



POWERTECH (USA) INC.

September 13, 2013

Matt Hicks
Senior Hydrologist
Groundwater Quality Program
South Dakota Department of Environment and Natural Resources
523 East Capitol Avenue - Joe Foss Building
Pierre, SD 57501-3182

**Re: Dewey-Burdock Project Groundwater Discharge Permit Application
August and September 2013 Radon Results for Alluvial Compliance Wells**

Dear Mr. Hicks:

Split sampling in March 2013 identified variances in radon results prompting an investigation. The enclosed "Radon Process Review" report from Energy Laboratories isolates chemical quenching during measurement of the calibration factor standards as the most plausible cause. Corrective measures have since been implemented by the laboratory.

Correction factors and predicted concentrations for samples collected between July 2012 and June 2013, which is the period of time associated with the radon variances, were prepared by Energy Laboratories and are provided in Tables 1 and 2, respectively.

Powertech has begun collecting samples from alluvial compliance wells for monthly radon analysis. Results for the first two months are summarized in Table 3. Radon results for split samples collected in March and June 2013 by your Department are also summarized.

In addition to monthly radon analysis, samples are being collected quarterly for analysis of groundwater discharge plan parameters. September 2013 was the first quarterly sampling round. Because results for all parameters are not yet available, the September laboratory report from Energy Laboratories is stamped "preliminary." Radon data presented in the report are, however, final.

Please do not hesitate to contact me or Lisa Scheinost at (303) 790-7528 if we can answer any questions.

Sincerely,



John Mays, P.E.
Vice President Engineering

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- Tables 1 Correction Factors
- Table 2 Predicted Concentrations
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- Energy Laboratory Data
- IML Laboratory Data
- CD Copy

cc: Richard Blubaugh, Powertech (USA) Inc.
Mark Hollenbeck, Powertech (USA) Inc.
Jack Fritz, WWC Engineering
Mike Cepak, SD DENR
Ronald Burrows, NRC
Valois Shea, EPA
Marian Atkins, BLM
Max Main, Bennett, Main & Gubbrud, P.C.

Radon Process Review

In May of 2013, at the request of Lisa Scheinost representing Powertech and Linda Larson, the Laboratory Manager for the Rapid City branch of Energy Laboratories, an investigation was initiated, regarding analysis of Radon in water at the Casper branch of Energy Laboratories. The process review was stimulated by a discrepancy between data produced at the Energy Laboratories Inc., Casper branch and two outside, independent laboratories. The radon recovery data produced by Energy Laboratories Inc., Casper branch was two to four and one-half times higher than the data generated at the other two facilities. These discrepancies led to an internal process review of Radon (^{222}Rn) in water using ASTM D 5072-92 conducted by the Radiochemistry department at Energy Laboratories Inc. under the guidance of the Quality Assurance/Quality Control Manager for the Casper branch of Energy Laboratories Inc. and with the cooperation of the Radiochemistry Department Supervisor, Radiochemistry Technical Project Manager, and Radiochemistry Lead Analyst. This document is intended to summarize the process review, and outline the corrective action that will be taken, to ensure the highest quality data is produced at this facility.

Over two months, an exhaustive probe into the root cause(s) associated with the elevated radon data produced was conducted. Each step of the analytical and reporting process was meticulously examined for inconsistencies and sources of error. After final analysis, it was determined the cause for the elevated recoveries was a standard calibration factor (CF), generated in 2011, that was below previous historical values. The standard CF, generated in 2011, was confirmed by laboratory control samples (LCS), prepared at the same time as the standards used to generate the CF and was deemed acceptable at that time according to internal acceptance criteria. The CF, generated in 2011, was determined to be below the CF recoveries prior to 2011 and the suggested recovery stated in EPA's *Study of Radon in Drinking Water* (Dec. 1983). The determination was made after analysis of the ^{226}Ra standard (same standard used to prepare the standards in 2011) and the preparation and analysis of a new set of calibration factor and LCS standards using that same ^{226}Ra standard used to make the 2011 standards. The result of the ^{226}Ra standard, used to make both sets of calibration factor standards, confirmed the manufacturer's expected value for this standard and thus ruled out the ^{226}Ra standard as the cause of the discrepancy. Because the preparation and analysis of the calibration factor and LCS standards met expected recoveries, further investigation into the preparation and analysis was conducted to determine the root cause.

After pinpointing a possible cause for the elevated data, produced using the low CF, the investigation turned to the 2011 preparation records kept by the analysts at the time the calibration factor and LCS were prepared. The records showed both analysts involved in the preparation of the standards followed protocol, for properly preparing both the calibration factor standards and LCS samples. The records also showed all calculations for the required activities were performed correctly. Since the correct protocols for preparation and calculation of the standards and LCS sample were followed in 2011, the expected CF for this set should have been nine(9) to ten(10) cpm/pCi. The actual generated CF was approximately three and one-half (3.5) cpm/pCi, causing the radon recoveries in samples to be elevated a factor of two to three times. The investigation next progressed into determining what caused the lower recoveries leading to a CF of three and one-half (3.5).


Further probing of the root cause, led to the identification of an apparent suppression effect on the recovery of ^{222}Rn in water, likely caused by an elevated acid concentration in the

scintillation vials used for the calibration factor and laboratory control samples. The elevated acid concentration seems to have resulted in a quenching effect when measured by the liquid scintillation instrument. The quenching is the result of radon gas remaining trapped in the water portion and not migrating into the scintillation cocktail. The cocktail is an organic compound formulated to extract ^{222}Rn from an aqueous sample. Under normal conditions, the radon gas is released from the water portion of the scintillation vial into the scintillation cocktail, where the activity is then measured. As acid concentration in the water portion of the vial increases, the radon gas, produced by the decay of ^{226}Ra , remains trapped in the water. Since samples are not acidified during the sampling event or analysis, the sample recoveries were not affected by the quenching effect.

Chemical quenching occurring during the measurement of the calibration factor standards is the most feasible cause for the elevated recovery of the samples associated with the CF of three and one-half (3.5). The calibration factor/quality control standards prepared in 2011 contained an acid concentration of four (4) mol/L, which was four (4) times higher than previous calibration factor/quality control standards. Since late 2011, all standards are prepared in a one (1) mol/L acid concentration. To further address quenching effects on the calibration factor and quality control samples, a study to determine the maximum allowable concentration of acid is being performed. Once the acid concentration study is complete, a maximum allowable acid concentration in the scintillation vials will be established and documented in the SOP. The procedure for preparing calibration factor and quality control samples will be updated and solutions will be prepared with an acid concentration below the maximum allowable concentration.

In response to the finding of this investigation, improved procedures and updated criteria for determining the validity of the CF have been implemented, and are being added to the Standard Operating Procedure (SOP) for the determination of ^{222}Rn in water. Additions to the SOP include a regular control charting schedule, including a minimum of three years of data points, to monitor the overall functionality of the method and requiring laboratory control samples (LCS) to be prepared from a separate source and by a second analyst, to monitor for differences in the use of a new calibration factor. Criteria for determining the validity of the CF has been added to the SOP giving a specified acceptance range based on control charting of data produced prior to 2011. The criteria for determining the CF will be $8.9 \text{ cpm/pCi} \pm 1.0 \text{ cpm/pCi}$. The addition of these items to our SOP and process will help ensure any future incident of this nature will be avoided. We appreciate your bringing this matter to our attention, and encourage you to contact us with any questions, comments, or suggestions.

Submitted by; Robert Waldrop, Radiochemistry Supervisor, July 19, 2013



RadioChemistry Supervisor

Digitally signed by
Robert Waldrop
Date: 2013.07.29 09:02:56 -06:00

Report Generated: 8/8/2013

Table 1

Workorder	Initial CF Associated with Reported Data	Most Recent CF (8/2/2013)	Correction Factor
C11060255	4.396	9.677	0.454273018
C12070940	3.837	9.677	0.396507182
C12080988	3.835	9.677	0.396300506
C12090414	3.969	9.677	0.410147773
C12100265	3.862	9.677	0.399090627
C12110337	3.743	9.677	0.386793428
C12120416	3.766	9.677	0.389170197
C12120525	3.757	9.677	0.388240157
C13010230	3.737	9.677	0.386173401
C13010365	3.737	9.677	0.386173401
C13020494	3.672	9.677	0.379456443
C13030218	3.644	9.677	0.376562984
C13030308	3.619	9.677	0.373979539
C13040837	3.578	9.677	0.369742689
C13050845	3.539	9.677	0.365712514
C13060124	5.952	9.677	0.615066653

The correction factor was calculated by taking the initial calibration factor (CF) used for the analysis of the data reported during the sampling event by Energy Laboratories Inc. (ELI) and dividing it by the most recent calibration factor, obtained during the analysis of samples. The correction factor was calculated as a means of predicting what the sample data may have been, if a calibration factor similar to the most current calibration factor was used to evaluate the data at the time of analysis.

The correction factor is only applicable for the purpose of demonstrating that recent adjustments to the procedure, for evaluating radon, shows the data generated between June 2011 and July 2013 was biased high. The high bias was created by the use of a low calibration factor during that time period. The data generated in Table 2 is in no means intended to replace or be substituted for the data reported to Powertech USA Inc. at the time of the sampling events.

Table 2

Reported Radon Data vs. Predicted Radon Data

	²²² Rn Reported by ELI to Powertech	²²² Rn LLD Reported by ELI to Powertech	Predicted ²²² Rn Recovery Based on CF = 9.677	Predicted ²²² Rn LLD Based on CF=9.677
INITIAL REPORT CF	pCi/l	pCi/l	pCi/l	pCi/l
SAMPLE ID				
CF=4.396				
C11060255-001	414.4	45.8	188.3	20.8
C11060255-002	186.4	45.8	84.7	20.8
CF=3.837				
C12070940-001D	1705.1	245.5	676.1	98.6
C12070940-002D	1638.4	245.3	649.6	98.5
C12070940-003D	1867.0	242.2	740.3	97.3
C12070940-004D	2861.8	240.3	1134.7	96.5
C12070940-005D	1988.0	236.8	788.3	95.1
C12070940-006D	1830.6	209.7	725.8	84.2
C12070940-007D	4823.3	207.9	1912.5	83.5
CF=3.835				
C12080988-001D	1845.7	226.2	731.4	89.6
C12080988-002D	4527.6	224.9	1794.3	89.1
C12080988-003D	1711.4	222.9	678.2	88.3
C12080988-004D	1872.5	221.0	742.1	87.5
C12080988-005D	1803.5	220.8	714.7	87.5
C12080988-006D	2461.3	219.1	975.4	86.8
C12080988-007D	1436.9	187.4	569.5	74.2
CF=3.969				
C12090414-001D	2148.0	208.2	881.0	86.5
C12090414-002D	4143.6	206.6	1699.5	85.8
C12090414-003D	4392.3	206.6	1801.5	85.8
C12090414-004D	1720.2	204.3	705.6	84.9
C12090414-005D	1731.7	201.8	710.3	83.8
C12090414-006D	2484.6	200.2	1019.0	83.2
C12090414-007D	1809.3	173.0	742.1	71.9
CF=3.862				
C12100265-001D	2037.1	214.6	813.0	86.7
C12100265-002D	1859.1	214.6	741.9	86.7
C12100265-003D	3988.4	212.0	1591.7	85.7
C12100265-004D	1490.6	209.1	594.9	84.5
C12100265-005D	1704.0	207.8	680.1	84.0
C12100265-006D	2263.3	206.0	903.3	83.3
C12100265-007D	1922.8	179.6	767.4	72.6

	²²² Rn Reported by ELI to Powertech	²²² Rn LLD Reported by ELI to Powertech	Predicted ²²² Rn Recovery Based on CF = 9.677	Predicted ²²² Rn LLD Based on CF=9.677
INITIAL REPORT CF	pCi/l	pCi/l	pCi/l	pCi/l
SAMPLE ID				
CF=3.743				
C12110337-001D	2002.6	222.2	774.6	84.4
C12110337-002D	4568.8	220.2	1767.2	83.6
C12110337-003D	1856.5	218.2	718.1	82.9
C12110337-004D	1902.6	216.0	735.9	82.0
C12110337-005D	2532.1	213.8	979.4	81.2
C12110337-006D	2658.4	213.8	1028.2	81.2
C12110338-001D	1053.1	184.0	407.3	69.9
CF=3.766				
C12120416-001	2002.6	219.6	779.4	83.3
C12120416-002	4707.1	218.2	1831.9	82.8
C12120416-003	1694.3	216.1	659.4	82.0
C12120416-004	1584.1	216.1	616.5	82.0
C12120416-005	2023.7	213.7	787.6	81.1
C12120416-006	2710.4	212.1	1054.8	80.5
CF=3.757				
C12120525-001	989.2	224.3	384.0	85.0
CF=3.737				
C13010230-001	1962.6	238.0	757.9	89.4
C13010230-002	4618.4	235.9	1783.5	88.6
C13010230-003	1754.1	233.5	677.4	87.7
C13010230-004	2111.0	231.6	815.2	87.0
C13010230-005	2176.1	231.6	840.4	87.0
C13010230-006	2668.3	229.4	1030.4	86.2
C13010365-001	416.3	197.5	160.8	74.3
CF=3.672				
C13020494-001	4623.5	309.8	1754.4	116.5
C13020494-002	4025.7	309.8	1527.6	116.5
C13020494-003	1992.9	306.5	756.2	115.3
C13020494-004	1969.9	304.1	747.5	114.4
C13020494-005	2105.0	301.9	798.8	113.5
C13020494-006	2825.9	299.5	1072.3	112.6
C13020494-007	847.8	313.0	321.7	117.7
CF=3.644				
C13030218-001	2135.7	229.8	804.2	85.9

