



Vertical Distribution of Uranium in Groundwater



Environmental Properties Management L.L.C

Cimarron Environmental Response Trust Project No. 96785

> Revision 0 5/10/2017



Vertical Distribution of Uranium in Groundwater

prepared for

Environmental Properties Management L.L.C Cimarron Environmental Response Trust Crescent, Oklahoma

Project No. 96785

Revision 0 5/10/2017

prepared by

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BA-1	Burial Area #1
bgs	below ground surface
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
cm/s	centimeter per second
COCs	contaminants of concern
DEQ	Oklahoma Department of Environmental Quality
EC	electrical conductivity
EPA	United States Environmental Protection Agency
EPM	Environmental Property Management L.L.C.
ft. amsl	feet above mean sea level
ft/d	feet per day
GEL	GEL Laboratories LLC
НРТ	Hydraulic profiling tool
HPT-GWS	Hydraulic profiling tool groundwater sampler
IDW	Investigation derived waste
К	Hydraulic conductivity
KMNC	Kerr-McGee Nuclear Corporation
MCLs	Maximum Contaminant Levels
μg/L	micrograms per liter
mg/L	milligrams per liter
ml/min	milliliter per minute

Abbreviation	Term/Phrase/Name
mS/m	milliSiemens per meter
NRC	Nuclear Regulatory Commission
PES	Plains Environmental Services
SAP	Sampling and Analysis Procedure
SOP	Standard Operating Procedure
WAA	Western Alluvial Area

1.0 INTRODUCTION

On behalf of Environmental Property Management LLC (EPM), Trustee for the Cimarron Environmental Response Trust (the Trust), Burns & McDonnell Engineering Company Inc. (Burns & McDonnell) submits this Vertical Distribution of Uranium in Groundwater Investigation Report for the Cimarron site (the Site), located at 100 N. Highway 74, Guthrie, Oklahoma.

The Site consists of over 500 acres of rolling hills and 200 acres of floodplain at the intersection of Highways 74 and 33, approximately seven miles south of Crescent, Oklahoma (Figure 1-1). Grassland and temperate forest covers nearly all the property and two ponds collect surface water from upland areas. Several miles of gravel road, a gravel parking area, and one office building remain on the property.

In the 1960s and early 1970s, Kerr-McGee Nuclear Corporation (KMNC) manufactured nuclear fuel under two Nuclear Regulatory Commission (NRC) licenses. Uranium fuel was produced under NRC Special Nuclear Material License SNM-928, and mixed oxide fuel was produced under NRC license SNM-1174. Waste was buried in three locations and wastewater containing licensed material was stored in impoundments and discharged to the Cimarron River, in accordance with the regulatory requirements of that time.

As described in the *Cimarron Facility Decommissioning Plan* prepared by EPM in December 2015 (EPM, 2015), decommissioning of materials and equipment, buildings and structures, and surface and subsurface soils at the Site is complete, however uranium contamination in the groundwater at the site remains in exceedance of applicable standards.

The following report presents results of hydrostratigraphic (lithologic and hydraulic conductivity data) logging and discrete groundwater sampling intended to assess the vertical distribution of uranium in groundwater using the hydraulic conductivity tool (HPT). Information on the vertical distribution of uranium in groundwater will be considered prior to final design and installation of extractions wells that will be part of the groundwater treatment system at the Cimarron Site.

1.1 Objective and Rationale

The December 2015 Decommissioning Plan proposed the installation of groundwater extraction wells in the alluvial zone in both the Western Alluvial Area (WAA) and in Burial Area #1 (BA-1). The extraction wells were to be screened through the saturated thickness of the alluvial aquifer (EPM, 2015).

In both of these areas, uranium in groundwater extends hundreds of feet downgradient from the source of the contamination. If contamination has migrated laterally through more highly permeable zones, but has not diffused throughout the saturated thickness of the aquifer, screening extraction wells throughout the saturated thickness of the aquifer could result in the extraction and treatment of significant volumes of groundwater that may not require remediation.

If the distribution of COCs in groundwater is limited to a discrete zone, targeting that zone may accelerate the rate at which groundwater may be remediated.

Groundwater samples were collected from direct push locations at discrete intervals correlating with the screened interval of nearby existing monitor wells. Analysis of the samples for uranium provided the information needed to evaluate the vertical distribution of contaminants in groundwater, and to determine if the design of extraction wells should be revised to address uneven distribution of uranium in groundwater.

In addition to analytical measurement of dissolved uranium concentrations, relative hydraulic conductivity (K) in relation to injection pressure and electrical conductivity (EC) data were collected at each of the groundwater sampling locations. This report summarizes total uranium, relative K, and EC results and provides an interpretation of findings. Results of this report will aid well design, system optimization to focus groundwater extraction on higher concentration zones, minimize the recovery of non-impacted groundwater, potentially reduce treatment system operation and maintenance costs, and ultimately expedite the remediation of uranium impacted groundwater at the Site.

1.2 Geology

Bedrock stratigraphy of the Site is dominated by the Garber-Wellington Formation. The Garber Formation is exposed in the uplands and along the escarpment that borders along the interface with the alluvium adjacent to the Cimarron River. The Garber Formation also represents the uppermost bedrock underlying the alluvium. Within the Site, the Garber Formation consists primarily of sandstone layers separated by relatively continuous siltstone and mudstone layers. The sandstone units frequently have interbedded, but discontinuous, red-brown shale and mudstone lenses. Lateral facies changes are common in the sandstones and represent shifting channel locations in the Garber delta (Ford, 1954). The Garber sandstones can be divided into three basic sandstone units separated by two relatively continuous and identifiable mudstone layers, as follows:

1-2

- Sandstone A is the uppermost sandstone unit, generally red-brown to tan in color and up to 35 feet in thickness. The bottom of this sandstone unit occurs at elevations ranging from approximately 950 and 970 feet above mean sea level (ft. amsl)
- Mudstone A is a red-brown to orange-brown, sometimes tan mudstone and claystone that separates Sandstones A and B. It ranges from 6 to 20 feet thick.
- Sandstone B is the second sandstone unit, underlying Mudstone A, and similar in color and sedimentary features to Sandstone A. It is found at elevations between 925 and 955 ft. amsl and is up to 30 feet thick.
- Mudstone B consists of mudstone and claystone separating Sandstone B and Sandstone C. It is similar in color to Mudstone A and ranges from 6 to 14 feet thick.
- Sandstone C is the lowermost sandstone in the Garber-Wellington Formation, similar in color and sedimentary features to the overlying sandstones. This unit varies in thickness from 10 to 25 feet at the Site to at least 100 feet thick regionally.

Sandstone A, Mudstone A, Sandstone B, and Mudstone B represent the site specific nomenclature for bedrock stratigraphic units present at and underlying the upland region of the Site adjacent to the Cimarron River Alluvium.

Cimarron River alluvial deposits extend from the interface with upland bedrock deposits at the bluff across the Cimarron River Valley. Alluvial deposits form as a result of gradual weathering of the sedimentary bedrock and subsequent, erosion (transport), and deposition in low elevation areas. Generally alluvial deposition is occurring with fluvial (stream sediment) deposition.

Alluvial gravel, sand, silt, and clay deposits represent geologic material present along and north of the escarped bedrock bluff-line. Alluvial sequences beneath the floodplain may appear homogenous but local heterogeneities may be in the form of buried overbank and channel deposits that may influence shallow groundwater flow. The observed variability identified in the HPT data provided evidence of these heterogeneities. The alluvium is approximately 30 to 40 feet thick in the Site area. Along the present escarpment face, there are local transition zones from the sandstones of the Garber Formation to the coarser alluvial materials. These transition zones can be clay-rich, as is the case with the transitional zone identified with borings in the Burial Area #1 area.

2.0 VERTICAL DISTRIBUTION OF URANIUM: WAA

To evaluate the vertical distribution of uranium in groundwater in the WAA, a direct-push investigation was conducted in proximity to six existing monitoring wells (T-67, T-68, T-84, T-51, T-97, and T-59). Boring logs for existing monitoring wells are included in Appendix A. The direct-push investigation consisted of advancing a Geoprobe Systems[®] hydraulic profiling tool groundwater sampler (HPT-GWS) at six locations adjacent to the above identified monitoring wells. The HPT-GWS tool was used for lithologic logging, hydraulic conductivity testing, and collection of discrete groundwater samples. Monitoring well and HPT-GWS sampling locations are presented in Figure 2-1.

2.1 HPT-GWS Field Activities

The HPT-GWS investigation was conducted by Plains Environmental Services (PES) of Salina, Kansas under the supervision of Burns & McDonnell personnel from December 12th through 15th, 2016.

The HPT-GWS was used to collect continuous, real-time profiles of the soil hydraulic properties in both fine- and coarse-grained material. The HPT-GWS uses a sensitive downhole transducer to measure the pressure response of the soil to the injection of water. Hydraulic conductivity (K) values can be estimated using the pressure response data and Geoprobe Systems Direct Image software. The HPT-GWS tool also measures electrical conductivity (EC) and enables the collection of discrete groundwater samples through polyurethane tubing running from the tool through the direct-push rods to the surface. EC responses are typically inversely proportional to grain size in the formation, although mineralogy and pore water conductivity can also affect EC response. These combined capabilities allow for high resolution vertical profiling and characterization of hydrogeologic conditions and potential contaminant occurrence. HPT-GWS and EC logging were performed in accordance with the Geoprobe[®] HPT Standard Operating Procedure (SOP) (Geoprobe ®, 2015).

Six direct-push borings were advanced adjacent to Monitoring Wells T-67, T-68, T-84, T-51, T-97, and T-59 in WAA. The borings were advanced to bedrock refusal using the HPT-GWS. Total depths ranged from approximately 20 to 30 feet below ground surface (bgs). Prior to advancing HPT-GWS at each location, groundwater levels were gauged to determine the depth of the first discrete groundwater sample. Groundwater samples were collected at approximately 2-foot intervals, beginning approximately 1 foot below the water table. Groundwater samples were collected at each boring using new polyurethane tubing and a peristaltic pump. The borings were purged until water clarity improved, or an approximate system volume was purged. Water quality parameters were measured during purging using a YSI multi-parameter instrument and flow-through cell. Groundwater samples were field filtered using disposable

Nalgene[®] Rapid-Flow filter unit equipped with a 0.45-micron pore size membrane. Samples were collected in laboratory-provided bottles and submitted, under proper chain-of-custody, to GEL Laboratories LLC (GEL) of Charleston, South Carolina in accordance with Sampling and Analysis Procedure (SAP)-112 for analysis of dissolved uranium by EPA Method 200.8. Field parameter forms and sample checklists are included as Appendix B. Sampling activities were performed in accordance with procedures established in the *Cimarron Site Sampling and Analysis Procedure* (SAP): *HPT-GWS Groundwater Sampling SAP-121* (EPM, 2016).

Following completion of each HPT-GWS boring, boreholes were abandoned in accordance with SAP-121 and Oklahoma State rules by backfilling and plugging the holes with bentonite chips and hydrating the chips with potable water.

2.1.1 EC and HPT Results

EC and HPT data were collected from all six direct-push locations. The EC and HPT response curves were corrected for elevation, scaling of depth, and magnitude of response to provide a set of data that would be representative of the site conditions. Two cross-sections were prepared where shown in Figure 2-1: one along the south-north (A-A') transect (Figure 2-2) and a profile at Monitoring Well T-59 (Figure 2-3). The HPT cross-sections display EC and HPT data, showing correlation of zones of high permeability. HPT logs for each location are presented in Appendix C.

The HPT measures the relative hydraulic properties of unconsolidated materials by utilizing the Werner dipole conductivity configuration and injection of clean water at a low flow rate (usually less than 300 milliliters per minute [ml/min]) to measure the pressure response of the formation to the injection of water. Zones of relatively high permeability are represented by the HPT as lower pressure responses and lower permeability zones are represented by higher pressure responses.

The soil overburden at the site consists primarily of sand and silt with minor occurrences of clay and gravel. The typical ranges for electrical conductivity of unsaturated earth materials are provided below:

Sand and Gravel	0.1 to 5 milliseimens per meter (mS/m)
Silt	0.5 to 10 mS/m
Clay	10 to 500 mS/m
Sandstone	1 to 20 mS/m

50 to 300 mS/m

Shale

Salt water 1,000 to 7,000 mS/m

(Reference: Sharma, 1997)

The lithologic data collected using the EC response coupled with the injection data provided a more representative characterization of the subsurface materials present in the WAA. Two particular items of interest identified in the HPT data were the apparent presence of overbank deposits at T-68 and T-84 as well as minor bedrock high at T-51. Data presented on Figure 2-3 depicts the presence of finer grained material approximately 16 feet bgs that is overlain by coarser and higher relative hydraulic conductivity material. This finding along with a comparison of reduction of uranium concentrations below 16 feet bgs could aid in the optimization of well design and pumping strategies. The occurrence of the upper bedrock surface was generally consistent with exception of an anomalous bedrock high at Monitoring Well T-51 and confirmed by HPT refusal at the offset direct push location (refer to Figure 2-2).

The HPT has the capability of collecting estimation of hydraulic conductivity using dissipation tests. This data was not collected as part of the vertical distribution investigation but representative data was collected from similar geologic materials in the same general area of the western alluvium during the 2014 Design Investigation (EPM, 2015). The hydraulic conductivity based on the 2014 dissipation testing averages approximately 3.53×10^{-2} centimeters per second (cm/s) or 100 feet per day (ft/d).

2.1.2 HPT-GWS Groundwater Sample Results

The dissolved uranium results for the HPT-GWS collected samples are summarized in Tables 2-1 and 2-2 and presented in Figures 2-2 and 2-3. Laboratory reports are provided in Appendix D.

3.0 VERTICAL DISTRIBUTION OF URANIUM: BA-1

To evaluate the vertical distribution of uranium in groundwater in BA1, a direct-push investigation was conducted adjacent to six monitoring wells (TMW-09, 02W02, 02W32, 02W44, TMW-24, and 1373). Due to the low permeability of the soil in the saturated zone, groundwater samples could only be obtained from four of these (02W32, 02W44, TMW-24, and 1373). Historical boring logs for all six locations are included in Appendix A. The direct-push investigation consisted of advancing a Geoprobe Systems[®] hydraulic profiling tool groundwater sampler (HPT-GWS) at six locations adjacent to Monitoring Wells 02W32, 02W44, TMW-24, and 1373. The HPT-GWS tool was used for lithologic logging, hydraulic conductivity testing, and collection of discrete groundwater samples from four of the six monitoring wells. Monitoring well and HPT-GWS sampling locations are presented in Figure 3-1.

3.1 HPT-GWS Field Activities

The HPT-GWS investigation was conducted by PES of Salina, Kansas under the supervision of Burns & McDonnell personnel from December 12th through 15th, 2016.

Six direct-push borings were advanced adjacent to Monitoring Wells TMW-09, 02W02, 02W32, 02W44, TMW-24, and 1373. The borings were advanced to bedrock refusal using the HPT-GWS. Total depths ranged from 15 to 30 feet bgs. Prior to advancing HPT-GWS at each location, groundwater levels were gauged to determine the depth of the first discrete groundwater sample. Groundwater samples were collected at approximately 2-foot intervals, beginning approximately 1 foot below the water table. Groundwater samples were collected at each boring using new polyurethane tubing and peristaltic pump, with the exception of Monitoring Wells TMW-09 and 02W02. The borings were purged until water clarity improved, or an approximate system volume was purged. Water quality parameters were measured during purging using a YSI multi-parameter instrument and flow-through cell. Groundwater samples were field filtered using disposable Nalgene[®] Rapid-Flow filter unit equipped with a 0.45-micron pore size membrane. Samples were collected in laboratory provided bottles and submitted, under proper chain-of-custody, to GEL Laboratories LLC (GEL) of Charleston, South Carolina in accordance with SAP-121 for analysis of dissolved uranium by EPA Method 200.8. Field parameter forms and sample checklists are included as Appendix C. Sampling activities were performed in accordance with procedures established in the Cimarron Site Sampling and Analysis Procedure: HPT-GWS Groundwater Sampling SAP-121 (EPM, 2016).

Following completion of each HPT-GWS boring, boreholes were abandoned in accordance with SAP-121 and Oklahoma State rules by backfilling and plugging the holes with bentonite chips and hydrating the chips with potable water.

3.1.1 EC and HPT Results

EC and HPT data were collected from all six direct-push locations. The EC and HPT response curves were corrected for elevation, scaling of depth, and magnitude of response to provide a set of data that would be representative of the site conditions. These data were used to create cross-section B-B', showing the EC and HPT responses at specific locations along the approximate south-north extent of the BA-1 uranium plume (See Figure 3-1). The HPT cross-sections display EC and HPT data showing correlation of zones of high permeability (Figure 3-2). HPT logs for each location are presented in Appendix C.

The soil overburden in Burial Area #1 varies greatly from the predominately clay and silty sand deposits in the transition zone to predominately sand deposits in the alluvial material near the Cimarron River. The lithologic data collected using the EC response, coupled with the injection data, provided a more representative characterization of the subsurface materials present in the transition zone material and alluvial material present in Burial Area #1.

The HPT has the capability of collecting estimation of hydraulic conductivity using dissipation tests. This data was not collected as part of the vertical distribution investigation but representative data was collected from similar geologic materials in the same general area of the western alluvium during the 2014 Design Investigation (EPM, 2015). The hydraulic conductivity based on the 2014 dissipation testing for the transition zone material ranges from approximately 1.77×10^{-3} cm/s (5 ft/d) to 8.80 x 10^{-5} cm/s (0.25 ft/d). The alluvial material in Burial Area #1 averages 4.41 x 10^{-2} cm/s (125 ft/d)

3.1.2 HPT-GWS Groundwater Sample Results

The dissolved uranium results for the HPT-GWS collected samples are summarized in Tables 2-1 and 3-1 and presented in Figures 3-2. Laboratory reports are provided in Appendix D.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Field duplicate samples were collected during HPT-GWS groundwater sampling (T-67 11.6' DUP, T-68 13.2' DUP, T-84 8.9' DUP, T-51 9.1' DUP, T-59 7.1' DUP, 02W32 13.0' DUP, 02W44 22.5' DUP, TMW-24 24.7' DUP) as a quality assurance measure of laboratory performance and filed sampling methods. The analytical results for the field duplicates were within quality assurance/quality control limits.

5.0 INVESTIGATION DERIVED WASTE

Groundwater investigation derived waste (IDW) was poured on the ground adjacent to the boring or well from which it was produced.

IDW consisting of disposable sampling equipment, personal protective equipment (PPE), and standard trash was placed in plastic trash bags and transported offsite for proper disposal.

6.0 CONCLUSIONS

6.1 Summary of Conclusion for Vertical Distribution of Uranium Investigation

The investigation yielded additional characterization data that will enable the design to focus groundwater extraction on more highly impacted zones, minimize recovery of non-impacted groundwater, reduce costs of treatment system operation and maintenance, and ultimately expedite the remediation of uranium impacted groundwater at the Site.

The investigation resulted in a better understanding of site conditions, site dynamics, and the variable vertical distribution of uranium in groundwater. These data will be important in the development of the design of the groundwater collection system in both the WAA and BA-1. Results from the HPT-GWS high resolution site characterization and EC profiling indicate vertical variability in permeability in the alluvium of the WAA and BA-1 as well as the transition zone material of the transition zone. Data from HPT-GWS groundwater samples generally indicate that uranium somewhat predictably moves preferentially through the more transmissive zones of the alluvial aquifer, with uranium concentrations generally descending vertically and being transported with the lateral groundwater flow.

7.0 DESIGN IMPLICATIONS

The vertical distribution data indicate considerable heterogeneity in the saturated overburden and the presence of contaminant transport along higher transmissivity pathways at the Site. Understanding this will aid in the design of the remediation system. HPT-GWS profiling provided high resolution information that can be used to determine optimal screen placement by providing a snapshot of contaminant vertical distribution alongside data representative of aquifer characteristics that control contaminate distribution and extractability via groundwater extraction. The objective of such measures provides a focus of remediation efforts on zones of highest mass flux (i.e., COC mass + transmissivity). If extraction well screens are placed at zones of highest mass flux, rate of contaminant mass removal will be maximized.

Consequently, it is recommended that the decommissioning plan include provisions for identifying the zones of highest uranium contamination prior to the installation of groundwater extraction wells. This will enable project personnel to install the screens of extraction wells in these target zones, maximizing the mass of uranium extracted and increasing the efficiency of groundwater remediation.

7-1

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FIGURES



ents/ENV/CERT_ClientInfo Z:/CI Path: COP

2086400 2086800 2087200 2087600 2088000 2088400 2088400 2088600 2099200 2099400 2090400 2091600 2092400



2088800 2089000 2089200 2089400 2089600 2094800 209400 2095000 2095000 209500 20

Figure 2-1

WAA TRANSECT LAYOUT VERTICAL DISTRIBUTION **OF URANIUM IN GROUNDWATER CIMARRON SITE, OKLAHOMA**

 \ll environmental properties management.

Legend

- MONITORING WELL IN TRANSITION ZONE
- MONITORING WELL IN ALLUVIUM
- MONITORING WELL IN SANDSTONE A
- MONITORING WELL IN SANDSTONE B
- MONITORING WELL IN SANDSTONE C
- A-A' CROSS-SECTION TRANSECT
- SITE BOUNDARY

Notes

1. Direct-push borings were advanced within 10-feet of the monitoring well locations referenced on this figure.

2. T-59 profile is provided as Figure 2-3.





2094800

2094600

2095000

2095200

2095400

2095600

2094200

2094400

11X17.

2096400

2096200

2095800

2096000

Figure 3-1 **BA-1 TRANSECT LAYOUT** VERTICAL DISTRIBUTION **OF URANIUM IN GROUNDWATER CIMARRON SITE, OKLAHOMA** environmental properties management, LLU Legend MONITORING WELL IN TRANSITION ZONE MONITORING WELL IN ALLUVIUM MONITORING WELL IN SANDSTONE A + MONITORING WELL IN SANDSTONE B MONITORING WELL IN SANDSTONE C -B-B' CROSS-SECTION TRANSECT SITE BOUNDARY <u>Notes</u> 1. Direct-push borings were advanced within 10-feet of the monitoring well locations referenced on this figure. 200 400 100 Source: ESRI and Burns & McDonnell Engineering. COORDINATES : (NAD 83) STATE PLANE OKLAHOMA NORTH FEET AERIAL PHOTO - 2010 / MAP PRODUCED - 4/21/2017 DATE :





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TABLES

MONITORING WELL CONSTRUCTION DATA AND GROUNDWATER ANALYTICAL RESULTS 2016 VERTICAL DISTRIBUTION OF URANIUM INVESTIGATION CIMARRON SITE, OKLAHOMA

Woll	Formation	Screened Interval (ft. BGS)		TD	Screen Bottom	TOC Elevation	Depth to Water	Groundwater Elevation	Uranium		
Wen		Тор	Bottom	(ft. BGS)	(ft. AMSL)	(ft. AMSL)	(ft.)	(ft. AMSL)	(µg/l)		
WAA											
T-51	Alluvium	5.00	19.50	19.5	918.29	940.30	11.60	928.70	26.2		
T-59	Alluvium	7.00	26.00	27.0	908.90	938.00	9.17	928.83	93.8		
T-67	Alluvium	9.00	28.50	29.0	909.34	940.55	11.08	929.47	134.0		
T-68	Alluvium	7.30	27.30	27.8	909.77	939.97	10.71	929.26	107.4		
T-84	Alluvium	3.00	27.50	28.0	908.62	939.38	10.37	929.01	38.2		
T-97	Alluvium	8.10	28.10	29.5	909.56	941.55	10.70	930.85	62.6		
					BA1						
02W32	Alluvium	6.40	20.70	21.0	916.26	939.70	12.50	927.20	1568.7		
02W44	Alluvium	6.70	26.20	26.5	910.11	939.00	12.00	927.00	306.8		
1373	Alluvium	9.00	24.00	24.5	908.62	935.52	8.93	926.59	27.9		
TMW-09	Transition	7.60	22.10	22.1	921.24	945.67	12.07	933.60	2830.0		
TMW-24	Alluvium	15.50	25.50	26.0	911.06	939.09	12.16	926.93	38.4		

NOTES:

ft. = Feet BGS = Below ground surface TD = Total depth AMSL = Above mean sea level TOC = Top of well casing µg/l = Micrograms per liter

Exceedance of Uranium United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) of 30 µg/l

WAA Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	2.95	Manitan \A/all	424.0	µg/L		0.067
		Uranium-238	131	wonitor weil	134.0	µg/L		0.05
		Uranium-235	2.95	0.0	400.0	µg/L		0.34
		Uranium-238	126	9.0	129.0	µg/L		0.05
		Uranium-235	3.49	11.6	447 5	µg/L		0.34
		Uranium-238	144	11.0	147.5	µg/L		0.10
	12/14/2016	Uranium-235	3.71		156 7	µg/L		0.34
		Uranium-238	153	TT.0DOF	130.7	µg/L		0.10
		Uranium-235	4.35	- 13.6	192.4	µg/L		0.67
		Uranium-238	179		103.4	µg/L		0.10
T 67		Uranium-235	4.22	15.6	174.2	µg/L		0.67
1-07		Uranium-238	170		174.2	µg/L		0.10
		Uranium-235	3.48	17.6	152.5	µg/L		0.67
		Uranium-238	150	17.0	155.5	µg/L		0.10
		Uranium-235	2.85	19.6	128.0	µg/L		0.67
		Uranium-238	126	13.0	120.5	µg/L		0.050
		Uranium-235	1.97	21.6	96.9	µg/L		0.050
		Uranium-238	94.8	21.0	50.0	µg/L		0.067
		Uranium-235	0.799	23.6	48.8	µg/L		0.050
		Uranium-238	48		40.0	µg/L		0.067
		Uranium-235	0.393	25.6	33.1	µg/L		0.010
		Uranium-238	32.7	23.0	55.1	µg/L		0.067



Notes:

MDL - Method detection limit

µg/L - micrograms per liter

Vertical red line indicates monitoring well result

WAA Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	2.42	Monitor Well	107 /	µg/L		0.07
		Uranium-238	105		107.4	µg/L		0.05
		Uranium-235	0.586	0.2	28.0	µg/L		0.34
		Uranium-238	27.4	9.2	20.0	µg/L		0.01
		Uranium-235	1.74	11.2 86.9	µg/L		0.07	
		Uranium-238	85.2	11.2	00.9	µg/L		0.05
		Uranium-235	2.57	13.2	125.6	µg/L		0.07
	12/14/2016	Uranium-238	133	13.2	155.0	µg/L		0.05
		Uranium-235	2.59	13 2DUP	135.6	µg/L		0.34
		Uranium-238	133	13.2006	155.0	µg/L		0.05
		Uranium-235	2.55	15.0	155.6	µg/L		0.34
тсо		Uranium-238	153	15.2	155.0	µg/L		0.05
1-00		Uranium-235	2.08	17.2	66.9	µg/L		0.34
		Uranium-238	64.7	17.2	00.0	µg/L		0.05
		Uranium-235	0.589	10.2	20.0	µg/L		0.07
		Uranium-238	20.3	19.2	20.9	µg/L		0.01
		Uranium-235	0.0883	21.2	0 2	µg/L		0.07
		Uranium-238	8.23	21.2	0.5	µg/L		0.01
		Uranium-235	0.0673	23.2	77	µg/L		0.07
		Uranium-238	7.67	23.2	1.1	μg/L	J	0.01
		Uranium-235	0.0878	25.2	9.4	µg/L		0.07
		Uranium-238	9.34		5.4	µg/L		0.01
		Uranium-235	0.112	26.4	12.0	µg/L		0.07
		Uranium-238	13.7	20.4	13.0	µg/L		0.01



Notes:

MDL - Method detection limit µg/L - micrograms per liter J - Value is estimated Vertical red line indicates monitoring well result

WAA Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	0.54	Monitor Wall	20.2	µg/L		0.01
		Uranium-238	37.7		30.2	µg/L		0.07
		Uranium-235	0.13	6.0	15.6	µg/L		0.01
		Uranium-238	15.5	0.9	15.0	µg/L		0.07
		Uranium-235	0.268	8.0	16.4	µg/L		0.01
		Uranium-238	16.1	0.9		µg/L		0.07
	12/13/2016	Uranium-235	0.28		16.7	µg/L		0.01
		Uranium-238	16.4	0.9DUF		µg/L		0.07
		Uranium-235	0.766	10.0	20.2	µg/L		0.05
		Uranium-238	38.5	10.9	39.5	µg/L		0.07
T 04		Uranium-235	1.73	12.0	95 E	µg/L		0.05
1-04		Uranium-238	83.8	12.9	05.5	µg/L		0.07
		Uranium-235	1	14.0	61.1	µg/L		0.05
		Uranium-238	60.1	14.9	01.1	µg/L		0.07
		Uranium-235	0.524	16.0	12.8	µg/L		0.01
		Uranium-238	42.3	10.3	42.0	µg/L		0.07
		Uranium-235	0.272	18.0	32.3	µg/L		0.01
		Uranium-238	32	10.9	52.5	µg/L		0.07
		Uranium-235	0.105	20.9 12.9	12.9	µg/L		0.01
		Uranium-238	12.8		12.5	µg/L		0.07
		Uranium-235	0.117	22.0	1/ 8	µg/L		0.01
		Uranium-238	14.7	22.9	14.0	µg/L		0.07



Notes: MDL - Method detection limit µg/L - micrograms per liter U - Analyte was not detected above the MDL Vertical red line indicates monitoring well result

WAA Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	0.3	Monitor Wall	26.2	µg/L		0.01
		Uranium-238	25.9	WOITHOF WEI	20.2	µg/L		0.07
		Uranium-235	0.1	0.1	8.1	µg/L		0.01
		Uranium-238	8.0	9.1 0.1	µg/L		0.07	
	12/12/2016	Uranium-235	0.1		7.5	µg/L	J	0.01
		Uranium-238	7.5	5.1 001 7.5	7.5	µg/L		0.07
		Uranium-235	0.1	11 1	9.6	µg/L		0.01
T 54		Uranium-238	9.5	11.1	9.0	µg/L		0.07
1-51		Uranium-235	0.1	13.1	40.0	µg/L		0.01
		Uranium-238	12.2	13.1	12.5	µg/L		0.07
		Uranium-235	0.2	15 1	47.0	µg/L		0.01
		Uranium-238	17.0	15.1	17.2	µg/L		0.07
		Uranium-235	0.5	17.1	20.4	µg/L		0.01
		Uranium-238	37.6	17.1	38.1	µg/L		0.07
		Uranium-235	1.0	10.1	C 2 0	µg/L		0.05
		Uranium-238	62.8	19.1	03.0	µg/L		0.07



Notes: MDL - Method detection limit µg/L - micrograms per liter J - Value is estimated Vertical red line indicates monitoring well result

WAA Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	1.1	Monitor Well	62.6	µg/L		0.05
		Uranium-238	61.5		02.0	µg/L		0.07
		Uranium-235	0.1	- 11.7 1	14 4	µg/L		0.01
		Uranium-238	14.3		17.7	µg/L		0.07
		Uranium-235	0.1	13.7	92	µg/L	J	0.01
	12/12/2016	Uranium-238	9.2		3.2	µg/L		0.07
		Uranium-235	0.1	15.7	8 1	µg/L	J	0.01
		Uranium-238	8.0		0.1	µg/L		0.07
		Uranium-235	0.1	- 17.7	12.1	µg/L		0.01
т 07		Uranium-238	12.0			µg/L		0.07
1-57		Uranium-235	0.2	10.7	10.7	µg/L		0.01
		Uranium-238	19.5	13.7	19.7	µg/L		0.07
		Uranium-235	0.6	21.7	18 1	µg/L		0.01
		Uranium-238	47.8	21.7	40.4	µg/L		0.07
		Uranium-235	1.4	23.2	96 7	µg/L		0.05
		Uranium-238	85.3	23.7	00.7	µg/L		0.07
		Uranium-235	2.2	25.7	100.2	µg/L		0.05
		Uranium-238	107.0		109.2	µg/L		0.34
		Uranium-235	2.3	27.7	106.2	µg/L		0.05
		Uranium-238	104.0	21.1	100.5	µg/L		0.34



Notes: MDL - Method detection limit µg/L - micrograms per liter J - Value is estimated Vertical red line indicates monitoring well result

WAA Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	0.681	Monitor Well	02.8	µg/L		0.01
		Uranium-238	93.1		50.0	µg/L		0.07
		Uranium-235	0.0717	7 1	6.0	µg/L		0.01
		Uranium-238	6.81	7.1 0.3	0.5	µg/L		0.07
		Uranium-235	0.0729		6.0	µg/L		0.01
	12/13/2016	Uranium-238	6.8	7.1001	0.5	µg/L		0.07
		Uranium-235	0.0846	0.1	9.4	µg/L		0.01
		Uranium-238	9.29	5.1		µg/L		0.07
T 50		Uranium-235	0.078	11 1	10.5	µg/L		0.01
1-55		Uranium-238	10.4	11.1	10.5	µg/L		0.07
		Uranium-235	0.07	13.1	0.4	µg/L	U	0.01
		Uranium-238	0.36	15.1	0.4	µg/L		0.07
		Uranium-235	0.235	15 1	32.2	µg/L		0.01
		Uranium-238	32	15.1	52.2	µg/L		0.07
		Uranium-235	0.293	17 1	26.7	µg/L		0.01
	-	Uranium-238	36.4	17.1	30.7	µg/L		0.07
		Uranium-235	0.468	10.1	65.0	µg/L		0.01
		Uranium-238	64.5	19.1	03.0	µg/L		0.07



Notes: MDL - Method detection limit µg/L - micrograms per liter U - Analyte was not detected above the MDL Vertical red line indicates monitoring well result

Table 3-1 BA-1 Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	18.7	Monitor Well	1,568.7	µg/L		0.500
		Uranium-238	1550	MONITOR MEN		µg/L		3.35
		Uranium-235	3.08	11.0	269.1	µg/L		0.050
		Uranium-238	266		205.1	µg/L		0.335
		Uranium-235	7.66	13.0	648.7	µg/L		0.200
0214/22	12/15/2016	Uranium-238	641			µg/L		1.34
020032	12/13/2010	Uranium-235	8.46		700 5	µg/L		0.200
		Uranium-238	701	13.000F	105.5	µg/L		1.34
		Uranium-235	2.69	15.0	226.7	µg/L		0.050
		Uranium-238	224	13.0	220.1	µg/L		0.335
		Uranium-235	4.76	17.0	407.8	µg/L		0.100
		Uranium-238	403	17.0	407.8	µg/L		0.670



Notes:

MDL - Method detection limit µg/L - micrograms per liter Vertical red line indicates monitoring well result
Table 3-1 BA-1 Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	3.79	Monitor Well	306.8	µg/L		0.100
		Uranium-238	303		500.0	µg/L		0.670
		Uranium-235	0.388	10.5	31.6	µg/L		0.010
		Uranium-238	31.2	10.0	51.0	µg/L		0.067
		Uranium-235	2.72	12.5	215 7	µg/L		0.050
02W44		Uranium-238	213	12.5	215.7	µg/L		0.335
		Uranium-235	4.45	14.5	361.5	µg/L		0.100
		Uranium-238 357	14.5	501.5	µg/L		0.670	
		Uranium-235	3.49	16.5	286.5	µg/L		0.100
	12/15/2016	Uranium-238 283	283	10.5	200.5	µg/L		0.670
	12/13/2010	Uranium-235	3.32	18.5	279.2	µg/L		0.100
		Uranium-238	275	10.5	270.5	µg/L		0.670
		Uranium-235	1.30	20.5	440.2	µg/L		0.050
		Uranium-238	109	20.5	110.5	µg/L		0.335
		Uranium-235	1.49	00 F	400.5	µg/L		0.050
		Uranium-238	121	22.0	122.5	µg/L		0.335
		Uranium-235	1.52		126 5	µg/L		0.050
		Uranium-238	125	22.5DUP	120.3	µg/L		0.335
		Uranium-235	1.96	04 E	450.0	µg/L		0.050
		Uranium-238	157	24.0	159.0	µg/L		0.335



Notes:

MDL - Method detection limit µg/L - micrograms per liter Vertical red line indicates monitoring well result

Table 3-1 BA-1 Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	0.471	Monitor Wall	28.4	µg/L		0.100
		Uranium-238	37.9		30.4	µg/L		0.670
		Uranium-235	0.164	10.7	17.4	µg/L		0.010
		Uranium-238	17.2	10.7	17.4	µg/L		0.067
TMW/-24		Uranium-235	0.307	12.7	26.3	µg/L		0.010
	12/15/2016	Uranium-238	26	12.1	20.5	µg/L		0.067
		Uranium-235	0.0837	14 7	75	µg/L		0.010
		Uranium-238	7.39	14.7	1.5	µg/L		0.067
1 101 00 -24	12/13/2010	Uranium-235	0.070	16.7	0.1	µg/L	U	0.010
		Uranium-238	0.0877	10.7	0.1	µg/L		0.067
		Uranium-235	0.198	22.7	17.1	µg/L		0.010
		Uranium-238	16.9	22.1	17.1	µg/L		0.067
		Uranium-235	0.354	24.7	20.4	µg/L		0.010
		Uranium-238	29	24.7	23.4	µg/L		0.067
		Uranium-235	0.355	5 24 7 DUD	20.2	µg/L		0.010
		Uranium-238	28.8	24.7 DUP	23.2	µg/L		0.067



Notes:

MDL - Method detection limit µg/L - micrograms per liter U - Analyte was not detected above the MDL Vertical red line indicates monitoring well result

Table 3-1 BA-1 Groundwater Sample Results Vertical Distribution of Uranium in Groundwater Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
		Uranium-235	0.332	Monitor Well	27 9	µg/L		0.010
		Uranium-238	27.6		21.5	µg/L		0.067
		Uranium-235	0.0457	74	6.4	µg/L		0.010
		Uranium-238	6.38	7.4	0.4	µg/L		0.067
		Uranium-235	0.0176	9.4	23	µg/L		0.010
1272		Uranium-238	2.28	9.4	2.5	µg/L		0.067
		Uranium-235	0.011	11.4	15	µg/L		0.010
		Uranium-238 Uranium-235	1.46	11.4	1.5	µg/L		0.067
			0.0283	13.4	27	µg/L		0.010
	12/15/2016	Uranium-238	2.67	15.4	2.1	µg/L		0.067
13/3	12/15/2010	Uranium-235	0.323	15.4	26.7	µg/L		0.010
		Uranium-238	26.4	10.4	20.7	µg/L		0.067
		Uranium-235	0.573	17.4	46.4	µg/L		0.010
		Uranium-238	45.8	17.4	40.4	µg/L		0.067
		Uranium-235	0.0104	10.4	4.4	µg/L		0.010
		Uranium-238	1.10	19.4	1.1	µg/L		0.067
		Uranium-235	0.070	21.4	1 2	µg/L	U	0.010
	l	Uranium-238	1.15	21.4	1.4	µg/L		0.067
		Uranium-235	0.509	24.2	42.2	µg/L		0.010
		Uranium-238	41.7	24.3	42.2	µg/L		0.067



Notes:

