-61784/1-A	Method Blank	T	Water	3020A	
280-14462-1	FWGRQLMW-007C-0120-GF	T	Water	3020A	
280-14462-1DU	Duplicate	T	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	T	Water	3020A	
280-14462-4	FWGRQLMW-014C-0150-GF	T	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	T	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	T	Water	6010B	280-61780
280-14462-1MS	Matrix Spike	T	Water	6010B	280-61780
280-14462-2	FWGRQLMW-008C-0130-GF	T	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	T	Water	6010B	280-61780

TestAmerica Denver

Quality Control Results

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					
Analysis Batch:280-62295					
LCS 280-61784/2-A	Lab Control Sample	T	Water	6020	280-61784
MB 280-61784/1-A	Method Blank	T	Water	6020	280-61784
280-14462-1	FWGRQLMW-007C-0120-GF	T	Water	6020	280-61784
280-14462-1DU	Duplicate	T	Water	6020	280-61784
280-14462-1MS	Matrix Spike	T	Water	6020	280-61784
280-14462-2	FWGRQLMW-008C-0130-GF	T	Water	6020	280-61784
280-14462-3	FWGRQLMW-009C-0140-GF	T	Water	6020	280-61784
280-14462-4	FWGRQLMW-014C-0150-GF	T	Water	6020	280-61784
280-14462-5	FWGRQLMW-016C-0160-GF	T	Water	6020	280-61784
280-14462-6	FWGB12MW-010C-0220-FB	T	Water	6020	280-61784
280-14462-7	FWGSCFMW-003C-0170-GF	T	Water	6020	280-61784

Report Basis

T = Total

Certification Summary

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

TestAmerica Job ID: 280-14462-1
SDG: A1D070566

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
TestAmerica Denver	Wisconsin	State Program	5	999615430

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.

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
<u>FWGRQLMW-007C-0120-GF</u>	<u>280-14462-1</u>
<u>FWGRQLMW-008C-0130-GF</u>	<u>280-14462-2</u>
<u>FWGRQLMW-009C-0140-GF</u>	<u>280-14462-3</u>
<u>FWGRQLMW-014C-0150-GF</u>	<u>280-14462-4</u>
<u>FWGRQLMW-016C-0160-GF</u>	<u>280-14462-5</u>
<u>FWGB12MW-010C-0220-FB</u>	<u>280-14462-6</u>
<u>FWGSCFMW-003C-0170-GF</u>	<u>280-14462-7</u>

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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
Reporting Basis: WET Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/08/2011 10:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

Analyte	ICV 280-62167/7 04/13/2011 12:36				CCV 280-62167/106 04/13/2011 17:30				CCV 280-62167/120 04/13/2011 18:02			
	Found	C	True	%R	Found	C	True	%R	Found	C	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, Silica	4300		4280	101	10700		10700	100	10800		10700	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: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00150

Analyte	CCV 280-62167/133 04/13/2011 18:32											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	487		500	97								
Lithium	987		1000	99								
Molybdenum	539		500	108								
SiO2, Silica	10700		10700	100								

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

Analyte	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			
	Found	C	True	%R	Found	C	True	%R	Found	C	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

Analyte	CCV 280-62295/63 04/14/2011 01:57				CCV 280-62295/75 04/14/2011 02:30							
	Found	C	True	%R	Found	C	True	%R	Found	C	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

Analyte	CRQL Check Standard				
	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

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

FORM IIB-IN

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

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

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

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1
 SDG No.: A1D070566
 Concentration Units: ug/L

Analyte	RL	ICB 280-62167/11 04/13/2011 12:45		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	
		Found	C	Found	C	Found	C	Found	C
Boron	100	ND		ND		ND		ND	
Lithium	10	ND		ND		ND		ND	
Molybdenum	20	ND		ND		ND		ND	
SiO2, Silica	1100	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1
 SDG No.: A1D070566
 Concentration Units: ug/L

Analyte	RL	ICB 280-62295/8 04/13/2011 19:22		CCB 280-62295/19 04/13/2011 19:52		CCB 280-62295/52 04/14/2011 01:27		CCB 280-62295/64 04/14/2011 02:00	
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	ND		0.0425	J	ND		0.0382	J

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14462-1
SDG No.: A1D070566
Concentration Units: ug/L

Analyte	RL	CCB 280-62295/76 04/14/2011 02:33							
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	0.0381	J						

Italicized analytes were not requested for this sequence.

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	C	Q	Method
7440-42-8	Boron	ND			6010B
7439-93-2	Lithium	ND			6010B
7439-98-7	Molybdenum	ND			6010B
14808-60-7	SiO ₂ , 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	C	Q	Method
7440-61-1	Uranium	ND			6020

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

Analyte	True Solution A	Found 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	

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

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

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

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) C	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
SiO ₂ , Silica	37500	15000	21400	107	75-141		6010B
Uranium	43.3	1.3	40.0	105	85-119		6020

SSR Spiked Sample Result

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

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

SSR Spiked Sample Result

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

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.: A1D070566
 % Solids for Sample: _____ % Solids for Duplicate: _____
 Matrix: Water Concentration Units: ug/L

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	Method
Boron	100	270	263	0.9		6010B
Lithium	10	ND	ND	NC		6010B
Molybdenum	20	5.5 J	ND	NC		6010B
SiO ₂ , Silica	500	15000	14600	0.1		6010B
Uranium	1.0	1.3	1.44	13		6020

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

FORM VI-IN

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

Analyte	Water (ug/L)							
	True	Found	C	%R	Limits		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

Analyte	Water (ug/L)							
	True	Found	C	%R	Limits		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-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
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

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

FORM VIII-IN

8-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

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

FORM VIII-IN

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 Job Number: 280-14462-1
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/ Mass	RL (ug/L)	MDL (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/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium		1	0.02

TestAmerica Denver

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

62295-6020 water
62297-200.8
62300-soilTestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Review Items	Level 1			Level 2	Comments & Samples Affected
	Yes	No	N/A		
Tune					
1. Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8?	✓			✓	
2. Tune RSD <5%?	✓			✓	
2. Resolution ≤ 0.9 AMU full width at 10% peak height? NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height	✓			✓	
Initial Calibration					
1. Done with a minimum of 3 integrations of a high standard and blank?	✓			✓	
2. ICB/CCV run at beginning of run, 10% frequency, and end of run? Results with 10% of expected value?	✓			✓	
3. 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					
1. Were all samples within linear range, ≤ 90% of LDR for 200.8?	✓			✓	
2. Dilutions due to target elements? Dilutions for other reasons? ✓	✓			✓	
3. All reported results bracketed by in control QC?	✓			✓	
4. All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%?	✓			✓	
5. Was a 5X serial dilution analyzed for 6020 and, if so, are results ± 10% of original result, if original ≥ 100x MDL?	✓			✓	
6. LCS included in batch and within QC limits?	✓			✓	
7. Method blank included and <1/2RL?	✓			✓	
8. MS and MSD included in batch?	✓			✓	
9. PDS analyzed and recovery 75-125%?	✓			✓	
10. 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: [Signature]Date: 4/15/112nd Level Reviewer: [Signature]Date: 4/15/11

METALS BATCH WORKSHEET

Lab Name: TestAmerica Denver

SDG No.: A1D070566

Batch Number: 61780

Batch Method: 3010A

Job No.: 280-14462-1

Batch Start Date: 04/13/11 08:00

Batch End Date: 04/13/11 13:00

Batch Analyst: Niman, Katie M

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial pH	InitialAmount	FinalAmount	ICP SPK 2A	ICP SPK 3A
MB 280-61780/1		3010A, 6010B			50 mL	50 mL		00026
LCS 280-61780/2		3010A, 6010B			50 mL	50 mL	0.5 mL	
280-14462-A-1	FWGRQLMW-007C-01 20-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14462-A-1	FWGRQLMW-007C-01 20-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14462-A-1	FWGRQLMW-007C-01 20-GF	3010A, 6010B	T	<2	50 mL	50 mL	0.5 mL	
280-14462-A-2	FWGRQLMW-008C-01 30-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14462-A-3	FWGRQLMW-009C-01 40-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14462-A-4	FWGRQLMW-014C-01 50-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14462-A-5	FWGRQLMW-016C-01 60-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14462-A-6	FWGB12MW-010C-02 20-FB	3010A, 6010B	T	<2	50 mL	50 mL		
280-14462-A-7	FWGSCFMW-003C-01 70-GF	3010A, 6010B	T	<2	50 mL	50 mL		

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	Basis Description
T	Total/NA

METALS BATCH WORKSHEET

Lab Name: TestAmerica Denver

SDG No.: A1D070566

Batch Number: 61784

Batch Method: 3020A

Job No.: 280-14462-1

Batch Start Date: 04/13/11 08:00

Batch End Date: 04/13/11 13:00

Batch Analyst: Niman, Katie M

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial pH	InitialAmount	FinalAmount	MS CALSTD-1 00037	MS CALSTD-2 00036
MB 280-61784/1		3020A, 6020			50 mL	50 mL		
LCS 280-61784/2		3020A, 6020			50 mL	50 mL	0.1 mL	0.1 mL
280-14462-A-1	FWGRQLMW-007C-01 20-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14462-A-1	FWGRQLMW-007C-01 20-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14462-A-1	FWGRQLMW-007C-01 20-GF	3020A, 6020	T	<2	50 mL	50 mL	0.1 mL	
280-14462-A-2	FWGRQLMW-008C-01 30-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14462-A-3	FWGRQLMW-009C-01 40-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14462-A-4	FWGRQLMW-014C-01 50-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14462-A-5	FWGRQLMW-016C-01 60-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14462-A-6	FWGB12MW-010C-02 20-FB	3020A, 6020	T	<2	50 mL	50 mL		
280-14462-A-7	FWGSCFMW-003C-01 70-GF	3020A, 6020	T	<2	50 mL	50 mL		

Batch Notes	
Lot # of Nitric Acid	K09041
Hot Block ID number	09
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	Basis Description
T	Total/NA

Shipping and Receiving Documents

Login Sample Receipt Checklist

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14462-1

SDG Number: A1D070566

Login Number: 14462

List Source: TestAmerica Denver

List Number: 1

Creator: Bindel, Aaron M

Question	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	

3.1°, 2.6° IR1

Laboratory

TestAmerica Denver

4955 Yarrow Street

Arvada, CO

80002

TestAmerica Laboratories, Inc.

SAMPLE ANALYSIS REQUISITION

Lab Request

SR126383

Report Package:

Need Analytical Report

Expanded Deliverables

2011-04-21

Client Code: 1434673

Project Manager:

MARK LOEB

<u>Sample I.D.</u>	<u>Work Order Number</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Analysis Required</u>
A1D070566-2	MGPAL	FWGRQLMW-007C-0120-GF	2011-04-06 15:19	WATER, 6020, Uranium by ICP/MS (Denver)
A1D070566-2	MGPAL	FWGRQLMW-007C-0120-GF	2011-04-06 15:19	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D070566-4	MGPAV	FWGRQLMW-008C-0130-GF	2011-04-06 13:09	WATER, 6020, Uranium by ICP/MS (Denver)
A1D070566-4	MGPAV	FWGRQLMW-008C-0130-GF	2011-04-06 13:09	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D070566-6	MGPA3	FWGRQLMW-009C-0140-GF	2011-04-06 15:31	WATER, 6020, Uranium by ICP/MS (Denver)
A1D070566-6	MGPA3	FWGRQLMW-009C-0140-GF	2011-04-06 15:31	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D070566-8	MGPA6	FWGRQLMW-014C-0150-GF	2011-04-06 9:16	WATER, 6020, Uranium by ICP/MS (Denver)
A1D070566-8	MGPA6	FWGRQLMW-014C-0150-GF	2011-04-06 9:16	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D070566-10	MGPA8	FWGRQLMW-016C-0160-GF	2011-04-06 11:03	WATER, 6020, Uranium by ICP/MS (Denver)
A1D070566-10	MGPA8	FWGRQLMW-016C-0160-GF	2011-04-06 11:03	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D070566-11	MGPCC	FWGB12MW-010C-0220-FB	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

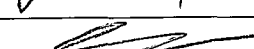
Shipping Method: FED-EX

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: 

Date/Time: 4/7/11 4:00pm

Relinquished by: 

Date/Time:

Received for lab by: 

Date/Time: 4/8/11 1000

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Laboratory

TestAmerica Denver

4955 Yarrow Street

Arvada, CO

80002

Client Code: 1434673

TestAmerica Laboratories, Inc.
SAMPLE ANALYSIS REQUISITION

Lab Request

SR126383

Report Package:

Need Analytical Report

Expanded Deliverables

2011-04-21

Project Manager:

MARK LOEB

Sample I.D.

A1D070566-11

Work Order Number

MGPCC

Client Sample ID

FWGB12MW-010C-0220-FB

A1D070566-12

MGPCK

FWGSCFMW-003C-0170-GF

A1D070566-12

MGPCK

FWGSCFMW-003C-0170-GF

Sampling Date

2011-04-06 14:05

2011-04-06 9:22

2011-04-06 9:22

Analysis Required

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:

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: [Signature]Date/Time: 4/7/11 4:00pmRelinquished by: [Signature]Date/Time: 4/8/11 1000Received for lab by: [Signature]Date/Time: 4/8/11 1000

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

Lot-Sample #....: A1D070566-011 Work Order #....: MGPCCLAE Matrix.....: WQ
 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 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,3,5-Trinitrobenzene	ND	0.11	ug/L
1,3-Dinitrobenzene	ND	0.11	ug/L
2-Amino-4,6- dinitrotoluene	ND	0.11	ug/L
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	0.54	ug/L
3-Nitrotoluene	ND	0.54	ug/L
4-Amino-2,6- dinitrotoluene	ND	0.11	ug/L
4-Nitrotoluene	ND	0.54	ug/L
HMX	ND	0.11	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
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
3,4-Dinitrotoluene	101	(50 - 150)	

QC DATA ASSOCIATION SUMMARY

A1D070566

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
011	WQ	SW846 8330		1103098	
	WQ	SW846 8330 (Modif		1102416	1102228

METHOD BLANK REPORT

HPLC

Client Lot #....: A1D070566
MB Lot-Sample #: G1D130000-098

Work Order #....: MGXKL1AA

Matrix.....: WATER

Analysis Date...: 04/16/11
Dilution Factor: 1

Prep Date.....: 04/13/11

Prep Batch #....: 1103098

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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-dinitrotoluene	ND	0.10	ug/L		SW846 8330
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-dinitrotoluene	ND	0.10	ug/L		SW846 8330
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	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 #....: 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

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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-dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	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-dinitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	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

SURROGATE	PERCENT RECOVERY	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 Analysis Date...: 04/16/11
 Prep Batch #....: 1103098
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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- dinitrotoluene	111	(53 - 120)			SW846 8330
	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- dinitrotoluene	109	(58 - 159)			SW846 8330
	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

SURROGATE	PERCENT RECOVERY	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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Nitroguanidine	ND	20	ug/L

QC DATA ASSOCIATION SUMMARY

A1D070566

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
011	WQ	SW846 8330		1103098	
	WQ	SW846 8330 (Modif		1102416	1102228

METHOD BLANK REPORT

HPLC

Client Lot #....: A1D070566
MB Lot-Sample #: G1D120000-416

Work Order #....: MGXET1AA

Matrix.....: WATER

Analysis Date...: 04/19/11

Prep Date.....: 04/12/11

Prep Batch #....: 1102416

Dilution Factor: 1

PARAMETER	RESULT	REPORTING 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 #....: A1D070566 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	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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 Date.....: 04/12/11 Analysis Date...: 04/19/11
 Prep Batch #....: 1102416
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT 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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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 #....: MGXKLIAC-LCS Matrix.....: WATER
 LCS Lot-Sample#: G1D130000-098 MGXKLIAD-LCSD
 Prep Date.....: 04/13/11 Analysis Date...: 04/16/11
 Prep Batch #....: 1103098
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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- dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	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- dinitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	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

SURROGATE	PERCENT RECOVERY	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 Analysis Date...: 04/16/11
 Prep Batch #....: 1103098
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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- dinitrotoluene	111	(53 - 120)			SW846 8330
	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- dinitrotoluene	109	(58 - 159)			SW846 8330
	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

SURROGATE	PERCENT RECOVERY	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.**



Approved for release.
Mark J. Loeb
Project Manager II
6/23/2011 2:35 PM

Mark J. Loeb
Project Manager
mark.loeb@testamericainc.com

June 22, 2011

TestAmerica Laboratories, Inc.

TestAmerica North Canton 4101 Shuffel Street NW, North Canton, OH 44720

Tel (330)497-9396 Fax (330)497-0772 www.testamericainc.com



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

June 22, 2011

CONTRACT LABORATORY DATA-REVIEW WORKSHEET**1.0 GENERAL INFORMATION**Data reviewer: Gary Cottrell Review date: 6/28/11Office, Project, & Account #: OK, Raven**2.0 DATA DELIVERABLES**Date of Lab analytical report: 6/22/11 Number of copies: bound 5 unbound 2No. of CD copies of raw-data report: 2 Remarks: _____Raw-data report reviewed? Yes ☒ No ☐ Electronic data files on CD? Yes ☒ No ☐EDD file format: QWDATA ☐ 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): 4/7/11 Sample matrix: waterNo. of sample types in lot: Environmental 7 Trip blank ☐ Equip. blank ☐MS/MSD ☐ Other: ☐Date samples received at laboratory: 4/8/114.1 Were accelerated turn-around times (TATs) requested for analyses? Yes ☐ No ☒

If yes, list TAT period and if completed: _____

4.2 Were analyses on chain-of-custody (COC) form performed by lab? YES ☒ NO ☐

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: Yes ☒ No ☐

If no, list sample/lab IDs, and associated problems or reference lab report case narrative: _____

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 exceeded holding-time limits:

4.5 Did surrogate recoveries meet QC acceptance criteria? Yes ☐ No ☒ NA ☐

If **no**, list methods, surrogates, associated sample/lab IDs, lab report page #s:

SVOC - P59, P63; Pesticides P 79 - w/ dilution; PCB - P94 + 77 (LC) + 78
PCP - P101-102 (MS); Explosives - P932 (High (MS))

4.6 Were dilution factors greater than 1 for **organic** analyses? Yes ☐ No ☒ NA ☐

If **yes**, list analytical methods and reason for raised dilution factors: dilution _____

high-analyte levels _____ matrix interferences _____ other _____

4.7 Were dilution factors greater than 1 for **inorganic** analyses? Yes ☐ No ☒ NA ☐

If **yes**, list analytical methods and reason for raised dilution factors:

high-analyte levels _____ matrix interferences _____ other _____

4.8 Additional comments about sample analyses: _____

5.0 QUALITY CONTROL (QC) ANALYSES and RESULTS5.1 Were any target analytes detected in the **Laboratory Method Blanks**? Yes ☒ No ☐If **yes**, list method, analytes, prep batch #, report page #s: _____

Meth Cl = 0.86, RL = 2; P 27; NOTE: SVOC - surrogate out P66
 Mn = 2.2, RL = 10; P114; Zn = 2.5, RL = 10, P114;
 U = 0.0299, RL = 1, P191;

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: _____

VOC - P29 (High) - P30 (Low) + P31; SVOC - P71 (1st Surrogate)
 Pest - surrogate Low - P82; Or the P - P161 (Low)

5.3 Did the **MS/MSD** results meet %R or RPD acceptance criteria? Yes ☐ No ☒ 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 #:

CS₂ - High - P35; DCEK - meth - Low - P1, 2, 4 - TCP - Low - P37
 Multiple VOC - P38-39; CS₂ - High - P45
 Multiple VOC - P47-48;
 Surrogate out - P89 (Pest) + P91; Mn Low - P133; 2+3 Low - P165
 Or the P - P167 (High)

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: _____

6.0 ANALYTICAL METHODS USED in this LABORATORY LOT NUMBER

- ☒ VOCs by GC/MS--method 8260B/ 524.2 [water (W) or solids (S) analysis holding-time (HT) of 14 days]
- ☐ Gasoline Range Organics (GRO)+BTEX-method 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 GC--method 8081A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☒ PCBs by GC--method 8082 [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☐ Pesticides by GC--method 8141A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☐ Herbicides by GC--method 8151A [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☒ SVOCs by GC/MS--method 8270C [W: prep HT 7 days; S: prep HT 14 days; analysis HT 40 days]
- ☐ Dioxins and Furans--methods 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 HT 14 days; analysis HT 40 days]
- ☒ Explosives by HPLC method 8330 or 8321A [W: prep HT 7 days; S: prep HT 14 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]
- ☐ Perchlorate--methods 314.0 or 6850 LC/MS/MS or 6860 IC/MS/MS [W: analysis HT 28 days]
- ☒ Metals by ICP--method 6010B or 200.7 [W and S: analysis HT 180 days]
- ☒ Metals by ICP/MS--method 6020 or 200.8 [W and S: analysis HT 180 days]
- ☒ Mercury by CVAA--method 7470A (W) and 7471A (S) [W and S: analysis HT 28 days]
- ☒ Inorganic anions-method 300/ 9056 [W: analysis HT 48 hours- NO₂, NO₃, ortho-P; HT 28 days-Br, Cl, F, SO₄]
- ☐ Total dissolved solids (TDS)--method 2540C and(or) TSS--method 2540D [W: analysis HT 7 days]
- ☐ Alkalinity--method 310.1 (Total, OH, HCO₃, and CO₃) [W: analysis HT 14 days]
- ☒ Nitrogen, ammonia--method 350.1 350.2 [W: analysis HT 28 days]
- ☐ Nitrogen, TKN--method 351.2 [W: analysis HT 28 days]
- ☒ Nitrogen, nitrate + nitrite--method 353.2 [W: analysis HT 28 days] NO₃ or NO₂ only [HT 48 hours]
- ☐ Nitrogen, nitrite--method 353.2 or 354.1 [W: analysis HT 48 hours]
- ☐ Phosphorus-method 365.3 and ortho 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 amenable--methods 9012A/ 335.4 [W and S: analysis HT 14 days]
- ☐ MBAS surfactants – method 425.1 (HT 48 hours)
- ☐ Moisture content--methods D2216 or 160.3M
- ☐ 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
- ☒ Other analyses: Nitrocellulose

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.

CASE NARRATIVE (continued)

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.

CASE NARRATIVE (continued)

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".

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).

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.

CASE NARRATIVE (continued)

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.