	²²² Rn Reported by ELI to Powertech	²²² Rn LLD Reported by ELI to Powertech	Predicted ²²² Rn Recovery Based on CF = 9.677	Predicted ²²² Rn LLD Based on CF=9.677
INITIAL REPORT CF	pCi/l	pCi/l	pCi/l	pCi/l
SAMPLE ID				
CF=3.619				
C13030308-001	1651.1	257.9	617.5	94.7
C13030308-002	5156.2	258.0	1928.3	94.7
C13030308-003	1626.0	261.9	608.1	96.2
C13030308-004	1721.9	262.0	643.9	96.2
C13030308-005	2034.8	258.9	761.0	95.1
C13030308-006	2798.7	256.4	1046.7	94.1
CF=3.578				
C13040837-001D	2112.4	189.4	781.0	69.6
C13040837-002D	2042.7	189.4	755.3	69.6
C13040837-003D	1572.2	186.1	581.3	68.4
C13040837-004D	2123.5	184.2	785.2	67.7
C13040837-005D	2787.1	182.4	1030.5	67.1
C13040837-006D	981.3	158.8	362.8	58.4
CF=3.539				
C13050845-001D	1064.9	231.1	389.5	84.8
C13050845-002D	1555.8	229.6	569.0	84.2
C13050845-003D	1893.3	229.6	692.4	84.2
C13050845-004D	2167.9	227.4	792.8	83.4
C13050845-005D	1665.8	223.3	609.2	81.9
C13050845-006D	1021.9	222.4	373.7	81.6
CF=5.952				
C13060124-001D	974.5	116.4	599.4	71.7
C13060124-002D	1059.3	115.2	651.5	71.0
C13060124-003D	1348.3	114.3	829.3	70.4
C13060124-004D	1352.1	114.3	831.6	70.4
C13060124-005D	1667.7	113.0	1025.7	69.6
C13060124-006D	644.8	98.2	396.6	60.5

Table 3
Summary of Radon Results for March, June, August, and September 2013
Dewey-Burdock Project
Groundwater Discharge Plan

Date	Laboratory	Units	Hydro ID DC1	Hydro ID DC2	Hydro ID DC3	Hydro ID DC4	Hydro ID BC1	Hydro ID BC2	Hydro ID BC3
March 2013	MidContinent Result	pCi/L	538	834	NS	1140	580	747	468
	MidContinent Precision (+/-)	pCi/L	106	163	NS	213	115	144	96.0
	MidContinent RL	pCi/L	45.1	65.6	NS	53.2	52.5	51.9	52.9
June 2013	MidContinent Result	pCi/L	NS	533	NS	NS	772	1060	594
	MidContinent Precision (+/-)	pCi/L	NS	108	NS	NS	150	200	119
	MidContinent RL	pCi/L	NS	53.0	NS	NS	52.4	52.1	52.6
August 2013	Energy Result	pCi/L	388	552	NS	NS	707	901	496
	Energy Precision (+/-)	pCi/L	45.7	49.0	NS	NS	50.1	52.1	47.9
	Energy RL	pCi/L	70.0	72.0	NS	NS	71.0	71.0	72.0
	IML Result	pCi/L	419	570	NS	NS	562	790	484
	IML Precision (+/-)	pCi/L	18	22	NS	NS	22	27	20
	IML RL	pCi/L	80	80	NS	NS	80	80	80
	MidContinent Result	pCi/L	516	609	NS	NS	775	934	539
	MidContinent Precision (+/-)	pCi/L	109	125	NS	NS	154	181	113
	MidContinent RL	pCi/L	68.6	69.5	NS	NS	68.9	68.7	69.1
September 2013	Energy Result	pCi/L	510	738	NS	NS	854	972	636
	Energy Precision (+/-)	pCi/L	41.1	50.8	NS	NS	51.2	52.1	49.0
	Energy RL	pCi/L	60.0	71.0	NS	NS	70.0	69.0	70.0
	IML Result	pCi/L	384	649	NS	NS	747	871	537
	IML Precision (+/-)	pCi/L	16	24	NS	NS	26	28	21
	IML RL	pCi/L	82	82	NS	NS	82	82	82
	MidContinent Result	pCi/L	612	669	NS	NS	664	857	500
	MidContinent Precision (+/-)	pCi/L	124	133	NS	NS	132	166	104
	MidContinent RL	pCi/L	59.6	58.0	NS	NS	57.2	56.9	57.4

NS - not sampled

MIDCONTINENT
LABORATORY DATA



2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 – www.thechemistrylab.com

Sample Site: DC-1
Sampled: 03/06/13 at 10:00 AM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130307110
Received: 03/06/13 at 03:30 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Gross Alpha	2.62	pCi/L	1	EPA 900.0	EJF 04/28/13
Gross Beta	9.47	pCi/L	1	EPA 900.0	EJF 04/30/13
Lead-210	0.447	pCi/L	1	RP280m DOE	SYS 03/28/13
Radium-226	0.741	pCi/L	1	MC Radium-226	EJF 05/07/13
Radium-228	< 1.00	pCi/L	1	MC Radium-228	EJF 05/07/13
Radon-222	538	pCi/L	1	SM 7500Rn-B	SYS 03/07/13
Thorium-230	0.399	pCi/L	1	HSL-300m	SYS 03/18/13
Precision Data					
Gross Alpha precision	± 3.92	pCi/L	1	MC - Gross Alpha precision	EJF 04/28/13
Gross Beta precision	± 6.09	pCi/L	1	MC - Gross Beta precision	EJF 04/30/13
Lead-210 Precision	± 0.336	pCi/L	1	MC-Lead 210 precision	SYS 03/28/13
Radium-226 precision	± 0.195	pCi/L	1	MC-Radium 226 precision	EJF 05/07/13
Radium-228 precision	± 0.00	pCi/L	1	MC-Radium 228 precision	EJF 05/07/13
Radon-222 Precision	± 106	pCi/L	1	MC-Radon 222 precision	SYS 03/07/13
Thorium-230 Precision	± 0.194	pCi/L	1	MC-Thorium 230 precision	SYS 03/18/13
MDA Data					
Gross Alpha MDA	13.3	pCi/L	1	MC - Gross Alpha MDA	EJF 04/28/13
Gross Beta MDA	19.9	pCi/L	1	MC - Gross Beta MDA	EJF 04/30/13
Lead-210 MDA	0.621	pCi/L	1	MC - Lead 210 MDA	SYS 03/28/13
Radium-226 MDA	0.399	pCi/L	1	MC - Radium 226 MDA	EJF 05/07/13
Radium-228 MDA	0.031	pCi/L	1	MC - Radium 228 MDA	EJF 05/07/13
Radon-222 MDA	45.1	pCi/L	1	MC - Radon 222 MDA	SYS 03/07/13
Thorium-230 MDA	0.197	pCi/L	1	MC - Thorium 230 MDA	SYS 03/18/13

Approved By: 

Approved On: 5/9/2013 9:42:00 AM



2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 – www.thechemistrylab.com

Sample Site: **DC-2**
Sampled: 03/04/13 at 10:12 AM
by Mark Keenihan
Sample Matrix: Water


Lab ID#: 20130305108
Received: 03/04/13 at 02:28 PM
by Greg McDougall
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date	
Physical Properties								
Electrical Conductivity	5800	µmhos/cm	1	0.299	5.00	SM 2510B	JAM	03/05/13
pH	7.33	SU	1			SM 4500-H+ B	JAM	03/05/13
Total Dissolved Solids	4450	mg/L	100ml	17.1	50.0	SM 2540 C	TMN	03/05/13
Non-Metallics								
Alkalinity (CaCO3)	264	mg/L	1	0.434	10.0	SM 2320 B	JAM	03/05/13
Bicarbonate	322	mg/L	1	0.530	10.0	SM 2320 B	JAM	03/05/13
Carbonate	0.00	mg/L	1	0.217	5.00	SM 2320 B	JAM	03/05/13
Chloride (Cl-)	824	mg/L	100	27.3	50.0	SM 4500-Cl E	BLL	03/05/13
Fluoride	0.533	mg/L	1	0.003	0.050	SM 4500 F-C	PAT	03/05/13
Nitrogen, Nitrate (NO3)	< 0.050	mg/L	1	0.010	0.050	SM 4500-NO3 F	BLL	03/05/13
Sulfate (SO4)	2250	mg/L	100	68.5	100	SM 4500-SO4 E	BLL	03/05/13
Metals - Dissolved								
Arsenic (As)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/05/13
Barium (Ba)	0.014	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/05/13
Boron (B)	0.385	mg/L	10	0.003	0.020	EPA 200.8	SAC	03/05/13
Cadmium (Cd)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8	SAC	03/05/13
Calcium (Ca)	630	mg/L	20	1.52	20.0	SM 3111 B	TNA	03/05/13
Chromium (Cr)	0.001	mg/L	10	0.0006	0.001	EPA 200.8 DRC	SAC	03/05/13
Copper (Cu)	0.015	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/05/13
Iron (Fe)	7.00	mg/L	10	0.015	0.050	EPA 200.8	SAC	03/05/13
Lead (Pb)	< 0.001	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/05/13
Magnesium (Mg)	148	mg/L	3	0.110	1.50	SM 3111 B	TNA	03/05/13
Manganese (Mn)	2.71	mg/L	10	0.0007	0.010	EPA 200.8	SAC	03/05/13
Molybdenum (Mo)	0.005	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/05/13
Nickel (Ni)	0.020	mg/L	10	0.0009	0.005	EPA 200.8	SAC	03/05/13
Potassium (K)	7.56	mg/L	1	0.084	0.500	SM 3111 B	TNA	03/05/13
Selenium (Se)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/06/13
Silver (Ag)	< 0.001	mg/L	10	0.0005	0.001	EPA 200.8	SAC	03/05/13

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date
<u>Metals - Dissolved</u>							
Sodium (Na)	667	mg/L	30	4.59	15.0	SM 3111 B	TNA 03/05/13
Uranium (U)	0.009	mg/L	10	0.000037	0.001	EPA 200.8	SAC 04/04/13
Vanadium (V)	< 0.005	mg/L	10	0.0003	0.005	EPA 200.8	SAC 03/05/13
Zinc (Zn)	< 0.050	mg/L	10	0.0009	0.050	EPA 200.8	SAC 03/05/13
<u>Metals - Total</u>							
Mercury (Hg)	< 0.0002	mg/L	1	0.000046	0.0002	EPA 245.1	TNA 03/05/13
<u>Anion - Cation Balance</u>							
Anions	75.3	meq/L	1			Calculation	GAM 03/06/13
Anion - Cation Balance	-1.63	%	1			Calculation	GAM 03/06/13
Cations	72.8	meq/L	1			Calculation	GAM 03/06/13
<u>Radiological</u>							
Gross Alpha	7.94	pCi/L	1			EPA 900.0	EJF 04/23/13
Gross Beta	1.52	pCi/L	1			EPA 900.0	EJF 04/25/13
Lead-210	-0.111	pCi/L	1			RP280m DOE	SYS 03/13/13
Radium-226	0.814	pCi/L	1			MC Radium-226	EJF 04/25/13
Radium-228	< 1.00	pCi/L	1			MC Radium-228	EJF 04/25/13
Radon-222	834	pCi/L	1			SM 7500Rn-B	SYS 03/07/13
Thorium-230	-0.056	pCi/L	1			HSL-300m	SYS 03/11/13
<u>Precision Data</u>							
Gross Alpha precision	± 3.60	pCi/L	1			MC - Gross Alpha precision	EJF 04/23/13
Gross Beta precision	± 5.46	pCi/L	1			MC - Gross Beta precision	EJF 04/25/13
Lead-210 Precision	± 0.397	pCi/L	1			MC-Lead 210 precision	SYS 03/13/13
Radium-226 precision	± 0.171	pCi/L	1			MC-Radium 226 precision	EJF 04/25/13
Radium-228 precision	± 0.00	pCi/L	1			MC-Radium 228 precision	EJF 04/25/13
Radon-222 Precision	± 163	pCi/L	1			MC-Radon 222 precision	SYS 03/07/13
Thorium-230 Precision	± 0.041	pCi/L	1			MC-Thorium 230 precision	SYS 03/11/13
<u>MDA Data</u>							
Gross Alpha MDA	11.4	pCi/L	1			MC - Gross Alpha MDA	EJF 04/23/13
Gross Beta MDA	18.2	pCi/L	1			MC - Gross Beta MDA	EJF 04/25/13
Lead-210 MDA	0.690	pCi/L	1			MC - Lead 210 MDA	SYS 03/13/13
Radium-226 MDA	0.356	pCi/L	1			MC - Radium 226 MDA	EJF 04/25/13
Radium-228 MDA	0.031	pCi/L	1			MC - Radium 228 MDA	EJF 04/25/13
Radon-222 MDA	65.6	pCi/L	1			MC - Radon 222 MDA	SYS 04/04/13
Thorium-230 MDA	0.115	pCi/L	1			MC - Thorium 230 MDA	SYS 03/11/13