MDL - Method detection limit

µg/L - micrograms per liter

U - Analyte was not detected above the MDL

Vertical red line indicates monitoring well result

APPENDIX A – HISTORICAL BORING LOGS

SOI	BC	RING LOG KM-5655-A									
н	KI ydro	RR-McGEE CORPORATION	DIARY	n Ol	<	LOCATION Area:	s C	¢F	B ⁰ N		R OZWZ
DEI	PTH N ET	LITHOLOGIC DESCRIPTION	RAPHIC	UNIFIED SOIL FIELD	BLOWS PER FOOT	PID (ppm)	NO.	DEP	MPLE	EC.	REMARKS OR FIELD OBSERVATIONS
	-	Sand: silty, vfn 5yr5/6 : vfn, dry	••••	SM							-
5		Sand VCa Sup 5/8 cilty	.: 11	e II				5.0	5	.o	
1.		: w/tr blk organic		SM SM				10.0	0 4	5	Water level V
10		Sand: UG 54R514		SM		_					
16	1	- clay: soft, moist, plastic	11	CL				15.	.0 3	,8	-
		Mudstone- laminated sitted clay Sandstone bedrock syr 4/4		ML				18	.0 4	à	
											TD 18.0'
	_					_					
	-					_					
	1										
	-		•								
	1										
			1								
	_										_
T	Y	Water Table (24 Hour)			G	RAPHIC L	OG LEGE	ND	DATE DE	LLED	PAGE
		Water Table (Time of Boring) Photoionization Detection (ppm) Identifies Sample by Number				CLAY	DEE FILL	BRIS	DRILLING	METH	Continuous San la
ATION		E Sample Collection Method	ROCK			SILT SAND		NNIC (PEAT) NDY NY	DRILLED	BY -	1. Graham
EXPLAN			ORE			GRAVEL		ND	LOGGED	PC	E ELEVATION (FT. AMSL)
	DF	TUBE	RECOVER	Y		CLAY	اللہ اللہ اللہ اللہ اللہ اللہ اللہ اللہ	IONE	LOCATIO	NORC	RID COORDINATES
	RI	C. Actual Length of Recovered Sample i	n Feet						915	5N	1225E

н	Kl ydro	ERR-McGEE CORPORATION logy Dept. Engineering Services			n 01	<	LOCATION Area	s (n -	¢F	BORIN	G ER OZW 32
DE	PTH			2	UNIFIED	RIOWS	1	<u> </u>	s	NI SAM	PIE	
FE	NET	LITHOLOGIC DESCRIPTIO	N	GRAPH	SOIL FIELD CLASS.	PER	PID (ppm)	NO.	TYPE	DEPTH	REC.	REMARKS OR FIELD OBSERVATIONS
	_	0-2.0 SAND, slt	y (soil		SM		_					_
Z	-	zone-com organics)	rf-fg		<u> </u>		<u></u>					-
	-	dk red (2.548 3/6)			58							-
5	·	2.0-5.0 SAND, CI	n - 51							5	4.0	_
100	_	sty (410%), red (2	.57K	辺辺	SM/							
7.5	-	$(-\tau/6), v++q, s R - 3 R$		11,17	CL							_
		Q4.5-1" clay lens		X/	CL							-
9.		5.0-7.5 SAND, SIL	- zt	<u>///</u> +F1-	5M					10	5.0	Hz0@9.5' V-
1-		CLAY SHY-INterbe	dded	17.1								
	-	in this varues (over	bank									
1	-	depositio), red vfg sh	(Z.SYR		<0							7:
	_	4/8) at Jusky red clay	(Z.SYR		51		•			15	1.0	
	-	3/2).										
	-	7.5-9.5 CLAY, SI+	1	• • •			_					
18	5-	acio a SAID S	+	••••								-
		(30%), vfa, SA-SR, rd	al (ESM	ail.	SM					20	3-0	-
20	15-	3/2)		2~	MOST		-			ZI	1.0	
	-	10.0-18.5 SAND.	cin,			3						-
	-	f-maw/ca.R-SR,f	lows									
	-	Yell gry (5788/1) to 1	3.0									
	-	13.0-18.5 V. Pale ora	n(IOYR									-
	-	8/2). Inc grain size:	m-cg				—					-
	L 1	w/minorveg					_					
		18.5-20.5 SAND,	sity		i.			1			1.1	
	Ţ	20-30% dissem in ma	trix .		6							-
	-	E minor thin sitt 10/0	f-vc									-
		w/minor per grevel,										
	-	20.5 - 21.0 MDSTON	JE			N. M.						
	-	Clay + sitt, red (2.5 Y	R4/6)									-
	1	\$ 1+ grn gry (5768/1))									-
	_											_
	-					C	APHIC		GEN		ATE DRILLED	PAGE
	V	Water Table (24 Hour)				67773		2012	DEBR	als	7-31-	.04 1 of 1
	PIC	Photoionization Detection (pp	m)				LAY		FILL	D	ARILLING METH	00
z	TYP	E Sample Collection Method				Ш	JLT		RGAN	IC (PEAT)	HJH-	Continuous Sample
ATIC	∇	SPUT) Cr			AND		SAN	DY A	AEI). Graham
IAN	Ň	BARREL	CC	ORE					CLAY	EY	OGGED BY	ED VOICH
EXP				C		500	JITY		SAN	E	XISTING GRAD	E ELEVATION (FT AMSL)
		TUBE	RE	COVER	Y	123	LAY	~	MU	DNE		
	DE	PTH Depth Top and Bottom of Sa	mple	Feet						L	OCATION OR C	SRID COORDINATES
	RC.	.c. Actual tengin of kecovered 3	sumple in	reet							741	N IZIYE

н	KE ydro	ERR-McGEE CORPORATION logy Dept. Engineering Services	KM SUBSID		<u>, 0</u>	ĸ	LOCATION Area	5 (¢F	BORIN	G ER G2W44	
DE	РТН				UNIFIED	BLOWS	1 m car	Ĭ	sc		 E		1
FE	N ET		N	GRAPH	SOIL FIELD CLASS.	PER FOOT	PID (ppm)	NO.	TYPE	DEPTH	REC.	REMARKS OR FIELD OBSERVATIONS	
	_	Siltimoist, tr. clay		11			_]
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	_	. moisi, 177/14		••									01:20
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1		varues, w'red	· Cray		50							/ / / · · · · · · · · · · · · · · · · ·	1
	-	wed, wart, eg	rd, rdd)ڊ		<u> </u>						09:4
			I Subidd					-		15.0	35	-	1
115	<u>`</u> _	Sand: w/mudstonp	1 - 0	==				2			2.0		
	_	Jaha . Cr5-med, road	1,345			[Add Sgel -	
	_											to augers -	09:55
5			s_1					4		0.06	2.5	0 _	
		Jand: med, rola, w.	2/3 2/3		59		_					Add 5 -	1
	-	1. 2. 1 - 1.	2 10									gallons -	\$0:00
	-							5		د د م	06	weter -	
2	5-	Sand: mod-rd, ws	t. s.yre					5		15.0	0.4		
		grade to crs, f.	418. . srit -	<u>i i</u>	SC			6	Ļ		1.5		10:20
	-	p. coment	eres;				-					·	ł
	L										-	TD 265 -	
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	_	Water Table (24 Hour)				G	RAPHIC L	OG LEC	EN		E DRILLED	D of]
		Water Table (Time of Boring Photoionization Detection (p)	l) pm)				CLAY	E FI	CBR [[DRIL		00 1 ·	
z	TYP	2. Identifies Sample by Numbe 2. Sample Collection Method	r			Ш	SILT		GHLY Igani	IC (PEAT) DRIL	DH -	Continuous Sample	ł
ATI	∇	SPUT-) CK			SAND	S s	ANC LAY	Pr AE	El). Graham	
PLA	\square	BARREL	ĉ	ORE			GRAVEL	C S	LAY	'EY]
ŭ		THIN- WALLED CONTINUOUS) :COVEP	Ŷ			Z .	411	EXIS	J . I C	DUT E ELEVATION (FT. AMSL)	1
	DF	PTH Depth Tap and Battom of Sa	** [] 		•		CLAYEY		sto	NE			
	RE	EC. Actual Length of Recovered	Sample in	Feet			SILT ·	ــــا ــ		- 9	99 N	1203E	

1 1		- SUBSIDIARY			LOCATION	1		. if i	BORING	12-22
: 6	INVERON SITE	10	INIFIED		BUCIA	IL FI	KE/	A FF /	NUMBE	r 13(3
IN FEET	LITHOLOGIC DESCRIPTION	GRAPHI	SOIL	PER FOOT	PID (ppm)	NO.	SO BAL	DEPTH	REC.	REMARKS OR FIELD OBSERVATIONS
-	0.3' LIGHT THU SILT IN	PUNSILIA	Castore.				T			
-	Dey (2548)	16)	Ism		-				100%	
	35' LIGHT TAN USIN CAR	5440	58		_				10010	
5-					-				-	
-	- 3-15 LIGHT TAN VECY FI	NE XX			E				and a	
-	MUD STRINGER	s/1.z.			-				100%	
10 -		X	50		_					
-		\otimes	101		-					
1		\times		-					100%	
1 -	-	\otimes	}		-					
15-	15-25' LIGHT TAN ME	Dum X	1		-					
-	TU COARSE SA		1		-				100%	
	1	\otimes	1		_				1.0.0	
20-	a a ser a	\otimes	SP							2
-	-	\otimes			—				ind.	
		\otimes			_				100 ra	
25-	2-25 51	15			-					Y
	- CS-CS-S RED JANDERO	Sesto) XX	SP		E				100%	
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6	7				F					
T	Water Table (24 Hour)		1	G	RAPHIC	OG LE	GEN	D D	TE DRILLED	PAGE
17	Water Table (Time of Boring)	m)			CLAY		DEBR	IS DF	ALLING METH	OD tot t
NT	IO. Identifies Sample by Number YPE Sample Collection Method	,			SILT		HIGHLY	C (PEAT)	HOLLOW	sten augens
ATIC	SPLIT-	Rock			SAND		SANI	Y	CHARLES	s clark
PLAN	BARREL	CORE			GRAVEL		CLAY	EY	DANE !	KAYLOR
EX	THIN- WALLED CONTINUOUS	NO	RY	153	SILTY			Đ	USTING GRAD	ELEVATION (FT. AMEL)
	DEPTH Depth Top and Bottom of Sou	mole		RAI	CLAYEY				CATION OR	SRID COORDINATES
	REC. Actual Length of Recovered S	iomple in Feet		Letter 1	DILI	-	-	_		



•	KI Hydro	logy Dept. Engineering Services	ARY	n		900N	<u>ام ا</u>	<u></u> 50	E	BORIN	ber T 51
DE	PTH		¥о	UNIFIED	BLOWS	PID	<u> </u>	S	DIL SAM	PLE	
F	IN EET	LITHOLOGIC DESCRIPTION	GRAP	FIELD CLASS.	FOOT	(ppm)	NO.	TYPE	DEPTH	REC.	FIELD OBSERVATIONS
		Silt: w/ vfn sand, 54R 4/4		MH				Í			
		Clay!		CH			· ·	/			-
		Silt: Sand Gr-vfn 54R6/6		MH					5.0	5.0	-
5	5 —	Sand: med, 54R714, crs 5%		SW		<u> </u>		,	-		unater B V
1	_	Člay: Sand: med		CL							6.0
		Sand: fine	· . ·	SV/		<u> </u>		1		05	
10	, _	Sand: med-crs					2		10.0	c.b	
	-	Sand: vers, wrold, p.g.d				 1					-
	1	7.54 R6/4			ļ	<u> </u>					
	,						3		15.0	- 1.8	-
112		Sand: vers, wirdd, p.grd		SW							
1		1.54 Kg/4									-
	T T	Sand Vers, wrdd, p.grd, 58ch	rt la s	ISW G(ц I		20.	2.5	
þo)	Dearock 11.0, graves chay	~ *	145							<u></u>
	_	TD 20.0'				—					
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		Malan Table (04 theory)		ļ		PAPHIC IC		.FN			PAGE
		Water Table (Itime of Boring)						EBF		4/1/	03 1 of 1
z	PIE NO TYP	 Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method 				SILT		GHLY GHLY	ic (peat)	Auger	<u></u>
JATIO	$ \nabla$		ск		S 5	SAND	S S	ANI LAY	рү /	AEI	
(PLAN			ORE			GRAVEL	S S	LAY ANI		J. POC	R
۲ ۵		THIN- WALLED TUBE) COVER	Y	\mathbb{N}^{2}	SILTY			ē	ATSTING GRAD	DE ELEVATION (FT. AMSL) PIN 940. (Thr
	DEI RE	PTH Depth Top and Bottom of Sample C. Actual Length of Recovered Sample in	Feet			CLAYEY SILT	0_			900 N	- 150 E





Ну	KERR-McGEE CORPORATION drology Dept. Engineering Services	Cimarro	on	4	oation ODN	, (f)	ĩΟE	-	BORIN	BER T51
DEP		SHIC SHIC	UNIFIE	BLOWS			SOIL	SAMP	LE	
FEE			FIELD CLASS.	FOOT (F	opm)	NC.	C IFE	EPTH	REC.	FIELD OBSERVATIONS
	- Silt: w/ Vfn sand, 54	R414	MH							
	clay:					2				
	Silt: Tsand: En-VEN 54R6	16				1			50	-
5-	Sand: med, 54R714,	crs 5%	JSW				1-			
	Clay: - Sand: med	¥ \ \) CL		-					Water e
	Sand: fine		SV			j,				
10 -	Sand: med-crs					2	lo	.0	2.5	
	- Sand: vers, wrold, p.gr	d i:				1		•		_
	7.54R6/4		ĺ							_
سرر						3	15	G. 0	1.8	
- כו	Sand: vors, wirdd, p.g	rd	SW	<u>}.</u>						
	7.54 85 /4	•	1							
	Sand vers, und, p.gr	d 5% chert	SW			1		<u>^</u>	125	_
2 0 -	Bedrock 19.0, gravelet	clay pop	ac			4				
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	- Water Table (24 Hour)			GRAPH		G LEGE	D		DRILLED	2 of
PI N	 Water Table (Time of Boring) Photoionization Detection (ppm) Identifies Secols by North Second 	ı)		CLAY		Fill	RIS	DRILL	NG METHO	
	PE Sample Callection Method			SILT	Ę	CRGAN	NC (PEAT)	DRILL	LOLY	
	SPUT.	ROCK		SAND		SAN CLA	DY	A	ĒΙ	
					ء د ل		YEY D			2
	TUBE CONTINUOUS			SILTY CLAY	7			EXIST		ELEVATION IFT AMSLI
DE	PTH Depth Top and Bottom of Sam	لا ple			, -			-0CAT	8, 0 Ph	N 940.5 TOL
	EC. Actual Length of Recovered Sa	mple in Feet		لى تەربىيە مىلىيە 				190	NN_	150 E



н	KERR lydrolog	-McGEE CORPORATION y Dept. Engineering Services			m		LOCATION	V - L	5	DÊ	BORIN	G R	-50	7	
DE I FE	PTH N EET)N	GRAPHIC LOG	UNIFIED SOIL FIELD	BLOWS PER FOOT	PID (ppm)	NO.	SOI	IL SAMPLE DEPTH	REC.	RI	MARKS OBSERV	OR ATIONS	
5		Silt: fn sand, sy dry Slayey silt syr Sand: fn, w.srt, syr sil	R 5/4 5/4 p.grd		ML ML- CL SP			1		5			<u> </u>		<8:4 <u>;</u>
<i>i</i> t	, ~	Sand: fn, wsrt, s	34 85 44	 	Sp			2		10					- - - -
Æ		Sand: fn, 54RS Sand: mod, 54RS	76 516	· · ·	SP			3		15				 	•
2(Sand: fn w/ clay 104 R 3/6	layers	/// ///	SC			4		20				- 	
25	۔ ج _ ج 	tr SS pieces, 1/2 Sand: silty: 104R Bedrock: <u>SS</u> ; 26.1 TD 27.01	216	· · · · ·	SN		 	5 0		25 27.0					
		1 D & I.U											PAGE		09:01
EXPLANATION	PID NO. TYPE SB DEPTH REC.	Water Table (24 Hour) Water Table (Time of Boring Photoionization Detection (p Identifies Sample by Numbe Sample Collection Method PLIT- ARREL HIN- VALIED UBE H Depth Top and Bottom of So Actual Length of Recovered) r R C R R R Sample Sample in	OCK ORE COVER	ίλ		RAPHIC L CLAY SILT SAND GRAVEL SILTY CLAY CLAYEY SILT		EBRIS ILL GHIY RGANIC AND LAY LAYE		LED BY LED BY LED BY SED BY NING GRAD	A Vaha Vaha Voor E ELEVATIO 38.2 SRID COOR 45	DN (FT. AME DINKTES 0 E	1 936 2	

MONITON WELL

1	SOIL BO	RING LOG KM-S655-A										10AJ 1	noil WEI	
1	KI Hydro	ERR-McGEE CORPORATION bogy Dept. Engineering Services	KM SUBSIDI	IARY V VON			LOCATION	1201	.1	Niuvi	Jun Ni	DRING	F-68	3
-	DEPTH IN	LITHOLOGIC DESCRIPTIC)N	RAPHIC	UNIFIED SOIL FIELD	BLOWS PER FOOT	P(D (ppm)	NO	sc भि				REMARK FIELD OBSER	S OR VATIONS
	_	Silty Chay 7. 5yll strug bru stime:	s/1 <+		CL						+		·	
V	5_	Sict SAMDY we do	2pth.										Sample J fion Auso	escription r Higest
		Sana shik 5/4 ye solurotea	el red										SAMPLE	
		W-mge sand s	5:142	: •										
					SW									
	2 0 -	Shind focis g some is Shind focis g some is	(((5								4			
		sti inc silt sm grovels												
		- Red Shale +/ Bed.ock 27	1		>~									
	30 — - -	total deput 27	ı											
		Ked shold on bi	.+											
						6		OG LF	GEN		ATE DRIL	LED	PAGE	
		Water Table (Z4 NOU) Water Table (Time of Boring D Photoionization Detection (pr D. Identifies Sample by Number PE Sample Collection Method) om) r				CLAY SILT		DEBR ULL KGHLY XGAN	IIS IC (PEAT)	4-1 DRILLING 1-15 HRILLED B	METHON	04 1	of 1
		SPLIT- BARREL AUGER		ock Dre			GAND GRAVEL		SANE CLAY CLAY SANE	DY 'EY D	AE 	(AW	42(2	<u>-</u>
	DE R	PTH Depth Top and Battom of Sa EC. Actual Length of Recovered	imple Sample in	O COVER Feet	Ŷ		GILTY CLAY CLAYEY GILT			ī	OCATION	GRADE	ELEVATION (FT A	MSLI

Drilling Log

Project Name CERT	Project Num	ber				*******	Boring Number	89	L
Ground Elevation Loca	lign			*			Page 1 OF 2	.	
Air Monitoring Equipment							Total Foolage	; ⁽	
Drilling Type Hole Size	Overburde	n Foolage		Bedroc	(Footag	e 1	No. of Samples	N	o, of Core Boxes
HSA 81/4"	NA	Ϋ́	٠	N	A		NA		КĄ
Dritting Company TEDIUS ENUL PRINCENTAL T	ennisc		Do	ller(s) KolAu	n D	UC			
Drilling Rig CULF	<u> </u>		Tyr Sa	mpler	y the		· do lo		
Date 4-11-11 To 2	+-11-11		Fic	<u>مر</u> ال Obser	rer(s)	RAW	1020		
Depth (feet) Description	·····	Class -	Blow Count	Recov.	Run/ Time	Sample Dasig.	PID (ppm) B2 BH	s	Remarks/ Water Levels
- upper L' root zone		-			1000		Cuttines		- -
1 = Silty Clay reddise	brown						Scanned		
= tim low phastic	moist						with hudl	he-	
2-	, , ,			5			micro R		•
- Dith Some clan	5:14			.5			meter -		-
3- 	7 4 4 4						All reading	51	PERCHEN -
4- Silt reddish brow	n						Hur and	ne.	3.5
A' sand findente	1						Man Dur		
5 - Sinded loose will	Pourly			5	1010		anning .		هد بیستر من
- Moist Silty	w oranje								<u> </u>
6- Sand belowing fine by	በ _{ወይ} ብረ የ								
= grained wellgroded	rd bru			3					
				1					بر بر
8 - No Recovery									-
									۰. ب
9									
10				10					Marana Marana Sana Sana Sana Sana Sana Sana Sana
- Description from p	uzed							:	At 10',
11- Rights	V								wood -
= Siand light brown.	v yallas	1							plus in .
12- ominge bose sal	ursted								Horden 12. [
		4							- -
10-									•
14 -	*****			 					-

Drilling Log Continuation

										Boring Number T-84				
Project N	ame CERT						Page	20	DE.	2				
Project N	umber		1				Date	4	-11	-11				
Depth (feet)	Description	Class	Blow	Recov.	Aur/ Time	Sample		PIE) (ppm) вн)	Remarks/ Water Levels			
(1001)	Description	<u>`</u> _			11110	Desig.	02		on.	्ञ				
				15	1025	 								
	-													
	SAND fin to Coracio Grainel										-			
/@	Sille will a called													
	any wargineses													
17-	COSE SOME SMOLL													
1	GRAUL (MAY. 5mm)													
18-														
19_											-			
20				-										
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21-	,													
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2]				-			
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Zų-	C													
	Dand time to very													
25-	Cecrse grained Silty			25	103'	-								
-	Small grance. My													
26	1/4 °						ļ							
											1			
27								1101	10	L. 11 . 0				
	SANDStone upg brick red						ייען מע	(144 (1.1.1.1)	rect C D-f	ド 4 <i>CH</i> 1 リウン・				
28-	, , , , , , , , , , , , , , , , , , ,	_]~1	27 -	CRULLAY			
											······································			
29	Total depth 28'													
3m				.							-			
				l										
						<u> </u>								

SOIL BORING LOG

			SUBSIDIARY		LOCATION					BORIN	G FR - 07
DE	IMA	HON SITE	19	UNIFIED		WESTER	N AU	<u>vv</u>	IAL AREA		1-1+
FE	NET	LITHOLOGIC DESCRIPTION	RAPHI LOG	SOIL FIELD	PER FOOT	PID (ppm)	NO.	YPE	DEPTH	REC.	REMARKS OR FIELD OBSERVATIONS
5		0-4' LIGINT TAN TO BROW SAUD, VERY FINE GRA DRY (IOR 3/1) 4-10' TAN TO BROWN SILT SOME MUD STRINGS, PLASTICITY, SOME MC (2.5Y 8/8) 10-20' TAN TO DRWN SP	N INIEDI I SAUDI LOW NOTURE	SP				P		100%	
15	1111111	FINE to medium or Low plasticity, som maisture Saturated of 14	ARE ARE	SP					_	100%	
25		20-25' LIGHT TAN SAUD, GAAWEP WITH SOME LOW PLASTICITY, SOM MOISTURE 25-30 LIGHT TAN SAUD, N TO COARSE GIDANED, O GRAVEL, LOW PLASTIC WET	MEDIUM GRAVCL, MEDIUM MEDIUM WITH LITY,	SP						100%	
35		30-31 RED BROWN SAUDSTON	<u>ve</u> 🔆	SP							
	<u>_</u>	Water Table (24 Hour)			G	RAPHIC L	OG LEC	SEN	D DATE	DRILLED	PAGE
EXPLANATION		Water Table (Time of Boring) Photoionization Detection (pp. Identifies Sample by Number Sample Collection Method SPLIT- BARREL THIN- WALLED TUBE PTH. Depth Top and Bottom of Sam	m) ROCK CORE NO RECOVER	RY		CLAY SILT SAND GRAVEL SILTY CLAYEY SILT		CLAY	IS 12 DRILLL	A PLES	TEM AUGER . CLARK ANLOR E ELEVATION (FT. AMEL) RID COORDINATES
	RE	C. Actual Length of Recovered S	ample in Feet						_		

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	KE	ERR-MCGEE CORPORATION	KM SUBSIC	ARY			LOCATION			- <u></u>	{	BORIN	G
-	Hy	drology Dept S&EA Division	Cima	<u> </u>	<u> </u>	<u>rp.</u>	Bur	ialA	180	<u>a #1</u>		NUMB	ER 900 N- 12351
	DEPTH IN FEET	LITHOLOGIC DESCRIPTI	ON	I N N N N N N N N N N N N N N N N N N N	UNIFIED SOIL FIELD	PER 5'	PID (ppm)		sc स	DIL SA	MPLE	REC	REMARKS OR FIELD OBSERVATION
		brn sdy silt being sil rd brn @ 2.5-3'	Hy sd		Sm							3	
				X			 			,	к	-	
	5	Yell of sity 3d become Yell born silty so	ing							<u> </u>			
2		Silty clay yellow rea stift crumbly non-pl wet say slt soft sli	d lastic dilat		SC	-				١٢		વન્ન	
		Clayey Sand Yelled f Sli plastic	-\ e 30.	1. S.	SC					<u> </u>		11 10	
		Sty clay yell red - rd 1 Stiff blk Strke 13-15 rd clay sdy lar	brn ns plastic	ALL				 		:	5	Ч·У	
		18.3-18.5 Silly gravel	rd yell	96986	mL							4,6	
	20 	rd brn sity clay wet sity shale red rd sdy shale	bl Ky soft	三						20	>	3.5	
				<u>.[:[:</u> [:			 			23	.5		Chips dates -
	45 	TD 23.5											
	-												
	-												
F		Water Table (24 Hour)		1	<u>L</u>	G	RAPHIC LO) GEN		DATE	DRILLED	PAGE
		Water Table (Time of Boring Photoionization Detection (p	9) 1977)						EBR	15		-30 -	99 1 of
ł		2. Identifies Sample by Number 2. Sample Collection Method	21			s IIII s	al t		IGHLY HRGANE	IC (PEAT)	DRILL	ËD ØY	
		SPLIT- BARREL AUGER	R	DCK DRE			SAND		LAY	ΈY	Ho	CIZO ED BY	<u>n</u>
		THIN- WALLED CONTINUOUS TUBE SAMPLER		D COVER	Y		SILTY CLAY		she	ale) EXISTI		awtord E elevation ift ameli
1			<u> </u>							-			

KE Hydrol	RR-McGEE CORPORATION ogy Dept. Engineering Services	CIMF	IARY ARIZO	N)		LOCATION AUVI	liUar	ı			BORIN NUMB	G T-67
DEPTH			DHIC	UNIFIED SOIL	BLOWS	PID		sc	IL SA	MPLE		REMARKS OR
FEET		//N	GRA	FIELD CLASS.	FOOT	(ppm)	NO.	ТҮРЕ	DEPI	гн	REC.	FIELD OBSERVATIO
	SANdy CLAY 5YR 4/4	redish	14									DRILING
	brown soft moist		N,	el								875 AUSER
						_						HOLE
54		,	.\.\.									
-1	SAND STRAIL YEU	red										SAMPLES
-	f-med gr. moist			SP								Logged from
10 -	unconsol p. grade	À.										AUGER FLIGH
<u>' •</u>		0	• •				1	·				
	SALL Date loom &	Ĺ.										
1SI	OANG HIGH WING 3)A(-01								
_				SM		_		i 📕				
-				SM								
						_						
-20	SAND SYR4/4 Ye	u red										
_	E-Marie 11 Sma Cos	c cr										
	has we list up	ייכי	- `									
	Trems ners 20021			SM								
~~	Sand m-v crs go	-				_						
_	doupy		•••	Sin		_						
		·	L.	24							-	
<u> 30</u>	Sdy Clay OTR Y	8 red				<u> </u>						Bed rolle at
_	`					<u> </u>						28.5 tt
_	TD 29'											
										·		
35												
-												
						_						
_				• • •								
_	Water Table (24 Hour)				GI	RAPHIC L	OG LE	GEN	D	DATE	DRILLED	PAGE of
	Water Table (Time of Boring) Photoionization Detection (or)) m)				CLAY		DEBRI	IS .		ING METH	
Z TYP	. Identifies Sample by Number E Sample Collection Method	,			s 🗐 🗐	il.ť		HGHLY DRGAN⊨	C (PEAT)	t-	ISA	
		ר∎ר			. 100	AND		SAND	Ŷ	A		D. TAGANA.
	SPLIT- BARREL AUGER		DCK DRE			UKINU	- <u>52</u> (CLAT	EY	LOGG		
			`			GRAVEL	- E3 9	SANC) 			ELEVATION IFT AMSU
	WALLED SAMPLER		COVER	Y		LAY				١١ ي		
	TH Depth Top and Bottom of Sa	mole				LAYEY			ŀ	LOCAT		GRID COORDINATES

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4, -

201	E BC	DRING LOG KM-5655-A			<u> </u>						
н	KI Iydro	ERR-McGEE CORPORATION	LARY	~		BG	1			BORIN	G ER Tanw-24
DEI	PTH N	LITHOLOGIC DESCRIPTION	LOG	UNIFIED SOIL FIELD	BLOWS PER	PID (ppm)		SC H			REMARKS OR FIELD OBSERVATION
		Schy CLAY BRN ARM STIFF TO REDISH TAN VEG SLI SAND REDISH TAN VEG SLI SLTY LOOSE MOIST SAND BUFF MD GR LIGAN MOIST SAND TAN F-CRS S LOOSTE UNCONSOL		ELD CLASS. CL SWA SM	FOOT	(ppm)	NO.		DEPTH	REC. 3.5 0 2 1.8	FIELD OBSERVATION FLOWING SANDS ROR SAMPLE REC. AHARM - OUT
Z		RED CLAY WY CRS SAND TR GRAVEL NOTED ON AUGERS	X							0	
3		Total Depth 28'									
EXPLANATION		Water Table (24 Hour) Water Table (1ime of Boring) Photoionization Detection (ppm) Identifies Sample by Number E Sample Collection Method SPLIT- BARREL AUGER THIN- WALLED TUBE CONTINUOUS SAMPLER	OCK ORE COVER	Y		RAPHIC L LAY ILT AND GRAVEL ILTY LAY		GEN ILL IGHLY IGHLY IGHLY IGHLY IGHLY IGHLY		TE ORILLED 5/15/00 1/LING METH HSA ILLED BY GGED BY J. CRA ISTING GRAD	PAGE) of] od N WFORCO E ELEVATION IFT. AMSL) SRID COORDINATES

APPENDIX B – FIELD PARAMETER SAMPLING FORMS

Sample Location: T-67-9.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1223

Volume Purged: 0.60

Purge End Time: 1230 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1226	7.1	1170	15.1	0.95	-22.0	OOR
600	1228	7.0	1170	15.5	0.62	-23.7	425
600	1230	7.0	1170	15.6	0.58	-27.2	186
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1230

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-67-9.6
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with	HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachme	nt 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equip	nent decontaminated per EPM-SAP-107	KF

Sample Location: T-67-11.6 + DUP

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1233

Volume Purged: 0.60

Purge End Time: 1240 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
400	1236	7.0	1190	14.4	0.54	76.2	OOR
400	1238	7.0	1190	15.1	0.44	53.0	270
400	1240	7.0	1190	14.9	0.35	43.2	88.4
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1240

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location I	D: T-67-11.6 + DUP
Checklis	st Item		Sampler Initials
<u>Pre-Sam</u>	pling		
Depth to paramete	water and total well depth measu er form	ired and recorded on field	KF
Well purg on the fie	ed a minimum of three (3) well o Id parameter form if deviating fro	asing volumes (make notation m SAP)	KF
Field para notation i	ameters collected and recorded of feverating from SAP)	on field parameter form (make	KF
Filtered S	Samples Collected		
Uranium	– U235 & U238 by EAP 200.8 –	250 ml plastic bottle preserved with HNO3	KF
QA/QC s	amples collected (duplicate sam	bles as indicated on APF Attachment 1)	KF
<u>Post-Sar</u>	npling		
Samples	property labeled and placed in c	oolers on ice as needed	KF
Field Para	ameter Form completed per EPN	1-SAP-111	KF
Used filte	rs collected and bagged for HP	screening	KF
All equipr	ment decontaminated per EPM-S	AP-107	KF

Sample Location: T-67-13.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1244

Volume Purged: 0.40

Purge End Time: 1250 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1247	7.1	1290	15.7	0.49	-87.6	OOR
500	1249	7.0	1280	15.7	0.35	-97.6	846
500	1250	7.0	1310	15.9	0.26	-93.7	398
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1250

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-67-13.6
Checkli	st Item	Sampler Initials
Pre-Sam	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make if deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-67-15.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1252

Volume Purged: 0.50

Purge End Time: 1258 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	рН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
600	1255	6.9	1320	16.2	0.33	-55.1	444
600	1256	7.0	1340	16.4	0.16	-73.0	232
600	1258	6.9	1340	15.9	0.14	-82.1	65.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1258

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-67-15.6
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-67-17.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1259

Volume Purged: 0.70

Purge End Time: 1305 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pH (std_units + 0_1)	S. Conductivity	Temperature $(^{\circ}C + 0.1^{\circ})$	DO (ma/L)	ORP (mV)	Turbidity
600	1303	6.9	1280	16.7	0.15	105.7	159
600	1304	7.0	1280	16.8	0.14	112.5	178
600	1305	7.0	1280	17.0	0.21	114.7	65.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1305

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-67-17.6
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-67-19.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1307

Volume Purged: 0.60

Purge End Time: 1314 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (<i>ml/min</i>)	Time	pH <i>(std. units</i> ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1310	7.0	1270	16.0	0.28	-9.6	283
500	1312	7.0	1250	16.1	0.14	-51.6	96.3
600	1314	7.0	1250	16.5	0.14	-72.4	29.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1314

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-67-19.6
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-67-21.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1316

Volume Purged: 0.75

Purge End Time: 1322 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (um/cm)	Temperature (°C ± 0.1°)	DO (ma/L)	ORP (mV)	Turbidity (NTU)
600	1318	7.0	1250	16.1	0.30	-55.6	643
500	1320	7.0	1250	16.2	0.16	-90.2	156
600	1322	7.0	1250	16.3	0.13	-95.9	29.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1322

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-67-21.6
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-67-23.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1325

Volume Purged: 0.50

Purge End Time: 1332 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1328	7.0	1880	15.8	1.88	58.1	243
500	1330	7.0	1890	15.9	0.96	65.0	57.7
500	1332	7.0	1950	16.0	0.51	40.6	20.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1332

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-67-23.6
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make if deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-67-25.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1335

Volume Purged: 0.75

Purge Date: 12/14/2016 Well Depth (± 0.1ft.): 31.05 Casing Volume (± 0.1gal.): 3.25

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	рН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
600	1336	6.9	3580	16.4	1.48	17.6	165
600	1338	6.9	3610	16.4	1.45	22.3	22.3
600	1340	6.9	3650	16.5	1.50	30.9	20.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1340

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan
Date:	12/14/2016	Sample Location ID: T-67-25.6
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-67-27.6

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1343

Volume Purged: 0.75

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

		FIELD P	ARAMETER LOC	3			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/14/2016

Sample Time: 1340

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/14/2016	Sample Location ID: T-67-27.6
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa parameter f	ater and total well depth measured and recorded on field form	KF
Well purgeo on the field	d a minimum of three (3) well casing volumes (make notation parameter form if deviating from SAP)	KF
Field param notation if c	neters collected and recorded on field parameter form (make leviating from SAP)	KF
Filtered Sa	Imples Collected	
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved v	with HNO3 KF
QA/QC san	nples collected (duplicate samples as indicated on APF Attach	ment 1) N/A
Post-Samp	bling	
Samples pr	operty labeled and placed in coolers on ice as needed	KF
Field Paran	neter Form completed per EPM-SAP-111	KF
Used filters	collected and bagged for HP screening	KF
All equipme	ent decontaminated per EPM-SAP-107	KF

Sample Location: T-67

Depth to Water (± 0.1ft.): 11.08

Water Column (± 0.1ft.): 19.97

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 1205

Volume Purged: 13.00

FIELD PARAMETER LOG							
Purge Volume	pН	Specific Conductivity	Temperature				
(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)				
3.25	7.2	1350	16.1				
6.50	7.3	1440	17.3				
9.75	7.3	1470	17.7				
13.00	7.3	1488	17.5				
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %				

Sample Date: 12/14/2016

Weather: Cold and Clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 31.05

Casing Volume (± 0.1gal.): 3.25

within 24 hours of purge time)

Purge End Time: 1210 (Note: Sample must be collected

Sample Time: 1210

Date: 12/14/2016

Date:	12/14/2016	Sample Location ID: T-67
Checkli	st Item	Sampler Initials
Pre-Sam Depth to paramete	pling water and total well depth measured and recorded on field er form	DK
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	DK
Field par notation	ameters collected and recorded on field parameter form (make if deviating from SAP)	DK
<u>Filtered</u>	Samples Collected	
Uranium	- U235 & U238 by EAP 200.8 - 250 ml plastic bottle preserved with HI	NO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachment 1) N/A
<u>Post-Sa</u>	mpling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Pa	rameter Form completed per EPM-SAP-111	DK
Used filte	ers collected and bagged for HP screening	DK
All equip	ment decontaminated per EPM-SAP-107	DK

Sample Location: T-68-9.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 30.05

Casing Volume (± 0.1gal.): 3.15

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0817

Volume Purged: 0.60

Purge End Time: 0827 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
400	0822	7.1	810	12.0	1.42	-29.2	371
400	0824	7.1	810	12.1	0.93	-36.5	92.3
400	0826	7.1	810	12.0	0.89	-38.5	44.7
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 0827

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016 5	Sample Location ID: T-68-9.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered 3	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with	HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachme	nt 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-11.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0830

Volume Purged: 0.50

Purge Date: 12/14/2016 Well Depth (± 0.1ft.): 30.05 Casing Volume (± 0.1gal.): 3.15

Purge End Time: 0840 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	рН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
350	0835	7.1	960	12.3	0.59	-72.5	OOR
350	0837	7.0	990	12.5	0.45	-76.7	892
350	0839	7.1	1010	12.6	0.34	-80.3	164
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 0840

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-68-11.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-13.2 + DUP

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 30.05 Casing Volume (± 0.1gal.): 3.15

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0845

Volume Purged: 2.00

Purge End Time: 0855 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
500	0850	7.0	1070	15.5	0.22	-44.5	75.9
500	0852	7.0	1130	16.2	0.40	-43.2	20.3
500	0854	7.0	1140	16.4	0.24	-36.1	14.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 0855

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location I	D: T-68-13.2 + DUP
Checklis	st Item		Sampler Initials
<u>Pre-Sam</u>	pling		
Depth to paramete	water and total well depth measur er form	ed and recorded on field	KF
Well purg on the fie	ed a minimum of three (3) well ca Id parameter form if deviating from	sing volumes (make notation a SAP)	KF
Field para notation i	ameters collected and recorded or f deviating from SAP)	field parameter form (make	KF
Filtered \$	Samples Collected		
Uranium	– U235 & U238 by EAP 200.8 – 2	50 ml plastic bottle preserved with HNO3	KF
QA/QC s	amples collected (duplicate sampl	es as indicated on APF Attachment 1)	KF
Post-Sar	npling		
Samples	property labeled and placed in co	plers on ice as needed	KF
Field Para	ameter Form completed per EPM-	SAP-111	KF
Used filte	rs collected and bagged for HP so	reening	KF
All equipr	ment decontaminated per EPM-SA	P-107	KF

Sample Location: T-68-15.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0900

Volume Purged: 0.75

Purge Date: 12/14/2016 Well Depth (± 0.1ft.): 30.05 Casing Volume (± 0.1gal.): 3.15

Purge End Time: 0907 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
500	0903	7.0	1210	16.4	1.07	-30.3	190
500	0905	7.0	1220	16.7	0.53	-41.0	114
500	0907	7.0	1230	16.8	0.32	-53.3	23.0
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 0907

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-68-15.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-17.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0910

Volume Purged: 600 ml

Purge End Time: 0917 (Note: Sample must be collected

within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
100	0916	7.1	2360	7.0	4.15	33.4	OOR
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 0917

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/14/2016

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 30.05

Casing Volume (± 0.1gal.): 3.15

Date:	12/14/2016	Sample Location ID: T-68-17.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-19.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 30.05

Casing Volume (± 0.1gal.): 3.15

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0925

Volume Purged: 600 ml

Purge End Time: 0935 (Note: Sample must be collected within 24 hours of purge time)

					-		
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
100	0930	7.4	2550	8.5	3.71	-80.3	OOR
NO FLOW	0935						
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 0935

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-68-19.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-21.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0940

Volume Purged: 600 ml

Well Depth (± *0.1ft.*): 30.05 Casing Volume (± *0.1gal.*): 3.15

Purge Date: 12/14/2016

Purge End Time: 0950 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
150	0945	7.3	4530	9.3	2.83	-201.8	OOR
150	0948	7.2	4580	9.6	1.48	-234.6	OOR
150	0950	7.2	4800	9.8	1.31	-244.6	731
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/14/2016

Sample Time: 0950

Date:	12/14/2016	Sample Location ID: T-68-21.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make if deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachr	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-23.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Casing Volume (± 0.1gal.): 3.15