QC 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 reparation 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)

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

- 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 reparation 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 LIMIT	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, Ortho	0.37 B	0.50	mg/L	MCAWW 300.0A
FWGLL2mw-269C-0060-GW 04/07/11 08:59 005				
Chloride	10.0	1.0	mg/L	MCAWW 300.0A
Sulfate	27.2	1.0	mg/L	MCAWW 300.0A
Fluoride	0.16 B	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- dinitrotoluene	15	0.11	ug/L	SW846 8330
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- dinitrotoluene	29	0.21	ug/L	SW846 8330
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, Ortho	0.18 B	0.50	mg/L	MCAWW 300.0A

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A1D080416

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL 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 B	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", 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

WO #	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	008	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

87

Regulatory program:

☐ Other

87

Regulatory program:

☐ Other

87

Regulatory program:

☐ Other

87

Regulatory program:

☐ Other

19

Canton

☐ Other

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TAL 0018- 1 (04/10)

North Canton

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Lot Number: A1D080416

Client USGS Project Raspay OH By: [Signature]
Cooler Received on 4/8/16 Opened on 4/8/16 (Signature)
FedEx ☐ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☒ Other ☐
TestAmerica Cooler # _____ Multiple Coolers ☒ Foam Box ☐ Client Cooler ☐ Other ☐
1. Were custody seals on the outside of the cooler(s)? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
If YES, Quantity 3 Quantity Unsalvageable _____
Were custody seals on the outside of cooler(s) signed and dated? Yes ☒ No ☐ 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 ☐
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 ☐ Other _____
6. Cooler temperature upon receipt _____ °C See back of form for multiple coolers/temps ☒
METHOD: IR ☒ Other ☐
COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
8. Could all bottle labels be reconciled with the COC? Yes ☒ No ☐
9. 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 VOAs on the COC? Yes ☒ No ☐
Contacted PM MJL Date 4/8/16 by gim via Verbal ☒ Voice Mail ☐ Other ☐
Concerning #14

14. CHAIN OF CUSTODY

The following discrepancies occurred:

Received Pesticide bottles for samples FW6LL1mw-0846-0200-GW
+ FW6LL4mw-1986-0210-GW not marked in COC. Will log for
Pesticides per volume

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in Sample
Receiving to meet recommended pH level(s). Nitric Acid Lot# 100110-HNO₃; Sulfuric Acid Lot# 110410-H₂SO₄; Sodium
Hydroxide Lot# 100108 -NaOH; Hydrochloric Acid Lot# 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot# 100108-
(CH₃COO)₂Zn/NaOH. What time was preservative added to sample(s)? _____

Client ID	pH	Date	Initials
0040	2.22	4/8/16	[Signature]
0050	2.22		
0060	2.22		
0200	2.22 2.22 2.12		
0210	2.22 2.22 2.12		

TestAmerica Cooler Receipt Form/Narrative

North Canton Facility

[illegible]

Discrepancies Cont'd:

GCMS VOLATILE DATA

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
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

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Volatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AA Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	2.0	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Dibromofluoromethane	78	(50 - 150)
1,2-Dichloroethane-d4	76	(50 - 150)
Toluene-d8	78	(50 - 150)
4-Bromofluorobenzene	80	(50 - 150)

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
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

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Volatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AA Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	2.0	ug/L

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
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
MB Lot-Sample #: A1D190000-091

Work Order #...: MG6XC1AA

Matrix.....: WATER

Analysis Date...: 04/19/11

Prep Date.....: 04/19/11

Final Wgt/Vol...: 5 mL

Dilution Factor: 1

Prep Batch #...: 1109091

Initial Wgt/Vol: 5 mL

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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 #...: A1D080416

Work Order #...: MG6XC1AA

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>		
	<u>RECOVERY</u>	<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 Date.....: 04/19/11 Analysis Date...: 04/19/11
 Prep Batch #...: 1109091
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 5 mL

PARAMETER	PERCENT RECOVERY	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 (total)	102	(85 - 111)	SW846 8260B
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

PARAMETER	PERCENT RECOVERY	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- propane	75	(75 - 132)	SW846 8260B
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 (MTBE)	102	(59 - 129)	SW846 8260B
1,2,4-Trichloro- benzene	63 a	(75 - 130)	SW846 8260B
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

<u>PARAMETER</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>	<u>METHOD</u>
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- 1,2,2-trifluoroethane	99	(50 - 150)	SW846 8260B
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

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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 Date.....: 04/19/11 Analysis Date...: 04/19/11
 Prep Batch #...: 1109091
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 5 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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 (total)	20	20	ug/L	102	SW846 8260B
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

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A1D080416
LCS Lot-Sample#: A1D190000-091

Work Order #...: MG6XC1AC

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
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- propane	10	7.5	ug/L	75	SW846 8260B
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 (MTBE)	10	10	ug/L	102	SW846 8260B
1,2,4-Trichloro- benzene	10	6.3 a	ug/L	63	SW846 8260B
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

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
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- 1,2,2-trifluoroethane	10	9.9	ug/L	99	SW846 8260B
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

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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
 Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol...: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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
1,2-Dichloroethene (total)	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

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

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	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	93	(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
	100	(70 - 130)	1.7	(0-30)	SW846 8260B
Styrene	103	(70 - 130)			SW846 8260B
	105	(70 - 130)	1.6	(0-30)	SW846 8260B
Xylenes (total)	98	(70 - 130)			SW846 8260B
	100	(70 - 130)	1.9	(0-30)	SW846 8260B
n-Hexane	86	(70 - 130)			SW846 8260B
	86	(70 - 130)	0.63	(0-30)	SW846 8260B

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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	METHOD
Cyclohexane	96	(70 - 130)			SW846 8260B
	97	(70 - 130)	1.4	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro- propane	71	(70 - 130)			SW846 8260B
	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
	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 (MTBE)	98	(70 - 130)			SW846 8260B
	100	(70 - 130)	2.8	(0-30)	SW846 8260B
1,2,4-Trichloro- benzene	53 a	(70 - 130)			SW846 8260B
	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

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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	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- 2-butene	199 a	(70 - 130)			SW846 8260B
	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	99	(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)			SW846 8260B
	97	(70 - 130)	4.6	(0-30)	SW846 8260B
1,1,2-Trichloro- 1,2,2-trifluoroethane	105	(70 - 130)			SW846 8260B
	108	(70 - 130)	3.2	(0-30)	SW846 8260B
1,2,4-Trimethylbenzene	91	(70 - 130)			SW846 8260B
	94	(70 - 130)	2.5	(0-30)	SW846 8260B

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MATRIX SPIKE SAMPLE EVALUATION REPORT

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	METHOD
1,3,5-Trimethylbenzene	87	(70 - 130)			SW846 8260B
	88	(70 - 130)	1.2	(0-30)	SW846 8260B
Vinyl acetate	128	(70 - 130)			SW846 8260B
	135 a	(70 - 130)	5.1	(0-30)	SW846 8260B
tert-Butyl alcohol	105	(70 - 130)			SW846 8260B
	107	(70 - 130)	1.8	(0-30)	SW846 8260B

SURROGATE	PERCENT RECOVERY	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.

MATRIX SPIKE SAMPLE DATA REPORT

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
 Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol...: 5 mL

PARAMETER	SAMPLE	SPIKE	MEASRD	UNITS	PERCNT		
	AMOUNT	AMT	AMOUNT	RECVRY	RPD	METHOD	
cis-1,2-Dichloroethene	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	9.9	ug/L	99	0.19	SW846 8260B
trans-1,2-Dichloroethene	ND	10	10	ug/L	100		SW846 8260B
	ND	10	10	ug/L	100	0.09	SW846 8260B
1,2-Dibromoethane	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.9	ug/L	99	1.2	SW846 8260B
Bromochloromethane	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	10	ug/L	101	1.8	SW846 8260B
m-Xylene & p-Xylene	ND	20	20	ug/L	98		SW846 8260B
	ND	20	20	ug/L	100	2.5	SW846 8260B
o-Xylene	ND	10	10	ug/L	100		SW846 8260B
	ND	10	10	ug/L	101	0.76	SW846 8260B
Chloromethane	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.4	ug/L	94	8.2	SW846 8260B
Bromomethane	ND	10	9.5	ug/L	95		SW846 8260B
	ND	10	9.8	ug/L	98	3.4	SW846 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 (total)	ND	20	20	ug/L	100		SW846 8260B
	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 8260B
1,2-Dichloroethane	ND	10	9.7	ug/L	97		SW846 8260B
	ND	10	9.9	ug/L	99	1.6	SW846 8260B
2-Butanone	ND	20	21	ug/L	106		SW846 8260B
	ND	20	21	ug/L	105	0.69	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

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	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

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
Cyclohexane	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	9.7	ug/L	97	1.4	SW846 8260B
1,2-Dibromo-3-chloro- propane	ND	10	7.1	ug/L	71		SW846 8260B
	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	SW846 8260B
1,3-Dichlorobenzene	ND	10	9.3	ug/L	93		SW846 8260B
	ND	10	9.3	ug/L	93	0.54	SW846 8260B
1,4-Dichlorobenzene	ND	10	9.2	ug/L	92		SW846 8260B
	ND	10	9.5	ug/L	95	2.9	SW846 8260B
Dichlorodifluoromethane	ND	10	5.7	ug/L	57 a		SW846 8260B
	ND	10	5.6	ug/L	56 a	2.6	SW846 8260B
Freon 113	ND	10	10	ug/L	105		SW846 8260B
	ND	10	11	ug/L	108	3.2	SW846 8260B
Isopropylbenzene	ND	10	9.7	ug/L	97		SW846 8260B
	ND	10	9.9	ug/L	99	1.4	SW846 8260B
Methyl acetate	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	9.4	ug/L	94	1.6	SW846 8260B
Methylcyclohexane	ND	10	8.9	ug/L	89		SW846 8260B
	ND	10	9.1	ug/L	91	2.2	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	10	ug/L	100	2.8	SW846 8260B
1,2,4-Trichloro- benzene	0.51	10	5.8	ug/L	53 a		SW846 8260B
	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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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
tert-Butylbenzene	ND	10	8.3	ug/L	83		SW846 8260B
	ND	10	8.5	ug/L	85	2.4	SW846 8260B
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- 2-butene	ND	10	20	ug/L	199 a		SW846 8260B
	ND	10	20	ug/L	197 a	1.1	SW846 8260B
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- 1,2,2-trifluoroethane	ND	10	10	ug/L	105		SW846 8260B
	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

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
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	SW846 8260B
tert-Butyl alcohol	ND	200	210	ug/L	105		SW846 8260B
	ND	200	210	ug/L	107	1.8	SW846 8260B

SURROGATE	PERCENT RECOVERY	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.

MATRIX SPIKE SAMPLE EVALUATION REPORT

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
 Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol...: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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
1,2-Dichloroethene (total)	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

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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
1,1,1-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

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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
Cyclohexane	100	(70 - 130)			SW846 8260B
	106	(70 - 130)	5.8	(0-30)	SW846 8260B
1,2-Dibromo-3-chloro- propane	75	(70 - 130)			SW846 8260B
	74	(70 - 130)	1.5	(0-30)	SW846 8260B
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
	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 (MTBE)	97	(70 - 130)			SW846 8260B
	95	(70 - 130)	2.0	(0-30)	SW846 8260B
1,2,4-Trichloro- benzene	52 a	(70 - 130)			SW846 8260B
	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

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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
tert-Butylbenzene	83	(70 - 130)			SW846 8260B
	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- 2-butene	212 a	(70 - 130)			SW846 8260B
	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- 1,2,2-trifluoroethane	109	(70 - 130)			SW846 8260B
	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

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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

SURROGATE	PERCENT RECOVERY	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)

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.

MATRIX SPIKE SAMPLE DATA REPORT

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
 Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol...: 5 mL

PARAMETER	SAMPLE	SPIKE	MEASRD	UNITS	PERCNT		METHOD
	AMOUNT	AMT	AMOUNT		RECVRY	RPD	
cis-1,2-Dichloroethene	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	9.4	ug/L	94	5.3	SW846 8260B
trans-1,2-Dichloroethene	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.8	ug/L	98	3.8	SW846 8260B
1,2-Dibromoethane	ND	10	10	ug/L	100		SW846 8260B
	ND	10	9.7	ug/L	97	3.4	SW846 8260B
Bromochloromethane	ND	10	10	ug/L	100		SW846 8260B
	ND	10	9.4	ug/L	94	5.7	SW846 8260B
m-Xylene & p-Xylene	ND	20	20	ug/L	102		SW846 8260B
	ND	20	19	ug/L	96	5.7	SW846 8260B
o-Xylene	ND	10	10	ug/L	103		SW846 8260B
	ND	10	9.7	ug/L	97	5.9	SW846 8260B
Chloromethane	ND	10	10	ug/L	102		SW846 8260B
	ND	10	9.1	ug/L	91	11	SW846 8260B
Bromomethane	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.2	ug/L	92	6.2	SW846 8260B
Vinyl chloride	ND	10	10	ug/L	100		SW846 8260B
	ND	10	9.8	ug/L	98	1.9	SW846 8260B
Chloroethane	ND	10	10	ug/L	101		SW846 8260B
	ND	10	10	ug/L	100	1.1	SW846 8260B
Methylene chloride	ND	10	12	ug/L	113		SW846 8260B
	ND	10	11	ug/L	106	6.2	SW846 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 (total)	ND	20	20	ug/L	101		SW846 8260B
	ND	20	19	ug/L	96	4.6	SW846 8260B
Chloroform	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	9.4	ug/L	94	6.0	SW846 8260B
1,2-Dichloroethane	ND	10	10	ug/L	101		SW846 8260B
	ND	10	9.3	ug/L	93	8.4	SW846 8260B
2-Butanone	ND	20	21	ug/L	106		SW846 8260B
	ND	20	21	ug/L	103	2.9	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
1,1,1-Trichloroethane	ND	10	10	ug/L	103		SW846 8260B
	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)

MATRIX SPIKE SAMPLE DATA REPORT

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	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
	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
	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
	ND	10	9.8	ug/L	98	5.2	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	10	9.7	ug/L	97		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

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
tert-Butylbenzene	ND	10	8.3	ug/L	83		SW846 8260B
	ND	10	7.9	ug/L	79	4.7	SW846 8260B
2-Chlorotoluene	ND	10	8.7	ug/L	87		SW846 8260B
	ND	10	8.3	ug/L	83	4.1	SW846 8260B
4-Chlorotoluene	ND	10	8.9	ug/L	89		SW846 8260B
	ND	10	8.5	ug/L	85	4.6	SW846 8260B
Dibromomethane	ND	10	11	ug/L	106		SW846 8260B
	ND	10	9.9	ug/L	99	5.9	SW846 8260B
trans-1,4-Dichloro- 2-butene	ND	10	21	ug/L	212 a		SW846 8260B
	ND	10	21	ug/L	209 a	1.1	SW846 8260B
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
	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- 1,2,2-trifluoroethane	ND	10	11	ug/L	109		SW846 8260B
	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

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MATRIX SPIKE SAMPLE DATA REPORT

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	METHOD
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

SURROGATE	PERCENT RECOVERY	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)

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.

Lot/SDG
Number: A1D080416

Sample Control Chain of Custody – TAL North Canton
GC/MS Volatiles

<u>Lot Number</u>	<u>Sample</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Analysis Date</u>	<u>Analyst</u>
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

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 980 mL Final Wgt/Vol...: 2 mL
 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING	
		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
bis(2-Chloroethoxy) methane	ND	1.0	ug/L
bis(2-Chloroethyl)- ether	ND	1.0	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	2.0	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
2-Chlorophenol	ND	1.0	ug/L
4-Chlorophenyl phenyl ether	ND	2.0	ug/L
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

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AC Matrix.....: WG

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
4,6-Dinitro- 2-methylphenol	ND	5.0	ug/L
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- diene	ND	10	ug/L
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- 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	1.0	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
2,2'-oxybis (1-Chloropropane)	ND	1.0	ug/L

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AC Matrix.....: WG

<u>SURROGATE</u>	PERCENT	RECOVERY
	<u>RECOVERY</u>	<u>LIMITS</u>
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.

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 960 mL Final Wgt/Vol...: 2 mL
 Method.....: SW846 8270C

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
2,4-Dinitrophenol	ND	5.0	ug/L

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <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)

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 960 mL Final Wgt/Vol...: 2 mL
 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING	
		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
bis(2-Chloroethoxy) methane	ND	1.0	ug/L
bis(2-Chloroethyl)- ether	ND	1.0	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	2.0	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
2-Chlorophenol	ND	1.0	ug/L
4-Chlorophenyl phenyl ether	ND	2.0	ug/L
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

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AC Matrix.....: WG

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
4,6-Dinitro- 2-methylphenol	ND	5.0	ug/L
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
Hexachlorobutadiene	ND	1.0	ug/L
Hexachlorocyclopenta- diene	ND	10	ug/L
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- 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	1.0	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
2,2'-oxybis (1-Chloropropane)	ND	1.0	ug/L

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL4mw-198C-0210-GW

GC/MS Semivolatiles

Lot-Sample #...: A1D080416-009 Work Order #...: MGP531AC Matrix.....: WG

<u>SURROGATE</u>	PERCENT	RECOVERY
	<u>RECOVERY</u>	<u>LIMITS</u>
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.

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 960 mL Final Wgt/Vol...: 2 mL
 Method.....: SW846 8270C

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	<u>LIMIT</u>	<u>UNITS</u>
2,4-Dinitrophenol	ND	5.0	ug/L	

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
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)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416
MB Lot-Sample #: A1D110000-057

Work Order #...: MGTWV1AA

Matrix.....: WATER

Analysis Date...: 04/14/11

Prep Date.....: 04/11/11

Final Wgt/Vol...: 2 mL

Dilution Factor: 1

Prep Batch #...: 1101057

Initial Wgt/Vol: 1000 mL

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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
Benzoic acid	ND	10	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) methane	ND	1.0	ug/L	SW846	8270C
bis(2-Chloroethyl)- ether	ND	1.0	ug/L	SW846	8270C
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	SW846	8270C
4-Bromophenyl phenyl ether	ND	2.0	ug/L	SW846	8270C
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 ether	ND	2.0	ug/L	SW846	8270C
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- 2-methylphenol	ND	5.0	ug/L	SW846	8270C
2,4-Dinitrotoluene	ND	5.0	ug/L	SW846	8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416

Work Order #...: MGTVW1AA

Matrix.....: WATER

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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 (1-Chloropropane)	ND	1.0	ug/L	SW846	8270C

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Nitrobenzene-d5	46 *	(50 - 150)
2-Fluorobiphenyl	49 *	(50 - 150)
Terphenyl-d14	59	(50 - 150)
Phenol-d5	53	(50 - 150)
2-Fluorophenol	50	(50 - 150)
2,4,6-Tribromophenol	54	(50 - 150)

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METHOD BLANK REPORT

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.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416
MB Lot-Sample #: A1D190000-035

Work Order #...: MG6N11AA

Matrix.....: WATER

Analysis Date...: 04/21/11

Prep Date.....: 04/19/11

Final Wgt/Vol...: 2 mL

Dilution Factor: 1

Prep Batch #...: 1109035

Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
2,4-Dinitrophenol	ND	5.0	ug/L	SW846 8270C

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
Nitrobenzene-d5	54	(50 - 150)
2-Fluorobiphenyl	58	(50 - 150)
Terphenyl-d14	75	(50 - 150)
Phenol-d5	62	(50 - 150)
2-Fluorophenol	59	(50 - 150)
2,4,6-Tribromophenol	66	(50 - 150)

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,2,4-Trichloro- benzene	46	(30 - 120)	SW846 8270C
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- phenol	52	(36 - 135)	SW846 8270C
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) methane	50	(30 - 115)	SW846 8270C
bis(2-Chloroethyl)- ether	50	(30 - 115)	SW846 8270C
bis(2-Chloroisopropyl) ether	50	(50 - 150)	SW846 8270C
bis(2-Ethylhexyl) phthalate	51	(30 - 154)	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D110000-057

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2,4,6-Trichloro-phenol	50	(39 - 115)	SW846 8270C
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-2-methylphenol	48	(42 - 144)	SW846 8270C
4-Bromophenyl phenyl ether	52	(43 - 118)	SW846 8270C
4-Chloroaniline	41	(30 - 133)	SW846 8270C
4-Chlorophenyl phenyl ether	50	(40 - 115)	SW846 8270C
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

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER
LCS Lot-Sample#: A1D110000-057

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
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

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY 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.

LABORATORY CONTROL SAMPLE DATA REPORT

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		

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
1,2,4-Trichloro-benzene	20	9.1	ug/L	46	SW846 8270C
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-phenol	20	10	ug/L	52	SW846 8270C
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
bis(2-Chloroethoxy) methane	20	10	ug/L	50	SW846 8270C
bis(2-Chloroethyl)-ether	20	9.9	ug/L	50	SW846 8270C
bis(2-Chloroisopropyl) ether	20	10	ug/L	50	SW846 8270C
bis(2-Ethylhexyl) phthalate	20	10	ug/L	51	SW846 8270C

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGTVW1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D110000-057

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
2,4,6-Trichloro-phenol	20	10	ug/L	50	SW846 8270C
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-2-methylphenol	20	9.6	ug/L	48	SW846 8270C
4-Bromophenyl phenyl ether	20	10	ug/L	52	SW846 8270C
4-Chloroaniline	20	8.1	ug/L	41	SW846 8270C
4-Chlorophenyl phenyl ether	20	10	ug/L	50	SW846 8270C
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

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416
LCS Lot-Sample#: A1D110000-057

Work Order #...: MGTVW1AC

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Indeno(1,2,3-cd)pyrene	20	9.7	ug/L	48	SW846 8270C
Di-n-butyl phthalate	20	10	ug/L	50	SW846 8270C
Hexachlorocyclopenta- diene	20	5.9 a	ug/L	29	SW846 8270C
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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MG6N11AC Matrix.....: WATER
 LCS Lot-Sample#: A1D190000-035
 Prep Date.....: 04/19/11 Analysis Date...: 04/21/11
 Prep Batch #...: 1109035
 Dilution Factor: 1 Final Wgt/Vol...: 2 mL
 Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
2,4-Dinitrophenol	42	(29 - 146)	SW846 8270C

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MG6N11AC Matrix.....: WATER
 LCS Lot-Sample#: A1D190000-035
 Prep Date.....: 04/19/11 Analysis Date...: 04/21/11
 Prep Batch #...: 1109035
 Dilution Factor: 1 Final Wgt/Vol...: 2 mL
 Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
2,4-Dinitrophenol	20	8.5	ug/L	42	SW846 8270C

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
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**

<u>Lot Number</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Prep Date</u>	<u>Prep Analyst</u>	<u>Date of Transfer</u>	<u>Transferred By</u>	<u>Analysis Date</u>	<u>Analyst</u>
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

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
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

SURROGATE	PERCENT	RECOVERY
	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.