Approved By: _____



Approved On: 5/9/2013 9:38:31 AM



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Sample Site: **DC-4**
Sampled: 03/05/13 at 09:45 AM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130307101
Received: 03/05/13 at 04:40 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date	
Physical Properties								
Electrical Conductivity	11000	µmhos/cm	1	0.299	5.00	SM 2510B	JAM	03/07/13
pH	7.72	SU	1			SM 4500-H+ B	JAM	03/07/13
Total Dissolved Solids	10900	mg/L	100ml	17.1	50.0	SM 2540 C	TMN	03/07/13
Non-Metallics								
Alkalinity (CaCO3)	344	mg/L	1	0.327	10.0	SM 2320 B	JAM	03/07/13
Bicarbonate	420	mg/L	1	0.399	10.0	SM 2320 B	JAM	03/07/13
Carbonate	0.00	mg/L	1	0.164	5.00	SM 2320 B	JAM	03/07/13
Chloride (Cl-)	133	mg/L	20	5.46	10.0	SM 4500-Cl E	BLL	03/07/13
Fluoride	2.30	mg/L	1	0.003	0.050	SM 4500 F-C	PAT	03/07/13
Nitrogen, Nitrate (NO3)	1.92	mg/L	4	0.040	0.200	SM 4500-NO3 F	BLL	03/07/13
Sulfate (SO4)	7270	mg/L	200	137	200	SM 4500-SO4 E	BLL	03/07/13
Metals - Dissolved								
Arsenic (As)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/07/13
Barium (Ba)	0.006	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/07/13
Boron (B)	2.00	mg/L	10	0.003	0.020	EPA 200.8	SAC	03/07/13
Cadmium (Cd)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8	SAC	03/07/13
Calcium (Ca)	589	mg/L	20	1.52	20.0	SM 3111 B	TNA	03/08/13
Chromium (Cr)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8 DRC	SAC	03/07/13
Copper (Cu)	0.033	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/07/13
Iron (Fe)	< 0.050	mg/L	10	0.015	0.050	EPA 200.8	SAC	03/07/13
Lead (Pb)	< 0.001	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/07/13
Magnesium (Mg)	662	mg/L	25	0.917	12.5	SM 3111 B	TNA	03/07/13
Manganese (Mn)	< 0.010	mg/L	10	0.0007	0.010	EPA 200.8	SAC	03/07/13
Molybdenum (Mo)	0.003	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/08/13
Nickel (Ni)	0.016	mg/L	10	0.0009	0.005	EPA 200.8	SAC	03/07/13
Potassium (K)	11.6	mg/L	2	0.168	1.00	SM 3111 B	TNA	03/07/13
Selenium (Se)	0.048	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/07/13
Silver (Ag)	< 0.001	mg/L	10	0.0005	0.001	EPA 200.8	SAC	03/07/13

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date
Metals - Dissolved							
Sodium (Na)	1890	mg/L	90	13.8	45.0	SM 3111 B	TNA 03/07/13
Uranium (U)	0.015	mg/L	10	0.000037	0.001	EPA 200.8	SAC 03/07/13
Vanadium (V)	< 0.005	mg/L	10	0.0003	0.005	EPA 200.8	SAC 03/07/13
Zinc (Zn)	< 0.050	mg/L	10	0.0009	0.050	EPA 200.8	SAC 03/07/13
Metals - Total							
Mercury (Hg)	< 0.0002	mg/L	1	0.000046	0.0002	EPA 245.1	TNA 03/07/13
Anion - Cation Balance							
Anions	162	meq/L	1			Calculation	GAM 03/08/13
Anion - Cation Balance	1.20	%	1			Calculation	GAM 03/08/13
Cations	166	meq/L	1			Calculation	GAM 03/08/13
Radiological							
Gross Alpha	2.27	pCi/L	1			EPA 900.0	EJF 04/26/13
Gross Beta	10.1	pCi/L	1			EPA 900.0	EJF 04/26/13
Lead-210	0.652	pCi/L	1			RP280m DOE	SYS 03/28/13
Radium-226	0.344	pCi/L	1			MC Radium-226	EJF 04/30/13
Radium-228	< 1.00	pCi/L	1			MC Radium-228	EJF 04/30/13
Radon-222	1140	pCi/L	1			SM 7500Rn-B	SYS 03/07/13
Thorium-230	0.010	pCi/L	1			HSL-300m	SYS 03/18/13
Precision Data							
Gross Alpha precision	± 6.66	pCi/L	1			MC - Gross Alpha precision	EJF 04/26/13
Gross Beta precision	± 10.9	pCi/L	1			MC - Gross Beta precision	EJF 04/26/13
Lead-210 Precision	± 0.365	pCi/L	1			MC-Lead 210 precision	SYS 03/28/13
Radium-226 precision	± 0.116	pCi/L	1			MC-Radium 226 precision	EJF 04/30/13
Radium-228 precision	± 0.00	pCi/L	1			MC-Radium 228 precision	EJF 04/30/13
Radon-222 Precision	± 213	pCi/L	1			MC-Radon 222 precision	SYS 03/07/13
Thorium-230 Precision	0.076	pCi/L	1			MC-Thorium 230 precision	SYS 03/18/13
MDA Data							
Gross Alpha MDA	23.0	pCi/L	1			MC - Gross Alpha MDA	EJF 04/26/13
Gross Beta MDA	36.1	pCi/L	1			MC - Gross Beta MDA	EJF 04/26/13
Lead-210 MDA	0.648	pCi/L	1			MC - Lead 210 MDA	SYS 03/28/13
Radium-226 MDA	0.242	pCi/L	1			MC - Radium 226 MDA	EJF 04/30/13
Radium-228 MDA	0.028	pCi/L	1			MC - Radium 228 MDA	EJF 04/30/13
Radon-222 MDA	53.2	pCi/L	1			MC - Radon 222 MDA	SYS 03/07/13
Thorium-230 MDA	0.174	pCi/L	1			MC - Thorium 230 MDA	SYS 03/18/13

Approved By: 

Approved On: 5/9/2013 9:42:00 AM

**MIDCONTINENT**

TESTING LABORATORIES, INC.

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
 (605) 348-0111 – www.thechemistrylab.com

Sample Site: **BC-1**
 Sampled: 03/05/13 at 12:45 PM
 by Mark Keenihan
 Sample Matrix: Water

Lab ID#: 20130307103
 Received: 03/05/13 at 04:40 PM
 by Bobbie Laurenz
 Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
 DENR - MINERALS AND MINING
 523 E. CAPITOL AVE.
 PIERRE, SD 57501

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date	
Physical Properties								
Electrical Conductivity	3630	µmhos/cm	1	0.299	5.00	SM 2510B	JAM	03/07/13
pH	7.51	SU	1			SM 4500-H+ B	JAM	03/07/13
Total Dissolved Solids	3510	mg/L	100ml	17.1	50.0	SM 2540 C	TMN	03/07/13
Non-Metallics								
Alkalinity (CaCO3)	298	mg/L	1	0.327	10.0	SM 2320 B	JAM	03/07/13
Bicarbonate	363	mg/L	1	0.399	10.0	SM 2320 B	JAM	03/07/13
Carbonate	0.00	mg/L	1	0.164	5.00	SM 2320 B	JAM	03/07/13
Chloride (Cl-)	24.9	mg/L	4	1.09	2.00	SM 4500-Cl E	BLL	03/07/13
Fluoride	0.511	mg/L	1	0.003	0.050	SM 4500 F-C	PAT	03/07/13
Nitrogen, Nitrate (NO3)	< 0.050	mg/L	1	0.010	0.050	SM 4500-NO3 F	BLL	03/07/13
Sulfate (SO4)	2640	mg/L	100	68.5	100	SM 4500-SO4 E	BLL	03/07/13
Metals - Dissolved								
Arsenic (As)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/07/13
Barium (Ba)	0.008	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/07/13
Boron (B)	0.751	mg/L	10	0.003	0.020	EPA 200.8	SAC	03/07/13
Cadmium (Cd)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8	SAC	03/07/13
Calcium (Ca)	702	mg/L	20	1.52	20.0	SM 3111 B	TNA	03/08/13
Chromium (Cr)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8 DRC	SAC	03/07/13
Copper (Cu)	< 0.005	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/07/13
Iron (Fe)	0.197	mg/L	10	0.015	0.050	EPA 200.8	SAC	03/07/13
Lead (Pb)	< 0.001	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/07/13
Magnesium (Mg)	235	mg/L	8	0.294	4.00	SM 3111 B	TNA	03/07/13
Manganese (Mn)	0.030	mg/L	10	0.0007	0.010	EPA 200.8	SAC	03/07/13
Molybdenum (Mo)	0.005	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/08/13
Nickel (Ni)	0.020	mg/L	10	0.0009	0.005	EPA 200.8	SAC	03/07/13
Potassium (K)	11.1	mg/L	2	0.168	1.00	SM 3111 B	TNA	03/07/13
Selenium (Se)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/07/13
Silver (Ag)	< 0.001	mg/L	10	0.0005	0.001	EPA 200.8	SAC	03/07/13

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date
<u>Metals - Dissolved</u>							
Sodium (Na)	161	mg/L	8	1.22	4.00	SM 3111 B	TNA 03/07/13
Uranium (U)	0.082	mg/L	10	0.000037	0.001	EPA 200.8	SAC 03/07/13
Vanadium (V)	< 0.005	mg/L	10	0.0003	0.005	EPA 200.8	SAC 03/07/13
Zinc (Zn)	< 0.050	mg/L	10	0.0009	0.050	EPA 200.8	SAC 03/07/13
<u>Metals - Total</u>							
Mercury (Hg)	< 0.0002	mg/L	1	0.000046	0.0002	EPA 245.1	TNA 03/07/13
<u>Anion - Cation Balance</u>							
Anions	61.7	meq/L	1			Calculation	GAM 03/08/13
Anion - Cation Balance	0.021	%	1			Calculation	GAM 03/08/13
Cations	61.7	meq/L	1			Calculation	GAM 03/08/13
<u>Radiological</u>							
Gross Alpha	58.8	pCi/L	1			EPA 900.0	EJF 04/29/13
Gross Beta	41.1	pCi/L	1			EPA 900.0	EJF 04/29/13
Lead-210	0.162	pCi/L	1			RP280m DOE	SYS 03/28/13
Radium-226	0.400	pCi/L	1			MC Radium-226	EJF 05/03/13
Radium-228	< 1.00	pCi/L	1			MC Radium-228	EJF 05/03/13
Radon-222	580	pCi/L	1			SM 7500Rn-B	SYS 03/07/13
Thorium-230	-0.017	pCi/L	1			HSL-300m	SYS 03/18/13
<u>Precision Data</u>							
Gross Alpha precision	± 5.37	pCi/L	1			MC - Gross Alpha precision	EJF 04/29/13
Gross Beta precision	± 6.09	pCi/L	1			MC - Gross Beta precision	EJF 04/29/13
Lead-210 Precision	± 0.327	pCi/L	1			MC-Lead 210 precision	SYS 03/28/13
Radium-226 precision	± 0.138	pCi/L	1			MC-Radium 226 precision	EJF 05/03/13
Radium-228 precision	± 0.00	pCi/L	1			MC-Radium 228 precision	EJF 05/03/13
Radon-222 Precision	± 115	pCi/L	1			MC-Radon 222 precision	SYS 03/07/13
Thorium-230 Precision	0.073	pCi/L	1			MC-Thorium 230 precision	SYS 03/18/13
<u>MDA Data</u>							
Gross Alpha MDA	11.5	pCi/L	1			MC - Gross Alpha MDA	EJF 04/29/13
Gross Beta MDA	17.8	pCi/L	1			MC - Gross Beta MDA	EJF 04/29/13
Lead-210 MDA	0.639	pCi/L	1			MC - Lead 210 MDA	SYS 03/28/13
Radium-226 MDA	0.285	pCi/L	1			MC - Radium 226 MDA	EJF 05/03/13
Radium-228 MDA	0.031	pCi/L	1			MC - Radium 228 MDA	EJF 05/03/13
Radon-222 MDA	52.5	pCi/L	1			MC - Radon 222 MDA	SYS 03/07/13
Thorium-230 MDA	0.140	pCi/L	1			MC - Thorium 230 MDA	SYS 03/18/13

Approved By: _____



Approved On: 5/9/2013 9:42:00 AM



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Sample Site: **BC-2**
Sampled: 03/05/13 at 02:45 PM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130307104
Received: 03/05/13 at 04:40 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date
Physical Properties							
Electrical Conductivity	3820	µmhos/cm	1	0.299	5.00	SM 2510B	JAM 03/07/13
pH	7.55	SU	1			SM 4500-H+ B	JAM 03/07/13
Total Dissolved Solids	3650	mg/L	100ml	17.1	50.0	SM 2540 C	TMN 03/07/13
Non-Metallics							
Alkalinity (CaCO3)	232	mg/L	1	0.327	10.0	SM 2320 B	JAM 03/07/13
Bicarbonate	283	mg/L	1	0.399	10.0	SM 2320 B	JAM 03/07/13
Carbonate	0.00	mg/L	1	0.164	5.00	SM 2320 B	JAM 03/07/13
Chloride (Cl-)	22.6	mg/L	4	1.09	2.00	SM 4500-Cl E	BLL 03/07/13
Fluoride	0.617	mg/L	1	0.003	0.050	SM 4500 F-C	PAT 03/07/13
Nitrogen, Nitrate (NO3)	0.056	mg/L	1	0.010	0.050	SM 4500-NO3 F	BLL 03/07/13
Sulfate (SO4)	2410	mg/L	50	34.2	50.0	SM 4500-SO4 E	BLL 03/07/13
Metals - Dissolved							
Arsenic (As)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC 03/07/13
Barium (Ba)	0.007	mg/L	10	0.0001	0.005	EPA 200.8	SAC 03/07/13
Boron (B)	0.523	mg/L	10	0.003	0.020	EPA 200.8	SAC 03/07/13
Cadmium (Cd)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8	SAC 03/07/13
Calcium (Ca)	596	mg/L	30	2.28	30.0	SM 3111 B	TNA 03/08/13
Chromium (Cr)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8 DRC	SAC 03/07/13
Copper (Cu)	< 0.005	mg/L	10	0.0001	0.005	EPA 200.8	SAC 03/07/13
Iron (Fe)	0.054	mg/L	10	0.015	0.050	EPA 200.8	SAC 03/07/13
Lead (Pb)	< 0.001	mg/L	10	0.0009	0.001	EPA 200.8	SAC 03/07/13
Magnesium (Mg)	211	mg/L	7	0.257	3.50	SM 3111 B	TNA 03/07/13
Manganese (Mn)	0.036	mg/L	10	0.0007	0.010	EPA 200.8	SAC 03/07/13
Molybdenum (Mo)	0.013	mg/L	10	0.0009	0.001	EPA 200.8	SAC 03/08/13
Nickel (Ni)	0.019	mg/L	10	0.0009	0.005	EPA 200.8	SAC 03/07/13
Potassium (K)	11.6	mg/L	2	0.168	1.00	SM 3111 B	TNA 03/07/13
Selenium (Se)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC 03/07/13
Silver (Ag)	< 0.001	mg/L	10	0.0005	0.001	EPA 200.8	SAC 03/07/13