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0955

Volume Purged: 600 ml

Purge End Time: 1005 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
100	1005	7.3	4060	7.9	2.66	-189.4	OOR
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/14/2016

FIELD PARAMETER LOG

Sample Time: 1005

Well Depth (± 0.1ft.): 30.05

Purge Date: 12/14/2016

Date:	12/14/2016	Sample Location ID: T-68-23.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-25.2

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 30.05

Casing Volume (± 0.1gal.): 3.15

olumn (± 0.1π .): 19.34

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1010

Volume Purged: 850 ml

Purge End Time: 1017 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
<50 // GRAB	1017						
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1017

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-68-25.2
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	N/A
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	N/A
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68-26.4

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 30.05

Casing Volume (± 0.1gal.): 3.15

Water Column (± 0. m.). 18.84

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1027

Volume Purged: 850 ml

Purge End Time: 1042 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
130	1036	7.3	3710	9.7	4.20	-69.8	OOR
130	1039	7.2	3840	10.0	3.19	-80.2	OOR
130	1042	7.2	3700	9.7	2.43	-86.4	OOR
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/14/2016

Sample Time: 1042

Date: 12/14/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/14/2016	Sample Location ID: T-68-26.4
Checkli	st Item	Sampler Initials
Pre-Sam	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	KF
Field par notation	ameters collected and recorded on field parameter form (make if deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sa</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-68

Depth to Water (± 0.1ft.): 10.71

Water Column (± 0.1ft.): 19.34

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 0750

Volume Purged: 12.60

FIELD PARAMETER LOG						
Purge Volume	pН	Specific Conductivity	Temperature			
(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)			
3.15	7.3	1805	17.3			
6.30	7.3	1745	17.3			
9.45	7.3	1713	17.8			
12.60	7.3	1691	18.6			
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %			

Sample Date: 12/14/2016

Weather: Cold and Clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Purge Date: 12/14/2016

Well Depth (± 0.1ft.): 30.05

Casing Volume (± 0.1gal.): 3.15

within 24 hours of purge time)

Purge End Time: 0755 (Note: Sample must be collected

Sample Time: 0755

Date: 12/14/2016

Date:	12/14/2016	Sample Location ID: T-68
Checkli	st Item	Sampler Initials
Pre-Sam Depth to paramete	pling water and total well depth measured and recorded on field er form	DK
Well purg	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	DK
Field par notation	ameters collected and recorded on field parameter form (make if deviating from SAP)	DK
<u>Filtered</u>	Samples Collected	
Uranium	- U235 & U238 by EAP 200.8 - 250 ml plastic bottle preserved with HI	NO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachment 1) N/A
Post-Sa	mpling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Par	rameter Form completed per EPM-SAP-111	DK
Used filte	ers collected and bagged for HP screening	DK
All equip	ment decontaminated per EPM-SAP-107	DK

Sample Location: T-84-6.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1328

Volume Purged: 0.50

Well Depth (± 0.1ft.): 29.85 Casing Volume (± 0.1gal.): 3.17

Purge Date: 12/13/2016

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
200	1335	7.2	1310	8.8	12.05	95.0	343
	1337	7.1	900	7.9	12.06	200.8	154
	1339	7.2	840	7.5	12.20	166.2	42.6
	1340	7.1	810	7.8	12.14	154.3	23.4
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Sample Time: 1340

Date: 12/13/2016

Date:	12/13/2016	Sample Location ID: T-84-6.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered 3	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with	HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachme	nt 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equip	nent decontaminated per EPM-SAP-107	KF

Sample Location: T-84-8.9 + DUP

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.85

Casing Volume (± 0.1gal.): 3.17

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1352

Volume Purged: 1.25

Purge End Time: 1403 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1356	7.2	710	15.6	0.47	126.8	OOR
	1359	7.2	700	15.7	0.27	47.5	259
	1403	7.2	700	15.7	0.24	23.5	106
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1403

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-84-8.9 + DUP
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on fie er form	eld KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make n Id parameter form if deviating from SAP)	otation KF
Field para notation i	ameters collected and recorded on field parameter form f deviating from SAP)	(make KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle pre	eserved with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on AP	F Attachment 1) KF
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-10.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1406

Volume Purged: 1.00

Well Depth (± *0.1ft.*): 29.85 Casing Volume (± *0.1gal.*): 3.17

Purge Date: 12/13/2016

Purge End Time: 1415 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	рН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
500	1411	7.2	780	16.2	1.47	-46.8	469
	1413	7.2	790	16.3	0.72	-36.5	157
	1415	7.2	800	16.3	0.38	-45.3	79.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1415

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/13/2016

Date:	12/13/2016	Sample Location ID: T-84-10.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-12.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1420

Volume Purged: 1.00

Purge Date: 12/13/2016 Well Depth (± 0.1ft.): 29.85 Casing Volume (± 0.1gal.): 3.17

Purge End Time: 1429 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pH	S. Conductivity	Temperature	DO (mg/l.)	ORP	
(1111/1111)		$(S(U, U)) \leq U(T)$	(µ/////////////////////////////////////	(0±0.7)	(IIIg/L)	(1117)	(1110)
600	1424	7.1	1040	15.6	1.01	-21.0	327
	1426	7.1	1080	15.8	0.61	-18.5	90.6
	1429	71	1090	15.5	0.42	-25.5	33.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1429

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-84-12.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-14.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1430

Volume Purged: 0.60

Purge Date: 12/13/2016 Well Depth (± 0.1ft.): 29.85 Casing Volume (± 0.1gal.): 3.17

Purge End Time: 1438 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pH	S. Conductivity	Temperature $(°C + 0.1°)$	DO (mg/l)	ORP	
(111//1111)		$(S(U, U)) \leq U(U)$	(µ/////////////////////////////////////	$(C \pm 0.1)$	(IIIg/L)	(1117)	(1110)
500	1434	7.0	1490	15.6	1.50	-27.7	OOR
	1436	7.0	1540	16.0	0.76	-40.0	103
	1438	7.0	1550	16.1	0.37	-44.1	99.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1438

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan
Date:	12/13/2016	Sample Location ID: T-84-14.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-16.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Well Depth (± 0.1ft.): 29.85

Purge Date: 12/13/2016

Casing Volume (± 0.1gal.): 3.17

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1442

Volume Purged: 1.00

Purge End Time: 1450 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
500	1445	7.0	2320	16.1	0.83	5.1	588
	1447	7.0	2370	16.0	0.32	8.1	68
	1449	7.0	2450	15.9	0.37	-44.1	43.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1450

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-84-16.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-18.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1454

Volume Purged: 0.25

Well Depth (± *0.1ft.*): 29.85 Casing Volume (± *0.1gal.*): 3.17

Purge Date: 12/13/2016

Purge End Time: 1505 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pH (std. units + 0.1)	S. Conductivity	Temperature $(^{\circ}C + 0.1^{\circ})$	DO (mg/L)	ORP	
(111//11111)		$(3lu. ullits \pm 0.1)$	(µm/cm)	(0±0.7)	(IIIg/L)	(1110)	(1110)
140	1500	7.0	3970	10.7	1.28	-41.1	401
	1503	7.1	4250	9.8	1.04	-41.4	98.4
	1505	7.1	4310	9.8	1.16	-36.8	66.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1505

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-84-18.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	vith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-20.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1512

Volume Purged: 0.40

Well Depth (± 0.1ft.): 29.85 Casing Volume (± 0.1gal.): 3.17

Purge Date: 12/13/2016

Purge End Time: 1520 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
150	1515	7.3	3450	9.5	2.87	-60.4	OOR
	1517	7.3	3460	9.6	13.9	-83.1	OOR
	1520	7.3	3680	9.1	0.88	-203.3	66.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1520

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/13/2016

Date:	12/13/2016	Sample Location ID: T-84-20.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-22.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1528

Volume Purged: 0.25

Purge Date: 12/13/2016 Well Depth (± 0.1ft.): 29.85 Casing Volume (± 0.1gal.): 3.17

Purge End Time: 1540 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (um/cm)	Temperature $(^{\circ}C \pm 0.1^{\circ})$	DO (ma/L)	ORP (mV)	Turbidity (NTU)
100	1534	7.3	3620	7.5	2.64	-8.7	OOR
	1537	7.3	3630	6.5	1.40	-26.8	290
	1540	7.3	3720	6.4	1.36	-125.7	98.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1540

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/13/2016

Date:	12/13/2016	Sample Location ID: T-84-22.9
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-84-24.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1547

Volume Purged: N/A

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.85

Casing Volume (± 0.1gal.): 3.17

Purge End Time: 1555 (Note: Sample must be collected within 24 hours of purge time)

Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
	(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
	•					
N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A
	Time N/A	Time pH (std. units ± 0.1)	Time pH S. Conductivity (μm/cm) (std. units ± 0.1) (μm/cm) 1 1	TimepH (std. units \pm 0.1)S. Conductivity (µm/cm)Temperature (°C \pm 0.1°)Image: Second stateImage: N/A3 samples \pm 0.1 unit3 samples \pm 10 %3 samples \pm 10 %	TimepH (std. units ± 0.1)S. Conductivity ($\mu m/cm$)Temperature (°C $\pm 0.1^{\circ}$)DO (mg/L)Image: Second state of the	TimepH (std. units \pm 0.1)S. Conductivity (µm/cm)Temperature (°C \pm 0.1°)DO (mg/L)ORP (mV)Image: Double of the state of the

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/13/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/13/2016	Sample Location ID: T-84-24.9
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa	ater and total well depth measured and recorded on field form	KF
Well purge on the field	d a minimum of three (3) well casing volumes (make notation parameter form if deviating from SAP)	KF
Field paran notation if c	neters collected and recorded on field parameter form (make deviating from SAP)	KF
Filtered Sa	amples Collected	
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 N/A
QA/QC sar	nples collected (duplicate samples as indicated on APF Attach	nment 1) N/A
Post-Samp	<u>oling</u>	
Samples p	roperty labeled and placed in coolers on ice as needed	N/A
Field Parar	neter Form completed per EPM-SAP-111	N/A
Used filters	collected and bagged for HP screening	N/A
All equipme	ent decontaminated per EPM-SAP-107	N/A

Sample Location: T-84-26.9

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1557

Volume Purged: N/A

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.85

Casing Volume (± 0.1gal.): 3.17

Purge End Time: 1600 (Note: Sample must be collected within 24 hours of purge time)

		FIELD P	ARAMETER LOC	3			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/13/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/13/2016	Sample Location ID: T-84-26.9
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa	ater and total well depth measured and recorded on field form	KF
Well purge on the field	d a minimum of three (3) well casing volumes (make notation parameter form if deviating from SAP)	KF
Field paran notation if c	neters collected and recorded on field parameter form (make deviating from SAP)	KF
Filtered Sa	Imples Collected	
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved v	with HNO3 N/A
QA/QC sar	nples collected (duplicate samples as indicated on APF Attach	Iment 1) N/A
Post-Samp	bling	
Samples pi	operty labeled and placed in coolers on ice as needed	N/A
Field Parar	neter Form completed per EPM-SAP-111	N/A
Used filters	collected and bagged for HP screening	N/A
All equipme	ent decontaminated per EPM-SAP-107	N/A

Sample Location: T-84

Depth to Water (± 0.1ft.): 10.37

Water Column (± 0.1ft.): 19.48

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.85

Casing Volume (± 0.1gal.): 3.17

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 1305

Volume Purged: 12.68

Purge End Time: 1310 (Note: Sample must be collected within 24 hours of purge time)

Purge Volume	pH	S. Conductivity	Temperature
(galions)	(S(U, U)) = (S(U, U))	(µ/////////	(0 ± 0.7)
3.17	7.1	2060	14.0
6.34	7.1	2030	16.8
9.51	7.1	2040	18.0
12.68	7.1	2100	17.9
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/13/2016

Sample Time: 1310

Date:	12/13/2016	Sample Location ID: T-84
Checklis	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	DK
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	DK
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	DK
Filtered S	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HI	NO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachment 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Para	ameter Form completed per EPM-SAP-111	DK
Used filte	rs collected and bagged for HP screening	DK
All equipr	nent decontaminated per EPM-SAP-107	DK

Sample Location: $T - 97 - 11.7$		Purge Date:/෭//෭/
Depth to Water (± 0.1ft.): 13.2 ' عتىد		Well Depth (± 0.1ft.):32.5 ¹ 8700
Water Column (± 0.1ft.): 19.3		Casing Volume (± 0.1gal.):
Purge Method (pump & type, bailer & type, etc.):	Peristallic	Pump
Purge Start Time: 20 Purge End 1	rime: <u>// 4Հ</u>	(Note: Sample must be collected
Volume Purged: <u>1.0 gnl</u>		within 24 hours of purge time)

			FIELI	D PARAMETER I	_OG			
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Redu Potential (OF	iction RP)	
	(gallons)	(std. units ± 0.1)	(um/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1)	TU 10. (NTU	Flow Ratil my
0	< 0 25	7.29	0.76	12.0	4.27	185.9		200
35	- 0.4	7-25	0.88	13.5	27.9%	140.4	10.9	200
38	0.5	7.27	0.87	13.1	2.25	156.3		200
0	0.6	7.26	0.89	13.2	2.07	155.6	6,54	200
					-			
			A		12/12/16			
-	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %		

11

Sample Date: <u>'z/iz/is</u> Weather: Sample Time: ______ (T-97-11.7) 50's Char Sample Method (bailer (type), pump (type), scoop (type), etc.): Peri - Pump. Sample Appearance: _____ Chal Date: 12/12/16 Sampler (print name): Kevin Fagan

	Sample Locati	ion: <u></u>	- 13.7		Ρι	ırge Date:i	2/12/16	, ,
	Depth to Wate	er (± 0.1ft.):	~/ R		Well Dep	oth (± 0.1ft.):	~	/n
	Water Column	n (± 0.1ft.):	N/A		Casing Vol	lume (± 0.1gal.)	بر:	/ <u>A</u>
	Purge Method	(pump & type,	bailer & type, etc.):	Peri	- Pump			
	Purge Start Ti	me: <u>1151</u>	Purge Ei	nd Time:نعد	(Note:	Sample must b	e collecte	ed
	Volume Purge	ed:\$	jallon s		within	24 hours of pu	rge time)	
			FIELI	D PARAMETER I	LOG			
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Rec Potential (C	luction)RP)	Fin kali
	(gallons)	(std. units ± 0.1)	(µn/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1)) Turbi	T Joto Marti
51	-	_		Section and the section of the		1	'	200
155	D : B	7.30	0-78	13.9	3.39	124.3	841	200
158	1.2	7.30	0.74	14.7	3.84	133.0	202	200
1020	2.0	°7-30	0.72	14-8	4, 14	133.5	90.7	200
1204	2.3	7.30	0-72	14.8	4.29	136.2	53-1	200
	~		A	2	12/12/16			
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sample ± 10 %	es	
	Sample Date:	12/12/16			ę	Sample Time:	1206	(1-97-13
	Weather:	: .	elman, 50's	· · · · · · · · · · · · · · · · · · ·				
	Sample Metho	od (bailer (type)	, pump (type), scoop Per,	(type), etc.): - Aump				
	Sample Appea	arance:	(icua I	·····			
	Sampler <i>(print</i>	name):	Kevin Fayan		Date	12/12	116	
	Note: Use cha	in of custody fo	orm to indicate which	sample bottles w	ere filtered and fil	ter size.		

	Sample Locat	ion:	1 - 15.7		P	urge Date:	12/12/	116
	Depth to Wate	er (± 0.1ft.):	N/A		Well De	pth (± 0.1ft.):	N/A	
	Water Column	n (± 0.1ft.):	NA		Casing Vo	olume (± 0.1gal.):	N	4
	Purge Method	(pump & type,	bailer & type, etc.): _	Peri-	Aun			
	Purge Start Ti	me: 1210	Purge Er	nd Time:	(Note:	Sample must be	collect	ed
	Volume Purge	ed: <u>1.4</u>			WILIII	1 24 Hours of purg	ye iine,	,
			FIEL	D PARAMETER L	_OG			
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Redu Potential (OF	ıction RP)	
	(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1)	Turb. (NTU)	Flow Patty (ml/min)
210				-				200
214	0.7	૾ૺૼૼૼૼૼૼૻ૾૾૾ૼૼ૾૾ૺૺૺ	0.69	12.5	0.77	83.4	0.0.R	200
220	0.9	7-30	0.67	12. 6	0,67	15.6	0.0.12	200
1223	2 - 1	7.31	0.58	12.6	0.51	-4.3	508	200
1226	1.3	7.31	0.67	12.1	0. 29	-16:0	213	200

1210

1214

1220

	-	P	13-1	112/16	
Acceptance	3 samples	3 samples	3 samples	3 samples	3 samples
Criteria	± 0.1 unit	± 10 %	± 10 %	± 10 %	± 10 %

Sample Date:≀²	12/16	Sample Time:	1228
Weather:	Chuar, St	o 's	
Sample Method (bailed	r (type), pump (type), scoop (type), etc	».) :	
	Peri - Pump		
Sample Appearance:	<i>دلد ۱</i>		
Sampler <i>(print name)</i> :	Kevin Fagan	Date: 12/12	116

	Double to Mart	- (1 0 4#).	NX			mather (1 0 4.54);	NL	A
	Depth to Wate	er (± 0.1π.):	· / ×		vveii De	ptn (± 0.1π .):		·
	Water Column	(± 0.1ft.):	NA		Casing Vo	olume (± 0.1gal.)):	// <u>^</u>
	Purge Method	(pump & type,	bailer & type, etc.): _	•	Peripump			
	Purge Start Tir	me: 123	3 Purge Er	nd Time: 124	7 (Note:	Sample must b	e collecte	əd
	Volume Purge	d. 1.3			within	n 24 hours of pu	rge time)	
	volume i urge	u						
Г	Durgo		FIEL	D PARAMETER I	_OG	Ovidation/Da		
	Volume	рН	Conductivity	Temperature	Oxygen (DO)	Potential (C	DRP)	
	(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1	ITu (b)	Fiew (m
	-	-						- 5
	0 15	7.31	0.70	15.0	1.25	-100.6	916	- 50
	0-5	7:32	0.71	14. 8	0, 29	-112.4	149	-50
	1.0	7.32	0.71	14.7	0.16	- 120.5	49.7	- 40
7	1.3	7.31	0.71	14.9	0.12	-127.3	30.1	~ 40
	/			Aze				
			V	. 2				
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sample ± 10 %	95	
	Sample Data:	12/12/16				Sampla Tima:	124@	
		/		tole				
	Weather:	· · · · · · · · · · · · · · · · · · ·	CLAR	303				
	Sample Metho	d <i>(bailer (type)</i> ,	pump (type), scoop	(type), etc.):				
			Peri-pu	MP				
	Sample Appea	arance:	٥٥	~~ /				
]	l.c	

	Depth to Wat	er (+ 0 1ft.):	NA		Well De	pth (+ 0 1ft)	~/A	ì
	Water Colum	n (± 0.1ft.):	N/A		Casing Vo	$lume (\pm 0.1gal.)$:	N/1	k
	Purge Method	d (pump & type,	bailer & type, etc.): _	Pert	- pump		<u></u>	
	Purge Start T Volume Purge	ime: <u>1しょう</u> ed:り、す	Purge Er	nd Time:/30	06 (Note: within	Sample must be a 24 hours of pur	collecte ge time)	ed I
			FIELI	D PARAMETER I	_OG			
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Redu Potential (Of	uction RP)	
		(etd unite +	(inn/om to 2 sig					
	(gallons)	(stu. units ± 0.1)	digits)	(°C ± 0.1°)	(<i>mg/l</i> ± 0.1)	(mV ± 1)	Turb (NTU)	Flow Ral (mil/mi
2	(gallons)	0.1)	digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1)	Turb (NTU)	Flow Rad cml/mi
5 6	(gallons)	(31.2. units ± 0.1) - 7.32	(#11/Cin to 3 sig. digits) 0.79	(°C ± 0.1°) 	(mg/l ± 0.1) 	(mV ± 1) -40.7	Turb (NTU) 	Flow Roll Emillionia
5 6 59	(gallons) 0 25 0 4	(31.2. units ± 0.1) 7.32 7.28	0.79 0.66	(°C ± 0.1°) 11.8 12.2	(mg/1 ± 0.1) 	(mV ± 1) 	Turb (NTU) 	Flow Rol 6 ml/mi 300
57 59 02	(gallons) 	(31.2. units ± 0.1) 7.32 7.28 7.28	0.79 0.66 0.87	(°C ± 0.1°) 11. 8 12. 2 11. 9	(mg/l ± 0.1) 	(mV ± 1) - 40.7 - 61.7 - 80.6	Turb (NTU) 30.1 479 68.9	Flow Rol (ml/smi) 300 300

1252

in the second

Acceptance	3 samples	3 samples	3 samples	3 samples	3 samples
Criteria	± 0.1 unit	± 10 %	± 10 %	± 10 %	± 10 %

Sample Date:		Sample Time:
Weather:	cuar, 30's	
Sample Method <i>(bailer (t</i>	ype), pump (type), scoop (type), etc.): Pe וו'- לימיף	
Sample Appearance:	Char	-,
Sampler (print name): _	Kevin Fagan	Date:/12/15
Note: Use chain of custo	dy form to indicate which sample bottles	were filtered and filter size.

		1/4				. f .					
Depth to Wa	ater (± 0.1ft.):			Well De	pth (± 0.1ft.): _	~/*	<u> </u>				
Water Colur	mn (± 0.1ft.):	N/ <u>A</u>		Casing Vo	lume (± 0.1gal.): <u>~/*</u>					
Purge Methe	od (pump & type	, bailer & type, etc.): _	Peri-	Aump							
Purge Start	Time: 12	.'' Purae Er	nd Time: 13	2.5 (Note:	Sample must l	be collecte	ed				
Volume Pur	ged:0	6		within	n 24 hours of pl	urge time)					
FIELD PARAMETER LOG Purge Specific Dissolved Oxidation/Reduction											
Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Re Potential (0	duction ORP)					
(gallons)	(std. units ± 0.1)	(μπ /cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(<i>m</i> V ± 3	1) To,b	Flow				
Ø,3	7.23	1.03	13.0	0.80	144.2	777	~30				
0.4	7.23	i.13	13.4	0.36	-149.3	185	~3				
0.5	7.23	1.14	13.6	0.20	-157.3	68.3	~ 30				
ə, 6	7.24	1.14	13.5	D: 16	- 184.3	39.Z	-3				
		AC	12/12/	6							
Acceptance Criteria	a 3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sampl ± 10 %	es 6					
	مامايد		•	•							
Sample Date	e: <u>'4'4'</u>		,		Sample Time:	1341	F				
Weather:	<u></u>	Char,	50'S								
Sample Met	hod <i>(bailer (type</i>), pump (type), scoop	(type), etc.):								

1311

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Sampler (print name): _____Kerin Faym

Date: 12/12/16

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	Depth to Wate	er (± 0.1ft.):	N/N		Well De	pth (± 0.1ft.):	<u> ~/~</u>	
	Water Column	(± 0.1ft.):	NA		Casing Vo	olume (± 0.1gal.):	/*	
	Purge Method	(pump & type,	<i>.</i> bailer & type, etc.):		Peripump		,	
	Purge Start Tir	me: 1331	Purge E	nd Time:	<u>345</u> (Note: withir	Sample must be 1 24 hours of pur	e collecte ge time)	əd
	Volume Purge	d:	t gov					
F			FIEL	D PARAMETER I	_0G			
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Red Potential (Ol	uction RP)	
	(gallons)	(std. units \pm 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1)	Tuch/N	To Flow R
1			and the second				-	-
6	0.25	7.24	1.37	12.4	0.30	-180.1	0.0.R	~ 35
19	0.4	7.22	1.48	13.6	0.14	-219.2	632	-35
12	0.5	7.23	1.52	13.4	0,10	-237.4	95.5	· ~ 35
15	0.7	7.23	1.53	13.2	0,10	- 2 39.4	43.3	~ 35
-			- FAS	12/12	46	M Name og stil - 14 s		
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	5	
	Sample Date:	12/12/14				Sample Time:	134	٢
	Weather:		Char,	50'3				
	Sample Metho	d <i>(bailer (type),</i>	pump (type), scoop	o (type), etc.):				
			Pe	ri - punp				
	Sample Appea	irance:		ilm af				
			A. 1			1.	1.0	

	Sample Locati	ion: <u> </u>	1-25.7		P	urge Date:'	2/12/1	6
	Depth to Wate	er (± 0.1ft.):	N/A		Well De	pth (± 0.1ft.): _	~/A	\
	Water Column	(± 0.1ft.):	N/r		Casing Vo	lume (± 0.1gal.)	: <u>~/k</u>	
	Purge Method	(pump & type,	bailer & type, etc.): _	Perit	sump			
	Purge Start Ti	me: <u>135°</u>	Purge Er	nd Time:140	2(Note:	Sample must b	e collect	ed
	Volume Purge	d: ð	7		WITHI	1 24 hours of pu	rge time,)
			FIELI	D PARAMETER I	_OG			
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Red Potential (C	duction DRP)	
	(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1	Tub .	Flow
รอ			The second s					~
55	- 0.3	7.20	2.22	13.5	1.77	-117.2	184	re 3
9	~ 0.5	7.22	2 28	12.8	0.41	-128.0	35.7	~ }
22	~0.7	7.21	2.28	13.1	ð. 19	-134,5	9.27	~
	r-		- FA	- 12/1	i			
					2/15			
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sample ± 10 %	es	
	Sample Date:	12/12/16		ν.	,,,,,,,,,,,,,,,,,	Sample Time: _	140	2
	Weather:							
	Sample Metho	od (bailer (type),	pump (type), scoop	(type), etc.): Peri- Au	nlv			
	Sample Appea	arance:	- 1444		· · · · · · · · · · · · · · · · · · ·	·····		
	Sampler <i>(print</i>	name):	Lovin Faynn		Date	e: <u>12/</u>	12/15	
	Note: Use cha	in of custody fo	rm to indicate which	sample bottles w	ere filtered and fi	ilter size.		

	Sample Locati	on:			Pi	irge Date:	[-]			
	Depth to Wate	er (± 0.1ft.):	~/r		Well De	oth (± 0.1ft.): _	/r			
	Water Column	(± 0.1ft.):	NA		Casing Vo	lume (± 0.1gal	.): <u> //</u>	*		
	Purge Method	(pump & type, i	bailer & type, etc.): _		Peri- Pump					
	Purge Start Tir	me: <u>140 7</u>	Purge Er	nd Time:/4	(Note:	Sample must	be collect	ed		
	Volume Purge	d:/. c	gul.		WITNIN	24 nours of p	urge time))		
-			FIELD	PARAMETER I	LOG					
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Re Potential (duction ORP)			
	(gallons)	(std. units ± 0.1)	(jum/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ±	1) (NTU)	Fiew		
	Same -						-			
	~0.3	7.18	3.24	15,0	0.09	56,5	305	~ 4		
	~ 0.6	7.18	3,31	15.2	0.05	40.3	64.1	~ 4		
	~ 0.9	7.18	3.32	15.2	0.03	35:1	21.5	~ 40		
		-		a -			1			
			/	° S	12/12/1	6				
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sampi ± 10 %	les 6			
	Sample Date:	12/12/16				Sample Time:	1420	>		
	Weather:		Ciuni , 50	5		•				
	Sample Metho	od <i>(bailer (type),</i>	pump (type), scoop Peri-	(type), etc.):			,			
	Sample Appearance: cln = r									
	Sampler (print	name):	Kerin Fayan		Date	. /2	112/18	-		

Sample Location: $-7 - 5$ Depth to Water (± 0.1ft.): Water Column (± 0.1ft.):	<u>51-9;1</u> <u>11.6</u> (mussur in w <u>N/A</u>	er 9	P Well De Casing Vo	urge Date: pth (± 0.1ft.): plume (± 0.1gal.):	12/12/1 21.80	ns pfin_asured inn V/A
Purge Method (pump & type,	bailer & type, etc.): _	Pe	n'-pump		_	
Purge Start Time: Volume Purged:	Purge Er	nd Time:	35 (Note: withi	Sample must be n 24 hours of purg	collecte ge time)	d
	FIELC	PARAMETER L	.OG			
Purge pH Volume	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Redu Potential (OF	Iction RP)	
(gallons) (std. units ± 0.1)	(um/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1)	Tuch.	Flow Rate/mil
					-	,

1520	C						-	
1525	ð. K	7.53	1.12	15. g	7.16	104.3	284	500
1528	1.0	7.52	0 . 7E	16.1	6.71	140.9	53,6	500
1531	j. Y	7.51	0.74	15.9	6.74	142. Z	31.5	500
1534	1.8	7.51	0.74	16.1	6.71	140. 8		500
		Q	- ME					
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sample ± 10 %	s	

Sample Date: ^{,z} /iz/is		Sample Time: 1536
Weather:	cin, 50's	
Sample Method (bailer (type), j	pump (type), scoop (type), etc.):	
	Peri - Pump	
Sample Appearance:	Clim 1	·
Sampler (print name):	Kevin Fagun	Date: 12/12/15

epth to Wate	er (± 0.1ft.): _	N/A		Well De	pth (± 0.1ft.):		2
Vater Columr	n (± 0.1ft.):	N/A		Casing Vo	lume (± 0.1gal.): /	v/A
urae Method	l (numn & type	bailer & type etc.):		Peri- Pump		·	,
urge method	i (pump & type,			<u>_</u>			
urge Start Ti	me: /> 42	Purge Er	nd Time:	2 (Note: withir	Sample must t ו 24 hours of pu	be collecte urae time)	€d
'olume Purge	ed:/.5				,	0	
		FIEL	D PARAMETER L	.OG			
Purge	pН	Specific	Temperature	Dissolved	Oxidation/Re	duction	
(gallons)	(std. units ±	(um/cm to 3 sig.	$(^{\circ}C + 0.1^{\circ})$			o Tuch	Ŧ١
(gallollo)	0.1)	digits)		$(mg/l \pm 0.1)$	(<i>mV</i> ± 1	(Nru)	1
						-	4
0.5	7.5T iF	0.74 F	14.8-17	5 .59 #	1 51.11	. –	
0.7	7.48	0.77	16.7	6.05	132.5	715	
1.25	7.48	0.77	167	6.12	131.9	174	\$
is 4	7.48	D. 77	15.7	6.10	128.5	103	5
۴.		M	- 12/12	115			
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sample ± 10 %	es S	
nare	1	1	L	L			
ample Date:	12/12	116			Sample Time:	155	4
Veather:		Char,	50 's :				
ample Metho	od (bailer (type)	, pump (type), scoop	(type), etc.):				
			Peri - pump	L			
ample Appe	arance:	દા	n.e				
- ••							

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	Depth to Wate	er (± 0.1ft.):	N/A		Well De	oth (± 0.1ft.): _	N	<u> </u>
	Water Column	(± 0.1ft.):	NA		Casing Vo	lume (± 0.1gal.):	1/4
	Purce Method	(numn & tyne	hailer & type_etc.);	Pi	ri- Pump		/ · · · · · · · · · · · · · · · · · · ·	<u> </u>
	Durge Start Ti	(pamp & type,		d Times 1511	P (Nata)	Comple mount		
	Purge Start Th	ne:			within	24 hours of pl	urge time)	ea)
Г	Durge	[·······	FIELI	D PARAMETER I	LOG	Ovidation/Da	duction	1
	Volume	рН	Conductivity	Temperature	Oxygen (DO)	Potential (0	DRP)	
	(gallons)	(std. units ± 0.1)	(jum/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1	Turb. (NTU)	Flow Ru (m1/
							-	500
3	1. D	7.33	0.81	15,5	1.94	55.8	DOR	500
5	1.25	7,33	0.81	16,7	1.75	56.7	486	500
,	1.5	7.33	9.81	16.8	1.62	55.6	206	500
	<u> </u>		TA -					
-			X	5	12/12/16		1	
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sampl ± 10 %	9S	
	Sample Date:	12/12/14	,			Comple Time:	161	,
	Sample Date.			To to	·	Sample Time.		<u>, </u>
		· · · · · · · · · · · · · · · · · · ·	Cuar					
	Sample Metho	d (bailer (type),	pump (type), scoop	(type), etc.):				
			<u> </u>	- rump			<u> </u>	
	Sample Appea	irance:	Chuj					
	Complex (as' (lonia Francis				112	
	Sampler (print	name):^	- Talyan -		Date	·	2/18	

	Denth to Wate	ar (+ () 1ff)·	N /A			nth $(+0.1ft)$	NA	
		я (± 0. <i>п</i> .)	<u></u>		Well De	pur (± 0. <i>m.)</i> .		
	Water Column	(± 0.1ft.):	N/A	Casing Volume (± 0.1gal.):				
	Purge Method	(pump & type,	bailer & type, etc.): _		Peri- Pump	i		
	Purge Start Ti	me:	- Purge Er	nd Time:15 Z	7 (Note:	Sample must be	collecte	əd
	Volume Purge	d: 1.8	izer (withir	1 24 hours of purg	ge time))
_			FIELD	PARAMETER L	OG			
	Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Redu Potential (OF	iction RP)	
	(gallons)	(std. units ± 0.1)	(unip/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1)	Tuch	Flue I
5							-	600
•		7.23	ð . 8 4	17.1	0.25	0.7		600
, [1.0	7.23	0.85	17.0	0.24	-4.8	81.3	600
5	1.7	7.22	0.85	15:4	0.23	-44,5		600
		C						
				t i	Hofe			
	Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %		
	Sample Date: Weather:	12/12/1	cini,	50'5	-	Sample Time:	1528	3
	Sample Metho	od <i>(bailer (type)</i>	, pump (type), scoop מיק - יוי יצ	(type), etc.):				
	Sample Appea	arance:		cha r				
			Have Frank		Dete		1.4	

Depth to Wate	er (± 0.1ft.):	N/A		Well De	epth (± 0.1ft.): _	N	14			
Water Column	n (± 0.1ft.):	NA		Casing Vo	olume (± 0.1gal.):	<u> </u> A			
Purge Method	(pump & type,	bailer & type, etc.): _	F	Peri - Pump						
Purge Start Ti	me: 1631	Purge Er	nd Time:164	(Note:	Sample must l	be collecte	₽d			
Volume Purge	d:0,9			withi	n 24 hours of pi	ırge time)				
FIELD PARAMETER LOG										
Purge Volume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Re Potential (C	duction ORP)				
(gallons)	$(sta. units \pm 0.1)$	(µm/cm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(<i>m</i> V ± 4	DTU Chi INTU				
	7.25	0.89	16,3	0.96	- 93.9	59.7				
0.5	7.24	0. 84	16.1	0.18	-102.5	22.7	-			
0.7	7.24	0.89	15.7	0<11	-117.9	14.3	:			
0,9	7.25	0.87	15.5	0.16	-129.9		3			
~		- WE	12	12/10						
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	7 3 samples ± 10 %	3 sample ± 10 %	es				
Sample Date:	12/12/15			· · · ·	Sample Time:	1545				
Weather:		Ch	ar, 50's			**				
Sample Metho	od (bailer (type), Char JA	pump (type), scoop	(type), etc.): - Pump							
	propoe:	01.	/							

Sa	mple Locatio	on:	- 19.1		Р	urge Date:	1 cji cji	<u> </u>	
De	oth to Wate	r (± 0.1ft.):	<u>~/A</u>		Well De	pth (± 0.1ft.): _	~~/	<u>/A</u>	
Wa	ter Column	(± 0.1ft.):	~/A		Casing Vo	lume (± 0.1gal.):	~/r	
Pu	Purge Method (pump & type, bailer & type, etc.): Peri-pump								
Pu	Purge Start Time: 1650 Purge End Time: 1701 (Note: Sample must be collected								
Vol	ume Purgeo	d:/	il gal.		withii	1 24 hours of pi	irge time))	
			FIELI	D PARAMETER I	_OG				
,	Purge /olume	рН	Specific Conductivity	Temperature	Dissolved Oxygen (DO)	Oxidation/Re Potential (C	duction DRP)		
(gallons)	(std. units ± 0.1)	(unificm to 3 sig. digits)	(°C ± 0.1°)	(mg/l ± 0.1)	(mV ± 1	Turb	Flow	
						Record of the second		60	
	0.5	7.22	1.04	16.4	0.03	-201.6	35.5	60	
	0.75	7.21	1.04	16.2	0.02	-221.7	20,0	600	
	1.\$1	7.21	1.05	1511	0.102	-218.5		600	
			Tata						
				12/12/	15		- -		
Ac	ceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 sample ± 10 %	es 5		
Sai	nple Date:	12/12/16	-			Sample Time:	1702	2	
We	ather:		Claar,	50's					
Sai	nple Metho	d (bailer (type),	pump (type), scoop	(type), etc.): קיר אין אין אין					
Sa	Sample Appearance:c 4			in 1					
Sa	mpler <i>(print</i>	name):	Kenin Fa	JAN	Date	e: 1	12/12/1	6	

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Sample Location: T-59-7.1 + DUP

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0903

Volume Purged: 1.40

Purge End Time: 0918 (Note: Sample must be collected within 24 hours of purge time)

			1				1
Flow Rate	Time	pH	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ±	(um/cm)	$(^{\circ}C + 0.1^{\circ})$	(ma/ka)	$(m \setminus l)$	
(111//11111)		~ ~ ~	(pini oni)	(010.1)	(mg/ng/	(1110)	(1110)
500	0000	71	720	1/ 0	2.06	15/ 1	
500	0909	/.1	730	14.0	2.00	154.1	UUK
500	0911	7.2	740	14.5	2.05	102.8	344
500	0040	7.0	740	45.0	1.01	70.4	407
500	0913	1.2	740	15.0	1.91	79.1	127
Accontanco		3 samples	3 samples	3 samples			1 sample
Critorio	N/A	± 0.1 unit	± 10 %	± 10.0	N/A	N/A	
Griteria			± 10 %	± 10 %			

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/13/2016

Sample Time: 0918

Form QAIP-9.1-2

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Casing Volume (± 0.1gal.): 3.25

Date:	12/13/2016	Sample Location ID: T-59-7.1 + DUP
Checklis	st Item	Sampler Initials
Pre-Sam	pling	
Depth to paramete	water and total well depth measured and recorded on fie er form	eld DK
Well purg on the fie	ed a minimum of three (3) well casing volumes (make n ld parameter form if deviating from SAP)	otation DK
Field para notation i	ameters collected and recorded on field parameter form f deviating from SAP)	(make DK
Filtered \$	Samples Collected	
Uranium ·	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle pre	eserved with HNO3 DK
QA/QC sa	amples collected (duplicate samples as indicated on AP	F Attachment 1) N/A
Post-San	npling	
Samples	property labeled and placed in coolers on ice as needed	I DK
Field Para	ameter Form completed per EPM-SAP-111	DK
Used filte	ers collected and bagged for HP screening	DK
All equipr	ment decontaminated per EPM-SAP-107	DK

Sample Location: T-59-9.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0920

Volume Purged: 1.2

Well Depth (± *0.1ft.*): 29.13 Casing Volume (± *0.1gal.*): 3.25

Purge Date: 12/13/2016

Purge End Time: 0930 (Note: Sample must be collected within 24 hours of purge time)

	1	r	r	1			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
400	0925	7.0	1370	15.2	0.17	28.6	81.6
600	0927	7.0	1380	15.4	0.13	18.8	11.6
600	0929	7.0	1380	15.4	0.15	13.1	9.61
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	1 sample <10 NTU

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 0930

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016 5	Sample Location ID: T-59-9.1
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	KF	
Filtered 3	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with	n HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachme	nt 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equip	nent decontaminated per EPM-SAP-107	KF

Sample Location: T-59-11.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0933

Volume Purged: 0.75

Purge Date: 12/13/2016 Well Depth (± 0.1ft.): 29.13 Casing Volume (± 0.1gal.): 3.25

Purge End Time: 0943 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	рН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		$(std. units \pm 0.1)$	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
400	0937	7.1	1270	14.0	2.18	33.8	160
400	0939	7.1	1270	14.5	0.58	30.4	26.6
400	0943	7.0	1290	13.9	0.31	25.3	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 0943

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-59-11.1
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF
Sample Location: T-59-13.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0948