* Surrogate recovery is outside stated control limits.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8081A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<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
<u>SURROGATE</u>	<u>PERCENT</u>		<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
Tetrachloro-m-xylene	78	(50 - 150)	
Decachlorobiphenyl	58	(50 - 150)	

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A1D080416
MB Lot-Sample #: A1D090000-014

Work Order #...: MGR9L1AA

Matrix.....: WATER

Analysis Date...: 04/17/11

Prep Date.....: 04/09/11

Final Wgt/Vol...: 5 mL

Dilution Factor: 1

Prep Batch #...: 1099014

Initial Wgt/Vol: 1000 mL

PARAMETER	RESULT	REPORTING			METHOD
		LIMIT	UNITS		
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

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Tetrachloro-m-xylene	81	(50 - 150)
Decachlorobiphenyl	72	(50 - 150)

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGR9L1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D090000-014
 Prep Date.....: 04/09/11 Analysis Date...: 04/17/11
 Prep Batch #...: 1099014
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

PARAMETER	PERCENT RECOVERY	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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
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.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGR9L1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D090000-014
 Prep Date.....: 04/09/11 Analysis Date...: 04/17/11
 Prep Batch #...: 1099014
 Dilution Factor: 1 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
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.

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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

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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

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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
 Dilution Factor: 1 Initial Wgt/Vol: 500 mL Final Wgt/Vol...: 5 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT 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

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGM891AT-MS Matrix.....: WATER
MS Lot-Sample #: A1D070402-030 MGM891AU-MSD

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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

PARAMETER	SAMPLE	SPIKE	MEASRD	UNITS	PERCNT		METHOD
	AMOUNT	AMT	AMOUNT		RECVRY	RPD	
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

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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.

Lot/SDG
Number: **A1D080416**

Sample Control Chain of Custody – TAL North Canton
GC Semivolatiles

<u>Lot Number</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Prep Date</u>	<u>Prep Analyst</u>	<u>Date of Transfer</u>	<u>Transferred By</u>	<u>Analysis Date</u>	<u>Analyst</u>
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

U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GW

GC Semivolatiles

Lot-Sample #...: A1D080416-007 Work Order #...: MGP5R1AG Matrix.....: WG
 Date Sampled...: 04/07/11 12:00 Date Received..: 04/08/11
 Prep Date.....: 04/09/11 Analysis Date..: 04/16/11
 Prep Batch #...: 1099015
 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8082

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
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

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
Tetrachloro-m-xylene	75	(50 - 150)
Decachlorobiphenyl	12 *	(50 - 150)

NOTE(S) :

* Surrogate recovery is outside stated control limits.

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol...: 5 mL
 Method.....: SW846 8082

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
		<u>LIMIT</u>	<u>UNITS</u>
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

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
Tetrachloro-m-xylene	77	(50 - 150)
Decachlorobiphenyl	53	(50 - 150)

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A1D080416
MB Lot-Sample #: A1D090000-015

Work Order #...: MGR9M1AA

Matrix.....: WATER

Analysis Date...: 04/16/11

Prep Date.....: 04/09/11

Final Wgt/Vol...: 5 mL

Dilution Factor: 1

Prep Batch #...: 1099015

Initial Wgt/Vol: 1000 mL

PARAMETER	RESULT	REPORTING		
		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

SURROGATE	PERCENT	RECOVERY
	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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A1D080416 Work Order #...: MGR9M1AC Matrix.....: WATER
 LCS Lot-Sample#: A1D090000-015
 Prep Date.....: 04/09/11 Analysis Date...: 04/16/11
 Prep Batch #...: 1099015
 Dilution Factor: 2 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>	<u>METHOD</u>
Aroclor 1016	84	(58 - 141)	SW846 8082
Aroclor 1260	83	(71 - 143)	SW846 8082

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
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 Date.....: 04/09/11 Analysis Date...: 04/16/11
 Prep Batch #...: 1099015
 Dilution Factor: 2 Final Wgt/Vol...: 5 mL
 Initial Wgt/Vol: 1000 mL

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
Aroclor 1016	10	8.4	ug/L	84	SW846 8082
Aroclor 1260	10	8.3	ug/L	83	SW846 8082

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
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.

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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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

SURROGATE	PERCENT RECOVERY	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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
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

SURROGATE	PERCENT RECOVERY	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 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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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

SURROGATE	PERCENT RECOVERY	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	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
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

SURROGATE	PERCENT RECOVERY	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.

Lot/SDG
Number: **A1D080416**

Sample Control Chain of Custody – TAL North Canton
GC Semivolatiles

<u>Lot Number</u>	<u>Work Order</u>	<u>Analysis Type</u>	<u>Prep Date</u>	<u>Prep Analyst</u>	<u>Date of Transfer</u>	<u>Transferred By</u>	<u>Analysis Date</u>	<u>Analyst</u>
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

U.S.Geological Survey (USGS)

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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
Prep Batch #...: 1104025						
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...: I8				
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...: I8				
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		Analysis Time..: 14:13	Analyst ID.....: 000079	
		Instrument ID...: I8				
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				
Chromium	ND	5.0	ug/L	SW846 6010B	04/14-04/15/11	MGP5W1A1
		Dilution Factor: 1		Analysis Time..: 06:55	Analyst ID.....: 002260	
		Instrument ID...: I5				
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				

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GF

TOTAL Metals

Lot-Sample #...: A1D080416-008

Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Iron	ND	50.0	ug/L	SW846 6020	04/14-04/18/11	MGP5W1AF
		Dilution Factor: 1		Analysis Time..: 14:13	Analyst ID.....: 000079	
		Instrument ID..: I8				
Mercury	ND	0.20	ug/L	SW846 7470A	04/14-04/15/11	MGP5W1A2
		Dilution Factor: 1		Analysis Time..: 10:34	Analyst ID.....: 002260	
		Instrument ID..: H1				
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 J	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..: I8				
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..: I8				
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				

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GF

TOTAL Metals

Lot-Sample #...: A1D080416-008

Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>	<u>PREPARATION-</u>	<u>WORK</u>
		<u>LIMIT</u>	<u>UNITS</u>		<u>ANALYSIS DATE</u>	<u>ORDER #</u>
Thallium	0.55 B	1.0	ug/L	SW846 6020	04/14-04/18/11	MGP5W1AH
		Dilution Factor: 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 Factor: 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 Factor: 1		Analysis Time..: 14:13	Analyst ID.....: 000079	
		Instrument ID..: I8				

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.

U.S.Geological Survey (USGS)

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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #... : 1101020						
Silver	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1A2
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				
Aluminum	34.4 B	50.0	ug/L	SW846 6020	04/11-04/13/11	MGP6A1AE
		Dilution Factor: 1		Analysis Time..: 13:26	Analyst ID.....: 000079	
		Instrument ID..: I8				
Arsenic	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1AN
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				
Barium	10.3	10.0	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1AR
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				
Beryllium	ND	1.0	ug/L	SW846 6020	04/11-04/13/11	MGP6A1AG
		Dilution Factor: 1		Analysis Time..: 13:26	Analyst ID.....: 000079	
		Instrument ID..: I8				
Calcium	27500	1000	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1AT
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				
Cadmium	ND	0.50	ug/L	SW846 6020	04/11-04/13/11	MGP6A1AH
		Dilution Factor: 1		Analysis Time..: 13:26	Analyst ID.....: 000079	
		Instrument ID..: I8				
Cobalt	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1AU
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				
Chromium	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1AC
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				
Copper	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1AV
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL4mw-198C-0210-GF

TOTAL Metals

Lot-Sample #...: A1D080416-010

Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Iron	4690	50.0	ug/L	SW846 6020	04/11-04/13/11	MGP6A1AJ
		Dilution Factor: 1		Analysis Time..: 13:26	Analyst ID.....: 000079	
		Instrument ID..: I8				
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 B	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
		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
		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..: I8				
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..: I8				
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				

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U.S.Geological Survey (USGS)

Client Sample ID: FWGLL4mw-198C-0210-GF

TOTAL Metals

Lot-Sample #...: A1D080416-010

Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>	<u>PREPARATION-</u>	<u>WORK</u>
		<u>LIMIT</u>	<u>UNITS</u>		<u>ANALYSIS DATE</u>	<u>ORDER #</u>
Thallium	ND	1.0	ug/L	SW846 6020	04/11-04/13/11	MGP6A1AL
		Dilution Factor: 1		Analysis Time..: 13:26	Analyst ID.....: 000079	
		Instrument ID..: I8				
Vanadium	ND	10.0	ug/L	SW846 6010B	04/11-04/14/11	MGP6A1AA
		Dilution Factor: 1		Analysis Time..: 21:17	Analyst ID.....: 002260	
		Instrument ID..: I5				
Prep Batch #...: 1105011						
Zinc	64.4	10.0	ug/L	SW846 6020	04/15-04/18/11	MGP6A2AM
		Dilution Factor: 1		Analysis Time..: 14:50	Analyst ID.....: 000079	
		Instrument ID..: I8				

NOTE(S):

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A1D110000-020 Prep Batch #... : 1101020						
Aluminum	ND	50.0	ug/L	SW846 6020	04/11-04/13/11	MGTR71AA
		Dilution Factor: 1				
		Analysis Time...: 11:41		Analyst ID.....: 000079	Instrument ID...: I8	
Antimony	ND	2.0	ug/L	SW846 6020	04/11-04/13/11	MGTR71AF
		Dilution Factor: 1				
		Analysis Time...: 11:41		Analyst ID.....: 000079	Instrument ID...: I8	
Arsenic	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGTR71AK
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
Barium	ND	10.0	ug/L	SW846 6010B	04/11-04/14/11	MGTR71AP
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
Beryllium	ND	1.0	ug/L	SW846 6020	04/11-04/13/11	MGTR71AC
		Dilution Factor: 1				
		Analysis Time...: 11:41		Analyst ID.....: 000079	Instrument ID...: I8	
Cadmium	ND	0.50	ug/L	SW846 6020	04/11-04/13/11	MGTR71AD
		Dilution Factor: 1				
		Analysis Time...: 11:41		Analyst ID.....: 000079	Instrument ID...: I8	
Calcium	ND	1000	ug/L	SW846 6010B	04/11-04/14/11	MGTR71AQ
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
Chromium	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGTR71AT
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
Cobalt	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGTR71AR
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
Copper	ND	5.0	ug/L	SW846 6010B	04/11-04/14/11	MGTR71AU
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
Iron	ND	50.0	ug/L	SW846 6020	04/11-04/13/11	MGTR71AE
		Dilution Factor: 1				
		Analysis Time...: 11:41		Analyst ID.....: 000079	Instrument ID...: I8	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		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
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
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	
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
		Dilution Factor: 1				
		Analysis Time...: 19:00		Analyst ID.....: 002260	Instrument ID...: I5	
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...: I8	
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...: I8	
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	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK 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...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	
Antimony	ND	2.0	ug/L	SW846 6020	04/14-04/18/11	MG0051AC
		Dilution Factor: 1				
		Analysis Time...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	
Arsenic	ND	5.0	ug/L	SW846 6010B	04/14-04/15/11	MG0051AK
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Barium	ND	10.0	ug/L	SW846 6010B	04/14-04/15/11	MG0051AN
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Beryllium	ND	1.0	ug/L	SW846 6020	04/14-04/18/11	MG0051AD
		Dilution Factor: 1				
		Analysis Time...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	
Cadmium	ND	0.50	ug/L	SW846 6020	04/14-04/18/11	MG0051AE
		Dilution Factor: 1				
		Analysis Time...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	
Calcium	ND	1000	ug/L	SW846 6010B	04/14-04/15/11	MG0051AP
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Chromium	ND	5.0	ug/L	SW846 6010B	04/14-04/15/11	MG0051A1
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Cobalt	ND	5.0	ug/L	SW846 6010B	04/14-04/15/11	MG0051AQ
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Copper	ND	5.0	ug/L	SW846 6010B	04/14-04/15/11	MG0051AR
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Iron	ND	50.0	ug/L	SW846 6020	04/14-04/18/11	MG0051AF
		Dilution Factor: 1				
		Analysis Time...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Lead	ND	3.0	ug/L	SW846 6010B	04/14-04/15/11	MG0051AL
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Magnesium	ND	1000	ug/L	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/L	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/L	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/L	SW846 6010B	04/14-04/15/11	MG0051AV
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Potassium	ND	1000	ug/L	SW846 6010B	04/14-04/15/11	MG0051AW
		Dilution Factor: 1				
		Analysis Time...: 06:43		Analyst ID.....: 002260	Instrument ID...: I5	
Selenium	ND	5.0	ug/L	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/L	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/L	SW846 6020	04/14-04/18/11	MG0051AG
		Dilution Factor: 1				
		Analysis Time...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	
Thallium	ND	1.0	ug/L	SW846 6020	04/14-04/18/11	MG0051AH
		Dilution Factor: 1				
		Analysis Time...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	
Vanadium	ND	10.0	ug/L	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/L	SW846 6020	04/14-04/18/11	MG0051AJ
		Dilution Factor: 1				
		Analysis Time...: 14:01		Analyst ID.....: 000079	Instrument ID...: I8	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
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...: I8						

NOTE(S):

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

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A1D110000-020 Prep Batch #... : 1101020					
Aluminum	101	(80 - 120)	SW846 6020	04/11-04/13/11	MGTR71A3
		Dilution Factor: 1	Analysis Time..: 11:45	Analyst ID.....: 000079	
		Instrument ID..: I8			
Beryllium	106	(80 - 120)	SW846 6020	04/11-04/13/11	MGTR71A4
		Dilution Factor: 1	Analysis Time..: 11:45	Analyst ID.....: 000079	
		Instrument ID..: I8			
Cadmium	106	(80 - 120)	SW846 6020	04/11-04/13/11	MGTR71A5
		Dilution Factor: 1	Analysis Time..: 11:45	Analyst ID.....: 000079	
		Instrument ID..: I8			
Iron	102	(80 - 120)	SW846 6020	04/11-04/13/11	MGTR71A6
		Dilution Factor: 1	Analysis Time..: 11:45	Analyst ID.....: 000079	
		Instrument ID..: I8			
Antimony	102	(80 - 120)	SW846 6020	04/11-04/13/11	MGTR71A7
		Dilution Factor: 1	Analysis Time..: 11:45	Analyst ID.....: 000079	
		Instrument ID..: I8			
Thallium	102	(80 - 120)	SW846 6020	04/11-04/13/11	MGTR71A9
		Dilution Factor: 1	Analysis Time..: 11:45	Analyst ID.....: 000079	
		Instrument ID..: I8			
Sodium	110	(80 - 120)	SW846 6020	04/11-04/13/11	MGTR71CA
		Dilution Factor: 1	Analysis Time..: 11:45	Analyst ID.....: 000079	
		Instrument ID..: I8			
Arsenic	92	(80 - 120)	SW846 6010B	04/11-04/14/11	MGTR71CC
		Dilution Factor: 1	Analysis Time..: 19:18	Analyst ID.....: 002260	
		Instrument ID..: I5			
Lead	101	(80 - 120)	SW846 6010B	04/11-04/14/11	MGTR71CD
		Dilution Factor: 1	Analysis Time..: 19:18	Analyst ID.....: 002260	
		Instrument ID..: I5			
Selenium	103	(80 - 120)	SW846 6010B	04/11-04/14/11	MGTR71CE
		Dilution Factor: 1	Analysis Time..: 19:18	Analyst ID.....: 002260	
		Instrument ID..: I5			

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>	
Silver	95	(80 - 120)	SW846 6010B	04/11-04/14/11	MGTR71CF	
		Dilution Factor: 1	Analysis Time..: 19:18	Analyst ID.....: 002260		
		Instrument ID..: I5				
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..: I5				
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)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Mercury	96	(80 - 120)	SW846 7470A	04/11-04/12/11	MGTR71CT
		Dilution Factor: 1	Analysis Time..: 13:31	Analyst ID.....: 002260	
		Instrument ID..: H1			

LCS Lot-Sample#: A1D140000-025 Prep Batch #...: 1104025

Aluminum	100	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051A3
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Antimony	104	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051A4
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Beryllium	104	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051A5
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Cadmium	105	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051A6
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Iron	100	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051A7
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Sodium	102	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051A8
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Thallium	99	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051A9
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Zinc	110	(80 - 120)	SW846 6020	04/14-04/18/11	MG0051CA
		Dilution Factor: 1	Analysis Time..: 14:06	Analyst ID.....: 000079	
		Instrument ID..: I8			

Arsenic	92	(80 - 120)	SW846 6010B	04/14-04/15/11	MG0051CC
		Dilution Factor: 1	Analysis Time..: 06:49	Analyst ID.....: 002260	
		Instrument ID..: I5			

Lead	100	(80 - 120)	SW846 6010B	04/14-04/15/11	MG0051CD
		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

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Selenium	103	(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

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Chromium	95	(80 - 120)	SW846 6010B	04/14-04/15/11	MG0051CR
		Dilution Factor: 1	Analysis Time..: 06:49	Analyst ID.....: 002260	
		Instrument ID..: I5			
Mercury	105	(80 - 120)	SW846 7470A	04/14-04/15/11	MG0051CT
		Dilution Factor: 1	Analysis Time..: 10:47	Analyst ID.....: 002260	
		Instrument ID..: H1			
LCS Lot-Sample#:	A1D150000-011	Prep Batch #...:	1105011		
Zinc	108	(80 - 120)	SW846 6020	04/15-04/18/11	MG2XW1AC
		Dilution Factor: 1	Analysis Time..: 14:39	Analyst ID.....: 000079	
		Instrument ID..: I8			

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A1D110000-020 Prep Batch #...: 1101020							
Aluminum	10000	10100	ug/L	101	SW846 6020	04/11-04/13/11	MGTR71A3
			Dilution Factor: 1		Analysis Time..: 11:45		Analyst ID.....: 000079
			Instrument ID..: I8				
Beryllium	100	106	ug/L	106	SW846 6020	04/11-04/13/11	MGTR71A4
			Dilution Factor: 1		Analysis Time..: 11:45		Analyst ID.....: 000079
			Instrument ID..: I8				
Cadmium	100	106	ug/L	106	SW846 6020	04/11-04/13/11	MGTR71A5
			Dilution Factor: 1		Analysis Time..: 11:45		Analyst ID.....: 000079
			Instrument ID..: I8				
Iron	10000	10200	ug/L	102	SW846 6020	04/11-04/13/11	MGTR71A6
			Dilution Factor: 1		Analysis Time..: 11:45		Analyst ID.....: 000079
			Instrument ID..: I8				
Antimony	100	102	ug/L	102	SW846 6020	04/11-04/13/11	MGTR71A7
			Dilution Factor: 1		Analysis Time..: 11:45		Analyst ID.....: 000079
			Instrument ID..: I8				
Thallium	100	102	ug/L	102	SW846 6020	04/11-04/13/11	MGTR71A9
			Dilution Factor: 1		Analysis Time..: 11:45		Analyst ID.....: 000079
			Instrument ID..: I8				
Sodium	10000	11000	ug/L	110	SW846 6020	04/11-04/13/11	MGTR71CA
			Dilution Factor: 1		Analysis Time..: 11:45		Analyst ID.....: 000079
			Instrument ID..: I8				
Arsenic	2000	1840	ug/L	92	SW846 6010B	04/11-04/14/11	MGTR71CC
			Dilution Factor: 1		Analysis Time..: 19:18		Analyst ID.....: 002260
			Instrument ID..: I5				
Lead	500	503	ug/L	101	SW846 6010B	04/11-04/14/11	MGTR71CD
			Dilution Factor: 1		Analysis Time..: 19:18		Analyst ID.....: 002260
			Instrument ID..: I5				
Selenium	2000	2060	ug/L	103	SW846 6010B	04/11-04/14/11	MGTR71CE
			Dilution Factor: 1		Analysis Time..: 19:18		Analyst ID.....: 002260
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
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..: I5				
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..: I5				
Calcium	50000	47700	ug/L	95	SW846 6010B	04/11-04/14/11	MGTR71CH
			Dilution Factor: 1		Analysis Time..: 19:18		Analyst ID.....: 002260
			Instrument ID..: I5				
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..: I5				
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..: I5				
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..: I5				
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..: I5				
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..: I5				
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..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Mercury	5.0	4.8	ug/L	96	SW846 7470A	04/11-04/12/11	MGTR71CT
			Dilution Factor: 1		Analysis Time..: 13:31		Analyst ID.....: 002260
			Instrument ID..: H1				

LCS Lot-Sample#: A1D140000-025 **Prep Batch #...**: 1104025

Aluminum	10000	9970	ug/L	100	SW846 6020	04/14-04/18/11	MG0051A3
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Antimony	100	104	ug/L	104	SW846 6020	04/14-04/18/11	MG0051A4
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Beryllium	100	104	ug/L	104	SW846 6020	04/14-04/18/11	MG0051A5
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Cadmium	100	105	ug/L	105	SW846 6020	04/14-04/18/11	MG0051A6
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Iron	10000	9990	ug/L	100	SW846 6020	04/14-04/18/11	MG0051A7
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Sodium	10000	10200	ug/L	102	SW846 6020	04/14-04/18/11	MG0051A8
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Thallium	100	98.8	ug/L	99	SW846 6020	04/14-04/18/11	MG0051A9
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Zinc	1000	1100	ug/L	110	SW846 6020	04/14-04/18/11	MG0051CA
			Dilution Factor: 1		Analysis Time..: 14:06		Analyst ID.....: 000079
			Instrument ID..: I8				
Arsenic	2000	1830	ug/L	92	SW846 6010B	04/14-04/15/11	MG0051CC
			Dilution Factor: 1		Analysis Time..: 06:49		Analyst ID.....: 002260
			Instrument ID..: I5				
Lead	500	499	ug/L	100	SW846 6010B	04/14-04/15/11	MG0051CD
			Dilution Factor: 1		Analysis Time..: 06:49		Analyst ID.....: 002260
			Instrument ID..: I5				

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Selenium	2000	2070	ug/L	103	SW846 6010B	04/14-04/15/11	MG0051CE
			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	MG0051CF
			Dilution Factor: 1		Analysis Time..: 06:49	Analyst ID.....: 002260	
			Instrument ID..: I5				
Calcium	50000	46000	ug/L	92	SW846 6010B	04/14-04/15/11	MG0051CG
			Dilution Factor: 1		Analysis Time..: 06:49	Analyst ID.....: 002260	
			Instrument ID..: I5				
Cobalt	500	480	ug/L	96	SW846 6010B	04/14-04/15/11	MG0051CH
			Dilution Factor: 1		Analysis Time..: 06:49	Analyst ID.....: 002260	
			Instrument ID..: I5				
Copper	250	249	ug/L	99	SW846 6010B	04/14-04/15/11	MG0051CJ
			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	MG0051CK
			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	MG0051CL
			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	MG0051CM
			Dilution Factor: 1		Analysis Time..: 06:49	Analyst ID.....: 002260	
			Instrument ID..: I5				
Potassium	50000	47000	ug/L	94	SW846 6010B	04/14-04/15/11	MG0051CN
			Dilution Factor: 1		Analysis Time..: 06:49	Analyst ID.....: 002260	
			Instrument ID..: I5				
Silver	50.0	46.9	ug/L	94	SW846 6010B	04/14-04/15/11	MG0051CP
			Dilution Factor: 1		Analysis Time..: 06:49	Analyst ID.....: 002260	
			Instrument ID..: I5				
Vanadium	500	488	ug/L	98	SW846 6010B	04/14-04/15/11	MG0051CQ
			Dilution Factor: 1		Analysis Time..: 06:49	Analyst ID.....: 002260	
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Chromium	200	189	ug/L	95	SW846 6010B	04/14-04/15/11	MG0051CR
				Dilution Factor: 1	Analysis Time..: 06:49	Analyst ID.....: 002260	
				Instrument ID..: I5			
Mercury	5.0	5.2	ug/L	105	SW846 7470A	04/14-04/15/11	MG0051CT
				Dilution Factor: 1	Analysis Time..: 10:47	Analyst ID.....: 002260	
				Instrument ID..: H1			