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date
Metals - Dissolved							
Sodium (Na)	231	mg/L	9	1.38	4.50	SM 3111 B	TNA 03/07/13
Uranium (U)	0.022	mg/L	10	0.000037	0.001	EPA 200.8	SAC 03/07/13
Vanadium (V)	< 0.005	mg/L	10	0.0003	0.005	EPA 200.8	SAC 03/07/13
Zinc (Zn)	< 0.050	mg/L	10	0.0009	0.050	EPA 200.8	SAC 03/07/13
Metals - Total							
Mercury (Hg)	< 0.0002	mg/L	1	0.000046	0.0002	EPA 245.1	TNA 03/07/13
Anion - Cation Balance							
Anions	55.4	meq/L	1			Calculation	GAM 03/08/13
Anion - Cation Balance	1.81	%	1			Calculation	GAM 03/08/13
Cations	57.4	meq/L	1			Calculation	GAM 03/08/13
Radiological							
Gross Alpha	6.47	pCi/L	1			EPA 900.0	EJF 04/28/13
Gross Beta	17.8	pCi/L	1			EPA 900.0	EJF 04/29/13
Lead-210	0.436	pCi/L	1			RP280m DOE	SYS 03/28/13
Radium-226	1.17	pCi/L	1			MC Radium-226	EJF 05/06/13
Radium-228	< 1.00	pCi/L	1			MC Radium-228	EJF 05/06/13
Radon-222	747	pCi/L	1			SM 7500Rn-B	SYS 03/07/13
Thorium-230	-0.028	pCi/L	1			HSL-300m	SYS 03/18/13
Precision Data							
Gross Alpha precision	± 3.51	pCi/L	1			MC - Gross Alpha precision	EJF 04/28/13
Gross Beta precision	± 5.98	pCi/L	1			MC - Gross Beta precision	EJF 04/29/13
Lead-210 Precision	± 0.319	pCi/L	1			MC-Lead 210 precision	SYS 03/28/13
Radium-226 precision	± 0.210	pCi/L	1			MC-Radium 226 precision	EJF 05/06/13
Radium-228 precision	± 0.00	pCi/L	1			MC-Radium 228 precision	EJF 05/06/13
Radon-222 Precision	± 144	pCi/L	1			MC-Radon 222 precision	SYS 03/07/13
Thorium-230 Precision	0.080	pCi/L	1			MC-Thorium 230 precision	SYS 03/18/13
MDA Data							
Gross Alpha MDA	11.3	pCi/L	1			MC - Gross Alpha MDA	EJF 04/28/13
Gross Beta MDA	19.1	pCi/L	1			MC - Gross Beta MDA	EJF 04/29/13
Lead-210 MDA	0.587	pCi/L	1			MC - Lead 210 MDA	SYS 03/28/13
Radium-226 MDA	0.434	pCi/L	1			MC - Radium 226 MDA	EJF 05/06/13
Radium-228 MDA	0.031	pCi/L	1			MC - Radium 228 MDA	EJF 05/06/13
Radon-222 MDA	51.9	pCi/L	1			MC - Radon 222 MDA	SYS 03/07/13
Thorium-230 MDA	0.213	pCi/L	1			MC - Thorium 230 MDA	SYS 03/18/13

Approved By: _____

Approved On: 5/9/2013 9:42:00 AM



2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
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Sample Site: **BC-3**
Sampled: 03/05/13 at 11:15 AM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130307102
Received: 03/05/13 at 04:40 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date	
Physical Properties								
Electrical Conductivity	3170	µmhos/cm	1	0.299	5.00	SM 2510B	JAM	03/07/13
pH	7.49	SU	1			SM 4500-H+ B	JAM	03/07/13
Total Dissolved Solids	3000	mg/L	100ml	17.1	50.0	SM 2540 C	TMN	03/07/13
Non-Metallics								
Alkalinity (CaCO3)	250	mg/L	1	0.327	10.0	SM 2320 B	JAM	03/07/13
Bicarbonate	305	mg/L	1	0.399	10.0	SM 2320 B	JAM	03/07/13
Carbonate	0.00	mg/L	1	0.164	5.00	SM 2320 B	JAM	03/07/13
Chloride (Cl-)	19.3	mg/L	4	1.09	2.00	SM 4500-Cl E	BLL	03/07/13
Fluoride	0.475	mg/L	1	0.003	0.050	SM 4500 F-C	PAT	03/07/13
Nitrogen, Nitrate (NO3)	< 0.050	mg/L	1	0.010	0.050	SM 4500-NO3 F	BLL	03/07/13
Sulfate (SO4)	1790	mg/L	100	68.5	100	SM 4500-SO4 E	BLL	03/07/13
Metals - Dissolved								
Arsenic (As)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/07/13
Barium (Ba)	0.012	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/07/13
Boron (B)	0.537	mg/L	10	0.003	0.020	EPA 200.8	SAC	03/07/13
Cadmium (Cd)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8	SAC	03/07/13
Calcium (Ca)	502	mg/L	30	2.28	30.0	SM 3111 B	TNA	03/08/13
Chromium (Cr)	< 0.001	mg/L	10	0.0006	0.001	EPA 200.8 DRC	SAC	03/07/13
Copper (Cu)	< 0.005	mg/L	10	0.0001	0.005	EPA 200.8	SAC	03/07/13
Iron (Fe)	0.496	mg/L	10	0.015	0.050	EPA 200.8	SAC	03/07/13
Lead (Pb)	< 0.001	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/07/13
Magnesium (Mg)	148	mg/L	3	0.110	1.50	SM 3111 B	TNA	03/07/13
Manganese (Mn)	0.521	mg/L	10	0.0007	0.010	EPA 200.8	SAC	03/07/13
Molybdenum (Mo)	0.007	mg/L	10	0.0009	0.001	EPA 200.8	SAC	03/08/13
Nickel (Ni)	0.021	mg/L	10	0.0009	0.005	EPA 200.8	SAC	03/07/13
Potassium (K)	10.1	mg/L	2	0.168	1.00	SM 3111 B	TNA	03/07/13
Selenium (Se)	< 0.005	mg/L	10	0.001	0.005	EPA 200.8	SAC	03/07/13
Silver (Ag)	< 0.001	mg/L	10	0.0005	0.001	EPA 200.8	SAC	03/07/13

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date
Metals - Dissolved							
Sodium (Na)	140	mg/L	8	1.22	4.00	SM 3111 B	TNA 03/07/13
Uranium (U)	0.019	mg/L	10	0.000037	0.001	EPA 200.8	SAC 03/07/13
Vanadium (V)	< 0.005	mg/L	10	0.0003	0.005	EPA 200.8	SAC 03/07/13
Zinc (Zn)	< 0.050	mg/L	10	0.0009	0.050	EPA 200.8	SAC 03/07/13
Metals - Total							
Mercury (Hg)	< 0.0002	mg/L	1	0.000046	0.0002	EPA 245.1	TNA 03/07/13
Anion - Cation Balance							
Anions	42.8	meq/L	1			Calculation	GAM 03/08/13
Anion - Cation Balance	0.942	%	1			Calculation	GAM 03/08/13
Cations	43.6	meq/L	1			Calculation	GAM 03/08/13
Radiological							
Gross Alpha	11.9	pCi/L	1			EPA 900.0	EJF 04/25/13
Gross Beta	15.6	pCi/L	1			EPA 900.0	EJF 04/25/13
Lead-210	0.647	pCi/L	1			RP280m DOE	SYS 03/28/13
Radium-226	0.279	pCi/L	1			MC Radium-226	EJF 05/01/13
Radium-228	0.932	pCi/L	1			MC Radium-228	EJF 05/01/13
Radon-222	468	pCi/L	1			SM 7500Rn-B	SYS 03/07/13
Thorium-230	-0.002	pCi/L	1			HSL-300m	SYS 03/18/13
Precision Data							
Gross Alpha precision	± 3.70	pCi/L	1			MC - Gross Alpha precision	EJF 04/25/13
Gross Beta precision	± 5.50	pCi/L	1			MC - Gross Beta precision	EJF 04/25/13
Lead-210 Precision	± 0.384	pCi/L	1			MC-Lead 210 precision	SYS 03/28/13
Radium-226 precision	± 0.103	pCi/L	1			MC-Radium 226 precision	EJF 05/01/13
Radium-228 precision	± 0.422	pCi/L	1			MC-Radium 228 precision	EJF 05/01/13
Radon-222 Precision	± 96.0	pCi/L	1			MC-Radon 222 precision	SYS 03/07/13
Thorium-230 Precision	0.076	pCi/L	1			MC-Thorium 230 precision	SYS 03/18/13
MDA Data							
Gross Alpha MDA	11.2	pCi/L	1			MC - Gross Alpha MDA	EJF 04/25/13
Gross Beta MDA	17.6	pCi/L	1			MC - Gross Beta MDA	EJF 04/25/13
Lead-210 MDA	0.693	pCi/L	1			MC - Lead 210 MDA	SYS 03/28/13
Radium-226 MDA	0.216	pCi/L	1			MC - Radium 226 MDA	EJF 05/01/13
Radium-228 MDA	0.852	pCi/L	1			MC - Radium 228 MDA	EJF 05/01/13
Radon-222 MDA	52.9	pCi/L	1			MC - Radon 222 MDA	SYS 03/07/13
Thorium-230 MDA	0.195	pCi/L	1			MC - Thorium 230 MDA	SYS 03/18/13

Approved By: 

Approved On: 5/9/2013 9:42:00 AM



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CHAIN OF CUSTODY RECORD

FOR LAB USE ONLY

Seal Intact (Y/N)/Number _____
 Sample Condition _____
 Temperature of Container 9.3

REQUESTED TURN AROUND

STANDARD _____ RUSH _____

PRESERVED WITH											
FILTERED (Y/N)	X										
REFRIGERATED (Y/N)											
ANALYSES REQUESTED											

MR DISS
 TOMAS
 RABO'S
 HARRIS
 HARRIS

Company	SO-DEAR		
Project Name / Mgr.	POWERTECH		
Project Number	/		
Sampled by	Signature	MKA	
Sampled by	Print	MARK KEENIHAN	

	SAMPLE NAME	DATE	TIME	MATRIX	NO. OF CONTAINERS	COMMENTS	LAB #
1							
2	DC-2 100	3/4/13	1012		7	*GASTING WIND DUSTY CONDITIONS	
3							
4							
5							
6	batch 1						
7							
8	3-5-13						
9							
10							
11							
12							

RELINQUISHED BY (Signature)	COMPANY NAME	DATE	TIME	RECEIVED BY (Signature)	COMPANY NAME	DATE	TIME
	SO-DEAR	3/4/13	1428		MCJ	03-04-13	14:28



SAMPLE RECEIPT CHECKLIST

Company Name SD DENR

Date/Time Received 3-4-13 1428

Project PowerTech

Received by Greg Mahargall

Lab Number(s) 108 3-5-13

Carrier Name Mark Keenihan

Yes	No	<u>UNPACKING</u>		Initials
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.	Shipping container in good condition?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.	Custody seals present on shipping container? Condition: <u>Intact</u> Broken	_____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.	Ice / Blue Ice (circle one) present in shipping container? Container(s) Temp. 1. <u>field</u> 2. <u>9.3°C</u> 3. _____ 4. _____	_____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.	Bottles broken and/or leaking? (Photograph broken bottles.)	_____
<input type="checkbox"/>	<input type="checkbox"/>	5.	Custody seals on sample bottles? Condition: Intact Broken <u>MS</u>	_____

Yes	No	<u>LABELING</u>		Initials
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.	Chain of custody Present?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	Chain of custody includes signatures, dates, and times when relinquished and received?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.	Chain of custody agrees with bottle count?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9.	Chain of custody agrees with labels?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.	Samples received within holding times?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11.	Samples in proper container?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12.	Sufficient sample volume for indicated tests?	_____