Volume Purged: 0.75

Casing Volume (± 0.1gal.): 3.25

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Purge End Time: 1005 (Note: Sample must be collected within 24 hours of purge time)

	1	-	1				
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
60	0957	7.0	1390	6.9	1.70	-25.7	41.7
40	1001	7.0	1400	6.9	1.12	-66.9	26.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1005

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-59-13.1
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-59-15.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1010

Volume Purged: 0.60

Purge Date: 12/13/2016 Well Depth (± 0.1ft.): 29.13 Casing Volume (± 0.1gal.): 3.25

Purge End Time: 1025 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
200	1016	6.9	1720	11.2	1.12	-30.2	41.7
400	1022	6.8	1750	10.2	0.43	-24.4	26.6
400	1025	6.9	1740	10.8	0.38	-29.9	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1025

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-59-15.1
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-59-17.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1033

Volume Purged: 1.10

Well Depth (± 0.1ft.): 29.13 Casing Volume (± 0.1gal.): 3.25

Purge Date: 12/13/2016

Purge End Time: 1039 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pH (std_units + 0.1)	S. Conductivity	Temperature $(^{\circ}C + 0.1^{\circ})$	DO (ma/ka)	ORP	
(1110/11111)		$(3i0. umis \pm 0.1)$	(µ/////////////////////////////////////	(0±0.1)	(IIIg/Kg)	(1110)	(1110)
400	1032	7.0	1800	13.5	1.12	2.6	42.1
400	1035	7.0	1940	13.7	0.36	-17.5	26.6
400	1039	6.9	1870	10.8	0.38	-29.9	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1039

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-59-17.1
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	rith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-59-19.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Casing Volume (± 0.1gal.): 3.25

Water Oblamm (± 0. m.). 10.00

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1045

Volume Purged: 1.00

Purge End Time: 1053 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
400	1048	7.0	2390	14.6	1.00	-59.8	92.6
400	1050	7.0	2400	14.7	0.32	-65.0	28.6
400	1053	7.0	2410	14.2	0.17	-63.7	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Sample Time: 1053

Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/13/2016	Sample Location ID: T-59-19.1
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: T-59-21.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1058

Volume Purged: 1.00

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Casing Volume (± 0.1gal.): 3.25

Purge End Time: 1108 (Note: Sample must be collected within 24 hours of purge time)

				G			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
<50							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/13/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/13/2016	Sample Location ID: T-59-21.1
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa parameter	ater and total well depth measured and recorded on field form	KF
Well purgeo on the field	d a minimum of three (3) well casing volumes (make notation parameter form if deviating from SAP)	KF
Field paran notation if c	neters collected and recorded on field parameter form (make deviating from SAP)	KF
Filtered Sa	Imples Collected	
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved v	with HNO3 N/A
QA/QC san	nples collected (duplicate samples as indicated on APF Attach	ment 1) N/A
Post-Samp	bling	
Samples pr	operty labeled and placed in coolers on ice as needed	N/A
Field Paran	neter Form completed per EPM-SAP-111	N/A
Used filters	collected and bagged for HP screening	N/A
All equipme	ent decontaminated per EPM-SAP-107	N/A

Sample Location: T-59-23.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1100

Volume Purged: N/A

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Casing Volume (± 0.1gal.): 3.25

Purge End Time: 1117 (Note: Sample must be collected within 24 hours of purge time)

		1.2281		•			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/13/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/13/2016	Sample Location ID: T-59-23.1
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa	ater and total well depth measured and recorded on field form	KF
Well purge on the field	d a minimum of three (3) well casing volumes (make notation parameter form if deviating from SAP)	KF
Field paran notation if c	neters collected and recorded on field parameter form (make deviating from SAP)	KF
Filtered Sa	Imples Collected	
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 N/A
QA/QC sar	nples collected (duplicate samples as indicated on APF Attach	ment 1) N/A
Post-Samp	oling	
Samples pi	operty labeled and placed in coolers on ice as needed	N/A
Field Parar	neter Form completed per EPM-SAP-111	N/A
Used filters	collected and bagged for HP screening	N/A
All equipme	ent decontaminated per EPM-SAP-107	N/A

Sample Location: T-59-25.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1119

Volume Purged: N/A

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Casing Volume (± 0.1gal.): 3.25

Purge End Time: 1117 (Note: Sample must be collected within 24 hours of purge time)

				-			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/13/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/13/2016	Sample Location ID: T-59-23.1
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa	ater and total well depth measured and recorded on field form	KF
Well purge on the field	d a minimum of three (3) well casing volumes (make notation parameter form if deviating from SAP)	KF
Field paran notation if c	neters collected and recorded on field parameter form (make deviating from SAP)	KF
Filtered Sa	Imples Collected	
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 N/A
QA/QC sar	nples collected (duplicate samples as indicated on APF Attach	ment 1) N/A
Post-Samp	oling	
Samples pi	operty labeled and placed in coolers on ice as needed	N/A
Field Parar	neter Form completed per EPM-SAP-111	N/A
Used filters	collected and bagged for HP screening	N/A
All equipme	ent decontaminated per EPM-SAP-107	N/A

Sample Location: T-59-27.1

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1119

Volume Purged: N/A

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Casing Volume (± 0.1gal.): 3.25

Purge End Time: 1140 (Note: Sample must be collected within 24 hours of purge time)

				-			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/kg)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/13/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/13/2016	Sample Location ID: T-59-27.1
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa	ater and total well depth measured and recorded on field form	KF
Well purge on the field	d a minimum of three (3) well casing volumes (make notation parameter form if deviating from SAP)	KF
Field paran notation if c	neters collected and recorded on field parameter form (make deviating from SAP)	KF
Filtered Sa	amples Collected	
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 N/A
QA/QC sar	nples collected (duplicate samples as indicated on APF Attach	nment 1) N/A
Post-Samp	<u>oling</u>	
Samples pr	roperty labeled and placed in coolers on ice as needed	N/A
Field Parar	neter Form completed per EPM-SAP-111	N/A
Used filters	s collected and bagged for HP screening	N/A
All equipme	ent decontaminated per EPM-SAP-107	N/A

Sample Location: T-59

Depth to Water (± 0.1ft.): 9.17

Water Column (± 0.1ft.): 19.96

Purge Date: 12/13/2016

Well Depth (± 0.1ft.): 29.13

Casing Volume (± 0.1gal.): 3.25

blumn (± 0.1ft.): 19.96

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 0825

Volume Purged: 13.00

Purge End Time: 0830 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Purge Volume	рН	S. Conductivity	Temperature	ORP	Turbidity
(ml/min)	(gallons)	(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mV)	(NTU)
	3.25	7.1	2530	15.6		
	6.50	7.2	2230	16.0		
	9.75	7.1	2220	16.1		
	13.00	7.1	2220	16.8		
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	1 sample <10 NTU

FIELD PARAMETER LOG

Sample Date: 12/13/2016

Weather: Cold and windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Sample Time: 0830

Date: 12/13/2016

Date:	12/13/2016	Sample Location ID: T-59
Checklis	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	DK
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	DK
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	DK
Filtered S	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with Hl	NO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachment ²	l) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Para	ameter Form completed per EPM-SAP-111	DK
Used filte	rs collected and bagged for HP screening	DK
All equipr	nent decontaminated per EPM-SAP-107	DK

Sample Location: 02W32-11.0

Depth to Water (± 0.1ft.): 12.50

Water Column (± 0.1ft.): 11.05

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 23.55

Casing Volume (± 0.1gal.): 1.80

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0823

Volume Purged: 0.80

Purge End Time: 0830 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity <i>(NTU)</i>
600	0826	6.9	1460	14.3	1.34	28.0	64.4
600	0828	7.0	1480	14.2	0.68	-20.8	14.2
600	0830	7.0	1480	14.6	0.47	-28.3	12.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 0830

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W32-11.0
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	I with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W32-13.0 + DUP

Depth to Water (± 0.1ft.): 12.50

Water Column (± 0.1ft.): 11.05

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 23.55

Casing Volume (± 0.1gal.): 1.80

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0835

Volume Purged: 0.80

Purge End Time: 0842 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std_units + 0_1)	S. Conductivity	Temperature $(^{\circ}C + 0.1^{\circ})$	DO (ma/L)	ORP (mV)	Turbidity
600	0837	7.1	1360	15.3	0.46	-38.5	133
600	0839	7.1	1300	15.7	0.29	-49.0	47.6
600	0842	7.1	1270	15.5	0.19	-53.7	15.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 0842

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID:	02W32-13.0 + DUP
Checklis	st Item		Sampler Initials
Pre-Sam	pling		
Depth to paramete	water and total well depth meas r form	ured and recorded on field	KF
Well purg on the fie	ed a minimum of three (3) well Id parameter form if deviating fr	casing volumes (make notation om SAP)	KF
Field para notation i	ameters collected and recorded f deviating from SAP)	on field parameter form (make	KF
Filtered S	Samples Collected		
Uranium	– U235 & U238 by EAP 200.8 –	250 ml plastic bottle preserved with HNO3	KF
QA/QC s	amples collected (duplicate sam	ples as indicated on APF Attachment 1)	KF
Post-Sar	npling		
Samples	property labeled and placed in o	coolers on ice as needed	KF
Field Para	ameter Form completed per EP	M-SAP-111	KF
Used filte	rs collected and bagged for HP	screening	KF
All equipr	ment decontaminated per EPM-	SAP-107	KF

Sample Location: 02W32-15.0

Depth to Water (± 0.1ft.): 12.50

Water Column (± 0.1ft.): 11.05

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 23.55

Casing Volume (± 0.1gal.): 1.80

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0844

Volume Purged: 0.75

Purge End Time: 0852 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH <i>(std. units ± 0.1)</i>	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	0847	7.1	1010	15.3	0.18	-85.8	OOR
600	0849	7.1	1000	15.5	0.15	-94.0	449
600	0852	7.1	980	15.4	0.12	-90.3	15.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 0852

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W32-15.0
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equipr	nent decontaminated per EPM-SAP-107	KF

Sample Location: 02W32-17.0

Depth to Water (± 0.1ft.): 12.50

Water Column (± 0.1ft.): 11.05

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 23.55

Casing Volume (± 0.1gal.): 1.80

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0855

Volume Purged: 0.75

Purge End Time: 0902 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity <i>(NTU)</i>
600	0858	7.0	950	15.6	1.49	97.8	277
600	0900	7.0	950	15.7	1.13	-96.4	75.9
600	0902	7.1	980	15.4	0.12	-90.3	15.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 0902

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W32-17.0
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equipr	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W32-19.0

Depth to Water (± 0.1ft.): 12.50

Water Column (± 0.1ft.): 11.05

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 0905

Volume Purged: N/A

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 23.55

Casing Volume (± 0.1gal.): 1.80

Purge End Time: 0910 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/15/2016

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Date:	12/15/2016	Sample Location ID: 02W32-19.0
Checklis	t Item	Sampler Initials
Pre-Samp	bling	
Depth to w parameter	vater and total well depth measured and recorded on form	field KF
Well purge on the field	ed a minimum of three (3) well casing volumes (make d parameter form if deviating from SAP)	notation N/A
Field para notation if	meters collected and recorded on field parameter for deviating from SAP)	n (make KF
Filtered S	amples Collected	
Uranium –	- U235 & U238 by EAP 200.8 – 250 ml plastic bottle p	preserved with HNO3 N/A
QA/QC sa	imples collected (duplicate samples as indicated on A	PF Attachment 1) N/A
Post-Sam	<u>ipling</u>	
Samples p	property labeled and placed in coolers on ice as need	ed KF
Field Para	meter Form completed per EPM-SAP-111	KF
Used filter	s collected and bagged for HP screening	KF
All equipm	nent decontaminated per EPM-SAP-107	KF

Sample Location: 02W32

Depth to Water (± 0.1ft.): 12.50

Water Column (± 0.1ft.): 11.05

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 0745

Volume Purged: 5.40

FIELD PARAMETER LOG							
Purge Volume	pН	Specific Conductivity	Temperature				
(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)				
1.80	7.3	1009	15.7				
3.60	7.4	1045	15.9				
5.40	7.4	1050	16.8				
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %				

Sample Date: 12/15/2016

Sample Time: 0750

Date: 12/15/2016

Weather: Cold and Clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 23.55

Casing Volume (± 0.1gal.): 1.80

Purge End Time: 0750 (Note: Sample must be collected within 24 hours of purge time)

Date:	12/15/2016	Sample Location ID: 02W32
Checkli	st Item	Sampler Initials
Pre-Sam Depth to paramete	pling water and total well depth measured and recorded on field er form	DK
Well purg	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	DK
Field par notation	ameters collected and recorded on field parameter form (make if deviating from SAP)	DK
<u>Filtered</u>	Samples Collected	
Uranium	- U235 & U238 by EAP 200.8 - 250 ml plastic bottle preserved with	HNO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachmer	nt 1) N/A
Post-Sa	mpling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Par	rameter Form completed per EPM-SAP-111	DK
Used filte	ers collected and bagged for HP screening	DK
All equip	ment decontaminated per EPM-SAP-107	DK

Sample Location: 02W44-10.5

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 28.98

Casing Volume (± 0.1gal.): 2.75

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1000

Volume Purged: 0.75

Purge End Time: 1008 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity <i>(NTU)</i>
500	1002	7.0	1260	13.5	1.37	-18.3	233
500	1004	7.0	1290	13.8	0.85	-22.9	77.5
500	1006	7.0	1290	14.1	0.61	-27.2	42.7
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1008

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W44-10.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered 3	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	I with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equipr	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W44-12.5

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Well Depth (± 0.1ft.): 28.98

Purge Date: 12/15/2016

Casing Volume (± 0.1gal.): 2.75

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1009

Volume Purged: 0.75

Purge End Time: 1018 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity <i>(NTU)</i>
600	1012	7.0	1290	14.5	0.39	-67.0	340
600	1014	7.0	1320	15.1	0.25	-76.9	57.1
600	1016	7.0	1340	15.2	0.21	-86.2	33.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1018

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W44-12.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	I with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W44-14.5

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 28.98

Casing Volume (± 0.1gal.): 2.75

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1019

Volume Purged: 0.75

Purge End Time: 1024 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity <i>(NTU)</i>
500	1020	7.0	1280	15.0	0.30	-30.0	386
500	1022	7.0	1290	15.3	0.19	-23.8	91.3
500	1024	7.0	1280	15.4	0.17	-16.2	38.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1024

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W44-14.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered 3	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF
Sample Location: 02W44-16.5

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 28.98

Casing Volume (± 0.1gal.): 2.75

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1026

Volume Purged: 0.75

Purge End Time: 1032 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity <i>(NTU)</i>
500	1028	7.0	1300	15.3	0.30	-40.2	477
500	1030	7.0	1320	15.6	0.12	-33.3	130
500	1024	7.0	1320	15.5	0.10	-38.4	55.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1032

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W44-16.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	I with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equipr	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W44-18.5

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 28.98

Casing Volume (± 0.1gal.): 2.75

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1034

Volume Purged: 0.75

Purge End Time: 1040 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1036	7.0	1330	15.5	0.51	17.2	257
500	1038	7.0	1370	15.9	0.14	29.5	29.9
500	1040	7.0	1370	16.0	0.12	34.7	22.4
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1040

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: 02W44-18.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equipr	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W44-20.5

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 28.98

Casing Volume (± 0.1gal.): 2.75

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1041

Volume Purged: 0.75

Purge End Time: 1050 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
180	1046	7.1	1130	13.5	0.81	-55.3	554
180	1048	7.1	1120	12.9	0.80	-74.2	23.3
180	1050	7.1	1090	12.8	0.73	-82.4	14.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1050

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016 5	Sample Location ID: 02W44-20.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attack	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equipr	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W44-22.5 + DUP

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Well Depth (± 0.1ft.): 28.98

Purge Date: 12/15/2016

Casing Volume (± 0.1gal.): 2.75

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1056

Volume Purged: 0.75

Purge End Time: 1102 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1058	7.1	1080	15.5	0.42	-66.1	190
600	1100	7.1	1120	16.0	0.17	-67.1	81.8
600	1102	7.0	1130	15.8	0.15	-69.4	39.1
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1102

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID:	02W44-22.5 + DUP
Checkli	st Item		Sampler Initials
<u>Pre-Sam</u>	pling		
Depth to paramete	water and total well depth meas er form	ured and recorded on field	KF
Well purg on the fie	ed a minimum of three (3) well Id parameter form if deviating fr	casing volumes (make notation om SAP)	KF
Field para notation i	ameters collected and recorded f deviating from SAP)	on field parameter form (make	KF
Filtered :	Samples Collected		
Uranium	– U235 & U238 by EAP 200.8 –	250 ml plastic bottle preserved with HNO3	KF
QA/QC s	amples collected (duplicate sam	ples as indicated on APF Attachment 1)	KF
Post-Sar	npling		
Samples	property labeled and placed in o	coolers on ice as needed	KF
Field Par	ameter Form completed per EP	M-SAP-111	KF
Used filte	ers collected and bagged for HP	screening	KF
All equip	ment decontaminated per EPM-	SAP-107	KF

Sample Location: 02W44-24.5

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1107

Volume Purged: 0.40

Well Depth (± 0.1ft.): 28.98 Casing Volume (± 0.1gal.): 2.75

Purge Date: 12/15/2016

Purge End Time: 1115 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
200	1111	7.2	1630	12.6	0.52	-98.3	297
200	1113	7.1	1670	12.4	0.31	-121.0	233
200	1115	7.1	1680	12.2	0.28	-120.0	72.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1115

Date:	12/15/2016	Sample Location ID: 02W44-24.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attac	hment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W44-25.5 Depth to Water ($\pm 0.1 ft$.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1120

Purge End Time: 1122 (Note: Sample must be collected within 24 hours of purge time)

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 28.98

Casing Volume (± 0.1gal.): 2.75

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate	Time	pH (std_units + 0.1)	S. Conductivity	Temperature $(^{\circ}C + 0.1^{\circ})$	DO (ma/L)	ORP	
(//////////////////////////////////////		$(3.0.0111.3 \pm 0.1)$	(µ11/011)	(0±0.7)	(IIIg/L)	(1110)	(1110)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: N/A

Date:	12/15/2016 S	ample Location ID: 02W44-25.5
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation ld parameter form if deviating from SAP)	N/A
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved	with HNO3 N/A
QA/QC s	amples collected (duplicate samples as indicated on APF Attach	nment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	N/A
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 02W44

Depth to Water (± 0.1ft.): 12.00

Water Column (± 0.1ft.): 16.98

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 0925

Volume Purged: 5.40

FIELD PARAMETER LOG						
Purge Volume	рН	Specific Conductivity Temperature				
(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)			
2.75	7.3	1215	15.8			
5.50	7.2	1206	15.9			
8.25	7.2	1210	16.0			
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %			

Purge End Time: 0930

Sample Date: 12/15/2016

Sample Time: 0930

Date: 12/15/2016

Weather: Cold and Clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 28.98

Casing Volume (± 0.1gal.): 2.75

(Note: Sample must be collected within 24 hours of purge time)

Date:	12/15/2016	Sample Location ID: 02W44
Checkli	st Item	Sampler Initials
Pre-Sam Depth to paramete	pling water and total well depth measured and recorded on field er form	DK
Well purg	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	DK
Field par notation	ameters collected and recorded on field parameter form (make if deviating from SAP)	DK
<u>Filtered</u>	Samples Collected	
Uranium	- U235 & U238 by EAP 200.8 - 250 ml plastic bottle preserved with	HNO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachmer	nt 1) N/A
Post-Sa	mpling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Par	rameter Form completed per EPM-SAP-111	DK
Used filte	ers collected and bagged for HP screening	DK
All equip	ment decontaminated per EPM-SAP-107	DK

Sample Location: TMW-24-10.7

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 28.75

Casing Volume (± 0.1gal.): 2.70

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1300

Volume Purged: 0.70

Purge End Time: 1306 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1302	7.0	1470	15.3	0.92	-75.3	569
600	1304	7.0	1460	15.6	0.71	-63.4	175
600	1306	7.0	1450	15.7	0.57	-54.1	77.7
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1306

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: TMW-24-10.7
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notated a minimum of three (3) well casing volumes (make notated parameter form if deviating from SAP)	tion KF
Field para notation i	ameters collected and recorded on field parameter form (ma if deviating from SAP)	ake KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preser	rved with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF A	ttachment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: TMW-24-12.7

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Casing Volume (± 0.1gal.): 2.70

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1310

Volume Purged: 0.60

Purge End Time: 1316 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1312	7.0	1350	15.4	1.06	-55.4	795
500	1314	7.1	1300	16.2	0.75	-72.4	357
600	1316	7.0	1310	16.0	0.69	-73.7	180
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1316

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Well Depth (± 0.1ft.): 28.75

Purge Date: 12/15/2016

Date:	12/15/2016	Sample Location ID: TMW-24-12.7
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notat eld parameter form if deviating from SAP)	ion KF
Field para notation i	ameters collected and recorded on field parameter form (ma if deviating from SAP)	ike KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preser	ved with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF A	ttachment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: TMW-24-14.7

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1318

Volume Purged: 0.60

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 28.75 Casing Volume (± 0.1gal.): 2.70

Purge End Time: 1326 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1322	7.1	1270	15.8	0.35	-91.7	912
600	1324	7.1	1260	16.3	0.15	-104.1	230
600	1326	7.0	1260	16.5	0.11	-104.0	87.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1326

Date:	12/15/2016	Sample Location ID: TMW-24-14.7
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	jed a minimum of three (3) well casing volumes (make notat Id parameter form if deviating from SAP)	ion KF
Field para notation i	ameters collected and recorded on field parameter form (ma f deviating from SAP)	ke KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preser	ved with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF At	tachment 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: TMW-24-16.7

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1328

Volume Purged: 0.75

Casing Volume (± 0.1gal.): 2.70

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 28.75

Purge End Time: 1336 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity	Temperature $(^{\circ}C \pm 0.1^{\circ})$	DO (ma/L)	ORP (mV)	Turbidity (NTU)
400	1330	7.2	1120	15.8	0.23	-118.0	150
400	1332	7.2	1090	15.7	0.15	-119.4	82.3
400	1334	7.2	1090	15.6	0.15	-119.5	35.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1336

Date:	12/15/2016	Sample Location ID: TMW-24-16.7
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notat eld parameter form if deviating from SAP)	ion KF
Field para notation i	ameters collected and recorded on field parameter form (ma if deviating from SAP)	ke KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserv	ved with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF At	tachment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: TMW-24-18.7

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1337

Volume Purged: N/A

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 28.75

Casing Volume (± 0.1gal.): 2.70

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

		FIELD P	ARAMETER LOC	3			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/15/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/15/2016	Sample Location ID: TMW-24-18.7
Checklist	Item	Sâmpler Initials
Pre-Sampl	ing	
Depth to wa parameter	ater and total well depth measured and recorded on field form	KF
Well purgeo on the field	d a minimum of three (3) well casing volumes (make notat parameter form if deviating from SAP)	on N/A
Field paran notation if c	neters collected and recorded on field parameter form (ma deviating from SAP)	ke KF
Filtered Sa	Imples Collected	Y
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserv	ved with HNO3 N/A
QA/QC san	nples collected (duplicate samples as indicated on APF At	tachment 1) N/A
Post-Samp	oling	
Samples pr	operty labeled and placed in coolers on ice as needed	KF
Field Paran	neter Form completed per EPM-SAP-111	KF
Used filters	collected and bagged for HP screening	KF
All equipme	ent decontaminated per EPM-SAP-107	KF

Sample Location: TMW-24-20.7

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1337

Volume Purged: N/A

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 28.75

Casing Volume (± 0.1gal.): 2.70

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

		FIELD P	ARAMETER LOC	3			
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/15/2016

Sample Time: N/A

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date:	12/15/2016	Sample Location ID: TMW-24-20.7
Checklist	Item	Sampler Initials
Pre-Sampl	ing	
Depth to wa parameter	ater and total well depth measured and recorded on field form	KF
Well purgeo on the field	d a minimum of three (3) well casing volumes (make notati parameter form if deviating from SAP)	on N/A
Field paran notation if c	neters collected and recorded on field parameter form (ma deviating from SAP)	ke KF
Filtered Sa	Imples Collected	Y
Uranium –	U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserv	ved with HNO3 N/A
QA/QC san	nples collected (duplicate samples as indicated on APF At	tachment 1) N/A
Post-Samp	oling	
Samples pr	operty labeled and placed in coolers on ice as needed	KF
Field Paran	neter Form completed per EPM-SAP-111	KF
Used filters	collected and bagged for HP screening	KF
All equipme	ent decontaminated per EPM-SAP-107	KF

Sample Location: TMW-24-22.7

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1347

Volume Purged: 0.50

Well Depth (± *0.1ft.*): 28.75 Casing Volume (± *0.1gal.*): 2.70

Purge Date: 12/15/2016

Purge End Time: 1355 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pH	S. Conductivity	Temperature	DO	ORP	Turbidity
(<i>mi/min</i>)		$(sta. units \pm 0.1)$	(µm/cm)	$(C \pm 0.1^{\circ})$	(mg/L)	(mv)	
400	1349	7.2	1030	13.4	1.26	-117.1	301
400	1352	7.2	1060	14.6	0.53	-109.9	72.5
400	1355	7.1	1070	14.5	0.30	-97.5	15.1
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1355

Date:	12/15/2016	Sample Location ID: TMW-24-22.7
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notat eld parameter form if deviating from SAP)	ion KF
Field para notation i	ameters collected and recorded on field parameter form (ma if deviating from SAP)	ke KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preser	ved with HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF At	tachment 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: TMW-24-24.7 + DUP

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Well Depth (± 0.1ft.): 28.75

Casing Volume (± 0.1gal.): 2.70

Purge Date: 12/15/2016

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1357

Volume Purged: 0.60

Purge End Time: 1405 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	nH	S Conductivity	Temperature		ORP	Turbidity
(ml/min)	Time	$pir $ (std upits ± 0.1)	(um/cm)	$\sqrt{2}$	$(m\alpha/l)$	(m\/)	
(111//1111)		$(S(U, U)) \leq U(U)$	(µ/////////	(C±0.1)	(IIIG/L)	(1117)	(1110)
600	1359	7.1	1030	15.4	0.82	-105.0	131
600	1401	7.1	1030	15.3	0.65	-104.2	20.5
600	1402	7 1	1020	15 /	0.47	00.2	116
000	1403	7.1	1020	15.4	0.47	-99.2	11.0
Acceptance	N/A	3 samples	3 samples	3 samples	N/A	N/A	N/A
Criteria		± 0.1 unit	± 10 %	±10%			

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1405

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016	Sample Location ID: TM	W-24-24.7 + DUP
Checkli	st Item	5	Sampler Initials
<u>Pre-Sam</u>	pling		
Depth to paramete	water and total well depth mea r form	asured and recorded on field	KF
Well purg on the fie	ed a minimum of three (3) we ld parameter form if deviating	ll casing volumes (make notation from SAP)	KF
Field para notation i	ameters collected and recorde f deviating from SAP)	d on field parameter form (make	KF
Filtered	Samples Collected		
Uranium	– U235 & U238 by EAP 200.8	– 250 ml plastic bottle preserved with HNO3	KF
QA/QC s	amples collected (duplicate sa	mples as indicated on APF Attachment 1)	KF
<u>Post-Sar</u>	npling		
Samples	property labeled and placed ir	n coolers on ice as needed	KF
Field Par	ameter Form completed per E	PM-SAP-111	KF
Used filte	rs collected and bagged for H	P screening	KF
All equip	nent decontaminated per EPM	1-SAP-107	KF

Sample Location: TMW-24

Depth to Water (± 0.1ft.): 12.16

Water Column (± 0.1ft.): 16.59

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 1235

Volume Purged: 8.10

FIELD PARAMETER LOG							
Purge Volume	рН	Specific Conductivity	Temperature				
(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)				
2.70	7.4	976	15.4				
5.40	7.4	978	16.0				
8.10	7.4	973	16.3				
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %				

Sample Date: 12/15/2016

Sample Time: 1240

Date: 12/15/2016

Weather: Warm and Windy

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 28.75

Casing Volume (± 0.1gal.): 2.70

Purge End Time: 1240

(Note: Sample must be collected within 24 hours of purge time)

Date:	12/15/2016	Sample Location ID: TMW-24
Checkli	st Item	Sampler Initials
Pre-Sam Depth to paramete	pling water and total well depth measured and recorded on field er form	DK
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	DK
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	DK
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved wi	th HNO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	ent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Par	ameter Form completed per EPM-SAP-111	DK
Used filte	ers collected and bagged for HP screening	DK
All equip	ment decontaminated per EPM-SAP-107	DK

Sample Location: 1373-7.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1450

Volume Purged: 1.00

Well Depth (± *0.1ft.*): 27.60 Casing Volume (± *0.1gal.*): 3.04

Purge Date: 12/15/2016

Purge End Time: 1500 (Note: Sample must be collected within 24 hours of purge time)

r	1						
Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
600	1456	7.1	1260	13.2	1.94	-41.8	16.8
600	1458	7.1	1270	13.4	1.07	-44.7	7.07
600	1500	7.0	1290	13.8	0.39	-51.4	5.32
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1500

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016 5	Sample Location ID: 1373-7.4
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered 3	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with	h HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachme	ent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 1373-9.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 27.60

Casing Volume (± 0.1gal.): 3.04

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1503

Volume Purged: 1.00

Purge End Time: 1510 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(mg/L)	(mV)	(NTU)
600	1505	7.2	1060	14.5	0.33	-65.8	41.6
600	1508	7.2	1020	14.5	0.31	-71.2	17.6
600	1510	7.2	1000	14.7	0.23	-74.2	10.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1510

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date:	12/15/2016 S	ample Location ID: 1373-9.4
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with	n HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachme	nt 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF
Sample Location: 1373-11.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1512

Volume Purged: 0.70

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 27.60 Casing Volume (± 0.1gal.): 3.04

Purge End Time: 1520 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1515	7.1	1050	15.1	0.33	-97.4	63.6
600	1517	7.2	1070	15.2	0.26	-104.3	18.8
600	1520	7.1	1070	15.2	0.19	-107.2	13.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1520

Date:	12/15/2016 S	Sample Location ID: 1373-11.4
Checkli	st Item	Sampler Initials
Pre-Sam	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
Post-Sar	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 1373-13.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1523

Volume Purged: 0.80

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 27.60 Casing Volume (± 0.1gal.): 3.04

Purge End Time: 1530 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	pH (std_units + 0_1)	S. Conductivity	Temperature $(^{\circ}C + 0.1^{\circ})$	DO (ma/L)	ORP (mV)	Turbidity
600	1525	7.2	1060	15.5	0.13	-110.3	150
600	1527	7.1	1070	15.4	0.35	-109.8	36.6
600	1530	7 1	1070	15.5	0.32	-110.8	20.3
	1000	7.1	1070	10.0	0.02	110.0	20.0
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1530

Date:	12/15/2016 S	Sample Location ID: 1373-13.4
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered 3	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 1373-15.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 27.60

Casing Volume (± 0.1gal.): 3.04

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1532

Volume Purged: 1200 ml

Purge End Time: 1536 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate	Time	рН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
<100	GRAB // 1536	7.1	1080	14.3	0.23	-111.0	235
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1536

Date:	12/15/2016	Sample Location ID: 1373-15.4
Checklis	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered S	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Para	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equipr	ment decontaminated per EPM-SAP-107	KF

Sample Location: 1373-17.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 27.60

Casing Volume (± 0.1gal.): 3.04

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1542

Volume Purged: 0.50

Purge End Time: 1550 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (um/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1545	7.2	1090	14.1	0.32	-110.3	64.8
500	1547	7.2	1110	14.4	0.14	-99.6	12.4
500	1550	7.1	1110	14.5	0.14	-100.3	8.71
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Sample Time: 1550

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date:	12/15/2016	Sample Location ID: 1373-17.4
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ged a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachn	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 1373-19.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1551

Volume Purged: 750 ml

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 27.60

Casing Volume (± 0.1gal.): 3.04

Purge End Time: 1554 (Note: Sample must be collected within 24 hours of purge time)

FIELD PARAMETER LOG

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
<100	1554 //						
<100	GRAB						
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1554

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date:	12/15/2016 5	Sample Location ID: 1373-19.4
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered :	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equipr	nent decontaminated per EPM-SAP-107	KF

Sample Location: 1373-21.4

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1600

Volume Purged: 750 ml

Purge Date: 12/15/2016

Well Depth (± 0.1ft.): 27.60

Casing Volume (± 0.1gal.): 3.04

Purge End Time: 1605 (Note: Sample must be collected within 24 hours of purge time)

FIELD PARAMETER LOG

Flow Rate	Time	pН	S. Conductivity	Temperature	DO	ORP	Turbidity
(ml/min)		(std. units ± 0.1)	(µm/cm)	(°C ± 0.1°)	(<i>mg/L</i>)	(mV)	(NTU)
<100	1605 //						
<100	GRAB						
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1605

Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date:	12/15/2016 5	Sample Location ID: 1373-21.4
Checklis	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field r form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered \$	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Para	ameter Form completed per EPM-SAP-111	KF
Used filte	rs collected and bagged for HP screening	KF
All equipr	nent decontaminated per EPM-SAP-107	KF

Sample Location: 1373-24.3

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Method (pump & type, bailer & type, etc.): Peristaltic

Purge Start Time: 1615

Volume Purged: 1.00

Purge Date: 12/15/2016 Well Depth (± 0.1ft.): 27.60 Casing Volume (± 0.1gal.): 3.04

Purge End Time: 1622 (Note: Sample must be collected within 24 hours of purge time)

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity (µm/cm)	Temperature (°C ± 0.1°)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1618	7.1	1400	15.2	0.45	-110.6	35.0
600	1620	7.2	1430	15.2	0.26	-110.9	21.0
600	1622	7.1	1450	15.3	0.16	-111.9	14.8
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	N/A	N/A	N/A

FIELD PARAMETER LOG

Sample Date: 12/15/2016

Weather: Cold and clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Date: 12/15/2016

Sample Time: 1622

Date:	12/15/2016 S	Sample Location ID: 1373-24.3
Checkli	st Item	Sampler Initials
<u>Pre-Sam</u>	pling	
Depth to paramete	water and total well depth measured and recorded on field er form	KF
Well purg on the fie	ed a minimum of three (3) well casing volumes (make notation Id parameter form if deviating from SAP)	KF
Field para notation i	ameters collected and recorded on field parameter form (make f deviating from SAP)	KF
Filtered	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved w	ith HNO3 KF
QA/QC s	amples collected (duplicate samples as indicated on APF Attachm	nent 1) N/A
<u>Post-Sar</u>	npling	
Samples	property labeled and placed in coolers on ice as needed	KF
Field Par	ameter Form completed per EPM-SAP-111	KF
Used filte	ers collected and bagged for HP screening	KF
All equip	ment decontaminated per EPM-SAP-107	KF

Sample Location: 1373

Depth to Water (± 0.1ft.): 8.93

Water Column (± 0.1ft.): 18.97

Purge Method (pump & type, bailer & type, etc.): Grundfos

Purge Start Time: 1415

Volume Purged: 9.12

FIELD PARAMETER LOG				
Purge Volume	рН	Specific Conductivity	Temperature	
(gallons)	(std. units ± 0.1)	(µm/cm to 3 sig. digits)	(°C ± 0.1°)	
3.04	7.4	1517	15.6	
6.08	7.4	1545	15.8	
9.12	7.3	1559	16.1	
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	

Sample Date: 12/15/2016

Sample Time: 1422

Date: 12/15/2016

Weather: Cold and overcast

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Filtered Grundfos

Sample Appearance: Clear

Sampler (print name): Dane Kaylor

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

Well Depth (± 0.1ft.): 27.60

Purge Date: 12/15/2016

Casing Volume (± 0.1gal.): 3.04

Purge End Time: 1422

2 (Note: Sample must be collected within 24 hours of purge time)

Date:	12/15/2016	Sample Location ID: 1373
Checkli	st Item	Sampler Initials
Pre-Sam Depth to paramete	p ling water and total well depth measured and recorded on field er form	DK
Well pure on the fie	ged a minimum of three (3) well casing volumes (make notation eld parameter form if deviating from SAP)	DK
Field par notation	ameters collected and recorded on field parameter form (make if deviating from SAP)	DK
<u>Filtered</u>	Samples Collected	
Uranium	– U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with Hl	NO3 DK
QA/QC s	amples collected (duplicate samples as indicated on APF Attachment ?	l) N/A
Post-Sa	mpling	
Samples	property labeled and placed in coolers on ice as needed	DK
Field Par	ameter Form completed per EPM-SAP-111	DK
Used filte	ers collected and bagged for HP screening	DK
All equip	ment decontaminated per EPM-SAP-107	DK

APPENDIX C – HPT AND EC LOGS



P-E-S		C	
Plains	Environmental	Services	

		1 110.	
		TMW-09.HPT	
Company:	Operator:	Date:	
PES	Jason A.	12/14/2016	
Project ID:	Client:	Location:	
Cimarron Facility	B&McD		



P-E-S	Company
Plains Environmental Services	Project ID

		02W02.HPT
Company:	Operator:	Date:
PES	Jason A.	12/14/2016
Project ID:	Client:	Location:
Cimarron Facility	B&McD	



			File:
P.F.S			02W32.HPT
	Company:	Operator:	Date:
Plains Environmental Services	PES	Jason A.	12/15/2016
rians Environmental cervices	Project ID:	Client:	Location:
	Cimarron Facility	B&McD	



DEC			File: 02W44 HPT
P-E-3	Company:	Operator:	Date:
Plains Environmental Services	PES	Jason A.	12/15/2016
rians Environmental oervices	Project ID:	Client:	Location:
	Cimarron Facility	B&McD	



P-E-S		C
Plains	Environmental Services	P

		TMW-24.HPT
Company:	Operator:	Date:
PES	Jason A.	12/15/2016
Project ID:	Client:	Location:
Cimarron Facility	B&McD	



P-E-S			Cor
Plains	Environmental	Services	Pro

		1373.HPT
Company:	Operator:	Date:
PES	Jason A.	12/15/2016
Project ID:	Client:	Location:
Cimarron Facility	B&McD	



	P-E-S		C
Plains I	Environmental	Services	P

		T-67.HPT
Company:	Operator:	Date:
PES	Jason A.	12/14/2016
Project ID:	Client:	Location:
Cimarron Facility	B&McD	



P-E-S	Company:	Ope
Plains Environmental Services	PES	
Fiams Environmental Services	Project ID:	Clier
	Cimarron Facility	

		FIIE.	
		T-68.HPT	
	Operator:	Date:	
PES	Jason A.	12/14/2016	
	Client:	Location:	
imarron Facility	B&McD		



D.F.S			File: T-84.HPT
1-2-0	Company:	Operator:	Date:
Plains Environmental Services	PES	Jason A.	12/13/2016
rians chritental bervices	Project ID:	Client:	Location:
	Cimarron Facility	B&McD	



File: T-51.HPT P-E-S Company: Operator: Date: **Plains Environmental Services** 12/12/2016 PES Jason A. Project ID: Client: Location: B&McD

Cimarron Facility



P-E-S			
Plains	Environmental Services		

		T-59.HPT
Company:	Operator:	Date:
PES	Jason A.	12/13/2016
Project ID:	Client:	Location:
Cimarron Facility	B&McD	



1	P-E-S
Plains	Environmental Services

		1 110.
		T-97.HPT
Company:	Operator:	Date:
PES	Jason A.	12/12/2016
Project ID:	Client:	Location:
Cimarron Facility	B&McD	

APPENDIX D – LABORATORY ANALYTICAL REPORTS



a member of The GEL Group INC



PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 07, 2016

Mr. Jeff Lux Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102

Re: Cimarron February 2016 GWM Work Order: 391691

Dear Mr. Lux:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 19, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,

Chelsea Seagle Edith Kent Project Manager

Purchase Order: tbd Chain of Custody: 2016-001, 2016-002 and 2016-003 Enclosures



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Chain of Custody and Supporting Documentation	4
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Metals Analysis	11
Case Narrative	
Sample Data Summary	17
Quality Control Summary	
General Chem Analysis	34
Case Narrative	
Sample Data Summary	43
Quality Control Summary	60