LCS Lot-Sample#: A1D150000-011 Prep Batch #...: 1105011

Zinc	1000	1080	ug/L	108	SW846 6020	04/15-04/18/11	MG2XW1AC
				Dilution Factor: 1	Analysis Time..: 14:39	Analyst ID.....: 000079	
				Instrument ID..: I8			

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received...: 04/08/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D080405-003 Prep Batch #... : 1101020					
Aluminum	100	(75 - 125)	SW846 6020	04/11-04/13/11	MGP1F1AC
		Dilution Factor: 1	Analysis Time..: 11:52	Instrument ID...: I8	
		Analyst ID.....: 000079			
Antimony	99	(75 - 125)	SW846 6020	04/11-04/13/11	MGP1F1AQ
		Dilution Factor: 1	Analysis Time..: 11:52	Instrument ID...: I8	
		Analyst ID.....: 000079			
Arsenic	95	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1A5
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Barium	100	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1CJ
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Beryllium	103	(75 - 125)	SW846 6020	04/11-04/13/11	MGP1F1AF
		Dilution Factor: 1	Analysis Time..: 11:52	Instrument ID...: I8	
		Analyst ID.....: 000079			
Cadmium	104	(75 - 125)	SW846 6020	04/11-04/13/11	MGP1F1AJ
		Dilution Factor: 1	Analysis Time..: 11:52	Instrument ID...: I8	
		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			
Copper	98	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1CX
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received...: 04/08/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Iron	98	(75 - 125)	SW846 6020	04/11-04/13/11	MGP1F1AM
		Dilution Factor: 1	Analysis Time..: 11:52	Instrument ID...: I8	
		Analyst ID.....: 000079			
Lead	105	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1A8
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Magnesium	97	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1C5
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Manganese	106	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1C8
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Mercury	102	(80 - 120)	SW846 7470A	04/11-04/12/11	MGP1F1DJ
		Dilution Factor: 1	Analysis Time..: 13:33	Instrument ID...: H1	
		Analyst ID.....: 002260			
Nickel	102	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1DC
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Potassium	92	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1C2
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Selenium	106	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1CC
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Silver	94	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1CF
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5	
		Analyst ID.....: 002260			
Sodium	107	(75 - 125)	SW846 6020	04/11-04/13/11	MGP1F1A2
		Dilution Factor: 1	Analysis 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 Time..: 11:52	Instrument ID...: I8	
		Analyst ID.....: 000079			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received...: 04/08/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Vanadium	100	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP1F1DF
		Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID..: I5	
		Analyst ID.....: 002260			
Zinc	98	(75 - 125)	SW846 6020	04/11-04/13/11	MGP1F1AU
		Dilution Factor: 1	Analysis Time..: 11:52	Instrument ID..: I8	
		Analyst ID.....: 000079			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D080405-003 Prep Batch #...: 1101020								
Aluminum	ND	10000	9970	ug/L	100	SW846 6020	04/11-04/13/11	MGP1F1AC
			Dilution Factor: 1		Analysis Time..: 11:52		Instrument ID...: I8	
			Analyst ID.....: 000079					
Antimony	ND	100	99.2	ug/L	99	SW846 6020	04/11-04/13/11	MGP1F1AQ
			Dilution Factor: 1		Analysis Time..: 11:52		Instrument ID...: I8	
			Analyst ID.....: 000079					
Arsenic	ND	2000	1900	ug/L	95	SW846 6010B	04/11-04/14/11	MGP1F1A5
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Barium	12.0	2000	2020	ug/L	100	SW846 6010B	04/11-04/14/11	MGP1F1CJ
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Beryllium	ND	100	103	ug/L	103	SW846 6020	04/11-04/13/11	MGP1F1AF
			Dilution Factor: 1		Analysis Time..: 11:52		Instrument ID...: I8	
			Analyst ID.....: 000079					
Cadmium	ND	100	104	ug/L	104	SW846 6020	04/11-04/13/11	MGP1F1AJ
			Dilution Factor: 1		Analysis Time..: 11:52		Instrument ID...: I8	
			Analyst ID.....: 000079					
Calcium	29000	50000	76900	ug/L	96	SW846 6010B	04/11-04/14/11	MGP1F1CM
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Chromium	ND	200	195	ug/L	98	SW846 6010B	04/11-04/14/11	MGP1F1CU
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Cobalt	ND	500	498	ug/L	100	SW846 6010B	04/11-04/14/11	MGP1F1CQ
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Copper	ND	250	245	ug/L	98	SW846 6010B	04/11-04/14/11	MGP1F1CX
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	ND	10000	9830	ug/L	98	SW846 6020	04/11-04/13/11	MGP1F1AM
			Dilution Factor: 1		Analysis Time..: 11:52		Instrument ID...: I8	
			Analyst ID.....: 000079					
Lead	ND	500	524	ug/L	105	SW846 6010B	04/11-04/14/11	MGP1F1A8
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Magnesium	3960	50000	52400	ug/L	97	SW846 6010B	04/11-04/14/11	MGP1F1C5
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Manganese	2.7	500	533	ug/L	106	SW846 6010B	04/11-04/14/11	MGP1F1C8
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Mercury	ND	1.0	1.0	ug/L	102	SW846 7470A	04/11-04/12/11	MGP1F1DJ
			Dilution Factor: 1		Analysis Time..: 13:33		Instrument ID...: H1	
			Analyst ID.....: 002260					
Nickel	ND	500	512	ug/L	102	SW846 6010B	04/11-04/14/11	MGP1F1DC
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Potassium	591	50000	46400	ug/L	92	SW846 6010B	04/11-04/14/11	MGP1F1C2
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Selenium	ND	2000	2110	ug/L	106	SW846 6010B	04/11-04/14/11	MGP1F1CC
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Silver	ND	50.0	46.9	ug/L	94	SW846 6010B	04/11-04/14/11	MGP1F1CF
			Dilution Factor: 1		Analysis Time..: 19:24		Instrument ID...: I5	
			Analyst ID.....: 002260					
Sodium	1710	10000	12400	ug/L	107	SW846 6020	04/11-04/13/11	MGP1F1A2
			Dilution Factor: 1		Analysis Time..: 11:52		Instrument ID...: I8	
			Analyst ID.....: 000079					
Thallium	0.18	100	101	ug/L	101	SW846 6020	04/11-04/13/11	MGP1F1AX
			Dilution Factor: 1		Analysis Time..: 11:52		Instrument ID...: I8	
			Analyst ID.....: 000079					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 09:01 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Vanadium	ND	500	498	ug/L	100	SW846 6010B	04/11-04/14/11	MGP1F1DF
				Dilution Factor: 1	Analysis Time..: 19:24	Instrument ID...: I5		
				Analyst ID.....: 002260				
Zinc	7.3	100	106	ug/L	98	SW846 6020	04/11-04/13/11	MGP1F1AU
				Dilution Factor: 1	Analysis Time..: 11:52	Instrument ID...: I8		
				Analyst ID.....: 000079				

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received...: 04/08/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D080405-019 Prep Batch #... : 1101020					
Aluminum	100	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151AM
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8	
		Analyst ID.....: 000079			
Antimony	100	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151A2
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8	
		Analyst ID.....: 000079			
Arsenic	92	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151AF
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Barium	102	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151CU
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Beryllium	103	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151AQ
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8	
		Analyst ID.....: 000079			
Cadmium	104	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151AU
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8	
		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			
Cobalt	96	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151C2
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Copper	99	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151C8
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received...: 04/08/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Iron	101	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151AX
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8	
		Analyst ID.....: 000079			
Lead	100	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151AJ
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Magnesium	92	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151CF
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Manganese	74 N	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151CJ
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Mercury	102	(80 - 120)	SW846 7470A	04/11-04/12/11	MGP151DJ
		Dilution Factor: 1	Analysis Time..: 13:39	Instrument ID...: H1	
		Analyst ID.....: 002260			
Nickel	99	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151DC
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Potassium	102	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151CC
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Selenium	102	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151CM
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Silver	93	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151CQ
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5	
		Analyst ID.....: 002260			
Sodium	105	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151AC
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8	
		Analyst ID.....: 000079			
Thallium	101	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151A8
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8	
		Analyst ID.....: 000079			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received...: 04/08/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Vanadium	98	(75 - 125)	SW846 6010B	04/11-04/14/11	MGP151DF
		Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID..: I5	
		Analyst ID.....: 002260			
Zinc	102	(75 - 125)	SW846 6020	04/11-04/13/11	MGP151A5
		Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID..: I8	
		Analyst ID.....: 000079			

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

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D080405-019 Prep Batch #...: 1101020								
Aluminum	ND	10000	9990	ug/L	100	SW846 6020	04/11-04/13/11	MGP151AM
				Dilution Factor: 1		Analysis Time..: 12:55		Instrument ID...: I8
				Analyst ID.....: 000079				
Antimony	ND	100	100	ug/L	100	SW846 6020	04/11-04/13/11	MGP151A2
				Dilution Factor: 1		Analysis Time..: 12:55		Instrument ID...: I8
				Analyst ID.....: 000079				
Arsenic	ND	2000	1840	ug/L	92	SW846 6010B	04/11-04/14/11	MGP151AF
				Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5
				Analyst ID.....: 002260				
Barium	218	2000	2260	ug/L	102	SW846 6010B	04/11-04/14/11	MGP151CU
				Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5
				Analyst ID.....: 002260				
Beryllium	ND	100	103	ug/L	103	SW846 6020	04/11-04/13/11	MGP151AQ
				Dilution Factor: 1		Analysis Time..: 12:55		Instrument ID...: I8
				Analyst ID.....: 000079				
Cadmium	ND	100	104	ug/L	104	SW846 6020	04/11-04/13/11	MGP151AU
				Dilution Factor: 1		Analysis Time..: 12:55		Instrument ID...: I8
				Analyst ID.....: 000079				
Calcium	30900	50000	74900	ug/L	88	SW846 6010B	04/11-04/14/11	MGP151CX
				Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5
				Analyst ID.....: 002260				
Chromium	ND	200	189	ug/L	95	SW846 6010B	04/11-04/14/11	MGP151C5
				Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5
				Analyst ID.....: 002260				
Cobalt	ND	500	479	ug/L	96	SW846 6010B	04/11-04/14/11	MGP151C2
				Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5
				Analyst ID.....: 002260				
Copper	ND	250	249	ug/L	99	SW846 6010B	04/11-04/14/11	MGP151C8
				Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5
				Analyst ID.....: 002260				

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	6800	10000	16900	ug/L	101	SW846 6020	04/11-04/13/11	MGP151AX
			Dilution Factor: 1		Analysis Time..: 12:55		Instrument ID...: I8	
			Analyst ID.....: 000079					
Lead	ND	500	499	ug/L	100	SW846 6010B	04/11-04/14/11	MGP151AJ
			Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5	
			Analyst ID.....: 002260					
Magnesium	15400	50000	61700	ug/L	92	SW846 6010B	04/11-04/14/11	MGP151CF
			Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5	
			Analyst ID.....: 002260					
Manganese	1590	500	1960 N	ug/L	74	SW846 6010B	04/11-04/14/11	MGP151CJ
			Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5	
			Analyst ID.....: 002260					
Mercury	ND	1.0	1.0	ug/L	102	SW846 7470A	04/11-04/12/11	MGP151DJ
			Dilution Factor: 1		Analysis Time..: 13:39		Instrument ID...: H1	
			Analyst ID.....: 002260					
Nickel	ND	500	496	ug/L	99	SW846 6010B	04/11-04/14/11	MGP151DC
			Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5	
			Analyst ID.....: 002260					
Potassium	3080	50000	53900	ug/L	102	SW846 6010B	04/11-04/14/11	MGP151CC
			Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5	
			Analyst ID.....: 002260					
Selenium	ND	2000	2050	ug/L	102	SW846 6010B	04/11-04/14/11	MGP151CM
			Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5	
			Analyst ID.....: 002260					
Silver	ND	50.0	46.6	ug/L	93	SW846 6010B	04/11-04/14/11	MGP151CQ
			Dilution Factor: 1		Analysis Time..: 20:35		Instrument ID...: I5	
			Analyst ID.....: 002260					
Sodium	6250	10000	16700	ug/L	105	SW846 6020	04/11-04/13/11	MGP151AC
			Dilution Factor: 1		Analysis Time..: 12:55		Instrument ID...: I8	
			Analyst ID.....: 000079					
Thallium	ND	100	101	ug/L	101	SW846 6020	04/11-04/13/11	MGP151A8
			Dilution Factor: 1		Analysis Time..: 12:55		Instrument ID...: I8	
			Analyst ID.....: 000079					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Vanadium	ND	500	490	ug/L	98	SW846 6010B	04/11-04/14/11	MGP151DF
				Dilution Factor: 1	Analysis Time..: 20:35	Instrument ID...: I5		
				Analyst ID.....: 002260				
Zinc	4.7	100	106	ug/L	102	SW846 6020	04/11-04/13/11	MGP151A5
				Dilution Factor: 1	Analysis Time..: 12:55	Instrument ID...: I8		
				Analyst ID.....: 000079				

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

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received...: 04/08/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D080416-008 Prep Batch #... : 1104025					
Aluminum	99	(75 - 125)	SW846 6020	04/14-04/18/11	MGP5W1A3
		Dilution Factor: 1	Analysis Time..: 14:13	Instrument ID...: I8	
		Analyst ID.....: 000079			
Antimony	104	(75 - 125)	SW846 6020	04/14-04/18/11	MGP5W1A4
		Dilution Factor: 1	Analysis Time..: 14:13	Instrument ID...: I8	
		Analyst ID.....: 000079			
Arsenic	96	(75 - 125)	SW846 6010B	04/14-04/15/11	MGP5W1CC
		Dilution Factor: 1	Analysis Time..: 06:55	Instrument ID...: I5	
		Analyst ID.....: 002260			
Barium	101	(75 - 125)	SW846 6010B	04/14-04/15/11	MGP5W1CF
		Dilution Factor: 1	Analysis Time..: 06:55	Instrument ID...: I5	
		Analyst ID.....: 002260			
Beryllium	101	(75 - 125)	SW846 6020	04/14-04/18/11	MGP5W1A5
		Dilution Factor: 1	Analysis Time..: 14:13	Instrument ID...: I8	
		Analyst ID.....: 000079			
Cadmium	104	(75 - 125)	SW846 6020	04/14-04/18/11	MGP5W1A6
		Dilution Factor: 1	Analysis Time..: 14:13	Instrument ID...: I8	
		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			
Cobalt	99	(75 - 125)	SW846 6010B	04/14-04/15/11	MGP5W1CH
		Dilution Factor: 1	Analysis Time..: 06:55	Instrument ID...: I5	
		Analyst ID.....: 002260			
Copper	99	(75 - 125)	SW846 6010B	04/14-04/15/11	MGP5W1CJ
		Dilution Factor: 1	Analysis Time..: 06:55	Instrument ID...: I5	
		Analyst ID.....: 002260			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received...: 04/08/11

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
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...: I5	
		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)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received...: 04/08/11

<u>PARAMETER</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Vanadium	100	(75 - 125)	SW846 6010B	04/14-04/15/11	MGP5W1CQ
		Dilution Factor: 1	Analysis Time..: 06:55	Instrument ID...: I5	
		Analyst ID.....: 002260			
Zinc	107	(75 - 125)	SW846 6020	04/14-04/18/11	MGP5W1CA
		Dilution Factor: 1	Analysis Time..: 14:13	Instrument ID...: I8	
		Analyst ID.....: 000079			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D080416-008 Prep Batch #...: 1104025								
Aluminum	404	10000	10400	ug/L	99	SW846 6020	04/14-04/18/11	MGP5W1A3
				Dilution Factor: 1		Analysis Time..: 14:13		Instrument ID...: I8
				Analyst ID.....: 000079				
Antimony	ND	100	104	ug/L	104	SW846 6020	04/14-04/18/11	MGP5W1A4
				Dilution Factor: 1		Analysis Time..: 14:13		Instrument ID...: I8
				Analyst ID.....: 000079				
Arsenic	ND	2000	1920	ug/L	96	SW846 6010B	04/14-04/15/11	MGP5W1CC
				Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5
				Analyst ID.....: 002260				
Barium	15.7	2000	2040	ug/L	101	SW846 6010B	04/14-04/15/11	MGP5W1CF
				Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5
				Analyst ID.....: 002260				
Beryllium	ND	100	101	ug/L	101	SW846 6020	04/14-04/18/11	MGP5W1A5
				Dilution Factor: 1		Analysis Time..: 14:13		Instrument ID...: I8
				Analyst ID.....: 000079				
Cadmium	1.6	100	106	ug/L	104	SW846 6020	04/14-04/18/11	MGP5W1A6
				Dilution Factor: 1		Analysis Time..: 14:13		Instrument ID...: I8
				Analyst ID.....: 000079				
Calcium	42300	50000	89300	ug/L	94	SW846 6010B	04/14-04/15/11	MGP5W1CG
				Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5
				Analyst ID.....: 002260				
Chromium	ND	200	196	ug/L	98	SW846 6010B	04/14-04/15/11	MGP5W1CR
				Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5
				Analyst ID.....: 002260				
Cobalt	19.6	500	516	ug/L	99	SW846 6010B	04/14-04/15/11	MGP5W1CH
				Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5
				Analyst ID.....: 002260				
Copper	9.3	250	258	ug/L	99	SW846 6010B	04/14-04/15/11	MGP5W1CJ
				Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5
				Analyst ID.....: 002260				

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron	ND	10000	9960	ug/L	100	SW846 6020	04/14-04/18/11	MGP5W1A7
			Dilution Factor: 1		Analysis Time..: 14:13		Instrument ID...: I8	
			Analyst ID.....: 000079					
Lead	ND	500	521	ug/L	104	SW846 6010B	04/14-04/15/11	MGP5W1CD
			Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5	
			Analyst ID.....: 002260					
Magnesium	3200	50000	52000	ug/L	98	SW846 6010B	04/14-04/15/11	MGP5W1CK
			Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5	
			Analyst ID.....: 002260					
Manganese	243	500	775	ug/L	106	SW846 6010B	04/14-04/15/11	MGP5W1CL
			Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5	
			Analyst ID.....: 002260					
Mercury	ND	1.0	1.1	ug/L	108	SW846 7470A	04/14-04/15/11	MGP5W1CT
			Dilution Factor: 1		Analysis Time..: 10:34		Instrument ID...: H1	
			Analyst ID.....: 002260					
Nickel	37.0	500	542	ug/L	101	SW846 6010B	04/14-04/15/11	MGP5W1CM
			Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5	
			Analyst ID.....: 002260					
Potassium	2500	50000	48500	ug/L	92	SW846 6010B	04/14-04/15/11	MGP5W1CN
			Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5	
			Analyst ID.....: 002260					
Selenium	ND	2000	2110	ug/L	105	SW846 6010B	04/14-04/15/11	MGP5W1CE
			Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5	
			Analyst ID.....: 002260					
Silver	ND	50.0	46.1	ug/L	92	SW846 6010B	04/14-04/15/11	MGP5W1CP
			Dilution Factor: 1		Analysis Time..: 06:55		Instrument ID...: I5	
			Analyst ID.....: 002260					
Sodium	3140	10000	12900	ug/L	98	SW846 6020	04/14-04/18/11	MGP5W1A8
			Dilution Factor: 1		Analysis Time..: 14:13		Instrument ID...: I8	
			Analyst ID.....: 000079					
Thallium	0.55	100	97.6	ug/L	97	SW846 6020	04/14-04/18/11	MGP5W1A9
			Dilution Factor: 1		Analysis Time..: 14:13		Instrument ID...: I8	
			Analyst ID.....: 000079					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A1D080416

Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received...: 04/08/11

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Vanadium	ND	500	498	ug/L	100	SW846 6010B	04/14-04/15/11	MGP5W1CQ
				Dilution Factor: 1	Analysis Time..: 06:55	Instrument ID...: I5		
				Analyst ID.....: 002260				
Zinc	72.4	1000	1140	ug/L	107	SW846 6020	04/14-04/18/11	MGP5W1CA
				Dilution Factor: 1	Analysis Time..: 14:13	Instrument ID...: I8		
				Analyst ID.....: 000079				

NOTE(S):

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

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A1D080416

Work Order #...: MGP1F-SMP
MGP1F-DUP

Matrix.....: WATER

Date Sampled...: 04/07/11 09:01

Date Received...: 04/08/11

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Copper	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 19:24	Analyst ID.....: 002260	
			Instrument ID..: I5					
Nickel	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 19:24	Analyst ID.....: 002260	
			Instrument ID..: I5					
Vanadium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 19:24	Analyst ID.....: 002260	
			Instrument ID..: I5					
Mercury	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 7470A	04/11-04/12/11	1101020
			Dilution Factor: 1			Analysis Time..: 13:33	Analyst ID.....: 002260	
			Instrument ID..: H1					
Sodium	1710	1630	ug/L	5.1	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 11:52	Analyst ID.....: 000079	
			Instrument ID..: I8					
Arsenic	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 19:24	Analyst ID.....: 002260	
			Instrument ID..: I5					
Lead	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 19:24	Analyst ID.....: 002260	
			Instrument ID..: I5					
Aluminum	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 11:52	Analyst ID.....: 000079	
			Instrument ID..: I8					
Beryllium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 11:52	Analyst ID.....: 000079	
			Instrument ID..: I8					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-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 #
Cadmium						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...: I8					
Iron						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...: I8					
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...: I8					
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...: I8					
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		Analysis Time...: 19:24		Analyst ID.....: 002260	
			Instrument ID...: I5					
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		Analysis Time...: 19:24		Analyst ID.....: 002260	
			Instrument ID...: I5					
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					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D080416-000 Work Order #...: MGP1F-SMP Matrix.....: WATER
MGP1F-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Barium	12.0	11.5	ug/L	3.9	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1		Analysis Time..: 19:24		Analyst ID.....: 002260	
			Instrument ID..: I5					
Calcium	29000	30800	ug/L	5.9	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1		Analysis Time..: 19:24		Analyst ID.....: 002260	
			Instrument ID..: I5					
Cobalt	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1		Analysis Time..: 19:24		Analyst ID.....: 002260	
			Instrument ID..: I5					
Chromium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1		Analysis Time..: 19:24		Analyst ID.....: 002260	
			Instrument ID..: I5					
Zinc	7.3 B	ND	ug/L	200	(0-20)	SD Lot-Sample #: A1D080405-003 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1		Analysis Time..: 11:52		Analyst ID.....: 000079	
			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.