<u>PRESERVATIVE</u>			
Yes	No	Initials	Initials
<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. Metals bottle(s) pH < 2? _____	<input type="checkbox"/> <input type="checkbox"/> 17. TOC bottle(s) pH < 2? _____
<input type="checkbox"/>	<input type="checkbox"/>	14. Nutrient bottle(s) pH < 2? _____	<input type="checkbox"/> <input type="checkbox"/> 18. Oil & Grease bottle(s) pH < 2? _____
<input type="checkbox"/>	<input type="checkbox"/>	15. Cyanide bottle(s) pH > 12? _____	<input type="checkbox"/> <input type="checkbox"/> 19. DRO bottle(s) pH < 2? _____
<input type="checkbox"/>	<input type="checkbox"/>	16. Sulfide bottle(s) pH > 9? _____	<input type="checkbox"/> <input type="checkbox"/> 20. Volatiles pH < 2? _____

COMMENTS: Nitrate tested from mineral bottle



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CHAIN OF CUSTODY RECORD

FOR LAB USE ONLY

Seal Intact (Y/N) Number y

Sample Condition good / on ice

Temperature of Container 1.9°C

REQUESTED TURN AROUND

STANDARD _____ RUSH _____

PRESERVED WITH									
FILTERED (Y/N)									
REFRIGERATED (Y/N)	X	X	X	X	X	X	X	X	X
ANALYSES REQUESTED	MIN	TOTAL	DISS	RAADS	RAADS	HNO3	HNO3		

Company SD-DENR

Project Name / Mgr. _____

Project Number PowerTEK

Sampled by Signature APD

Sampled by Print MARK KEENIHAN

	SAMPLE NAME	DATE	TIME	MATRIX	NO. OF CONTAINERS	ANALYSES REQUESTED	FIELD COMMENTS
1		2/8/13					PH
2	DC-4 101	3/5	0945		7	1 1 1 2 2	7.49 10.16 11.6 °F
3							
4	BC-3 102	3/5	1115		1	1 1 1 2 2	7.18 3.32 8.4 °F
5							
6	BC-1 103	3/5	1245		1	1 1 1 2 2	7.15 7.75 10.7 °F
7							
8	BC-2 104	3/5	1445		1	1 1 1 2 2	7.22 3.97 8.2 °F
9							
10							
11	Batch 1						* nutrient bottles made in Lab. - 2-3-13
12							

RELINQUISHED BY (Signature)	COMPANY NAME	DATE	TIME	RECEIVED BY (Signature)	COMPANY NAME	DATE	TIME
<u>APD</u>	SD-DENR	3/5/13	1640	<u>Ben</u>		3-5-13	1640



SAMPLE RECEIPT CHECKLIST

Company Name SD DENR

Date/Time Received 3-5-13 1640

Project PowerTech

Received by BL Date / Time

Lab Number(s) 101-104 3-7-13

Carrier Name Mark Keenihan

Yes	No	<u>UNPACKING</u>		Initials
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.	Shipping container in good condition?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.	Custody seals present on shipping container? Condition: <u>Intact</u> Broken	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.	<u>Ice</u> / Blue ice (circle one) present in shipping container? Container(s) Temp. 1. <u>1.9°C</u> 2. _____ 3. _____ 4. _____	_____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.	Bottles broken and/or leaking? (Photograph broken bottles.)	_____
<input type="checkbox"/>	<input type="checkbox"/>	5.	Custody seals on sample bottles? Condition: Intact Broken <u>MA</u>	_____

Yes	No	<u>LABELING</u>		Initials
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.	Chain of custody Present?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	Chain of custody includes signatures, dates, and times when relinquished and received?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.	Chain of custody agrees with bottle count?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9.	Chain of custody agrees with labels?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.	Samples received within holding times?	_____
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11.	Samples in proper container? <u>see below.</u>	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12.	Sufficient sample volume for indicated tests?	_____

		<u>PRESERVATIVE</u>							
Yes	No	Initials	Yes	No	Initials	Yes	No		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	13.	Metals bottle(s) pH < 2?	_____	<input type="checkbox"/>	<input type="checkbox"/>	17.	TOC bottle(s) pH < 2?	_____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	Nutrient bottle(s) pH < 2?	_____	<input type="checkbox"/>	<input type="checkbox"/>	18.	Oil & Grease bottle(s) pH < 2?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	15.	Cyanide bottle(s) pH > 12?	_____	<input type="checkbox"/>	<input type="checkbox"/>	19.	DRO bottle(s) pH < 2?	_____
<input type="checkbox"/>	<input type="checkbox"/>	16.	Sulfide bottle(s) pH > 9?	_____	<input type="checkbox"/>	<input type="checkbox"/>	20.	Volatiles pH < 2?	_____

COMMENTS: Nutrient bottles made in Lab for NO₃ since not ran within 48hrs.



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CHAIN OF CUSTODY RECORD

PRESERVED WITH									
FILTERED (Y/N)									
REFRIGERATED (Y/N)	X	X							
ANALYSES REQUESTED	RAD'S RADON								

FOR LAB USE ONLY
 Seal Intact (Y/N) Number 4
 Sample Condition good as is
 Temperature of Container 2.5C

REQUESTED TURN AROUND
 STANDARD _____ RUSH _____

Company	SD DEAR		
Project Name / Mgr.	/		
Project Number	POWERTECH		
Sampled by	Signature <u>MP</u>		
Sampled by	Print <u>MARK KEEMIAN</u>		

	SAMPLE NAME	DATE	TIME	MATRIX	NO. OF CONTAINERS	COMMENTS	LAB #
1							
2	DC-110	3/6/13	1000		22	WATER WAS TURBID	
3							
4							
5							
6	batch 1						
7							
8							
9	3-7-13						
10							
11							
12							

RELINQUISHED BY (Signature)	COMPANY NAME	DATE	TIME	RECEIVED BY (Signature)	COMPANY NAME	DATE	TIME
<u>MP</u>	DEAR	3/6/13	1530	<u>MP</u>		3-6-13	1530



SAMPLE RECEIPT CHECKLIST

Company Name SD DENR

Date/Time Received 3-6-13 1530

Project PowerTech

Received by BZ Date / Time

Lab Number(s) 110 3-7-13

Carrier Name Mark Keenan

Yes	No		<u>UNPACKING</u>	Initials
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.	Shipping container in good condition?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.	Custody seals present on shipping container? Condition: <u>Intact</u> Broken	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.	<u>Ice</u> Blue Ice (circle one) present in shipping container? Container(s) Temp. 1. <u>2.5X</u> 2. _____ 3. _____ 4. _____	_____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.	Bottles broken and/or leaking? (Photograph broken bottles.)	_____
<input type="checkbox"/>	<input type="checkbox"/>	5.	Custody seals on sample bottles? Condition: Intact Broken <u>MS</u>	_____

Yes	No		<u>LABELING</u>	Initials
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.	Chain of custody Present?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	Chain of custody includes signatures, dates, and times when relinquished and received?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.	Chain of custody agrees with bottle count?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9.	Chain of custody agrees with labels?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.	Samples received within holding times?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11.	Samples in proper container?	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12.	Sufficient sample volume for indicated tests?	_____

		<u>PRESERVATIVE</u>					
Yes	No	Initials	Yes	No	Initials		
<input type="checkbox"/>	<input type="checkbox"/>	13. Metals bottle(s) pH < 2?	_____	<input type="checkbox"/>	<input type="checkbox"/>	17. TOC bottle(s) pH < 2?	_____
<input type="checkbox"/>	<input type="checkbox"/>	14. Nutrient bottle(s) pH < 2?	_____	<input type="checkbox"/>	<input type="checkbox"/>	18. Oil & Grease bottle(s) pH < 2?	_____
<input type="checkbox"/>	<input type="checkbox"/>	15. Cyanide bottle(s) pH > 12?	_____	<input type="checkbox"/>	<input type="checkbox"/>	19. DRO bottle(s) pH < 2?	_____
<input type="checkbox"/>	<input type="checkbox"/>	16. Sulfide bottle(s) pH > 9?	_____	<input type="checkbox"/>	<input type="checkbox"/>	20. Volatiles pH < 2?	_____

COMMENTS: radiological tests only




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Sample Site: DC-2
Sampled: 06/03/13 at 10:05 AM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130603401
Received: 06/03/13 at 04:40 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	533	pCi/L	1	SM 7500Rn-B	SYS 06/06/13
Precision Data					
Radon-222 Precision	± 108	pCi/L	1	MC-Radon 222 precision	SYS 06/06/13
MDA Data					
Radon-222 MDA	53.0	pCi/L	1	MC - Radon 222 MDA	SYS 06/06/13

Approved By: 

Approved On: 6/13/2013 7:26:48 AM




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Sample Site: **BC-3**
Sampled: 06/03/13 at 11:40 AM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130603402
Received: 06/03/13 at 04:40 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	594	pCi/L	1	SM 7500Rn-B	SYS 06/06/13
Precision Data					
Radon-222 Precision	± 119	pCi/L	1	MC-Radon 222 precision	SYS 06/06/13
MDA Data					
Radon-222 MDA	52.6	pCi/L	1	MC - Radon 222 MDA	SYS 06/06/13

Approved By: 

Approved On: 6/13/2013 7:26:48 AM




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Sample Site: **BC-1**
Sampled: 06/03/13 at 12:35 PM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130603403
Received: 06/03/13 at 04:40 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	772	pCi/L	1	SM 7500Rn-B	SYS 06/06/13
Precision Data					
Radon-222 Precision	± 150	pCi/L	1	MC-Radon 222 precision	SYS 06/06/13
MDA Data					
Radon-222 MDA	52.4	pCi/L	1	MC - Radon 222 MDA	SYS 06/06/13

Approved By: 

Approved On: 6/13/2013 7:26:48 AM




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Sample Site: **BC-2**
Sampled: 06/03/13 at 02:05 PM
by Mark Keenihan
Sample Matrix: Water

Lab ID#: 20130603404
Received: 06/03/13 at 04:40 PM
by Bobbie Laurenz
Account: W1008 - DENR - Minerals & Mining

MIKE CEPAK
DENR - MINERALS AND MINING
523 E. CAPITOL AVE.
PIERRE, SD 57501

Parameter	Result	Units	DF	Method	Analyst/Date
<u>Radiological</u>					
Radon-222	1060	pCi/L	1	SM 7500Rn-B	SYS 06/06/13
<u>Precision Data</u>					
Radon-222 Precision	± 200	pCi/L	1	MC-Radon 222 precision	SYS 06/06/13
<u>MDA Data</u>					
Radon-222 MDA	52.1	pCi/L	1	MC - Radon 222 MDA	SYS 06/06/13

Approved By: 

Approved On: 6/13/2013 7:26:48 AM



SAMPLE RECEIPT CHECKLIST

Company Name SD DENR

Date/Time Received 6-3-13 1640
Date / Time

Project PowerTech

Received by BL

Lab Number(s) 401-404 6-3-13

Carrier Name Maule Koenig

Yes No

UNPACKING

Initials

- 1. Shipping container in good condition? _____
- 2. Custody seals present on shipping container?
Condition: Intact Broken _____
- 3. Ice / Blue Ice (circle one) present in shipping container?
Container(s) Temp. 1. 5.2°C 2. _____ 3. _____ 4. _____
- 4. Bottles broken and/or leaking? (Photograph broken bottles.) _____
- 5. Custody seals on sample bottles?
Condition: Intact Broken MA _____

Yes No

LABELING

Initials

- 6. Chain of custody Present? _____
- 7. Chain of custody includes signatures, dates, and times when relinquished and received? _____
- 8. Chain of custody agrees with bottle count? _____
- 9. Chain of custody agrees with labels? _____
- 10. Samples received within holding times? _____
- 11. Samples in proper container? _____
- 12. Sufficient sample volume for indicated tests? _____

PRESERVATIVE

Yes No

Initials

Yes No

Initials

- 13. Metals bottle(s) pH < 2? _____
- 14. Nutrient bottle(s) pH < 2? _____
- 15. Cyanide bottle(s) pH > 12? _____
- 16. Sulfide bottle(s) pH > 9? _____
- 17. TOC bottle(s) pH < 2? _____
- 18. Oil & Grease bottle(s) pH < 2? _____
- 19. DRO bottle(s) pH < 2? _____
- 20. Volatiles pH < 2? _____

COMMENTS: Radon, ~~...~~



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CHAIN OF CUSTODY RECORD

ENERGX

50-DENR
 POWERS TECH /
 Signature: *[Handwritten Signature]*
 Print: MARIL KENNEDY

PRESERVED WITH	NA
	NA
	X
	RAVEN 222
FILTERED (Y/N)	
REFRIGERATED (Y/N)	
ANALYSES REQUESTED	

FOR LAB USE ONLY

STANDARD _____ RUSH _____

1													
2	DC-2	6/3/13	1005	X	2	7.4 pH	10.6°C	5.54	45	FC	R13060032-		
3	BC-4	"	1125	X	2	NONE COLLECTED							
4	BC-3	"	1140	X	2	7.3 pH	9.2°C	3.25	45	FC			
5	BC-1	"	1235	X	2	7.2 pH	10.9°C	3.73	45	FC			
6	BC-2	1	1405	X	2	7.3 pH	9.9°C	3.93	45	FC			
7													
8													
9													
10													
11													
12													

	<i>[Handwritten Signature]</i>	50-DENR	6/3/13	1635	<i>[Handwritten Signature]</i>	6/3/13	1635




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Sample Site: DC-2
Project Name: Powertech
Sampled: 08/20/13 at 12:49 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130821401
Received: 08/21/13 at 11:00 AM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date	
Radiological						
Radon-222	609	pCi/L	1	SM 7500Rn-B	EJF	08/24/13
Precision Data						
Radon-222 Precision	± 125	pCi/L	1	MC-Radon 222 precision	EJF	08/24/13
MDA Data						
Radon-222 MDA	69.5	pCi/L	1	MC - Radon 222 MDA	EJF	08/24/13