CASE NARRATIVE for Burns & McDonnell Cimarron February 2016 GWM SDG:391691

March 07, 2016

Laboratory Identification:

GEL Laboratories LLC 2040 Savage Road Charleston, South Carolina 29407 (843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 19, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note There are no additional items of note concerning this SDG.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691006	T-69
391691007	T-57
391691008	T-58
391691009	T-77
391691010	T-79
391691011	T-79DUP
391691012	T-96
391691013	T-86
391691014	T-59
391691015	T-88
391691016	T-88DUP

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and

Page 2 of 62

Metals.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Chelsea Seagle for Edith Kent Project Manager

GEL Laboratories LLC

PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

Chain of Custody and Supporting Documentation
			Veie	DEO	<u>J</u>	910				0 4. 20	10 0	01	·····			······	
SHIP TO	ODT RECORD P		1313			SHIP FR	20M·			0#:20	<u>10-0</u>		ΔΝΔ			IESTE	
Company Name	GEL Laboratorie	s LLC				0.111 1.11	com.				<u> </u>	T		T		1	<u></u>
Address:	2040 Savage Ro	bad				Environmental Properties Management						Í					
Address:	Charleston, SC	29407					1	00 N. Hwy	74		8						
Contact Person:	Edith Kent						Gu	thrie, OK 7	3044		8						
Phone:	843-769-7376, e	xt. 4505									X	3.2)					AND AND AND
ATTEST THAT THE PROPER	R FIELD SAMPLING PROCE	DURES WERE US	SED DUR	ING THE		Cont	act Person:	Jeff Lux			Ē	35	6		1		
COLLECTION OF THESE SAMPLES.							Dhono	105.642	5150		l m	PA	g				han nu seatta
SAMPLER SIGNATU				AMDI E 70	/102 /DE		Tan -	le (E	N N								
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MWWA-03	2/16/2016	945	1	P	125 mL			X	H2SO4	N		x	++				
MWWA-03	2/16/2016	945	1	P	125 mL	n han a san an Gallandi da mandra manana any akata a	***	X	none	N			X				
MWWA-03DUP	2/16/2016	945	1	P	250 mL			X	HNO3	Y	X	-	+			-	
MWWA-03DUP	2/16/2016	945	1	Р	125 mL	an an air air an tha		Х	H2SO4	N	1	X					
MWWA-03DUP	2/16/2016	945	1	Р	125 mL			Х	none	N	-	1	X				
MWWA-09	2/16/2016	1000	1	P	250 mL			Х	HNO3	Y	X						1
MWWA-09	2/16/2016	1000	1	Р	125 mL			X	H2SO4	N		Х					
MWWA-09	2/16/2016	1000	1	Р	125 mL			X	none	N		-	X				
T-62	2/16/2016	1020	1	P	250 mL	والمرور ومرور مرور مروم ومعار ما ما ما و ورور مرور	1	X	HNO3	Y	X						<u> </u>
T-62	2/16/2016	1020	1	Р	125 mL	n an		X	H2SO4	N		X	ļ				
T-62	2/16/2016	1020	1	P	125 mL		 	X	none	N		1	X				L
	Potential H	lazardous Cha	racteris	stics							Sam	ple Dis	sposal				
Non-Haz	CRCRA D001,283, or 4	C RCRA	Listed	0	Radioac	tive 🖸	Unknown	Dispos	sal Lab	D Return	to Clien	t	01	folding pe	nding furth	er instruct	lions
THIS SAMPI	LE MEETS ALL APPROPR	RIATE RADIOLO	GICAL	REQUIR	EMENTS:	HP II	NITIAL: 7/1	<u>K</u>									
		*****	·														
RELINQUISHED BY SAMPLE	R: DATE:	TIME:	RECEN	ED BY :		1	DATE:	TIME:	EDC	REPORT TO:				-	and a company of the second		
June	2/18/16	1600	m.	l V	1 U	(1 anal	a cont	(Report	EQUIS	dhorr	ie@bi	urnsmcc	<u>l.com</u>			
RELINQUISHED BY	DATE	TIME	RECEN		<u>un</u>	1	DATE:	TIME	Level?)	GEL EUU	mbec	kman	@burns	mcd.co	m; jiux@	<u>envpm</u> .	.con
	ud? t t base								(Report		jlux@	envpr	n.com	*******	• ()= (0)= (0) () () () () () () () () () () () () ()		
	*****		<u> </u>						Level?)		mbec	kmani	@burns	mcd.co	m		

CHAIN OF CUST	DDY RECORD A	ND ANAL	YSIS	REQ	UEST				CO(c #: 201	<u>16-0</u>	02					
Ship to:						SHIP FR	ROM:				ANALYSIS REQUESTED						
Company Name:	GEL Laboratories	LLC				_			••								
Address:	2040 Savage Roa	ad ·				Ei	nvironmenta	I Propertie	s Managem	ent				1			
Address:	Charleston, SC 2	9407				100 N. Hwy /4					0.8						ľ
Contact Person:	Edith Kent						Gut	nrie, OK 7	3044		20	EPA 20(53.2)					to solve a service
Phone:	843-769-7376, ex	t. 4505									PA			1			
ATTEST THAT THE PROPER COLLECTION OF THESE SAM	FIELD SAMPLING PROCED	URES WERE US ۶		NG THE		Cont	act Person:	Jeff Lux			m (E	A 3	0.0				ran maar naar we
SAMPLER SIGNATU	ECZ	a martine and the second s					Phone:	405-642-5	5152		niu	Ш Ш	30				1 June 1
SITE:	OTRADDON!		,				S	AMPLE TY	PE		Ura	ite	PA				
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<u></u>	SAMPLE			CONTAIN	IER	SC		"X" IF	PRESERV.	FILTERED	solv	ate	orid	l			
ID	DATE	TIME	NO.	TYPE	SIZE	SOIL	OTHER	WATER		.45µ Y/N	Dis	l III	Ē				
ſ-76	2/16/2016	1035	1	Ρ	250 mL			х	HNO3	Y	X						Í
ſ -76	2/16/2016	1035	1	Р	125 mL			Х	H2SO4	N		Х					
-76	2/16/2016	1035	1	Р	125 mL			Х	none	N			X				
Г-69	2/16/2016	1100	1	Р	250 mL			X	HNO3	Y	X]			
-69	2/16/2016	1100	1	Р	125 mL			Х	H2SO4	N		Х					
ſ -57	2/16/2016	1120	1	Р	125 mL			X	H2SO4	N		Х					
F-57	2/16/2016	1120	1	Р	125 mL			Х	none	N			Х	[
r-58	2/16/2016	1135	1	Р	125 mL			Х	H2SO4	N		X					
[-77	2/16/2016	1150	1	Р	250 mL			X	HNO3	Y	Х				1		
[-77	2/16/2016	1150	1	Р	125 mL	والمحافظ والمعاولة والمحافظ وا		X	H2SO4	N	ļ	X			ļ		
F-77	2/16/2016	1150	1	P	125 mL			X	none	N			Х				
-79	2/16/2016	1205	1	Р	250 mL			<u> </u>	HNO3	Y	X						
	Potential H	azardous Cha	racteris	tics							Samp	ole Dis	posal				
Non-Haz	CRCRA D001,2&3, or 4	C RCRA	Listed	0	Radioad	tive 🗆	Unknown	Dispos	sal Lab	Return	to Clien	t	οн	olding pend	ling furthe	r instructio	ns
THIS SAMPLI	E MEETS ALL APPROPRI	ATE RADIOLO	GICAL F	REQUIR	EMENTS:	HP I	NITIAL:	<u> </u>	1								
			<u> </u>		1	-1			T								
ELINQUISHED BY SAMPLER	DATE:	TIME:	RECEIV	ED BY :		1	DATE:	HME:	EDD	EOUS	م حا له	- (D)			at a		
- June	- 2/18/16	1600	lh	V J	La	()	-191L	nGAN	(Report	GELEDD	unorn	le@bu	nismca aburn	.com	. 11		~~~
ELINQUISHED BY:	DATE:	TIME:	RECEIV	ED BY :	- ~ ~ ~ ~	~	DATE:	TIME:	HARD COPY R	EPORT (.PDF)	TO	<u>vilidi)(</u>	Junis	nca.com	, nuxtore	envpin.ci	<u>um</u>
									(Report		jlux@	envpn	n.com			a and a second and a second and a second a	
			L						Level?)		mbec	kman(wburnsr	ncd.com			
										A 1	ALCON.						

391691

CHAIN OF CUST	ODY RECORD A	ND ANAL	YSIS	REQ	UEST				CO	C # : 20'	16-0	03					
SHIP TO:		*****				SHIP FR	ROM:				T		ANA	LYSIS	REQU	ESTED	,
Company Name:	GEL Laboratories	LLC									 				1	T	
Address:	2040 Savage Roa	ad				E	nvironmenta	al Propertie	s Managem	nent							
Address:	Charleston, SC 2	29407					1	00 N. Hwy	74		(8.						
Contact Person:	Edith Kent						Gu	thrie, OK 7	3044		50						
Phone:	843-769-7376, ex	d. 4505									A	3.2)					
ATTEST THAT THE PROPE	R FIELD SAMPLING PROCED	URES WERE US	ED DUR	ING THE		Cont	lact Person:	Jeff Lux			Ē	35	6				
COLLECTION OF THESE SAN	MPLES.		58 58				Dhono:	105 612 4	5160		ium	d≣ DA	200				
SAMPLER SIGNATU	JRE:						FIIUIRE.	400-042-0	0102 (DC		ran	le (F	Υ.Υ.				
SITE:	CIMARRON FACILITY							awiple i y	MATER	ar V-m Car V-in an Maraya and a state of a management	D D	l 🛓	E E				1
	0.1101		1	001/21/2		sc	DLID		WAIER	1	olve	te/h	ride				
	SAMPLE	TIXAC		TYPE	017E	801	OTHER	MATED	PRESERV.	ALL VAL	Diss	Vitra	9				
ບ T_70	2/16/2016	1205	1	P	125 ml		; UINER	X	H2SO4	N N	<u> </u>	X	<u> </u>	1		╄╼╍╍┾╸	
	2/16/2016	1205	1	i p	250 mi	{		X	HNO3	Y	x	~	<u> </u>	+			
T-79DUP	2/16/2016	1205	1	P	125 ml			X	H2SO4	N		Х				+	
T_06	2/16/2016	1230	1	P	250 ml			X	HNO3	Y	X			+		+	
T-96	2/16/2016	1230	1	P	125 mL			X	H2SO4	N		Х					
T-86	2/16/2016	1425	1	P	125 mL	1		X	H2SO4	N		X					
T-59	2/16/2016	1440	1	Р	250 mL		-	Х	HNO3	Y	Х						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
T-59	2/16/2016	1440	1	Р	125 mL			X	H2SO4	N		Х					
T-88	2/16/2016	1450	1	Р	250 mL			X	HNO3	Y	Х						
T-88	2/16/2016	1450	1	Р	125 mL			Х	H2SO4	N		Х					
T-88DUP	2/16/2016	1450	1	Р	250 mL			X	HNO3	Y	Х						
T-88DUP	2/16/2016	1450	1	Р	125 mL			X	H2SO4	N		Х					
	Potential Ha	azardous Cha	racteris	stics							Sam	ole Dis	posal				
Non-Haz	CRCRA D001,2&3, or 4	D RCRA	Listed	0	Radioa	ctive 🗆	Unknown	Dispo:	sal Lab	🗆 Return	to Clien	t	о н	olding pe	nding furthe	r instructio	ns
THIS SAMP	LE MEETS ALL APPROPRI	IATE RADIOLO	GICAL	REQUIR	EMENTS:	HP I	NITIAL:	<u>26</u>									
			T		· / ·····	~			- <u>1</u>								
RELINQUISHED BY SAMPLE	R: DATE:	TIME:	RECEN	/ED BY :	1 /	7	DATE:	TIME:	ED	D REPORT TO:					****		
mand	~ z/18/11-	1600	h		\mathcal{A}		1-19 11	1 nani	(Report	EQUIS	dhorr	ie@bu	Irnsmcd	. <u>¢om</u>			
		T1385-		4 f	- May	(<u>~~1/70</u>	1 0700	Level?)	GEL EDD	mbec	kman(wburnsi	ncd.cor	<u>m; jlux@e</u>	envpm.c	<u>om</u>
VELINQUISHED BY :	DATE.	HWC.	INCOEN	20 81 :			UNIE.	1 19915.	(Report	NEFURI (.FUF	jlux@	envpn	n.com			anna an an Arthresian an A	
			1						Level?)		mbec	kman(@burnsr	ncd.cor	m		

1449 134 157	GEL	Laboratories ELc				SAMPLE RECEIPT & REVIEW FORM
Clie	ent:	CMRN			SD	G/AR/COC/Work Order: 3/1109/1, 3911098, 291704
Rec	eived By:	M			Dat	te Received: $2.19-16$
Sus	pected Hazard Ir	formation	Yes	No	*If) inve	Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further stigation.
COC	VSamples marked	as radioactive?		4	Max	cimum Net Counts Observed* (Observed Counts - Area Background Counts):
Clas	sified Radioactive	e II or III by RSO?	ļ	Ľ	If ye	ss, Were swipes taken of sample containers < action levels?
Pack	age, COC, and/or	r Samples marked as		7	5	
bery	llium or asbestos	containing?	5 ₆₀	4	If ye	s, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Ship	ped as a DOT Ha	zardous? Foreign Soil?		-	Haz	ard Class Shipped: UN#:
Juin	Formato D	leasint Criterio	8	L V		
<u> </u>	Sample A		X	Z	<u>⊧z</u>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
1	Shipping contai	iners received infact and				
2	Samples requiri within (0 <u><</u> 6 de	ing cold preservation eg. C)?*	and the second			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 6
2a	Daily check per temperature gui	formed and passed on IR	/		ſ	Temperature Device Serial #: Secondary Temperature Device Serial # (IF Applicable).
3	Chain of custod with shipment?	ly documents included				
4	Sample contain	ers intact and sealed?	E			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiri at proper pH?	ing chemical preservation	V			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level I headspace as re	Perchlorate samples have quired?		/		Sample ID's and containers affected:
7	VOA vials cont	ain acid preservation?		d.		(If unknown, select No)
8	VOA vials free < 6mm bubble)	of headspace (defined as ?				Sample ID's and containers affected:
9	Are Encore con	tainers present?			ŝ	(If yes, immediately deliver to Volatiles laboratory)
10	Samples receive	ed within holding time?	a.		, . 	ID's and tests affected:
11	Sample ID's on bottles?	COC match ID's on				Sample ID's and containers affected:
12	Date & time on on bottles?	COC match date & time	Contraction of the second			Sample ID's affected:
13	Number of cont number indicate	tainers received match ed on COC?				Sample ID's affected:
14	Are sample con GEL provided?	tainers identifiable as	-			
15	COC form is pr relinquished/rec	operly signed in ceived sections?	,		L	
			ŝæ			FedEx Air FedEx Ground UPS Field Services Courier Other 7756 8194 3380 16 [°]
16	Carrier and trac	king number.				4137 6C
Com	ments (Use Conti	inuation Form if needed):			L	
						•
Ĺ		PM (or PMA) rev	view:	Initi	als	Cas Date 02 19/110 Page 1 of GL-CHL-SR-001 Rev 2

Laboratory Certification

State	Certification							
Alaska	UST-0110							
Arkansas	88-0651							
CLIA	42D0904046							
California	2940							
Colorado	SC00012							
Connecticut	PH-0169							
Delaware	SC00012							
DoD ELAP/ ISO17025 A2LA	2567.01							
Florida NELAP	E87156							
Foreign Soils Permit	P330-15-00283, P330-15-00253							
Georgia	SC00012							
Georgia SDWA	967							
Hawaii	SC00012							
Idaho Chemistry	SC00012							
Idaho Radiochemistry	SC00012							
Illinois NELAP	200029							
Indiana	C-SC-01							
Kansas NELAP	E-10332							
Kentucky SDWA	90129							
Kentucky Wastewater	90129							
Louisiana NELAP	03046 (AI33904)							
Louisiana SDWA	LA160006							
Maryland	270							
Massachusetts	M-SC012							
Michigan	9976							
Mississippi	SC00012							
Nebraska	NE-OS-26-13							
Nevada	SC000122016-1							
New Hampshire NELAP	205415							
New Jersey NELAP	SC002							
New Mexico	SC00012							
New York NELAP	11501							
North Carolina	233							
North Carolina SDWA	45709							
North Dakota	R-158							
Oklahoma	9904							
Pennsylvania NELAP	68-00485							
S.Carolina Radchem	10120002							
South Carolina Chemistry	10120001							
Tennessee	TN 02934							
Texas NELAP	T104704235-16-11							
Utah NELAP	SC000122016-20							
Vermont	VT87156							
Virginia NELAP	460202							
Washington	C780							
West Virginia	997404							

List of current GEL Certifications as of 07 March 2016





Metals Technical Case Narrative Burns & McDonnell (CMRN) SDG #: 391691

Sample ID	Client ID
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691006	T-69
391691009	T-77
391691010	T-79
391691011	T-79DUP
391691012	T-96
391691014	T-59
391691015	T-88
391691016	T-88DUP
1203493391	Method Blank (MB)ICP-MS
1203493392	Laboratory Control Sample (LCS)
1203493397	391691001(MWWA-03L) Serial Dilution (SD)
1203493398	391704002(1381L) Serial Dilution (SD)
1203493393	391691001(MWWA-03D) Sample Duplicate (DUP)
1203493394	391704002(1381D) Sample Duplicate (DUP)
1203493395	391691001(MWWA-03S) Matrix Spike (MS)
1203493396	391704002(1381S) Matrix Spike (MS)

Sample Analysis

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch:	1546418
Prep Batch :	1546415
Standard Operating Procedures:	GL-MA-E-014 REV# 27 and GL-MA-E-016 REV# 15 $$
Analytical Method:	EPA 200.8
Prep Method :	EPA 200.2

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 391691001 (MWWA-03) and 391704002 (1381).

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 391691001 (MWWA-03), 391691002 (MWWA-03DUP), 391691003 (MWWA-09), 391691004 (T-62) and 391691005 (T-76) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte		3	89169	1	
	001	002	003	004	005
Uranium	10X	10X	10X	10X	10X

Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391691 GEL Work Order: 391691

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- B Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Juk Ede A. Emore Signature:

Name: Nik-Cole Elmore Title: Data Validator

Date: 15 MAR 2016



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Certificate of Analysis

								F	Report Da	ate:	March 1	5, 2016	5
	Company :	Env	ironmental Proper	ties Manageme	nt, LLC								
	Address :	615	N. Hudson										
		Suit	e 200										
		Okla	ahoma City, Oklal	homa 73102									
	Contact:	Mr.	Jeff Lux										
	Project:	Cim	arron February 20	016 GWM									
	Client Sample ID:	MW	WA-03			Proje	et:	CMR	N00117				_
	Sample ID:	3916	591001			Clien	t ID:	CMR	N001				
	Matrix:	Wat	er										
	Collect Date:	16-F	EB-16 09:45										
	Receive Date:	19-F	EB-16										
	Collector:	Clie	nt										
Doromotor	Quali	fior	Dogult	DI	DI	Luita	DE	Analy	at Data	Tim	Dotoh	Matha	
Farameter	Quali	nei	Kesult	DL	KL	Units	DF	Anary	si Dale	1 111	le Datell	Metho	<u> </u>
Metals Ana	alysis-ICP-MS												
200.2/200.8	8 Dissolved Uraniun	n "As	Received"										
Uranium			312	0.670	2.00	ug/L	10	BAJ	03/04/16	1159	1546418	1	
The follow	ing Prep Methods w	ere pe	rformed:										
Method	Descr	iption	l		Analyst	Date	Tim	e P	rep Batch	1			
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730	1:	546415				
The follow	ving Analytical Meth	ods w	vere performed:										
Method	Descri	iption				Ana	alyst Co	mmen	ts				_

Method EPA 200.8

Notes:

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Certificate of Analysis

									Report Da	te:	March 1	15, 2016
	Company : Address :	Envi 615 Suite	ronmental Properti N. Hudson	es Managemer	nt, LLC							
		Okla	homa City Oklaho	oma 73102								
	Contact:	Mr.	Jeff Lux	,iiiu , 5102								
	Project:	Cim	arron February 201	6 GWM								
	Client Sample ID:	MW	WA-03DUP			Projec	:t:	CMI	RN00117			
	Sample ID:	3916	591002			Client	ID:	CMI	RN001			
	Matrix:	Wate	er									
	Collect Date:	16-F	EB-16 09:45									
	Receive Date:	19-F	EB-16									
	Collector:	Clier	nt									
Parameter	Quali	fier	Result	DL	RL	Units	DF	Anal	yst Date	Tin	ne Batch	Method
Metals Ana	lysis-ICP-MS											
200.2/200.8	8 Dissolved Uraniun	n "As l	Received"									
Uranium			336	0.670	2.00	ug/L	10	BAJ	03/04/16	1206	1546418	1
The follow	ing Prep Methods w	ere pe	rformed:									
Method	Desci	ription			Analyst	Date	Tim	ne I	Prep Batch	ı		
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 1	546415			
The follow	ving Analytical Meth	ods w	ere performed:									
Method	Descri	iption				Ana	lyst Co	mmer	nts			
1	EPA 20	EPA 200.8										

Notes:

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Certificate of Analysis

						•/		F	Report Da	ate:	March 1	5, 201	6
	Company :	Envi	ronmental Pro	operties Manageme	nt, LLC								
	Audress .	Suite	> 200										
		Okla	homa City O	klahoma 73102									
	Contact:	Mr J	leff Lux										
	Project:	Cima	arron Februar	y 2016 GWM									
	Client Sample ID:	MW	WA-09			Proje	ct:	CMR	N00117				
	Sample ID:	3916	91003			Clien	t ID:	CMR	N001				
	Matrix:	Wate	er										
	Collect Date:	16-F	EB-16 10:00										
	Receive Date:	19-F	EB-16										
	Collector:	Clier	nt										
Parameter	Quali	fier	Result	וס	RI	∐ nits	DF	Analy	st Date	Tim	e Batch	Metho	
Metals Ana	Jucis ICP-MS		Result		<u> </u>	Onto	DI	7 that y	St Dute	1 111	le Dateil	with	
200 2/200 9	R Dissolved Uranium	. " A a I	Deceived"										
200.2/200.0 Uranium	5 Dissolved Ofamuli	I ASI	156	0.670	2.00	ug/L	10	BAJ	03/04/16	1208	1546418	1	
The follow	ing Prep Methods w	ere pei	formed:			8						-	
Method	Descr	ription			Analyst	Date	Tim	ne P	rep Batcl	ı			
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 15	546415				
The follow	ving Analytical Meth	ods w	ere performed	1:									
Method	Descri	ption	-			An	alvst Co	mment	ts				_

Method EPA 200.8

Notes:

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Certificate of Analysis

			-			•/		Re	eport Da	ate: Ma	arch 1	5, 2016
	Company : Address :	Enviro 615 N. Suite 2	nmental Propertie Hudson 00	es Managemer	nt, LLC							
	Contact: Project:	Oklaho Mr. Jef Cimarr	ma City, Oklaho f Lux on February 2016	ma 73102 6 GWM								
	Client Sample ID: Sample ID: Matrix: Collect Date:	T-62 391691 Water 16-FEF	004 3-16 10:20			Projec Client	et: EID:	CMRN CMRN	100117 1001			
	Collector:	Client	3-10									
Parameter	Quali	fier F	lesult	DL	RL	Units	DF	Analyst	Date	Time I	Batch	Method
Metals Ana	lysis-ICP-MS											
200.2/200.8 Uranium	8 Dissolved Uraniun	ı "As Re	ceived" 165	0.670	2.00	ug/L	10	BAJ (03/04/16	1209 15	546418	1
The follow	ing Prep Methods w	ere perfo	rmed:									
Method	Descr	iption			Analyst	Date	Tim	e Pre	p Batch	1		
EPA 200.2	ICP-M	S 200.2 PF	EP		JP1	02/19/16	1730	154	6415		-	
The follow	ving Analytical Meth	ods were	e performed:									
Method	Descri	ption				Ana	lyst Co	mments				
1	EPA 20	0.8					-					

Notes:

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Certificate of Analysis

			-			•/		F	Report Da	ite:	March 1	5, 2016
	Company :	Environ	mental Propertie	s Managemer	nt, LLC							
	Address :	615 N. I	Iudson	-								
		Suite 20	0									
		Oklahor	na City, Oklahon	na 73102								
	Contact:	Mr. Jeff	Lux									
	Project:	Cimarro	n February 2016	GWM								
	Client Sample ID:	T-76				Projec	et:	CMR	N00117			
	Sample ID:	3916910	05			Client	t ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	16-FEB	16 10:35									
	Receive Date:	19-FEB	-16									
	Collector:	Client										
Parameter	Quali	fier Re	esult	DL	RL	Units	DF	Analy	st Date	Tim	ne Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Rec	eived"									
Uranium			154	0.670	2.00	ug/L	10	BAJ	03/04/16	1210	1546418	1
The follow	ing Prep Methods w	ere perfor	med:									
Method	Desci	ription			Analyst	Date	Tim	e Pi	rep Batcl	1		
EPA 200.2	ICP-M	S 200.2 PRI	P		JP1	02/19/16	1730	15	546415	-		
The follow	ving Analytical Meth	ods were	performed:									
Method	Descr	ption				Ana	alyst Co	mment	ts			
1	EPA 20	0.8										

Notes:

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Certificate of Analysis

			_			•/		R	leport Da	ate:	March 1	15, 2016
	Company :	Environm	ental Properties	Managemer	nt, LLC							
	Address :	615 N. H	ıdson	-								
		Suite 200										
		Oklahom	a City, Oklahom	a 73102								
	Contact:	Mr. Jeff I	Jux									
	Project:	Cimarron	February 2016	GWM								
	Client Sample ID:	T-69				Projec	et:	CMR	N00117			
	Sample ID:	39169100	6			Client	ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	16-FEB-1	6 11:00									
	Receive Date:	19-FEB-1	6									
	Collector:	Client										
		~ D	1.	DI	DI	TT 1						
Parameter	Qualı	fier Res	ult	DL	RL	Units	DF	Analy	st Date	Tim	ne Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Recei	ved"									
Uranium			51.7	0.067	0.200	ug/L	1	BAJ	03/03/16	1859	1546418	1
The follow	ing Prep Methods w	ere perform	ied:									
Method	Descr	ription			Analyst	Date	Tim	e Pi	rep Batcl	n		
EPA 200.2	ICP-M	S 200.2 PREF	•		JP1	02/19/16	1730	15	546415	-		
The follow	ving Analytical Meth	ods were p	erformed:									
Method	Descri	ption				Ana	lyst Co	mment	S			
1	EPA 20	0.8										

Notes:

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Certificate of Analysis

						•/		R	eport Da	ate:	March 1	5, 2016
	Company :	Environm	ental Properties	Managemer	nt, LLC							
	Address :	615 N. Hi	ıdson	•								
		Suite 200										
		Oklahoma	a City, Oklahom	a 73102								
	Contact:	Mr. Jeff L	Jux									
	Project:	Cimarron	February 2016	GWM								
	Client Sample ID:	T-77				Projec	et:	CMR	N00117			
	Sample ID:	39169100	9			Client	ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	16-FEB-1	6 11:50									
	Receive Date:	19-FEB-1	6									
	Collector:	Client										
			•									
Parameter	Qualı	tier Res	ult	DL	RL	Units	DF	Analys	st Date	Tim	ie Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Recei	ved"									
Uranium			55.1	0.067	0.200	ug/L	1	BAJ	03/03/16	1901	1546418	1
The follow	ing Prep Methods w	ere perform	ed:									
Method	Desci	iption			Analyst	Date	Tim	e Pr	ep Batel	h		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730	15	46415	-		
The follow	ving Analytical Meth	ods were p	erformed:									
Method	Descr	ption				Ana	lyst Co	mment	s			
1	EPA 20	0.8										

Notes:

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			_			•/		R	leport Da	ate:	March 1	5, 2016
	Company :	Environn	nental Properties	Managemer	nt, LLC							
	Address :	615 N. H	udson	-								
		Suite 200	1									
		Oklahom	a City, Oklahon	na 73102								
	Contact:	Mr. Jeff	Jux									
	Project:	Cimarror	February 2016	GWM								
	Client Sample ID:	T-79				Projec	et:	CMR	N00117			
	Sample ID:	3916910	0			Client	t ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	16-FEB-	6 12:05									
	Receive Date:	19-FEB-	6									
	Collector:	Client										
	0.1	~ D	1.	DI	DI	T T '		<u> </u>		— .		
Parameter	Quali	fier Res	sult	DL	RL	Units	DF	Analy	st Date	Tim	ie Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Rece	ived"									
Uranium			53.0	0.067	0.200	ug/L	1	BAJ	03/03/16	1904	1546418	1
The follow	ing Prep Methods w	ere perforn	ned:									
Method	Desci	ription			Analyst	Date	Tim	e Pi	rep Batcl	1		
EPA 200.2	ICP-M	S 200.2 PREI)		JP1	02/19/16	1730	15	46415			
The follow	ving Analytical Meth	ods were p	erformed:									
Method	Descr	ption				Ana	alyst Co	mment	S			
1	EPA 20	0.8										

Notes:

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Certificate of Analysis

Report Date: March 15, 2016 Company : Environmental Properties Management, LLC Address : 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102 Contact: Mr. Jeff Lux Project: Cimarron February 2016 GWM Client Sample ID: T-79DUP Project: CMRN00117 Sample ID: 391691011 Client ID: CMRN001 Matrix: Water Collect Date: 16-FEB-16 12:05 19-FEB-16 Receive Date: Collector: Client Parameter Qualifier DL RL Units DF Analyst Date Time Batch Method Result Metals Analysis-ICP-MS 200.2/200.8 Dissolved Uranium "As Received" Uranium 51.5 0.067 0.200 ug/L 1 BAJ 03/03/16 1906 1546418 1 The following Prep Methods were performed: Method Date Time Prep Batch Description Analyst 02/19/16 EPA 200.2 ICP-MS 200.2 PREP JP1 1730 1546415 The following Analytical Methods were performed: Description Method Analyst Comments

1

EPA 200.8

Notes:

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Certificate of Analysis

			_					Re	port Da	ate: Mare	ch 15, 2016
	Company : Address :	Environ 615 N. I Suite 20	mental Properties Iudson 0	Managemer	nt, LLC						
	Contact: Project:	Mr. Jeff Cimarro	Lux The February 2016	GWM							
	Client Sample ID: Sample ID: Matrix: Collect Date: Receive Date: Collector:	T-96 3916910 Water 16-FEB 19-FEB Client	012 -16 12:30 -16			Projec Client	et: : ID:	CMRN CMRN	100117 1001		
Parameter	Quali	fier Re	esult	DL	RL	Units	DF	Analyst	Date	Time Ba	tch Method
Metals Ana	alvsis-ICP-MS										
200.2/200.8 Uranium	8 Dissolved Uraniun	ı "As Rec	eived" 31.5	0.067	0.200	ug/L	1	BAJ (03/03/16	1909 1546	418 1
The follow	ing Prep Methods w	ere perfor	med:								
Method	Desci	iption			Analyst	Date	Tim	ie Pre	p Batel	1	
EPA 200.2	ICP-M	S 200.2 PRI	EP		JP1	02/19/16	1730	154	6415		
The follow	ving Analytical Meth	ods were	performed:								
Method	Descri	ption				Ana	lyst Co	mments			
1	EPA 20	0.8					-				

Notes:

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Certificate of Analysis

						•/		Re	eport Da	ate:	March 1	15, 2016
	Company : Address :	Envi 615	ronmental Proper N. Hudson	ties Managemen	nt, LLC							
		Suite	e 200									
		Okla	homa City, Oklał	noma 73102								
	Contact:	Mr.	Jeff Lux									
	Project:	Cim	arron February 20	16 GWM								
	Client Sample ID:	T-59				Projec	et:	CMRN	100117			
	Sample ID:	3916	91014			Client	ID:	CMRN	1001			
	Matrix:	Wate	er									
	Collect Date:	16-F	EB-16 14:40									
	Receive Date:	19-F	EB-16									
	Collector:	Clier	nt									
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analys	t Date	Tin	ne Batch	Method
Metals Ana	alvsis-ICP-MS											
200 2/200	8 Dissolved Uraniun	n "As l	Received"									
Uranium			76.4	0.067	0.200	ug/L	1	BAJ	03/03/16	1912	1546418	1
The follow	ing Prep Methods w	ere pe	rformed:									
Method	Desci	iption			Analyst	Date	Tin	ne Pro	ep Batel	n		
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 154	6415			
The follow	ving Analytical Meth	ods w	ere performed:									
Method	Descri	ption				Ana	lyst Co	mments				
1	EPA 20	0.8					<i></i>					

Notes:

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Certificate of Analysis

						•/	-		Report Da	ate:	March 1	5, 2016
	Company :	Environme	ntal Properties Mar	nageme	nt, LLC							
	Address :	615 N. Hud	son	•								
		Suite 200										
		Oklahoma	City, Oklahoma 73	3102								
	Contact:	Mr. Jeff Lu	X									
	Project:	Cimarron F	ebruary 2016 GW	М								
	Client Sample ID:	T-88					Project:	CM	RN00117			
	Sample ID:	391691015					Client ID:	CM	RN001			
	Matrix:	Water										
	Collect Date:	16-FEB-16	14:50									
	Receive Date:	19-FEB-16										
	Collector:	Client										
		~ D 1		DI			·				D . 1	
Parameter	Qualı	fier Resul	t	DL	RL	Uı	nits DF	Anal	yst Date	Tim	he Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Receive	ed"									
Uranium		8.)8	0.067	0.200	uş	g/L 1	BAJ	03/03/16	1919	1546418	1
The follow	ing Prep Methods w	ere performe	1:									
Method	Desci	iption			Analyst	Date	e Tir	ne]	Prep Batcl	1		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19	/16 173	0	1546415			
The follow	ving Analytical Meth	ods were per	formed:									
Method	Descr	ption					Analyst C	omme	nts			
1	EPA 20	0.8					y					

Notes:

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						•/		R	eport Da	ate:	March 1	15, 2016
	Company :	Env 615	ironmental Proper	ties Manageme	nt, LLC							
	Audress .	Suit	~ 200									
		Okl	ahoma City. Oklał	noma 73102								
	Contact.	Mr	Jeff Lux	101114 73102								
	Project:	Cim	arron February 20	16 GWM								
	Client Sample ID:	T-8	SDUP			Proje	et:	CMR	N00117			
	Sample ID:	391	691016			Clien	t ID:	CMR	N001			
	Matrix:	Wat	er									
	Collect Date:	16-I	FEB-16 14:50									
	Receive Date:	19-I	FEB-16									
	Collector:	Clie	nt									
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analys	st Date	 Tin	ne Batch	Method
Metals Ana	lysis-ICP-MS		100000		112	0.1110			. 2400		ie Duren	
200 2/200 8	R Dissolved Uraniun	n "As	Received"									
Uranium		1 115	8.27	0.067	0.200	ug/L	1	BAJ	03/03/16	1922	1546418	1
The follow	ing Prep Methods w	ere pe	erformed:			C						
Method	Desci	iption	1		Analyst	Date	Tim	ne Pr	ep Batel	h		
EPA 200.2	ICP-M	S 200.2	2 PREP		JP1	02/19/16	1730	15	46415			
The follow	ving Analytical Meth	ods v	vere performed:									
Method	Descr	intion				An	alvst Co	mment	s			

Method EPA 200.8

Notes:

Quality Control Summary

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QC Summary

Report Date: March 15, 2016

Page 1 of 2

Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma Mr. Jeff Lux

Contact:

Workorder:	391691
Workorder:	39169

Parmname			NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - IC Batch 154	C PMS 46418											
QC1203493393 Uranium	391691001	DUP		312		323	ug/L	3.57		(0%-20%)	BAJ	03/04/16 12:00
QC1203493394 Uranium	391704002	DUP		75.7		75.9	ug/L	0.351		(0%-20%)	I	03/03/16 19:27
QC1203493392 Uranium	LCS		50.0			50.8	ug/L		102	(85%-115%)	1	03/04/16 11:57
QC1203493391 Uranium	MB				U	ND	ug/L					03/04/16 11:56
QC1203493395 Uranium	391691001	MS	50.0	312		353	ug/L		N/A	(75%-125%))	03/04/16 12:01
QC1203493396 Uranium	391704002	MS	50.0	75.7		127	ug/L		102	(75%-125%))	03/03/16 19:30
QC1203493397 Uranium	391691001	SDILT		31.2		6.35	ug/L	1.87		(0%-10%)	I	03/04/16 12:02
QC1203493398 Uranium	391704002	SDILT		75.7		15.1	ug/L	.0502		(0%-10%)	I	03/03/16 19:32

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded

J Value is estimated

- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.

N1 See case narrative

ND Analyte concentration is not detected above the detection limit

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QC Summary

	•		-			-/						
Workor	der: 391691										Pag	e 2 of 2
Parmna	me	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
NJ	Consult Case Narrative, D	ata Summary packag	e, or Project	Manager o	concerning	this qualif	ier					
Q	One or more quality control	ol criteria have not be	en met. Refe	r to the ap	plicable na	rrative or 1	DER.					
R	Sample results are rejected	l										
U	Analyte was analyzed for,	but not detected abo	ve the MDL,	MDA, MI	DC or LOD							
Х	Consult Case Narrative, D	ata Summary packag	e, or Project	Manager o	concerning	this qualif	ier					
Y	Other specific qualifiers w	ere required to prope	rly define the	e results. C	Consult case	narrative						
^	RPD of sample and duplic	ate evaluated using +	-/-RL. Conce	ntrations	are <5X the	RL. Qua	lifier Not App	olicable for 1	Radiochem	istry.		
h	Preparation or preservation	n holding time was ex	ceeded									
N/A ind	icates that spike recovery li	mits do not apply wh	en sample co	ncentratic	on exceeds s	pike conc	by a factor o	f 4 or more	or %RPD r	ot applica	ible.	than

 $^{\text{The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.$

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.





General Chemistry Technical Case Narrative Burns & McDonnell (CMRN) SDG #: 391691

Method/Analysis Information

Product:	Ion Chromatography		
Analytical Batch:	1546601	Method:	EPA300.0 Fluoride in Liquid

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691007	T-57
391691009	T-77
1203493961	Method Blank (MB)
1203493962	Laboratory Control Sample (LCS)
1203493963	391691001(MWWA-03) Sample Duplicate (DUP)
1203493964	391698017(1346) Sample Duplicate (DUP)
1203493965	391691001(MWWA-03) Post Spike (PS)
1203493966	391698017(1346) Post Spike (PS)
1203493967	391691001(MWWA-03) Post Spike Duplicate (PSD)
1203493968	391698017(1346) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 25.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391691001 (MWWA-03) and 391698017 (1346) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The following samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391691001 (MWWA-03) and 391691002 (MWWA-03DUP) were diluted because target analyte concentrations exceeded the calibration range. Samples 1203493964 (1346DUP), 1203493966 (1346PS) and 1203493968 (1346PSD) were diluted based on historical data.