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A1D080416

Work Order #...: MGP15-SMP
MGP15-DUP

Matrix.....: WATER

Date Sampled...: 04/07/11 08:59

Date Received...: 04/08/11

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Antimony	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 12:55	Analyst ID.....: 000079	
			Instrument ID..: I8					
Thallium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 12:55	Analyst ID.....: 000079	
			Instrument ID..: I8					
Sodium	6250	6490	ug/L	3.7	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 12:55	Analyst ID.....: 000079	
			Instrument ID..: I8					
Arsenic	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Lead	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Aluminum	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 12:55	Analyst ID.....: 000079	
			Instrument ID..: I8					
Beryllium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 12:55	Analyst ID.....: 000079	
			Instrument ID..: I8					
Cadmium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 12:55	Analyst ID.....: 000079	
			Instrument ID..: I8					
Iron	6800	7010	ug/L	3.1	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1			Analysis Time..: 12:55	Analyst ID.....: 000079	
			Instrument ID..: I8					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D080416-000 Work Order #...: MGP15-SMP Matrix.....: WATER
MGP15-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cobalt	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Chromium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Copper	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Potassium	3080	3240	ug/L	5.1	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Magnesium	15400	14900	ug/L	3.9	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Manganese	1590	1580	ug/L	0.88	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Selenium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Silver	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					
Barium	218	226	ug/L	3.6	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1			Analysis Time..: 20:35	Analyst ID.....: 002260	
			Instrument ID..: I5					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D080416-000 Work Order #...: MGP15-SMP Matrix.....: WATER
MGP15-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Calcium	30900	30300	ug/L	2.2	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1		Analysis Time..: 20:35		Analyst ID.....: 002260	
			Instrument ID..: I5					
Nickel	ND	2.9 B	ug/L	200	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1		Analysis Time..: 20:35		Analyst ID.....: 002260	
			Instrument ID..: I5					
Vanadium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6010B	04/11-04/14/11	1101020
			Dilution Factor: 1		Analysis Time..: 20:35		Analyst ID.....: 002260	
			Instrument ID..: I5					
Mercury	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 7470A	04/11-04/12/11	1101020
			Dilution Factor: 1		Analysis Time..: 13:39		Analyst ID.....: 002260	
			Instrument ID..: H1					
Zinc	4.7 B	3.8 B	ug/L	21	(0-20)	SD Lot-Sample #: A1D080405-019 SW846 6020	04/11-04/13/11	1101020
			Dilution Factor: 1		Analysis Time..: 12:55		Analyst ID.....: 000079	
			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.

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A1D080416

Work Order #...: MGP5W-SMP
MGP5W-DUP

Matrix.....: WG

Date Sampled...: 04/07/11 12:00

Date Received...: 04/08/11

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Silver	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Aluminum	404	394	ug/L	2.5	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1			Analysis Time..: 14:13	Analyst ID.....: 000079	
			Instrument ID..: I8					
Arsenic	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Barium	15.7	15.5	ug/L	1.1	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Beryllium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1			Analysis Time..: 14:13	Analyst ID.....: 000079	
			Instrument ID..: I8					
Calcium	42300	41000	ug/L	3.0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Cadmium	1.6	1.6	ug/L	0.95	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1			Analysis Time..: 14:13	Analyst ID.....: 000079	
			Instrument ID..: I8					
Cobalt	19.6	18.6	ug/L	5.5	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Chromium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D080416-000

Work Order #...: MGP5W-SMP
MGP5W-DUP

Matrix.....: WG

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Copper	9.3	10.7	ug/L	13	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Iron	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1			Analysis Time..: 14:13	Analyst ID.....: 000079	
			Instrument ID..: I8					
Mercury	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 7470A	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 10:34	Analyst ID.....: 002260	
			Instrument ID..: H1					
Potassium	2500	2420	ug/L	3.4	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Magnesium	3200	3110	ug/L	2.9	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Manganese	243 J	236	ug/L	3.0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Sodium	3140	3070	ug/L	2.2	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1			Analysis Time..: 14:13	Analyst ID.....: 000079	
			Instrument ID..: I8					
Nickel	37.0	35.3	ug/L	4.6	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					
Lead	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1			Analysis Time..: 06:55	Analyst ID.....: 002260	
			Instrument ID..: I5					

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A1D080416-000 Work Order #...: MGP5W-SMP Matrix.....: WG
MGP5W-DUP

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Antimony	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1		Analysis Time..: 14:13		Analyst ID.....: 000079	
			Instrument ID..: I8					
Selenium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1		Analysis Time..: 06:55		Analyst ID.....: 002260	
			Instrument ID..: I5					
Thallium	0.55 B	0.36 B	ug/L	40	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1		Analysis Time..: 14:13		Analyst ID.....: 000079	
			Instrument ID..: I8					
Vanadium	ND	ND	ug/L	0	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6010B	04/14-04/15/11	1104025
			Dilution Factor: 1		Analysis Time..: 06:55		Analyst ID.....: 002260	
			Instrument ID..: I5					
Zinc	72.4 J	73.2	ug/L	1.2	(0-20)	SD Lot-Sample #: A1D080416-008 SW846 6020	04/14-04/18/11	1104025
			Dilution Factor: 1		Analysis Time..: 14:13		Analyst ID.....: 000079	
			Instrument ID..: 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

Prep Analyst: Lisa Mcgall

Laboratory Sample ID	Lab ID	Method	Analysis Date	Analyst	Instrument
A1D080416 10	MGP6A	SW846 6010B	04/14/11	Brian Davies	I5
A1D080416 10	MGP6A	SW846 6020	04/13/11	Natalie Bucklew	I8
A1D080416 10	MGP6A	SW846 7470A	04/12/11	Brian Davies	H1

Date Prepared: 04/14/11

Prep Analyst: Lisa Mcgall

Laboratory Sample ID	Lab ID	Method	Analysis Date	Analyst	Instrument
A1D080416 8	MGP5W	SW846 6010B	04/15/11	Brian Davies	I5
A1D080416 8 S	MGP5W	SW846 6010B	04/15/11	Brian Davies	I5
A1D080416 8 X	MGP5W	SW846 6010B	04/15/11	Brian Davies	I5
A1D080416 8	MGP5W	SW846 6020	04/18/11	Natalie Bucklew	I8
A1D080416 8 S	MGP5W	SW846 6020	04/18/11	Natalie Bucklew	I8
A1D080416 8 X	MGP5W	SW846 6020	04/18/11	Natalie Bucklew	I8
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

Prep Analyst: Lisa Mcgall

Laboratory Sample ID	Lab ID	Method	Analysis Date	Analyst	Instrument
A1D080416 10	MGP6A	SW846 6020	04/18/11	Natalie Bucklew	I8

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1				
Chloride	1.6	1.0	mg/L	MCAWW 300.0A	04/08/11	1101301
		Dilution Factor: 1				
Fluoride	0.083 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101297
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101304
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/15/11	1105283
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	27.2	1.0	mg/L	MCAWW 300.0A	04/08/11	1101310
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1				
Chloride	3.2	1.0	mg/L	MCAWW 300.0A	04/08/11	1101301
		Dilution Factor: 1				
Fluoride	0.29 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101297
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101304
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/15/11	1105283
		Dilution Factor: 1				
Phosphate as P, Ortho	0.37 B	0.50	mg/L	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	82.0	1.0	mg/L	MCAWW 300.0A	04/08/11	1101310
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1				
Chloride	10.0	1.0	mg/L	MCAWW 300.0A	04/08/11	1101301
		Dilution Factor: 1				
Fluoride	0.16 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101297
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101304
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	2.0	mg/L	MCAWW 350.2	04/15/11	1105283
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	27.2	1.0	mg/L	MCAWW 300.0A	04/08/11	1101310
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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	0.50	mg/L	MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1				
Chloride	1.1	1.0	mg/L	MCAWW 300.0A	04/08/11	1101301
		Dilution Factor: 1				
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/21/11	1112227
		Dilution Factor: 1				
Fluoride	0.070 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101297
		Dilution Factor: 1				
Nitrate as N	0.74	0.10	mg/L	MCAWW 300.0A	04/08/11	1101304
		Dilution Factor: 1				
Nitrate-Nitrite	0.8	0.1	mg/L	MCAWW 353.2	04/12/11	1102391
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1				
Nitrocellulose	ND	2.0	mg/L	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1				
Nitrogen, as Ammonia	0.84 B	2.0	mg/L	MCAWW 350.2	04/15/11	1105283
		Dilution Factor: 1				
Phosphate as P, Ortho	0.18 B	0.50	mg/L	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	104	1.0	mg/L	MCAWW 300.0A	04/08/11	1101310
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

U.S.Geological Survey (USGS)

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	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1				
Chloride	1.2	1.0	mg/L	MCAWW 300.0A	04/08/11	1101301
		Dilution Factor: 1				
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/21/11	1112227
		Dilution Factor: 1				
Fluoride	0.16 B	1.0	mg/L	MCAWW 300.0A	04/08/11	1101297
		Dilution Factor: 1				
Nitrate as N	0.033 B	0.10	mg/L	MCAWW 300.0A	04/08/11	1101304
		Dilution Factor: 1				
Nitrate-Nitrite	0.03 B	0.1	mg/L	MCAWW 353.2	04/12/11	1102391
		Dilution Factor: 1				
Nitrite as N	ND	0.10	mg/L	MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1				
Nitrocellulose	ND	2.0	mg/L	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1				
Nitrogen, as Ammonia	0.84 B	2.0	mg/L	MCAWW 350.2	04/15/11	1105283
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	0.50	mg/L	MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	84.5	1.0	mg/L	MCAWW 300.0A	04/08/11	1101310
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D080416

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	PREP
		LIMIT	UNITS		ANALYSIS DATE	BATCH #
Bromide	ND	Work Order #: MGVN91AA 0.50	mg/L	MB Lot-Sample #: A1D110000-303 MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1				
Chloride	ND	Work Order #: MGVN71AA 1.0	mg/L	MB Lot-Sample #: A1D110000-301 MCAWW 300.0A	04/08/11	1101301
		Dilution Factor: 1				
Cyanide, Total	ND	Work Order #: MHE9T1AA 0.010	mg/L	MB Lot-Sample #: A1D220000-227 SW846 9012A	04/21/11	1112227
		Dilution Factor: 1				
Fluoride	ND	Work Order #: MGVN51AA 1.0	mg/L	MB Lot-Sample #: A1D110000-297 MCAWW 300.0A	04/08/11	1101297
		Dilution Factor: 1				
Nitrate as N	ND	Work Order #: MGVP1AA 0.10	mg/L	MB Lot-Sample #: A1D110000-304 MCAWW 300.0A	04/08/11	1101304
		Dilution Factor: 1				
Nitrate-Nitrite	ND	Work Order #: MGXC1AA 0.1	mg/L	MB Lot-Sample #: G1D120000-391 MCAWW 353.2	04/12/11	1102391
		Dilution Factor: 1				
Nitrite as N	ND	Work Order #: MGVN81AA 0.10	mg/L	MB Lot-Sample #: A1D110000-302 MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1				
Nitrocellulose	ND	Work Order #: MGWA31AA 2.0	mg/L	MB Lot-Sample #: G1D120000-167 TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	Work Order #: MG3831AA 2.0	mg/L	MB Lot-Sample #: A1D150000-283 MCAWW 350.2	04/15/11	1105283
		Dilution Factor: 1				
Phosphate as P, Ortho	ND	Work Order #: MGVPD1AA 0.50	mg/L	MB Lot-Sample #: A1D110000-306 MCAWW 300.0A	04/08/11	1101306
		Dilution Factor: 1				
Sulfate	ND	Work Order #: MGVPF1AA 1.0	mg/L	MB Lot-Sample #: A1D110000-310 MCAWW 300.0A	04/08/11	1101310
		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

Lot-Sample #...: A1D080416

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD RPD	LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide		WO#:MGVN91AC-LCS/MGVN91AD-LCSD LCS Lot-Sample#: A1D110000-303					
	94	(90 - 110)			MCAWW 300.0A	04/08/11	1101303
	94	(90 - 110)	0.36	(0-20)	MCAWW 300.0A	04/08/11	1101303
		Dilution Factor: 1					
Chloride		WO#:MGVN71AC-LCS/MGVN71AD-LCSD LCS Lot-Sample#: A1D110000-301					
	99	(90 - 110)			MCAWW 300.0A	04/09/11	1101301
	99	(90 - 110)	0.22	(0-20)	MCAWW 300.0A	04/09/11	1101301
		Dilution Factor: 1					
Fluoride		WO#:MGVN51AC-LCS/MGVN51AD-LCSD LCS Lot-Sample#: A1D110000-297					
	96	(90 - 110)			MCAWW 300.0A	04/09/11	1101297
	95	(90 - 110)	0.04	(0-20)	MCAWW 300.0A	04/09/11	1101297
		Dilution Factor: 1					
Nitrate as N		WO#:MGVPA1AC-LCS/MGVPA1AD-LCSD LCS Lot-Sample#: A1D110000-304					
	95	(90 - 110)			MCAWW 300.0A	04/08/11	1101304
	95	(90 - 110)	0.58	(0-20)	MCAWW 300.0A	04/08/11	1101304
		Dilution Factor: 1					
Nitrite as N		WO#:MGVN81AC-LCS/MGVN81AD-LCSD LCS Lot-Sample#: A1D110000-302					
	99	(90 - 110)			MCAWW 300.0A	04/08/11	1101302
	100	(90 - 110)	1.1	(0-20)	MCAWW 300.0A	04/08/11	1101302
		Dilution Factor: 1					
Phosphate as P, Ortho		WO#:MGVPD1AC-LCS/MGVPD1AD-LCSD LCS Lot-Sample#: A1D110000-306					
	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					
Sulfate		WO#:MGVPF1AC-LCS/MGVPF1AD-LCSD LCS Lot-Sample#: A1D110000-310					
	94	(90 - 110)			MCAWW 300.0A	04/09/11	1101310
	95	(90 - 110)	0.27	(0-20)	MCAWW 300.0A	04/09/11	1101310
		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.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A1D080416

Matrix.....: WATER

	SPIKE	MEASURED		PERCENT			PREPARATION-	PREP
PARAMETER	AMOUNT	AMOUNT	UNITS	RECVRY	RPD	METHOD	ANALYSIS DATE	BATCH #
Bromide			WO#:MGVN91AC-LCS/MGVN91AD-LCSD LCS Lot-Sample#: A1D110000-303					
	10.0	9.4	mg/L	94		MCAWW 300.0A	04/08/11	1101303
	10.0	9.4	mg/L	94	0.36	MCAWW 300.0A	04/08/11	1101303
			Dilution Factor: 1					
Chloride			WO#:MGVN71AC-LCS/MGVN71AD-LCSD LCS Lot-Sample#: A1D110000-301					
	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
			Dilution Factor: 1					
Fluoride			WO#:MGVN51AC-LCS/MGVN51AD-LCSD LCS Lot-Sample#: A1D110000-297					
	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
			Dilution Factor: 1					
Nitrate as N			WO#:MGVPA1AC-LCS/MGVPA1AD-LCSD LCS Lot-Sample#: A1D110000-304					
	2.5	2.4	mg/L	95		MCAWW 300.0A	04/08/11	1101304
	2.5	2.4	mg/L	95	0.58	MCAWW 300.0A	04/08/11	1101304
			Dilution Factor: 1					
Nitrite as N			WO#:MGVN81AC-LCS/MGVN81AD-LCSD LCS Lot-Sample#: A1D110000-302					
	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
			Dilution Factor: 1					
Phosphate as P, Ortho			WO#:MGVPD1AC-LCS/MGVPD1AD-LCSD LCS Lot-Sample#: A1D110000-306					
	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
			Dilution Factor: 1					
Sulfate			WO#:MGVPF1AC-LCS/MGVPF1AD-LCSD LCS Lot-Sample#: A1D110000-310					
	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
			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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Cyanide, Total	107	Work Order #: MHE9T1AC (80 - 120)	LCS Lot-Sample#: A1D220000-227 SW846 9012A	04/21/11	1112227
		Dilution Factor: 1			
Nitrate-Nitrite	100	Work Order #: MGXCN1AC (90 - 110)	LCS Lot-Sample#: G1D120000-391 MCAWW 353.2	04/12/11	1102391
		Dilution Factor: 1			
Nitrocellulose	90	Work Order #: MGWA31AC (26 - 144)	LCS Lot-Sample#: G1D120000-167 TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		Dilution Factor: 1			
Nitrogen, as Ammonia	88	Work Order #: MG3831AC (85 - 114)	LCS Lot-Sample#: A1D150000-283 MCAWW 350.2	04/15/11	1105283
		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 #...: A1D080416

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cyanide, Total	0.33	0.35	mg/L	107	SW846 9012A	04/21/11	1112227
Work Order #: MHE9T1AC LCS Lot-Sample#: A1D220000-227 Dilution Factor: 1							
Nitrate-Nitrite	1.0	1	mg/L	100	MCAWW 353.2	04/12/11	1102391
Work Order #: MGXCN1AC LCS Lot-Sample#: G1D120000-391 Dilution Factor: 1							
Nitrocellulose	5.1	4.6	mg/L	90	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
Work Order #: MGWA31AC LCS Lot-Sample#: G1D120000-167 Dilution Factor: 1							
Nitrogen, as Ammonia	14	12	mg/L	88	MCAWW 350.2	04/15/11	1105283
Work Order #: MG3831AC LCS Lot-Sample#: A1D150000-283 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 #...: A1D080416

Matrix.....: WATER

Date Sampled...: 04/06/11 14:05 Date Received...: 04/07/11

PARAMETER	PERCENT RECOVERY	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitrite		WO#: MGPCC1C4-MS/MGPCC1C5-MSD	MS Lot-Sample #: A1D070566-011		
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
		Dilution Factor: 1			
Nitrocellulose		WO#: MGLKA1AF-MS/MGLKA1AG-MSD	MS Lot-Sample #: A1D060428-014		
80	(26 - 144)		TAL-SOP WS-WC-005	04/12-04/13/11	1102167
79	(26 - 144)	0.99 (0-45)	TAL-SOP WS-WC-005	04/12-04/13/11	1102167
		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.....: WATER

Date Sampled...: 04/06/11 14:05 Date Received...: 04/07/11

PARAMETER	AMOUNT	AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitrite			WO#: MGPCC1C4-MS/MGPCC1C5-MSD MS Lot-Sample #: 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
Dilution Factor: 1									
Nitrocellulose			WO#: MGLKA1AF-MS/MGLKA1AG-MSD MS Lot-Sample #: 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
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 EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416

Matrix.....: WG

Date Sampled...: 04/07/11 12:00 Date Received...: 04/08/11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide			WO#: MGP5D1AR-MS/MGP5D1AT-MSD MS Lot-Sample #: A1D080416-001				
	87	(80 - 120)			MCAWW 300.0A	04/08/11	1101303
	86	(80 - 120)	0.84	(0-20)	MCAWW 300.0A	04/08/11	1101303
			Dilution Factor: 1				
Chloride			WO#: MGP5D1AM-MS/MGP5D1AN-MSD MS Lot-Sample #: A1D080416-001				
	91	(80 - 120)			MCAWW 300.0A	04/08/11	1101301
	91	(80 - 120)	0.16	(0-20)	MCAWW 300.0A	04/08/11	1101301
			Dilution Factor: 1				
Cyanide, Total			WO#: MGP5R1AX-MS/MGP5R1A0-MSD MS Lot-Sample #: A1D080416-007				
	99	(80 - 120)			SW846 9012A	04/21/11	1112227
	88	(80 - 120)	11	(0-20)	SW846 9012A	04/21/11	1112227
			Dilution Factor: 1				
Fluoride			WO#: MGP5D1AK-MS/MGP5D1AL-MSD MS Lot-Sample #: A1D080416-001				
	89	(80 - 120)			MCAWW 300.0A	04/08/11	1101297
	89	(80 - 120)	0.51	(0-20)	MCAWW 300.0A	04/08/11	1101297
			Dilution Factor: 1				
Nitrate as N			WO#: MGP5D1AU-MS/MGP5D1AV-MSD MS Lot-Sample #: A1D080416-001				
	88	(80 - 120)			MCAWW 300.0A	04/08/11	1101304
	88	(80 - 120)	0.27	(0-20)	MCAWW 300.0A	04/08/11	1101304
			Dilution Factor: 1				
Nitrite as N			WO#: MGP5D1AP-MS/MGP5D1AQ-MSD MS Lot-Sample #: A1D080416-001				
	109	(80 - 120)			MCAWW 300.0A	04/08/11	1101302
	110	(80 - 120)	1.0	(0-20)	MCAWW 300.0A	04/08/11	1101302
			Dilution Factor: 1				
Nitrogen, as Ammonia			WO#: MGP5D1A2-MS/MGP5D1A3-MSD MS Lot-Sample #: A1D080416-001				
	91	(75 - 125)			MCAWW 350.2	04/15/11	1105283
	91	(75 - 125)	0.0	(0-20)	MCAWW 350.2	04/15/11	1105283
			Dilution Factor: 1				
Phosphate as P, Ortho			WO#: MGP5D1AW-MS/MGP5D1AX-MSD MS Lot-Sample #: A1D080416-001				
	119	(80 - 120)			MCAWW 300.0A	04/08/11	1101306
	121 N	(80 - 120)	1.2	(0-20)	MCAWW 300.0A	04/08/11	1101306
			Dilution Factor: 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

PARAMETER	PERCENT RECOVERY	RPD	PREPARATION-	PREP
RECOVERY	LIMITS	RPD	ANALYSIS DATE	BATCH #
Sulfate		WO#: MGP5D1A0-MS/MGP5D1A1-MSD MS Lot-Sample #: A1D080416-001		
93	(80 - 120)		04/08/11	1101310
93	(80 - 120)	0.04 (0-20)	04/08/11	1101310
		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 AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide			WO#: MGP5D1AR-MS/MGP5D1AT-MSD MS Lot-Sample #: A1D080416-001						
	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
			Dilution Factor: 1						
Chloride			WO#: MGP5D1AM-MS/MGP5D1AN-MSD MS Lot-Sample #: 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
			Dilution Factor: 1						
Cyanide, Total			WO#: MGP5R1AX-MS/MGP5R1A0-MSD MS Lot-Sample #: A1D080416-007						
	ND	0.040	0.042	mg/L	99		SW846 9012A	04/21/11	1112227
	ND	0.040	0.038	mg/L	88	11	SW846 9012A	04/21/11	1112227
			Dilution Factor: 1						
Fluoride			WO#: MGP5D1AK-MS/MGP5D1AL-MSD MS Lot-Sample #: 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
			Dilution Factor: 1						
Nitrate as N			WO#: MGP5D1AU-MS/MGP5D1AV-MSD MS Lot-Sample #: A1D080416-001						
	ND	2.5	2.2	mg/L	88		MCAWW 300.0A	04/08/11	1101304
	ND	2.5	2.2	mg/L	88	0.27	MCAWW 300.0A	04/08/11	1101304
			Dilution Factor: 1						
Nitrite as N			WO#: MGP5D1AP-MS/MGP5D1AQ-MSD MS Lot-Sample #: 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
			Dilution Factor: 1						
Nitrogen, as Ammonia			WO#: MGP5D1A2-MS/MGP5D1A3-MSD MS Lot-Sample #: A1D080416-001						
	ND	4.0	3.9	mg/L	91		MCAWW 350.2	04/15/11	1105283
	ND	4.0	3.9	mg/L	91	0.0	MCAWW 350.2	04/15/11	1105283
			Dilution Factor: 1						
Phosphate as P, Ortho			WO#: MGP5D1AW-MS/MGP5D1AX-MSD MS Lot-Sample #: 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
			Dilution 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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Sulfate	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

WO#: MGP5D1A0-MS/MGP5D1A1-MSD MS Lot-Sample #: A1D080416-001

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.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D080416

Work Order #...: MGP5N-SMP
MGP5N-DUP

Matrix.....: WG

Date Sampled...: 04/07/11 08:59

Date Received...: 04/08/11

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Bromide	ND	ND	mg/L	0	(0-20)	SD Lot-Sample #: A1D080416-005 MCAWW 300.0A	04/08/11	1101303
			Dilution Factor: 1					
Chloride	10.0	10	mg/L	0.30	(0-20)	SD Lot-Sample #: A1D080416-005 MCAWW 300.0A	04/08/11	1101301
			Dilution Factor: 1					
Fluoride	0.16 B	0.14 B	mg/L	15	(0-20)	SD Lot-Sample #: A1D080416-005 MCAWW 300.0A	04/08/11	1101297
			Dilution Factor: 1					
Nitrate as N	ND	ND	mg/L	0	(0-20)	SD Lot-Sample #: A1D080416-005 MCAWW 300.0A	04/08/11	1101304
			Dilution Factor: 1					
Nitrite as N	ND	ND	mg/L	0	(0-20)	SD Lot-Sample #: A1D080416-005 MCAWW 300.0A	04/08/11	1101302
			Dilution Factor: 1					
Phosphate as P, Ortho	ND	ND	mg/L	0	(0-20)	SD Lot-Sample #: A1D080416-005 MCAWW 300.0A	04/08/11	1101306
			Dilution Factor: 1					
Sulfate	27.2	27.3	mg/L	0.26	(0-20)	SD Lot-Sample #: A1D080416-005 MCAWW 300.0A	04/08/11	1101310
			Dilution Factor: 1					

NOTE(S):

Calculations 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

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.