Approved By: 

Approved On: 8/26/2013 3:16:24 PM




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Sample Site: BC-3
Project Name: Powertech
Sampled: 08/20/13 at 01:59 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130821402
Received: 08/21/13 at 11:00 AM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	539	pCi/L	1	SM 7500Rn-B	EJF 08/24/13
Precision Data					
Radon-222 Precision	± 113	pCi/L	1	MC-Radon 222 precision	EJF 08/24/13
MDA Data					
Radon-222 MDA	69.1	pCi/L	1	MC - Radon 222 MDA	EJF 08/24/13

Approved By: 

Approved On: 8/26/2013 3:16:24 PM



2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 – www.thechemistrylab.com

Sample Site: BC-1
Project Name: Powertech
Sampled: 08/20/13 at 02:55 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130821403
Received: 08/21/13 at 11:00 AM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
<u>Radiological</u>					
Radon-222	775	pCi/L	1	SM 7500Rn-B	EJF 08/24/13
<u>Precision Data</u>					
Radon-222 Precision	± 154	pCi/L	1	MC-Radon 222 precision	EJF 08/24/13
<u>MDA Data</u>					
Radon-222 MDA	68.9	pCi/L	1	MC - Radon 222 MDA	EJF 08/24/13

Approved By: 

Approved On: 8/26/2013 3:16:24 PM



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Sample Site: BC-2
Project Name: Powertech
Sampled: 08/20/13 at 03:53 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130821404
Received: 08/21/13 at 11:00 AM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	934	pCi/L	1	SM 7500Rn-B	EJF 08/24/13
Precision Data					
Radon-222 Precision	± 181	pCi/L	1	MC-Radon 222 precision	EJF 08/24/13
MDA Data					
Radon-222 MDA	68.7	pCi/L	1	MC - Radon 222 MDA	EJF 08/24/13

Approved By: 

Approved On: 8/26/2013 3:16:24 PM




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Sample Site: DC-1
Project Name: Powertech
Sampled: 08/20/13 at 04:38 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130821405
Received: 08/21/13 at 11:00 AM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	516	pCi/L	1	SM 7500Rn-B	EJF 08/24/13
Precision Data					
Radon-222 Precision	± 109	pCi/L	1	MC-Radon 222 precision	EJF 08/24/13
MDA Data					
Radon-222 MDA	68.6	pCi/L	1	MC - Radon 222 MDA	EJF 08/24/13

Approved By: 

Approved On: 8/26/2013 3:16:24 PM



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CHAIN OF CUSTODY RECORD

PRESERVED WITH	
FILTERED (Y/N)	
REFRIGERATED (Y/N)	
ANALYSES REQUESTED	<i>Radon, copper, lead</i>

FOR LAB USE ONLY
 Seal Intact (Y/N)/Number _____
 Sample Condition _____
 Temperature of Container **5.8°C**
 ON ICE

REQUESTED TURN AROUND
 STANDARD _____ RUSH _____

Company	<i>Scott Environmental</i>		
Project Name / Mgr.	<i>PowerTech / Alluvial Wells</i>		
Project Number			
Sampled by	<i>[Signature]</i>		
Sampled by	<i>Allan Scott</i>		

	SAMPLE NAME	DATE	TIME	MATRIX	NO. OF CONTAINERS	COMMENTS	LAB #
1	<i>Dc-2</i>	<i>8-20-13</i>	<i>12:49</i>	<i>Water</i>	<i>2</i>		<i>20130821401</i>
2	<i>Bc-3</i>	<i>8-20-13</i>	<i>13:59</i>	<i>1</i>	<i>2</i>		<i>402</i>
3	<i>Bc-1</i>	<i>8-20-13</i>	<i>14:55</i>	<i>1</i>	<i>2</i>		<i>403</i>
4	<i>Bc-2</i>	<i>8-20-13</i>	<i>15:53</i>	<i>1</i>	<i>2</i>		<i>404</i>
5	<i>Dc-1</i>	<i>8-20-13</i>	<i>16:38</i>	<i>1</i>	<i>2</i>		<i>405</i>
6							
7							
8							
9							
10							
11							
12							

RELINQUISHED BY (Signature)	COMPANY NAME	DATE	TIME	RECEIVED BY (Signature)	COMPANY NAME	DATE	TIME
<i>[Signature]</i>	<i>Scott Env.</i>	<i>8-21-13</i>	<i>11:00</i>	<i>[Signature]</i>	<i>MDT</i>	<i>8-21-13</i>	<i>11:00</i>



SAMPLE RECEIPT CHECKLIST

Company Name Scott Environmental 1

Date/Time Received 08/21/13 1100

Project Power Tech

Received by Dean Ayres

Lab Number(s) 201308 21401-405

Carrier Name _____

Yes No

UNPACKING

Initials

- 1. Shipping container in good condition?
- 2. Custody seals present on shipping container?
Condition: Intact Broken
- 3. Ice Blue Ice (circle one) present in shipping container?
Container(s) Temp. 1. 5.8 2. _____ 3. _____ 4. _____
- 4. Bottles broken and/or leaking? (Photograph broken bottles.)
- 5. Custody seals on sample bottles?
Condition: Intact Broken

EA

Yes No

LABELING

Initials

- 6. Chain of custody Present?
- 7. Chain of custody includes signatures, dates, and times when relinquished and received?
- 8. Chain of custody agrees with bottle count?
- 9. Chain of custody agrees with labels?
- 10. Samples received within holding times?
- 11. Samples in proper container?
- 12. Sufficient sample volume for indicated tests?

EA

PRESERVATIVE

Yes	No	Initials	Yes	No	Initials
<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

COMMENTS: _____



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CHAIN OF CUSTODY RECORD

FOR LAB USE ONLY

Seal Intact (Y/N) Number

Sample Condition

Temperature of Container

REQUESTED TURN AROUND

STANDARD _____ RUSH _____

PRESERVED WITH	None
FILTERED (Y/N)	N
REFRIGERATED (Y/N)	Y
ANALYSES REQUESTED	Radon 222

Company Mid Continent Testing

Project Name / Mgr. /

Project Number

Sampled by Allen Scott

Signature

Print Allen Scott

	SAMPLE NAME	DATE	TIME	MATRIX	NO. OF CONTAINERS	COMMENTS	LAB #
1	20130821401	8/20/13	12:49	Water	2		
2	20130821402	8/20/13	13:59		2		
3	20130821403	8/20/13	14:55		2		
4	20130821404	8/20/13	15:53		2		
5	20130821405	8/20/13	16:38		2		
6							
7							
8							
9							
10							
11							
12							

RELINQUISHED BY (Signature)	COMPANY NAME	DATE	TIME	RECEIVED BY (Signature)	COMPANY NAME	DATE	TIME
<u>Allen Scott</u>	<u>MCT</u>	<u>8/21/13</u>	<u>1445</u>	<u>FoEx Overnight to Pace Pa. et al.</u>			



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Sample Site: DC-2
Project Name: Powertech
Sampled: 09/02/13 at 10:27 AM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130903401
Received: 09/03/13 at 01:42 PM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	669	pCi/L	1	SM 7500Rn-B	SYS 09/05/13
Precision Data					
Radon-222 Precision	± 133	pCi/L	1	MC-Radon 222 precision	SYS 09/05/13
MDA Data					
Radon-222 MDA	58.0	pCi/L	1	MC - Radon 222 MDA	SYS 09/05/13

Approved By: *Eric Fischer*

Approved On: 9/9/2013 3:14:19 PM



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Sample Site: BC-3
Project Name: Powertech
Sampled: 09/02/13 at 12:16 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130903402
Received: 09/03/13 at 01:42 PM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
<u>Radiological</u>					
Radon-222	500	pCi/L	1	SM 7500Rn-B	SYS 09/05/13
<u>Precision Data</u>					
Radon-222 Precision	± 104	pCi/L	1	MC-Radon 222 precision	SYS 09/05/13
<u>MDA Data</u>					
Radon-222 MDA	57.4	pCi/L	1	MC - Radon 222 MDA	SYS 09/05/13

Approved By: *Eini Fischer*

Approved On: 9/9/2013 3:14:19 PM



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Sample Site: BC-1
Project Name: Powertech
Sampled: 09/02/13 at 01:26 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130903403
Received: 09/03/13 at 01:42 PM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	664	pCi/L	1	SM 7500Rn-B	SYS 09/05/13
Precision Data					
Radon-222 Precision	± 132	pCi/L	1	MC-Radon 222 precision	SYS 09/05/13
MDA Data					
Radon-222 MDA	57.2	pCi/L	1	MC - Radon 222 MDA	SYS 09/05/13

Approved By: *Erin Fischer*

Approved On: 9/9/2013 3:14:19 PM



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Sample Site: BC-2
Project Name: Powertech
Sampled: 09/02/13 at 02:38 PM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130903404
Received: 09/03/13 at 01:42 PM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	857	pCi/L	1	SM 7500Rn-B	SYS 09/05/13
Precision Data					
Radon-222 Precision	± 166	pCi/L	1	MC-Radon 222 precision	SYS 09/05/13
MDA Data					
Radon-222 MDA	56.9	pCi/L	1	MC - Radon 222 MDA	SYS 09/05/13

Approved By: *Eiri Fischer*

Approved On: 9/9/2013 3:14:19 PM



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Sample Site: DC-1
Project Name: Powertech
Sampled: 09/03/13 at 09:35 AM
by Allen Scott
Sample Matrix: Water

Lab ID#: 20130903405
Received: 09/03/13 at 01:42 PM
by Dean Aurand
Account: w1552 - Powertech Uranium

LISA SCHEINOST
POWERTECH URANIUM
5575 DTC PARKWAY #140
GREENWOOD VILLAGE, CO 80111

Parameter	Result	Units	DF	Method	Analyst/Date
Radiological					
Radon-222	612	pCi/L	1	SM 7500Rn-B	SYS 09/05/13
Precision Data					
Radon-222 Precision	± 124	pCi/L	1	MC-Radon 222 precision	SYS 09/05/13
MDA Data					
Radon-222 MDA	59.6	pCi/L	1	MC - Radon 222 MDA	SYS 09/05/13

Approved By: *Eiri Fischer*

Approved On: 9/9/2013 3:14:19 PM

CHAIN OF CUSTODY RECORD

FOR LAB USE ONLY

Seal Intact (Y/N) Number _____

Sample Condition *on ice*

Temperature of Cooling *3.80d*

REQUESTED TURN AROUND

STANDARD _____ RUSH _____

PRESERVED WITH _____

FILTERED (Y/N) _____

REFRIGERATED (Y/N) _____

ANALYSES REQUESTED *Radon as per check*

Company *Powertech by Scott Environmental*

Project Name / Mgr. *Powertech Alliance/Wells*

Project Number _____

Sampled by *Allen SAH*

Signature _____

Print *Allen SAH*

	SAMPLE NAME	DATE	TIME	MATRIX	NO. OF CONTAINERS	COMMENTS	LAB #
1	DC-2	9-2-13	10:27	water	3		2013 0903 401
2	BC-3	9-2-13	12:16	"	3		402
3	BC-1	9-2-13	13:26	"	3		403
4	BC-2	9-2-13	14:38	"	3		404
5	DC-1	9-3-13	9:35	"	3		405
6							
7							
8							
9							
10							
11							
12							

RELINQUISHED BY (Signature)	COMPANY NAME	DATE	TIME	RECEIVED BY (Signature)	COMPANY NAME	DATE	TIME
<i>Allen SAH</i>	<i>Scott Env.</i>	<i>9-3-13</i>	<i>13:42</i>	<i>[Signature]</i>	<i>MCT</i>	<i>9/3/13</i>	<i>13:42</i>

ENERGY
LABORATORY DATA



ANALYTICAL SUMMARY REPORT

September 04, 2013

Powertech USA Inc
PO Box 812
Edgemont, SD 57735

Workorder No.: R13080397 Quote ID: R411

Project Name: Alluvial Wells Dewey Burdock

Energy Laboratories Inc. Rapid City SD received the following 6 samples for Powertech USA Inc on 8/21/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
R13080397-001	DC-2	08/20/13 12:49	08/21/13	Aqueous	Radon 222
R13080397-002	BC-3	08/20/13 13:59	08/21/13	Aqueous	Same As Above
R13080397-003	BC-1	08/20/13 14:55	08/21/13	Aqueous	Same As Above
R13080397-004	BC-2	08/20/13 15:53	08/21/13	Aqueous	Same As Above
R13080397-005	DC-1	08/20/13 16:35	08/21/13	Aqueous	Same As Above
R13080397-006	BC-3 Dup	08/20/13 13:59	08/21/13	Aqueous	Same As Above

This report was prepared by Energy Laboratories, Inc., 2821 Plant St., Rapid City, SD 57702. As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

Linda K. Larson
Branch Manager

Digitally signed by
Linda Larson
Date: 2013.09.06 13:24:21 -06:00



CLIENT: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Sample Delivery Group: R13080397

Report Date: 09/04/13

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.



LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13080397-001
Client Sample ID: DC-2

Report Date: 09/04/13
Collection Date: 08/20/13 12:49
Date Received: 08/21/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
RADIONUCLIDES - TOTAL							
Radon 222	552	pCi/L				1 D5072-92	08/23/13 16:17/eli-ca
Radon 222 precision (±)	49.0	pCi/L				1 D5072-92	08/23/13 16:17/eli-ca
Radon 222 MDC	72.0	pCi/L				1 D5072-92	08/23/13 16:17/eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13080397-002
Client Sample ID: BC-3

Report Date: 09/04/13
Collection Date: 08/20/13 13:59
Date Received: 08/21/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	MCL/		DF	Method	Analysis Date / By
				RL	QCL			
RADIONUCLIDES - TOTAL								
Radon 222	496	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 precision (±)	47.9	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 MDC	72.0	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13080397-003
Client Sample ID: BC-1

Report Date: 09/04/13
Collection Date: 08/20/13 14:55
Date Received: 08/21/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/	DF	Method	Analysis Date / By
					QCL			
RADIONUCLIDES - TOTAL								
Radon 222	707	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 precision (±)	50.1	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 MDC	71.0	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13080397-004
Client Sample ID: BC-2

Report Date: 09/04/13
Collection Date: 08/20/13 15:53
Date Received: 08/21/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/		Method	Analysis Date / By	
					QCL	DF			
RADIONUCLIDES - TOTAL									
Radon 222	901	pCi/L					1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 precision (±)	52.1	pCi/L					1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 MDC	71.0	pCi/L					1	D5072-92	08/23/13 16:17/eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13080397-005
Client Sample ID: DC-1

Report Date: 09/04/13
Collection Date: 08/20/13 16:35
Date Received: 08/21/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	MCL/		DF	Method	Analysis Date / By
				RL	QCL			
RADIONUCLIDES - TOTAL								
Radon 222	388	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 precision (±)	45.7	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 MDC	70.0	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13080397-006
Client Sample ID: BC-3 Dup

Report Date: 09/04/13
Collection Date: 08/20/13 13:59
Date Received: 08/21/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	MCL/		DF	Method	Analysis Date / By
				RL	QCL			
RADIONUCLIDES - TOTAL								
Radon 222	506	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 precision (±)	48.1	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca
Radon 222 MDC	72.0	pCi/L				1	D5072-92	08/23/13 16:17/eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock

Report Date: 09/04/13
Work Order: R13080397

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: D5072-92								Batch: C_R177545		
Sample ID: C13080823-004GDUP	3	Sample Duplicate					Run: SUB-C177545			08/23/13 16:17
Radon 222		81.9	pCi/L					47	20	UR
Radon 222 precision (±)		43.8	pCi/L							
Radon 222 MDC		74.0	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis; however, the RER of 1.6 is less than the limit of 2.0. This batch is approved.										
Sample ID: R13080397-006A	3	Sample Duplicate					Run: SUB-C177545			08/23/13 16:17
Radon 222		504	pCi/L					0.3	20	
Radon 222 precision (±)		48.0	pCi/L							
Radon 222 MDC		72.0	pCi/L							
Sample ID: MB-R177545	3	Method Blank					Run: SUB-C177545			08/23/13 16:17
Radon 222		20	pCi/L							U
Radon 222 precision (±)		30	pCi/L							
Radon 222 MDC		50	pCi/L							
Sample ID: LCS-R177545		Laboratory Control Sample					Run: SUB-C177545			08/23/13 16:17
Radon 222		557	pCi/L	94		80	120			

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.



Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Project Name, PWS, Permit, Etc. PowerTech Allowed works

Sample Origin PowerTech Allowed works

EPA/State Compliance: Yes No

Contact Name: Alla Soff / Lisa Schrodt

State: _____

Sampler: (Please Print) _____

Cell: _____

Phone/Fax: _____

Purchase Order: _____

Quote/Bottle Order: _____

Invoice Contact & Phone: _____

Company Name: See # Environmentel

Report Mail Address (Required): PowerTech, Inc

No Hard Copy Email:

Invoice Address (Required): _____

No Hard Copy Email:

Special Report/Formats:

DW EDD/EDT (Electronic Data)

POTW/WWTP Format: _____

State: _____ LEVEL IV

Other: _____ NELAC

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	ANALYSIS REQUESTED				Standard Turnaround (TAT)	Comments:	Shipped by:
				Number of Containers	Air Water	Soils/Solids	DW - Drinking Water			
1 DC-2	8-20-13	12:49	Water	✓	✓	✓	✓	SEE ATTACHED	↑	
2 BC-3	8-20-13	13:59	"	✓	✓	✓	✓			
3 BC-1	8-20-13	14:55	"	✓	✓	✓	✓			
4 BC-2	8-20-13	15:53	"	✓	✓	✓	✓			
5 DC-1	8-20-13	16:35	"	✓	✓	✓	✓			
6 BC-3 Dup	8-20-13	1359	"	✓	✓	✓	✓			
7										
8										
9										
10										

Receipted by Laboratory: Alla Soff Date/Time: 8-21-13 11:41

Received by (print): _____ Date/Time: _____

Received by (print): _____ Date/Time: _____

Signature: _____

Signature: _____

Signature: _____

Sample Disposal: _____ Return to Client: _____ Lab Disposal: _____

Signature: PowerTech 8-21-13 11:41 Alla Soff

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This service is not available in all states. All sub-contract data will be clearly notated on your analytical report.



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Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13090030-002
Client Sample ID: BC-3

Report Date: 09/06/13
Collection Date: 09/02/13 12:16
Date Received: 09/03/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/	DF	Method	Analysis Date / By
					QCL			
RADIONUCLIDES - TOTAL								
Radon 222	636	pCi/L				1	D5072-92	09/04/13 21:48/eli-ca
Radon 222 precision (±)	49.0	pCi/L				1	D5072-92	09/04/13 21:48/eli-ca
Radon 222 MDC	70.0	pCi/L				1	D5072-92	09/04/13 21:48/eli-ca

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

PRELIMINARY



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LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13090030-003
Client Sample ID: BC-1

Report Date: 09/06/13
Collection Date: 09/02/13 13:26
Date Received: 09/03/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/		Method	Analysis Date / By	
					QCL	DF			
RADIONUCLIDES - TOTAL									
Radon 222	854	pCi/L					1	D5072-92	09/04/13 22:41/eli-ca
Radon 222 precision (±)	51.2	pCi/L					1	D5072-92	09/04/13 22:41/eli-ca
Radon 222 MDC	70.0	pCi/L					1	D5072-92	09/04/13 22:41/eli-ca

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

PRELIMINARY



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LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13090030-004
Client Sample ID: BC-2

Report Date: 09/06/13
Collection Date: 09/02/13 14:38
Date Received: 09/03/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/	DF	Method	Analysis Date / By
					QCL			
RADIONUCLIDES - TOTAL								
Radon 222	972	pCi/L				1	D5072-92	09/04/13 23:35/eli-ca
Radon 222 precision (±)	52.1	pCi/L				1	D5072-92	09/04/13 23:35/eli-ca
Radon 222 MDC	69.0	pCi/L				1	D5072-92	09/04/13 23:35/eli-ca

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

PRELIMINARY



LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13090030-005
Client Sample ID: DC-1

Report Date: 09/06/13
Collection Date: 09/03/13 09:35
Date Received: 09/03/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	DF	Method	Analysis Date / By
RADIONUCLIDES - TOTAL								
Radon 222	510	pCi/L				1	D5072-92	09/05/13 00:28/eli-ca
Radon 222 precision (±)	41.1	pCi/L				1	D5072-92	09/05/13 00:28/eli-ca
Radon 222 MDC	60.0	pCi/L				1	D5072-92	09/05/13 00:28/eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

PRELIMINARY



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LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13090030-006
Client Sample ID: DC-2 Dup

Report Date: 09/06/13
Collection Date: 09/02/13 10:27
Date Received: 09/03/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/	DF	Method	Analysis Date / By
					QCL			
RADIONUCLIDES - TOTAL								
Radon 222	749	pCi/L				1	D5072-92	09/05/13 01:21/eli-ca
Radon 222 precision (±)	51.0	pCi/L				1	D5072-92	09/05/13 01:21/eli-ca
Radon 222 MDC	72.0	pCi/L				1	D5072-92	09/05/13 01:21/eli-ca

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

PRELIMINARY



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Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

LABORATORY ANALYTICAL REPORT

Prepared by Rapid City, SD Branch

Client: Powertech USA Inc
Project: Alluvial Wells Dewey Burdock
Lab ID: R13090030-001
Client Sample ID: DC-2

Report Date: 09/06/13
Collection Date: 09/02/13 10:27
Date Received: 09/03/13
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/	DF	Method	Analysis Date / By
					QCL			
RADIONUCLIDES - TOTAL								
Radon 222	738	pCi/L				1	D5072-92	09/04/13 20:55/eli-ca
Radon 222 precision (±)	50.8	pCi/L				1	D5072-92	09/04/13 20:55/eli-ca
Radon 222 MDC	71.0	pCi/L				1	D5072-92	09/04/13 20:55/eli-ca

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 MDC - Minimum detectable concentration

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

PRELIMINARY



Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: Soth Env. / Powertech Project Name, PWS, Permit, Etc. Powertech alluvial wells Sample Origin State: _____

Report Mail Address (Required): Powertech Contact Name: Lisa Schriest / Alla Soth Cell: _____ EPA/State Compliance: Yes No

Phone/Fax: _____ Invoice Contact & Phone: _____ Purchase Order: _____ Sampler: (Please Print) _____

Quote/Bottle Order: _____

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	ANALYSIS REQUESTED		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Shipped by:
				Number of Containers	Sample Type: A W S V B O DW		
1 DC-2	9-2-13	10:27	Water	as per bottle	SEE ATTACHED	Comments: R U S H	Receipt Temp: <u>5.0 °C</u>
2 BC-3	9-2-13	12:16	U				On Ice: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
3 BC-1	9-2-13	13:26	U				Custody Seal On Bottle: Y <input type="checkbox"/> N <input type="checkbox"/>
4 BC-2	9-2-13	14:38	U				On Cooler: Y <input type="checkbox"/> N <input type="checkbox"/>
5 DC-1	9-3-13	9:35	U				Intact: Y <input type="checkbox"/> N <input type="checkbox"/>
6 DC-2 Pkg.	9-2-13	10:27	U				Signature Match: Y <input type="checkbox"/> N <input type="checkbox"/>
7							
8							
9							
10							

Custody Record MUST be Signed

Relinquished by (print): Alla Soth Date/Time: 9-3-13 13:49 Signature: [Signature]

Relinquished by (print): _____ Date/Time: _____ Signature: _____

Received by (print): _____ Date/Time: _____ Signature: _____

Received by (print): Blue Ireland Date/Time: 9-3-13 13:49 Signature: [Signature]

Lab Disposal: _____ Return to Client: _____

LABORATORY USE ONLY

1309003001

002

003

004

005

006

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

IML
LABORATORY DATA



Date: 8/30/2013

CLIENT: Powertech Uranium USA Inc.
Project: Powertech Alluvial Wells
Lab Order: S1308357

CASE NARRATIVE
Report ID: S1308357001

Samples BC-1, BC-2, BC-3, DC-1, and DC-2 were received on August 22, 2013.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition
40 CFR Parts 136 and 141
40 CFR Part 50, Appendices B, J, L, and O
Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012
ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 8/30/2013
Report ID: S1308357001

ProjectName: Powertech Alluvial Wells
Lab ID: S1308357-001
ClientSample ID: DC-2
COC: WEB

WorkOrder: S1308357
CollectionDate: 8/20/2013 12:49:00 PM
DateReceived: 8/22/2013 11:53:00 AM
FieldSampler: AS
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init
Radionuclides - Total						
Radon 222	570	pCi/L		80	ASTM D5072-09	08/23/2013 123 SH
Radon-222 Precision (±)	22	pCi/L			ASTM D5072-09	08/23/2013 123 SH

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - C Calculated Value
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - ND Not Detected at the Reporting Limit
 - S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported 8/30/2013
Report ID: S1308357001

ProjectName: Powertech Alluvial Wells
Lab ID: S1308357-002
ClientSample ID: BC-3
COC: WEB

WorkOrder: S1308357
CollectionDate: 8/20/2013 1:59:00 PM
DateReceived: 8/22/2013 11:53:00 AM
FieldSampler: AS
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init
Radionuclides - Total						
Radon 222	484	pCi/L		80	ASTM D5072-09	08/23/2013 234 SH
Radon-222 Precision (±)	20	pCi/L			ASTM D5072-09	08/23/2013 234 SH

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - C Calculated Value
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - ND Not Detected at the Reporting Limit
 - S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 8/30/2013
Report ID: S1308357001

ProjectName: Powertech Alluvial Wells
Lab ID: S1308357-003
ClientSample ID: BC-1
COC: WEB

WorkOrder: S1308357
CollectionDate: 8/20/2013 2:55:00 PM
DateReceived: 8/22/2013 11:53:00 AM
FieldSampler: AS
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radon 222	562	pCi/L		80	ASTM D5072-09	08/23/2013 310	SH
Radon-222 Precision (±)	22	pCi/L			ASTM D5072-09	08/23/2013 310	SH

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - C Calculated Value
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - ND Not Detected at the Reporting Limit
 - S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 8/30/2013
Report ID: S1308357001

ProjectName: Powertech Alluvial Wells
Lab ID: S1308357-004
ClientSample ID: BC-2
COC: WEB

WorkOrder: S1308357
CollectionDate: 8/20/2013 3:53:00 PM
DateReceived: 8/22/2013 11:53:00 AM
FieldSampler: AS
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init
Radionuclides - Total						
Radon 222	790	pCi/L		80	ASTM D5072-09	08/23/2013 345 SH
Radon-222 Precision (±)	27	pCi/L			ASTM D5072-09	08/23/2013 345 SH

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - C Calculated Value
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - ND Not Detected at the Reporting Limit
 - S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 8/30/2013
Report ID: S1308357001

ProjectName: Powertech Alluvial Wells
Lab ID: S1308357-005
ClientSample ID: DC-1
COC: WEB

WorkOrder: S1308357
CollectionDate: 8/20/2013 4:35:00 PM
DateReceived: 8/22/2013 11:53:00 AM
FieldSampler: AS
Matrix: Water

Comments

Table with 7 columns: Analyses, Result, Units, Qual, RL, Method, Date Analyzed/Init. Rows include Radionuclides - Total, Radon 222, and Radon-222 Precision (±).