Amolysta	391691		
Analyte	001	002	
Fluoride	5X	5X	

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391691001 (MWWA-03), 391691002 (MWWA-03DUP), 391691003 (MWWA-09), 391691004 (T-62), 391691005 (T-76), 391691007 (T-57) and 391691009 (T-77) were manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	Nitrate Nitrite by Cadmium Reduction		
Analytical Batch:	1546460	Method:	EPA 353.2 Nitrogen, Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691006	T-69
391691007	T-57
391691008	T-58
391691009	T-77
391691010	T-79
391691011	T-79DUP
391691012	T-96
391691013	T-86
391691014	T-59
391691015	T-88
391691016	T-88DUP
1203493522	Method Blank (MB)
1203493523	Laboratory Control Sample (LCS)
1203493524	391691001(MWWA-03) Sample Duplicate (DUP)
1203493527	391691001(MWWA-03) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 391691001 (MWWA-03) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following samples 391691003 (MWWA-09), 391691004 (T-62), 391691005 (T-76), 391691006 (T-69), 391691007 (T-57), 391691008 (T-58), 391691012 (T-96), 391691013 (T-86), 391691014 (T-59), 391691015 (T-88) and 391691016 (T-88DUP) were diluted because target analyte concentrations exceeded the calibration range.
Analyte						39169	91				
	003	004	005	006	007	008	012	013	014	015	016
Several	50X	100X	25X	50X	100X	50X	50X	50X	100X	100X	100X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391691 GEL Work Order: 391691

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- H Analytical holding time was exceeded
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: ^C

Date: 14 MAR 2016

Name: Thomas Lewis

Title: Data Validator



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Certificate of Analysis

Report Date: March 14, 2016 Company : Environmental Properties Management, LLC Address : 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102 Contact: Mr. Jeff Lux Project: Cimarron February 2016 GWM Client Sample ID: MWWA-03 Project: CMRN00117 Sample ID: 391691001 Client ID: CMRN001 Matrix: Water Collect Date: 16-FEB-16 09:45 19-FEB-16 Receive Date: Collector: Client DF Analyst Date Parameter Qualifier DL RL Units Time Batch Method Result Ion Chromatography EPA300.0 Fluoride in Liquid "As Received" Fluoride 0.165 0.500 5 RXB5 02/23/16 2230 1546601 9.55 mg/L 1 Nutrient Analysis EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" Nitrogen, Nitrate/Nitrite 0.017 0.050 1 AXH3 02/22/16 1042 1546460 2 0.123 mg/L The following Analytical Methods were performed: Method Description Analyst Comments

EPA 300.0 EPA 353.2

Notes:

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Certificate of Analysis

Report Date: March 14, 2016 Company : Environmental Properties Management, LLC Address : 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102 Contact: Mr. Jeff Lux Project: Cimarron February 2016 GWM Client Sample ID: MWWA-03DUP Project: CMRN00117 Sample ID: 391691002 Client ID: CMRN001 Matrix: Water Collect Date: 16-FEB-16 09:45 19-FEB-16 Receive Date: Collector: Client DF Analyst Date Parameter Qualifier DL RL Units Time Batch Method Result Ion Chromatography EPA300.0 Fluoride in Liquid "As Received" Fluoride 9.62 0.165 0.500 5 RXB5 02/24/16 0036 1546601 mg/L 1 Nutrient Analysis EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" Nitrogen, Nitrate/Nitrite 0.017 0.050 1 AXH3 02/22/16 1046 1546460 2 0.126 mg/L The following Analytical Methods were performed: Method Description Analyst Comments EPA 300.0

EPA 300.0 EPA 353.2

Notes:

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Certificate of Analysis

Report Date: March 14, 2016 Company : Environmental Properties Management, LLC Address : 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102 Contact: Mr. Jeff Lux Project: Cimarron February 2016 GWM Client Sample ID: MWWA-09 Project: CMRN00117 Sample ID: 391691003 Client ID: CMRN001 Matrix: Water Collect Date: 16-FEB-16 10:00 19-FEB-16 Receive Date: Collector: Client DF Analyst Date Parameter Qualifier DL RL Units Time Batch Method Result Ion Chromatography EPA300.0 Fluoride in Liquid "As Received" Fluoride 0.033 0.100 1 RXB5 02/21/16 0638 1546601 3.60 mg/L 1 Nutrient Analysis EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received" Nitrogen, Nitrate/Nitrite 0.850 2.50 50 AXH3 02/22/16 1123 1546460 2 30.0 mg/L The following Analytical Methods were performed: Method Description Analyst Comments EPA 300.0

EPA 300.0 EPA 353.2

Notes:

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Certificate of Analysis

								Re	port Da	ate: March 1	4, 2016
	Company :	Env	ironmental Properti	ies Management,	LLC						
	Address :	615	N. Hudson								
		Suit	e 200								
		Okl	ahoma City, Oklaho	oma 73102							
	Contact:	Mr.	Jeff Lux								
	Project:	Cim	arron February 201	6 GWM							
	Client Sample ID:	T-62	2			Project		CMRN	00117		
	Sample ID:	391	691004			Client	ID:	CMRN	001		
	Matrix:	Wat	er								
	Collect Date:	16-I	FEB-16 10:20								
	Receive Date:	19-I	FEB-16								
	Collector:	Clie	ent								
Parameter	Qual	ifier	Result	DL	RL	Units	DF	Analyst	Date	Time Batch	Method
Ion Chroma	atography										
EPA300.0 I	Fluoride in Liquid "	As Re	ceived"								
Fluoride			2.80	0.033	0.100	mg/L	1	RXB5 (2/21/16	0709 1546601	1
Nutrient Ar	nalysis										
EPA 353.2	Nitrogen, Nitrate/N	itrite '	'As Received"								
Nitrogen, Nitra	ate/Nitrite		78.7	1.70	5.00	mg/L	100	AXH3 (2/22/16	1124 1546460	2
The follow	ing Analytical Met	hods v	vere performed:								
Method	Descr	iption				Anal	yst Co	mments			
1	EPA 3	00.0									
2	EPA 3	53.2									

Notes:

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Certificate of Analysis

) 10 - 10		R	eport D	ate:	March 1	14, 2016
	Company :	Env	vironmental Proper	ties Manageme	nt, LLC							
	Address :	615	N. Hudson	C	,							
		Suit	te 200									
		Okl	ahoma City, Oklal	noma 73102								
	Contact:	Mr.	Jeff Lux									
	Project:	Cin	harron February 20	16 GWM								
	Client Sample ID:	T-7	6				Project:	CMR	N00117			
	Sample ID:	391	691005				Client ID:	CMR	N001			
	Matrix:	Wat	ter									
	Collect Date:	16-1	FEB-16 10:35									
	Receive Date:	19-1	FEB-16									
	Collector:	Clie	ent									
Parameter	Quali	fier	Result	DI	RI	∐n	ite DF	Analys	t Date	 Tin	ne Batch	Method
	Quan		Result		KL	01		Anarys	n Date		it Daten	wichiou
Ion Chrom	atography											
EPA300.0	Fluoride in Liquid "	As Re	eceived"									
Fluoride			2.69	0.033	0.100	mg/	L 1	RXB5	02/21/16	0741	1546601	1
Nutrient A	nalysis											
EPA 353.2	Nitrogen, Nitrate/N	itrite	"As Received"									
Nitrogen, Nit	rate/Nitrite		24.4	0.425	1.25	mg	L 25	AXH3	02/22/16	1050	1546460	2
The follow	ving Analytical Meth	ods v	vere performed:									
Method	Descr	ption					Analyst Co	omment	3			
1	EPA 30	0.0										
2	EPA 35	3.2										

Notes:

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Certificate of Analysis

					•/		R	eport Da	te: March	14, 2016
	Company :	Environmental Proper	ties Management,	LLC						
	Address :	615 N. Hudson	-							
		Suite 200								
		Oklahoma City, Oklah	noma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	16 GWM							
	Client Sample ID:	T-69			Projec	et:	CMR	N00117		
	Sample ID:	391691006			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 11:00								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Nutrient A	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	rate/Nitrite	63.0	0.850	2.50	mg/L	50	AXH3	02/22/16	1051 1546460	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	s		
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

					•/		Re	port Da	ate: March	14, 2016
	Company :	Environmental Prop	erties Management,	LLC						
	Address :	615 N. Hudson								
		Suite 200								
		Oklahoma City, Okl	lahoma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February	2016 GWM							
	Client Sample ID:	T-57			Projec	t:	CMRN	00117		
	Sample ID:	391691007			Client	ID:	CMRN	001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 11:20								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DI	BI	Units	DF	Analyst	Date	Time Batch	Method
	Quan	nei Result	DL	KL	Onits	DI	Anaryst	Date	Thire Daten	wichiou
Ion Chrom	atography									
EPA300.0	Fluoride in Liquid ".	As Received"			~					
Fluoride	1 .	4.12	0.033	0.100	mg/L	1	RXB5 0	2/21/16	0812 1546601	1
Nutrient A	nalysis									
EPA 353.2	Nitrogen, Nitrate/N	itrite "As Received"			~					
Nitrogen, Nit	rate/Nitrite	58.1	1.70	5.00	mg/L	100	AXH3 0	2/22/16	1130 1546460	2
The follow	ving Analytical Meth	ods were performed:								
Method	Descr	ption			Ana	lyst Co	mments			
1	EPA 30	0.0								
2	EPA 35	3.2								

Notes:

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Certificate of Analysis

							Re	port Da	ate: March	14, 2016
	Company : Address :	Environmental Propertie 615 N. Hudson	es Management,	LLC						
		Suite 200								
	Contact:	Mr. Loff Luw	oma 73102							
	Project:	Cimarron February 201	6 GWM							
								100117		
	Client Sample ID:	1-58			Project:		CMRN	100117		
	Sample ID:	391691008			Client II) :	CMRN	1001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 11:35								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analyst	Date	Time Batch	Method
Nutrient Ar	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	34.1	0.850	2.50	mg/L	50	AXH3 (02/22/16	1058 1546460	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Analys	st Co	mments			
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

								Re	port Da	ate: March	14, 2016
	Company :	Envi	ronmental Properti	es Management,	LLC						
	Address :	6151	N. Hudson	-							
		Suite	200								
		Okla	homa City, Oklaho	ma 73102							
	Contact:	Mr. J	leff Lux								
	Project:	Cima	arron February 201	6 GWM							
	Client Sample ID:	T-77				Project	:	CMRN	00117		
	Sample ID:	3916	91009			Client l	D:	CMRN	001		
	Matrix:	Wate	er								
	Collect Date:	16-F	EB-16 11:50								
	Receive Date:	19-F	EB-16								
	Collector:	Clien	nt								
		~				•					
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analyst	Date	Time Bate	h Method
Ion Chrom	atography										
EPA300.0	Fluoride in Liquid ".	As Rec	eived"								
Fluoride	-		0.667	0.033	0.100	mg/L	1	RXB5 0	2/21/16	0843 154660	1 1
Nutrient A	nalysis										
EPA 353.2	Nitrogen, Nitrate/N	itrite "A	As Received"								
Nitrogen, Nitr	rate/Nitrite		1.45	0.017	0.050	mg/L	1	AXH3 0	2/22/16	1059 154646	0 2
The follow	ving Analytical Meth	nods w	ere performed:								
Method	Descr	iption				Anal	yst Co	omments			
1	EPA 30	0.00									
2	EPA 35	53.2									

Notes:

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Certificate of Analysis

					•/		R	eport Da	ate: March	14, 2016
	Company :	Environmental Proper	ties Management,	LLC						
	Address :	615 N. Hudson	C A							
		Suite 200								
		Oklahoma City, Oklah	oma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	16 GWM							
	Client Sample ID:	T-79			Projec	et:	CMRI	N00117		
	Sample ID:	391691010			Client	ID:	CMRI	N001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 12:05								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient A	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	rate/Nitrite	0.280	0.017	0.050	mg/L	1	AXH3	02/22/16	1100 1546460	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mments	5		
1	EPA 35	3.2				-				

Notes:

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Certificate of Analysis

							Re	eport Da	ate: March	14, 2016
	Company :	Environmental Properti	es Management,	LLC						
	Address :	615 N. Hudson								
		Suite 200								
		Oklahoma City, Oklaho	oma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 201	6 GWM							
	Client Sample ID:	T-79DUP			Project:		CMRN	100117		
	Sample ID:	391691011			Client II	D:	CMRN	J001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 12:05								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Bate	h Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	0.292	0.017	0.050	mg/L	1	AXH3 (02/22/16	1101 154646	0 1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Analy	st <u>C</u> o	mments			
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

							Re	eport Da	ate: M	arch 1	4, 2016
	Company :	Environmental Propertie	es Management,	LLC							
	Address :	615 N. Hudson									
		Suite 200									
		Oklahoma City, Oklaho	ma 73102								
	Contact:	Mr. Jeff Lux									
	Project:	Cimarron February 201	6 GWM								
	Client Sample ID:	T-96			Project:		CMRN	100117			
	Sample ID:	391691012			Client II) :	CMRN	J001			
	Matrix:	Water									
	Collect Date:	16-FEB-16 12:30									
	Receive Date:	19-FEB-16									
	Collector:	Client									
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time	Batch	Method
Nutrient An	nalysis										
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"									
Nitrogen, Nitr	ate/Nitrite	17.8	0.850	2.50	mg/L	50	AXH3 (02/22/16	1131 13	546460	1
The follow	ving Analytical Meth	ods were performed:									
Method	Descri	ption			Analys	st <u>C</u> o	mments				
1	EPA 35	3.2									

Notes:

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Certificate of Analysis

					•/		R	eport Da	te: March	14, 2016
	Company :	Environmental Proper	ties Management,	LLC						
	Address :	615 N. Hudson	-							
		Suite 200								
		Oklahoma City, Oklah	oma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	16 GWM							
	Client Sample ID:	T-86			Projec	:t:	CMR	N00117		
	Sample ID:	391691013			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 14:25								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Nutrient A	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	itrite "As Received"								
Nitrogen, Nitr	ate/Nitrite	16.9	0.850	2.50	mg/L	50	AXH3	02/22/16	1132 1546460	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	s		
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

		-			•/		Re	eport Da	ate: March	14, 2016
	Company :	Environmental Propertie	s Management,	LLC						
	Address :	615 N. Hudson	0 /							
		Suite 200								
		Oklahoma City, Oklahor	na 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 2016	GWM							
	Client Sample ID:	T-59			Projec	t:	CMRN	100117		
	Sample ID:	391691014			Client	ID:	CMRN	1001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 14:40								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	itrite "As Received"								
Nitrogen, Nitr	ate/Nitrite	103	1.70	5.00	mg/L	100	AXH3	02/22/16	1133 1546460	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Anal	yst Co	mments			
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

		-			•/		R	eport Da	ate: March	14, 2016
	Company :	Environmental Propertie	s Management,	LLC						
	Address :	615 N. Hudson	-							
		Suite 200								
		Oklahoma City, Oklahor	na 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 2016	GWM							
	Client Sample ID:	T-88			Projec	:t:	CMR	N00117		
	Sample ID:	391691015			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 14:50								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	itrite "As Received"								
Nitrogen, Nitr	ate/Nitrite	21.8	1.70	5.00	mg/L	100	AXH3	02/22/16	1135 1546460	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	s		
1	EPA 35	3.2				-				

Notes:

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

							Re	eport Da	ate: March	4, 2016
	Company : Address :	Environmental Propertie 615 N. Hudson Suite 200 Oklahoma City, Oklaho	es Management, 1 ma 73102	LLC						
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 201	6 GWM							
	Client Sample ID:	T-88DUP			Project		CMRN	100117		
	Sample ID:	391691016			Client	ID:	CMRN	1001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 14:50								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient Ar	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	25.5	1.70	5.00	mg/L	100	AXH3	02/22/16	1136 1546460	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Anal	yst Co	mments			
1	EPA 35	3.2								

Notes:

Quality Control Summary

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma Mr. Jeff Lux

Contact:

Workorder: 391691

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Ion Chromatography Batch 1546601 —									
QC1203493963 391691001 DUP Fluoride		9.55		9.53	mg/L	0.215		(0%-20%) RXB5	02/23/16 23:02
QC1203493964 391698017 DUP Fluoride		9.89		9.88	mg/L	0.0526		(0%-20%)	02/21/16 10:49
QC1203493962 LCS Fluoride	2.50			2.51	mg/L		100	(90%-110%)	02/21/16 02:26
QC1203493961 MB Fluoride			U	ND	mg/L				02/21/16 01:55
QC1203493965 391691001 PS Fluoride	2.50	1.91		4.43	mg/L		101	(90%-110%)	02/23/16 23:33
QC1203493966 391698017 PS Fluoride	2.50	2.47		5.11	mg/L		105	(90%-110%)	02/21/16 11:20
QC1203493967 391691001 PSD Fluoride	2.50	1.91		4.43	mg/L	0.0113	101	(0%-20%)	02/24/16 00:04
QC1203493968 391698017 PSD Fluoride	2.50	2.47		5.10	mg/L	0.0823	105	(0%-20%)	02/21/16 11:52
Nutrient Analysis Batch 1546460 ——									
QC1203493524 391691001 DUP Nitrogen, Nitrate/Nitrite		0.123		0.123	mg/L	0 ^		(+/-0.050) AXH3	02/22/16 10:44
QC1203493523 LCS Nitrogen, Nitrate/Nitrite	1.00			1.06	mg/L		106	(90%-110%)	02/22/16 10:41
QC1203493522 MB Nitrogen, Nitrate/Nitrite			U	ND	mg/L				02/22/16 10:40
QC1203493527 391691001 PS Nitrogen, Nitrate/Nitrite	1.00	0.123		1.12	mg/L		99.7	(90%-110%)	02/22/16 10:45

Notes:

The Qualifiers in this report are defined as follows:

Report Date: March 14, 2016 Page 1 of 2

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workor	der:	391691									Pag	e 2 of 2
Parmnar	me		NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<	Result i	is less than valu	ue reported									
>	Result i	is greater than	value reported									
В	The tar	get analyte was	s detected in the associate	ed blank.								
Е	Genera	l ChemistryC	oncentration of the targe	t analyte exceeds the in	strument ca	alibration r	ange					
Н	Analyti	cal holding tim	ne was exceeded									
J	Value i	s estimated										
N/A	RPD or	%Recovery lin	mits do not apply.									
N1	See cas	e narrative										
ND	Analyte	e concentration	is not detected above the	e detection limit								
NJ	Consult	t Case Narrativ	e, Data Summary packag	ge, or Project Manager of	concerning	this qualifi	ier					
Q	One or	more quality c	ontrol criteria have not be	een met. Refer to the ap	plicable na	rrative or I	DER.					
R	Per sect purpose	tion 9.3.4.1 of es.	Method 1664 Revision E	3, due to matrix spike re	ecovery iss	ues, this re	sult may not	be reported of	or used for	regulatory	v complia	nce
R	Sample	results are reje	ected									
U	Analyte	e was analyzed	for, but not detected abo	ve the MDL, MDA, MI	DC or LOE) .						
Х	Consult	t Case Narrativ	e, Data Summary packag	ge, or Project Manager of	concerning	this qualifi	ier					
Ζ	Paint Fi	ilter TestParti	iculates passed through th	he filter, however no fre	e liquids w	vere observ	red.					
^	RPD of	sample and du	plicate evaluated using +	-/-RL. Concentrations	are <5X the	e RL. Qua	lifier Not Ap	plicable for 1	Radiochem	istry.		
d	5-day E	BODThe 2:1 c	depletion requirement wa	s not met for this samp	le							
e	5-day E reportir	BODTest replang purposes	icates show more than 30	0% difference between 1	high and lo	w values. T	The data is q	ualified per t	he method	and can b	e used for	
h	Prepara	tion or preserv	ation holding time was e	xceeded								
N/A indi ^ The Re	icates the elative P	at spike recove ercent Differer	ry limits do not apply where (RPD) obtained from	the sample concentration the sample duplicate (n exceeds DUP) is ev	spike conc. aluated aga	by a factor ainst the acce	of 4 or more ptance criter	or %RPD r	not applica e sample i	able. s greater	than

five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of \pm the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.



a member of The GEL Group INC



PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 07, 2016

Mr. Jeff Lux Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102

Re: Cimarron February 2016 GWM Work Order: 391698

Dear Mr. Lux:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 19, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,

Chelsea Seagle for Edith Kent Project Manager

Purchase Order: tbd Chain of Custody: 2016-004 and 2016-005 Enclosures



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CASE NARRATIVE for Burns & McDonnell Cimarron February 2016 GWM SDG:391698

March 07, 2016

Laboratory Identification:

GEL Laboratories LLC 2040 Savage Road Charleston, South Carolina 29407 (843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 19, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note There are no additional items of note concerning this SDG.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
391698001	T-61
391698002	T-91
391698003	T-97
391698004	02W40
391698005	02W39
391698006	1315R
391698007	TWM-09
391698008	TWM-09DUP
391698009	02W01
391698010	02W32
391698011	02W08
391698012	02W44
391698013	1361
391698014	1365
391698015	TMW-24
391698016	1373
391698017	1346
391698018	1346DUP
391698019	1393

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

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Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Metals.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Chelsea Seagle for Edith Kent Project Manager

GEL Laboratories LLC

Chain of Custody and Supporting Documentation

391698

CHAIN OF CUS	TODY RECORD A	ND ANAL	YSIS	REQ	UEST				CO	C#:20'	16-0	04					
SHIP TO:						SHIP FF	ROM:				Τ		AN	ALYSI	S REQI	JEST	ED
Company Name:	GEL Laboratories	LLC										T	T			T	
Address:	2040 Savage Roa	ad				E	nvironmenta	al Propertie	s Managem	ent							a based
Address:	Charleston, SC 2	9407					1	00 N. Hwy	74		8)						-
Contact Person:	Edith Kent						Gu	thrie, OK 7	3044		200						
Phone:	843-769-7376, ex	t. 4505									PA	3.2)					1.000 miles
ATTEST THAT THE PROPE	R FIELD SAMPLING PROCED	URES WERE US	ED DUR	ING THE		Con	tact Person:	Jeff Lux			Ē	35	6				
COLLECTION OF THESE SA	MIPLES.	~					Phone	105-642-5	150		iun	d	l 00				
SAMPLER SIGNAT	URE							AMDI F TV			lran	9	×				
SHE:	CHMARRON	FACILITY	,		ŀ		3				۲ g	litri	E				
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رير T-61	2/16/2016	1505	1	P	250 ml		UTIEN	X	HNO3	γ	X	<u> </u>	<u> </u>				+
T-61	2/16/2016	1505	1	P	125 mi	and a second second second		X	H2SO4	N		X				10000 0000 000 00 10 30 0000	
T-91	2/16/2016	1520	1	P	125 ml	n 7967964 filoson al general de spesseda a susseme	1999 - 1997 - 1997 - 1997 - 1998 - 1999 - 1999 - 1999 - 1999 - 1999 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	X	H2SO4	N		X				-	-
T-97	2/16/2016	1535	1	P	250 mL			X	HNO3	Y	X						1
. <i>е,</i> Т-97	2/16/2016	1535	1	P	125 mL			X	H2SO4	N	1	x					-
02W40	2/17/2016	920	1	Р	250 mL			X	HNO3	Y	х						
02W39	2/17/2016	935	1	P	250 mL			X	HNO3	Y	Х						
1315R	2/17/2016	955	1	Р	250 mL			X	HNO3	Y	Х		-				1
TWM-09	2/17/2016	1010	1	Ρ	250 mL			X	HNO3	Y	Х		1				
TWM-09DUP	2/17/2016	1010	1	Р	250 mL			Х	HNO3	Y	Х						
02W01	2/17/2016	1035	1	Р	250 mL			X	HNO3	Y	Х						1
02W32	2/17/2016	1055	1	Р	250 mL		1	X	HNO3	Y	X						1
	Potential Ha	azardous Cha	racteris	tics							Sam	ole Dis	posal				
Non-Haz	RCRA D001,2&3, or 4		Listed	0	Radioact	tive 🗆	i Unknown	Dispos	al Lab	Return	to Clien	t	0	Holding pr	anding furth	ier instru	ictio
THIS SAMF	PLE MEETS ALL APPROPRI	ATE RADIOLO	GICAL	REQUIR	EMENTS:	HP I	NITIAL:	<u>>/-</u>	<u> </u>								
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RELINDUISHED BY	DATE	TIME	RECEN	ED BY			DATE	TIME	HARD COPY R	FPORT (PDF)	mbec TO:	kmani	apurn	<u>smca.co</u>	<u>m; jiux@</u>	envpr	n.co
	0/112.						0.112.		(Report		jlux@	envpr	n.com				
			I						Level?)		mbec	kman	@burn	smcd.co	<u>m</u>		
											1 ~~~	STATISTICS.					

ÇHAIN OF CUST	ODY RECORD A	ND ANAL	YSIS	REQ	UEST	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			CO	<u>C #: 20'</u>	<u>16-0</u>	05				
Ship to:						SHIP FR	ROM:					·	ANA	LYSIS R	EQUE	STEC
Company Name:	GEL Laboratorie	s LLC				-	· •									
Address:	2040 Savage Ro	ad				E	nvironment	al Propertie	s Managem	ient						
Address:	Charleston, SC	29407					1	00 N. Hwy	74		0.8)					
Contact Person:	Edith Kent						Gu	thrie, OK 7	3044		5					
Phone:	843-769-7376, e	xt. 4505									Ad	23.2				
ATTEST THAT THE PROPER	R FIELD SAMPLING PROCED	OURES WERE US	ED DUR	ING THE		Cont	tact Person:	Jeff Lux			n (E	A 3	<u><u> </u></u>			and an and a second
SAMPI ER SIGNATI	IRE	2-2	0				Phone:	405-642-5	152		- E	E	1 2 2 2			
							S	AMPLE TY	PF		La La	ite	PA			
	CIMARRON	FACILITY	•					1	WATER		pa	Zit-	e (E			
	SAMPLE			CONTAI	VER	SC	JLID	"X" IF	PRESERV	FILTERED	Solv 1	ate/	bid			
1D	DATE	TIME	NO.	TYPE	SIZE	SOIL	OTHER	WATER		.45u Y/N	D S	ž	Ē			
)2W08	2/17/2016	1110	1	Р	250 mL	i parente en transmissione en anticipar en anticipar para		X	HNO3	Ŷ	X					
)2W44	2/17/2016	1120	1	Р	250 mL			X	HNO3	Y	X	1				
1361	2/17/2016	1135	1	P	250 mL			X	HNO3	Y	X	1		1		
1365	2/17/2016	1150	1	P	250 mL			X	HNO3	Y	X					
TMW-24	2/17/2016	1200	1	Р	250 mL			X	HNO3	Y	X					
1373	2/17/2016	1210	1	P	250 mL			X	HNO3	Y	Х					
1346	2/17/2016	1355	1	P	250 mL			X	H2SO4	N		Х				
1346	2/17/2016	1355	1	P	125 mL			X	none	N			X			
1346DUP	2/17/2016	1355	1	P	250 mL			X	H2SO4	N		Х				
1346DUP	2/17/2016	1355	1	P	125 mL			X	none	N			X			
1393	2/17/2016	1405	1	P	250 mL			X	HNO3	Y	X					
1393	2/17/2016	1405	1	<u> </u>	125 mL			<u> </u>	H2SO4	N		X				
	Potential H	lazardous Cha	racteris	tics							Samp	ole Dis	posal			
Non-Haz	RCRA D001,2&3, or 4		Listed	<u> </u>	Radioad	tive 🗆	Unknown	Dispos	al Lab	Return	to Clien	<u>t</u>	н 🗆	olding pendir	ng further i	instructio
THIS SAMP	LE MEETS ALL APPROPR	ATE RADIOLO	GICAL	REQUIR	EMENTS:	HP I	NITIAL:	<u>}</u>	l							
			1													
RELINQUISHED BY SAMPLE	R: DATE:	I ME:	RECEIV	ED BY :	12	Λ	DATE:	IME:	EUL (Danad	FOUS	dharn	a @hu		odan	-1477 - 148-148 - 148-147 - 148	na water and
Jand	Z/18/16	1600	l h	1/-	Ľ	1	1-101-1	AGR	(repon	GEL EDD	mbac	kooon	Shurper	.com	ilungor	
RELINQUISHED BY :	DATE:	TIME:	RECEIV	ED BY :	1	V0	DATE:	TIME:	HARD COPY F	REPORT (.PDF)	TO:	AIIIdill	<u>wuunsi</u>	ncu.com;	nuvmen	<u>iypi11.C</u>
									(Report		jlux@	envpn	n.com			
			I						Level?)		mpec	<u>kman(</u>	apurnsi	ncd.com		

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Clie	ent: MAN			SDO	G/AR/COC/Work Order: 3/1691, 3911698, 391704
Rec	eived By: M			Dat	e Received: 2-19-16
Susp	pected Hazard Information	Yes	°N	*If 1 inve	Vet Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further stigation.
200	VSamples marked as radioactive?		\square	Max	imum Net Counts Observed* (Observed Counts - Area Background Counts):
	sified Radioactive II or III by RSO?		1/2	JEYE	s, Were swipes taken of sample containers < action levels?
Pack	cage, COC, and/or Samples marked as		7		
bery	llium or asbestos containing?	3.6	4	If ye	s, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
5am Sam	ples identified as Foreign Soil?		-	Pauz	
	Sample Receipt Criteria	(es	4A	9	Comments/Oualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	1	2		Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$?*	/			Preservation Method (Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	1		-	Temperature Device Serial #: 1.3 (18 Applicable). Secondary Temperature Device Seriar # (18 Applicable).
3	Chain of custody documents included with shipment?				Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
4	Sample containers intact and sealed?	2		, . 	
5	Samples requiring chemical preservation at proper pH?	V			Sample ID's, containers affected and observed pri:
6	Do Low Level Perchlorate samples have headspace as required?				Sample ID's and containers affected:
7	VOA vials contain acid preservation?		ď.		
8	VOA vials free of headspace (defined as < 6mm bubble)?				Sample ID's and containers affected:
9	Are Encore containers present?			:/	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?			, ·	
11	Sample ID's on COC match ID's on bottles?				Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?			-	Sample ID's affected:
13	Number of containers received match number indicated on COC?	/		<u></u>	Sample ID's affected:
14	Are sample containers identifiable as GEL provided?	/			
15	relinquished/received sections?	/			
		2			FedEx Air FedEx Ground UPS Field Services Courier Other 7756 8194 3380 16°
16	Carrier and tracking number.			A	4137 GC
					: :
Con	aments (Use Continuation Form if needed):				
					401 olus 1 1

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Laboratory Certification

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

List of current GEL Certifications as of 07 March 2016





Metals Technical Case Narrative Burns & McDonnell (CMRN) SDG #: 391698

Sample ID	Client ID
391698001	T-61
391698003	T-97
391698004	02W40
391698005	02W39
391698006	1315R
391698007	TWM-09
391698008	TWM-09DUP
391698009	02W01
391698010	02W32
391698011	02W08
391698012	02W44
391698013	1361
391698014	1365
391698015	TMW-24
391698016	1373
391698019	1393
1203493408	Method Blank (MB)ICP-MS
1203493409	Laboratory Control Sample (LCS)
1203493414	391698001(T-61L) Serial Dilution (SD)
1203493415	391698010(02W32L) Serial Dilution (SD)
1203493410	391698001(T-61D) Sample Duplicate (DUP)
1203493411	391698010(02W32D) Sample Duplicate (DUP)
1203493412	391698001(T-61S) Matrix Spike (MS)
1203493413	391698010(02W32S) Matrix Spike (MS)

Sample Analysis

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch:	1546425
Prep Batch :	1546424
Standard Operating Procedures:	GL-MA-E-014 REV# 27 and GL-MA-E-016 REV# 15 $$
Analytical Method:	EPA 200.8
Prep Method :	EPA 200.2

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.
System Configuration

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 391698001 (T-61) and 391698010 (02W32).

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 391698004 (02W40), 391698005 (02W39), 391698006 (1315R), 391698007 (TWM-09), 391698008 (TWM-09DUP), 391698009 (02W01), 391698010 (02W32), 391698011 (02W08), 391698012 (02W44) and 391698014 (1365) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Amalarta					39169	98				
Analyte	004	005	006	007	008	009	010	011	012	014
Uranium	100X	10X	100X	100X	100X	100X	10X	10X	10X	10X

Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391698 GEL Work Order: 391698

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:

Juk Cole A. Emore

Name: Nik-Cole Elmore

Date: 15 MAR 2016

Title: Data Validator



2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

					•/		Re	eport Da	ite:	March 1	5, 2016
	Company :	Environmental Pro	operties Managemer	nt, LLC							
	Address :	615 N. Hudson									
		Suite 200									
		Oklahoma City, O	klahoma 73102								
	Contact:	Mr. Jeff Lux									
	Project:	Cimarron Februar	y 2016 GWM								
	Client Sample ID:	T-61			Projec	et:	CMRN	100117			
	Sample ID:	391698001			Client	t ID:	CMRN	1001			
	Matrix:	Water									
	Collect Date:	16-FEB-16 15:05									
	Receive Date:	19-FEB-16									
	Collector:	Client									
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Tim	ne Batch	Method
Metals Ana	alysis-ICP-MS										
200.2/200.3	8 Dissolved Uraniun	"As Received"									
Uranium		25.6	0.067	0.200	ug/L	1	BAJ (03/04/16	1219	1546425	1
The follow	ing Prep Methods w	ere performed:									
Method	Descr	iption		Analyst	Date	Tim	e Pre	p Batch	1		
EPA 200.2	ICP-M	S 200.2 PREP		JP1	02/19/16	1730	154	6424			
The follow	ving Analytical Meth	ods were performed	1:								
Method	Descri	ption			Ana	alyst Co	mments				
1	EPA 20	0.8				-					

Notes:

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

						•/		R	eport Da	ate:	March 1	5, 2016
	Company :	Environme	ental Properties N	/lanagemer	nt, LLC							
	Address :	615 N. Hu	dson	e								
		Suite 200										
		Oklahoma	City, Oklahoma	73102								
	Contact:	Mr. Jeff L	ux									
	Project:	Cimarron	February 2016 G	WM								
	Client Sample ID:	T-97				Projec	et:	CMR	N00117			
	Sample ID:	391698003	3			Client	ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	16-FEB-10	5 15:35									
	Receive Date:	19-FEB-10	5									
	Collector:	Client										
Parameter	Quali	fier Resu	ılt	DL	RL	Units	DF	Analys	st Date	Tin	ne Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Receiv	ved"									
Uranium		5	7.7	0.067	0.200	ug/L	1	BAJ	03/04/16	1224	1546425	1
The follow	ing Prep Methods w	ere performe	ed:									
Method	Desci	iption			Analyst	Date	Tim	ne Pr	ep Batel	n		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730) 15	46424	-		
The follow	ving Analytical Meth	ods were pe	erformed:									
Method	Descr	ption				Ana	lyst Co	mment	s			
1	EPA 20	0.8					-					

Notes:

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

					•/		Re	eport Da	ate:	March 1	5, 2016
	Company :	Environmental Prop	erties Managemen	nt, LLC							
	Address :	615 N. Hudson									
		Suite 200									
		Oklahoma City, Okl	ahoma 73102								
	Contact:	Mr. Jeff Lux									
	Project:	Cimarron February	2016 GWM								
	Client Sample ID:	02W40			Projec	et:	CMRN	100117	-		
	Sample ID:	391698004			Client	ID:	CMRN	J001			
	Matrix:	Water									
	Collect Date:	17-FEB-16 09:20									
	Receive Date:	19-FEB-16									
	Collector:	Client									
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Tim	ne Batch	Method
Metals Ana	alysis-ICP-MS										
200.2/200.3	8 Dissolved Uraniun	n "As Received"									
Uranium		1120	6.70	20.0	ug/L	100	BAJ	03/04/16	1225	1546425	1
The follow	ing Prep Methods w	ere performed:									
Method	Desci	ription		Analyst	Date	Tim	e Pre	ep Batel	1		
EPA 200.2	ICP-M	S 200.2 PREP		JP1	02/19/16	1730	154	6424			
The follow	ving Analytical Meth	ods were performed:									
Method	Descr	ption			Ana	lyst Co	mments				
1	EPA 20	0.8				-					

Notes:

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2016 Company : Environmental Properties Management, LLC Address : 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102 Contact: Mr. Jeff Lux Project: Cimarron February 2016 GWM Client Sample ID: 02W39 Project: CMRN00117 Sample ID: 391698005 Client ID: CMRN001 Matrix: Water Collect Date: 17-FEB-16 09:35 19-FEB-16 Receive Date: Collector: Client Parameter Qualifier DL RL Units DF Analyst Date Time Batch Method Result Metals Analysis-ICP-MS 200.2/200.8 Dissolved Uranium "As Received" Uranium 0.670 2.00 ug/L 10 BAJ 03/04/16 1230 1546425 600 1 The following Prep Methods were performed: Method Date Time Prep Batch Description Analyst 02/19/16 EPA 200.2 ICP-MS 200.2 PREP 1546424 JP1 1730 The following Analytical Methods were performed: Description Method Analyst Comments

1

EPA 200.8

Notes:

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Certificate of Analysis

						•/		R	leport Da	ate:	March 1	15, 2016
	Company : Address :	Environme 615 N. Hue Suite 200 Oklahoma	ental Properties Mana dson City, Oklahoma 731	igeme	nt, LLC							
	Contact:	Mr. Jeff Lı	IX									
	Project:	Cimarron I	February 2016 GWM	[
	Client Sample ID:	1315R				Proje	ect:	CMR	N00117			
	Sample ID:	391698006	1			Clier	t ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	17-FEB-16	09:55									
	Receive Date:	19-FEB-16										
	Collector:	Client										
Demonstern	01	C	14		DI	T.L.: 4 -		A	-4 D-4-			M - 41 4
Parameter	Quali	tier Resu	It	DL	KL	Units	DF	Analy	st Date	1 in	ne Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uranium	n "As Receiv	red"	6.50	•••	<i></i>	100	D + 4	00104116		1.5.4.6.40.5	
Uranium		11	90	6.70	20.0	ug/L	100	BAJ	03/04/16	1231	1546425	1
The follow	ing Prep Methods w	ere performe	ed:									
Method	Descr	iption			Analyst	Date	Tin	ne Pi	rep Batcl	h		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730) 15	46424			
The follow	ving Analytical Meth	ods were pe	rformed:									
Method	Descri	ption				An	alyst Co	mment	S			
1	EPA 20	0.8					-					

Notes:

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						•/		Re	eport Da	ate: Ma	rch 1	5, 2016
	Company : Address :	Enviro 615 N Suite 2	nmental Proj Hudson 200	perties Manageme	nt, LLC							
	Contact: Project:	Mr. Je Cimar	ff Lux ff February	2016 GWM								
	Client Sample ID: Sample ID: Matrix: Collect Date: Receive Date: Collector:	TWM- 39169 Water 17-FE 19-FE Client	09 8007 B-16 10:10 B-16	2010 0 111		Proje Clien	ct: t ID:	CMRN CMRN	300117 3001			
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analys	t Date	Time B	atch	Method
Metals Ana 200.2/200.8 Uranium	alysis-ICP-MS 8 Dissolved Uraniun	n "As Re	eceived" 2620	6.70	20.0	ug/L	100	BAJ (03/04/16	1232 154	6425	1
The follow Method EPA 200.2 The follow	ing Prep Methods w Descr ICP-M ving Analytical Meth	ere perf ription S 200.2 P ods wer	e performed		Analyst JP1	Date 02/19/16	Tim 1730	e Pre	ep Batel 6424	h		
Method	Descri	ption	- r	-		An	alyst Co	mments				

Method Descriptic EPA 200.8

Notes:

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									Report Da	ate:	March 1	15, 2016
	Company : Address :	Envi 615 Suite	ronmental Properties M N. Hudson e 200	Aanagemer	nt, LLC							
	Contact:	Okla Mr	homa City, Oklahoma Ieff Lux	73102								
	Project:	Cim	arron February 2016 G	WM								
	Client Sample ID: Sample ID:	TWN 3916	M-09DUP 598008			Projec Client	et: ID:	CMI CMI	RN00117 RN001			
	Matrix:	Wate	er									
	Collect Date:	17-F	EB-16 10:10									
	Receive Date:	19-F	EB-16									
	Collector:	Clie	nt									
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analy	yst Date	Tin	ne Batch	Method
Metals Ana	lysis-ICP-MS											
200.2/200.8 Uranium	8 Dissolved Uraniun	n "As l	Received" 2500	6.70	20.0	ug/L	100	BAJ	03/04/16	1233	1546425	1
The follow	ing Prep Methods w	ere pe	rformed:									
Method	Desci	ription			Analyst	Date	Tim	ne F	Prep Batch	1		
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 1	546424			
The follow	ving Analytical Meth	nods w	ere performed:									
Method	Descri	iption				Ana	lyst Co	mmer	its			
1	EPA 20	0.8										

Notes:

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									Report Da	te: March	15, 2016
	Company : Address :	Enviro 615 N. Suite 2 Oklaho	nmental Properties Ma Hudson 200 oma City, Oklahoma 7	anagemer 73102	nt, LLC						
	Contact:	Mr. Je	ff Lux								
	Project:	Cimar	ron February 2016 GW	/M							
	Client Sample ID:	02W0	1			Project	t:	CM	RN00117		
	Sample ID:	39169	8009			Client	ID:	CM	RN001		
	Matrix:	Water									
	Collect Date:	17-FE	B-16 10:35								
	Receive Date:	19-FE	B-16								
	Collector:	Client									
Parameter	Quali	fier I	Result	DL	RL	Units	DF	Anal	yst Date	Time Batch	Method
Metals Ana	lysis-ICP-MS										
200.2/200.8	8 Dissolved Uraniun	n "As Re	eceived"								
Uranium			2370	6.70	20.0	ug/L	100	BAJ	03/04/16	1235 1546425	1
The follow	ing Prep Methods w	ere perfe	ormed:								
Method	Desci	ription			Analyst	Date	Tim	le l	Prep Batch	ı	
EPA 200.2	ICP-M	S 200.2 Pl	REP		JP1	02/19/16	1730		1546424		
The follow	ving Analytical Meth	ods wer	e performed:								
Method	Descr	ption				Anal	yst Co	mmei	nts		
1	EPA 20	0.8					•				

Notes:

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Certificate of Analysis

								Re	eport Da	ate:	March 1	15, 2016
	Company :	Envi	ronmental Proper	ties Managemen	nt, LLC							
	Address :	0151	N. Hudson									
		Suite	200 hama City, Oblah	ama 72102								
	Contort	Okia	noma City, Okian	oma /3102								
	Contact:	Mr. J	left Lux	16 6000 6								
	Project:	Cima	arron February 20	I6 GWM								
	Client Sample ID:	02W	32			Projec	et:	CMRN	100117			
	Sample ID:	3916	98010			Client	t ID:	CMRN	1001			
	Matrix:	Wate	r									
	Collect Date:	17-F	EB-16 10:55									
	Receive Date:	19-F	EB-16									
	Collector:	Clier	nt									
	0.1	<u>ر</u>		DI	DI	TT '/		A 1	· D /		D (1	
Parameter	Quali	tier	Result	DL	RL	Units	DF	Analys	t Date	11m	he Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As F	Received"									
Uranium			283	0.670	2.00	ug/L	10	BAJ (03/04/16	1236	1546425	1
The follow	ing Prep Methods w	ere per	formed:									
Method	Descr	iption			Analyst	Date	Tim	ne Pre	ep Batel	h		
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 154	6424			
The follow	ving Analytical Meth	ods w	ere performed:									
Method	Descri	ption				Ana	alyst Co	mments				
1	EPA 20	0.8										

Notes:

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Certificate of Analysis

						•/		R	eport Da	ate:	March 1	15, 2016
	Company : Address :	Environm 615 N. Hu Suite 200 Oklahoma	ental Properties Ma Idson	nageme	nt, LLC							
	Contact:	Mr. Jeff L	ux	5102								
	Project:	Cimarron	February 2016 GW	М								
	Client Sample ID:	02W08				Projec	et:	CMR	N00117			
	Sample ID:	39169801	1			Client	ID:	CMR	1001			
	Matrix:	Water										
	Collect Date:	17-FEB-1	6 11:10									
	Receive Date:	19-FEB-1	6									
	Collector:	Client										
Parameter	Quali	fier Res	ult	DL	RL	Units	DF	Analys	t Date	Tim	e Batch	Method
Metals Ana	alvsis-ICP-MS											
200.2/200.8	8 Dissolved Uraniun	n "As Recei	ved"									
Uranium			400	0.670	2.00	ug/L	10	BAJ	03/04/16	1245	1546425	1
The follow	ing Prep Methods w	ere perform	ed:									
Method	Descr	iption			Analyst	Date	Tim	ne Pro	ep Batel	n		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730) 154	16424	-		
The follow	ving Analytical Meth	ods were p	erformed:									
Method	Descri	ption				Ana	lyst Co	mments	5			
1	EPA 20	0.8										

Notes:

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						•/			Report Da	ate:	March 1	5, 2016
	Company :	Environmenta	l Properties Manage	men	t, LLC							
	Address :	615 N. Hudson	n									
		Suite 200										
		Oklahoma Cit	y, Oklahoma 73102	2								
	Contact:	Mr. Jeff Lux	-									
	Project:	Cimarron Febr	ruary 2016 GWM									
	Client Sample ID:	02W44				Р	roject:	CM	RN00117			
	Sample ID:	391698012				C	lient ID:	CM	RN001			
	Matrix:	Water										
	Collect Date:	17-FEB-16 11	:20									
	Receive Date:	19-FEB-16										
	Collector:	Client										
		<u> </u>										
Parameter	Qualı	fier Result	-	DL	RL	Unit	is DF	Anal	yst Date	Tin	he Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	"As Received"										
Uranium		447	0.	670	2.00	ug/L	. 10	BAJ	03/04/16	1246	1546425	1
The follow	ing Prep Methods w	ere performed:										
Method	Desci	iption			Analyst	Date	Tin	ne l	Prep Batcl	1		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/1	6 1730) 1	1546424			
The follow	ving Analytical Meth	ods were perfor	med:									
Method	Descr	ption					Analyst Co	ommer	nts			
1	EPA 20	0.8										

Notes:

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						•/		I	Report Da	te:	March 1	5, 2016
	Company : Address :	Envi 615 Suite Okla	ironmental Proper N. Hudson e 200 ahoma City, Oklal	ties Managemer noma 73102	nt, LLC							
	Contact:	Mr.	Jeff Lux									
	Project:	Cim	arron February 20	016 GWM								
	Client Sample ID:	1361	l			Projec	et:	CMF	RN00117			
	Sample ID:	3916	598013			Client	ID:	CMF	RN001			
	Matrix:	Wate	er									
	Collect Date:	17 - F	EB-16 11:35									
	Receive Date:	19-F	EB-16									
	Collector:	Clie	nt									
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analy	vst Date	Tim	e Batch	Method
Metals Ana	lysis-ICP-MS											
200.2/200.8	8 Dissolved Uraniun	n "As l	Received"									
Uranium			83.6	0.067	0.200	ug/L	1	BAJ	03/04/16	1247	1546425	1
The follow	ing Prep Methods w	ere pe	rformed:									
Method	Desci	ription	l		Analyst	Date	Tim	ne P	rep Batch	۱		
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 1	546424			
The follow	ving Analytical Meth	nods w	vere performed:									
Method	Descr	iption				Ana	lyst Co	mmen	ts			
1	EPA 20	0.8										

Notes:

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Certificate of Analysis

								R	leport Da	ate:	March 1	5, 2016
	Company :	Environm	ental Properties N	Managemer	nt, LLC							
	Address :	615 N. Hu	dson	•								
		Suite 200										
		Oklahoma	City, Oklahoma	73102								
	Contact:	Mr. Jeff L	ux									
	Project:	Cimarron	February 2016 G	WM								
	Client Sample ID:	1365				Projec	et:	CMR	N00117			
	Sample ID:	391698014	1			Client	t ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	17-FEB-1	5 11:50									
	Receive Date:	19-FEB-1	5									
	Collector:	Client										
			-									
Parameter	Quali	fier Resu	ılt	DL	RL	Units	DF	Analy	st Date	Tim	ne Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Receiv	ved"									
Uranium			116	0.670	2.00	ug/L	10	BAJ	03/04/16	1249	1546425	1
The follow	ing Prep Methods w	ere perform	ed:									
Method	Desci	iption			Analyst	Date	Tim	e Pi	ep Batel	1		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730	15	46424	-		
The follow	ving Analytical Meth	ods were pe	erformed:									
Method	Descr	ption				Ana	lyst Co	mment	S			
1	EPA 20	0.8										

Notes:

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Certificate of Analysis

						•/		Re	eport Da	ate:	March 1	15, 2016
	Company :	Env	ironmental Proper	ties Managemer	nt, LLC							
	Address :	615	N. Hudson	C C								
		Suit	e 200									
		Okl	ahoma City, Oklal	noma 73102								
	Contact:	Mr.	Jeff Lux									
	Project:	Cim	arron February 20	16 GWM								
	Client Sample ID:	TM	W-24			Proje	ct:	CMRN	100117			
	Sample ID:	391	698015			Clien	t ID:	CMRN	1001			
	Matrix:	Wat	er									
	Collect Date:	17-I	FEB-16 12:00									
	Receive Date:	19-I	FEB-16									
	Collector:	Clie	nt									
Doromotor	Quali	fior	Dogult		DI	Luita	DE	Analua	t Data	Tim	o Dotob	Mathad
Parameter	Quali	ner	Result	DL	KL	Units	DF	Analys	i Date	IIm	e Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.8	8 Dissolved Uraniun	ı "As	Received"									
Uranium			80.4	0.067	0.200	ug/L	1	BAJ	03/04/16	1250	1546425	1
The follow	ing Prep Methods w	ere pe	erformed:									
Method	Desci	iptior	1		Analyst	Date	Tim	e Pro	ep Batch	1		
EPA 200.2	ICP-M	S 200.2	2 PREP		JP1	02/19/16	1730	154	6424			
The follow	ving Analytical Meth	ods v	vere performed:									
Method	Descr	ption				An	alvst Co	mments				

Method EPA 200.8

Notes:

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Certificate of Analysis

								R	eport Da	ate:	March	15, 2016
	Company : Address :	Envii 615 I Suite Okla	conmental Prope N. Hudson 200 homa City, Okla	rties Manageme homa 73102	nt, LLC							
	Contact:	Mr. J	eff Lux									
	Project:	Cima	rron February 2	016 GWM								
	Client Sample ID:	1373				Projec	et:	CMR	N00117			
	Sample ID:	3916	98016			Client	ID:	CMR	N001			
	Matrix:	Wate	r									
	Collect Date:	17-F	EB-16 12:10									
	Receive Date:	19-F	EB-16									
	Collector:	Clien	t									
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analys	t Date	 Tin	ne Batch	Method
Metals Ana	alvsis-ICP-MS											
200.2/200.8	8 Dissolved Uraniun	n "As F	Received"									
Uranium			57.5	0.067	0.200	ug/L	1	BAJ	03/04/16	1251	1546425	1
The follow	ing Prep Methods w	ere per	formed:									
Method	Descr	iption			Analyst	Date	Tin	ne Pr	ep Batel	h		
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 15-	46424			
The follow	ving Analytical Meth	ods w	ere performed:									
Method	Descri	ption				Ana	lyst Co	mment	5			
1	EPA 20	0.8										

Notes:

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Certificate of Analysis

								R	eport Da	ate:	March 1	15, 2016
	Company : Address :	Envi 615 Suite	ronmental Proper N. Hudson e 200 homa City, Oklal	ties Managemer	nt, LLC							
	Contact:	Mr.	Jeff Lux	10111 <i>a</i> 75102								
	Project:	Cim	arron February 20	016 GWM								
	Client Sample ID:	1393				Projec	et:	CMR	N00117			
	Sample ID:	3916	98019			Client	ID:	CMRI	N001			
	Matrix:	Wate	er									
	Collect Date:	17-F	EB-16 14:05									
	Receive Date:	19-F	EB-16									
	Collector:	Clier	nt									
Doromotor	Quali	fior	Decult	DI	DI	Unita	DE	Analyza	t Data		a Datah	Mathad
Parameter	Quali		Result	DL	KL	Units	Dr	Analys	i Dale	<u> </u>	le Datch	Method
Metals Ana	lysis-ICP-MS											
200.2/200.8	B Dissolved Uranium	n "As l	Received"	0.0(7	0.200	π	1	DAI	02/04/16	1050	1546425	1
Uranium			13.5	0.067	0.200	ug/L	I	BAJ	03/04/16	1252	1546425	1
The follow	ing Prep Methods w	ere per	rformed:									
Method	Descr	iption			Analyst	Date	Tin	ne Pr	ep Batcl	1		
EPA 200.2	ICP-M	S 200.2	PREP		JP1	02/19/16	1730) 154	46424			
The follow	ving Analytical Meth	ods w	ere performed:									
Method	Descri	ption				Ana	lyst Co	mments	5			
1	EPA 20	0.8					-					

Notes:

Quality Control Summary

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 15, 2016

Page 1 of 2

Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma Mr. Jeff Lux

Contact:

Workorder: 391698

Parmname			NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - IC Batch 154	CPMS 46425												
QC1203493410 Uranium	391698001	DUP		25.6		26.1	ug/L	2.23		(0%-20%)	BAJ	03/04/1	16 12:20
QC1203493411 Uranium	391698010	DUP		283		275	ug/L	2.79		(0%-20%)		03/04/1	16 12:37
QC1203493409 Uranium	LCS		50.0			50.2	ug/L		100	(85%-115%)		03/04/1	16 12:18
QC1203493408 Uranium	MB				U	ND	ug/L					03/04/1	16 12:16
QC1203493412 Uranium	391698001	MS	50.0	25.6		76.1	ug/L		101	(75%-125%)		03/04/1	16 12:21
QC1203493413 Uranium	391698010	MS	50.0	283		336	ug/L		N/A	(75%-125%)		03/04/1	16 12:38
QC1203493414 Uranium	391698001	SDILT		25.6		5.33	ug/L	4.18		(0%-10%)		03/04/1	16 12:23
QC1203493415 Uranium	391698010	SDILT		28.3		5.63	ug/L	.533		(0%-10%)		03/04/1	16 12:40

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded

J Value is estimated

- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.

N1 See case narrative

ND Analyte concentration is not detected above the detection limit

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QC Summary

XX7 I	1		-			•/						
workor	der: 391698										Pag	e 2 of 2
Parmna	ne	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
NJ	Consult Case Narrative, Da	ata Summary packag	e, or Project	Manager o	concerning	this qualif	ier					
Q	One or more quality control	ol criteria have not be	een met. Refe	r to the ap	plicable na	rrative or l	DER.					
R	Sample results are rejected											
U	Analyte was analyzed for,	but not detected abov	ve the MDL,	MDA, MI	DC or LOD							
Х	Consult Case Narrative, Da	ata Summary packag	e, or Project	Manager o	concerning	this qualif	ier					
Y	Other specific qualifiers w	ere required to prope	erly define the	e results. C	Consult case	narrative						
^	RPD of sample and duplication	ate evaluated using +	-/-RL. Conce	ntrations a	are <5X the	RL. Qua	lifier Not App	licable for l	Radiochem	istry.		
h	Preparation or preservation	holding time was ex	xceeded									
N/A ind ^ The R	icates that spike recovery line	mits do not apply wh	en sample co	ncentratio	n exceeds s	pike conc	by a factor o	f 4 or more	or %RPD r	ot applica	ble.	than

 $^{\text{The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.$

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.





General Chemistry Technical Case Narrative Burns & McDonnell (CMRN) SDG #: 391698

Method/Analysis Information

Product:	Ion Chromatography		
Analytical Batch:	1546601	Method:	EPA300.0 Fluoride in Liquid

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
391698017	1346
391698018	1346DUP
1203493961	Method Blank (MB)
1203493962	Laboratory Control Sample (LCS)
1203493963	391691001(MWWA-03) Sample Duplicate (DUP)
1203493964	391698017(1346) Sample Duplicate (DUP)
1203493965	391691001(MWWA-03) Post Spike (PS)
1203493966	391698017(1346) Post Spike (PS)
1203493967	391691001(MWWA-03) Post Spike Duplicate (PSD)
1203493968	391698017(1346) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 25.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391691001 (MWWA-03) and 391698017 (1346) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The following samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391698017 (1346) and 391698018 (1346DUP) were diluted because target analyte concentrations exceeded the calibration range. Samples 1203493964 (1346DUP), 1203493966 (1346PS), 1203493968 (1346PSD), 391698017 (1346) and 391698018 (1346DUP) were diluted based on historical data.



Sample Re-analysis The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391698017 (1346) and 391698018 (1346DUP) were manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	Nitrate Nitrite by Cadmium Reduction		
Analytical Batch:	1546807	Method:	EPA 353.2 Nitrogen, Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
391698001	T-61
391698002	T-91
391698003	T-97
391698017	1346
391698018	1346DUP
391698019	1393
1203494445	Method Blank (MB)
1203494446	Laboratory Control Sample (LCS)
1203494447	391698001(T-61) Sample Duplicate (DUP)
1203494448	391698002(T-91) Sample Duplicate (DUP)
1203494449	391698001(T-61) Post Spike (PS)
1203494450	391698002(T-91) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391698001 (T-61) and 391698002 (T-91) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Nitrate/Nitrite	1203494450 (T-91PS)	113* (90%-110%)

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following samples 1203494447 (T-61DUP), 1203494448 (T-91DUP), 1203494449 (T-61PS), 1203494450 (T-91PS), 391698001 (T-61), 391698002 (T-91), 391698003 (T-97), 391698017 (1346), 391698018 (1346DUP) and 391698019 (1393) were diluted because target analyte concentrations exceeded the calibration range.

Analyte			39	1698		
Analyte	001	002	003	017	018	019
Nitrogen, Nitrate/Nitrite	25X	25X	5X	500X	500X	50X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

A data exception report (DER) 1495027 was generated for sample 1203494450 (T-91PS) in this SDG/batch.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391698 GEL Work Order: 391698

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- H Analytical holding time was exceeded
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: ^C

Date: 14 MAR 2016

Name: Thomas Lewis

Title: Data Validator



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Certificate of Analysis

					•/		R	eport Da	te: March	14, 2016
	Company : Environmental Properties Management, LLC									
	Address :	615 N. Hudson	C ,							
		Suite 200								
		Oklahoma City, Oklaho	oma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 201	6 GWM							
	Client Sample ID:	T-61			Projec	:t:	CMR	N00117		
Sample ID:		391698001				Client ID:		N001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 15:05								
	Receive Date:	19-FEB-16								
Collector:	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitrate/Nitrite		37.0	0.425	1.25	mg/L	25	AXH3	02/22/16	1425 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri			Ana	lyst Co	mment	s			
1	EPA 35				-					

Notes:

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Certificate of Analysis

					•/		Re	eport Da	ate: March	14, 2016
	Company : Environmental Properties Management, LLC									
	Address :	615 N. Hudson	e ,							
		Suite 200								
		Oklahoma City, Oklah	oma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20								
	Client Sample ID:	T-91			Project:		CMRN	100117		
	Sample ID:	391698002			Client I	D:	CMRN	J001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 15:20								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitrate/Nitrite		20.1	0.425	1.25	mg/L	25	AXH3 (02/22/16	1434 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Analy	st Co	mments			
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

					•/		R	eport Da	ate: March	14, 2016
	Company : Environmental Properties Management, LLC									
Address :		615 N. Hudson	C ,							
		Suite 200								
		Oklahoma City, Oklah	oma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 201	l6 GWM							
	Client Sample ID:	T-97			Projec	:t:	CMR	N00117		
	Sample ID:	391698003			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	16-FEB-16 15:35								
	Receive Date:	19-FEB-16								
Collector:	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batc	h Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitrate/Nitrite		4.28	0.085	0.250	mg/L	5	AXH3	02/22/16	1437 154680	07 1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	s		
1	EPA 35									

Notes:
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Certificate of Analysis

						•/		Re	eport Da	ate:	March 1	14, 2016
	Company :	Enviro	nmental Proper	ties Managemen	t, LLC							
	Address :	615 N.	Hudson	-								
		Suite 2	00									
		Oklaho	ma City, Oklah	ioma 73102								
	Contact:	Mr. Jef	f Lux									
	Project:	Cimarr	on February 20	16 GWM								
	Client Sample ID:	1346				Projec	:t:	CMRN	J00117			
	Sample ID:	391698	3017			Client	ID:	CMRN	J001			
	Matrix:	Water										
	Collect Date:	17-FEI	8-16 13:55									
	Receive Date:	19-FEI	B- 16									
	Collector:	Client										
Daramatar	Quali	fior D	Pogult	DI	DI	Unita	DE	Analya	t Data	Tim	o Dotoh	Mathad
Faranieter	Quali	nei r	lesun	DL	KL	Units	DF	Allalys	i Dale		le Datell	Method
Ion Chrom	atography											
EPA300.0	Fluoride in Liquid "A	As Recei	ved"									
Fluoride			9.89	0.132	0.400	mg/L	4	RXB5 (02/21/16	1018	1546601	1
Nutrient A	nalysis											
EPA 353.2	Nitrogen, Nitrate/N	itrite "As	Received"									
Nitrogen, Nitr	rate/Nitrite		397	8.50	25.0	mg/L	500	AXH3 (02/22/16	1507	1546807	2
The follow	ving Analytical Meth	ods wer	e performed:									
Method	Descri	ption				Ana	lyst Co	mments				
1	EPA 30	0.0										
2	EPA 35	3.2										

Notes:

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Certificate of Analysis

			•					Re	port Da	te: Marc	h 14, 2016
	Company :	Env	vironmental Propertie	es Management,	LLC						
	Address :	615	N. Hudson								
		Sui	te 200								
		Ok	ahoma City, Oklaho	ma 73102							
	Contact:	Mr.	Jeff Lux								
	Project:	Cin	narron February 2010	6 GWM							
	Client Sample ID	: 134	6DUP			Project	:	CMRN	00117		
	Sample ID:	391	698018			Client	ID:	CMRN	001		
	Matrix:	Wa	ter								
	Collect Date:	17-	FEB-16 13:55								
	Receive Date:	19-	FEB-16								
	Collector:	Clie	ent								
Parameter	Qua	lifier	Result	DL	RL	Units	DF	Analyst	Date	Time Bat	ch Method
Ion Chroma	atography										
EPA300.0	Fluoride in Liquid	"As Re	eceived"								
Fluoride			10.0	0.132	0.400	mg/L	4	RXB5 0	2/21/16	1223 15466	501 1
Nutrient An	nalysis										
EPA 353.2	Nitrogen, Nitrate/	Nitrite	"As Received"								
Nitrogen, Nitr	ate/Nitrite		417	8.50	25.0	mg/L	500	AXH3 0	2/22/16	1508 15468	307 2
The follow	ving Analytical Me	thods v	were performed:								
Method	Desc	riptior	1			Anal	yst Cc	mments			
1	EPA	300.0									
2	EPA	353.2									

Notes:

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Certificate of Analysis

					•/		R	eport Da	ate: March	14, 2016
	Company :	Environmental Proper	rties Management,	LLC						
	Address :	615 N. Hudson	-							
		Suite 200								
		Oklahoma City, Okla	homa 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	016 GWM							
	Client Sample ID:	1393			Projec	:t:	CMR	N00117		
	Sample ID:	391698019			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	17-FEB-16 14:05								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Nutrient A	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	itrite "As Received"								
Nitrogen, Nitr	rate/Nitrite	44.3	0.850	2.50	mg/L	50	AXH3	02/22/16	1441 1546807	/ 1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	s		
1	EPA 35	3.2								

Notes:

Quality Control Summary

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QC Summary

Report Date: March 14, 2016

Page 1 of 2

Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma Mr. Jeff Lux

Contact:

Workorder: 391698

Parmname		NOM	Sample Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Ion Chromatography Batch 1546601									
QC1203493963 391691001 Fluoride	DUP		9.55	9.53	mg/L	0.215		(0%-20%) RXB5	02/23/16 23:02
QC1203493964 391698017 Fluoride	DUP		9.89	9.88	mg/L	0.0526		(0%-20%)	02/21/16 10:49
QC1203493962 LCS Fluoride		2.50		2.51	mg/L		100	(90%-110%)	02/21/16 02:26
QC1203493961 MB Fluoride			U	ND	mg/L				02/21/16 01:55
QC1203493965 391691001 Fluoride	PS	2.50	1.91	4.43	mg/L		101	(90%-110%)	02/23/16 23:33
QC1203493966 391698017 Fluoride	PS	2.50	2.47	5.11	mg/L		105	(90%-110%)	02/21/16 11:20
QC1203493967 391691001 Fluoride	PSD	2.50	1.91	4.43	mg/L	0.0113	101	(0%-20%)	02/24/16 00:04
QC1203493968 391698017 Fluoride	PSD	2.50	2.47	5.10	mg/L	0.0823	105	(0%-20%)	02/21/16 11:52
Nutrient Analysis Batch 1546807									
QC1203494447 391698001 Nitrogen, Nitrate/Nitrite	DUP		37.0	37.5	mg/L	1.34		(0%-20%) AXH3	02/22/16 14:27
QC1203494448 391698002 Nitrogen, Nitrate/Nitrite	DUP		20.1	18.7	mg/L	7.35		(0%-20%)	02/22/16 14:35
QC1203494446 LCS Nitrogen, Nitrate/Nitrite		1.00		1.05	mg/L		105	(90%-110%)	02/22/16 14:24
QC1203494445 MB Nitrogen, Nitrate/Nitrite			U	ND	mg/L				02/22/16 14:23
QC1203494449 391698001 Nitrogen, Nitrate/Nitrite	PS	1.00	1.48	2.53	mg/L		105	(90%-110%)	02/22/16 14:33
QC1203494450 391698002 Nitrogen, Nitrate/Nitrite	PS	1.00	0.804	1.93	mg/L		113*	(90%-110%)	02/22/16 14:36

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QC Summary

Workorder:	391698								Page 2 of 2
Parmname		NOM	Sample Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time

Nutrient Analysis 1546807 Batch

Notes:

The Qualifiers in this report are defined as follows:

Result is less than value reported <

- > Result is greater than value reported
- В The target analyte was detected in the associated blank.
- Е General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Η Analytical holding time was exceeded
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- One or more quality control criteria have not been met. Refer to the applicable narrative or DER. Q
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected
- Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD. U
- Х Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Ζ Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- \wedge RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- 5-day BOD--The 2:1 depletion requirement was not met for this sample d
- 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for e reporting purposes
- h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable. ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.



	DATA EXC	CEPTION REPORT	
Mo.Day Yr. 22-FEB-16	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: LACHAT Flow Injection Analyzer	Test / Method: EPA 353.2	Matrix Type: Liquid	Client Code: CMRN
Batch ID: 1546807	Sample Numbers: See Below		
Potentially affected work order(s)(Application Issues: Failed Recovery for MS/MSD, or PS	SDG): 391698,391704 /PSD		
Specification and Requirements Exception Description:		DER Disposition:	
1. Failed Recovery for MS/MSD, or QC 1203494450PS	PS/PSD:	1. The matrix spike recoveredue to matrix interference an Nitrogen, Nitrate/Nitrite 1203	ed outside of the established acceptance limits d/or non-homogeneity. 494450 (T-91PS) [113* (90%-110%)].
Originator's Name:		Data Validator/Group Lead	er:

Data Validator/Group Leader:Kristen Mizzell23-FEB-16



a member of The GEL Group INC



PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 16, 2016

Mr. Jeff Lux Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma 73102

Re: Cimarron February 2016 GWM Work Order: 391704

Dear Mr. Lux:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 19, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,

Chelsea Seagle Edith Kent Project Manager

Purchase Order: tbd Chain of Custody: 2016-006, 2016-007 and 2016-008 Enclosures



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CASE NARRATIVE for Burns & McDonnell Cimarron February 2016 GWM SDG:391704

March 16, 2016

Laboratory Identification:

GEL Laboratories LLC 2040 Savage Road Charleston, South Carolina 29407 (843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 19, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note There are no additional items of note concerning this SDG.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
391704001	1393
391704002	1381
391704003	1385
391704004	1387
391704005	1313
391704006	1312
391704007	1352
391704008	1356
391704009	1348
391704010	1319B-1
391704011	1319B-3
391704012	1331
391704013	1377
391704014	T-54
391704015	T-99
391704016	T-100

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals

and Radiochemistry.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Chelsea Seagle for Edith Kent Project Manager

GEL Laboratories LLC

PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

www.gel.com

Chain of Custody and Supporting Documentation

391704

CHAIN OF CUST	ODY RECORD A	ND ANAL	YSIS	REQ	UEST				CO	C # : 20'	16-0	06				
SHIP TO:						SHIP FR	OM:						ANA	LYSIS F	REQUE	STED
Company Name:	GEL Laboratories	s LLC									1					
Address:	2040 Savage Ro	ad				Er	nvironmenta	al Properties	s Managem	ent						
Address:	Charleston, SC 2	29407					1	00 N. Hwy	74		(8)					
Contact Person:	Edith Kent						Gut	thrie, OK 73	3044		20					
Phone:	843-769-7376, ex	<u>ct. 4505</u>									A	3.2				
ATTEST THAT THE PROPER	R FIELD SAMPLING PROCED	URES WERE US	SED DUR	ING THE		Cont	act Person:	Jeff Lux			E E	135	6			
COLLECTION OF THESE SAF	IDE:		2		I		Phone.	405-642-5	152		ium	d	30			
SAMPLER SIGNATI	Re: C										Iran	() ()	X I			
ын: 	GIMARRON	FACILITY	/		ł		3/			ar ha 1937 in 18 dan at 14 da dan ar 2007 in 2014 ha na sa	D C		Ē			
	0.1.1.D. 0		T			SC	DLID		VVAIER		olve	te/b	ride			
	SAMPLE			TYPE	EK I	2011		X" IF	PRESERV.	FILTERED	Diss	litra	on]			
10 4202	2/17/2016	1405	1	P	125 ml	SUIL	UINER	Y	0000	.450 7/N		<u> </u>	X			
1383	2/17/2016	1430	1	P	250 ml	a "Na kan kin basa yana mas filina kana kan da kan da j		x	HNO3	V V	X					
1301	2/17/2016	1430	4	P	250 mL	-lana analaran aras ng bila an-bilana ang bi	and a second	x	H2SO4	N		X				i
1301	2/17/2010	1450	1	P	125 ml			X	H2SO4	N		X				
1285	2/17/2016	1450	1	p	125 ml		1	× ×	none	N			x	**************************************		
1387	2/17/2016	1510	1	P	125 ml			x	H2SO4	N		x				
1387	2/17/2016	1510	1	P	125 ml	/		x	none	N			x			
1313	2/17/2016	1550	1	P	125 ml	dan dan sesaharan yang dari dalam kana se		X	H2SO4	N	1	X				
1313	2/17/2016	1550	1	P	125 ml			X	none	N	1	<u> </u>	x			
1312	2/18/2016	945	1	P	125 mL	ad to be an entering a capage of the 12 shadow the		X	H2SO4	N		X				
1312	2/18/2016	945	1	P	125 mL			X	none	N			X			1
1352	2/18/2016	1005	1	Р	250 mL			Х	HNO3	Y	X					
	Potential H	azardous Cha	racteris	tics					in data ang sa		Sam	ple Dis	posal	aantoinga uu	animer remaind	
間 Non-Haz	RCRA D001.283. or 4		Listed	D	Radioac	tive 🗆	Unknown	Dispos	al Lab	Return	to Clien	t		oldina oend	ina further	instructior
THIS SAMPI	E MEETS ALL APPROPR	ATE RADIOLC	GICAL	REQUIR	EMENTS:	HP IN		SK-1								
					1											
RELINQUISHED BY SAMPLE	R: DATE:	TIME:	RECEIV	ED BY :	1	ß	DATE:	TIME:	EDD	REPORT TO:						
\frown	a leal.	11	h	1	1/ 1		1.81		(Report	EQUIS	dhorr	ne@bu	rnsmcd	.com		
-p	2/18/16	(600	1 /h	L	do	CL	~19-16	0900	Level?)	GEL EDD	mbec	kman(@burnsi	ncd.com;	jlux@e	nvpm.cc
BELINQUISHED BY :	DATE:	TIME:	RECEIV	ED BY			DATE:	TIME:	HARD COPY F	EPORT (.PDF)	TO:	anunn	0 0000			
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										112 00	er tennerster Alle	-	-			. /

391704

CHAIN OF CUST	ODY RECORD A	ND ANAL	YSIS	REQ	UEST				CO	C#:201	16-0	07					
SHIP TO:						SHIP FR	OM:						AN	ALYS	IS REQ	UESTE	D
Company Name:	GEL Laboratorie	s LLC															
Address:	2040 Savage Ro	ad				Er	nvironmenta	I Propertie	s Managem	ent							
Address:	Charleston, SC	29407					1	00 N. Hwy	74		8.						
Contact Person:	Edith Kent						Gu	thrie, OK 7	3044		20(
Phone:	843-769-7376, e	xt. 4505									A	3.2		6			
ATTEST THAT THE PROPE COLLECTION OF THESE SAI	R FIELD SAMPLING PROCED	URES WERE US		ING THE		Cont	act Person:	Jeff Lux	450		m (E	EPA 35	(0.00)	SL 30			
SAMPLER SIGNATU	JRE:		e				Phone:	405-642-5	152		ran	e (E	A 3	H			
SITE:	CIMARRON	FACILITY	/		Į.	alar a tigo da ana a alay ng kang kang kang kang kang kang kang k	S	Ample Ty	PE		D D	1	EF (h			
			1			SC	DLID		WATER	[Ne l	le/N	ide	pic		1	
۱D	SAMPLE DATE	TIME	NO.	CONTAIN TYPE	IER SIZE	SOIL	OTHER	"X" IF WATER	PRESERV.	FILTERED .45µ Y/N	Disso	Nitrat	Fluor	Isoto _i			
352	2/18/2016	1005	1	Ρ	125 mL		-	Х	H2SO4	N		Х					
356	2/18/2016	1025	1	Р	250 mL			Х	HNO3	Y	Х						
356	2/18/2016	1025	1	Р	125 mL			Х	H2SO4	N		Х					
348	2/18/2016	1050	1	Р	250 mL			Х	HNO3	Y	X						
348	2/18/2016	1050	1	P	125 mL			Х	H2SO4	N		Х					
348	2/18/2016	1050	1	Р	125 mL	NAME OF COMPANY OF COMPANY		Х	none	N			Х				
319B-1	2/18/2016	1120	1	P	125 mL			Х	H2SO4	N		Х					
319B-3	2/18/2016	1150	1	P	125 mL			X	H2SO4	N		Х			1		
1331	2/18/2016	1210	1	P	250 mL			X	HNO3	Y	X						
331	2/18/2016	1210	1	P	1 L			Х	HNO3	Y				X			
1377	2/18/2016	1230	1	P	1L			Х	HNO3	Y				X			
-54	2/18/2016	1345	1	P	125 mL			<u> </u>	H2SO4	N		Χ_					
	Potential H	azardous Cha	racteris	tics							Samp	ole Dis	posal				
Non-Haz	RCRA D001,2&3, or 4	C RCRA	Listed	0	Radioac	tive 🛛	Unknown	Dispos	al Lab	Return	to Client	t	0	Holding	pending fur	ther instruct	tions
THIS SAMP	LE MEETS ALL APPROPR	IATE RADIOLC	GICAL	REQUIR	EMENTS:	HP IN	VITIAL:	26	L						·····		
ELINQUISHED BY SAMPLE	R: DATE:	TIME:	RECEIN	ED BY :	1		DATE:	TIME:	EDD	REPORT TO:					****		
61 +	- 2/18/11	1600	Ma	IX	A.	1	19-11	and a state with the	(Report	EQUIS	dhorn	e@bu	irnsmc	d.com			endelle ben konseigne Pite
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ECINQUISTED BY :	UATE.	s HVIE.	INECEN	001.			UNIE.	1 1991.	(Report	EPURI (PUP)	jlux@	envpn	n.com		5-14-80-80-80-9-9-1-1-1		
			<u> </u>	·····					Level?)		mbec	kman(@burn	smcd.c	.om		*****
PAGE 7	OF 8						C	OCUMENT	CONTROL:	Q	ħ	l 130	7		DAT	E: 02/	1.8/:

391704

CHAIN OF CUST	JDY RECORD A	ND ANAL	YSIS	REQ	UEST		***		CO(C#:20'	16-0	801					
SHIP TO:						SHIP FR	OM:				<u> </u>	ANALYSIS REQUESTED					
Company Name: Address: Address: Contact Person: Phone:	GEL Laboratories 2040 Savage Ros Charleston, SC 2 Edith Kent 843-769-7376 ex	3 LLC ad 29407 ct 4505				En	vironmenta 1 Gu	al Properties 00 N. Hwy thrie, OK 73	s Managem 74 3044	ent	A 200.8)	.2)					
ATTEST THAT THE PROPER	FIELD SAMPLING PROCED	URES WERE US	ED DUR	ING THE		Cont	act Porcon	loff Luv			EP (EP	353	6	l õõ			
COLLECTION OF THESE SAM	PLES.	6	2	ter bezaltagen,		Com	au reisuii.				E	Ad	00.0	ST S			
SAMPLER SIGNATU	RE:	and a second					Phone:	405-642-5	152		rani	U)	A 3	HA			
SITE:	CHMARRON	FACILITY				a na segura da sera da segura da sera da sera da segura da segura da segura da segura da segura da segura da s	S	AMPLE TY	PE		D p	liti	EF (EF	hu			
			<u> </u>			SC	DLID		WAIER	·		teh	ride	pic			
	SAMPLE	TIME	NO	TYPE	IEK 917E	201	OTHER	- XTIF	PRESERV.	FILTERED	Diss	Vitra	Inol	soto			
ں ۲_99	2/18/2016	1410	1	P	250 ml	JUIL	i UIREK	X	HNO3	инт цен. У	X	<u> </u>				+	
T-99	2/18/2016	1410	1	P	125 mL			x	H2SO4	, N		x					1.14-1 14 ⁻¹⁰ 1
T-100	2/18/2016	1430	1	P	125 mL	er hann nin e arrean, argen an Philippin de Heran.		X	H2SO4	N		X				1	
	Potential Ha	azardous Cha	racteris	tics							Samp	ole Dis	posal				
Non-Haz	CRA D001,2&3, or 4		Listed		Radioac	tive 🖸	Unknown	Disposi	al Lab	Return	to Clien	t	0	Holding p	ending furth	er instruction	าร
THIS SAMPLI	E MEETS ALL APPROPRI	ATE RADIOLO	GICAL I	REQUIR		HP IN	ITIAL:	<u>1) /</u>	[
RELINQUISHED BY SAMPLER	DATE:	TIME:	RECEIV	ED BY :	1. 1	1	DATE:	TIME:	EDD	REPORT TO:		- 61				1978-984 (Martin State	u*an.rub*
ny 5	2/18/16	1600	h	No	<u>L</u>)	-19-16	0900	(Report	GEL EDD	anorn	e@bu	irnsmc abure	<u>a.com</u>	ma iluv@	~~~~~	~~~
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									(Report		ilux@	envpn	n.com	cmcd c	200		helest films
			L						Lever/)		mueci	niidii(wourn	sincu.C	2111		

Client:	CMRN			SDO	GAR/COC/Work Order: 3911091, 3911098, 291704
Received By	· · · · · · · · · · · · · · · · · · ·			Dat	e Received: $2-19-16$
Suspected Ha	zard Information	Yes	No No	*If t inve	Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further stigation.
COC/Samples	marked as radioactive?		7	Max	imum Net Counts Observed* (Observed Counts - Area Background Counts):
Classified Rad	ioactive II or III by RSO?		/	JE ye	s, Were swipes taken of sample containers < action levels?
COC/Samples	marked containing PCBs?	<u> </u>	1		
eryllium or as	bestos containing?	<u></u>	4	If ye	s, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group
Shipped as a D Samples identi	OT Hazardous? fied as Foreign Soil?		-	Haz	ard Class Shipped: UN#:
So	male Pecceint Criteria	8	A		Commonte/Qualifiars (Dequired for Non Conforming Items)
Chinaina	appre Accept Criticita	*		12	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
1 sealed?	containers received intact and	/			
2 Samples within (0	requiring cold preservation ≤6 deg. C)?*	/		. .	Preservation Method Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 6
2a Daily cho temperat	eck performed and passed on IR ure gun?			-	Temperature Device Serial #: 1.3 (IFApplicable).
3 Chain of with ship	custody documents included				Circle Applicables Sade broken Domaged container Lacking container Other (describe)
4 Sample o	containers intact and sealed?	:/	-	.r	
5 Samples at proper	requiring chemical preservation pH?	V			Sample ID's, containers attected and observed pH:
6 Do Low headspace	Level Perchlorate samples have as required?		/		Sample ID's and containers affected:
7 VOA via	ls contain acid preservation?		/		(If unknown, select No)
8 VOA via < 6mm b	ls free of headspace (defined as ubble)?				Sample ID's and containers affected:
9 Are Enco	ore containers present?			/	(If yes, immediately deliver to Volatiles laboratory)
10 Samples	received within holding time?				ID's and tests affected:
11 Sample I bottles?	D's on COC match ID's on			~	Sample ID's and containers affected:
12 Date & t on bottle	ime on COC match date & time s?	1			Sample ID's affected:
13 Number number i	of containers received match ndicated on COC?	/		Ļ	Sample ID's affected:
14 Are sam	ple containers identifiable as vided?	/			
15 COC for relinquis	m is properly signed in hed/received sections?	1			
	· ·			~	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other
		-			7756 8194 3380 160
16 Carrier a	nd tracking number.				4137 6C
Comments (U	se Continuation Form if needed):	1		ä	1

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Laboratory Certification

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

List of current GEL Certifications as of 16 March 2016





Metals Technical Case Narrative Burns & McDonnell (CMRN) SDG #: 391704

Sample ID	Client ID
391704002	1381
391704007	1352
391704008	1356
391704009	1348
391704012	1331
391704015	T-99
1203493391	Method Blank (MB)ICP-MS
1203493392	Laboratory Control Sample (LCS)
1203493398	391704002(1381L) Serial Dilution (SD)
1203493394	391704002(1381D) Sample Duplicate (DUP)
1203493396	391704002(1381S) Matrix Spike (MS)

Sample Analysis

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch:	1546418
Prep Batch :	1546415
Standard Operating Procedures:	GL-MA-E-014 REV# 27 and GL-MA-E-016 REV# 15
Analytical Method:	EPA 200.8
Prep Method :	EPA 200.2

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 391704002 (1381).