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com



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.

RECEIPT

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	B	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

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-14465-1	FWGLL2MW-266C-0040-GF					
Boron		29	J	100	ug/L	6010B
Lithium		23		10	ug/L	6010B
SiO2, Silica		11000		500	ug/L	6010B
Uranium		0.043	J B	1.0	ug/L	6020
280-14465-2	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
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
SiO2, Silica		22000		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)	TAL DEN	SW846 6010B	
Preparation, Total Metals	TAL DEN		SW846 3010A
Metals (ICP/MS)	TAL DEN	SW846 6020	
Preparation, Total Metals	TAL DEN		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

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-14465-1	FWGLL2MW-266C-0040-GF	Water	04/07/2011 1104	04/09/2011 0900
280-14465-1MS	FWGLL2MW-266C-0040-GF	Water	04/07/2011 1104	04/09/2011 0900
280-14465-1DU	FWGLL2MW-266C-0040-GF	Water	04/07/2011 1104	04/09/2011 0900
280-14465-2	FWGLL2MW-267C-0050-GF	Water	04/07/2011 0852	04/09/2011 0900
280-14465-3	FWGLLWMW-269C-0060-GF	Water	04/07/2011 0859	04/09/2011 0900
280-14465-4	FWGLL1MW-084C-0200-GW	Water	04/07/2011 1200	04/09/2011 0900
280-14465-5	FWGLL4MW-198C-0210-GW	Water	04/07/2011 1500	04/09/2011 0900

Analytical Data

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	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 1723			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730				

Analyte	Result (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62706	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	Lab File ID:	221AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0523			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.043	J B	0.020	1.0

Analytical Data

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 (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62706	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	Lab File ID:	224SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0531			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.066	J B	0.020	1.0

Analytical Data

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

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 1732			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730				

Analyte	Result (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62706	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	Lab File ID:	225SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0534			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	ND		0.020	1.0

Analytical Data

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:	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 1734			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730				

Analyte	Result (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62706	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	Lab File ID:	226SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0537			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	0.62	J B	0.020	1.0

Analytical Data

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	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 1736			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 0730				

Analyte	Result (ug/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 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-62706	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-61885	Lab File ID:	227SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	04/16/2011 0539			Final Weight/Volume:	50 mL
Prep Date:	04/15/2011 1530				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Uranium	ND		0.020	1.0

Quality Control Results

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	T	Water	3010A	
MB 280-61884/1-A	Method Blank	T	Water	3010A	
280-14465-1	FWGLL2MW-266C-0040-GF	T	Water	3010A	
280-14465-1DU	Duplicate	T	Water	3010A	
280-14465-1MS	Matrix Spike	T	Water	3010A	
280-14465-2	FWGLL2MW-267C-0050-GF	T	Water	3010A	
280-14465-3	FWGLLWMW-269C-0060-GF	T	Water	3010A	
280-14465-4	FWGLL1MW-084C-0200-GW	T	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	T	Water	3020A	
280-14465-1DU	Duplicate	T	Water	3020A	
280-14465-1MS	Matrix Spike	T	Water	3020A	
280-14465-2	FWGLL2MW-267C-0050-GF	T	Water	3020A	
280-14465-3	FWGLLWMW-269C-0060-GF	T	Water	3020A	
280-14465-4	FWGLL1MW-084C-0200-GW	T	Water	3020A	
280-14465-5	FWGLL4MW-198C-0210-GW	T	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	T	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	T	Water	6010B	280-61884
280-14465-5	FWGLL4MW-198C-0210-GW	T	Water	6010B	280-61884
Analysis Batch:280-62706					
LCS 280-61885/2-A	Lab Control Sample	T	Water	6020	280-61885
MB 280-61885/1-A	Method Blank	T	Water	6020	280-61885
280-14465-1	FWGLL2MW-266C-0040-GF	T	Water	6020	280-61885
280-14465-1DU	Duplicate	T	Water	6020	280-61885
280-14465-1MS	Matrix Spike	T	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	T	Water	6020	280-61885
280-14465-5	FWGLL4MW-198C-0210-GW	T	Water	6020	280-61885

TestAmerica Denver

Quality Control Results

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
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Report Basis
T = Total

Quality Control Results

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
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/15/2011 1651
Prep Date: 04/15/2011 0730
Leach Date: N/A

Analysis Batch: 280-62690
Prep Batch: 280-61884
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_025
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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: LCS 280-61884/2-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/15/2011 1653
Prep Date: 04/15/2011 0730
Leach Date: N/A

Analysis Batch: 280-62690
Prep Batch: 280-61884
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_025
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/15/2011 1727
Prep Date: 04/15/2011 0730
Leach Date: N/A

Analysis Batch: 280-62690
Prep Batch: 280-61884
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_025
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Serial Dilution - Batch: 280-61884

Method: 6010B

Preparation: 3010A

Lab Sample ID: 280-14464-A-1-A SD ^5
Client Matrix: Water
Dilution: 5.0
Analysis Date: 04/15/2011 1657
Prep Date: 04/15/2011 0730
Leach Date: N/A

Analysis Batch: 280-62690
Prep Batch: 280-61884
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_025
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/15/2011 1725
Prep Date: 04/15/2011 0730
Leach Date: N/A

Analysis Batch: 280-62690
Prep Batch: 280-61884
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_025
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Boron	29	J	29.6	2	25	J
Lithium	23		23.9	3	25	
Molybdenum	ND		ND	NC	25	
SiO2, Silica	11000		11100	0.3	20	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Method Blank - Batch: 280-61885

Method: 6020

Preparation: 3020A

Lab Sample ID: MB 280-61885/1-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/16/2011 0447
Prep Date: 04/15/2011 1530
Leach Date: N/A

Analysis Batch: 280-62706
Prep Batch: 280-61885
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 208_BLK.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	RL
Uranium	0.0299	J	0.020	1.0

Lab Control Sample - Batch: 280-61885

Method: 6020

Preparation: 3020A

Lab Sample ID: LCS 280-61885/2-A
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/16/2011 0449
Prep Date: 04/15/2011 1530
Leach Date: N/A

Analysis Batch: 280-62706
Prep Batch: 280-61885
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 209_LCS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Uranium	40.0	43.2	108	85 - 119	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Post Digestion Spike - Batch: 280-61885

Method: 6020

Preparation: 3020A

Lab Sample ID: 280-14464-A-1-D PDS
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/16/2011 0458
Prep Date: 04/15/2011 1530
Leach Date: N/A

Analysis Batch: 280-62706
Prep Batch: 280-61885
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 212PDS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

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

Lab Sample ID: 280-14465-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/16/2011 0528
Prep Date: 04/15/2011 1530
Leach Date: N/A

Analysis Batch: 280-62706
Prep Batch: 280-61885
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 223_MS.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Uranium	0.043	J	40.0	42.8	107	85 - 119	

Quality Control Results

Client: TestAmerica Laboratories, Inc.

Job Number: 280-14465-1

Sdg Number: A1D080416

Serial Dilution - Batch: 280-61885

Method: 6020

Preparation: 3020A

Lab Sample ID: 280-14464-A-1-D SD ^5
Client Matrix: Water
Dilution: 5.0
Analysis Date: 04/16/2011 0455
Prep Date: 04/15/2011 1530
Leach Date: N/A

Analysis Batch: 280-62706
Prep Batch: 280-61885
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 211SDIL.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Result	%Diff	Limit	Qual
Uranium	0.054	J	ND	NC	10	

Duplicate - Batch: 280-61885

Method: 6020

Preparation: 3020A

Lab Sample ID: 280-14465-1
Client Matrix: Water
Dilution: 1.0
Analysis Date: 04/16/2011 0526
Prep Date: 04/15/2011 1530
Leach Date: N/A

Analysis Batch: 280-62706
Prep Batch: 280-61885
Leach Batch: N/A
Units: ug/L

Instrument ID: MT_024
Lab File ID: 222_DU.D
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Uranium	0.043	J	0.0425	2	20	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
<u>FWGLL2MW-266C-0040-GF</u>	<u>280-14465-1</u>
<u>FWGLL2MW-267C-0050-GF</u>	<u>280-14465-2</u>
<u>FWGLLWMW-269C-0060-GF</u>	<u>280-14465-3</u>
<u>FWGLL1MW-084C-0200-GW</u>	<u>280-14465-4</u>
<u>FWGLL4MW-198C-0210-GW</u>	<u>280-14465-5</u>

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/09/2011 09:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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	B	1	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/09/2011 09:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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	B	1	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/09/2011 09:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: <u>FWGLL1MW-084C-0200-GW</u>	Lab Sample ID: <u>280-14465-4</u>
Lab Name: <u>TestAmerica Denver</u>	Job No.: <u>280-14465-1</u>
SDG ID.: <u>A1D080416</u>	
Matrix: <u>Water</u>	Date Sampled: <u>04/07/2011 12:00</u>
Reporting Basis: <u>WET</u>	Date Received: <u>04/09/2011 09:00</u>

CAS No.	Analyte	Result	RL	MDL	Units	C	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	B	1	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

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

Reporting Basis: WET

Date Received: 04/09/2011 09:00

CAS No.	Analyte	Result	RL	MDL	Units	C	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

2A-IN
CALIBRATION VERIFICATIONS
METALS

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

Analyte	ICV 280-62690/8 04/15/2011 09:39				ICV 280-62690/9 04/15/2011 09:42				CCV 280-62690/51 04/15/2011 16:44			
	Found	C	True	%R	Found	C	True	%R	Found	C	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, Silica	4220		4280	99	4260		4280	100	10300		10700	97

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.: 280-14465-1

SDG No.: A1D080416

ICV Source: ICP ICVL_00049 Concentration Units: ug/L

CCV Source: ICP CCVL_00151

Analyte	CCV 280-62690/63 04/15/2011 17:11				CCV 280-62690/76 04/15/2011 17:41							
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	515		500	103	520		500	104				
Lithium	999		1000	100	1020		1000	102				
Molybdenum	497		500	99	504		500	101				
SiO2, Silica	10300		10700	96	10400		10700	98				

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.: 280-14465-1

SDG No.: A1D080416

ICV Source: MS ICV_00316 Concentration Units: ug/L

CCV Source: MS CCV_00317

Analyte	ICV 280-62706/4 04/15/2011 19:28				ICV 280-62706/6 04/15/2011 19:33				CCV 280-62706/18 04/15/2011 20:06			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Uranium	39.8		40.0	100	39.6		40.0	99	50.7		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.: 280-14465-1

SDG No.: A1D080416

ICV Source: MS ICV_00316 Concentration Units: ug/L

CCV Source: MS CCV_00317

Analyte	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			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Uranium	52.2		50.0	104	51.9		50.0	104	52.1		50.0	104

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.: 280-14465-1
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

Analyte	CRQL Check Standard				
	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

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

FORM IIB-IN

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

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Uranium	1.00	1.01		101	50-150

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

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1

SDG No.: A1D080416

Concentration Units: ug/L

Analyte	RL	ICB 280-62690/13 04/15/2011 09:54		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	
		Found	C	Found	C	Found	C	Found	C
Boron	100	ND		ND		ND		ND	
Lithium	10	ND		ND		ND		ND	
Molybdenum	20	ND		ND		ND		ND	
SiO2, Silica	1100	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1
 SDG No.: A1D080416
 Concentration Units: ug/L

Analyte	RL	ICB 280-62706/9 04/15/2011 19:42		CCB 280-62706/20 04/15/2011 20:11		CCB 280-62706/165 04/16/2011 04:44		CCB 280-62706/176 04/16/2011 05:14	
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	ND		0.0437	J	0.0690	J	0.0547	J

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1
SDG No.: A1D080416
Concentration Units: ug/L

Analyte	RL	CCB 280-62706/187 04/16/2011 05:45							
		Found	C	Found	C	Found	C	Found	C
Uranium	1.0	0.0503	J						

Italicized analytes were not requested for this sequence.

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	C	Q	Method
7440-42-8	Boron	ND			6010B
7439-93-2	Lithium	ND			6010B
7439-98-7	Molybdenum	ND			6010B
14808-60-7	SiO ₂ , 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	C	Q	Method
7440-61-1	Uranium	0.0299	J		6020

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1
 SDG No.: A1D080416
 Lab Sample ID: ICSAB 280-62690/16 Instrument ID: MT_025
 Lab File ID: _____ ICS Source: ICP ICSAB_00029
 Concentration Units: ug/L

Analyte	True	Found	Percent Recovery
	Solution AB	Solution AB	
Boron	2000	1818	91
Lithium	1000	1032	103
Molybdenum	1000	911	91
SiO2, Silica	21400	20802	97
<i>Aluminum</i>	<i>500000</i>	<i>507520</i>	<i>102</i>
<i>Antimony</i>	<i>1000</i>	<i>965</i>	<i>97</i>
<i>Arsenic</i>	<i>2000</i>	<i>1958</i>	<i>98</i>
<i>Barium</i>	<i>500</i>	<i>488</i>	<i>98</i>
<i>Beryllium</i>	<i>500</i>	<i>471</i>	<i>94</i>
<i>Bismuth</i>	<i>1000</i>	<i>1059</i>	<i>106</i>
<i>Cadmium</i>	<i>1000</i>	<i>1023</i>	<i>102</i>
<i>Calcium</i>	<i>500000</i>	<i>457890</i>	<i>92</i>
<i>Chromium</i>	<i>500</i>	<i>475</i>	<i>95</i>
<i>Cobalt</i>	<i>500</i>	<i>454</i>	<i>91</i>
<i>Copper</i>	<i>500</i>	<i>534</i>	<i>107</i>
<i>Iron</i>	<i>200000</i>	<i>186780</i>	<i>93</i>
<i>Lead</i>	<i>1000</i>	<i>891</i>	<i>89</i>
<i>Magnesium</i>	<i>500000</i>	<i>479720</i>	<i>96</i>
<i>Manganese</i>	<i>500</i>	<i>484</i>	<i>97</i>
<i>Nickel</i>	<i>1000</i>	<i>893</i>	<i>89</i>
<i>Phosphorus</i>	<i>2000</i>	<i>1871</i>	<i>94</i>
<i>Potassium</i>	<i>50000</i>	<i>50456</i>	<i>101</i>
<i>Selenium</i>	<i>5000</i>	<i>4665</i>	<i>93</i>
<i>Silicon</i>	<i>10000</i>	<i>9721</i>	<i>97</i>
<i>Silver</i>	<i>1000</i>	<i>1071</i>	<i>107</i>
<i>Sodium</i>	<i>50000</i>	<i>52252</i>	<i>105</i>
<i>Strontium</i>	<i>1000</i>	<i>956</i>	<i>96</i>
<i>Thallium</i>	<i>10000</i>	<i>8279</i>	<i>83</i>
<i>Thorium</i>	<i>2000</i>	<i>2019</i>	<i>101</i>
<i>Tin</i>	<i>10000</i>	<i>8783</i>	<i>88</i>
<i>Titanium</i>	<i>1000</i>	<i>969</i>	<i>97</i>
<i>Vanadium</i>	<i>500</i>	<i>485</i>	<i>97</i>
<i>Zinc</i>	<i>1000</i>	<i>938</i>	<i>94</i>
<i>Zirconium</i>	<i>1000</i>	<i>955</i>	<i>95</i>

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Denver Job No.: 280-14465-1
 SDG No.: A1D080416
 Lab Sample ID: ICSA 280-62690/17 Instrument ID: MT_025
 Lab File ID: _____ ICS Source: ICP ICSA_00035
 Concentration Units: ug/L

Analyte	True Solution A	Found 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	

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

Analyte	True Solution A	Found Solution A	Percent Recovery
Uranium		0.0066	
<i>Antimony</i>		<i>0.286</i>	
<i>Arsenic</i>		<i>0.252</i>	
<i>Barium</i>		<i>0.169</i>	
<i>Beryllium</i>		<i>0.0126</i>	
<i>Cadmium</i>		<i>0.370</i>	
<i>Chromium</i>		<i>2.74</i>	
<i>Cobalt</i>		<i>0.0311</i>	
<i>Copper</i>		<i>0.235</i>	
<i>Lead</i>		<i>0.130</i>	
<i>Manganese</i>		<i>0.597</i>	
<i>Molybdenum</i>	<i>2000</i>	<i>2213</i>	<i>111</i>
<i>Nickel</i>		<i>1.05</i>	
<i>Selenium</i>		<i>0.0647</i>	
<i>Silver</i>		<i>0.0929</i>	
<i>Thallium</i>		<i>0.0405</i>	
<i>Thorium</i>		<i>0.947</i>	
<i>Tin</i>		<i>0.168</i>	
<i>Vanadium</i>		<i>0.165</i>	
<i>Zinc</i>		<i>1.50</i>	

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

Analyte	True	Found	Percent Recovery
	Solution AB	Solution AB	
Uranium	100	104	104
<i>Antimony</i>	<i>100</i>	<i>98.5</i>	<i>99</i>
<i>Arsenic</i>	<i>100</i>	<i>102</i>	<i>102</i>
<i>Barium</i>	<i>100</i>	<i>106</i>	<i>106</i>
<i>Beryllium</i>	<i>100</i>	<i>92.4</i>	<i>92</i>
<i>Cadmium</i>	<i>100</i>	<i>95.5</i>	<i>95</i>
<i>Chromium</i>	<i>100</i>	<i>111</i>	<i>111</i>
<i>Cobalt</i>	<i>100</i>	<i>103</i>	<i>103</i>
<i>Copper</i>	<i>100</i>	<i>90.4</i>	<i>90</i>
<i>Lead</i>	<i>100</i>	<i>93.2</i>	<i>93</i>
<i>Manganese</i>	<i>100</i>	<i>103</i>	<i>102</i>
<i>Molybdenum</i>	<i>2100</i>	<i>2317</i>	<i>110</i>
<i>Nickel</i>	<i>100</i>	<i>95.7</i>	<i>96</i>
<i>Selenium</i>	<i>100</i>	<i>103</i>	<i>103</i>
<i>Silver</i>	<i>100</i>	<i>87.9</i>	<i>88</i>
<i>Thallium</i>	<i>100</i>	<i>95.8</i>	<i>96</i>
<i>Thorium</i>	<i>100</i>	<i>118</i>	<i>118</i>
<i>Tin</i>	<i>100</i>	<i>104</i>	<i>104</i>
<i>Vanadium</i>	<i>100</i>	<i>114</i>	<i>114</i>
<i>Zinc</i>	<i>100</i>	<i>96.8</i>	<i>97</i>

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

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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

Analyte	True Solution A	Found Solution A	Percent Recovery
Uranium		0.0339	
<i>Antimony</i>		<i>0.284</i>	
<i>Arsenic</i>		<i>0.337</i>	
<i>Barium</i>		<i>0.184</i>	
<i>Beryllium</i>		<i>0.0090</i>	
<i>Cadmium</i>		<i>0.465</i>	
<i>Chromium</i>		<i>2.68</i>	
<i>Cobalt</i>		<i>0.0484</i>	
<i>Copper</i>		<i>0.293</i>	
<i>Lead</i>		<i>0.143</i>	
<i>Manganese</i>		<i>0.631</i>	
<i>Molybdenum</i>	<i>2000</i>	<i>2178</i>	<i>109</i>
<i>Nickel</i>		<i>1.15</i>	
<i>Selenium</i>		<i>-0.0205</i>	
<i>Silver</i>		<i>0.104</i>	
<i>Thallium</i>		<i>0.0364</i>	
<i>Tin</i>		<i>0.342</i>	
<i>Vanadium</i>		<i>0.0376</i>	
<i>Zinc</i>		<i>1.58</i>	