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers: * Value exceeds Maximum Contaminant Level
C Calculated Value
H Holding times for preparation or analysis exceeded
L Analyzed by a contract laboratory
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
M Value exceeds Monthly Ave or MCL
O Outside the Range of Dilutions

Reviewed by: [Signature]
Wade Nieuwsma, Assistant Laboratory Manager



ANALYTICAL QC SUMMARY REPORT

CLIENT: Powertech Uranium USA Inc.
Work Order: S1308357
Project: Powertech Alluvial Wells

Date: 8/30/2013
Report ID: S1308357001

Radon 222 in Water ASTM D5072-09

Sample Type **MBLK** Units: pCi/L

Sample ID	RunNo: 99275	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MB-7410	08/22/13 17:06	Radon-222	ND	50					

Sample Type **LCS** Units: pCi/L

Sample ID	RunNo: 99275	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS-7410	08/22/13 17:06	Radon-222	17800	50	18500		95.9	70 - 130	

Sample Type **DUP** Units: pCi/L

Sample ID	RunNo: 99275	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1308344-001BD	08/22/13 20:39	Radon-222	7120	50	8470	16.0		20	

Sample ID	RunNo: 99275	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1308357-001AD	08/23/13 1:59	Radon-222	530	50	570	6.90		20	

- Qualifiers:**
- B Analyte detected in the associated Method Blank
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - O Outside the Range of Dilutions
 - S Spike Recovery outside accepted recovery limits
 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - ND Not Detected at the Reporting Limit
 - R RPD outside accepted recovery limits



Inter-Mountain Labs
 Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

Page 1 of 1

All shaded fields must be completed.
 This is a legal document. any misrepresentation may be construed as fraud.

#WEB

Client Name <i>Scott Environmental</i>		Project Identification <i>Powered Alluvial wells</i>		Sampler (Signature/Attestation of Authenticity) <i>[Signature]</i>		Telephone # <i>605-673-9059</i>	
Report Address <i>Powertech, Inc.</i>		Contact Name <i>Allen Scott</i>		Email <i>[Blank]</i>		Phone <i>[Blank]</i>	
Invoice Address <i>Powertech, Inc.</i>		Purchase Order # <i>[Blank]</i>		Quota # <i>#480</i>		REMARKS	
ITEM	LAB ID (Lab Use Only)	DATE	TIME	SAMPLE IDENTIFICATION	Matrix	# of Containers	
1	<i>51309357</i>	<i>8-20-13</i>	<i>12:49</i>	<i>DC-2</i>	<i>Water</i>	<i>2</i>	<i>[Signature]</i>
2	<i>002</i>	<i>8-20-13</i>	<i>13:59</i>	<i>BC-3</i>	<i>Water</i>	<i>2</i>	<i>[Signature]</i>
3	<i>003</i>	<i>8-20-13</i>	<i>14:55</i>	<i>BC-1</i>	<i>LI</i>	<i>1</i>	<i>[Signature]</i>
4	<i>004</i>	<i>8-20-13</i>	<i>15:53</i>	<i>BC-2</i>	<i>LI</i>	<i>1</i>	<i>[Signature]</i>
5	<i>005</i>	<i>8-20-13</i>	<i>16:35</i>	<i>DC-1</i>	<i>LI</i>	<i>1</i>	<i>[Signature]</i>
6							
7							
8							
9							
10							
11							
12							
13							
14							

LAB COMMENTS: *6.6*

Relinquished By (Signature/Printed): *[Signature]* Received By (Signature/Printed): *Kathryn Bay*

DATE: *8-21-13* TIME: *12:00* DATE: *8-22-13* TIME: *11:53*

SHIPPING INFO	MATRIX CODES	TURN AROUND TIMES	COMPLIANCE INFORMATION	ADDITIONAL REMARKS
<input type="checkbox"/> UPS <input type="checkbox"/> Fed Express <input type="checkbox"/> US Mail <input type="checkbox"/> Hand Carried <input type="checkbox"/> Other	Water WT Soil SL Solid SD Filter FT Other OT	<input type="checkbox"/> Check desired service <input type="checkbox"/> Standard turnaround <input type="checkbox"/> RUSH - 5 Working Days <input type="checkbox"/> URGENT - < 2 Working Days <i>Rush & Urgent Surcharges will be applied</i>	Compliance Monitoring? Y / N Program (SDWA, NPDES, ...) PWSID / Permit # Chlorinated? Y / N Sample Disposal: Lab Client	



Date: 9/9/2013

CLIENT: Powertech Uranium USA Inc.
Project: Powertech Alluvial Wells
Lab Order: S1309051


CASE NARRATIVE
Report ID: S1309051001

Samples BC-1, BC-2, BC-3, DC-1, and DC-2 were received on September 4, 2013.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition
40 CFR Parts 136 and 141
40 CFR Part 50, Appendices B, J, L, and O
Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012
ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: 
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 9/9/2013
Report ID: S1309051001

ProjectName: Powertech Alluvial Wells
Lab ID: S1309051-001
ClientSample ID: DC-2
COC: 151912

WorkOrder: S1309051
CollectionDate: 9/2/2013 10:27:00 AM
DateReceived: 9/4/2013 10:10:00 AM
FieldSampler:
Matrix: Water

Comments

Table with 7 columns: Analyses, Result, Units, Qual, RL, Method, Date Analyzed/Init. Rows include Radionuclides - Total, Radon 222, and Radon-222 Precision (±).

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers: * Value exceeds Maximum Contaminant Level, C Calculated Value, H Holding times for preparation or analysis exceeded, L Analyzed by a contract laboratory, ND Not Detected at the Reporting Limit, S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank, E Value above quantitation range, J Analyte detected below quantitation limits, M Value exceeds Monthly Ave or MCL, O Outside the Range of Dilutions

Reviewed by: [Signature]
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 9/9/2013
Report ID: S1309051001

ProjectName: Powertech Alluvial Wells
Lab ID: S1309051-002
ClientSample ID: BC-3
COC: 151912

WorkOrder: S1309051
CollectionDate: 9/2/2013 12:16:00 PM
DateReceived: 9/4/2013 10:10:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radon 222	537	pCi/L		82	ASTM D5072-09	09/04/2013 2059	WN
Radon-222 Precision (±)	21	pCi/L			ASTM D5072-09	09/04/2013 2059	WN

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - C Calculated Value
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - ND Not Detected at the Reporting Limit
 - S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 9/9/2013
Report ID: S1309051001

ProjectName: Powertech Alluvial Wells
Lab ID: S1309051-003
ClientSample ID: BC-1
COC: 151912

WorkOrder: S1309051
CollectionDate: 9/2/2013 1:26:00 PM
DateReceived: 9/4/2013 10:10:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radon 222	747	pCi/L		82	ASTM D5072-09	09/04/2013 2210	WN
Radon-222 Precision (±)	26	pCi/L			ASTM D5072-09	09/04/2013 2210	WN

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - C Calculated Value
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - ND Not Detected at the Reporting Limit
 - S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 9/9/2013
Report ID: S1309051001

ProjectName: Powertech Alluvial Wells
Lab ID: S1309051-004
ClientSample ID: BC-2
COC: 151912

WorkOrder: S1309051
CollectionDate: 9/2/2013 2:38:00 PM
DateReceived: 9/4/2013 10:10:00 AM
FieldSampler:
Matrix: Water

Comments

Table with 7 columns: Analyses, Result, Units, Qual, RL, Method, Date Analyzed/Init. Rows include Radionuclides - Total, Radon 222, and Radon-222 Precision (±).

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers: * Value exceeds Maximum Contaminant Level, C Calculated Value, H Holding times for preparation or analysis exceeded, L Analyzed by a contract laboratory, ND Not Detected at the Reporting Limit, S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank, E Value above quantitation range, J Analyte detected below quantitation limits, M Value exceeds Monthly Ave or MCL, O Outside the Range of Dilutions

Reviewed by: [Signature]
Wade Nieuwsma, Assistant Laboratory Manager



Sample Analysis Report

Company: Powertech Uranium USA Inc.
P.O. Box 812
Edgemont, SD 57735

Date Reported: 9/9/2013
Report ID: S1309051001

ProjectName: Powertech Alluvial Wells
Lab ID: S1309051-005
ClientSample ID: DC-1
COC: 151912

WorkOrder: S1309051
CollectionDate: 9/3/2013 9:35:00 AM
DateReceived: 9/4/2013 10:10:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radon 222	384	pCi/L		82	ASTM D5072-09	09/05/2013 032	WN
Radon-222 Precision (±)	16	pCi/L			ASTM D5072-09	09/05/2013 032	WN

These results apply only to the samples tested.

RL - Reporting Limit

- Qualifiers:**
- * Value exceeds Maximum Contaminant Level
 - C Calculated Value
 - H Holding times for preparation or analysis exceeded
 - L Analyzed by a contract laboratory
 - ND Not Detected at the Reporting Limit
 - S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: Wade Nieuwsma
Wade Nieuwsma, Assistant Laboratory Manager



ANALYTICAL QC SUMMARY REPORT

CLIENT: Powertech Uranium USA Inc.
Work Order: S1309051
Project: Powertech Alluvial Wells

Date: 9/9/2013
Report ID: S1309051001

Radon 222 In Water ASTM D5072-09

Sample Type **MBLK** Units: pCi/L

Sample ID	RunNo: 99556	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
MBLK-7411	09/04/13 16:51	Radon-222	ND	82					

Sample Type **LCS** Units: pCi/L

Sample ID	RunNo: 99556	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
LCS-7441	09/04/13 16:51	Radon-222	18000	82	18500		97.2	70 - 130	

Sample Type **DUP** Units: pCi/L

Sample ID	RunNo: 99556	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1309051-001ADUP	09/04/13 20:24	Radon-222	660	82	649	1.63		20	

Sample ID	RunNo: 99556	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1309051-002ADUP	09/04/13 21:35	Radon-222	547	82	537	2.01		20	

Sample ID	RunNo: 99556	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1309051-003ADUP	09/04/13 22:46	Radon-222	765	82	747	2.33		20	

Sample ID	RunNo: 99556	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1309051-004ADUP	09/04/13 23:57	Radon-222	844	82	871	3.11		20	

Sample ID	RunNo: 99556	Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
S1309051-005ADUP	09/05/13 1:08	Radon-222	376	82	384	2.17		20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		



Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

Page *1* of *1*

All shaded fields must be completed. This is a legal document; any misrepresentation may be construed as fraud.

151912

Client Name <i>Powertech USA</i>		Project Identification <i>Powertech Alluvial Wells</i>		Sampler (Signature/Attestation of Authenticity)		
Report Address <i>Powertech USA</i>		Contact Name <i>Lisa Schmoest / Allie Scott</i>		Telephone #		
Invoice Address <i>Powertech</i>		Purchase Order #		ANALYSES / PARAMETERS		
ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	# of Containers	REMARKS
1	<i>1508905F001</i>	<i>9-2-13</i>	<i>10:27</i>	<i>DC-2</i>		
2	<i>002</i>	<i>9-2-13</i>	<i>12:16</i>	<i>BC-3</i>		
3	<i>003</i>	<i>9-2-13</i>	<i>13:26</i>	<i>BC-1</i>		
4	<i>004</i>	<i>9-2-13</i>	<i>14:38</i>	<i>BC-2</i>		
5	<i>005</i>	<i>9-3-13</i>	<i>9:35</i>	<i>DC-1</i>		
6						
7						
8						
9						
10						
11						
12						
13						
14						

LAB COMMENTS <i>15</i>	Relinquished By (Signature/Printed) <i>Allie Scott</i>	DATE <i>9-3-13</i>	TIME <i>12:00</i>	Received By (Signature/Printed) <i>Moby Samper</i>	DATE <i>9/4/13</i>	TIME <i>10:10</i>	
SHIPPING INFO		MATRIX CODES		TURNAROUND TIMES		COMPLIANCE INFORMATION	
<input type="checkbox"/> UPS	<input type="checkbox"/> Fed Express	<input type="checkbox"/> Water	<input type="checkbox"/> Soil	<input type="checkbox"/> Check desired service	<input type="checkbox"/> Standard turnaround	<input type="checkbox"/> Compliance Monitoring?	<input type="checkbox"/> Y / N
<input type="checkbox"/> US Mail	<input type="checkbox"/> Hand Carried	<input type="checkbox"/> Solid	<input type="checkbox"/> Filter	<input type="checkbox"/> RUSH - 5 Working Days	<input type="checkbox"/> URGENT - < 2 Working Days	Program (SDWA, NPDES,...)	
<input type="checkbox"/> Other		<input type="checkbox"/> Other		Rush & Urgent Surcharges will be applied		PWSID / Permit #	
						Chlorinated?	<input type="checkbox"/> Y / N
						Sample Disposal: Lab	Client
						Additional Remarks	