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 391704007 (1352) and 391704008 (1356) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.



Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391704 GEL Work Order: 391704

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- B Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Juk Ede A. Emore Signature:

Name: Nik-Cole Elmore Title: Data Validator

Date: 15 MAR 2016



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Certificate of Analysis

						•/		R	leport Da	ate:	March 1	15, 2016
	Company :	Environme	ental Properties M	lanagemer	nt, LLC							
	Address :	615 N. Hu	dson	,								
		Suite 200										
		Oklahoma	City, Oklahoma	73102								
	Contact:	Mr. Jeff L	ux									
	Project:	Cimarron	February 2016 G	WM								
	Client Sample ID:	1381				Projec	et:	CMR	N00117			
	Sample ID:	391704002	2			Client	t ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	17-FEB-10	5 14:30									
	Receive Date:	19-FEB-10	5									
	Collector:	Client										
			-									
Parameter	Quali	fier Resu	ılt	DL	RL	Units	DF	Analy	st Date	Tim	ie Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Receiv	ved"									
Uranium		7	5.7	0.067	0.200	ug/L	1	BAJ	03/03/16	1925	1546418	1
The follow	ing Prep Methods w	ere perform	ed:									
Method	Desci	ription			Analyst	Date	Tim	e Pi	rep Batcl	1		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730	15	546415	-		
The follow	ving Analytical Meth	ods were pe	erformed:									
Method	Descr	Description				Ana	lyst Co	mment	S			
1	EPA 20	EPA 200.8										

Notes:

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Certificate of Analysis

							Re	eport Da	ite:	March 1	5, 2016
	Company :	Environmental P	roperties Managemer	nt, LLC							
	Address :	615 N. Hudson									
		Suite 200									
		Oklahoma City, O	Oklahoma 73102								
	Contact:	Mr. Jeff Lux									
	Project:	Cimarron Februa	ry 2016 GWM								
	Client Sample ID:	1352			Projec	et:	CMRN	N00117			
	Sample ID:	391704007			Client	ID:	CMRN	1000			
	Matrix:	Water									
	Collect Date:	18-FEB-16 10:05	5								
	Receive Date:	19-FEB-16									
	Collector:	Client									
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Tim	ne Batch	Method
Metals Ana	alysis-ICP-MS										
200.2/200.3	8 Dissolved Uraniun	n "As Received"									
Uranium		149	0.670	2.00	ug/L	10	BAJ (03/04/16	1211	1546418	1
The follow	ing Prep Methods w	ere performed:									
Method	Descr	iption		Analyst	Date	Tim	e Pre	ep Batch	1		
EPA 200.2	ICP-M	S 200.2 PREP		JP1	02/19/16	1730	154	46415			
The follow	ving Analytical Meth	ods were performe	ed:								
Method	Descri	Description			Ana	lyst Co	mments	5			
1	EPA 20	0.8									

Notes:

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

							Re	eport Da	ite:	March 1	15, 2016
	Company :	Environmental P	roperties Managemer	nt, LLC							
	Address :	615 N. Hudson									
		Suite 200									
		Oklahoma City,	Oklahoma 73102								
	Contact:	Mr. Jeff Lux									
	Project:	Cimarron Februa	ry 2016 GWM								
	Client Sample ID:	1356			Projec	et:	CMRN	J00117			
	Sample ID:	391704008			Client	t ID:	CMRN	J001			
	Matrix:	Water									
	Collect Date:	18-FEB-16 10:25	5								
	Receive Date:	19-FEB-16									
	Collector:	Client									
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Tim	e Batch	Method
Metals Ana	alysis-ICP-MS										
200.2/200.3	8 Dissolved Uraniun	"As Received"									
Uranium		258	0.670	2.00	ug/L	10	BAJ (03/04/16	1213	1546418	1
The follow	ing Prep Methods w	ere performed:									
Method	Descr	iption		Analyst	Date	Tim	e Pre	p Batch	1		
EPA 200.2	ICP-M	S 200.2 PREP		JP1	02/19/16	1730	154	6415			
The follow	ving Analytical Meth	ods were performe	ed:								
Method	Descri	Description			Ana	lyst Co	mments				
1	EPA 20	0.8									

Notes:

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Certificate of Analysis

						•/		R	leport Da	ate:	March 1	5, 2016
	Company :	Environme	ental Properties N	/lanagemer	nt, LLC							
	Address :	615 N. Hu	dson	•								
		Suite 200										
		Oklahoma	City, Oklahoma	73102								
	Contact:	Mr. Jeff L	IX									
	Project:	Cimarron	February 2016 G	WM								
	Client Sample ID:	1348				Projec	et:	CMR	N00117			
	Sample ID:	391704009)			Client	: ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	18-FEB-16	5 10:50									
	Receive Date:	19-FEB-16	5									
	Collector:	Client										
		~ D	1.		DI	.					D 1	
Parameter	Qualı	fier Resu	lt	DL	RL	Units	DF	Analy	st Date	Tim	he Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Receiv	ved"									
Uranium		6	7.0	0.067	0.200	ug/L	1	BAJ	03/03/16	1945	1546418	1
The follow	ing Prep Methods w	ere performe	ed:									
Method	Desci	ription			Analyst	Date	Tim	e Pi	ep Batel	ı		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730	15	46415			
The follow	ving Analytical Meth	ods were pe	rformed:									
Method	Descr				Ana	lyst Co	mment	S				
1	EPA 20	EPA 200.8										

Notes:

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Certificate of Analysis

						•/]	Report Da	ate:	March 1	15, 2016
	Company :	Enviro	nmental Properti	ies Managemer	nt, LLC							
	Address :	615 N.	Hudson	-								
		Suite 2	00									
		Oklaho	oma City, Oklaho	oma 73102								
	Contact:	Mr. Je	f Lux									
	Project:	Cimari	on February 201	6 GWM								
	Client Sample ID:	1331				Projec	et:	CMF	RN00117			
	Sample ID:	391704	012			Client	t ID:	CMF	RN001			
	Matrix:	Water										
	Collect Date:	18-FEI	3-16 12:10									
	Receive Date:	19-FEI	3-16									
	Collector:	Client										
		~ -										
Parameter	Qualı	fier I	Result	DL	RL	Units	DF	Analy	st Date	Tin	he Batch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Re	ceived"									
Uranium			22.1	0.067	0.200	ug/L	1	BAJ	03/03/16	1948	1546418	1
The follow	ing Prep Methods w	ere perfo	ormed:									
Method	Desci	ription			Analyst	Date	Tin	ne P	rep Batcl	ı		
EPA 200.2	ICP-M	S 200.2 PI	REP		JP1	02/19/16	1730) 1	546415			
The follow	ving Analytical Meth	ods wer	e performed:									
Method	Descr	Description				Ana	alyst Co	mmen	ts			
1	EPA 200.8											

Notes:

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Certificate of Analysis

						•/		R	leport Da	ate: Ma	rch 1	5, 2016
	Company :	Environm	ental Properties N	Managemer	nt, LLC							
	Address :	615 N. Hu	dson	•								
		Suite 200										
		Oklahoma	City, Oklahoma	73102								
	Contact:	Mr. Jeff L	ux									
	Project:	Cimarron	February 2016 G	WM								
	Client Sample ID:	T-99				Projec	:t:	CMR	N00117			
	Sample ID:	39170401	5			Client	ID:	CMR	N001			
	Matrix:	Water										
	Collect Date:	18-FEB-1	5 14:10									
	Receive Date:	19-FEB-1	5									
	Collector:	Client										
Parameter	Quali	fier Resu	ılt	DL	RL	Units	DF	Analy	st Date	Time E	atch	Method
Metals Ana	alysis-ICP-MS											
200.2/200.3	8 Dissolved Uraniun	n "As Receiv	ved"									
Uranium		3	6.8	0.067	0.200	ug/L	1	BAJ	03/03/16	1950 154	46418	1
The follow	ing Prep Methods w	ere perform	ed:									
Method	Desci	ription			Analyst	Date	Tin	ne Pr	ep Batel	h		
EPA 200.2	ICP-M	S 200.2 PREP			JP1	02/19/16	1730) 15	46415			
The follow	ving Analytical Meth	ods were pe	erformed:									
Method	Descr	Description				Ana	lyst Co	mment	S			
1	EPA 20	EPA 200.8					·					

Notes:

Quality Control Summary

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 15, 2016

Page 1 of 2

Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma Mr. Jeff Lux

Contact:

Workorder: 391704

Parmname		NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time	
Metals Analysis - IC Batch 154	C PMS 46418												
QC1203493394 Uranium	391704002	DUP		75.7		75.9	ug/L	0.351		(0%-20%)	BAJ	03/03/1	6 19:27
QC1203493392 Uranium	LCS		50.0			50.8	ug/L		102	(85%-115%)		03/04/1	6 11:57
QC1203493391 Uranium	MB				U	ND	ug/L					03/04/1	6 11:56
QC1203493396 Uranium	391704002	MS	50.0	75.7		127	ug/L		102	(75%-125%)		03/03/1	6 19:30
QC1203493398 Uranium	391704002	SDILT		75.7		15.1	ug/L	.0502		(0%-10%)		03/03/1	6 19:32

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.

N1 See case narrative

- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Other specific qualifiers were required to properly define the results. Consult case narrative.
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

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QC Summary

Workorder:	391704									Page 2 of	f 2
Parmname		NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Tim	e

Preparation or preservation holding time was exceeded h

Workorder:

391704

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable. ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.




General Chemistry Technical Case Narrative Burns & McDonnell (CMRN) SDG #: 391704

Method/Analysis Information

Product:	Ion Chromatography		
Analytical Batch:	1546601	Method:	EPA300.0 Fluoride in Liquid

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
391704001	1393
391704003	1385
391704004	1387
391704005	1313
391704006	1312
391704009	1348
1203493961	Method Blank (MB)
1203493962	Laboratory Control Sample (LCS)
1203493963	391691001(MWWA-03) Sample Duplicate (DUP)
1203493964	391698017(1346) Sample Duplicate (DUP)
1203493965	391691001(MWWA-03) Post Spike (PS)
1203493966	391698017(1346) Post Spike (PS)
1203493967	391691001(MWWA-03) Post Spike Duplicate (PSD)
1203493968	391698017(1346) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 25.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391691001 (MWWA-03) and 391698017 (1346) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The following samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391704001 (1393), 391704003 (1385), 391704004 (1387), 391704005 (1313), 391704006 (1312) and 391704009 (1348) were diluted because target analyte concentrations exceeded the calibration range. Samples 1203493964 (1346DUP), 1203493966 (1346PS), 1203493968 (1346PSD), 391704001 (1393), 391704003 (1385), 391704004 (1387), 391704005 (1313), 391704003 (1385), 391704004 (1387), 391704005 (1313), 391704006 (1312) and 391704009 (1348) were diluted based on historical data.

Analyte	391704									
	001	003	004	005	006	009				
Fluoride	4X	2X	5X	20X	5X	2X				

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391704004 (1387) and 391704009 (1348) were manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	Nitrate Nitrite by Cadmium Reduction		
Analytical Batch:	1546807	Method:	EPA 353.2 Nitrogen, Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
391704002	1381
391704003	1385
391704004	1387
391704005	1313
391704006	1312
391704007	1352
391704008	1356
391704009	1348
391704010	1319B-1
391704011	1319B-3
391704014	T-54
391704015	T-99
391704016	T-100
1203494445	Method Blank (MB)
1203494446	Laboratory Control Sample (LCS)
1203494447	391698001(T-61) Sample Duplicate (DUP)
1203494448	391698002(T-91) Sample Duplicate (DUP)
1203494449	391698001(T-61) Post Spike (PS)
1203494450	391698002(T-91) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391698001 (T-61) and 391698002 (T-91) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Nitrate/Nitrite	1203494450 (T-91PS)	113* (90%-110%)

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following samples 1203494447 (T-61DUP), 1203494448 (T-91DUP), 1203494449 (T-61PS), 1203494450 (T-91PS), 391704002 (1381), 391704003 (1385), 391704004 (1387), 391704005 (1313), 391704006 (1312), 391704007 (1352), 391704008 (1356), 391704009 (1348), 391704010 (1319B-1), 391704011 (1319B-3), 391704014 (T-54), 391704015 (T-99) and 391704016 (T-100) were diluted because target analyte concentrations exceeded the calibration range.

Analyte		391704											
	002	003	004	005	006	007	008	009	010	011	014	015	016
Several	500X	1000X	100X	200X	500X	50X	10X	10X	50X	125X	500X	50X	25X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

A data exception report (DER) 1495027 was generated for sample 1203494450 (T-91PS) in this SDG/batch.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391704 GEL Work Order: 391704

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- H Analytical holding time was exceeded
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: ^C

Date: 14 MAR 2016

Name: Thomas Lewis

Title: Data Validator



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Certificate of Analysis

					•/		R	eport Da	te: March	4, 2016
	Company :	Environmental Prope	rties Management, I	LLC						
	Address :	615 N. Hudson	C ,							
		Suite 200								
		Oklahoma City, Okla	ahoma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 2	016 GWM							
	Client Sample ID:	1393			Projec	t:	CMR	N00117		
	Sample ID:	391704001			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	17-FEB-16 14:05								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Ion Chroma	atography									
EPA300.0	Fluoride in Liquid "A	As Received"								
Fluoride		3.92	0.132	0.400	mg/L	4	RXB5	02/21/16	1255 1546601	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	S		
1	EPA 30	0.0				-				

Notes:

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Certificate of Analysis

							R	eport Da	ate: March	14, 2016
	Company : Address :	Environmental Proper 615 N. Hudson Suite 200 Oklahoma City, Oklah	ties Management, 1 noma 73102	LLC						
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	16 GWM							
	Client Sample ID:	1381			Project	:	CMRI	N00117		
	Sample ID:	391704002			Client	ID:	CMRI	N001		
	Matrix:	Water								
	Collect Date:	17-FEB-16 14:30								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient Ar	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	685	8.50	25.0	mg/L	500	AXH3	02/22/16	1442 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Anal	yst Co	mments	5		
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

								Re	port Da	ate:	March	14, 2016
	Company :	Environment	al Properties Ma	anagement	, LLC							
	Address :	615 N. Huds	on									
		Suite 200										
		Oklahoma C	ity, Oklahoma 🕻	73102								
	Contact:	Mr. Jeff Lux										
	Project:	Cimarron Fe	bruary 2016 GW	VМ								
	Client Sample ID:	1385				Projec	et:	CMRN	00117			
	Sample ID:	391704003				Client	ID:	CMRN	1001			
	Matrix:	Water										
	Collect Date:	17-FEB-161	4:50									
	Receive Date:	19-FEB-16										
	Collector:	Client										
Parameter	Quali	fier Result		DL	RL	Units	DF	Analys	Date	Tim	e Batch	Method
Ion Chrom	ata aranhu	nei nesun		DL	ILL .	ento		7 mary 5	Dute	1	le Duten	method
	atography	A . D										
EPA300.0	Fluoride in Liquid ".	As Received		0.000	0.200	/T	2	DVD5 (2/21/16	1420	154((0)	1
Nutrient A	nalvsis	4.92		0.000	0.200	mg/L	2	KADJ (02/21/10	1429	1340001	1
EPA 353 2	Nitrogen Nitrate/N	itrite "As Rece	ived"									
Nitrogen, Niti	rate/Nitrite	954		17.0	50.0	mg/L	1000	AXH3 (02/22/16	1509	1546807	2
The follow	ving Analytical Meth	ods were perfo	ormed:									
Method	Descr	ption				Ana	lyst Co	mments				
1	EPA 30	0.0										
2	EPA 35	3.2										

Notes:

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Certificate of Analysis

) ~ _ ~		Re	eport D	ate:	March	14, 2016
	Company :	Environ	mental Proper	ties Managemer	nt, LLC							
	Address :	615 N. I	Hudson	-								
		Suite 20	0									
		Oklahor	na City, Oklah	ioma 73102								
	Contact:	Mr. Jeff	Lux									
	Project:	Cimarro	on February 20	16 GWM								
	Client Sample ID:	1387				Proj	ect:	CMRN	N00117			
	Sample ID:	3917040)04			Clie	nt ID:	CMRN	1001			
	Matrix:	Water										
	Collect Date:	17-FEB	-16 15:10									
	Receive Date:	19-FEB	-16									
	Collector:	Client										
Parameter	Ouali	fier Re	esult	DL	RL	Units	DF	Analys	t Date	Tin	ne Batch	Method
Ion Chrom	atography				102	0 1110		1 mary 5	. 2410			
EDA 300 0	Eluoride in Liquid "	As Receiv	"he									
Fluoride			6.19	0.165	0.500	mg/L	5	RXB5	02/21/16	1500	1546601	1
Nutrient A	nalysis					8						
EPA 353.2	Nitrogen, Nitrate/N	itrite "As	Received"									
Nitrogen, Nitr	rate/Nitrite		56.3	1.70	5.00	mg/L	100	AXH3	02/22/16	1449	1546807	2
The follow	ving Analytical Meth	ods were	performed:									
Method	Descr	ption				A	nalyst Co	omments				
1	EPA 30	0.0										
2	EPA 35	3.2										

Notes:

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Certificate of Analysis

			•			•/		Re	port Da	te: March	14, 2016
	Company :	Env	vironmental Propertie	es Management,	LLC						
	Address :	615	N. Hudson								
		Sui	te 200								
		Ok	lahoma City, Oklaho	ma 73102							
	Contact:	Mr	. Jeff Lux								
	Project:	Cin	narron February 2016	6 GWM							
	Client Sample ID	: 131	3			Project	•	CMRN	00117		
	Sample ID:	391	704005			Client	ID:	CMRN	001		
	Matrix:	Wa	ter								
	Collect Date:	17-	FEB-16 15:50								
	Receive Date:	19-	FEB-16								
	Collector:	Cli	ent								
Parameter	Qua	lifier	Result	DL	RL	Units	DF	Analyst	Date	Time Batc	h Method
Ion Chroma	atography										
EPA300.0	Fluoride in Liquid	"As R	eceived"								
Fluoride	-		47.5	0.660	2.00	mg/L	20	RXB5 0	2/21/16	1532 154660	1 1
Nutrient An	nalysis										
EPA 353.2	Nitrogen, Nitrate/	Nitrite	"As Received"								
Nitrogen, Nitr	ate/Nitrite		119	3.40	10.0	mg/L	200	AXH3 0	2/22/16	1511 154680	7 2
The follow	ving Analytical Me	thods v	were performed:								
Method	Desc	1			Anal	yst Co	mments				
1	EPA	300.0									
2	EPA	353.2									

Notes:

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Certificate of Analysis

								Re	eport D	ate:	March	14, 2016
	Company :	Enviro	nmental Proper	ties Manageme	nt, LLC							
	Address :	615 N.	Hudson	-								
		Suite 2	200									
		Oklaho	oma City, Oklał	noma 73102								
	Contact:	Mr. Je	ff Lux									
	Project:	Cimar	ron February 20)16 GWM								
	Client Sample ID:	1312				Pro	ject:	CMRN	N00117			
	Sample ID:	391704	4006			Clie	ent ID:	CMRN	1000			
	Matrix:	Water										
	Collect Date:	18-FE	B-16 09:45									
	Receive Date:	19-FE	B-16									
	Collector:	Client										
Parameter	Quali	fier I	Result	DL	RL	Units	DF	Analys	t Date	Tim	e Batch	Method
Ion Chrom	atography											
EPA300.0	Fluoride in Liquid ".	As Rece	ived"									
Fluoride	1		7.92	0.165	0.500	mg/L	5	RXB5	02/21/16	1603	1546601	1
Nutrient A	nalysis											
EPA 353.2	Nitrogen, Nitrate/N	itrite "A	s Received"									
Nitrogen, Nitr	rate/Nitrite		361	8.50	25.0	mg/L	500	AXH3	02/22/16	1512	1546807	2
The follow	ving Analytical Meth	ods wer	e performed:									
Method	Descr	ption				А	nalyst Co	omments	5			
1	EPA 30	0.0										
2	EPA 35	3.2										

Notes:

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Certificate of Analysis

					•/		R	eport Da	ate: March	14, 2016
	Company :	Environmental Proper	ties Management,	LLC						
	Address :	615 N. Hudson								
		Suite 200								
		Oklahoma City, Oklal	noma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	016 GWM							
	Client Sample ID:	1352			Projec	et:	CMR	N00117		
	Sample ID:	391704007			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	18-FEB-16 10:05								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	itrite "As Received"								
Nitrogen, Nitr	rate/Nitrite	59.0	0.850	2.50	mg/L	50	AXH3	02/22/16	1453 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	s		
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

							R	eport Da	ate: March	14, 2016
	Company : Address :	Environmental Propo 615 N. Hudson Suite 200 Oklahoma City, Okla	erties Management, 1 ahoma 73102	LLC						
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 2	2016 GWM							
	Client Sample ID:	1356			Project	t:	CMR	N00117		
	Sample ID:	391704008			Client	ID:	CMRI	N001		
	Matrix:	Water								
	Collect Date:	18-FEB-16 10:25								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient Ar	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	9.89	0.170	0.500	mg/L	10	AXH3	02/22/16	1513 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Anal	yst Co	mments	5		
1	EPA 35	3.2				-				

Notes:

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Certificate of Analysis

								Re	port Da	ate:	March 1	4, 2016
	Company :	Env	ironmental Properti	es Management	, LLC							
	Address :	615	N. Hudson	-								
		Suit	e 200									
		Okla	ahoma City, Oklaho	oma 73102								
	Contact:	Mr.	Jeff Lux									
	Project:	Cim	arron February 201	6 GWM								
	Client Sample ID:	134	8			Projec	:t:	CMRN	00117			
	Sample ID:	391′	704009			Client	ID:	CMRN	1001			
	Matrix:	Wat	er									
	Collect Date:	18-I	FEB-16 10:50									
	Receive Date:	19-F	FEB-16									
	Collector:	Clie	nt									
	0.1	~		DI	DI	TT '/		A 1 A			D (1	
Parameter	Quali	fier	Result	DL	RL	Units	DF	Analysi	Date	11m	he Batch	Method
Ion Chrom	atography											
EPA300.0	Fluoride in Liquid "A	As Re	ceived"									
Fluoride			7.78	0.066	0.200	mg/L	2	RXB5 (2/21/16	1635	1546601	1
Nutrient A	nalysis											
EPA 353.2	Nitrogen, Nitrate/N	itrite '	'As Received"									
Nitrogen, Nitr	rate/Nitrite		11.3	0.170	0.500	mg/L	10	AXH3 (2/22/16	1455	1546807	2
The follow	ving Analytical Meth	ods w	vere performed:									
Method	Descri	ption				Ana	lyst Co	mments				
1	EPA 30	0.0										
2	EPA 35	3.2										

Notes:

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Certificate of Analysis

					-) <u> </u>		R	eport Da	ate: March	4, 2016
	Company : Address :	Environmental Properti 615 N. Hudson Suite 200 Oklahoma City, Oklaho	es Management, oma 73102	LLC						
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 201	6 GWM							
	Client Sample ID:	1319B-1			Project		CMR	N00117		
	Sample ID:	391704010			Client I	D:	CMR	N001		
	Matrix:	Water								
	Collect Date:	18-FEB-16 11:20								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient Ar	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	46.3	0.850	2.50	mg/L	50	AXH3	02/22/16	1514 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Analy	/st Co	mments	3		
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

		-					Re	eport Da	ate: March	14, 2016
	Company :	Environmental Properties	Management,	LLC						
	Address :	615 N. Hudson								
		Suite 200	72102							
		Oklahoma City, Oklahon	na /3102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 2016	GWM							
	Client Sample ID:	1319B-3			Project	:	CMRN	100117		
	Sample ID:	391704011			Client	D:	CMRN	1001		
	Matrix:	Water								
	Collect Date:	18-FEB-16 11:50								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient Ar	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	61.0	2.13	6.25	mg/L	125	AXH3 (02/22/16	1515 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Anal	yst Co	mments			
1	EPA 35	3.2								

Notes:

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Certificate of Analysis

							R	eport Da	ate: March	14, 2016
	Company : Address :	Environmental Proper 615 N. Hudson Suite 200 Oklahoma City, Oklai	rties Management, T	LLC						
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	016 GWM							
	Client Sample ID:	T-54			Projec	t:	CMRI	N00117		
	Sample ID:	391704014			Client	ID:	CMRI	N001		
	Matrix:	Water								
	Collect Date:	18-FEB-16 13:45								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient A	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	trite "As Received"								
Nitrogen, Nitr	ate/Nitrite	195	8.50	25.0	mg/L	500	AXH3	02/22/16	1517 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Anal	lyst Co	mments	5		
1	EPA 35	3.2				-				

Notes:

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Certificate of Analysis

					•/		R	eport Da	ate: March	14, 2016
	Company :	Environmental Proper	ties Management,	LLC						
	Address :	615 N. Hudson								
		Suite 200								
		Oklahoma City, Oklah	noma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	16 GWM							
	Client Sample ID:	T-99			Projec	et:	CMR	N00117		
	Sample ID:	391704015			Client	ID:	CMR	N001		
	Matrix:	Water								
	Collect Date:	18-FEB-16 14:10								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	st Date	Time Batch	Method
Nutrient A	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	itrite "As Received"								
Nitrogen, Nitr	ate/Nitrite	36.8	0.850	2.50	mg/L	50	AXH3	02/22/16	1523 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mment	S		
1	EPA 35	3.2				-				

Notes:

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Certificate of Analysis

					•/		R	eport Da	ate: March	14, 2016
	Company :	Environmental Proper	ties Management,	LLC						
	Address :	615 N. Hudson								
		Suite 200								
		Oklahoma City, Oklał	noma 73102							
	Contact:	Mr. Jeff Lux								
	Project:	Cimarron February 20	16 GWM							
	Client Sample ID:	T-100			Projec	et:	CMRI	N00117		
	Sample ID:	391704016			Client	ID:	CMRI	N001		
	Matrix:	Water								
	Collect Date:	18-FEB-16 14:30								
	Receive Date:	19-FEB-16								
	Collector:	Client								
Parameter	Quali	fier Result	DL	RL	Units	DF	Analys	t Date	Time Batch	Method
Nutrient An	nalysis									
EPA 353.2	Nitrogen, Nitrate/Ni	itrite "As Received"								
Nitrogen, Nitr	ate/Nitrite	32.3	0.425	1.25	mg/L	25	AXH3	02/22/16	1506 1546807	1
The follow	ving Analytical Meth	ods were performed:								
Method	Descri	ption			Ana	lyst Co	mments	5		
1	EPA 35	3.2				-				

Notes:

Quality Control Summary

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 14, 2016

Page 1 of 2

Environmental Properties Management, LLC 615 N. Hudson Suite 200 Oklahoma City, Oklahoma Mr. Jeff Lux

Contact:

Workorder: 391704

Parmname		NOM	Sample Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time
Ion Chromatography Batch 1546601									
QC1203493963 391691001 Fluoride	DUP		9.55	9.53	mg/L	0.215		(0%-20%) RXB5	02/23/16 23:02
QC1203493964 391698017 Fluoride	DUP		9.89	9.88	mg/L	0.0526		(0%-20%)	02/21/16 10:49
QC1203493962 LCS Fluoride		2.50		2.51	mg/L		100	(90%-110%)	02/21/16 02:26
QC1203493961 MB Fluoride			U	ND	mg/L				02/21/16 01:55
QC1203493965 391691001 Fluoride	PS	2.50	1.91	4.43	mg/L		101	(90%-110%)	02/23/16 23:33
QC1203493966 391698017 Fluoride	PS	2.50	2.47	5.11	mg/L		105	(90%-110%)	02/21/16 11:20
QC1203493967 391691001 Fluoride	PSD	2.50	1.91	4.43	mg/L	0.0113	101	(0%-20%)	02/24/16 00:04
QC1203493968 391698017 Fluoride	PSD	2.50	2.47	5.10	mg/L	0.0823	105	(0%-20%)	02/21/16 11:52
Nutrient Analysis Batch 1546807									
QC1203494447 391698001 Nitrogen, Nitrate/Nitrite	DUP		37.0	37.5	mg/L	1.34		(0%-20%) AXH3	02/22/16 14:27
QC1203494448 391698002 Nitrogen, Nitrate/Nitrite	DUP		20.1	18.7	mg/L	7.35		(0%-20%)	02/22/16 14:35
QC1203494446 LCS Nitrogen, Nitrate/Nitrite		1.00		1.05	mg/L		105	(90%-110%)	02/22/16 14:24
QC1203494445 MB Nitrogen, Nitrate/Nitrite			U	ND	mg/L				02/22/16 14:23
QC1203494449 391698001 Nitrogen, Nitrate/Nitrite	PS	1.00	1.48	2.53	mg/L		105	(90%-110%)	02/22/16 14:33
QC1203494450 391698002 Nitrogen, Nitrate/Nitrite	PS	1.00	0.804	1.93	mg/L		113*	(90%-110%)	02/22/16 14:36

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QC Summary

Workorder:	391704								Page 2 of 2
Parmname		NOM	Sample Qual	QC	Units	RPD%	REC%	Range Anlst	Date Time

Nutrient Analysis 1546807 Batch

Notes:

The Qualifiers in this report are defined as follows:

Result is less than value reported <

- > Result is greater than value reported
- В The target analyte was detected in the associated blank.
- Е General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Η Analytical holding time was exceeded
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- One or more quality control criteria have not been met. Refer to the applicable narrative or DER. Q
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected
- Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD. U
- Х Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Ζ Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- \wedge RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- 5-day BOD--The 2:1 depletion requirement was not met for this sample d
- 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for e reporting purposes
- h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable. ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.



	DATA EX	CEPTION REPORT	
Mo.Day Yr. 22-FEB-16	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: LACHAT Flow Injection Analyzer	Test / Method: EPA 353.2	Matrix Type: Liquid	Client Code: CMRN
Batch ID: 1546807	Sample Numbers: See Below		
Potentially affected work order(s)(Application Issues: Failed Recovery for MS/MSD, or PS/	SDG): 391698,391704 PSD		
Specification and Requirements Exception Description:		DER Disposition:	
1. Failed Recovery for MS/MSD, or QC 1203494450PS	PS/PSD:	1. The matrix spike recoveredue to matrix interference an Nitrogen, Nitrate/Nitrite 1203	ed outside of the established acceptance limits id/or non-homogeneity. 1494450 (T-91PS) [113* (90%-110%)].
Originator's Name:		Data Validator/Group Lead	er:

Aubrey Kingsbury 23-FEB-16

Data Validator/Group Leader:Kristen Mizzell23-FEB-16





Radiochemistry Technical Case Narrative Burns & McDonnell (CMRN) SDG #: 391704

Method/Analysis Information

Product:	Alphaspec Pu, Liquid						
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified						
Analytical Batch Number:	1547835						

Sample ID	Client ID
391704012	1331
391704013	1377
1203497032	Method Blank (MB)
1203497035	Laboratory Control Sample (LCS)
1203497033	391704012(1331) Sample Duplicate (DUP)
1203497034	391704012(1331) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 26.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 391704012 (1331).

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391704 GEL Work Order: 391704

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Aloull g. Milling

Name: Heather McCarty

Date: 16 MAR 2016

Title: Analyst II



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Certificate of Analysis

Company : Address :	Environmental Management, I 615 N. Hudson Suite 200 Oklahoma City	Properties LLC y, Oklahom	a 73102					Repo	rt Date:	N	ſarch 1€	5, 2016	
Contact:	Mr. Jeff Lux	Mr. Jeff Lux											
Project:	Cimarron Febr	uary 2016	GWM										
Client Sample Sample ID: Matrix: Collect Date: Receive Date Collector:	e ID: 1331 3917040 Water 18-FEB- : 19-FEB- Client	12 16 16				Project: Client II	D: CN	MRN MRN	00117				
Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Dat	e Time	Batch	Mtd.
Rad Alpha Spec An Alphaspec Pu, Liq	alysis uid "As Received"												
Plutonium-238	U	-0.0132	+/-0.197	0.461	+/-0.198	1.00	pCi/L		JXE2	03/07/1	6 0954	1547835	; 1
Plutonium-239/240	U	0.00263	+/-0.195	0.433	+/-0.195	1.00	pCi/L						
The following Analy	ytical Methods we	ere perfori	med										
Method D	Description	-											
1 E	OOE EML HASL-30	0, Pu-11-RC	Modified										
Surrogate/Tracer I	Recovery To	est					Batcl	h ID	Recove	ry%	Accept	able Lir	nits
Plutonium-242 Tr	racer	Alphaspec	Pu, Liquid "As l	Received"			1547	835	80).3	(15%	6-125%)	

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
GEL LABORATORIES LLC

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Certificate of Analysis

Company : Address :	Environmental Management, L 615 N. Hudson Suite 200 Oklahoma City	Properties LC	a 73102				R	eport Date	e:]	March 1(5, 2016	
Contact:	Mr. Jeff Lux											
Project:	Cimarron Febru	uary 2016	GWM									
Client Sample I Sample ID: Matrix: Collect Date: Receive Date: Collector:	ID: 1377 39170401 Water 18-FEB-1 19-FEB-1 Client	13 16 16				Project: Client II	CM D: CM	RN00117 RN001	7			
Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units]	DF Analy	yst Da	te Time	Batch	Mtd.
Rad Alpha Spec Anal Alphaspec Pu, Liqui	ysis d "As Received"											
Plutonium-238	U	0.00	+/-0.139	0.207	+/-0.139	1.00	pCi/L	JXE2	2 03/07/	/16 0954	1547835	; 1
Plutonium-239/240	U	0.0358	+/-0.199	0.381	+/-0.199	1.00	pCi/L					
The following Analyt	ical Methods we	re perfori	ned									
Method De	scription											
1 DO	E EML HASL-300), Pu-11-RC	Modified									
Surrogate/Tracer Re	covery Te	st					Batch	ID Reco	very%	Accept	able Lin	nits
Plutonium-242 Tra	cer A	Alphaspec	Pu, Liquid "As l	Received"			15478	35	80.6	(15%	6-125%)	

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Quality Control Summary

GEL LABORATORIES LLC

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OC Summary

~~.	Environmental Properties Management, LLC 615 N. Hudson							Report Date: March 16, 2016 Page 1 of 2					
Client :													
	Suite 200 Oklahoma City, Oklahoma												
Contact:	Mr. Jeff Lux	lunomu											
Workorder:	391704												
Parmname		NOM	Sample (Jual	00	Units	RPD%	RFC%	Range Anlst	Date Time			
Ded Alaha Sara		110101		Zuai	\text{VC}	Onits	INI D /0	REC /U	Kange Annse	Date Thire			
Batch	1547835												
QC1203497033	391704012 DUP												
Plutonium-238		U	-0.0132	U	0.0598	pCi/L	0		N/A JXE	03/07/1609:54			
		Uncert:	+/-0.197		+/-0.298	•							
		TPU:	+/-0.198		+/-0.298								
Plutonium-239/	240	U	0.00263	U	0.0569	pCi/L	0		N/A				
		Uncert:	+/-0.195		+/-0.255								
		TPU:	+/-0.195		+/-0.255								
QC1203497035	LCS												
Plutonium-238				U	0.123	pCi/L			JXE	2 03/07/1609:54			
		Uncert:			+/-0.325	-							
		TPU:			+/-0.325								
Plutonium-239/	240	19.8			19.6	pCi/L		99.4	(75%-125%)				
		Uncert:			+/-2.46								
		TPU:			+/-3.64								
QC1203497032	MB												
Plutonium-238				U	0.0237	pCi/L			JXE	03/07/1609:54			
		Uncert:			+/-0.248								
		TPU:			+/-0.248								
Plutonium-239/	240			U	-0.0609	pCi/L							
		Uncert:			+/-0.184								
		TPU:			+/-0.184								
QC1203497034	391704012 MS												
Plutonium-238		U	-0.0132	U	0.0662	pCi/L			JXE	03/07/1609:54			
		Uncert:	+/-0.197		+/-0.355								
		TPU:	+/-0.198		+/-0.355								
Plutonium-239/	240	19.8 U	0.00263		20.7	pCi/L		105	(75%-125%)				
		Uncert:	+/-0.195		+/-2.47								
		TPU:	+/-0.195		+/-3.72								

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- Result is less than value reported <
- Result is greater than value reported >
- Results are either below the MDC or tracer recovery is low BD
- FA Failed analysis.
- Analytical holding time was exceeded Η
- Value is estimated J
- Analyte present. Reported value may be biased high. Actual value is expected to be lower. Κ

GEL LABORATORIES LLC

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QC Summary

XX7 I .		201 - 0 4				<u>/</u>						
Workorder:		391704							Page	2 of 2		
Parmna	me		NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
L	Analyte	e present. Reporte	d value may be biased l	ow. Actual value is expe	ected to be	higher.						
М	M if ab	ove MDC and les	s than LLD									
М	REMP	Result > MDC/Cl	L and < RDL									
N/A	RPD of	« %Recovery limit	s do not apply.									
N1	See cas	e narrative										
ND	Analyte	e concentration is	not detected above the	detection limit								
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier											
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.											
R	Sample	e results are rejecte	ed									
U	Analyte	e was analyzed for	r, but not detected abov	e the MDL, MDA, MDC	or LOD.							
UI	Gamma	a SpectroscopyU	Incertain identification									
UJ	Gamma	a SpectroscopyU	Incertain identification									
UL	Not con	nsidered detected.	The associated number	is the reported concentr	ation, whic	ch may be i	inaccurate d	ue to a low	bias.			
Х	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier											
Y	Other s	pecific qualifiers	were required to proper	ly define the results. Cor	nsult case n	arrative.						
^	RPD of	f sample and dupli	cate evaluated using +/	-RL. Concentrations are	< 5X the R	RL. Qualif	ier Not App	licable for F	Radiochem	istry.		
h	Prepara	ation or preservation	on holding time was exe	ceeded								
N/A in ** Indi	dicates t cates an	that spike recovery alyte is a surrogat	y limits do not apply whe have a compound.	en sample concentration	exceeds s	pike conc.	by a factor	of 4 or more	e or %RPD	not applic	able.	
^ The I five tin	Relative nes (5X)	Percent Difference the contract required walked to DUP.	e (RPD) obtained from ired detection limit (RL	the sample duplicate (D). In cases where either	OUP) is eva the sample	luated aga or duplica	inst the according to the value is l	eptence crite ess than 5X	eria when the RL, a c	he sample control lim	is greater it of +/- t	than he
For PS	PSD a	nd SDILT results	the values listed are th	e measured amounts not	t final conc	entrations						

PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.





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