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

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
 Concentration Units: ug/L

Analyte	True	Found	Percent Recovery
	Solution AB	Solution AB	
Uranium	100	103	103
<i>Antimony</i>	<i>100</i>	<i>98.1</i>	<i>98</i>
<i>Arsenic</i>	<i>100</i>	<i>103</i>	<i>103</i>
<i>Barium</i>	<i>100</i>	<i>105</i>	<i>105</i>
<i>Beryllium</i>	<i>100</i>	<i>94.6</i>	<i>95</i>
<i>Cadmium</i>	<i>100</i>	<i>94.4</i>	<i>94</i>
<i>Chromium</i>	<i>100</i>	<i>112</i>	<i>112</i>
<i>Cobalt</i>	<i>100</i>	<i>104</i>	<i>104</i>
<i>Copper</i>	<i>100</i>	<i>92.0</i>	<i>92</i>
<i>Lead</i>	<i>100</i>	<i>92.4</i>	<i>92</i>
<i>Manganese</i>	<i>100</i>	<i>105</i>	<i>105</i>
<i>Molybdenum</i>	<i>2100</i>	<i>2346</i>	<i>112</i>
<i>Nickel</i>	<i>100</i>	<i>97.5</i>	<i>98</i>
<i>Selenium</i>	<i>100</i>	<i>103</i>	<i>103</i>
<i>Silver</i>	<i>100</i>	<i>86.0</i>	<i>86</i>
<i>Thallium</i>	<i>100</i>	<i>95.9</i>	<i>96</i>
<i>Thorium</i>	<i>100</i>	<i>117</i>	<i>117</i>
<i>Tin</i>	<i>100</i>	<i>102</i>	<i>102</i>
<i>Vanadium</i>	<i>100</i>	<i>114</i>	<i>114</i>
<i>Zinc</i>	<i>100</i>	<i>96.3</i>	<i>96</i>

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

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: FWGLL2MW-266C-0040-GF MS Lab ID: 280-14465-1 MS
 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) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Boron	1060	29 J	1000	103	87-113		6010B
Lithium	1030	23	1000	101	89-114		6010B
Molybdenum	1000	ND	1000	100	83-109		6010B
SiO ₂ , Silica	31800	11000	21400	97	75-141		6010B
Uranium	42.8	0.043 J	40.0	107	85-119		6020

SSR = Spiked Sample Result

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

5B-IN
POST DIGESTION SPIKE SAMPLE RECOVERY
METALS

Client ID: _____ Lab ID: 280-14464-A-1-D PDS
Lab Name: TestAmerica Denver Job No.: 280-14465-1
SDG No.: A1D080416
Matrix: Water Concentration Units: ug/L

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

SSR = Spiked Sample Result

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

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
 % Solids for Sample: _____ % Solids for Duplicate: _____
 Matrix: Water Concentration Units: ug/L

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	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
SiO ₂ , Silica	500	11000	11100	0.3		6010B
Uranium	1.0	0.043 J	0.0425 J	2		6020

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

FORM VI-IN

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

Analyte	Water (ug/L)							
	True	Found	C	%R	Limits		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

Analyte	Water (ug/L)							
	True	Found	C	%R	Limits		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-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 Sample Result (I) C		Serial Dilution Result (S) C		% 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

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

FORM VIII-IN

8-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

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

FORM VIII-IN

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/ Mass	RL (ug/L)	MDL (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/ Mass	XRL (ug/L)	XMDL (ug/L)
Uranium		1	0.02

ICP Data Review Checklist

TALS BATCH NUMBER: <u>62686-62700</u>		Earliest due date: <u>4/18/11</u>	
Run Date: <u>4/15/11</u>	Analyst: <u>JKH</u>	Instrument: <u>25</u>	
QC programs/Methods Run: <u>See Fun Logs</u>			

Review Items	Yes	No	N/A	2nd Level
A. Preparation/Matrix QC				
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 (or per SDG for CLP)?	✓			✓
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				
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)	✓			✓
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 std work or <MDLV 6010C))	✓			✓
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				
1. Are all nonconformances documented appropriately?	✓			✓
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: JKHDate: 4/18/11

Comments: _____

2nd Level Reviewer: [Signature]Date: 4/18/11

Comments: _____

TestAmerica Denver

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-000262706-6020 water
62711-soilTestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Review Items	Level 1			Level 2	Comments & Samples Affected
	Yes	No	N/A		
Tune					
1. Tune solution analyzed min. of 4 times for 6020 or 5 times for 200.8?	✓			✓	
2. Tune RSD <5%?	✓			✓	
2. Resolution ≤ 0.9 AMU full width at 10% peak height? NOTE: This also satisfies 200.8, 1.0 AMU at 5% peak height	✓			✓	
Initial Calibration					
1. 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?	✓			✓	
3. 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					
1. Were all samples within linear range, ≤ 90% of LDR for 200.8?	✓			✓	
2. Dilutions due to target elements? Dilutions for other reasons? ✓	✓			✓	
3. All reported results bracketed by in control QC?	✓			✓	
4. All 6020 internal standards for all analyses 30-120% of intensities in blank or all 200.8 internal standards 60-125%?	✓			✓	
5. Was a 5X serial dilution analyzed for 6020 and, if so, are results ± 10% of original result, if original ≥ 100x MDL?	✓			✓	
6. LCS included in batch and within QC limits?	✓			✓	
7. Method blank included and <1/2RL?	✓			✓	
8. MS and MSD included in batch?	✓			✓	
9. PDS analyzed and recovery 75-125%?	✓			✓	
10. 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: [Signature]Date: 4/19/112nd Level Reviewer: [Signature]Date: 4/19/11

METALS BATCH WORKSHEET

Lab Name: TestAmerica Denver

SDG No.: A1D080416

Batch Number: 61884

Batch Method: 3010A

Job No.: 280-14465-1

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

Batch End Date: 04/15/11 12:30

Batch Analyst: Niman, Katie M

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial pH	InitialAmount	FinalAmount	ICP SPK 2A 00024	ICP SPK 3A 00026
MB 280-61884/1		3010A, 6010B			50 mL	50 mL		
LCS 280-61884/2		3010A, 6010B			50 mL	50 mL	0.5 mL	0.5 mL
280-14465-A-1	FWGLL2MW-266C-00 40-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14465-A-1	FWGLL2MW-266C-00 40-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14465-A-1	FWGLL2MW-266C-00 40-GF	3010A, 6010B	T	<2	50 mL	50 mL	0.5 mL	0.5 mL
280-14465-A-2	FWGLL2MW-267C-00 50-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14465-A-3	FWGLL1MW-269C-00 60-GF	3010A, 6010B	T	<2	50 mL	50 mL		
280-14465-A-4	FWGLL1MW-084C-02 00-GW	3010A, 6010B	T	<2	50 mL	50 mL		
280-14465-A-5	FWGLL4MW-198C-02 10-GW	3010A, 6010B	T	<2	50 mL	50 mL		

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	Basis Description
T	Total/NA

METALS BATCH WORKSHEET

Lab Name: TestAmerica Denver

SDG No.: A1D080416

Batch Number: 61885

Batch Method: 3020A

Job No.: 280-14465-1

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

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

Batch Analyst: Mooney, Joseph C

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial pH	InitialAmount	FinalAmount	MS CALSTD-1 00037	MS CALSTD-2 00036
MB 280-61885/1		3020A, 6020			50 mL	50 mL		
LCS 280-61885/2		3020A, 6020			50 mL	50 mL	0.1 mL	0.1 mL
280-14465-A-1	FWGLL2MW-266C-00 40-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14465-A-1	FWGLL2MW-266C-00 40-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14465-A-1	FWGLL2MW-266C-00 40-GF	3020A, 6020	T	<2	50 mL	50 mL	0.1 mL	0.1 mL
280-14465-A-2	FWGLL2MW-267C-00 50-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14465-A-3	FWGLL1MMW-269C-00 60-GF	3020A, 6020	T	<2	50 mL	50 mL		
280-14465-A-4	FWGLL1MW-084C-02 00-GW	3020A, 6020	T	<2	50 mL	50 mL		
280-14465-A-5	FWGLL4MW-198C-02 10-GW	3020A, 6020	T	<2	50 mL	50 mL		

Batch Notes	
Lot # of Nitric Acid	K09041
Hot Block ID number	06
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

Basis	Basis Description
T	Total/NA

Shipping and Receiving Documents

Laboratory

TestAmerica Denver

4955 Yarrow Street

Arvada, CO

80002

Client Code: 1434673

TestAmerica Laboratories, Inc.
SAMPLE ANALYSIS REQUISITION

Lab Request

SR126391

Report Package:

Need Analytical Report

Expanded Deliverables

2011-04-22

Project Manager:

MARK LOEB

<u>Sample I.D.</u>	<u>Work Order Number</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Analysis Required</u>
A1D080416-2	MGP5G	FWGLL2mw-266C-0040-GF	2011-04-07 11:04	WATER, 6020, Uranium by ICP/MS (Denver)
A1D080416-2	MGP5G	FWGLL2mw-266C-0040-GF	2011-04-07 11:04	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D080416-4	MGP5M	FWGLL2mw-267C-0050-GF	2011-04-07 8:52	WATER, 6020, Uranium by ICP/MS (Denver)
A1D080416-4	MGP5M	FWGLL2mw-267C-0050-GF	2011-04-07 8:52	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D080416-6	MGP5P	FWGLL2mw-269C-0060-GF	2011-04-07 8:59	WATER, 6020, Uranium by ICP/MS (Denver)
A1D080416-6	MGP5P	FWGLL2mw-269C-0060-GF	2011-04-07 8:59	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D080416-7	MGP5R	FWGLL1mw-084C-0200-GW	2011-04-07 12:00	WATER, 6020, Uranium by ICP/MS (Denver)
A1D080416-7	MGP5R	FWGLL1mw-084C-0200-GW	2011-04-07 12:00	WATER, 6010B, Metals B Li Mo Si (Denver)
A1D080416-9	MGP53	FWGLL4mw-198C-0210-GW	2011-04-07 15:00	WATER, 6020, Uranium by ICP/MS (Denver)
A1D080416-9	MGP53	FWGLL4mw-198C-0210-GW	2011-04-07 15:00	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: 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:

Date/Time:

4/8/11 1100

Relinquished by:

Date/Time:

Received for lab by:

Date/Time:

4/9/11 0900

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

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-Dinitrotoluene, & 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

U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GW

HPLC

Lot-Sample #....: A1D080416-007 Work Order #....: MGP5R1AF Matrix.....: WG
 Date Sampled....: 04/07/11 12:00 Date Received...: 04/08/11
 Prep Date.....: 04/13/11 Analysis Date...: 04/16/11
 Prep Batch #....: 1103098
 Dilution Factor: 1.06 Method.....: SW846 8330

PARAMETER	RESULT	REPORTING 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-dinitrotoluene	15	0.11	ug/L
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
SURROGATE	PERCENT RECOVERY	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%.

U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GW

HPLC

Lot-Sample #....: A1D080416-007 Work Order #....: MGP5R2AF Matrix.....: WG
 Date Sampled....: 04/07/11 12:00 Date Received...: 04/08/11
 Prep Date.....: 04/13/11 Analysis Date...: 04/19/11
 Prep Batch #....: 1103098
 Dilution Factor: 2.13 Method.....: SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
4-Amino-2,6- dinitrotoluene	29	0.21	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	444 *	(50 - 150)

NOTE(S) :

* Surrogate recovery is outside stated control limits

U.S.Geological Survey (USGS)

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
 Dilution Factor: 1.06 Method.....: SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,3,5-Trinitrobenzene	ND	0.11	ug/L
1,3-Dinitrobenzene	ND	0.11	ug/L
2-Amino-4,6- dinitrotoluene	ND	0.11	ug/L
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- dinitrotoluene	ND	0.11	ug/L
4-Nitrotoluene	ND	0.53	ug/L
HMX	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
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
3,4-Dinitrotoluene	102	(50 - 150)	

QC DATA ASSOCIATION SUMMARY

A1D080416

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
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
MB Lot-Sample #: G1D130000-098

Work Order #...: MGXKL1AA

Matrix.....: WATER

Analysis Date...: 04/16/11
Dilution Factor: 1

Prep Date.....: 04/13/11

Prep Batch #...: 1103098

PARAMETER	RESULT	REPORTING		
		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-dinitrotoluene	ND	0.10	ug/L	SW846 8330
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-dinitrotoluene	ND	0.10	ug/L	SW846 8330
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	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

SURROGATE	PERCENT	RECOVERY
	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

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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- dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	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- dinitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	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

SURROGATE	PERCENT RECOVERY	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 Analysis Date...: 04/16/11
 Prep Batch #....: 1103098
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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- dinitrotoluene	111	(53 - 120)			SW846 8330
	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- dinitrotoluene	109	(58 - 159)			SW846 8330
	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
SURROGATE		PERCENT RECOVERY		RECOVERY LIMITS	
3,4-Dinitrotoluene		106		(50 - 150)	
		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

U.S.Geological Survey (USGS)

Client Sample ID: FWGLL1mw-084C-0200-GW

Dissolved HPLC

Lot-Sample #....: A1D080416-007 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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Nitroguanidine	ND	20	ug/L

U.S.Geological Survey (USGS)

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

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Nitroguanidine	ND	20	ug/L

QC DATA ASSOCIATION SUMMARY

A1D080416

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
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 #...: MGXET1AA Matrix.....: WATER
 MB Lot-Sample #: G1D120000-416
 Analysis Date...: 04/19/11 Prep Date.....: 04/12/11
 Dilution Factor: 1 Prep Batch #...: 1102416

PARAMETER	RESULT	REPORTING 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 #....: 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

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
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

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
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

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT 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

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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 #....: 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

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT 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-dinitrotoluene	1.0	1.1	ug/L	111		SW846 8330
	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-dinitrotoluene	1.0	1.1	ug/L	109		SW846 8330
	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

SURROGATE	PERCENT RECOVERY	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 Analysis Date...: 04/16/11
 Prep Batch #....: 1103098
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	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- dinitrotoluene	111	(53 - 120)			SW846 8330
	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- dinitrotoluene	109	(58 - 159)			SW846 8330
	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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	106	(50 - 150)
	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

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 11

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 Wt	Extract Vol	Diln	Comments
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	
08-JAN-2011	14:06	RN	8330 PRIMER	A-000003.	0 g	0 mL	1	
08-JAN-2011	14:36	RN	8330 PRIMER	A-000004.	0 g	0 mL	1	
08-JAN-2011	15:20	RN	8330 PRIMER	A-000005.	0 g	0 mL	1	
08-JAN-2011	16:03	RN	8330 PRIMER	A-000006.	0 g	0 mL	1	
08-JAN-2011	16:45	RN	8330 PRIMER	A-000007.	0 g	0 mL	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	0 mL	1	
08-JAN-2011	18:54	RN	8330 PRIMER	A-000010.	0 g	0 mL	1	
08-JAN-2011	19:37	RN	Nitrobenzene	A-000011.	0 g	0 mL	1	
08-JAN-2011	20:20	RN	8330 PRIMER	A-000012.	0 g	0 mL	1	
08-JAN-2011	21:03	RN	8330 PRIMER	A-000013.	0 g	0 mL	1	
08-JAN-2011	21:47	RN	8330 PRIMER	A-000014.	0 g	0 mL	1	
08-JAN-2011	22:34	RN	8330 PRIMER	A-000015.	0 g	0 mL	1	
08-JAN-2011	23:14	RN	8330 PRIMER	A-000016.	0 g	0 mL	1	
08-JAN-2011	23:59	RN	8330 PRIMER	A-000017.	0 g	0 mL	1	
09-JAN-2011	00:41	RN	Tetryl Std	A-000018.	0 g	0 mL	1	
09-JAN-2011	01:26	RN	BLANK	A-000019.	0 g	0 mL	1	
09-JAN-2011	02:11	RN	ICAL L1 10GCSV0528 8330 5ng/mL	A-000020.	0 g	0 mL	1	
09-JAN-2011	02:56	RN	ICAL L2 10GCSV0527 8330 10ng/mL	A-000021.	0 g	0 mL	1	
09-JAN-2011	03:41	RN	ICAL L3 10GCSV0526 8330 20ng/mL	A-000022.	0 g	0 mL	1	
09-JAN-2011	04:26	RN	ICAL L4 10GCSV0525 8330 50ng/mL	A-000023.	0 g	0 mL	1	
09-JAN-2011	05:11	RN	ICAL L5 10GCSV0524 8330 100ng/mL	A-000024.	0 g	0 mL	1	
09-JAN-2011	05:56	RN	ICAL L6 10GCSV0523 8330 200ng/mL	A-000025.	0 g	0 mL	1	
09-JAN-2011	06:42	RN	ICAL L7 10GCSV0522 8330 500ng/mL	A-000026.	0 g	0 mL	1	
09-JAN-2011	07:27	RN	ICAL L8 10GCSV0521 8330 1000ng/mL	A-000027.	0 g	0 mL	1	
09-JAN-2011	08:12	RN	BLANK	A-000028.	0 g	0 mL	1	
09-JAN-2011	08:57	RN	MRL 10GCSV0528 8330 5ng/mL	A-000029.	0 g	0 mL	1	
09-JAN-2011	09:42	RN	MRL 10GCSV0526 8330 20ng/mL	A-000030.	0 g	0 mL	1	
09-JAN-2011	10:27	RN	ICV 10GCSV0502 8330 200ng/mL	A-000031.	0 g	0 mL	1	

printed before end of sequence.

TRM 1/9/11

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page#

62

Inst ID: LC10

Batch ID: 04132011

Method : Method 8330

Test : SOP SAC-LC-0009

ICAL Date: See Calibration Report

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
13-APR-2011	10:18	INS	PRIMER	A-000001.	1000 mL	20 mL	1	
13-APR-2011	11:04	INS	STD_06 11GCSV0170 8330 200-500	A-000002.	0 g	0 mL	1	
13-APR-2011	11:49	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000003.	0 g	0 mL	1	2x MDL Check
13-APR-2011	12:34	INS	MGQCX1AA 1098154 G1D080000-154	A-000004.	1000 mL	20 mL	1	
13-APR-2011	13:19	INS	MGQCX1AE 1098154 G1D080000-154	A-000005.	1000 mL	20 mL	1	
13-APR-2011	14:05	INS	MGQCX1AC 1098154 G1D080000-154	A-000006.	1000 mL	20 mL	1	
13-APR-2011	14:50	INS	MGQCX1AD 1098154 G1D080000-154	A-000007.	1000 mL	20 mL	1	
13-APR-2011	15:35	INS	MGJ191AA 1098154 A1D050444-1	A-000008.	1005.12 mL	20 mL	1	
13-APR-2011	16:20	INS	MGJ2C1AA 1098154 A1D050444-2	A-000009.	968.96 mL	20 mL	1	
13-APR-2011	17:05	INS	MGJ2D1AA 1098154 A1D050444-3	A-000010.	1024.28 mL	20 mL	1	
13-APR-2011	17:51	INS	MGJ2F1AA 1098154 A1D050444-4	A-000011.	1028.57 mL	20 mL	1	
13-APR-2011	18:36	INS	MGJ2H1AA 1098154 A1D050444-5	A-000012.	897.69 mL	20 mL	1	
13-APR-2011	19:21	INS	MGJ2J1AA 1098154 A1D050444-6	A-000013.	1018.9 mL	20 mL	1	
13-APR-2011	20:06	INS	STD_05 10GCSV0524 8330 100-200	A-000014.	0 g	0 mL	1	
13-APR-2011	20:51	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000015.	0 g	0 mL	1	
13-APR-2011	21:36	INS	MGJ2L1AA 1098154 A1D050444-7	A-000016.	1002.47 mL	20 mL	1	
13-APR-2011	22:21	INS	MGJ2M1AA 1098154 A1D050444-8	A-000017.	1019.86 mL	20 mL	1	
13-APR-2011	23:07	INS	MGJ2N1AA 1098154 A1D050444-9	A-000018.	1029.84 mL	20 mL	1	
13-APR-2011	23:52	INS	MGTWF1AA 1101074 G1D110000-74	A-000019.	1000 mL	20 mL	1	
14-APR-2011	00:37	INS	MGTWF1AD 1101074 G1D110000-74	A-000020.	1000 mL	20 mL	1	
14-APR-2011	01:22	INS	MGTWF1AC 1101074 G1D110000-74	A-000021.	1000 mL	20 mL	1	
14-APR-2011	02:07	INS	MGLG71AA 1101074 A1D060428-1	A-000022.	839.4 mL	20 mL	1	
14-APR-2011	02:52	INS	MGLH81AA 1101074 A1D060428-2	A-000023.	944.39 mL	20 mL	1	
14-APR-2011	03:37	INS	MGLJCLAA 1101074 A1D060428-3	A-000024.	909.33 mL	20 mL	1	
14-APR-2011	04:22	INS	MGLJDLAA 1101074 A1D060428-4	A-000025.	863.58 mL	20 mL	1	
14-APR-2011	05:08	INS	STD_05 10GCSV0524 8330 100-200	A-000026.	0 g	0 mL	1	
14-APR-2011	05:53	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000027.	0 g	0 mL	1	
14-APR-2011	06:38	INS	MGLJH1AA 1101074 A1D060428-5	A-000028.	942.73 mL	20 mL	1	
14-APR-2011	07:23	INS	MGLJMLAA 1101074 A1D060428-6	A-000029.	904.51 mL	20 mL	1	
14-APR-2011	08:08	INS	MGLJPLAC 1101074 A1D060428-7	A-000030.	814.65 mL	20 mL	1	
14-APR-2011	08:53	INS	MGLJRLAC 1101074 A1D060428-8	A-000031.	944.02 mL	20 mL	1	
14-APR-2011	09:38	INS	MGLJWLAC 1101074 A1D060428-9	A-000032.	865.83 mL	20 mL	1	
14-APR-2011	10:24	INS	MGLJXLAC 1101074 A1D060428-10	A-000033.	978.55 mL	20 mL	1	
14-APR-2011	11:09	INS	MGLJOLAC 1101074 A1D060428-11	A-000034.	872.07 mL	20 mL	1	
14-APR-2011	11:54	INS	QC CHECK	A-000035.	1000 mL	20 mL	1	
14-APR-2011	12:39	INS	MGLJ21AA 1101074 A1D060428-12	A-000036.	855.48 mL	20 mL	1	
14-APR-2011	13:24	INS	MGLJ71AA 1101074 A1D060428-13	A-000037.	899.68 mL	20 mL	1	
14-APR-2011	14:09	INS	STD_05 10GCSV0524 8330 100-200	A-000038.	0 g	0 mL	1	
14-APR-2011	14:54	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000039.	0 g	0 mL	1	
14-APR-2011	15:40	INS	MGLKA1AA 1101074 A1D060428-14	A-000040.	1008.87 mL	20 mL	1	
14-APR-2011	16:24	INS	MGLKA1AC 1101074 A1D060428-14	A-000041.	962.7 mL	20 mL	1	
14-APR-2011	17:09	INS	MGLKA1AD 1101074 A1D060428-14	A-000042.	995.11 mL	20 mL	1	
14-APR-2011	17:54	INS	MGLKH1AA 1101074 A1D060428-15	A-000043.	933.6 mL	20 mL	1	
14-APR-2011	18:39	INS	MGLKK1AA 1101074 A1D060428-16	A-000044.	829.6 mL	20 mL	1	
14-APR-2011	19:24	INS	MGV3E1AA 1102080 G1D120000-80	A-000045.	1000 mL	20 mL	1	
14-APR-2011	20:09	INS	MGV3E1AC 1102080 G1D120000-80	A-000046.	1000 mL	20 mL	1	
14-APR-2011	20:54	INS	MGT4M1AA 1102080 G1D110417-1	A-000047.	1010.44 mL	20 mL	1	
14-APR-2011	21:40	INS	MGT5C1AA 1102080 G1D110417-2	A-000048.	1011.98 mL	20 mL	1	
14-APR-2011	22:25	INS	MGT5D1AA 1102080 G1D110417-3	A-000049.	998.33 mL	20 mL	1	
14-APR-2011	23:10	INS	STD_05 10GCSV0524 8330 100-200	A-000050.	0 g	0 mL	1	

Sequence continued on next page

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 63

Page 2 of Batch 04132011 on Instrument LC10

For header information, refer to the first page of this batch's log.

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
14-APR-2011	23:55	INS	{STD_MRL 11GCSV0086 8330 5-20ng}	A-000051.	0 g	0 mL	1	
15-APR-2011	00:40	INS	{MGT5E1AA 1102080 G1D110417-4 1}	A-000052.	1003.33 mL	20 mL	1	
15-APR-2011	01:25	INS	{MGT3L1AA 1101153 G1D110000-153}	A-000053.	1000 mL	20 mL	1	
15-APR-2011	02:10	INS	{MGT3L1AC 1101153 G1D110000-153}	A-000054.	1000 mL	20 mL	1	
15-APR-2011	02:55	INS	{MGPTV1AA 1101153 G1D070642-1 1}	A-000055.	997.33 mL	20 mL	1	
15-APR-2011	03:40	INS	{MGPTW1AA 1101153 G1D070642-2 1}	A-000056.	993.38 mL	20 mL	1	
15-APR-2011	04:25	INS	{MGPTX1AA 1101153 G1D070642-3 1}	A-000057.	1001.06 mL	20 mL	1	
15-APR-2011	05:10	INS	{MGPT01AA 1101153 G1D070642-4 1}	A-000058.	986.42 mL	20 mL	1	
15-APR-2011	05:56	INS	{MGPT11AA 1101153 G1D070642-5 1}	A-000059.	990.99 mL	20 mL	1	
15-APR-2011	06:41	INS	{MGPT21AA 1101153 G1D070642-6 1}	A-000060.	1002.01 mL	20 mL	1	
15-APR-2011	07:26	INS	{MGPT31AA 1101153 G1D070642-7 1}	A-000061.	997.06 mL	20 mL	1	
15-APR-2011	08:11	INS	{MGPT41AA 1101153 G1D070642-8 1}	A-000062.	987.66 mL	20 mL	1	
15-APR-2011	08:56	INS	{STD_05 10GCSV0524 8330 100-200}	A-000063.	0 g	0 mL	1	

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 64

Inst ID: LC10 Batch ID: 04152011
Method : Method 8330 Test : SOP SAC-LC-0009
ICAL Date: See Calibration Report

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
15-APR-2011	10:32	NS	PRIMER	A-000001	1000 mL	20 mL	1	
15-APR-2011	11:17	NS	PRIMER	A-000002	1000 mL	20 mL	1	
15-APR-2011	12:02	NS	STD_06 11GCSV0170 8330 200-500	A-000003	0 g	0 mL	1	
15-APR-2011	12:47	NS	STD_MRL 11GCSV0086 8330 5-20ng	A-000004	0 g	0 mL	1	
15-APR-2011	13:32	NS	MGLJC1AA 1101074 A1D060428-3	A-000005	909.33 mL	20 mL	2	
15-APR-2011	14:17	NS	MGLJD1AA 1101074 A1D060428-4	A-000006	863.58 mL	20 mL	2	
15-APR-2011	15:02	NS	MGV4M1AA 1102095 G1D120000-95	A-000007	1000 mL	20 mL	1	
15-APR-2011	15:47	NS	MGV4M1AD 1102095 G1D120000-95	A-000008	1000 mL	20 mL	1	
15-APR-2011	16:33	NS	MGV4M1AC 1102095 G1D120000-95	A-000009	1000 mL	20 mL	1	
15-APR-2011	17:18	NS	MGNCW1AA 1102095 A1D070414-1	A-000010	988.78 mL	20 mL	1	
15-APR-2011	18:03	NS	MGNC11AA 1102095 A1D070414-2	A-000011	1015.83 mL	20 mL	1	
15-APR-2011	18:48	NS	MGNC21AA 1102095 A1D070414-3	A-000012	1003.28 mL	20 mL	1	
15-APR-2011	19:33	NS	MGNC31AA 1102095 A1D070414-4	A-000013	1002.35 mL	20 mL	1	
15-APR-2011	20:18	NS	MGNC41AA 1102095 A1D070414-5	A-000014	996.36 mL	20 mL	1	
15-APR-2011	21:03	NS	STD_05 10GCSV0524 8330 100-200	A-000015	0 g	0 mL	1	
15-APR-2011	21:48	NS	STD_MRL 11GCSV0086 8330 5-20ng	A-000016	0 g	0 mL	1	
15-APR-2011	22:33	NS	MGNC61AA 1102095 A1D070414-6	A-000017	983.71 mL	20 mL	1	
15-APR-2011	23:18	NS	MGNC71AA 1102095 A1D070414-7	A-000018	1012.15 mL	20 mL	1	
16-APR-2011	00:03	NS	MGNC91AC 1102095 A1D070414-8	A-000019	997.53 mL	20 mL	1	
16-APR-2011	00:48	NS	MGNC91AH 1102095 A1D070414-8	A-000020	1017.57 mL	20 mL	1	
16-APR-2011	01:33	NS	MGNC91AJ 1102095 A1D070414-8	A-000021	1023.48 mL	20 mL	1	
16-APR-2011	02:19	NS	MGNDCLAC 1102095 A1D070414-9	A-000022	942.8 mL	20 mL	1	
16-APR-2011	03:04	NS	MGNDL1AC 1102095 A1D070414-10	A-000023	952.61 mL	20 mL	1	
16-APR-2011	03:49	NS	MGNDG1AA 1102095 A1D070414-11	A-000024	1018.2 mL	20 mL	1	
16-APR-2011	04:34	NS	MGNDJ1AA 1102095 A1D070414-12	A-000025	924.73 mL	20 mL	1	
16-APR-2011	05:19	NS	MGNDL1AA 1102095 A1D070414-13	A-000026	937.71 mL	20 mL	1	
16-APR-2011	06:04	NS	STD_05 10GCSV0524 8330 100-200	A-000027	0 g	0 mL	1	
16-APR-2011	06:49	NS	STD_MRL 11GCSV0086 8330 5-20ng	A-000028	0 g	0 mL	1	
16-APR-2011	07:35	NS	MGNDN1AA 1102095 A1D070414-14	A-000029	1014.72 mL	20 mL	1	
16-APR-2011	08:20	NS	MGNDN1AC 1102095 A1D070414-14	A-000030	975.67 mL	20 mL	1	
16-APR-2011	09:05	NS	MGNDN1AD 1102095 A1D070414-14	A-000031	1016.77 mL	20 mL	1	
16-APR-2011	09:50	NS	MGNDP1AA 1102095 A1D070414-15	A-000032	966.04 mL	20 mL	1	
16-APR-2011	10:35	NS	MGXKL1AA 1103098 G1D130000-98	A-000033	1000 mL	20 mL	1	
16-APR-2011	11:20	NS	MGXKL1AC 1103098 G1D130000-98	A-000034	1000 mL	20 mL	1	
16-APR-2011	12:05	NS	MGXKL1AD 1103098 G1D130000-98	A-000035	1000 mL	20 mL	1	
16-APR-2011	12:51	NS	MGPCCLAE 1103098 A1D070566-11	A-000036	931.65 mL	20 mL	1	
16-APR-2011	13:36	NS	MGP5R1AF 1103098 A1D080416-7	A-000037	936.66 mL	20 mL	1	
16-APR-2011	14:21	NS	MGP531AF 1103098 A1D080416-9	A-000038	941.31 mL	20 mL	1	
16-APR-2011	15:06	NS	STD_05 10GCSV0524 8330 100-200	A-000039	0 g	0 mL	1	
16-APR-2011	15:51	NS	STD_MRL 11GCSV0086 8330 5-20ng	A-000040	0 g	0 mL	1	
16-APR-2011	16:36	NS	MGXOX1AA 1103202 G1D130000-202	A-000041	1000 mL	20 mL	1	
16-APR-2011	17:21	NS	MGXOX1AD 1103202 G1D130000-202	A-000042	1000 mL	20 mL	1	
16-APR-2011	18:06	NS	MGXOX1AC 1103202 G1D130000-202	A-000043	1000 mL	20 mL	1	
16-APR-2011	18:51	NS	MGPOL1AA 1103202 A1D080404-1	A-000044	1012.12 mL	20 mL	1	
16-APR-2011	19:36	NS	MGPOL1AE 1103202 A1D080404-1	A-000045	987.91 mL	20 mL	1	
16-APR-2011	20:22	NS	MGPOL1AF 1103202 A1D080404-1	A-000046	1022.6 mL	20 mL	1	
16-APR-2011	21:07	NS	MGPOT1AA 1103202 A1D080404-2	A-000047	985.75 mL	20 mL	1	
16-APR-2011	21:52	NS	MGPOT1AA 1103202 A1D080404-3	A-000048	878.52 mL	20 mL	1	
16-APR-2011	22:37	NS	MGPOT1AA 1103202 A1D080404-4	A-000049	837.26 mL	20 mL	1	
16-APR-2011	23:22	NS	MGPOT1AA 1103202 A1D080404-5	A-000050	966.73 mL	20 mL	1	

Sequence continued on next page

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 65

Page 2 of Batch 04152011 on Instrument LC10
For header information, refer to the first page of this batch's log.

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
17-APR-2011	00:07	INS	STD_05 10GCSV0524 8330 100-200	A-000051.	0 g	0 mL	1	
17-APR-2011	00:52	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000052.	0 g	0 mL	1	
17-APR-2011	01:38	INS	MGP041AA 1103202 A1D080404-6 1	A-000053.	896.86 mL	20 mL	1	
17-APR-2011	02:23	INS	MGP051AA 1103202 A1D080404-7 1	A-000054.	909.26 mL	20 mL	1	
17-APR-2011	03:08	INS	MGP071AA 1103202 A1D080404-8 1	A-000055.	995.99 mL	20 mL	1	
17-APR-2011	03:53	INS	MGP071AC 1103202 A1D080404-8 S	A-000056.	973.82 mL	20 mL	1	
17-APR-2011	04:38	INS	MGP071AD 1103202 A1D080404-8 D	A-000057.	964.47 mL	20 mL	1	
17-APR-2011	05:24	INS	MGP081AA 1103202 A1D080404-9 1	A-000058.	992.33 mL	20 mL	1	
17-APR-2011	06:09	INS	MGP091AA 1103202 A1D080404-10	A-000059.	933.23 mL	20 mL	1	
17-APR-2011	06:54	INS	MGP1A1AA 1103202 A1D080404-11	A-000060.	966.03 mL	20 mL	1	
17-APR-2011	07:39	INS	STD_05 10GCSV0524 8330 100-200	A-000061.	0 g	0 mL	1	
17-APR-2011	08:24	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000062.	0 g	0 mL	1	
17-APR-2011	09:10	INS	MGXKQ1AA 1103100 G1D130000-100	A-000063.	1000 mL	20 mL	1	
17-APR-2011	09:55	INS	MGXKQ1AC 1103100 G1D130000-100	A-000064.	1000 mL	20 mL	1	
17-APR-2011	10:40	INS	MGQMT1AA 1103100 G1D080474-1 1	A-000065.	995.77 mL	20 mL	1	
17-APR-2011	11:25	INS	STD_05 10GCSV0524 8330 100-200	A-000066.	0 g	0 mL	1	

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 66

Inst ID: LC10 Batch ID: 04182011
Method : Method 8330 Test : SOP SAC-LC-0009
ICAL Date: See Calibration Report

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
18-APR-2011	22:02	INS	PRIMER	A-000001.	1000 mL	20 mL	1	
18-APR-2011	22:47	INS	PRIMER	A-000002.	1000 mL	20 mL	1	
18-APR-2011	23:32	INS	STD_06 11GCSV0170 8330 200-500	A-000003.	0 g	0 mL	1	
19-APR-2011	00:17	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000004.	0 g	0 mL	1	
19-APR-2011	01:02	INS	MGP5R2AF 1103098 A1D080416-7 2	A-000005.	936.66 mL	20 mL	2	
19-APR-2011	01:47	INS	MGX0X1AC 1103202 G1D130000-202	A-000006.	1000 mL	20 mL	1	
19-APR-2011	02:32	INS	MGXKQ1AC 1103100 G1D130000-100	A-000007.	1000 mL	20 mL	1	
19-APR-2011	03:17	INS	MG4TL1AA 1105341 G1D150000-341	A-000008.	1000 mL	20 mL	1	
19-APR-2011	04:02	INS	MG4TL1AD 1105341 G1D150000-341	A-000009.	1000 mL	20 mL	1	
19-APR-2011	04:48	INS	MG4TL1AC 1105341 G1D150000-341	A-000010.	1000 mL	20 mL	1	
19-APR-2011	05:33	INS	MG3W21AA 1105341 G1D140599-1 1	A-000011.	981.56 mL	20 mL	1	
19-APR-2011	06:18	INS	MG3W31AA 1105341 G1D140599-2 1	A-000012.	989.86 mL	20 mL	1	
19-APR-2011	07:03	INS	MG3W41AA 1105341 G1D140599-3 1	A-000013.	976.36 mL	20 mL	1	
19-APR-2011	07:48	INS	STD_05 10GCSV0524 8330 100-200	A-000014.	0 g	0 mL	1	
19-APR-2011	08:33	INS	STD_MRL 11GCSV0086 8330 5-20ng	A-000015.	0 g	0 mL	1	

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 13

Inst ID: LC12 Batch ID: 04122011
Method : Method 8330 Test : SOP WS-LC-0009
ICAL Date: See Calibration Report

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
12-APR-2011	11:30	NS	8330 PRIMER	C-000001.	0 g	0 mL	1	
12-APR-2011	12:36	NS	8330 PRIMER	C-000002.	0 g	0 mL	1	
12-APR-2011	13:41	NS	BLANK	C-000003.	0 g	0 mL	1	
12-APR-2011	14:46	NS	STD_01 11GCSV0085 8330 5ng/mL	C-000004.	0 g	0 mL	1	
12-APR-2011	15:51	NS	STD_02 10GCSV0527 8330 10ng/mL	C-000005.	0 g	0 mL	1	
12-APR-2011	16:57	NS	STD_03 10GCSV0526 8330 20ng/mL	C-000006.	0 g	0 mL	1	
12-APR-2011	18:02	NS	STD_04 10GCSV0525 8330 50ng/mL	C-000007.	0 g	0 mL	1	
12-APR-2011	19:08	NS	STD_05 10GCSV0524 8330 100ng/mL	C-000008.	0 g	0 mL	1	
12-APR-2011	20:13	NS	STD_06 11GCSV0170 8330 200ng/mL	C-000009.	0 g	0 mL	1	
12-APR-2011	21:18	NS	STD_07 10GCSV0522 8330 500ng/mL	C-000010.	0 g	0 mL	1	
12-APR-2011	22:24	NS	STD_08 10GCSV0521 8330 1000ng/mL	C-000011.	0 g	0 mL	1	
12-APR-2011	23:29	NS	BLANK	C-000012.	0 g	0 mL	1	
13-APR-2011	00:34	NS	STD_ICV 11GCSV0169 8330 200ng/mL	C-000013.	0 g	0 mL	1	
13-APR-2011	01:40	NS	STD_MRL 11GCSV0086 8330 5ng/mL	C-000014.	0 g	0 mL	1	2x mol check

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 15

Inst ID: LC12 Batch ID: 04182011
Method : Method 8330 Test : SOP WS-LC-0009
ICAL Date: See Calibration Report

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
18-APR-2011	21:46	INS	PRIMER	C-000001.	0 g	0 mL	1	
18-APR-2011	22:51	INS	PRIMER	C-000002.	0 g	0 mL	1	
18-APR-2011	23:56	INS	STD_06 11GCSV0170 8330 200-500	C-000003.	0 g	0 mL	1	CV fail for 246
19-APR-2011	01:01	INS	STD_MRL 11GCSV0086 8330 5-20ng	C-000004.	0 g	0 mL	1	
19-APR-2011	02:07	INS	MGXOX1AA 1103202 G1D130000-202	C-000005.	1000 mL	20 mL	1	RE
19-APR-2011	03:12	INS	MGP011AA 1103202 A1D080404-4 1	C-000006.	837.26 mL	20 mL	1	
19-APR-2011	04:18	INS	MGP021AA 1103202 A1D080404-5 1	C-000007.	966.73 mL	20 mL	1	
19-APR-2011	05:23	INS	MGP051AA 1103202 A1D080404-7 1	C-000008.	909.26 mL	20 mL	1	
19-APR-2011	06:29	INS	MGP081AA 1103202 A1D080404-9 1	C-000009.	992.33 mL	20 mL	1	↓ m 4/21/11
19-APR-2011	07:34	INS	STD_05 10GCSV0524 8330 100-200	C-000010.	0 g	0 mL	1	
19-APR-2011	08:40	INS	STD_MRL 11GCSV0086 8330 5-20ng	C-000011.	0 g	0 mL	1	
19-APR-2011	09:46	INS	MGXKL1AA 1103098 G1D130000-98	C-000012.	1000 mL	20 mL	1	
19-APR-2011	10:51	INS	MGP5R2AF 1103098 A1D080416-7 2	C-000013.	936.66 mL	20 mL	2	
19-APR-2011	11:57	INS	MGV4M1AA 1102095 G1D120000-95	C-000014.	1000 mL	20 mL	1	
19-APR-2011	13:02	INS	MGND1AC 1102095 A1D070414-9 1	C-000015.	942.8 mL	20 mL	1	
19-APR-2011	14:07	INS	MGNDG1AA 1102095 A1D070414-11	C-000016.	1018.2 mL	20 mL	1	
19-APR-2011	15:12	INS	STD_05 10GCSV0524 8330 100-200	C-000017.	0 g	0 mL	1	
19-APR-2011	16:18	INS	STD_MRL 11GCSV0086 8330 5-20ng	C-000018.	0 g	0 mL	1	
19-APR-2011	17:23	INS	MGXOX1AA 1103202 G1D130000-202	C-000019.	1000 mL	20 mL	1	
19-APR-2011	18:29	INS	MGP011AA 1103202 A1D080404-4 1	C-000020.	837.26 mL	20 mL	1	
19-APR-2011	19:35	INS	MGP021AA 1103202 A1D080404-5 1	C-000021.	966.73 mL	20 mL	1	
19-APR-2011	20:40	INS	MGP051AA 1103202 A1D080404-7 1	C-000022.	909.26 mL	20 mL	1	
19-APR-2011	21:45	INS	QC CHECK	C-000023.	1000 mL	20 mL	1	
19-APR-2011	22:51	INS	MGP081AA 1103202 A1D080404-9 1	C-000024.	992.33 mL	20 mL	1	
19-APR-2011	23:57	INS	MGLJC1AA 1101074 A1D060428-3 1	C-000025.	909.33 mL	20 mL	1	
20-APR-2011	01:02	INS	MGLJD1AA 1101074 A1D060428-4 1	C-000026.	863.58 mL	20 mL	1	
20-APR-2011	02:07	INS	STD_05 10GCSV0524 8330 100-200	C-000027.	0 g	0 mL	1	
20-APR-2011	03:13	INS	STD_MRL 11GCSV0086 8330 5-20ng	C-000028.	0 g	0 mL	1	
20-APR-2011	04:18	INS	MGP5R1AF 1103098 A1D080416-7 1	C-000029.	936.66 mL	20 mL	1	
20-APR-2011	05:24	INS	MG4TL1AA 1105341 G1D150000-341	C-000030.	1000 mL	20 mL	1	
20-APR-2011	06:29	INS	MG3W21AA 1105341 G1D140599-1 1	C-000031.	981.56 mL	20 mL	1	
20-APR-2011	07:34	INS	STD_05 10GCSV0524 8330 100-200	C-000032.	0 g	0 mL	1	
20-APR-2011	08:40	INS	STD_MRL 11GCSV0086 8330 5-20ng	C-000033.	0 g	0 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
<i>Louisville District USACE (James Trumble, Chemical Engineer)</i>				
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 " <i>associated method or trip</i> " 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.
Louisville District USACE (Mark Nichter, Geologist)				
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: <i>“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...”</i> 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 <i>“basal portion of the...”</i> inserted in that description.
12	14	253-254	The RVAAP’s <i>“Submission Format Guidelines”</i> 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 <i>“Appendix A.”</i> 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
14	29-34	Section 5.0	<p>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:</p> <ul style="list-style-type: none"> • 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? 	<p>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.</p> <p>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)... <i>"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."</i> 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 $\frac{3}{4}$ (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)... <i>"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."</i> 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.</p>

No	Page	Line	Comment	Response
			<ul style="list-style-type: none"> 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. Explain the importance of the water-types evaluation with respect to the calcium-magnesium- 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? 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. 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? 	<p>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.</p> <p>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.</p> <p>Agreed. We added similar text to the Discussion section.</p> <p>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... <i>"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."</i></p>

No	Page	Line	Comment	Response
			<ul style="list-style-type: none"> 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? Maintain the discussion pertaining to water chemistry along flow paths, and how this study is useful in identifying potential groundwater impact source areas. 	<p>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.</p> <p>We summarized the findings of the analysis of water chemistry along flow paths in the last paragraph of the report... <i>“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.”</i></p> <p>We’re not sure that we can say much more without speculation and uncertainty.</p>

No	Page	Line	Comment	Response
15	32	632-636	<p>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.</p> <p>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.</p> <p>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).</p>	<p>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.</p> <p>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.</p>
16	36	Appendix	<p>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.</p>	<p>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.</p>
17	37	Entire Report	<p>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 "<i>Submission Format Guidelines.</i>" 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.</p>	<p>It was our intent to follow the guidelines as specified. Specific examples of incorrect formatting would help here.</p>